

CANADIAN
PACIFIC

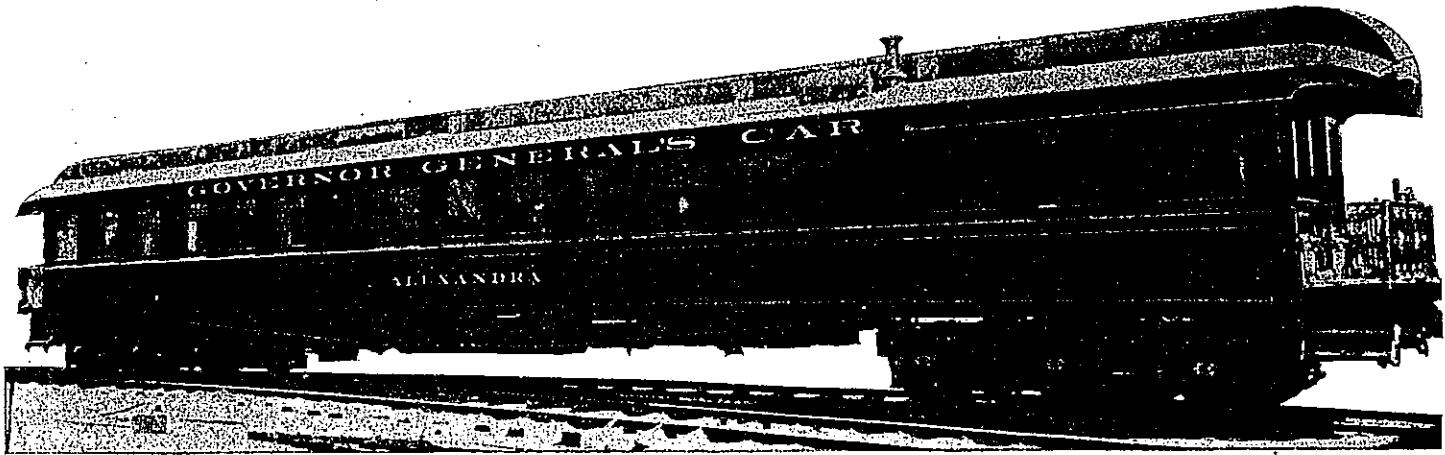
PASSENGER
CARS

A New Car for the Canadian Government.

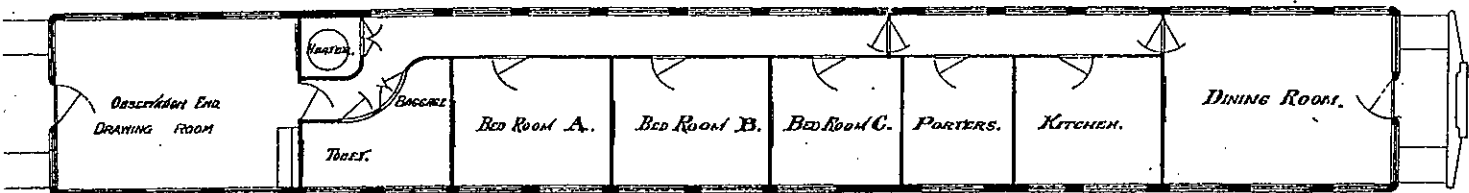
Oct 705
The accompanying illustration shows the car "Alexandra" which was recently delivered by Messrs. Rhodes, Curry & Co., Ltd., of Montreal, N. S., to the Canadian Government. The car is for the use of the Governor General, and it is stated that the construction and equipping of it by the makers was more a matter of pride and patriotism than a money consideration. The design and speci-

fications, the Baker double coil heating system with commingler; the O. M. Edwards sash balance and trap door fixtures; the Dayton Mfg. Company's platforms, rails and gates, and Minger tandem draft rigging.

The car is finished throughout with St. Jago mahogany. The corner post sheathing, window sills and sign boards being solid and finished in natural wood; the interior in mahogany veneers in marquetry with tulip and white holly. The head linings are of veneered whitewood, enameled and highly polished. The bedrooms, A, B and C, are fitted with all the modern appliances, including electric fans, curling irons, etc. All of the interior metal



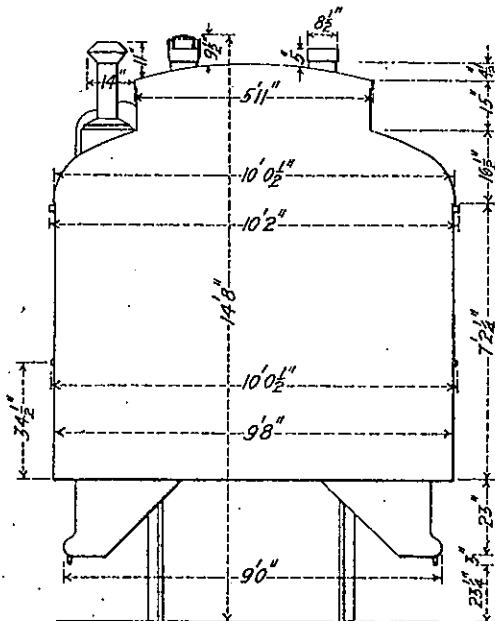
The Canadian Government's New Car Alexandra.



General Plan of New Car for the Canadian Government.

fittings are of heavy silver plate. The trucks are of the usual six-wheel type fitted with 36 in. wheels and with 4 1/4 in. x 8 in. journals. The total weight of the car is about 123,000 lbs.

Railroad Oct 6

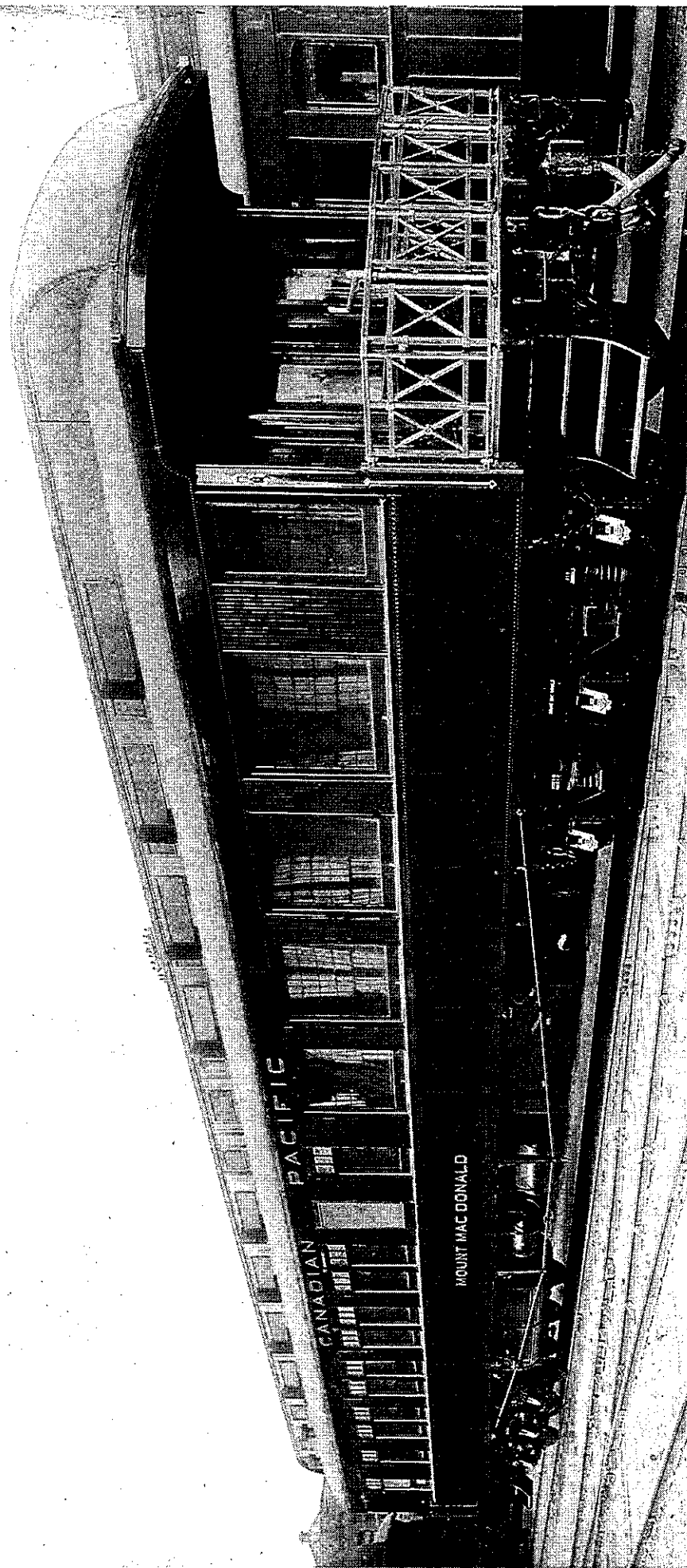


Clearance Outline of New Car for the Canadian Government.

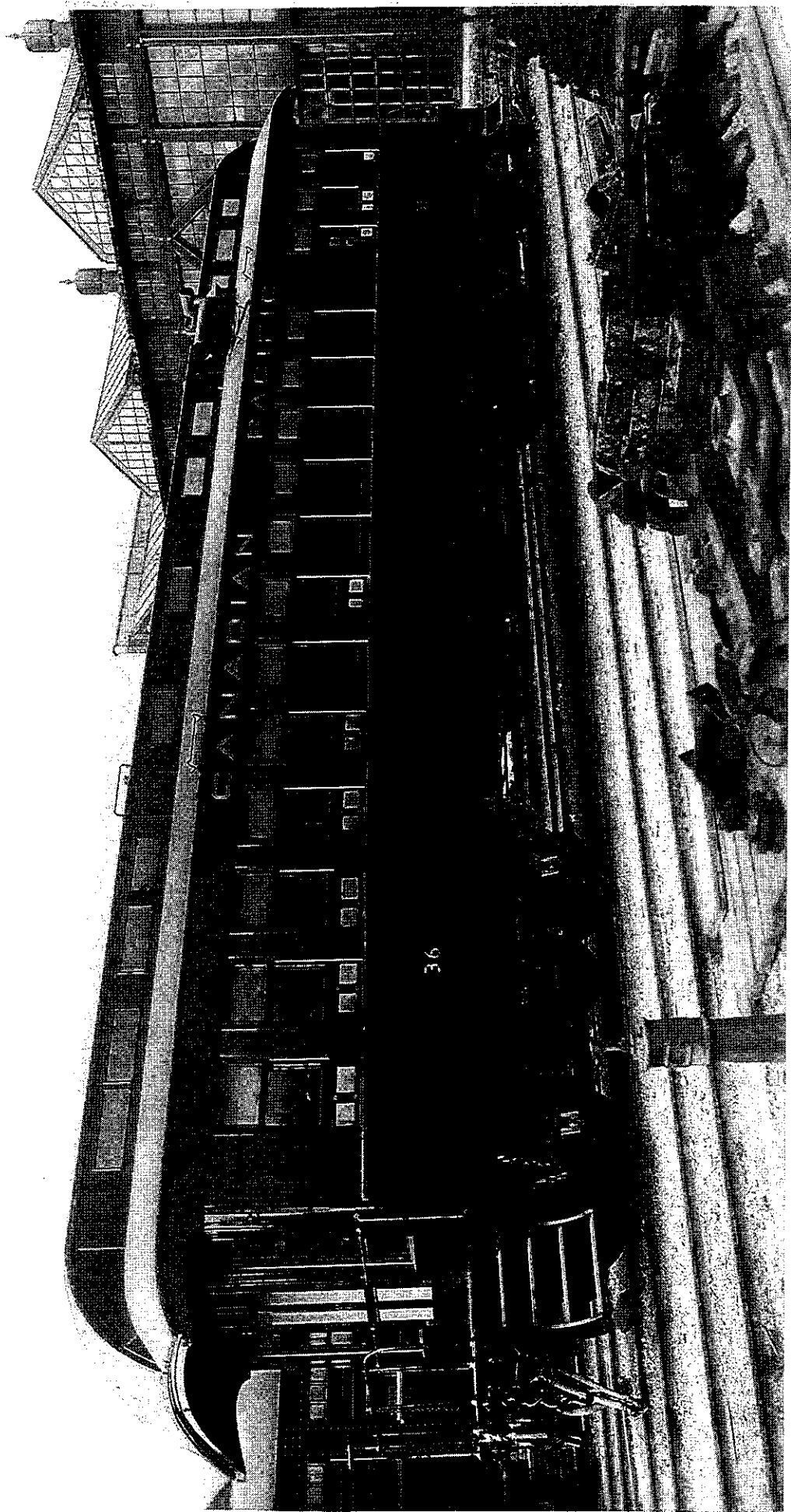
Dimensions were furnished by S. King, formerly Master Car Builder of the Government railroads. The cross section shows that evidently the tunnel clearances in the United States and Mexico were considered in designing the general outline. The principal dimensions are as follows:

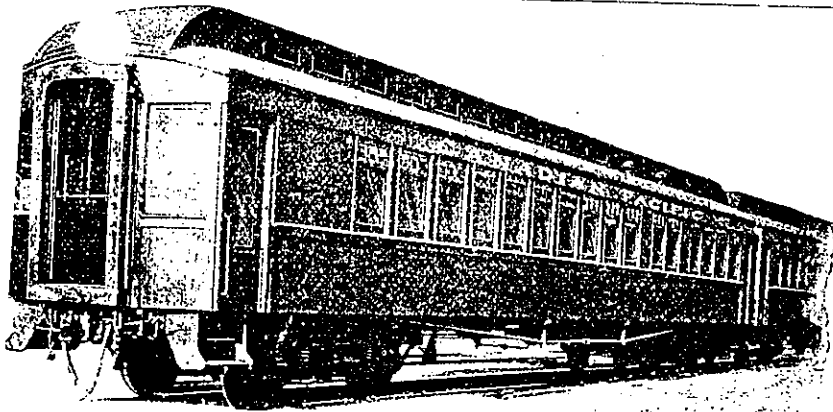
Length over platform	70 ft. 4 1/2 in.
Length over end sills	72 " 0 "
Width over side sills	9 " 10 "
End sill to center of bolster	8 " 0 "
Bolster centers	5 " 0 "
Needle beam centers	10 " 6 "
Transom centers	30 " 8 "
Wheel base	10 " 6 "
Total wheel base	66 " 6 "

The special equipment includes: The Standard Steel Com-



595. MOUNT CLASS OBS. SLEEPING CAR. AS BUILT.





es off by the North Fork to Eloli & thence to Greenwood City & down try Creek to Midway, where it again the Kettle River."

said that it has been decided to extend this year beyond Midway 15 miles, to Creek, where some rich mines will be & that this work will also be done by Foley Bros. & Larsen.

th. South Shore & Atlantic.—It is said are being made for an extension of between Baraga, Mich., & Rockland, N. M. & St. P. Ry.



INTERIOR C.P.R. TOURIST SLEEPER.

apolis, St. Paul & Sault Ste. Marie— surveys are being made with a view ension to Fargo, N.D.

commodation there. We are officially in formed the report had no foundation.

Collingwood Dock.—The renewal of the sections of this dock destroyed by fire last fall is now in progress. The track piles have been driven, & work has been started on the freight shed, which will be 250x80 ft.—82 ft. longer than the one destroyed—with necessary offices, waiting & baggage rooms. The new dock will be 2 ft. lower than the old one, which will be found much more convenient for loading & unloading vessels.

Maitland River Bridge.—The Railroad Gazette, New York, recently stated that the G.T.R. was taking tenders for erecting a superstructure of a steel bridge over a branch of the Maitland River, about 4 miles from Clinton, Ont., of seven spans, 23 ft. from bed of stream to floor, & 6 ft. roadway. The Chief Engineer, the Superintendent of the Middle Division, & the Master of Bridges & Buildings of the Middle Division, all inform us they have heard nothing of the matter, so it is evident the Railroad Gazette has been misinformed.

Sarnia & Port Huron Roundhouses.—One of the roundhouses at the latter place is being pushed ahead with all possible vigor, & the indications are that the Sarnia structure will be completed in advance of the one building at the Port Huron tunnel station. At Sarnia 2,500 piles were driven in 100 days.

Canadian Pacific Tourist Cars.

The C. P. R. Passenger Department has issued an illustrated pamphlet "Travelling



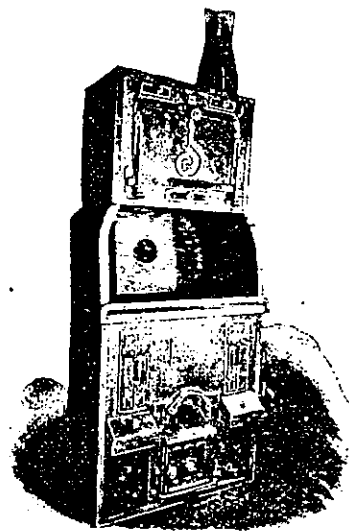
SECTION C.P.R. TOURIST SLEEPER

Comfort," describing the Co.'s new tourist sleeping cars, 20 of which have recently been put in service. It states they are strongly constructed of the best material, & claims they are higher, wider & heavier than those in general use, & that the substantial structure reduces swinging to a medium. The special features of the new cars are wide



TOURIST SLEEPER TOILET ROOM.

vestibules (full width of car) latest car range, double standard lamps & the general arrangement of the interior. The wheels are of steel, 40 ins. diameter, with steel axles. Each tourist sleeper contains 14 sections, each section having double lower & upper berths. At night the sections are divided by wooden partitions, & enclosed by curtains as in the palace sleepers. Each tourist sleeper has 2 toilet rooms, with car range in kitchen in a compartment in the centre. The sleepers are equipped with mattresses, comforters, pillows & linen. The seat frames are of wood, & the cushions & backs of the seats are upholstered in corduroy. Each berth is provided with hooks. The



TOURIST SLEEPER RANGE.

aisle is carpeted. In addition to steam heat from the engine, each car is equipped with a heater for emergency use. Detachable side leaf tables are provided for meals, &c. Each car is accompanied by a uniformed porter. Some of the illustrations from the pamphlet are reproduced on this page. The pamphlet, which is terse & forcible, was written by J.G. Brignall, of Assistant General Passenger Agent McPherson's Office, Toronto, & was printed most effectively by the Mail Job Printing Co., Toronto.

New Standard Dining Cars, Canadian Pacific Railway.

A departure in dining car design has been made in the latest ones for this service built by the C. P. R. It has been realized for some time that the principal weak point in dining car service lay in the kitchen, where the cooks, through lack of space, were unable to fill orders as promptly as passengers frequently considered necessary. Before the order could be prepared, in the event of the dining car being well filled, the accumulation of orders unavoidably caused a delay in the preparation of the late order. From the company's standpoint, this involved a direct loss, as on the heavy runs the number of passengers desiring to avail themselves of dining car accommodation is enough to fill a car at several sittings. As nearly all desire their meals within a short period of time, the problem resolved itself, from the company's viewpoint, in either providing additional dining cars to handle the extra passengers quickly, or else so arranging the facilities that one car would meet all requirements in the limited meal period. As the kitchen had proved itself the weak point, it was to it that attention was concentrated in an endeavor to increase the car capacity.

A step in the right direction was made in dining cars some time ago, and has been quite generally adopted, viz., the utilization of one of the vestibule ends for interior purposes, leaving only one end with a vestibule, the body at the other end extending out to the buffer. In the C. P. R.'s latest design, a further step has been made in the elimination of the vestibule at the other end also, as it was realized that the dining car, being always used in conjunction with other cars, required no side vestibule entrance for passengers, and that for the employees, the side provision door would meet all requirements.

In the new cars, the dining room section, and the lockers at the end of the car are left as in the former standard design, the additional space available at the other end of the car by the elimination of the second vestibule, being added to the kitchen, leaving room for an additional range, with ac-

kitchen proper is now 14½ ft. long, sink section, 6 ft. 5 ins., and pantry 6½ ft.

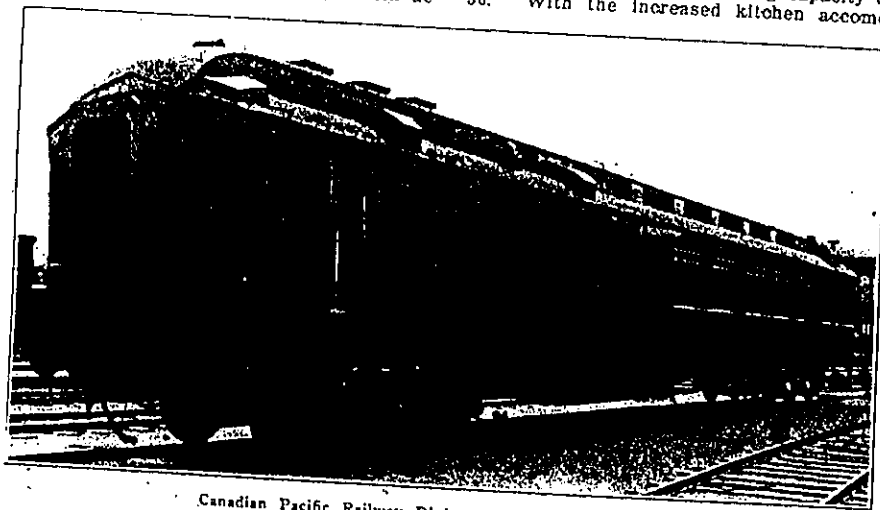
From the diaphragm end of the kitchen, there is a low door into the passage for an emergency exit for the dining car employees. In place of the usual provision door in the blind vestibule of the usual dining car there is a side door near the diaphragm end



Enlarged Kitchen of Canadian Pacific Railway Dining Cars.

of the kitchen, as shown in the view of the car exterior, which is very similar, only narrower, to that of a baggage car. It is entered by a metal ladder.

The main part of the car is the same as in former designs, containing 6 tables for 4 and 6 for 2, giving a seating capacity of 36. With the increased kitchen accommo-



Canadian Pacific Railway Dining Car Without Vestibules.

modation for increased kitchen employees. The increased kitchen accommodation is shown in one of the accompanying illustrations, looking from the car end towards the dining section. The length of the range in the foreground has been increased by the length of the standard vestibule, the car length over buffers being as before. The

bation, the meal serving capacity has been considerably increased, as the operation of the cars has already proved.

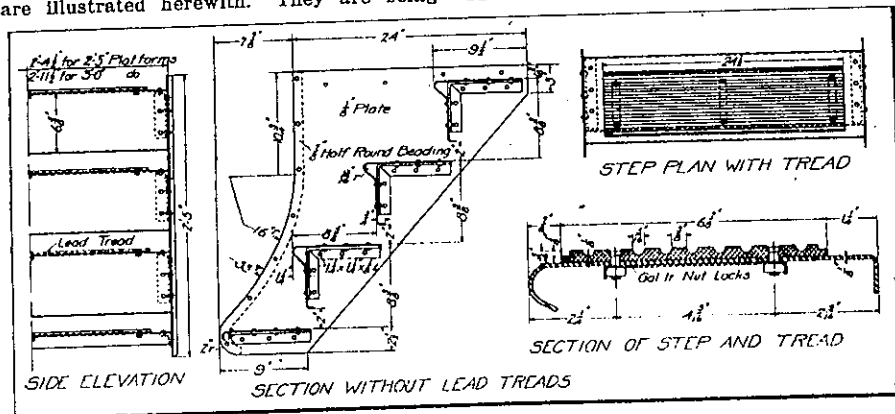
Calendars for 1914 have been received from American Steel Foundries, Chicago, and Taylor and Arnold, Ltd., railway supplies, Montreal.

Passenger Car Steps, Canadian Pacific and Grand Trunk Railways.

Both the C. P. R. and G. T. R. have designed for their new equipment, new passenger car steps, that embody some features of special interest, particularly as showing the advent of steel for all classes of work, to replace wooden construction, and also, in one case, an attempt to make a step that is more convenient for passengers entering and leaving the car.

C. P. R. Steps.—The new all steel steps of the C. P. R. were developed recently, and are illustrated herewith. They are being

the upper one of which is secured to the under side of the step above. The steps are of 1½ in. wood, 9 5-16 ins. deep, carried on 1½ by 1½ by 3-16 in. angle clips 7 ins. long, rivetted by ¼ in. rivets to the end pieces, and on the top flange of the risers. To the angles, the steps are secured by ¼ in. carriage bolts, and to the risers by no. 10 screws. The front edge of the step is protected by a half section of 1 in. pipe, secured to the wood by no. 10 screws. The tread surface of the step is a piece of 5-16 in.



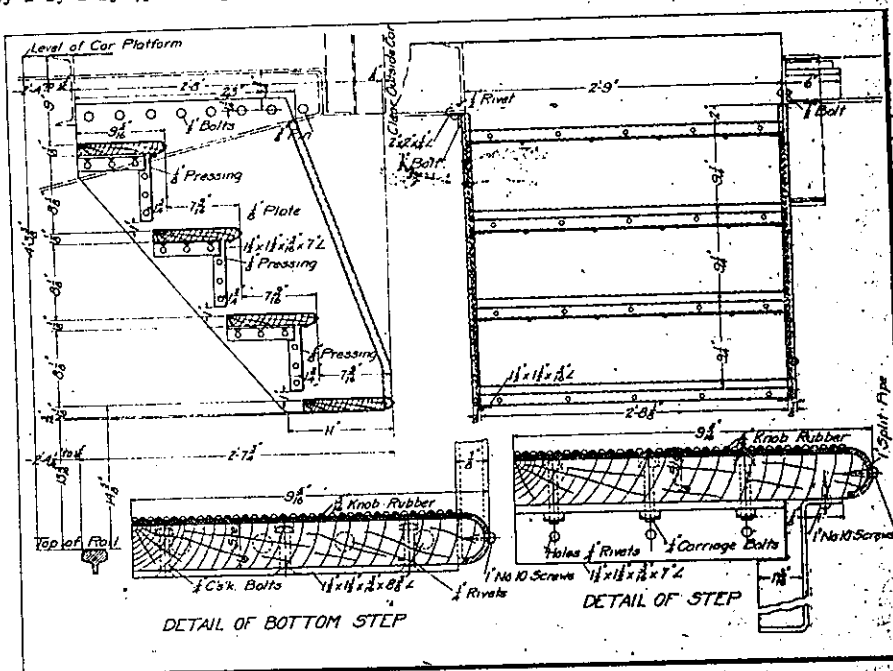
Standard Four Tread Car Steps, Canadian Pacific Railway.

used on both the new steel and wooden passenger equipment. Two side plates of ½ in. sheet steel are protected along the outer edge by a band of ¾ in. half round beading from top to bottom. The step and riser is made in one piece of ¼ in. plate, flanged at both edges, and rounded with a 9-16 in. radius on the front edge of the step. This formed step is secured to the side members by a bent 1½ by 1½ by ¼ in. angle at each end. These angles are spot welded to both step, riser and end pieces, in place of the former practice of rivetting. The steps are 2½ ft. wide, 7¾ ins. deep in the clear, and with a rise of 8¾ ins. The treads are lead plates, 24½ by 6¾ ins., and 5-16 in. thick, grooved on the surface, and secured to the step by 6 countersunk ¼ in. bolts, the nuts of which are locked under the step by 2 bolt nut locks.

G. T. R. Steps.—The new steel frame step in use on the G. T. R., which is illustrated herewith, has been made standard on the system. The special point about it, apart from its all steel frame construction, is the fact that the usual 3 treads have been replaced by a 4 tread arrangement, making unnecessary the use of the stepping boxes on entering and leaving the car. The standard step formerly in use on the G. T. R. was the same as that in use on standard sleeping cars, which also use the stepping box; but the latter has been found to be dangerous, owing to its small size and the distance from the lower step to it, the passengers sometimes stepping on the box edge, causing it to turn over, frequently resulting in injury. With this four tread arrangement, it is now possible to step from the platform to the lower tread without difficulty, as it is only 14½ ins. from the rail level to the lower step.

The construction is simple. The sides consist of two ½ in. plates, the outer edges of which are protected with a slit pipe, ¾ in. diam., fitting over the plate edge. The risers of the steps are of similar stock to the end pieces, ½ in. pressed sheet steel, with end flanges for rivetting to the end pieces, and with top and bottom flanges,

knob rubber. Each step is 2 ft. 8¾ ins. wide, with a tread depth in the clear of 7 9-16 ins., with a rise at each step of 9¾ ins. The steps are secured to the car body by 2 by 2 by ¼ in. angles and ½ in. bolts.



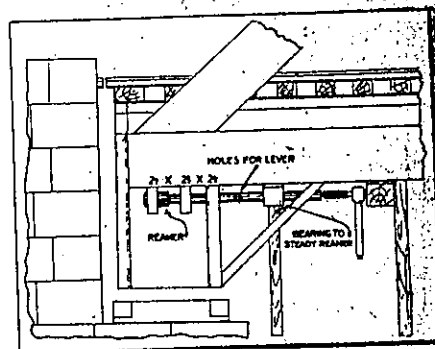
Standard Four Tread Passenger Car Steps, Grand Trunk Railway.

The American Society of Mechanical Engineers' annual meeting will be held at New York, Dec. 8 to 10. The railway meeting will take place on Dec. 8, when papers will be presented dealing with the operation of parallel and radial axes of a locomotive by a set of single cylinders, and with four-wheel trucks for passenger cars, and possibly one on six-wheel trucks for passenger cars.

Bridge Repairs on Canadian Pacific Railway.

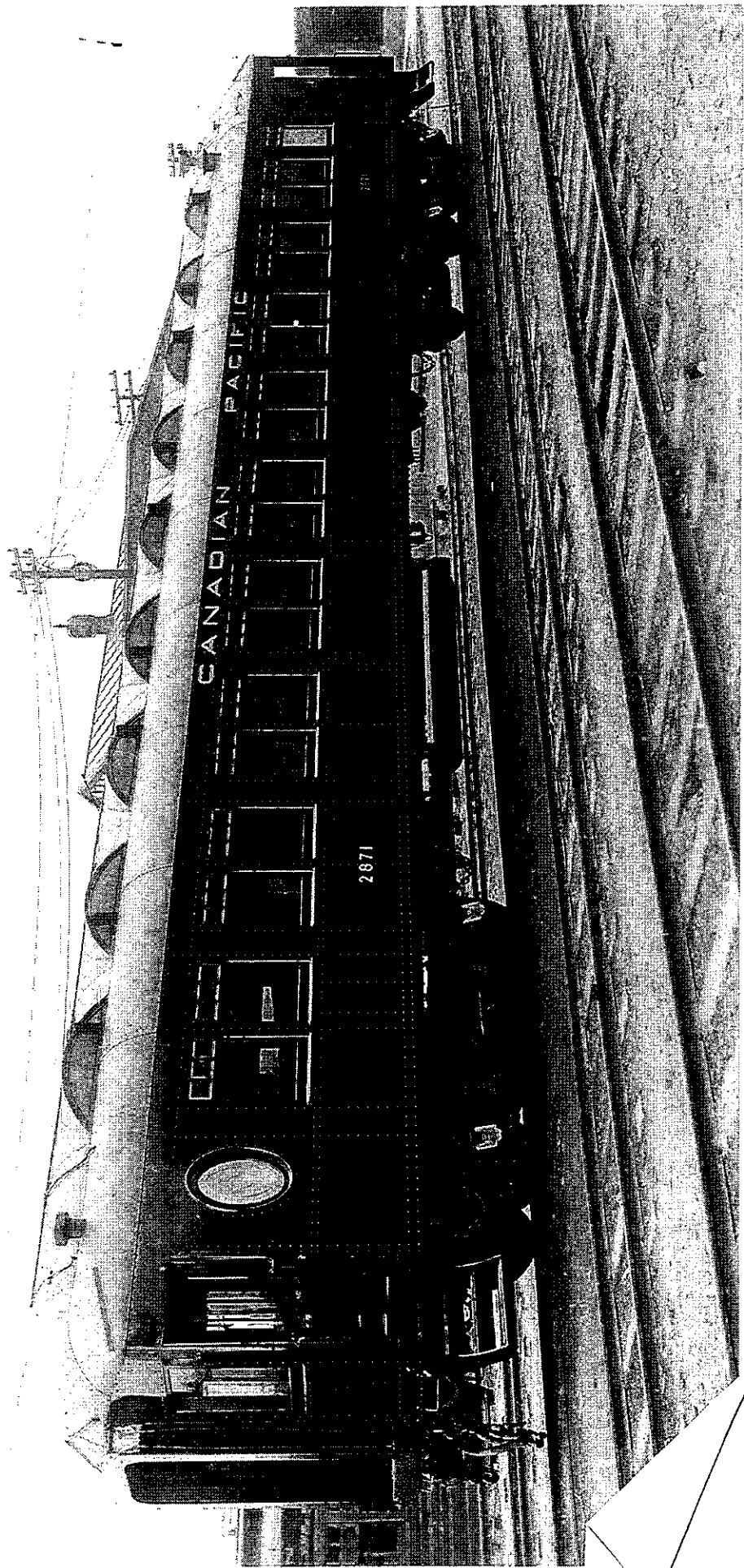
In draw bridges which are in service since 1887 the end jacks and the jack pins are practically worn out and the pin seats are worn oval about ¼ in. The new pins were made ¼ in. larger in diameter and a suitable reamer was secured to ream out the pin holes, to take the new pins.

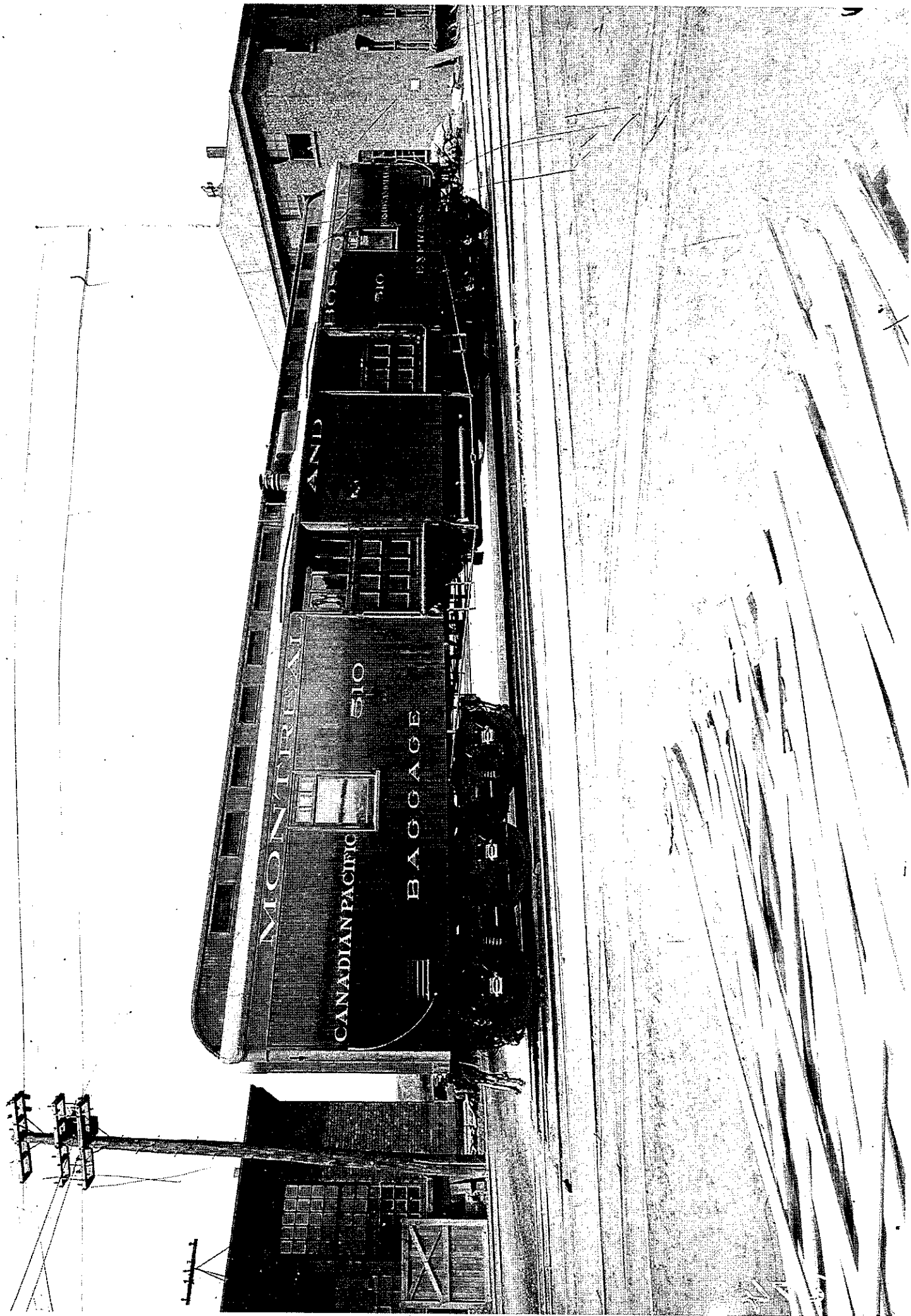
The accompanying illustration shows the arrangement whereby the reaming was done. The reamer was fitted on a mandrel

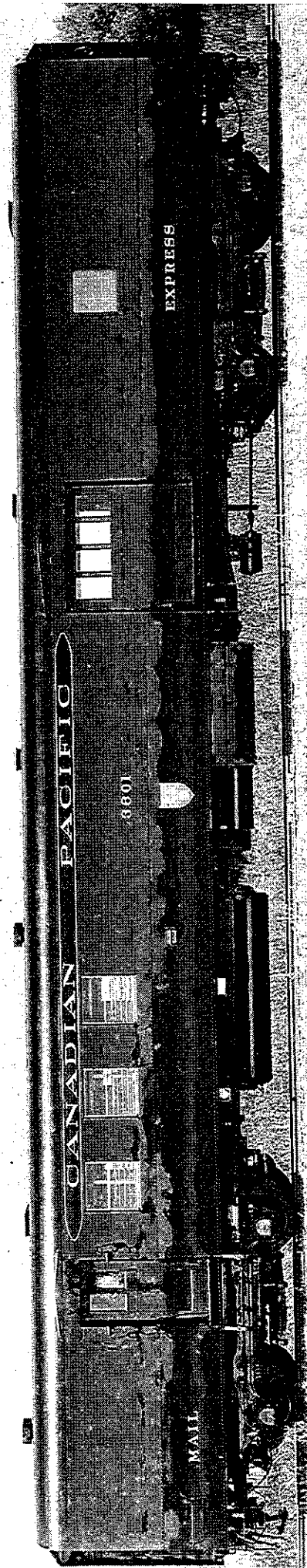


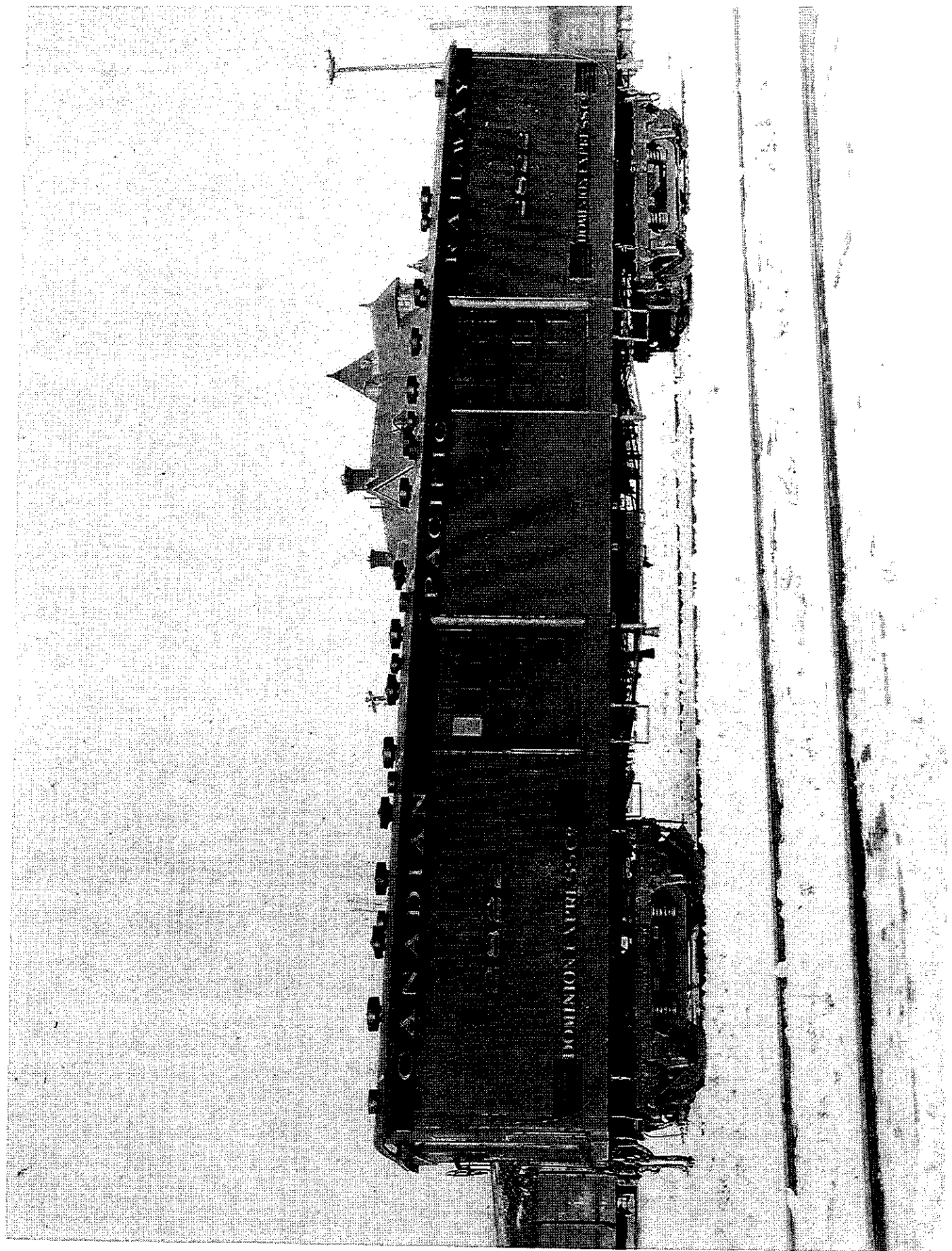
of suitable length and suitable cast iron bearings were provided to steady the mandrel, and three equidistant radial holes were drilled to turn the mandrel with a bar, and a ratchet was inserted on the other end to feed the reamer. The holes to be reamed were 3 x 2½ ins., and 4 holes in all, which were done by 3 men in 3 days' time. Two men were working on the reamer and the third man was watching

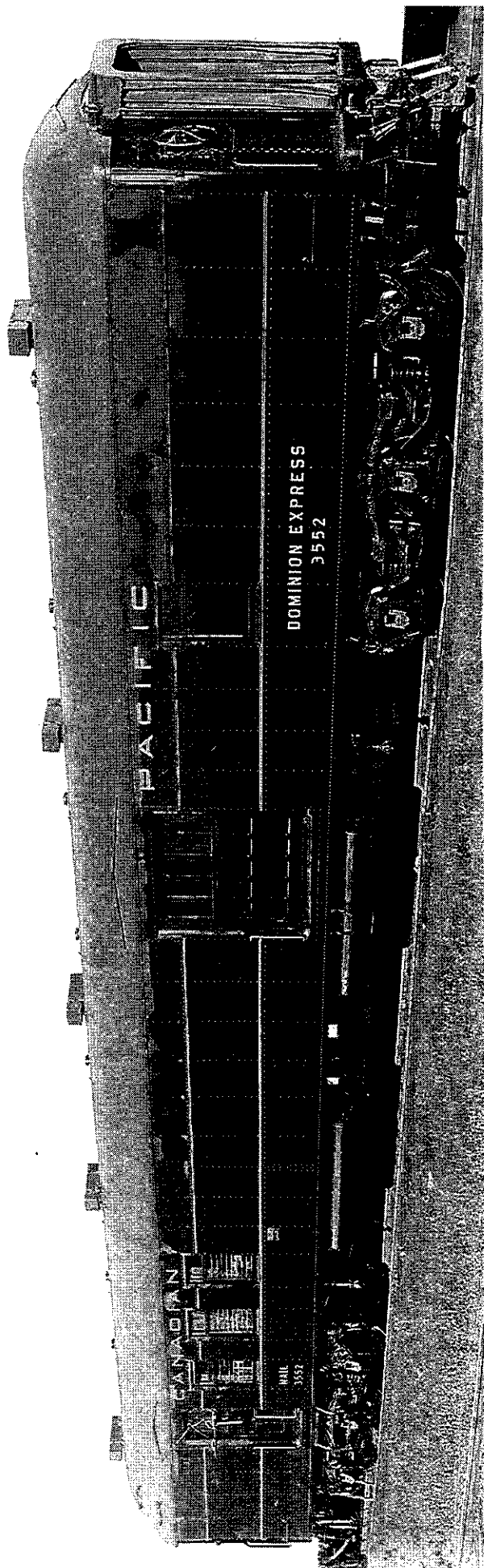
for trains, and when they were in sight he signaled and the reamers were taken out of the cut, because there was severe rattling when the train was going over the bridge which might have broken the reamer. The average number of trains was one an hour. J. G. Koppell, Electrical Superintendent of Bridges, Canadian Pacific Ry., Sault Ste. Marie, Ont., in Railway and Locomotive Engineering.











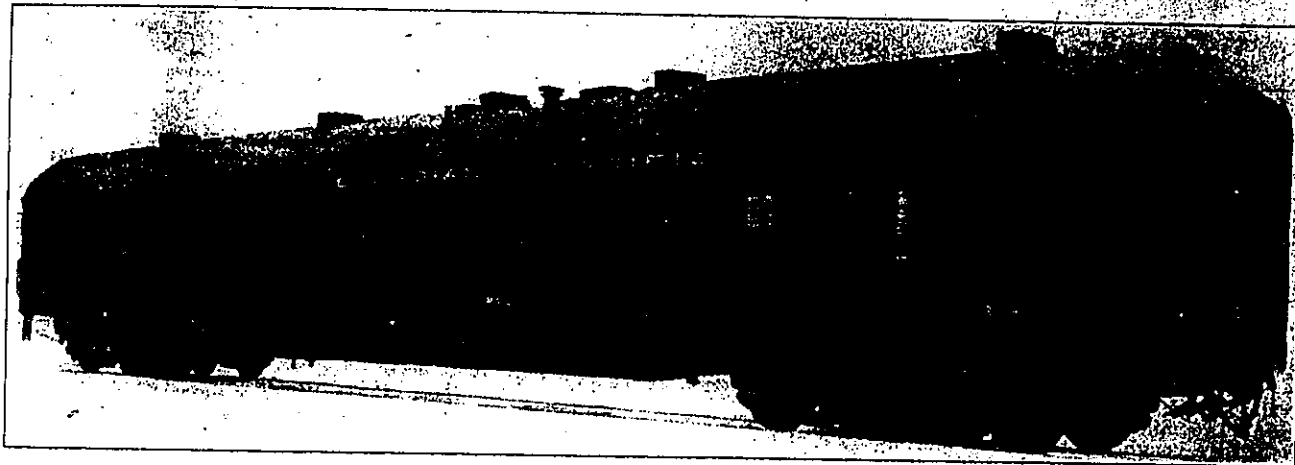
1735 MONTREAL WORKS C.C. & F.CO.LTD. SEPT.1923-LOT 558-MAIL & BAGGAGE-CAN. PACIFIC RLY.

Combination Mail and Baggage Cars, Canadian Pacific Railway.

The Canadian Pacific Ry. has had built recently 15 combination mail and baggage cars, an illustration of one of which is given herewith. They have the following dimensions:—

Length over end posts	79 ft. 1 in.
Length over buffers	82 ft. 10 1/2 in.
Distance between truck centers	57 ft. 6 in.
Length inside mail compartment	60 ft. 0 1/4 in.
Length inside baggage compartment	18 ft. 1 1/4 in.
Clear width inside	9 ft. 0 3/4 in.
Height, top of rail to top of floor	4 ft. 5 3/16 in.
Height, top of rail to top of roof	14 ft. 1 3/4 in.
Weight, empty, with full equipment	160,600 lb.

The underframing includes built-up fish belly center sills, 5/16 in. web plates, 9/16 in. cover plates, and top and bottom reinforcing angles. Truck details include Commonwealth cast steel truck frame, truck center bolster and truck cross bolster, A.R.A. axles with 5 1/2 x 10 in. journals, and steel tired wheels 36 1/4 in. diam. with cast steel centers. The cars are equipped with Westinghouse air brake equipment, schedule L.N. 1812,



Combination Mail and Baggage Car, Canadian Pacific Railway.

3700

and Westinghouse schedule K signal equipment. Clasp brakes are applied, with Simplex forged brake beams and American Diamond S brake shoes. Hand brakes also are included in the equipment. McCord journal boxes with steel inserts are applied. Spring gear includes 40 in. 6-leaf semi-elliptic springs, and triple coil equalizer springs 1 11/16 in., 1 1/2 in. and 1 1/16 in., and Fowler upper buffer spring. The cars are each equipped with the Coleman patent truck locking device, the Holco improved type centering device, and Stucki side bearings.

The car bodies are of all steel exterior finish, and of all steel interior finish with the exception of the letter cases. Roofs are of the turtle back type, all steel, with exhaust honeycomb type ventilators. Insulation is of 3-ply Salamander. The cars are equipped with Acme type no. 2 diaphragms, Miner friction draft gear, class A-5-P, and Miner friction class B-10 buffers. The couplers, which are of the passenger type, are each equipped with the American Railway Association's standard type D head.

The sorting table and pouch racks are of the most modern type. Each car is equipped with a bunk, fire extinguishers, galvanized steel cooler and all the necessary accessories. The Vapor Car Heating Co.'s heating system is used. The cars were built by the Canadian Car & Foundry Co., Montreal.

The cafe parlor cars have been numbered 6,550 to 6,555, and the buffet parlor cars 6,550 to 6,555.

The mail and express cars have the following dimensions:

Length over end sills	79 ft. 1 in.
Length over buffers	82 ft. 4 1/2 in.
Distance between truck centers	37 ft. 4 in.
Length, inside mail compartment	30 ft. 4 in.
Length, inside baggage compartment	47 ft. 10 in.
Width over side sills	9 ft. 10 in.
Width over all at eaves	10 ft. 1 in.
Width, inside	9 ft. 1 in.
Height, track to roof at center	14 ft. 2 1/2 in.
Height over lamp jacks	14 ft. 6 in.
Height, rail to eave moulding	11 ft. 1 1/2 in.
Height, track to sill at end	3 ft. 7 1/2 in.
Height, track to sill at center	3 ft. 7 1/2 in.
Height, inside	9 ft. 6 in.

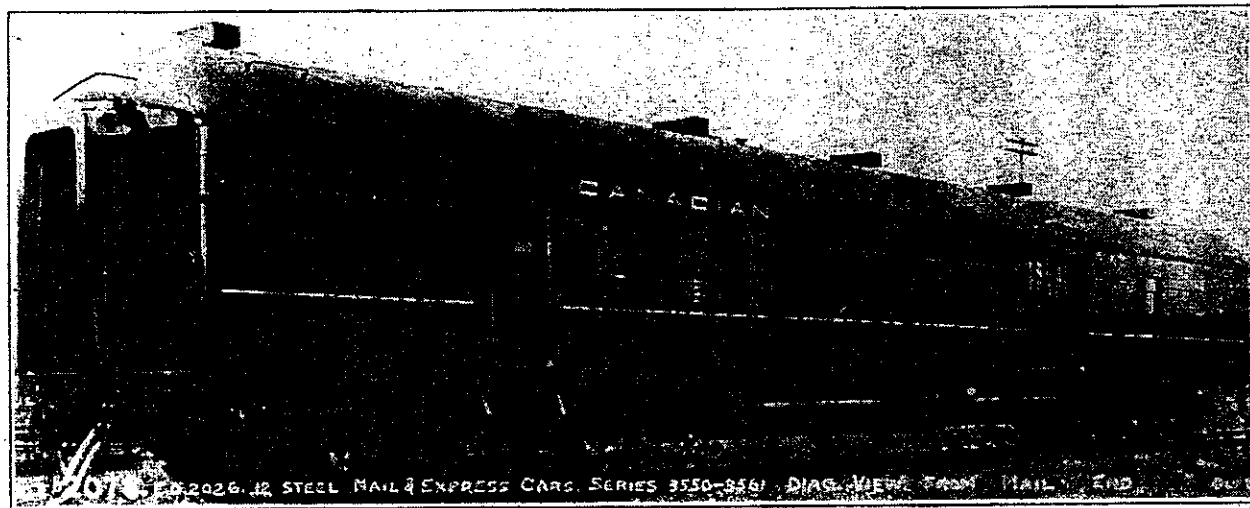
The interior arrangement of these cars is shown in the accompanying floor plan. Like the passenger cars, they have Commonwealth 6 wheel trucks, but the journals are larger than on the other cars, being 5 1/2 x 10 in. The air brake schedule is Westinghouse, L.N. 1,812, and draft gear, couplers, hand brakes, side bearings, truck locking device, etc., are the same as on the other cars, but they have straight Vapor heating system and are illuminated by Pintsch gas. They have been numbered 3,550 to 3,561.

ticable, and completed not later than Jan. 1, 1926. As stated in our August issue, pg. 409, the Board issued order 35,308 on July 10, directing the Canadian Pacific to do the work on the Bloor St. subway under the Galt, Toronto, Grey and Bruce, and Brampton Subdivision double track lines, with the exception of providing and placing the girders for the Canadian National tracks, this to be done by the Canadian National. The latter road is doing the work at the Bloor St. intersection of its Newmarket Subdivision line.

The Canadian Pacific started work on Aug. 1 on the subway under the double track lines, driving piles for the foundations, and shortly after advertised for tenders for the substructure, including excavation, grading and concrete for abutments, walls, etc., to be in by Aug. 18. The subway will give a 66 ft. width of street and 14 ft. clearance above the roadway, and the street will be ramped down on a 5% grade from both directions, the approach from the west being about 290 ft. long and from the east about 335 ft. There will be an 8 1/2 ft. sidewalk at each side of the street, and

soon as a decision is reached. In the immediate future will do a great deal on the speed made by the time utility companies, as the Bell Telephone Co., Consumers' Gas Co., Hydro Electric Power Commission of Ontario, given in getting their facilities arranged to suit the new conditions. This sub like the one further west on Bloorment described above, will give a 66 ft. width, and 14 ft. clearance, and will built supporting columns along the outside of the sidewalks and between the roadway. In both structures, the sidewalk level will be considerably above the road level. R. A. Baldwin, Engineer of Construction, Central Region, Canadian National, is in charge of the work on the Newmarket Subdivision-Bloor St. subway.

The Board of Railway Commissioners' order directing the construction of these subways specified that they should give a street width of 66 ft., with 14 ft. overhead clearance, but added that the city could have them built so as to afford a greater width, if it was willing to assume all the additional cost. During the past month, there has been considerable agitation among the rate-payers in the sec-



Mail and Express Car, Canadian Pacific Railway.

Northwest Toronto Grade Separation Progress.

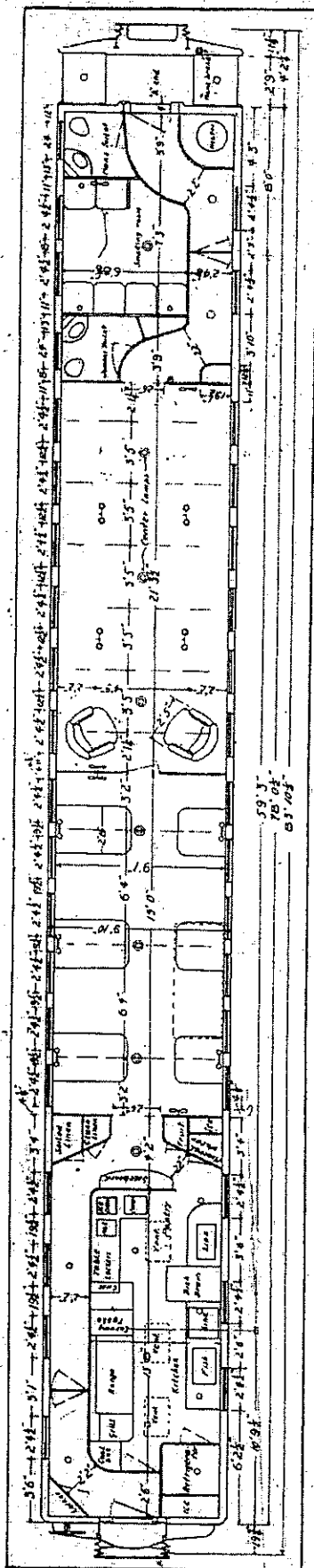
Canadian Railway and Marine World for June gave on pg. 275 the Board of Railway Commissioners' order 35,037, of May 9, prescribing the subways to be built at various railway and street crossings in the northwest part of Toronto, and also gave a map, showing the exact location of the subways in relation to streets and railway lines. In our July issue, pg. 354, the Board's order 35,153 of June 5, was given, which ordered the Canadian Pacific and Canadian National to construct, jointly, a subway under the Canadian Pacific's Galt and Toronto, Grey and Bruce Subdivision lines and the Canadian National's Brampton Subdivision line, on Bloor St. and Royce Ave., and the Canadian National was ordered to construct a subway under its single track Newmarket Subdivision line on Bloor St., the work on the Bloor St. subways to be commenced not later than Aug. 1 this year, and completed not later than July 1, 1925, and the work on the Royce Ave. subway to be commenced as early in the spring of 1925 as prac-

two 24 1/2 ft. roadways, with supporting columns along the outside of the sidewalks and at the center of the structure, between the roadways. With the present trackage scheme, 6 tracks will be carried over the subway, but eventually it will carry 10 tracks. Tenders for the steel superstructure will not be invited for some time. The work is being carried on under the supervision of Lt. Col. Blair Ripley, O.B.E., D.S.O., District Engineer, Ontario District, Canadian Pacific Ry., with C. F. Draper, Engineer of Grade Separation, in direct charge.

At the crossing of Bloor St. by the Canadian National Newmarket Subdivision line, railway forces began preparatory work on Aug. 1, and considerable progress has been made with pile driving. At the time of writing (Aug. 20) a decision has not been reached as to what parts of the work will be contracted and what done by the railway's construction forces, but it is probable that the excavation will be contracted, the concrete work done by the railway construction department, and the structural steel work contracted. Tenders for the work to be done by contract will be invited as

tion of the city concerned to have them 86 ft. wide instead of 66 ft., and this came to a head on Aug. 14, when a large deputation appeared at a city council special meeting to present reasons as to why this change should be made. While several aldermen seemed desirous of discussing the matter, it was finally decided that the matter should not be discussed, but that the Board of Control should deal with it. The Mayor was previously reported as saying that 66 ft. is wide enough for all practical purposes, and that the city's finances are such that every possible economy should be effected. The railways have been proceeding on the basis of the 66 ft. width, in the absence of any declaration from city officials that a greater width is desired, and it does not appear likely that increased street widths will be provided for.

The Board of Railway Commissioners passed order 35,398, Aug. 1, authorizing the Canadian Pacific Ry. to build a temporary highway crossing at grade across its Galt Subdivision, Toronto, Grey and Bruce Ry., and Canadian National Ry., Brampton Subdivision, between Wallace and Glenlake Avenues.



Floor Plan, Cafe Parlor Car, Canadian Pacific Railway.

dows are fitted with Pantasote blinds, diamond faced, and there are 21 Utility ventilators. The water system is of gravity type, there being overhead tanks at each end of the car. The lighting system is Stone Franklin 30 volt, and the heating system Vapor and hot water.

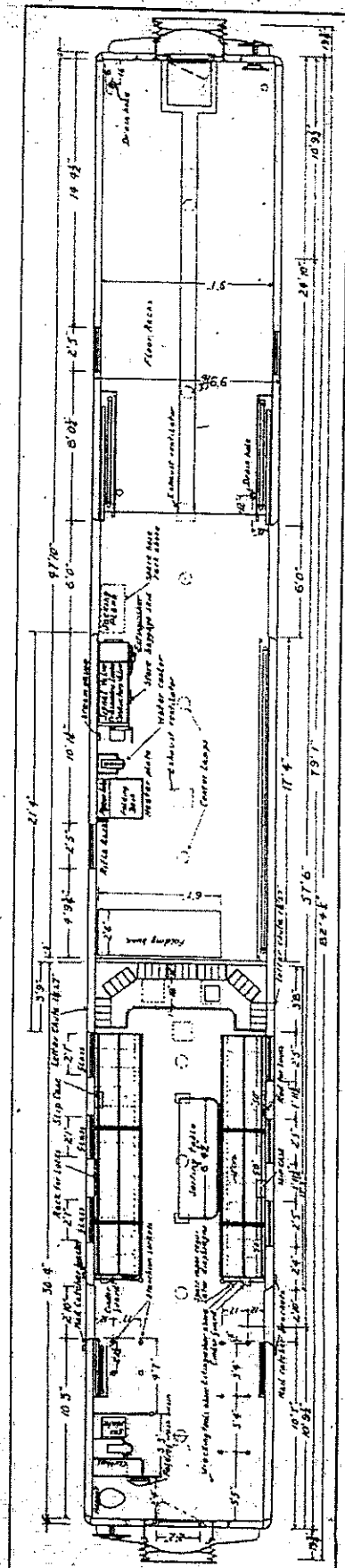
The trucks are of the Commonwealth 6 wheel type, with 11 ft. wheelbase, and are fitted with 36 $\frac{1}{2}$ in. diam. wheels, with cast steel centers and Latrobe steel tires, the journals being 5 x 9 in. Clasp brakes are applied, the brake beams being Simplex clasp type, and the shoes C.P.R. passenger type reinforced with steel inserts. The air brake installation is Westinghouse schedule L.N. 1812, and the air signal schedule K. The draft gear is Miner friction A-5-P type, and the couplers have 6 x 8 in. shank, with A.R.A. type D head, bottom operating. Other equipment includes National centering device, American Brake Co's form K1 slack adjuster, Miner B-10 buffers, Stucki no. 5,001 side bearings, Coleman truck locking device, McCord journal boxes, National Brake Co's no. 272 hand brakes, 5 to 1 ratio, with Miner operating gear, and Holco diaphragms. In addition, the cars are equipped with lavatories fitted with wash basins, mirrors and flushing hoppers; water coolers, cup vendors, and receptacles for used cups; tool box; Pyrene fire extinguishers, etc. The interior, with the Agasote ceiling, Pantasote blinds and mahogany woodwork, and all trimming conforming to the C.P.R. standard of design and finish, is expressive of maximum comfort. The exterior is finished in the company's standard Tuscan red. The 15 cars completed in 1923 have been numbered 1,425 to 1,439.

The cafe parlor and buffet parlor cars have the following dimensions:

Length over end sills	78 ft. 0 $\frac{1}{2}$ in.
Length over pulling faces of couplers	83 ft. 10 $\frac{1}{2}$ in.
Distance between truck centers	59 ft. 8 in.
Length inside	77 ft. 4 $\frac{1}{2}$ in.
Width over side sills	9 ft. 10 in.
Width over all at eaves	10 ft. 1 in.
Width of clerestory	6 ft.
Width inside	8 ft. 11 $\frac{1}{2}$ in.
Height, track to roof at center	14 ft. 4 in.
Height, rail to eave moulding	11 ft. 2 $\frac{1}{2}$ in.
Height, track to sill at end	3 ft. 7 $\frac{1}{2}$ in.
Height, track to sill at center	3 ft. 7 $\frac{1}{2}$ in.
Height, inside	9 ft. 9 $\frac{1}{2}$ in.

The typical interior arrangement of these cars is shown in the accompanying floor plan of the cafe parlor car. The culinary department, complete in all its appointments, is located at the B end, with the smoking compartment, fitted with individual seats, and the lavatories at the A end. The interior embraces the company's standards as to finish, trimming, upholstery, etc., and the completeness of the equipment is evident on inspection of the plan.

The trucks are of the Commonwealth cast steel type, with 11 ft. wheelbase, and the wheels, 36 $\frac{1}{2}$ in. diam. and steel tired, have cast steel centers. The journals are 5 x 9 in. The lighting is the Safety Car Heating and Lighting Co's system, and the heating the Vapor and hot water system. Additional equipment is as follows: Westinghouse schedule L.N. 1812 air brakes; Simplex brake beams; clasp brakes; Westinghouse schedule K air signal; Miner friction B-10 buffers; National centering device; A.R.A. type D couplers with 6 x 8 in. shank; Holco diaphragms; Miner friction A-5-P draft gear; National Brake Co's geared type hand brakes; McCord journal boxes; Stucki no. 5,001 side bearings; form K slack adjuster; Coleman truck locking device, and Utility ventilators.



Floor Plan, Mail and Express Car, Canadian Pacific Railway.

Side and End Framing, Sheathing, Roof, Etc.

At the vestibule end of the car, the end framing consists of diaphragm posts of 8 in., 28.2 lb. Man Ten steel channels, with 4 in., 8.2 lb. Z corner posts. The intermediate and door posts are 4 in. pressed channels, and the body end plate is an 8 in., 22.8 lb. ship channel. At the blind end, the framing is the same as at the vestibule end, with the exception that the end plate is made up of a 7/16 in. channel pressing. The side framing consists of a 3 in., 5.7 lb. 1 beam sideplate, extending the full length of the car body. The bottom chord is a 2½ x 2 x 3 16 in. rolled angle, riveted to the lower flange of the side sill, with the 2½ in. flange horizontal. The side posts are channel pressings of ½ in. plate, and the side sheathing is of blue annealed, roller levelled, copper bearing steel, ½ in. thick.

The roof carlines are 3 in. pressed channel sections, extending from the sideplate to the center purline on the ridge, the center purline being a 3 in., 5.7 lb. 1 beam, extending continuously the full length of the roof. The side roof sheets are ½ in. blue annealed, roller levelled copper bearing steel, extending from the letter plate to a line 3 ft. 1½ in. from the longitudinal center of the car. The center roof sheets are 1/16 in. thick.

Trucks

The car bodies are carried on 4-wheel trucks, with cast steel frames and integral pedestals, and with straight equalizers. The wheels are 36½ in. rolled steel, profile turned, mounted on axles with 5 x 9 in. journals.

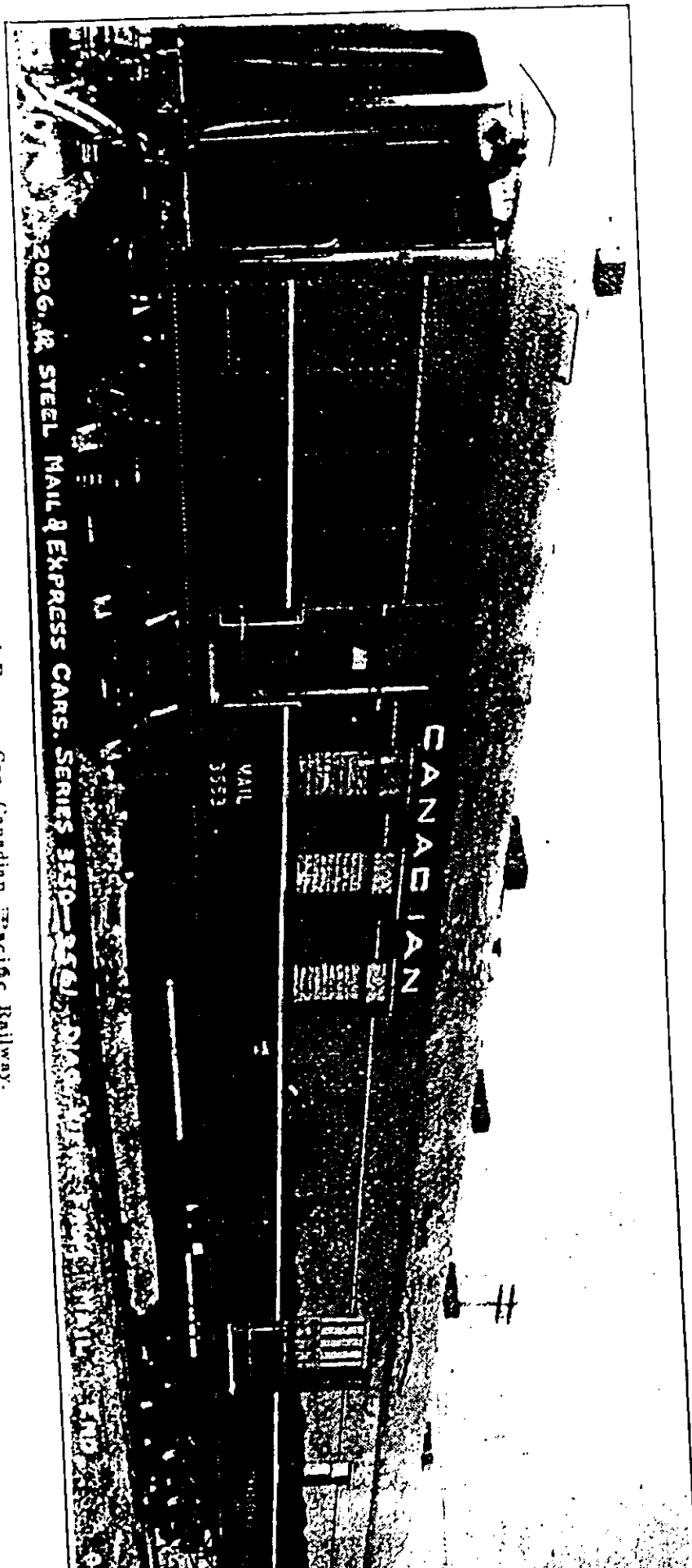
Equipment

The air brakes are the Westinghouse schedule UC-4-8 x 8 in., the cylinders and slack adjusters being mounted on the trucks. The Vapor heating system is installed, with thermostatic control. Electric light is supplied by a 7½ kw. generator, with mechanical drive. These coaches are fully air-conditioned, the ice system being employed, with a vertical unit installed at one end of the coach, and Pyle-National Multi-Vent ceilings. The air pressure water system is employed, with closed drinking water system.

Interior Decoration

The interiors of these coaches are very tastefully decorated, 13 units having a color scheme employing various shades of blue, and a green color scheme being used on the other 12. With seat upholstery and window curtains matching the general color treatment, a very pleasing appearance is presented.

The tare weight of these coaches is 122,000 lb.



Mail and Express Car, Canadian Pacific Railway.

Canadian Railway and Marine World

September, 1924.

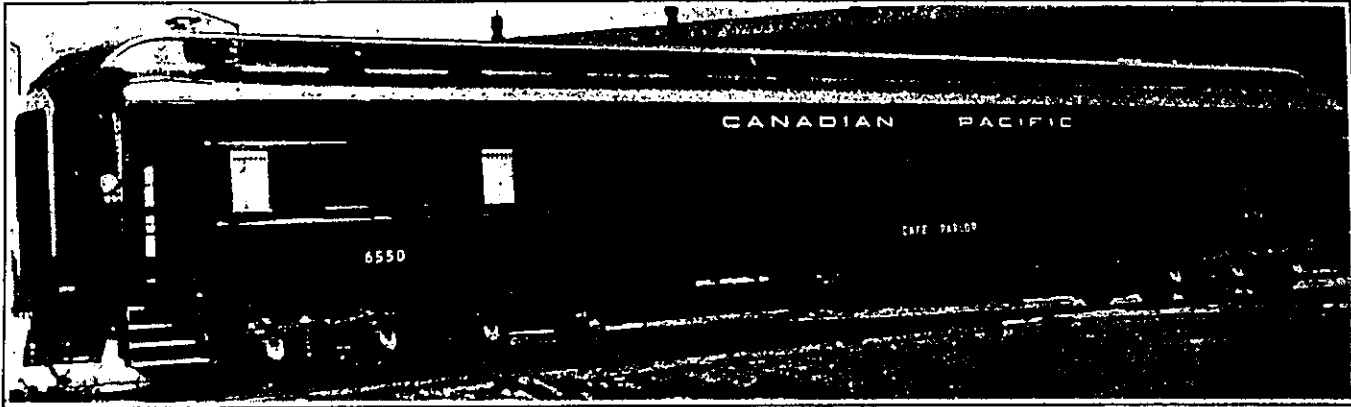
Passenger Rolling Stock Additions, Canadian Pacific Railway.

Passenger equipment added by the Canadian Pacific in the latter part of 1923 and to date includes 6 buffet parlor cars, 6 cafe parlor cars, and 15 first class cars, the frames of which were built by Canadian Car and Foundry Co.,

The underframing consists of fish belly center sills, with 5/16 in. web plates, 2 ft. 5 1/2 in. deep, rivetted to Commonwealth cast steel end sills and bolsters, with 6 x 4 x 5/8 in. top angle and 3 x 3 x 3/4 in. bottom angles, and

thick and the vestibule end sheets 1/4 in.

The floor sheets are no. 16 galvanized steel, upon which longitudinal stringers are laid. One course of 3-ply Salamander is laid between the stringers upon the galvanized floor sheets, and covered



Cafe Parlor Car, Canadian Pacific Railway.

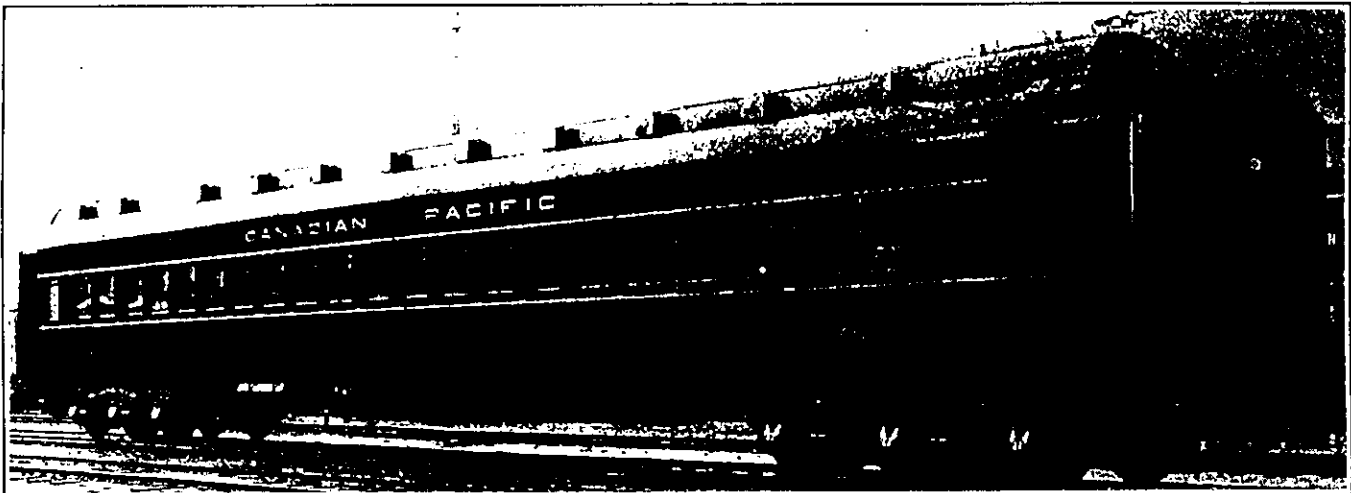
and the other work on which was done at the company's Angus shops, Montreal; 12 mail and express cars, built complete by Canadian Car and Foundry Co., and 10 first class and 15 colonist cars, the frames for which were built by National Steel Car Corporation, the remainder of the work being done at

9/16 x 30 in. cover plate. The side sills are 5 in. 11.6 lb. Z bars, with 3 x 2 1/2 x 1/4 in. angles rivetted to the lower flanges, and the cross bearers are made up of 5/16 in. pressed web plates with 3 1/2 x 2 1/2 x 5/16 in. angles with 10 1/4 x 5/16 in. cover plates.

The side framing includes side posts

by a sub-floor of 13/16 in. B.C. fir laid diagonally. On top of this sub-floor is a layer of 7 oz. tar paper, above which is the top floor of 1 in. B.C. fir laid longitudinally.

The roof carlines are 2 x 5/16 in. steel bars, and the roof boards 13/16 in. B.C. pine, canvas covered.



First Class Passenger Car, Canadian Pacific Railway.

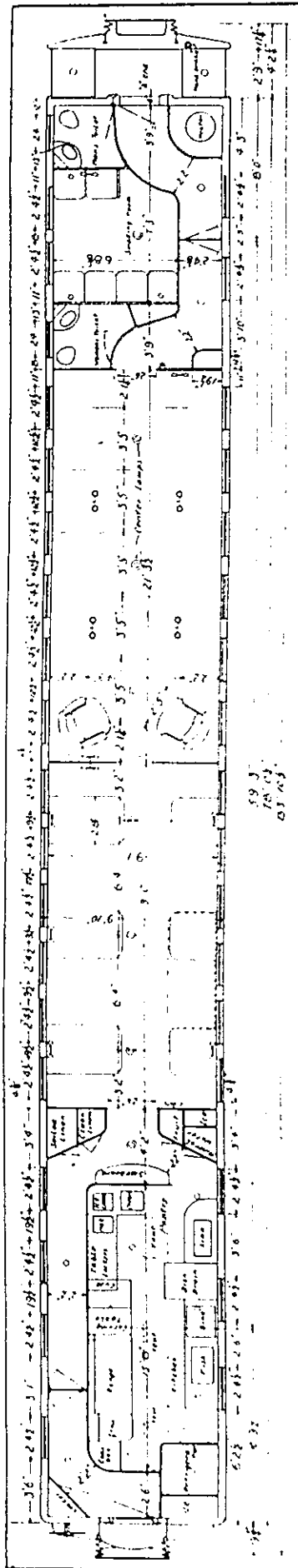
Angus shops. All of this equipment is of all steel construction and of the most modern type.

The first class cars have the following dimensions:

Length over end sills	76 ft. 6 in.
Length inside coppler knuckles	83 ft. 10 1/2 in.
Distance between truck centers	69 ft. 6 in.
Length inside	74 ft. 10 in.
Width over side sills	9 ft. 10 in.
Width over all at eaves	10 ft. 1 in.
Width of clerestory	6 ft.
Width inside	9 ft.
Height track to roof at center	14 ft. 4 in.
Height, rail to eave moulding	11 ft. 2 1/4 in.
Height, track to sill at end	3 ft. 7 1/2 in.
Height, inside	9 ft. 9 1/2 in.

of 3 1/2 x 2 1/2 x 3/16 in. angle sections, reinforced by a 2 x 1/2 in. bar over each window, and Illinois Steel Co. sec. S-142 belt rail, 3 3/4 x 15/16 in., 8.35 lb. per foot. The side plates are 4 in. 8.2 lb. Z bars. The body side sheets are of blue annealed roller levelled copper bearing steel, the girder plates below windows being 3/16 in. thick and the pier and letter plates 1/4 in. thick. The end plate is made up of 4 in. 8.2 lb. Z bars at the corners and for intermediate posts, and with 6 in. 23.9 lb. I beam door posts. The body end sheets are 5/32 in.

The interior is finished in mahogany throughout. The seats in the main compartment, which is 58 ft. 7 in. long, and seats 74 passengers, are of the Wheeler type, upholstered in green plush, the 2 long transverse seats in the smoking compartment being finished in green leather. The smoking compartment, at the A end, is 7 ft. x 6 ft. 9 1/4 in. and seats 8 passengers, making the total seating capacity 82. The aisle width is 22 in. clear. The ceiling is finished in Agasote, and the lighting fixtures are of the side deck bracket type. The win-



Floor Plan, Cafe Parlor Car, Canadian Pacific Railway.

dows are fitted with Pantasote blinds, diamond faced, and there are 21 Utility ventilators. The water system is of gravity type, there being overhead tanks at each end of the car. The lighting system is Stone Franklin 30 volt, and the heating system Vapor and hot water.

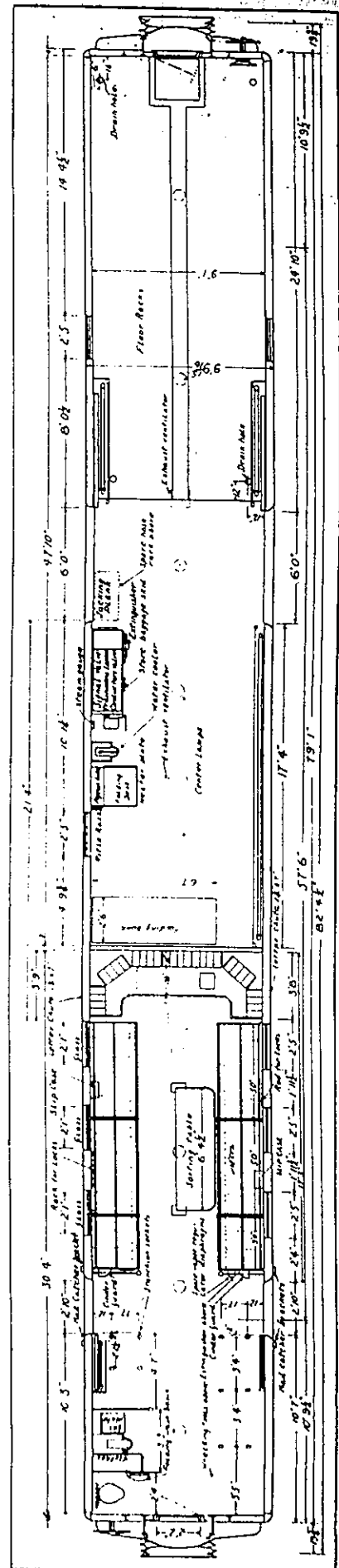
The trucks are of the Commonwealth 6 wheel type, with 11 ft. wheelbase, and are fitted with 36 1/4 in. diam. wheels, with cast steel centers and Latrobe steel tires, the journals being 5 x 9 in. Clasp brakes are applied, the brake beams being Simplex clasp type, and the shoes C.P.R. passenger type reinforced with steel inserts. The air brake installation is Westinghouse schedule L.N. 1812, and the air signal schedule K. The draft gear is Miner friction A-5-P type, and the couplers have 6 x 8 in. shank, with A.R.A. type D head, bottom operating. Other equipment includes National centering device, American Brake Co's form K1 slack adjuster, Miner B-10 buffers, Stucki no. 5,001 side bearings, Coleman truck locking device, McCord journal boxes, National Brake Co's no. 272 hand brakes, 5 to 1 ratio, with Miner operating gear, and Holco diaphragms. In addition, the cars are equipped with lavatories fitted with wash basins, mirrors and flushing hoppers; water coolers, cup vendors, and receptacles for used cups; tool box; Pyrene fire extinguishers, etc. The interior, with the Agasote ceiling, Pantasote blinds and mahogany woodwork, and all trimming conforming to the C.P.R. standard of design and finish, is expressive of maximum comfort. The exterior is finished in the company's standard Tuscan red. The 15 cars completed in 1923 have been numbered 1,425 to 1,439.

The cafe parlor and buffet parlor cars have the following dimensions:

Length over end sills	78 ft. 0 1/2 in.
Length over pulling faces of couplers	83 ft. 10 1/2 in.
Distance between truck centers	50 ft. 3 in.
Length inside	77 ft. 4 1/2 in.
Width over side sills	9 ft. 10 in.
Width over all at eaves	10 ft. 1 in.
Width of clerestory	6 ft.
Width inside	24 ft. 1 1/2 in.
Height, track to roof at center	14 ft. 4 in.
Height, rail to eave moulding	11 ft. 2 1/4 in.
Height, track to sill at end	13 ft. 7 1/2 in.
Height, track to sill at center	13 ft. 7 1/2 in.
Height, inside	9 ft. 9 1/2 in.

The typical interior arrangement of these cars is shown in the accompanying floor plan of the cafe parlor car. The culinary department, complete in all its appointments, is located at the B end, with the smoking compartment, fitted with individual seats, and the lavatories at the A end. The interior embraces the company's standards as to finish, trimming, upholstery, etc., and the completeness of the equipment is evident on inspection of the plan.

The trucks are of the Commonwealth cast steel type, with 11 ft. wheelbase, and the wheels, 36 1/4 in. diam. and steel tired, have cast steel centers. The journals are 5 x 9 in. The lighting is the Safety Car Heating and Lighting Co's system, and the heating the Vapor and hot water system. Additional equipment is as follows: Westinghouse schedule L.N. 1812 air brakes; Simplex brake beams; clasp brakes; Westinghouse schedule K air signal; Miner friction B-10 buffers; National centering device; A.R.A. type D couplers with 6 x 8 in. shank; Holco diaphragms; Miner friction A-5-P draft gear; National Brake Co's geared type hand brakes; McCord journal boxes; Stucki no. 5,001 side bearings; form K slack adjuster; Coleman truck locking device, and Utility ventilators.



Floor Plan, Mail and Express Car, Canadian Pacific Railway.

Railway Rolling Stock Orders and Deliveries.

Canadian Pacific Ry. has received 17 75-ton steel flat cars from Eastern Car Co.
Canadian Pacific Ry. has received 304 75-ton coal cars from Canadian Car & Foundry Co.

Canadian Pacific Ry. has received 4 steel baggage cars from National Steel Car Corporation.

Canadian Pacific Ry. has received 112 freight refrigerator cars from National Steel Car Corporation.

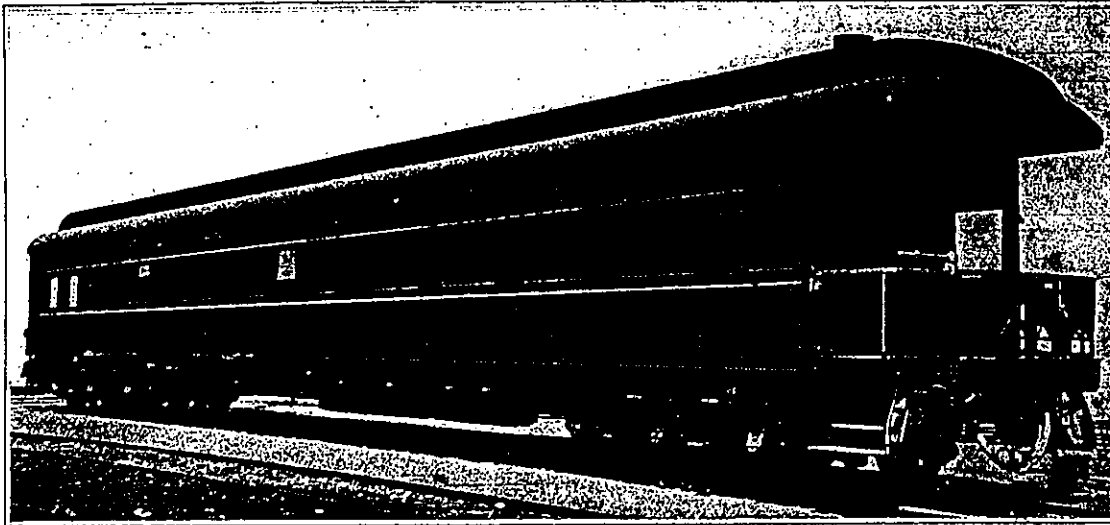
Newfoundland Ry. has ordered 2 Pacific type locomotives, one from Montreal Locomotive Works and one from Baldwin Locomotive Works.

Quebec Central Ry. has rebuilt 4 passenger cars, 2 combination smoking and baggage cars, and 2 mail and baggage cars at its Newington shops, equipping them with steel underframes and steel sheathing, and modernizing them in every way. They have been put in service on the line between Sherbrooke, Que., and Newport, Vt., leased recently from Boston & Maine Rd.

Canadian National Ry. was reported in a Montreal press dispatch of Aug. 12 as having ordered 30 passenger cars from Canadian Car & Foundry Co., on a cost plus basis. Enquiry by Canadian Rail-

trical equipment is being used, and that the engine starting mechanism will be similar to that on the oil electric cars now in service.

The Canadian Pacific Ry. 11 steel observation compartment sleeping cars, completed recently at Angus shops, Montreal, are now in service. These cars, 71 ft. 11½ in. long over end frames and 83 ft. 10½ in. inside coupler knuckles, are similar to the Mount observation cars previously in service as regards floor plan. The body framework is steel, with specially selected mahogany interior finish. The roof framing is steel



One of the 11 New Mount Observation Cars, Canadian Pacific Railway.

Roberval-Saguenay Ry. has received 25 50-ton general service coal cars from Canadian Car & Foundry Co., and 10 40-ton box cars from Canadian Equipment Co.

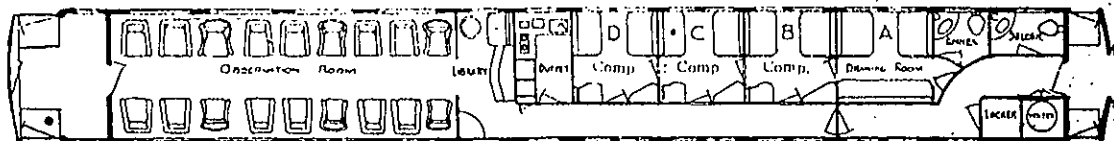
Timiskaming & Northern Ontario Ry. has received 3 first class passenger cars, 2 second class passenger cars, and 3 baggage and express cars, from National Steel Car Corporation.

Canadian Pacific Ry. had received, to Aug. 25, 148 freight refrigerator cars, out of 315 ordered from National Steel Car Corporation, as stated in Canadian Railway and Marine World for March.

way and Marine World has elicited the information that this is not a new order, but refers to the 30 standard sleeping cars ordered in April last, as announced in Canadian Railway and Marine World for May, pg. 246, and described in the June issue on pg. 303.

Two of the 5 electric locomotives which, as stated in Canadian Railway and Marine World for April, the Montreal Harbor Commission ordered from English Electric Co., arrived at Montreal from England on the s.s. Manchester Hero on Aug. 14, and were unloaded on Aug. 16. They are of

and the roof is wood, canvas covered. Upholstery is in the company's standard green frizette plush. Six-wheel Commonwealth cast steel trucks are used, and the air brake equipment is Westinghouse schedule U-C 1-18. The layout consists of drawing room, 3 compartments, observation room with writing desk, buffet, and a separate porter's room provided with a pressing board for valet service. The buffet is equipped with gas range, coffee percolator, refrigerator, etc., and the tables are covered with Monel metal, to prevent corrosion. Electric lighting is used, and



Floor Plan, Mount Observation Car, Canadian Pacific Railway.

Canadian Pacific Ry. has received 9 compartment sleeping cars and 25 sleeping cars, the frames for which were built by Canadian Car & Foundry Co., the cars being completed at Angus Shops, Montreal.

Minneapolis, St. Paul and Sault Ste. Marie Ry. has ordered 10 mountain type locomotives from American Locomotive Co. The cylinders will be 27 x 30 in., and the total weight in working order will be 336,000 lb.

Quebec Central Ry. has bought 2 type G-2 passenger locomotives and 2 type M-4-H freight locomotives, from Canadian Pacific Ry., and has also ordered one more passenger locomotive and one more freight locomotive of the same type from the C.P.R.

the same type as the 4 secured last year, described and illustrated in Canadian Railway and Marine World for March, 1925, pg. 105, being 100-ton machines, operating at 2,400 volts, d.c., with double and control and pantograph current collection.

Canadian National Ry. is having an oil electric locomotive built by Canadian Locomotive Co., Kingston, Ont. While no official information has been given out, it is reported that it will be a 2-unit machine, with all wheels drivers, and with the control arranged so that both units may be operated, or only one at a time; that each unit will develop 1,200 h.p. and be equipped with a 600 v. 850 k.w. d.c. generator and 4 300 h.p. motors; that Beardmore oil engines and Westinghouse elec-

the water supply is carried under the car and distributed by air pressure. Two systems of heating are provided, the Vapor system supplied by steam from the locomotive, and a hot water system which can be operated either by steam or by fire in the heater. Open plumbing is installed throughout. All drinking water containers are of Monel metal, with separate containers for water and ice. These cars have all been named in the Mount series, as follows: Mount Burgess, Mount McDougall, Mount Fairview, Mount Bluebell, Mount McKay, Mount Avalanche, Mount Girouard, Mount Pyramid, Mount Crownest, Mount Kokanee, Mount Norquay, Canadian Pacific Express Refrigerator Cars.—In regard to the 50 express refriger-

Single Room Sleeping Cars, Canadian Pacific Railway.

The Canadian Pacific Ry. has placed in service between Montreal and Toronto, and Montreal and Quebec, six single-room sleeping cars of an entirely new design, which were built and finished entirely at the company's Angus shops, Montreal, to the company's design. Each car contains 14 individual bedrooms, each room having a single bed, 2 ft. 3 in. wide, placed transversely, fitted with a mattress mounted on a box spring. A floor plan of one of the cars, and illustrations showing the interior arrangement of the bedrooms, are given herewith. The cars have the following general dimensions:—

General dimensions:	
Length over end sills	78 ft. 0 1/2 in.
" " between huffen	83 ft. 10 1/2 in.
Distance between truck centers	39 ft. 3 in.
Length inside	89 ft.
Width over side sashes	9 ft. 10 11 16 in.
" " all at eaves	10 ft. 1 in.
" " of dormitory	8 ft. 10 1/4 in.
" " inside	8 ft. 1 1/4 in.
Height, track to roof at center	14 ft. 4 in.
" " rail to base mounding	11 ft. 2 1/2 in.
" " track to sill at end	3 ft. 9 in.

The cars have a wide vestibule at one end and a blind end at the other. The underframe consists of fish belly center sills 30 in. deep, riveted to Common-wealth cast steel combined body bolsters and end platform casting. The side sills are composed of a 5 in. 11.8 lb. Z bar, with a 2½ x 3 x ¼ in. angle riveted to the bottom flange. The side posts are 3½ x 2½ x 3/16 angles. The end posts are 4 in. Z bars, 8.2 lb. per foot. The railway's standard roof is used, i.e., metal carlines of 2 x 2 x 3/16 in. angles, with 18/16 in. B.C. fir sheathing and no. 6 cotton duck covering.

The trucks are of the Commonwealth 5-wheel straight equalizer type, with 1 ft. wheelbase, and the wheels, 36 $\frac{1}{4}$ in. diam., are of the rolled steel center steel tired type. Journals are 5 x 9 in. The pedestals are cast integral with the truck frames, and the trucks are locked to the car body, reducing to a minimum the possibility of serious damage in case of derailment. Weight of car, empty, is 180,000 lb.

The car interior is finished in walnut, and the interior fittings of the individual rooms were studied thoroughly. Each room has a drop table for writing, folding wash basin, dental faucet, lavatory hoppers, drinking water carafe, electric fan, mirrors, towel rack, boot locker, etc. The floor is covered with linoleum, and a small rug is provided at the side of the bed, the passage floor being covered with a carpet runner to match. The folding wash basin is arranged to drain the waste water before being folded back into the closed position, thus avoiding all chance of splashing. The bedrooms are paneled, with a marquetry line. All trimmings are in oxidized silver. The lighting arrangements were given special attention, the fixtures being finished to match the rest of the trimming; the shades are of mica, with the edges bound in leather, the whole assembly producing a most harmonious effect. Individual control handles are provided in each room to allow the occupants to regulate the heat to suit their personal requirements.

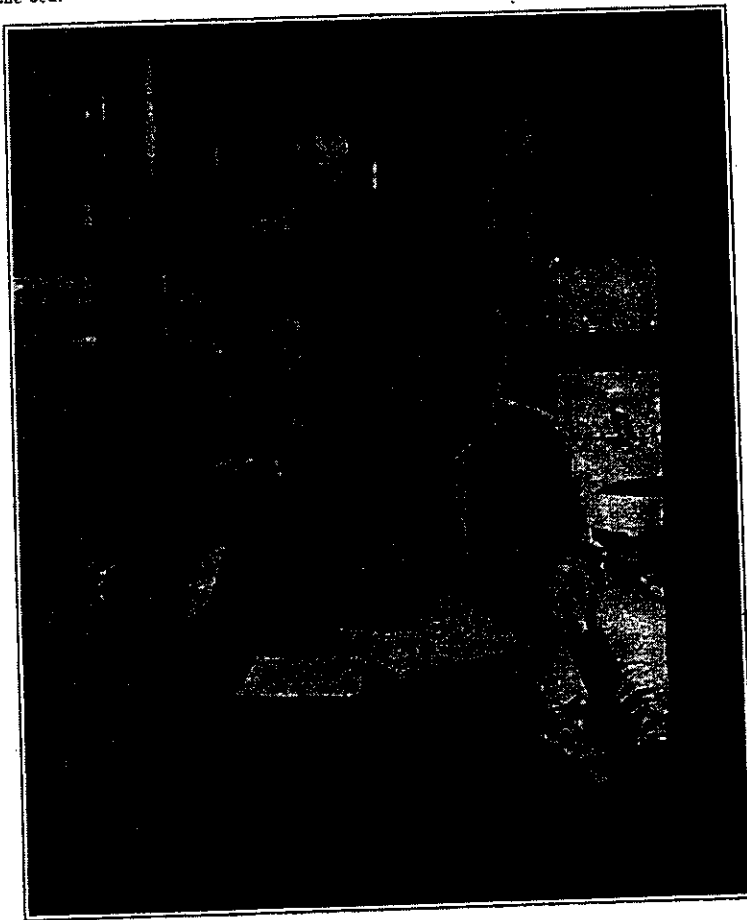
The arrangement of the linen lockers, public lavatory space, porter's quarters, etc., at one end of the car, are shown in the accompanying plan. In addition to the doors opening from the passage to the bedrooms, all the rooms except those designated A and L are fitted with doors to make the rooms communicating in pairs, such as B and C, D and E, and so on. The passage is 2 ft. 3 1/4 in. wide, and the carpet runner is 22 1/2 in. wide, with linoleum the full width of the passage beneath it.

Three mirrors are very conveniently arranged in each bedroom, and include a

full-length dressing mirror on the inside of the entrance door. The boot locker under the head of the bed, opens into the passage, enabling the removal, polishing and replacement of boots without disturbing the occupant of the bedroom. Hooks are supplied plentifully in each bedroom for clothing and hats, and ample space for baggage is provided on the racks and under the bed.

Car Heating and Lighting Co. 30 volt electric lighting system; Stucki side bearings; American Brake Co. form K-1 slack adjuster; Mudge exhaust ventilators.

The cars are named Grand Bay, Grand Falls, Grand Forks, Grande Pointe, Grand Valley and Grand Coules. On Aug. 1, they were placed in operation on trains leaving Montreal at 11 p.m. and arriving at Toronto at 7.35 a.m.; leaving Toronto



Bedroom Interior, Single Room Sleeping Car, Canadian Pacific Railway.

The individual articles in the metal trimmings of the cars were designed and manufactured by the Robert Mitchell Co., Ltd., Montreal, the folding wash basin, designed by that company, having been patented by it. A feature of this basin is that the water supply and drainage are flexible and are enclosed entirely, so that the water is not thrown out at the back as in other types.

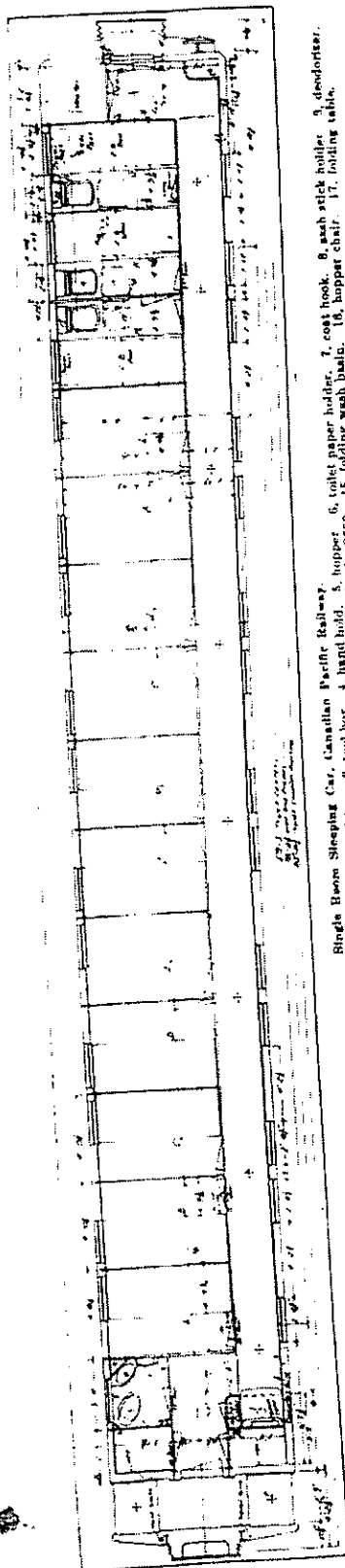
The cars have the following special equipment:—Westinghouse Air Brake Co. schedule U.C.1-18 air brakes and schedule K signal system; A.R.A. standard 5 x 9 in. axles; Simplex clasp brakes; Waugh H-27 buffers; National centering device; A.R.A. standard 6 x 8 in. type D bottom operating couplers; canvas diaphragms; Waugh P-24-K draft gear; National Brake Co. geared hand brakes; Vapor primary heating system, with secondary hot water system; McCord journal boxes; Safety

at 11 p.m. and arriving at Montreal at 8 a.m.; leaving Montreal at 11.15 p.m. and arriving at Quebec at 6.15 a.m., and leaving Quebec at 11.30 p.m. and arriving at Montreal at 6.25 a.m. Beginning Aug. 6, they were also placed in service on the train leaving Montreal at 10 p.m., and arriving at Toronto at 7.10 a.m., and leaving Toronto at 10 p.m. and arriving at Montreal at 7 a.m.

Canadian Railway and Marine World is indebted to C. H. Temple, Chief of Motive Power and Rolling Stock, C.P.R., for particulars of these cars.

The charge for the occupancy of a bedroom on one of the cars on the Montreal-Toronto run is \$6.80, compared with \$3.40 for a lower berth in a standard sleeping car, \$2.75 for an upper berth, \$6.15 for a section, \$9.90 for a compartment with two berths, and \$12.10 for a drawing room.

For additional illustrations, see next page.



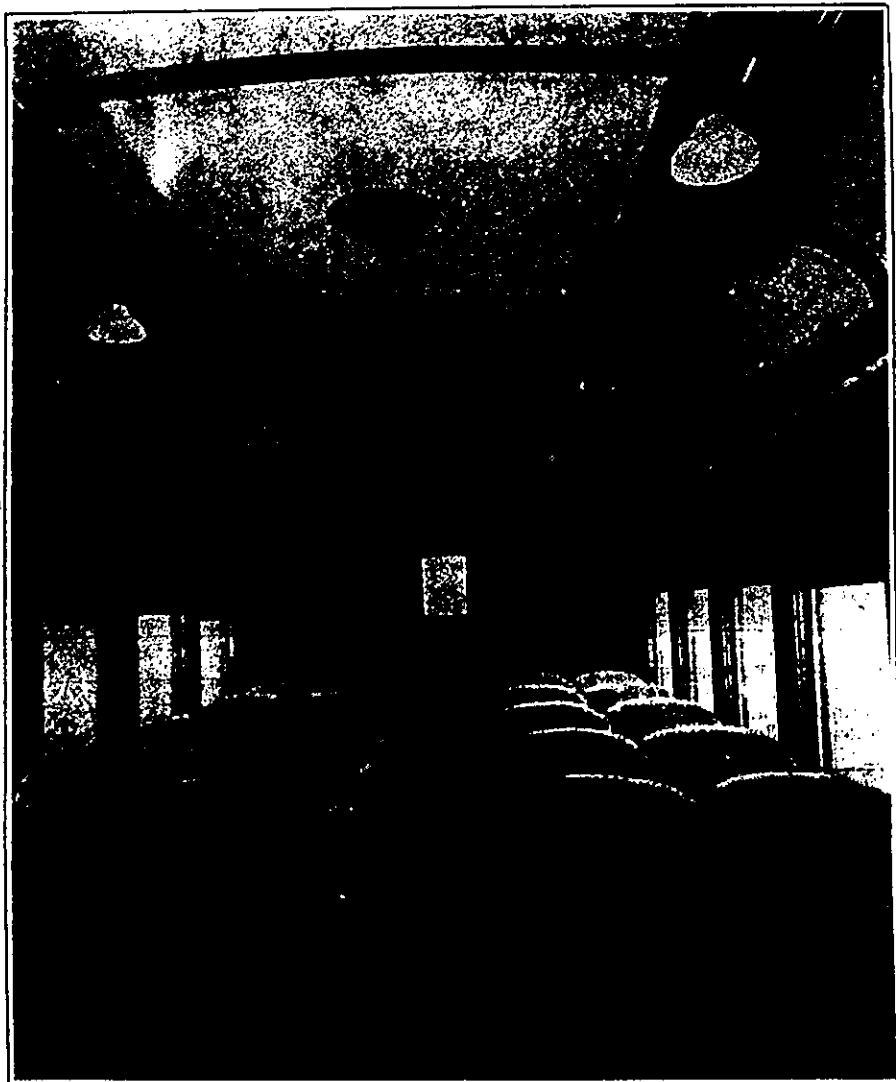
Single Room Sleeping Car, Canadian Pacific Railway.
 Equipment not designated by name on the plan is numbered as follows:—1, porter's seat; 2, fire extinguisher; 3, tool box; 4, hand hold; 5, toilet paper holder; 6, toilet; 7, coat hook; 8, ash stick holder; 9, deodorizer; 10, mirror; 11, bread and comb set; 12, folded towel rack; 13, clean and rack; 14, lighting fixture; 15, folding wash basin; 16, signal valve; 17, folding table; 18, desk; 19, book locker; 20, mirror; 21, mirror; 22, fire extinguisher; 23, first aid kit; 24, switch locker; 25, signal valve.



Bedroom Interior, Single Room Sleeping Car, Canadian Pacific Railway.

and the interior, from the A end toward the B end, is divided into observation room, bedroom, lavatory and shower bath space, secretary's bedroom, dining room, steward's bedroom, and kitchen, the aisle arrangement, wardrobe and locker space, etc., being arranged as shown on the accompanying plan. Fandoliers are provided in the observation and dining rooms, 2 in the former and one in the latter, these being similar to the fixtures installed in the solarium lounge cars described in June and consisting of a combination of a lighting fixture and an electric fan

drop table, in addition to the 2 sofas. The bedroom contains a bed 3½ ft. wide, table, wardrobe with hat locker above, chair and dresser; the door opening from it into the lavatory is fitted with a mirror on the bedroom side. The secretary's bedroom contains a sofa bed, with a hinged back which can be used to form an upper berth, wardrobe, dresser, folding wash basin, etc. The dining room contains, in addition to the sofa, a table and 6 chairs, a sideboard and a writing desk with a bookcase above. The steward's room contains a sofa upholstered in leather,



First Class Car, Canadian Pacific Railway.

revolving in a horizontal plane with a slowly revolving grating below it, designed to promote equalized air circulation. The floor covering is inlaid rubber in the passageways; the lavatories and shower bath compartment have tiled floor, carpets being laid in the observation room, dining room and bedrooms. The 2 large pullout sofas in the observation room may be made up into extra beds, while the large sofa in the dining room may be utilized to form both a lower and an upper berth, the back being hinged to form the latter. These sofas are upholstered in leather. As in the other classes of cars described, a Frumveller auxiliary heater is carried for use in emergencies, the cabinet being at the B end of the car, across the aisle from the end of the kitchen. The observation room contains 8 large chairs and a hinged

which pulls out to form a bed, a hopper chair and folding washbasin. The kitchen equipment is very complete, the coal range being of the Prowse type, nickel plated, and an auxiliary gas ring being supplied. As in the buffet parlor and cafe parlor cars' kitchens, Monel metal is much in evidence. The coal boxes are filled from the roof. The overhead water tank in the kitchen is 7 ft. long and 19 in. diam. Hinged sash is fitted in the observation room, dining room and bedroom, and the windows are fitted with blinds.

All the 4 classes of cars described are arranged for application of storm sash for winter.

Coal loaded on Canadian railways in the week ended Aug. 10 totalled 5,947 cars, compared with 5,745 in the same week in 1928.

The Central Vermont Railway's Sale

The Central Vermont Ry. Co., owning one of the oldest railways in the United States, having started operation 10 years after the introduction of steam railways in North America, was sold at public auction in St. Albans, Vt., on July 29, for \$27,000,000, in accordance with a foreclosure decree by the United States Vermont District Court. The railway was bought by E. Deschenes, Comptroller, Central Vermont Ry. Co., and Horace H. Powers, on behalf of the Canadian National Ry. Co. A new company will be formed to take over the property. This company, which will be controlled by the Canadian National, will be operated as a separate unit and will be incorporated under the general laws of Vermont as the Central Vermont Railway, Incorporated. Authority to form this new company, with its close relationship to the Canadian National Rys., was obtained from the Vermont Legislature, which at its last session passed the reorganization measure without a dissenting vote, in view, largely, of the Canadian National's splendid service to the people of Vermont at the time of the flood in Nov. 1927, and the C.N.R.'s cooperation in rebuilding the Central Vermont. In addition to the auction purchase price of \$22,000,000, the purchasers assumed the payment of \$5,000,000 of receivers' certificates and all other obligations of the receivers.

The Central Vermont Ry. has been in receivership since Dec. 12, 1927, as a result of the flood of that autumn, with George A. Gaston of New York, N.Y., and J. W. Redmond of Newport, Vt., as receivers. The receivers have substantially completed their principal task of rehabilitating the Central Vermont property. This railway is to-day a better railway than it was before the flood; has better equipment of every kind including the best passenger and freight locomotives that can be built. It is now rendering freight and passenger service to the satisfaction of its patrons.

Messrs. Deschenes and Powers were the only qualified bidders at the sale, over which C. D. Watson, Special Master by appointment of the United States District Court, presided. The sale attracted several hundred spectators who assembled some time before the time scheduled for the auction. News photographers representing movie and newspaper picture services were on hand as well as many amateur cameramen. Among those at the auction in addition to Receivers Gaston and Redmond and Messrs. Deschenes and Powers were S. J. Hungerford, Gerard Ruel, K.C. and D. C. Grant, Vice-Presidents, Canadian National Railways; W. R. Austin, solicitor for New York Trust Co.; C. W. Wickersham, of New York; E. C. Smith, ex-Governor of Vermont; and United States Senator Frank L. Greene.

See also under "The Central Vermont Co.'s receivership and transfer to a new company," in August issue, pg. 499.

Railway Crossings in Nova Scotia.—

T. L. Simmons, Chief Engineer, Board of Railway Commissioners, and R. W. McColough, Chief Engineer, Nova Scotia Highways Department, have completed a survey of highway level crossings over railways, and it was reported Aug. 8 that it had been decided to start work at an early date on the elimination of 4 crossings in Shelburne County, 4 in Halifax County and 2 in Cumberland County. The Canadian National Rys. has co-operated in the surveys and the matter is now before the Board of Railway Commissioners...

New Passenger Cars, Canadian Pacific Railway.

The large orders placed by Canadian Pacific Ry., during the past few months, for locomotives, passenger and freight cars, and work equipment, were mentioned from time to time in Canadian Railway and Marine World as the orders were announced, and a tabulated list of all the orders was given in our April issue, pg. 209. Among the orders for passenger equipment were frames for 15 observation cars and 15 dining cars from National Steel Car Corporation, and frames for 29 8-section sleeping cars and 10 combination baggage and sleeping cars from Canadian Car and Foundry Co., the cars to be completed at the C.P.R. Angus shops, Montreal. The first units of this equipment have been completed and placed on exhibit in Montreal, Toronto, Winnipeg and other cities. These cars are for operation in the company's Trans-Canada Limited, operating between Montreal and Toronto, and Vancouver, and the value of the equipment is such that each train, including locomotive, will represent an investment considerably in excess of \$1,000,000. The observation cars, on account of being fitted with an observation room enclosed completely by Vita-glass, for which great health-giving qualities are claimed, due to the manner in which the sun's rays are diffused on passing through it, are called solarium lounge cars. The 8-section sleeping cars each also have two compartments and one drawing room. The combination baggage and sleeping cars have provision for 6 standard sections, which will be used at night by the dining car crew.

The solarium lounge cars, the light weight of each of which is 187,000 lb., are 83 ft. 10½ in. long inside coupler knuckles, 78 ft. ½ in. long over end frames, and 69½ ft. between truck centers. The height from track to roof is 14 1/3 ft., height over ventilators 15 ft., height track to sill at end 3 ft. 6 5/8 in., and height inside 9 1/3 ft. The underframe is of the fishbelly type, with center sill 30 in. deep and with 30 x ½ in. top and bottom cover plates. Side sills are of 5 in. Z section, and the underframe construction includes Commonwealth combined end platforms and body bolsters. The side framing includes steel pressing end and corner posts, 3½ x 2½ x 3/16 in. angle side posts, dropper bar section belt rail, and side sheathing of copper bearing steel plate, 3/16 in. thick below the belt rail and 1/8 in. thick above. Carlines are of steel with wood furring, and roof is of the clerestory type, of wood and canvas construction, with exceptionally wide upper deck. The floor is of double type, two layers of Salamander insulation being placed below the first course of flooring, which is of B.C. fir, laid diagonally, and a layer of Referite between the lower and upper courses, the top course being also of B.C. fir, and laid diagonally.

The trucks are of the Commonwealth 6-wheel type, wheels being steel tired and with rolled steel centers, and 36½ in. diam. Journals are 5½ x 10 in. Class brakes are applied, brake beams being of the Simplex type. Draft gear and buffers are of Waugh-Gould manufacture. Couplers are A.R.A. type D, with 6 x 8 in. shank. Other equipment includes National centering device, Holco diaphragms, Peacock geared hand brakes with Miner operating lever, McCord journal boxes, Safety Car Heating and Lighting Co. car lighting equipment with Edison batteries, Pullman type truck locking device, Stucki side bearings, Westinghouse slack adjusters, Globe and Mudge ventilators, Westinghouse schedule UC-18-12 airbrakes,

Westinghouse air signal, Robert Mitchell Co. interior hardware, Vapor Car Heating Co. heating system, and an auxiliary heating system employing Frumveller heaters for use in emergencies. Thermostatic control is provided in connection with the heating system, there being a thermostat for each main room of the car.

The women's lounge, toward the A end of the car, is 8 2/3 ft. long by 6 ft. 11½ in. wide. The smoking room, at the center, is 15 ft. 10 in. long, the observation parlor is 20½ ft. long, and the solarium, at the B end of the car, enclosed entirely by Vita-glass, is 10 ft. 9½ in. long. These, and the other divisions of the car, are shown on the accompanying floor plan. The interior finish is in walnut, much of it inlaid with marquetry, the excellence of the woodwork being particularly evident. Sash throughout the car is of wood, except in the solarium, where brass sash is fitted. Provision is made for the application of storm sash for winter. The curtains throughout the car are of silk faced Pantasote, and the headlining is of Sundeala.

On entering the car at the A end, there is a linen locker at the left and an auxiliary heater cabinet at the right. The aisle swings to the right and follows along the side of the car to the observation parlor. At the beginning of the aisle is a Ruud heater cabinet, the heater using Pintsch gas to heat water for baths and showers. Adjoining the cabinet is another locker, containing a water heating tank, following which is the entrance off the aisle to the women's facilities, including bathroom with tiled floor and walls, tiled shower bath compartment, and lavatory, also tiled, the fittings including full length mirrors on the bathroom door, stool and wall seat in bathroom, towel racks, hooks for clothing, rubberized silk curtain across shower bath compartment entrance, and wing mirror, towel racks, wash basin, plug for electric curling tongs, etc., in lavatory. The hoppers in all of these cars are flushed by a foot operated mechanism, instead of a hand operated one, as used almost universally heretofore. The water for bath and shower is held in tanks above the car ceiling, that for the men's bath and lavatory facilities being stored similarly, additional water tanks being provided below the car floor, and the water being raised by the usual air pressure system.

Proceeding toward the B end of the car, the next main compartment is the women's lounge, with entrance from the women's vestibule. The floor is richly carpeted, the furniture consists of three large lounging chairs and a sofa, and the equipment includes a fandolier, an ingenious device supplied by Safety Car Heating and Lighting Co., consisting of a combination of lighting fixtures and an electric fan revolving in a horizontal plane, with a slowly revolving grating below it, designed to promote equalized air circulation, a smoking stand, wall table, wall mirror, candle type electric wall fixtures, etc.

Next toward the B end of the car from the women's lounge are the men's bathroom, shower bath and lavatory, these rooms having tiled floors and walls, and the bathroom being equipped with full length mirror on the inside of the door from the aisle. A feature of the cars is the installation of exhaust fans in the roof, one fan exhausting from the smoking room and the rooms toward the A end of the car, and two being used to clear the air from the observation room.

Next toward the B end of the car from the men's bathroom is the smoking room, which is divided into two sections by a

low transverse partition, with curtained entrance to each section from the aisle. The seating capacity of this room is 18, there being 9 large comfortable chairs and a sofa, the upholstery being red leather in some cases and blue in others. Two walnut tables, smoking stand, etc., are provided, and each section is equipped with fandolier, in addition to which there are wall lighting fixtures. The curtains are of blue material.

Adjoining the smoking room is a buffet, for the preparation of light meals, equipment including water heater and hot plate, refrigerator, ice chamber, filter, sink, drop table, ice cream well, etc. An ironing board is installed, so that passengers' clothes may be pressed en route. The switch locker adjoins the buffet. Adjoining the buffet, and between it and the observation parlor partition, is a writing desk with a bookcase above it, with a comfortable writing chair, and, inset into the buffet space, is a bookcase with 3 shelves, the door being fitted on the outside with a mirror. A porter's clothes locker is provided at the end of the aisle.

The observation room's seating capacity is 17, there being 12 large chairs and 2 sofas, covered with rich upholstery in floral effect, and the floor being heavily carpeted. There are two fandoliers in the room, and 8 electric wall fixtures along each side. At one side of the room is a magazine case, on which a massive decorated lamp is supported. The chair and sofa cushions are reversible.

At the extreme B end of the car is the solarium, which is enclosed entirely with Vita-glass. Just inside the door from the observation room are two wall mounted electric fans. There are 8 chairs, upholstered in leather. The windows are exceptionally large, the curtains are of blue material, and the floor is richly carpeted. Folding stools are carried, to supplement the seating accommodation provided by the chairs. The car's equipment also includes folding tables, which may be set up where desired. Inside the solarium door, at the end of the car, is a heavy rubber mat, and a gate is fitted outside the door.

The sleeping cars, of 8 sections, 2 compartments and one drawing room, are, like the solarium lounge cars and the dining cars, equipped with an auxiliary heating system for use in emergencies, the coal box for the Frumveller heater being filled from the roof. The length between coupler knuckles is the same as for the solarium lounge cars, viz., 83 ft. 10½ in., but length over end frames is 76½ ft., and distance between truck centers is 69½ ft. Width between side plates is 9 ft. 2¼ in., and between post furrings 9 ft. 2 in. Underframe and side and end frame construction is identical with that of the solarium lounge cars, trucks are of the same type, and heating and lighting equipment (with the exception of the fandoliers being excluded) are of the same make as on the solarium lounge cars. The draft gear, buffers and other specialties are the same as those mentioned in the foregoing description of the solarium lounge cars. In fact, all four classes of cars dealt with in this article are the same structurally and as regards what may be designated as the operating equipment, as distinguished from the interior furnishings incidental to the service for which each type of car is intended, the chief differences being that the fandoliers are installed only in the solarium lounge cars and the dining cars, that the combined baggage and sleeping cars are not equipped with the auxiliary heating system, and that the



Peacock geared hand brakes applied to the latter cars have hand wheels instead of the Miner operating attachment.

The interior finish of the sleeping cars is in mahogany. The men's washing room and lavatory facilities are at the A end of the car, adjacent to the berth sections, and the drawing room, compartments and women's lavatory facilities are toward the B end. Permanent headboards are arranged between the berth sections, and intercommunicating doors are installed between the drawing room and the adjacent compartment, and between the two compartments, so that any two of these rooms, or all three of them, may be taken en suite. The drawing room and the compartments are each fitted with independent heat control.

The women's washing room is equipped very completely, the floor being carpeted, 3 large and comfortable upholstered chairs being installed, and the fittings including wall type electric fixtures, 3 wash bowls with dental faucets integral, curtains of dark brown material, one large and 3 wing mirrors, a mirror 15 x 60 in. on outside of toilet door, cup dispenser, water cooler, brush and comb rack, used drinking cup and used towel holders, towel racks, etc.

The compartment floors are carpeted; the seats and chairs are upholstered in decorative material. The drawing room is treated similarly, and is fitted in addition with a sofa which makes up into a comfortable bed. Each of these rooms has its own lavatory facilities, the hoppers in the compartments being concealed under seats, and the drawing room having connecting washing room and lavatory. Lockers for employees' clothing and for linen are located as shown on the plan. The compartments and drawing room are each equipped with a boot cabinet opening into the aisle. Carpet is laid throughout the car from the aisle door adjacent to the men's washing room to the aisle door adjacent to the women's washing room, in addition to the compartments and drawing room; the men's washing room and the aisle ends have inlaid rubber on the floor. Each compartment and the drawing room are equipped with an electric fan, and all equipment throughout the car is of the most modern character.

The 29 new cars of this type have been named Rapid City, Rathwell, Ravenscrag, Raymond, Redcliff, Red Deer, Redvers, Regent, Regina, Renfrew, Rennie, Renown, Reston, Revelstoke, Richard, Riverton, Rollindale, Rocanville, Romford, Rosemary, Rosemere, Rosenfeld, Rosetown, Rosser, Rossland, Rossport, Ruby Creek, Ruskin and Rutherglen.

The dining cars are the same length inside coupler knuckles as the solarium lounge cars and sleeping cars, viz., 83 ft. 10 1/2 in., but are 80 ft. 7 in. over end frames and have truck centers at 59 ft. Width over girder plates is 9 ft. 10 5/8 in., and width between post furrings is 9 ft. 2 in. The main room is 38 ft. 1 1/4 in. long; the kitchen and pantry combined are 27 1/4 ft. long. These cars have the same type of exhaust ventilation as the solarium lounge cars, one exhaust fan serving the kitchen and 2 the dining room. The interior finish is the same type of handsome inlaid walnut as used in the solarium lounge cars.

At the dining car B end, there is a crew's locker at the right. The auxiliary heater cabinet and steward's compartment are laid out so as to make a very short aisle which opens directly into the dining room. At the right of the aisle, looking toward the A end, are a sideboard, silver cabinet, mineral water locker, ice chamber, sink, etc. The car is arranged with walnut tables for 2 along one side and similar tables for 4 along the other, there being

6 tables of each type, making the total seating capacity 36. The floor is heavily carpeted, the pattern being a very decorative one, and the chairs are upholstered in blue leather. The silk faced Pantasote window shades are also blue. The windows are not so large as in some of the company's older dining car equipment. There are 3 sandoliers along the ceiling center line, and electric wall fixtures along each side of the car, with goatskin shades. All the metal trim is bronze. Each car carries 2 fire extinguishers. Proceeding toward the A end from the dining room, the aisle runs to the right. Adjoining the dining room partition, is a locker for soiled linen at one side of the door, and a switch locker and a locker for clean linen at the other. In line with the door, and adjoining the kitchen partition, as shown on the plan, is a large sideboard, with drawers and compartments for silver, etc. To the left of this, looking toward the A end, is a vertical steel rolling door, which effectively shuts off the kitchen portion of the car from the dining room, and which may be locked securely.

The kitchen and pantry equipment is of most modern type, laid out so as to afford the greatest possible facility in the preparation and serving of food, and shows a great deal of careful thought and painstaking effort in design. Monel metal is much in evidence, presenting surfaces which are clean and which may be easily kept so. All pastry served on the cars will be made on them, and only hard coal and charcoal will be used for cooking. Cooking ranges are of Prowse 601 type. Large water tanks are located under the car roof in the kitchen section, and water may be piped from the tanks under the car floor to these tanks if the necessity arises while the car is on the road. Refrigerators are iced from the roof, and an efficient ventilation system ensures ideal working conditions for the cook and his assistants. Each car will carry a crew of 11, viz., steward, cook, second, third and fourth cooks, pantryman, and 5 waiters. The crew will sleep in the berths in the combined baggage and sleeping cars.

The combined baggage and sleeping cars are, like the others, 83 ft. 10 1/2 in. long inside coupler knuckles, length over end frames being 80 ft. 7 in. and distance between truck centers being 59 ft. Width between post furrings is 9 ft. 1 1/4 in. in the baggage section and 9 ft. 2 in. in the sleeping section. The baggage space, 45 1/2 ft. long, is at the A end of the car, and the sleeping accommodation, men's washing room, etc., are toward the B end. The baggage room floor is fitted with floor racks, and the room is fitted with Utility ventilators. The floor in the sleeping section and the men's washing room is covered with linoleum, with carpet aisle strip in the sleeping section. The interior finish in the sleeping section and washing room is in mahogany, and the sofa and seat in the washing room are upholstered in leather. Equipment and furnishings in the sleeping section are of the same high standard as in the sleeping cars described above. The sleeping section may be used by passengers during the day.

The equipment described in the foregoing attracted a great deal of attention in the cities where it was placed on exhibition, on account of its thoroughly modern character, the comfort and luxury provided, the completeness and convenient arrangement of all appointments, and the beauty of the car interiors. The skill and thoroughness evidenced throughout, in both design and workmanship, formed the subject of much deservedly favorable comment. A thing worthy of special mention on all cars, but especially on the sleepers, is the application of large

size Globe ventilators on the center line of car which not only takes the warm air from the highest point in the car but makes the ventilators operate successfully regardless of wind direction.

Canadian Railway and Marine World

September, 1929

New Passenger Cars, Canadian Pacific Railway.

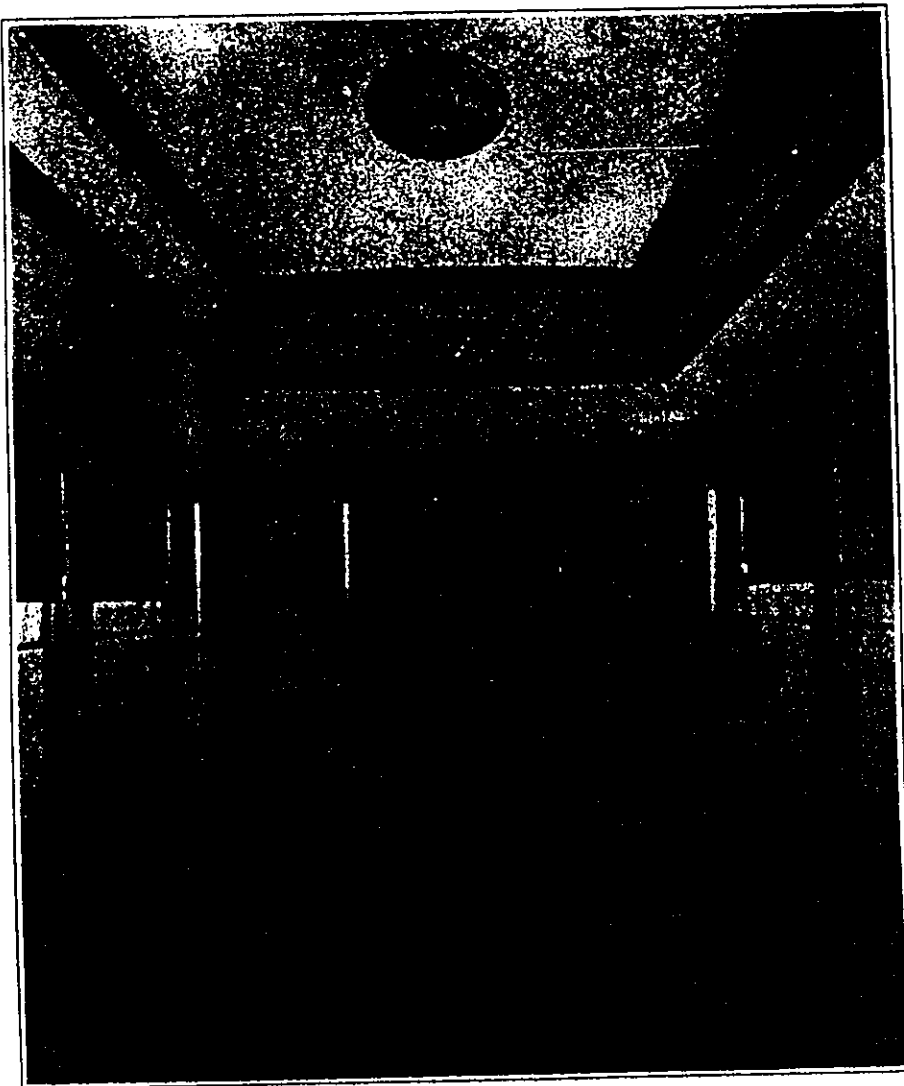
The large orders for passenger train rolling stock placed by the Canadian Pacific Ry. within recent months included 29 8-section sleeping car frames; 11 buffet parlor car frames; 10 combined baggage and sleeping car frames; 6 frames for combined mail and express cars, with 60 ft. mail compartments; 5 frames for combined mail and express cars, with 30 ft. mail compartments; and 6 baggage cars, from Canadian Car and Foundry Co.; 2 single room sleeping car frames; 15 solarium lounge car frames; 15 dining car frames; 2 cafe parlor car frames; 15 first class car frames; and 50 express refrigerator cars, from National Steel Car Corporation, and 3 official cars from the company's Angus shops, Montreal, the remainder of the work on the cars for which frames only were ordered to be done at Angus shops. Descriptions of the solarium lounge cars, 8-section sleeping cars, dining cars, and combined baggage and sleeping cars, with floor plans of each of those classes of cars, were given in Canadian Railway and Marine World for June, pg. 356.

The buffet parlor, cafe parlor and first class cars are similar, as regards overall dimensions, underframe and superstructure, to the four classes of cars described in June, the governing dimensions being: length inside coupler knuckles, 83 ft. 10 1/2 in.; length over end frames, 75 1/2 ft.; truck centers, 59 1/2 ft.; width over side sills, 9 ft. 10 11/16 in.; width inside, 9 ft. 2 in.; height rail to eaves, 11 ft. 2 1/2 in.; height overall, 14 ft. 11 in. The cafe parlor cars' length over end frames is 78 ft. 0 1/2 in., and truck centers 59 1/4 ft. The underframes for these three classes of cars, like those of the four classes described in June, are of the fishbelly type, with center sill 30 in. deep and with 30 x 1/2 in. top and bottom cover plates. The side sills are of 5 in. Z section, and the underframe construction includes Commonwealth combined end platforms and body bolsters. The side framing includes steel pressing end and corner posts, 3 1/2 x 2 1/2 x 3/16 in. angle side posts, dropper bar section belt rail, and side sheathing of copper bearing steel plate, 3/16 in. thick below the belt rail and 1/8 in. thick above. The carlines are of steel, with wood furring; the roof is of the clerestory type, of wood and canvas construction, with exceptionally wide upper deck. The floor is of double type, two layers of Salamander insulation being placed below the first course of flooring, which is of B.C. fir, laid diagonally, and a layer of Referite between the lower and upper courses, the top course being also of B.C. fir, and laid longitudinally. The official cars are shorter than the three classes to which the foregoing applies, and the underframing is of different character, as will be mentioned further on.

The buffet parlor cars have Commonwealth 6-wheel trucks, wheels being of rolled steel centers, steel tired, 36 1/2 in. diam. Journals are 6 1/2 x 10 in. Clasp brakes are applied, brake beams being of the Simplex type. Draft gear and buffers are of Waugh-Gould manufacture, and couplers are A.R.A. type D, with 6 x 8 in. shank. Other equipment includes National centering device, Holco diaphragms, Peacock geared hand brakes with Miner operating lever, McCord journal boxes, Safety Car Heating and Lighting Co. car

lighting equipment with Edison batteries, Pullman type truck locking device, Stucki side bearings, Westinghouse schedule UC-18-12 air brake equipment, Westinghouse air signal equipment, Westinghouse slack adjuster, Robert Mitchell Co. interior hardware, Vapor Car Heating Co. heating system, with an auxiliary heating system employing a Frumveller coal heater, and Globe and Mudge ventilators. The interior finish is in walnut. The cars are of the 2-vestibule type, with hand brake at each end, the vestibules being of

The carpet in the main room is of a green shade. The lighting fixtures are of the 2-bracket type, supported from the side deck. The ventilators, instead of being in the side decks, are along the center line of the roof, are fitted with ornamental grills, and ventilate the car very efficiently. Parcel racks of bronze with oxidized silver finish, like the rest of the interior hardware, are provided along each side of the main room. There are 4 electric fans in the main room. In the smoking room, the floor is covered with inlaid rubber, and



Solarium End, Solarium Lounge Car, Canadian Pacific Railway.
For description see Canadian Railway and Marine World, June 1929, pg. 356.

all-steel construction and the steps fitted with rubber treads. The Frumveller heater is carried in a cabinet at the smoking room end of the car. The main room, which is 51 ft. 7 1/4 in. long, is fitted with 28 revolving chairs, of very comfortable design, upholstered in green friezette plush. The side walls of the room are fitted with sockets, for the support of folding walnut tables, which, when not in use, are carried in lockers. At one end of the room is a desk and chair, and a bookcase.

the seats are upholstered in dark brown leather. At the buffet end of the cars, facilities for the preparation of light meals are provided, including gas range, broiler, a refrigerator iced from the roof, buffet, ice well, lockers, etc. The storage space for the tables used in the main room is in the lower part of the linen locker. Monel metal has been used generously in this part of the cars, providing the most sanitary of conditions and a bright appearance. The air pressure system for water

supply is used.

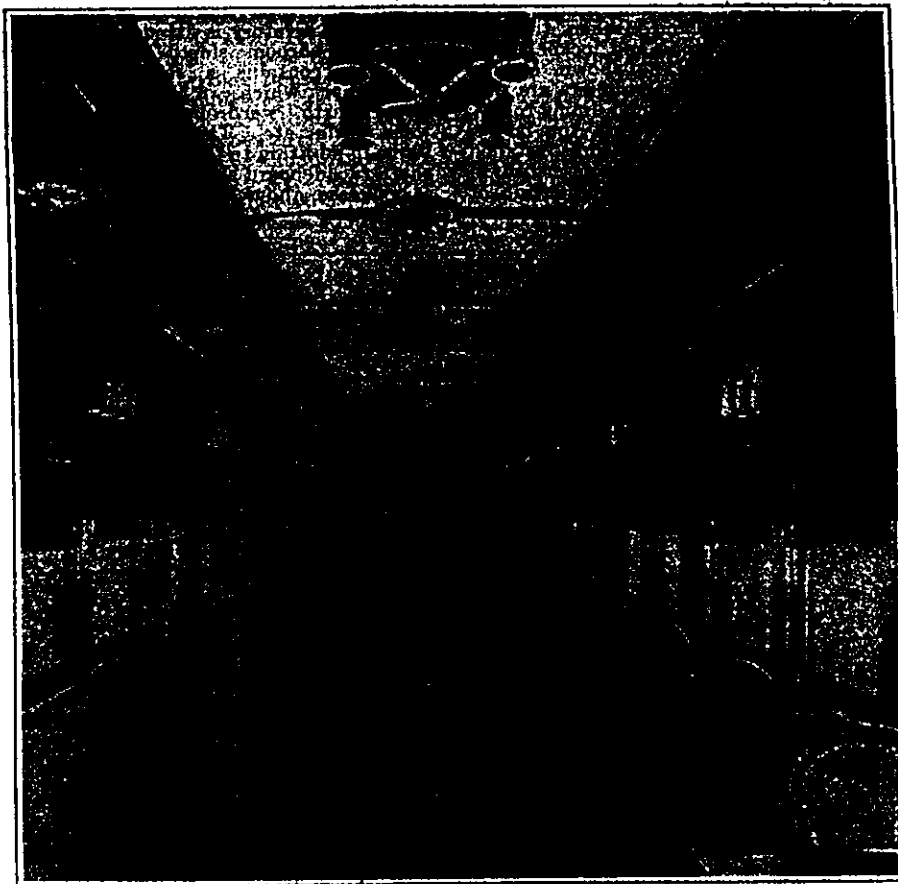
The cafe parlor cars have trucks and operating equipment similar to the buffet parlor cars. The smoking room is at the B end of the car, with lavatory facilities arranged on either side of it, the Frumveller heater cabinet also being at that end. Next toward the A end is the main room, fitted with 12 revolving chairs upholstered in green friezette. The floor covering is green plush carpet, which combines with the walnut interior finish to produce a very handsome effect, heightened by the oxidized silver finish of the parcel racks, the ornamental grills of the ventilators, three groups of two electric fixtures at the side deck along both sides, and two handsome ceiling fixtures along the car center line.

Adjoining the main room and separated from it by a partition with a 26-in. door, and toward the A end of the car, is the dining room, with table accommodation for 18. It is lit by 3 groups of 2 fixtures each, along the side deck on both sides, and the 4 ventilators provided are arranged at both sides of the car center line, as in the main room. The furniture is in mahogany, and the floor covering is of the same green plush carpeting as in the main room. The kitchen and pantry equipment, at the A end of the car, is very complete. The numerous items of equipment are indicated on the accompanying floor plan. As in the buffet parlor cars, Monel metal has been used extensively. The floor covering throughout the cars outside of the main room and dining room is red and green inlaid rubber. The cars are equipped with air pressure water raising system, the kitchen being equipped with large overhead tanks in addition to the regular installation.

The first class cars, with seating capacity for 74 in the main room and 8 in the smoking room, a total of 82, introduce to Canadian steam railway practice the semi-individual bucket type seat, arranged as shown in the accompanying illustration of the interior of one of the cars. These are upholstered in grey

length parcel racks finished in oxidized silver, side deck lighting fixtures, Sundea

class. The smoking room seats are upholstered in leather. The floor covering

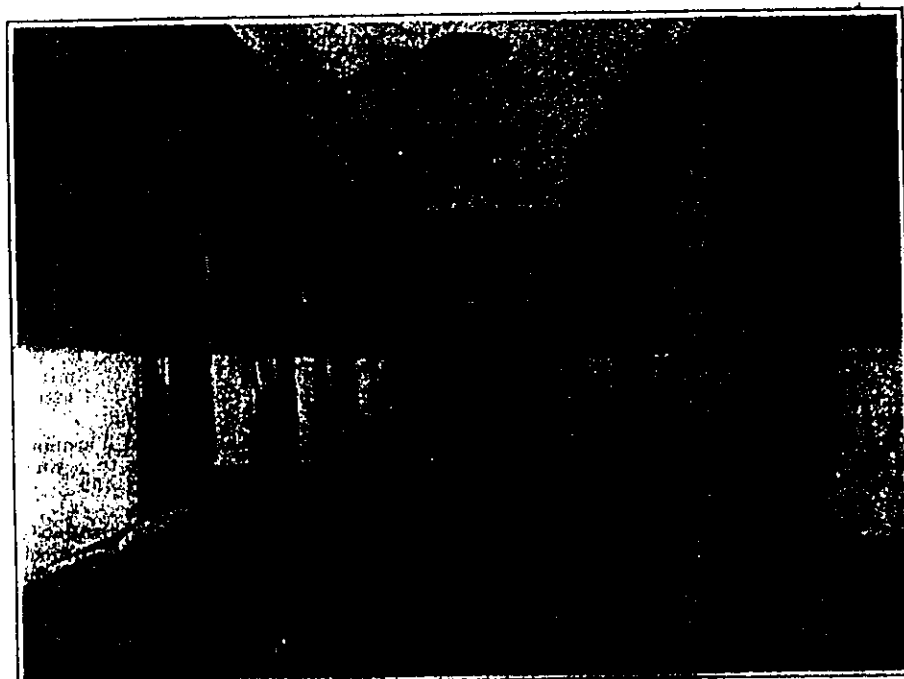


Dining Car, Canadian Pacific Railway.
For description see Canadian Railway and Marine World, June 1929, pg. 355.

headlining, and silk faced Pantasote window shades matching the moquette

throughout is heavy Battleship linoleum. The seats in the main room are arranged so that all on each side of the aisle must be turned, according to direction of car travel; the seats are reversed by rotation. The design does not provide for some of the seats in the group on either side of the aisle facing one way and some the other. There are 9 ventilators in the main room, along the car center line, providing extremely efficient ventilation. The lavatories are lined with steel tiles. A gravity water system is installed, with tanks at the top of the car. These tanks and connections are designed for filling by city water system pressure, but the tanks may be filled from the car roof if necessary. As on the buffet parlor and cafe parlor cars, a Frumveller auxiliary heater is carried, the cabinet being at the B end.

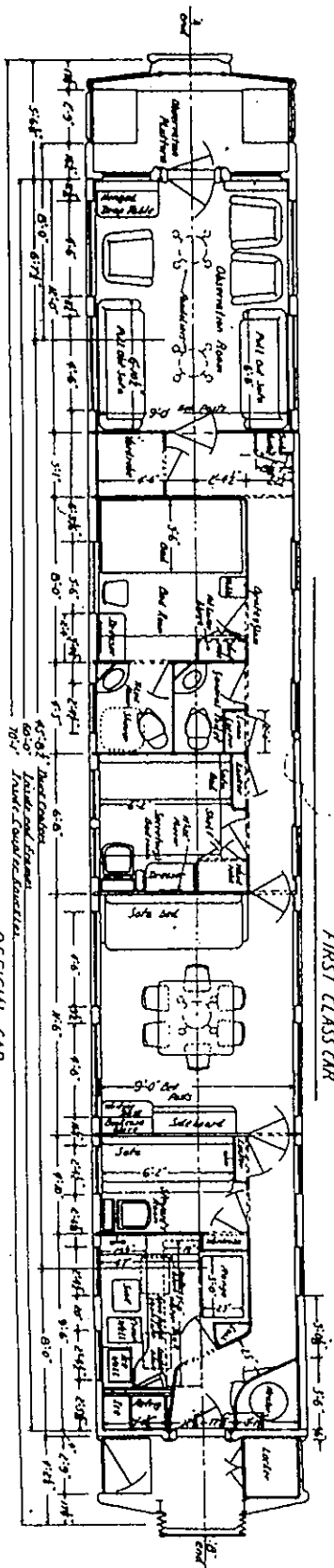
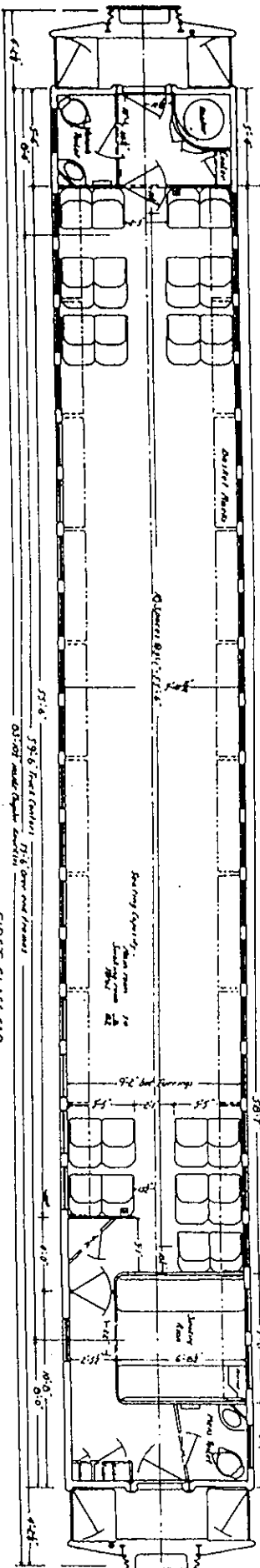
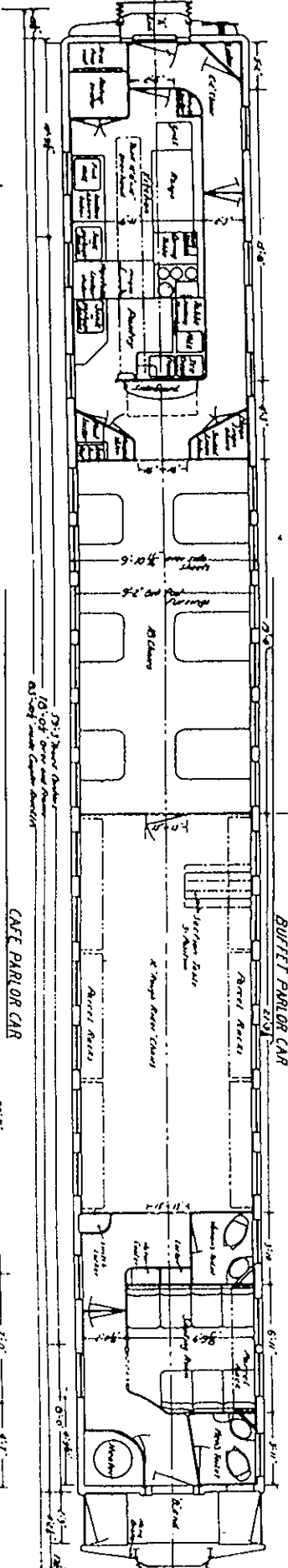
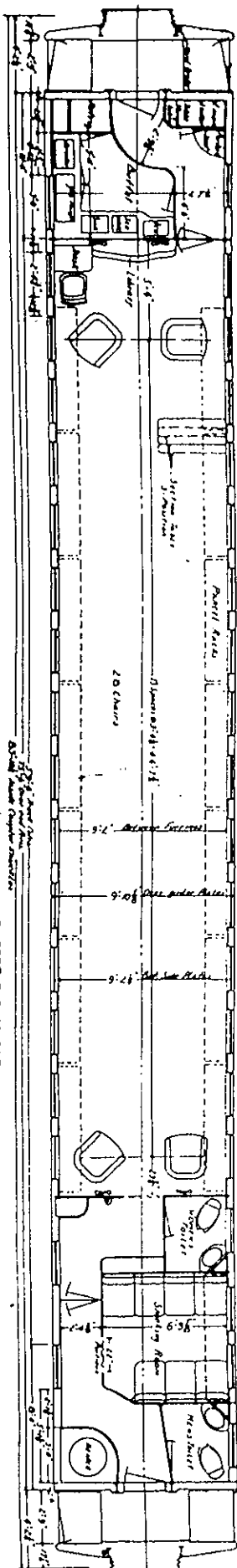
The official cars are 70 ft. 1 in. long inside coupler knuckles, 60 ft. long inside end frames, and have truck centers at 45 ft. 8½ in. They are vestibuled at the B end and have an observation platform at the A end, the latter opening into an observation room. Width between posts is 9 ft. The underframe is of the built up type, with center sill of 5/16 in. web plate with inside and outside bottom angles 8 x 3 x 3/8 in. and top angle 6 x 4 x 5/8 in., and 2½ ft. top cover plate. The underframes include Commonwealth combined end platform and body bolster castings, as in the other cars, and the side framing and floor and roof construction are similar to those of the other cars, the sheathing being the same quality of blue annealed roller levelled copper bearing steel, with copper content from 0.20 to 0.25%. The interior finish is in mahogany,



Observation Parlor, Solarium Lounge Car, Canadian Pacific Railway.

figured moquette, and the car interior, with its walnut finish, ornamental ventilator grills along the car center line, full

seat upholstery, is marked by a degree of dignity and beauty not obtained previously in passenger equipment of this



New Passenger Train Cars, Canadian Pacific Railway.

OFFICIAL CAR

Canadian Railway and Marine World

April, 1930

New Passenger Train Cars, Canadian Pacific Railway.

The information regarding the four classes of passenger train cars, described in the following, completes Canadian Railway and Marine World's description of the twelve types of cars for passenger train service which the Canadian Pacific secured in 1929. Our issue for June 1929 gave, on pg. 356, descriptions and floor plans of 15 solarium lounge cars and 15 dining cars, frames for which were built by National Steel Car Corporation, and of 29 8-section sleeping cars and 10 combination baggage and sleeping cars, frames for which were built by Canadian Car and Foundry Co. These cars were finished at the C.P.R. Angus shops, Montreal. The Sept. 1929 issue gave, on pg. 541, interior illustrations of those cars, and, in addition to descriptions, floor plans and illustrations of 11 buffet parlor cars, 2 cafe parlor cars, 15 first class cars, and 3 official cars. The buffet parlor car frames were built by Canadian Car and Foundry Co., and the cafe parlor and first class car frames by National Steel Car Corporation, the cars being finished at Angus shops. The 3 business cars were built entirely at Angus shops. Following are descriptions of the remainder of the passenger train equipment secured by the company in 1929, viz., 2 single room sleeping cars, frames for which were built by National Steel Car Corporation, the cars being finished at Angus shops; 6 80-ft. baggage cars, built by Canadian Car and Foundry Co.; 5 mail and baggage cars with 30 ft. mail compartment and 6 with 60 ft. mail compartment, built by Canadian Car and Foundry Co., and 50 express refrigerator cars, built by National Steel Car Corporation.

The 2 single room sleeping cars are similar to 6 cars of that type built at Angus shops in 1928, as described in Canadian Railway and Marine World for Sept. 1928, the general dimensions being as follows:—

Length over end frames	78 ft. 0 1/2 in.
" inside coupler knuckles	83 ft. 10 1/2 in.
Distance between truck centers	69 ft. 3 in.
Length inside	77 ft. 4 1/2 in.
Width over side sheets	9 ft. 10 11/16 in.
" all at eaves	10 ft. 1 in.
" of clerestory	7 ft. 2 3/4 in.
" inside	8 ft. 11 1/2 in.
Height, track to roof at center	14 ft. 4 in.
" rail to eave moulding	11 ft. 1 1/2 in.
" track to sill at end	3 ft. 9 in.

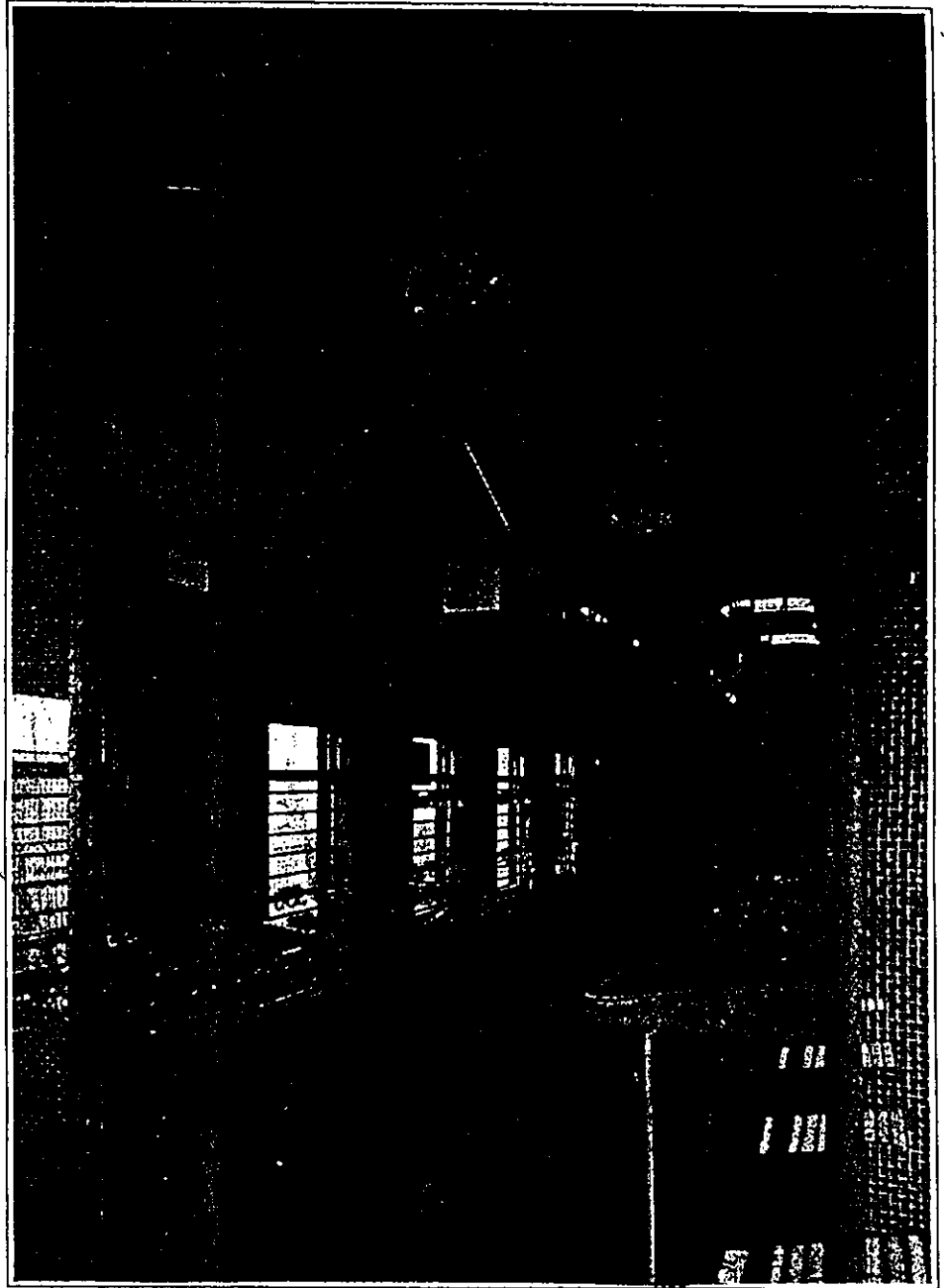
Underframes consist of a 30 in. deep fish belly center sill rivetted to Commonwealth cast steel combined body bolster and end platform castings, and side sills composed of 5 in. 11.6 lb. Z bars, with 2 1/2 x 3 x 1/4 in. angle rivetted to bottom flange. The side framing includes 3 1/2 x 2 1/2 x 3 16 in. angle side posts and 4 in. 8.2 lb. Z bar end posts. The roof is of C.P.R. standard type, viz., metal carlines of 2 x 2 x 3 16 in. angles, with 13/16 in. B.C. fir sheathing and no. 6 cotton duck covering.

Each car contains 14 individual bedrooms, each room having a single bed, 2 ft. 8 in. wide, placed transversely, fitted with a mattress mounted on a box spring. The car interior is finished in walnut. Each room has a drop table for writing, folding wash basin, lavatory facilities, drinking water carafe, electric fan, mirrors, towel rack, boot locker, etc. The bedrooms are panelled, with a marquetry line. All trimmings are in oxidized silver. The lighting fixtures are of mica, with the edges bound in leather. The car interior arrangement is shown on the accompanying floor plan.

The trucks are of the Commonwealth 6-wheel straight equalizer type, with 11 ft. wheelbase, and the wheels, 36 1/4 in. diam., are of the rolled steel center, steel tired type. Journals are 5 x 9 in. The pedestals are cast integral with the truck frames, and the trucks are locked to the car body,

ing system with secondary hot water system; McCord journal boxes; Safety Car Heating and Lighting Co. 30 volt electric lighting system; Stucki side bearings; American Brake Co. form K-1 slack adjuster, and Mudge exhaust ventilators.

A more detailed description of the



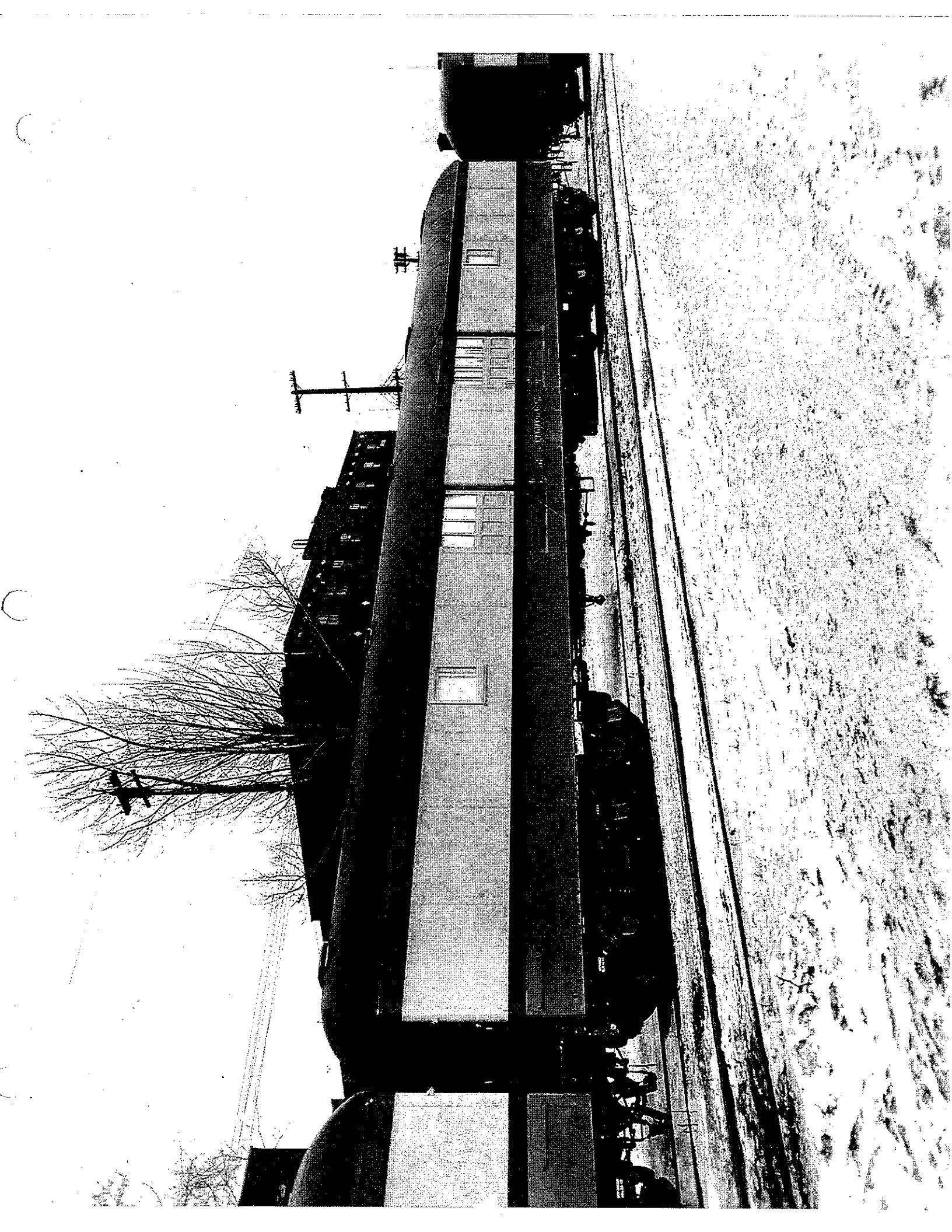
Interior, Mail and Baggage Car, with 60-ft. mail compartment, Canadian Pacific Railway.

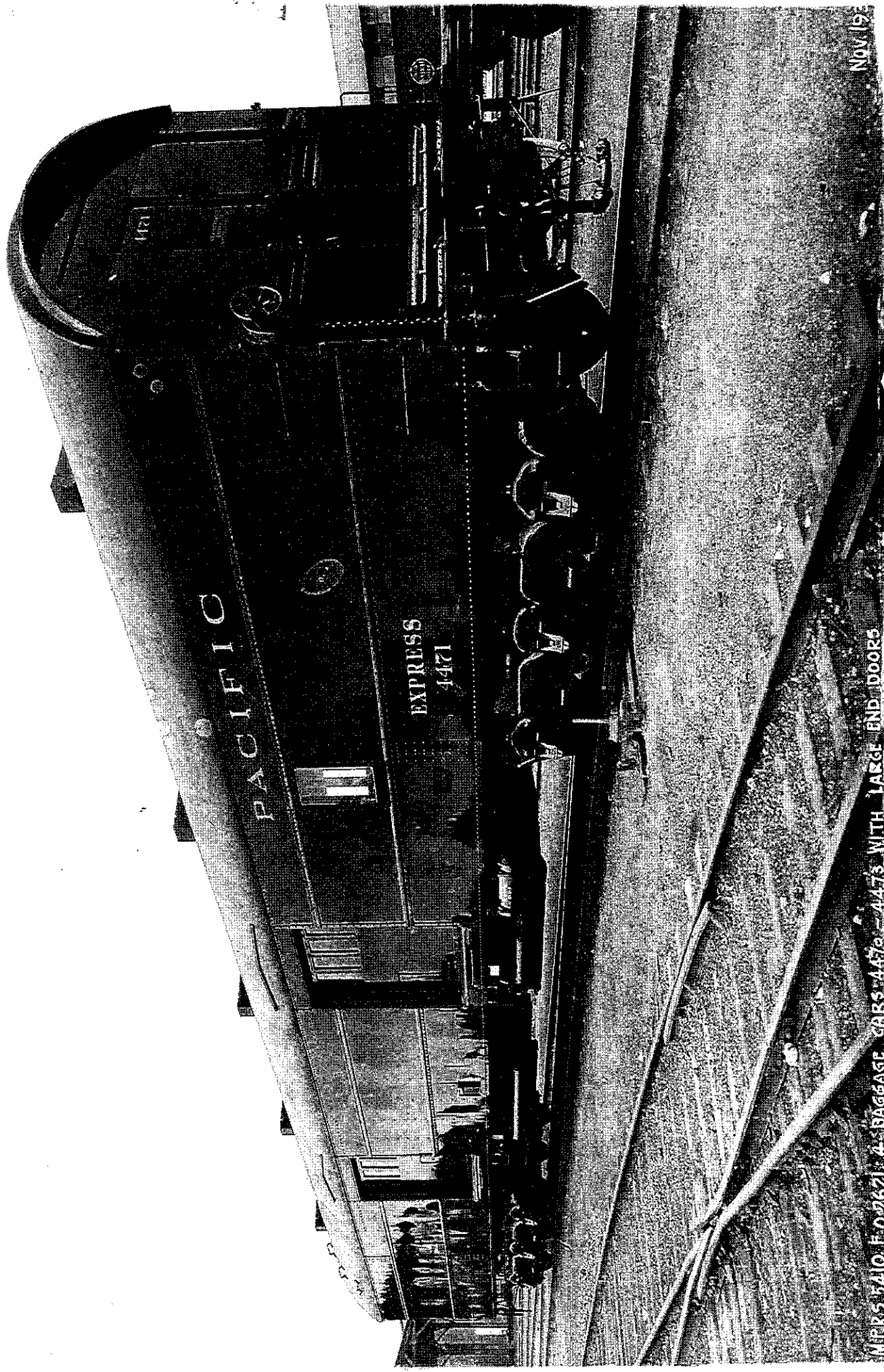
reducing to a minimum the possibility of serious damage in case of derailment.

Equipment includes Westinghouse U.C. 1-18 air brakes and schedule K signal system; A.R.A. standard 5 x 9 in. axles; Simplex clasp brakes; Waugh H-27 buffers; National centering device; A.R.A. standard 6 x 8 in. type D bottom operating couplers; canvas diaphragms; Waugh P-24-K draft gear; National Brake Co. geared hand brakes; Vapor primary heat-

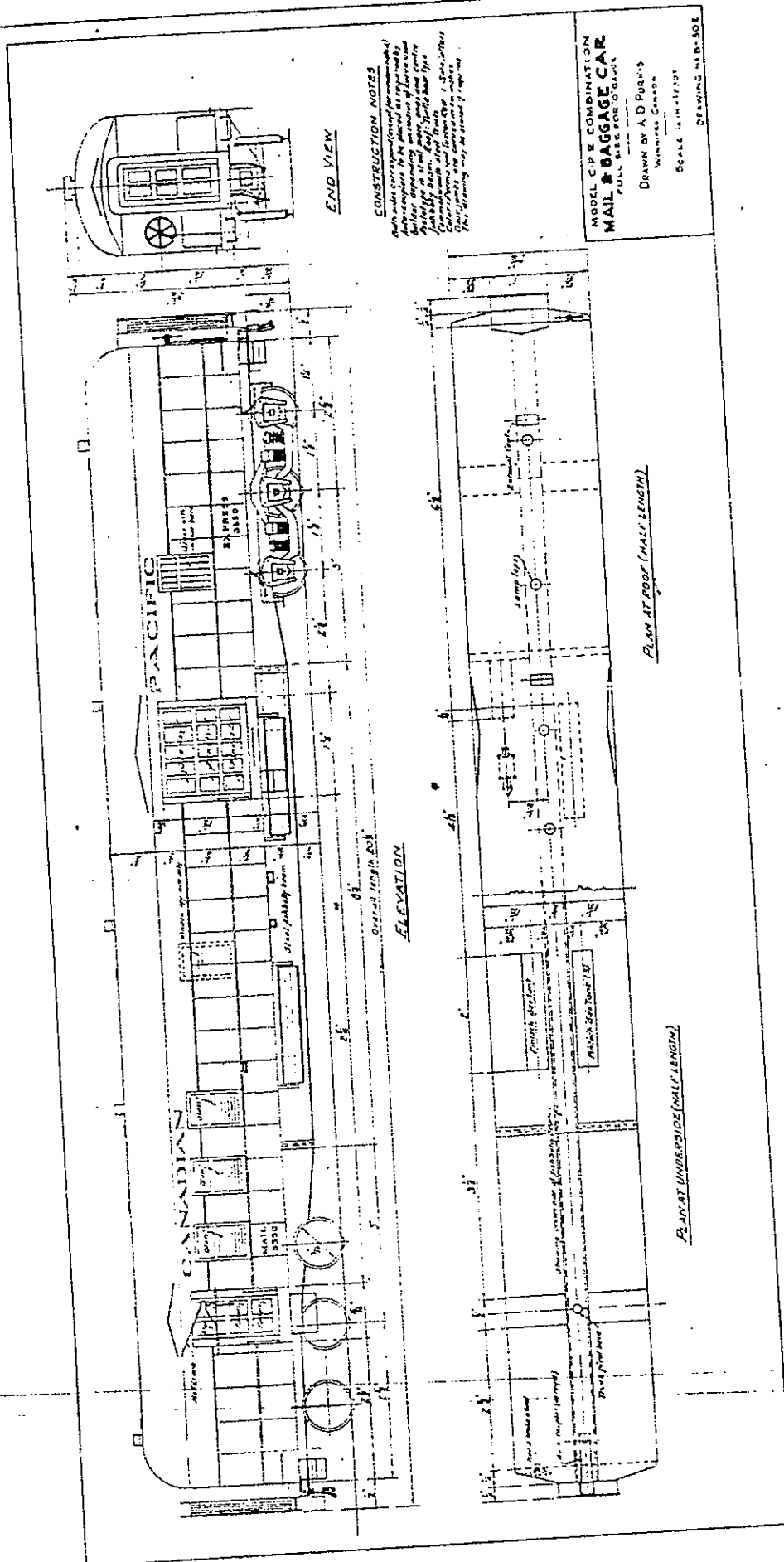
interior arrangement of the 6 cars built at Angus shops in 1928, which was given in our Sept. 1928 issue, pg. 515, is applicable to the latest 2 cars, which were placed in service in Oct. 1929. They were named Grand'Mere and Grande Prairie. The preceding 6 were named Grand Bay, Grand Falls, Grand Forks, Grande Pointe, Grand Valley and Grand Coulee.

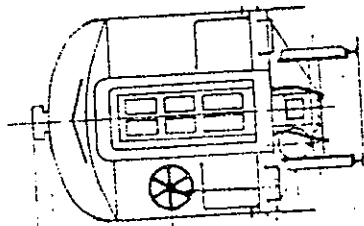
Mail and Baggage Cars.—As mentioned above, there are two types of these cars,





IN PERS. FILE. E-00621. 4. PASSENGER CARS 4470-4473 WITH LARGE END DOORS





END VIEW

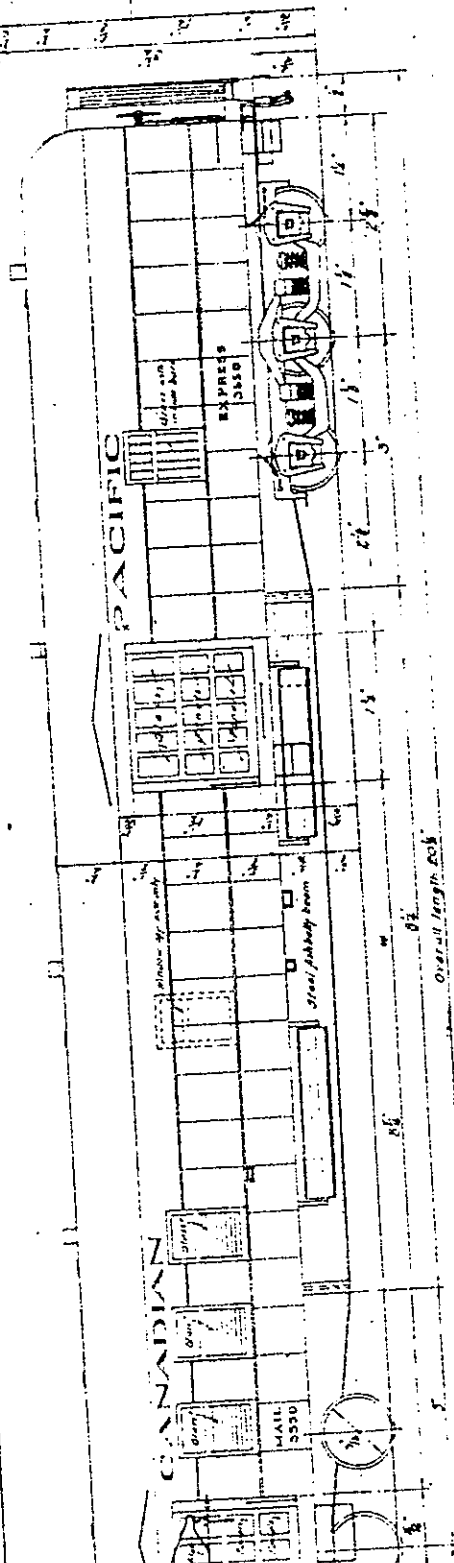
CONSTRUCTION NOTES
 Each unit corresponding (except for minor details) to the original design should be placed as required by the model maker. The model maker should be aware of the fact that the model is a small scale representation of the original design. The model maker should be aware of the fact that the model is a small scale representation of the original design. The model maker should be aware of the fact that the model is a small scale representation of the original design.

MODEL C.P.R. COMBINATION
MAIL & BAGGAGE CAR
 FULL SIZE FOR ORIGIN

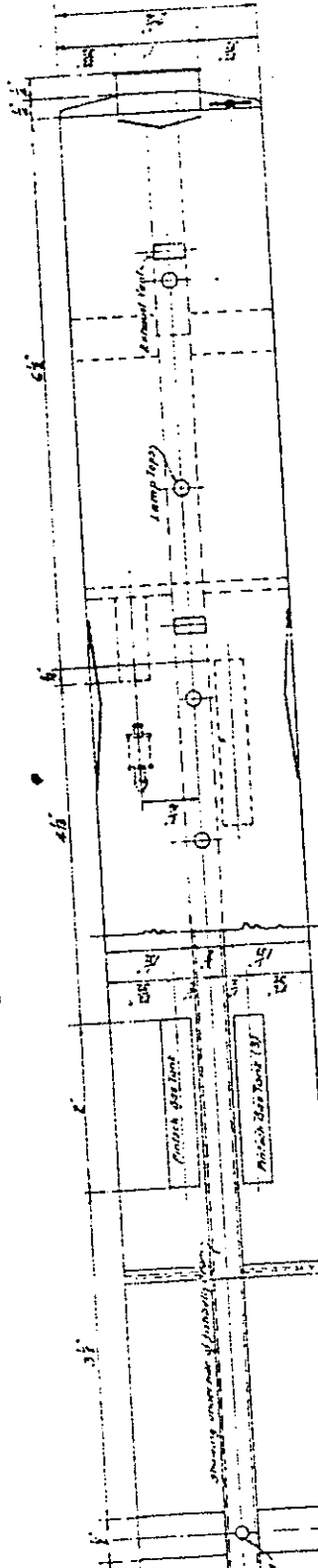
DRAWN BY A.D. PUGH'S
 WINNIPEG, CANADA

SCALE 1/4" = 1'-0"

DRAWING NO. B-502

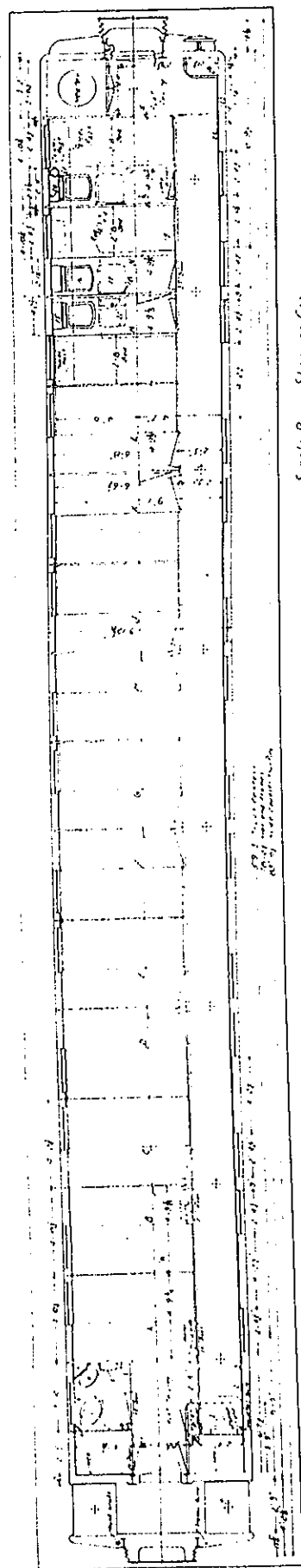


ELEVATION

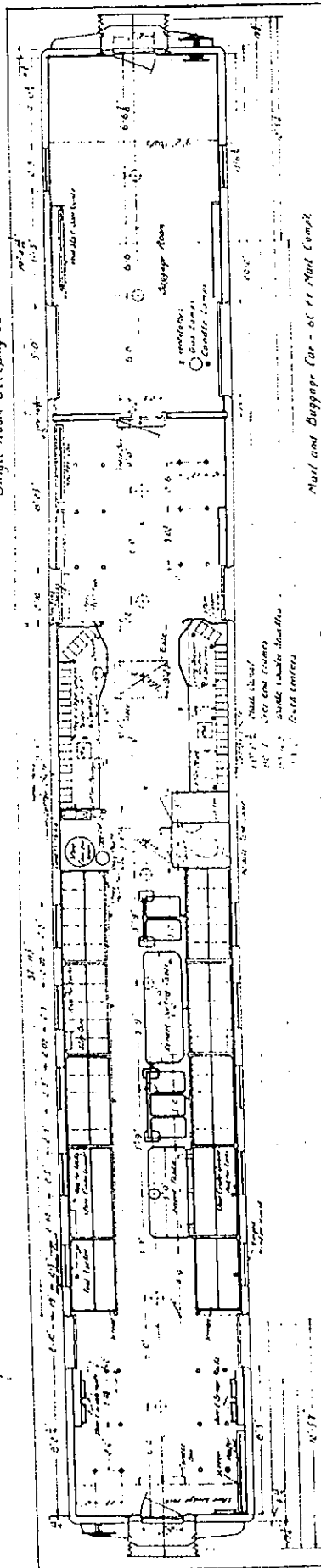


PLAN AT ROOF (HALF LENGTH)

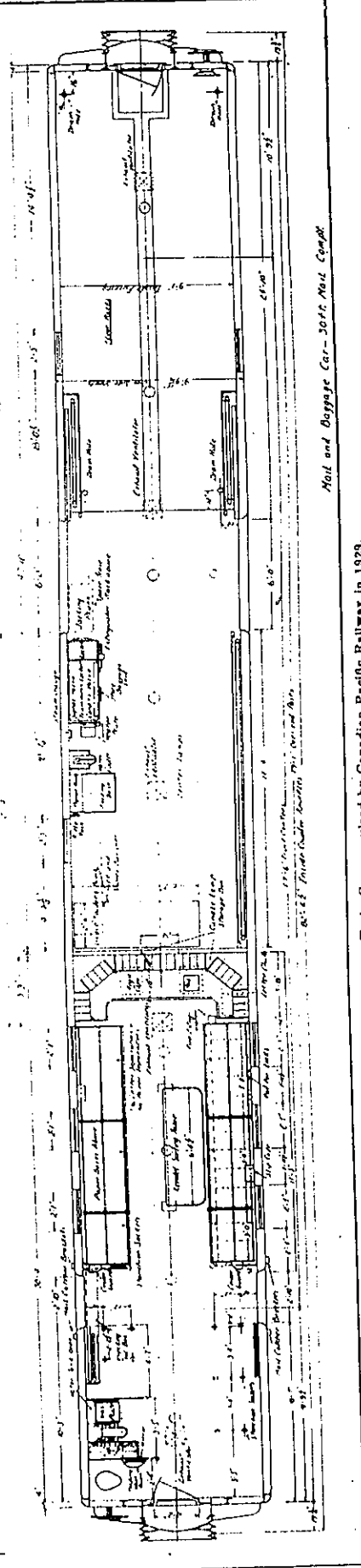
PLAN AT UNDERSIDE (HALF LENGTH)



Single Room Sleeping Car



Mail and Baggage Car - 30 ft. Mail Comp.



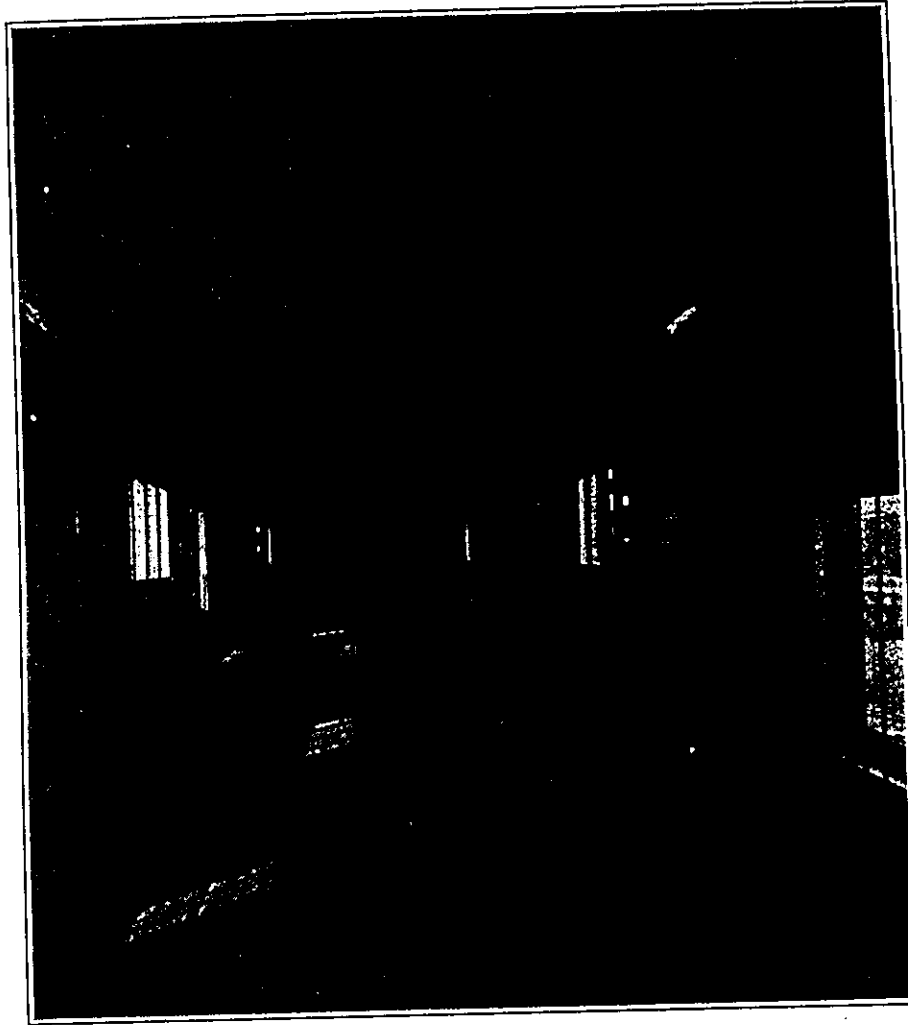
Mail and Baggage Car - 30 ft. Mail Comp.

Passenger Train Cars acquired by Canadian Pacific Railway in 1929.

6 having a 60 ft. 0 3/16 in. inside length mail compartment, and 5 a 30-ft. mail compartment. The 6 cars are 83 ft. 10 1/2 in. long inside coupler knuckles, 80 ft. 7 in. long over end frames, 59 ft. between truck centers, have truck wheelbase of 11 ft., and total wheelbase of 70 ft. Length inside of end posts is 79 ft. 11 in., length inside of baggage compartment is 19 ft. 4 13/16 in.,

The underframe, like that of all the classes of cars described previously except the business cars, is of the fish belly center sill type, with Commonwealth combined body bolster and end platform casting and Z bar side sills; the side framing is also similar, with sheathing of copper bearing steel. The roof, however, is of the rounded type, differing from the clerestory type roofs on

the other cars. It is of wood and canvas construction. The car sliding doors are of metal construction, instead of wood, providing for easier opening and closing and avoiding trouble due to warping. The floor in the mail compartment is of hardwood; that in the baggage compartment is of wood, waterproofed with Referite, with floor racks fitted. The mail compartment



Interior, 80-ft. Baggage Car, Canadian Pacific Railway.

contains the most modern equipment for mail handling, including paper and letter boxes, Kendel sorting table, hinged and stationary tables, bag racks, lock rods, pouch catchers, stationary and movable stanchions, etc., the disposition of this equipment being shown in the accompanying floor plan and illustration. Heating is primarily by the Vapor system, with an auxiliary hot water system, a coal stove being provided in the mail compartment. Lighting is by the Pintsch gas system. Equipment includes Westinghouse U.C. 1-18 air brake system, Peacock hand brakes at both ends of car, A.R.A. standard $5\frac{1}{2}$ x 10 in. axles, Waugh P-24-K friction draft gear, Waugh H-27 buffers, standard type D bottom-operated couplers, McCord journal boxes, Utility ventilators, de Witt cinder guards, National centering device, Holco diaphragms, Pyrene fire extinguishers, Safety Car Heating and Lighting Co. side lamp fixtures, schedule K signal system, American Brake Co. slack adjuster, and railway standard folding wash basins. The trucks are of the Commonwealth 6-wheel type, with $5\frac{1}{2}$ x 10 in. journals.

The 5 cars with the 30-ft. mail compartments are 83 ft. $10\frac{1}{2}$ in. long inside coupler knuckles, 80 ft. 7 in. long over end posts, and 69 ft. long between truck centers. They are similar structurally to the cars with the 60 ft. mail compartments. Additional dimensions, and arrangement of fittings, are shown on the accompanying floor plan.

The six 80-ft. baggage cars are of the same type structurally as all of the cars

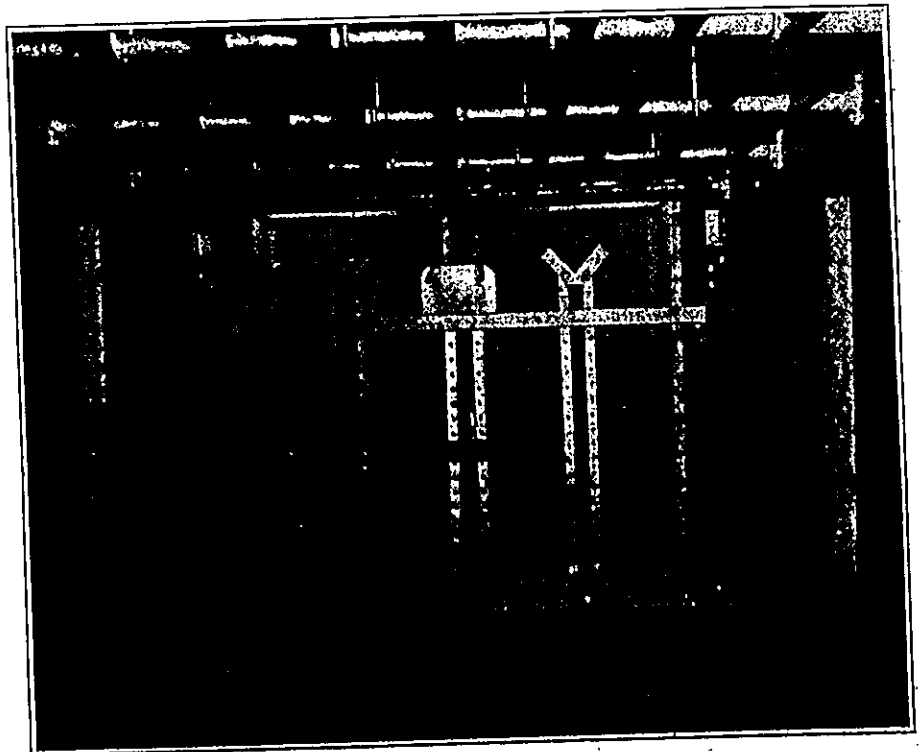
described previously except the business cars, having fish belly center sill, Commonwealth cast steel body bolsters integral with the end platform and buffer castings, Z bar side sills, angle side posts, Z bar side plates, angle bottom chords, copper bearing steel sheathing, etc. The roof is of the turtle back type, of wood and canvas construction. The chief dimensions are as follows:—

Length over end frames.....	80 ft. 7 in.
Length inside coupler knuckles.....	83 ft. $10\frac{1}{2}$ in.
Truck centers.....	69 ft.
" wheelbase.....	11 ft.
Total wheel base.....	79 ft. 11 in.
Length inside end posts.....	9 ft. 10 $\frac{1}{4}$ in.
Width over side sheets.....	9 ft. 11 $\frac{1}{2}$ in.
" between side post furrings.....	10 ft. 1 $\frac{1}{4}$ in.
" over eaves.....	9 ft. 2 $\frac{1}{4}$ in.
" between side plate Z bars.....	3 ft. 7 $\frac{1}{4}$ in.
Height rail to bottom of side sill.....	11 ft. 1 $\frac{1}{2}$ in.
" " eaves.....	14 ft. 2 $\frac{1}{4}$ in.
" " top of roof at center.....	14 ft. 11 in.
" " " ventilators.....	14 ft. 11 in.

The cars are fitted with Gosco folding bunks. Lighting is by the Pintsch gas system, the lighting fixtures being the Safety Car Heating and Lighting Co.'s no. 8511 center type. The sliding doors are of steel construction, as in the combined mail and baggage cars. The floor is of the same type as in the baggage end of the combined mail and baggage car, viz., of wood, with Referite waterproof finish, and fitted with floor racks. The trucks are of the same type as those of the combined mail and baggage cars, viz., Commonwealth 6-wheel type, with 11 ft. wheelbase, fitted with $5\frac{1}{2}$ x 10 in. axles, McCord journal boxes, Simplex clasp brakes, and rolled steel center, steel tired wheels, 36 $\frac{1}{4}$ in. diam. Operating equipment is the same as given for the combined mail and baggage cars.

The 50 express refrigerator cars are of the composite type, with steel underframe and wood superstructure. The chief dimensions are as follows:—

Length over frame.....	45 ft.
" inside coupler knuckles.....	48 ft. 3 $\frac{1}{4}$ in.
" end lining.....	43 ft. 11 $\frac{3}{4}$ in.
" between bulkheads.....	38 ft. 4 $\frac{1}{2}$ in.
Width over side sills.....	9 ft. 6 $\frac{1}{2}$ in.
" eaves.....	9 ft. 10 $\frac{1}{4}$ in.
" all.....	10 ft. 5 $\frac{1}{4}$ in.
" of side door opening.....	5 ft.



Interior, Express Refrigerator Car, with wire basket refrigeration system, Canadian Pacific Railway.

Height rail to bottom of end sill	3 ft. 3 1/4 in.
" " " eaves	12 ft. 8 1/4 in.
" " " top of running boards	13 ft. 6 1/4 in.
" " " "floor	4 ft. 2 1/4 in.
" floor to ceiling	7 ft. 9 in.
" side door opening	6 ft. 9 1/4 in.
" floor racks	5 1/4 in.

The underframes of these cars are of the fish belly type. The center sill is built up of top chord angles 4 x 4 x 3/8 in. with 3/8 x 26 1/2 in. cover plate; bottom chords two angles are 4 x 4 x 3/8 in. Side sills are 6 x 3 1/2 in. x 15.3 lb. ship channels. Side posts and braces are B.C. fir; corner posts are oak. The side and end sheathing is of 13/16 x 3 1/4 in. face t. and g. B.C. fir. The side lining is of the same material, with a lower board 1 3/4 x 5 1/2 in. extending from the door openings to the bulkheads in front of the ice bunkers. The end lining is of the same material, from floor to ceiling, with an added thickness of 3/8 x 3 1/4 in.

shiplap white pine extending from the ceiling to within 4 1/2 ft. of the floor. The ceiling boards are also 13/16 x 3 1/4 in. face B.C. fir. The cars are fitted with Murphy type XLA flexible roofs, and are insulated throughout with Hairinsul. The doors are equipped with Miner fixtures and insulation. Movable floor racks are applied.

These cars are equipped with the wire basket system of refrigeration, 2 double galvanized wire baskets being fitted at each end. These baskets, of the type shown in an accompanying illustration, are separated from the lading by insulated bulkheads, and are iced through hatch openings in the roof. The bulkheads in front of the ice baskets are 2 5/8 in. thick, framed with B.C. fir, and sheathed on both sides with 13/16 in. t. and g. fir, placed diagonally on the ice basket side and hori-

zontally on the lading side. The drip pans below the ice baskets are of 1/16 in. zinc, and there are 4 malleable iron combination well traps and drains per car, carrying off all water from the drip pans and discharging it below the underframe.

The cars are mounted on Commonwealth 4-wheel trucks, with forged steel center, steel tired wheels, 36 1/4 in. diam., and with 5 1/2 x 10 in. journals and Simplex clasp brakes. Journal box wedges are the A.R.A. drop forged type. Truck wheelbase is 7 ft., distance between truck centers is 32 ft., and total wheelbase is 39 ft. Other equipment includes Westinghouse schedule LN-1412 air brake system, Ureco hand brakes, A.R.A. type D bottom operated couplers, Miner friction type A-5-X draft gear, forged steel draft yokes, and Stucki side bearings.

The 1936 CPR JUBILEE TRAINS



Figure (1-14) Locomotive with Train, Canadian Pacific Railway

with these locomotives to form four complete trains of semi-streamlined form. It was specified that while the National Steel Car Corporation would build the four mail and express cars complete, it would build only the frames for the four baggage and buffet cars and eight first class cars. This programme was adhered to, and the baggage and buffet cars and first class cars were finished at the Angus shops in Montreal.

The first of the five locomotives to be completed was delivered to the Canadian Pacific by Montreal Locomotive Works on July 27, and the occasion was marked by appropriate ceremony held at the Montreal Locomotive Works plant. Quite appropriately, the locomotive was to be the first with the 4-4-4 wheel arrangement to operate in Canada, have been designated the Jubilee type to mark the fact that the first J.C. began operation in the Jubilee year of the Canadian Pacific transcontinental railway service. It having been in 1886, fifty years ago, that the first transcontinental train proceeded from Montreal to the Pacific coast. At the proceedings on July 27, when hundreds attended, addresses

transcontinental train in 1886, had been arranged, and following the conclusion of the addresses, locomotive 3000, the first of the new Jubilee type to be completed, forced its way through it to the accompaniment of the enthusiastic cheer of the spectators.

Mayor Howie, in his address, pointed out that for half a century the railways have constituted the main link holding the Dominion together, and he complimented the Canadian Pacific management on the new step being taken to improve communication between east and west. He congratulated the Montreal Locomotive Works upon the excellence of the new locomotive, and said that they are a symbol of what Canada can do and will do in the reconstruction years ahead. Mr. Dickenson, afterwards, declared that the Jubilee type locomotives were designed particularly for ultra high speeds, hauling a one five light weight train, spoke of the many advantages of steam operation in good railroading, and said that all the speed which any railway management will ever dare use can be secured with the greatest facility by the use of steam. He recalled that in the 31 years of its ex-

istence, locomotive is placed. Following the placing of such an order, necessary orders are placed from one end of the country to the other for materials, freight movement is stimulated, and new money is placed in circulation. He said money is placed in circulation.

The stimulation means that Canada is progressing, and not accepting defeat, and is a further evidence of the substantial part the Canadian Pacific Railway is steadily taking in the rebuilding of Canada. These engines, he said, are an especially appropriate new feature in the Jubilee year of the company's transcontinental train service.

Sir Ewart Dooly, in accepting the locomotive on behalf of the Canadian Pacific, mentioned that it is a symbol for a celebration to be held to mark the delivery of a locomotive. He explained that the proceedings were very appropriate in view of the fact that the new machine is the beginning of a new era in the Canadian locomotive industry. He said, in part, "The engine is a symbol because it marks the beginning of the first order for locomotives placed by the Canadian Pacific in a period of ten years. At no time in the past ten years has there been such a full in locomotive

boards are supported from the main frame, with no attachment to the boiler, except at the firebox at the right and left sides. Where a special bracket has been made with a sliding arrangement which allows the boiler to move freely without putting any strain on the running board which would tend to cause it to buckle.

As stated, there is no steam dome; a tank with a cast steel cover, on which the safety valves are mounted, is applied in its place to allow entry to the boiler for making of inspections, etc.

The cab is of the standard vestibule type as employed on the Canadian Pacific, but there has been a return to the use of rounded corners at the front, to give a smoother appearance. The roof ventilators have been depressed, making them invisible from the ground. The cab lining is John Manslie drop-proof fibboard.

To support the air and water pumps, a combined frame, firebox and pump support was designed, so arranged as to carry the air pump on the right side of the locomotive and the water pump on the left side. Not only does this give a better balance to the locomotive, but it has also removed the pumps from the boiler and thus relieves the boiler from strain. In addition, the pumps are easily accessible for repair work.

The general arrangement of the parts of the locomotive does not vary to any great extent from that employed heretofore on the Canadian Pacific. The feed water heater, smoke stack, sand boxes, top check, safety valves, whistle and steam turret are in their usual locations. The bell has been placed on the left back steam chest cover, just below the running board scarf. The dynamo has been placed on the back deck casting, under the floor of the cab, the exhaust being piped up through the cab to the roof. The whistle is studded to the boiler shell immediately back of the safety valves, and a combination cowling has been built around the safety valves and whistle; the whistle is supplied with superheated steam, which is piped to the side of the base. The pipe runs from the superheated turret in the side of the

duct to carry air from the grating in the smokebox front to the back of the stack and also to provide a cushion for the number rings. The water shield is so arranged as to allow the boiler to move freely, and expansion and contraction stresses are thrown into the frame work. Handrail posts are of the bent type, allowing for ease in taking up the handrails and for quick removal or replacement. The locomotive front end is so designed that the engine can be loaded up when not in use, and covered by a light removable panel. The pilot is of plate construction, heavily reinforced.

In the construction of the wagon, Canadian Pacific standard practice has been followed. Drop doors are provided at the side to facilitate inspection and cleaning, and the usual collector plates are applied at the end and under the side carriers, to prevent access of cold air to the side sheets. The side carriers are bolted closely to the side sheets. This practice has prevented trouble with firebox side sheets cracking. The ashpan body is of plate construction, with the ashpan hopper and door of cast steel. The grate bars are of the Hoesbed type; they and the headers are made from Chromite heat-resisting steel furnished by Hill Iron and Steel Foundry Co. During recent years the Canadian Pacific has been experimenting with considerable success with the use of an oval shaped section of setting placed vertically in the smoke box, which fits in grooved castings at top and bottom and can be readily removed or replaced. This arrangement is employed on the P2a locomotive.

The electric classification lamps at the front of the locomotive are of a stream-lined design, developed by the railways.

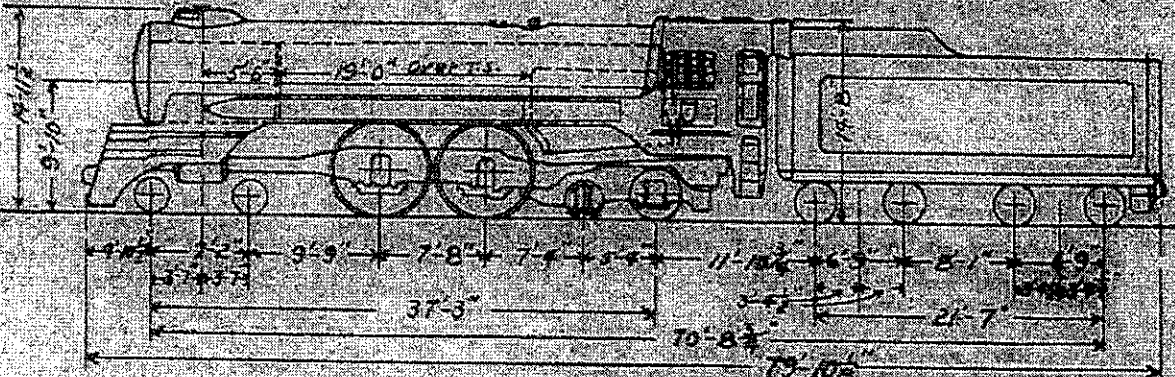
On a previous locomotive, considerable trouble was experienced with the exhaust steam pipe from the cylinders to the feed water heater bundle breaking because of expansion and contraction strains. This difficulty was overcome on that locomotive by the use of a packed slip joint arrangement at the cylinder. This eradicated the trouble entirely, and it allows for quick removal of the pipe in case of any repairs becoming neces-

sary. A similar design has been employed on the P2a locomotive. The boiler shell and firebox were built to C.P.A. specifications for 150 lb. main steam pressure. Working boiler shell stress (ratio) is 37,000 lb. per sq. in. Maximum temperature per sq. ft. of evaporative heating surface is 4,000 lb. per sq. ft. of evaporative heating surface. Tube and firebox heating surface is 22,154 sq. ft. of heating surface. Following are heating surface: Firebox heating surface, grate area 107.1 sq. ft. and fire heating surface, grate area 48.75 sq. ft. Superheated surface, grate area 19.75 sq. ft. Combined heating surface, grate area 107.1 sq. ft. and fire heating surface, grate area 48.75 sq. ft. Total heating surface, grate area 155.85 sq. ft. Tractive force, evaporation 0.100.

The 3 in. piston rods are fitted with Hunt-Phillips bearing rings and driven by Walchman gear. Maximum travel is 3 in. steam lap is 1/4 in.; exhaust clearance is 1/4 in.; lead is 1/4 in.; cut-off in full gear is 54%.

The driving wheels are plain cross bearing type, fitted with A.A. cross axles. The leading frame and tender trucks are fitted with SKF roller bearings; the leading truck has plain bearings and the trailing truck outside coverings. Driving box wedges are adjustable by hand. The crosshead is of the single bar, alligator type.

The air brakes are Westinghouse B. K.T. schedule with 3 1/2 in. cross compound compressor, the latter being mounted as described in the foregoing. The brake valve has the feed valve combined. The locomotive and tender are equipped with clamp brakes throughout, with the exception of the leading wheels of the trailing truck on which single shoes apply. The Westinghouse air compressor throttle valve is fitted, preventing compressor racing. All brake cylinders are mounted on the trucks. The braking power on the drivers is 50%, on leading truck wheels and leading wheels of trailing truck 45%, and on the trailing wheels of the trailing truck 72%. On the tender truck wheels, it is 100% light weight and approximately 50% when loaded. There are two brake cylinders, 8 x 12 in., for the



The Canadian Pacific's Jubilee (1-14), Class P2a, Steam Locomotive, in Elevation.

boiler; there is a valve in the whistle also, so that the steam supply can be cut off for making of repairs.

The boiler barrel is lagged in the usual way, but over the whole of the boiler from the running boards up, there has been placed an outer casing built up of steel construction and covered with a clamped steel jacket. This is secured to the boiler by the expansion of the steel jacket, which is secured to the boiler by means of bolts and nuts.

A similar design has been employed on the P2a locomotive.

The boiler is of the conical type, and an excited steam working pressure is 300 lb. per sq. in. The outside diameter at the front end is 60 1/2 in. and at the largest curve 70 in. The boiler is fitted with a crown sheet of 1 1/2 in. plate and a front end of 1 1/2 in. plate. The boiler is fitted with a crown sheet of 1 1/2 in. plate and a front end of 1 1/2 in. plate. The boiler is fitted with a crown sheet of 1 1/2 in. plate and a front end of 1 1/2 in. plate.

trailing truck wheels, 10 x 10 in., for the leading truck wheels, and two 12 x 10 in. for the leading truck wheels. The locomotive is equipped with three main axles, which are supported by the Hunt-Phillips bearing rings and driven by Walchman gear. Maximum travel is 3 in. steam lap is 1/4 in.; exhaust clearance is 1/4 in.; lead is 1/4 in.; cut-off in full gear is 54%.

The Jubilee type marks a return to the use of lighter locomotives for passenger service. For use with these locomotives our company is constructing light-weight cars. These light-weight trains will provide a greater degree of comfort, without any sacrifice in safety for passengers, than at any time in the past. While we are not the pioneers in reverting to the use of lighter and faster trains, we are pioneers in Canada, a country not so well suited to their use as are other countries with densely populated areas. We feel that we are taking a step which will work out to the mutual benefit of our passengers and ourselves.

In concluding his remarks Sir Edward paid tribute to the engineers and draftsmen who drew up the specifications for the locomotives, decided on the materials to be used, and prepared the drawings. They carried the responsibility of design, he pointed out, and he offered his heartiest congratulations to those thus responsible. In both the Canadian Pacific and Montreal Locomotive Works organizations.

On Aug. 1, a complete train, made up of locomotive 3000, one of the new mail and express cars, one of the baggage and buffet cars and of the first class cars, was placed on exhibit at the Canadian Pacific Windsor Station, at Montreal, and remained there until the evening of Aug. 4. It was inspected by about 60,000 people, and general expressions of praise and of astonishment at the luxurious interior of the cars were heard on all sides.

In the first part of August we were advised that delivery of all five locomotives and of all the cars ordered was expected to be completed prior to Aug. 31, and at the time of writing arrangements have been completed for exhibit of a complete train at Toronto on Aug. 28 and 29; at London, Ont., on Aug. 29, and at Windsor, Ont., on Aug. 31. Plans

Publicity Department is that the trains will finally be placed in operation on day runs between Toronto and Detroit, between Montreal and Quebec and between Edmonton and Calgary.

The Locomotives Described

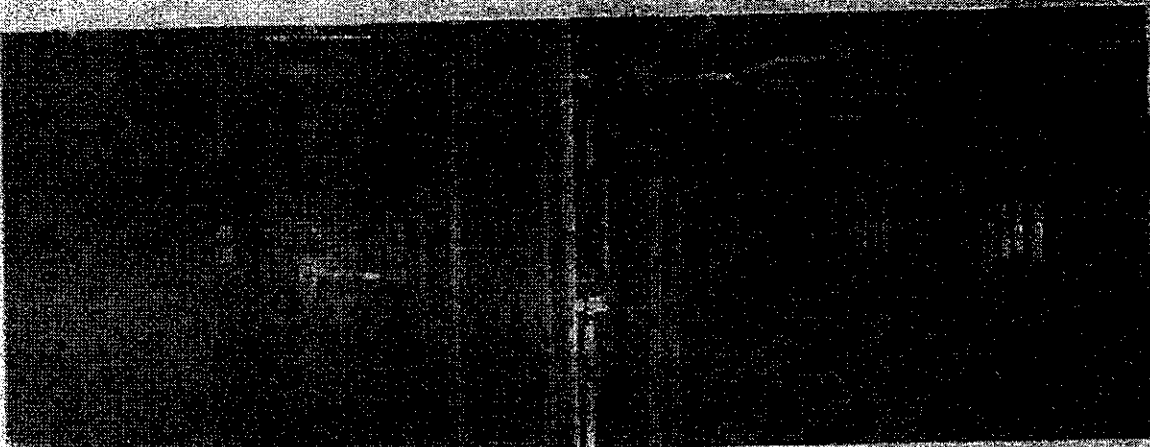
The 4-4-1 locomotives acquired recently have chief dimensions, etc., as follows:

Height to top of stack	14 ft. 11 1/2 in.
Height to center of boiler	3 ft. 10 in.
Width over all	12 ft. 9 in.
Cylinders center to center	7 ft. 6 in.
Weight in working order	
On arrival	122,000 lb.
On loading track	55,000 lb.
On trailing track	71,000 lb.
Total load	126,000 lb.
Trailer loaded	192,000 lb.
Wheelbase	
Driving wheel	7 ft. 6 in.
Loading track	7 ft. 6 in.
Trailing track	3 ft. 10 in.
Loco. total	14 ft. 11 1/2 in.
Loco. and tender wheel	18 ft. 10 in.
Diameter of driving wheels	40 in.
Diameter of loading track wheels	30 in.
Diameter of trailing track wheels	34 1/2 and 42 in.
Cylinders, diameter and stroke	17 1/2 x 24 in.
Boiler pressure	200 lb. per sq. in.
Boiler diameter at first rise, outside	58 1/2 x 14 in.
Boiler diameter at largest curve, outside	57 1/2 in.
Firebox length and width	114 1/2 x 10 x 12 1/2 in.
Tables, number and diameter	47 x 14 in.
Tables, number and diameter	18 x 14 in.
Length over table seats	35 ft. 10 in.
Grade area	55.5 sq. ft.
Heating surfaces	
Firebox	128 sq. ft.
Arch tubes	24 sq. ft.
Firebox total	152 sq. ft.
Tables and ducts	298 sq. ft.
Superheating total	243 sq. ft.
Superheating	118 sq. ft.
Coal, evaporative and superheat	2600 sq. ft.
Rated tractive effort	39,599 lb.

These locomotives are notable for the fact that, despite the adoption of the semi-streamlined form, every safety requirement of the Board of Railway Commissioners for Canada has been complied with fully. They are also notable for the fact that they employ boiler working pressure of 200 lb. per sq. in., this being the highest pressure, so far as we

of the pad and coal hopper, is the stack and the shroud over it, this shroud being placed over the stack to provide a streamlined effect, and at the same time to furnish a location for the number lamps, set in the two front sections of the shroud. In the boiler shell and courses, nickel steel rivets have been used for the first time. These were employed to obtain increased shearing value, and a better balanced seam when using high tensile steel.

The main frames are of high tensile, one-piece nickel cast steel, supplied by Canadian Car and Foundry Co. The cylinders are made of nickel cast iron and are very thoroughly lagged with asbestos mortar with Johns-Manville sponge felt blocks. The driving wheels are of the Boxpok type, of General Steel Castings Corporation design, furnished by Canadian Car and Foundry Co. Both driving wheels are cross-counterbalanced. The amount of cross-counterbalancing required is greatly reduced by the tandem rods employed and because of the fact that the main connection is on the leading driving wheels. By bringing in the center line of the cylinders in this way, the loads applying on the crank pins, wheel centers, axles and main frames are greatly reduced on account of the lower bending moment. Contrary to general practice in cross-counterbalancing, the Canadian Pacific does not use an offset balance weight, preferring to employ a supplementary weight set at an angle of 30 degrees to the main balance weight. In this way, adjustment can readily be made to obtain the balance required in the event of having to use larger rods or crank pins which would offset the angle of the main counterbalancing weight. If the cross-counterbalancing was done by offsetting the main counterbalancing weight from the line of the crank pin, the running



Left, Mail End, Mail and Express Car; Right, Express End, Mail and Express Car.

plates are 4 in. 5.4 lb. channels, back to back. The outside sheathing is $\frac{1}{4}$ in. copper bearing steel, welded to the posts, side sills and side plates. A feature of these cars is the large amount of welding employed in their construction, the rivets in the side framing being confined to three horizontal rows. The roof is of the round or turtle-back type, of $\frac{1}{4}$ in. plate, with the carlines, of the same section as the posts, extending across the car. The hoods are not rounded off in the conventional manner, but are practically square with the car end. The vestibule and posts are 3 in. 21.4 lb. ship channel, of Man-Ten steel. Hotco ones, fold, open-top diaphragms are applied.

The trucks are of the Commonwealth 4-wheel type, fitted with Timken roller bearings. The journals are $5\frac{1}{2}$ x 10 in. and the wheels are of the rolled steel type, A.A.R. standard, 36 in. diam. The air brakes are the Westinghouse E-C-4 schedule, with 8 x 8 in. cylinders, truck-mounted, two cylinders per truck, and Simplex clasp brakes are fitted, with Dominion Brake Shoe Co.'s C-50-E shoes.

In the interior, the car is finished in 18 gauge steel to 7 ft. above the floor, and above in 20 gauge steel, and the walls are painted in buff color. The floor is of hardwood. By way of insulation, in the floor there is one layer of $\frac{1}{2}$ in. and one layer of $\frac{1}{4}$ in. Salamander, and in the sides there is one layer of 1 in. Salamander, the roof being insulated similarly. Around the entire interior there is one layer of no. 65 J-M deadening felt, adhering to the inside of the exterior sheathing.

A feature of these cars is that they are electrically lighted; heretofore gas illumination has been the rule in cars in mail and express service. The cars are heated by thermostatically-controlled Vapor Car Heating Co.'s apparatus, employing air tube radiation.

Equipment in the mail and express cars, not specifically mentioned in the foregoing, includes the following:—15 cells of Exide Ironclad MV-MH type battery; 29 plates in single cell units; Peacock hand brakes; Miner special spring buffing gear; Fabrecks buffer stop guides; C.P.R. standard buffer upper springs; Safety Car Heating and Lighting Co. no. 228 candle brackets; De Witt cinder guards; A.A.R. type E swivel buff couplers; C.P.R. standard coupler centering device; Vapor Car Heating Co. no. 513 steam heat couplers; Cardwell VPS draft gear; Safety Car Heating and Lighting Co. fans; Pyrene

fire extinguishers; Safety Car Heating and Lighting Co. letter bag rack, storage fixtures, letter case and door fixtures; Safety Car Heating and Lighting Co. gas equipment with one tank and 2-burner gas plate; Safety Car Heating and Lighting Co. 4 kw. electric generator complete with control switch; Pitt type generator drive; Duner double pan gravity type hopper; Rex pouch racks; Westinghouse Air Brake Co. schedule K signal equipment; Kendal sorting table; Barco 2 in. steam heat connectors; Vapor Car Heating thermostats and heating valves; C.P.R. standard ventilators; folding type wash basins; water coolers as per C.P.R. drawing; Stucki type A-5010 side bearings; Commonwealth cast steel truck bolsters; A.A.R. $9\frac{1}{2}$ x 10 in. axles; Commonwealth cast steel truck frames; Fabrecks truck friction plate pads; alloy steel elliptical and helical springs.

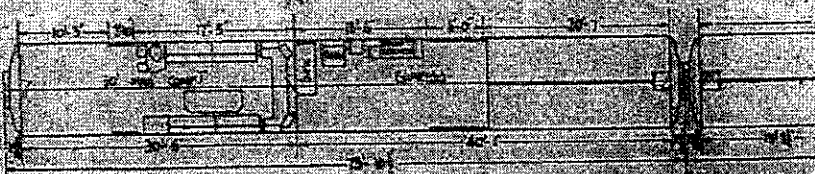
The Baggage and Buffet Cars

The baggage and buffet cars, one of which occupies a position behind the mail and express car in each of the four trains, are like the mail and express cars, 73 ft. 10 $\frac{1}{4}$ in. long inside coupler knuckles, and have the same distance between truck centers, viz., 49 ft. 3 in. The length over end frames, however, is a little less than in the mail and express cars, being 67 ft. 9 $\frac{1}{4}$ in. Height from rail to top of roof is the same, at 12 ft. 11 in., but extreme height, 13 ft. 2 in., is 2 in. less than that of the mail and express cars. The width dimensions are the same in both classes of cars.

In the baggage and buffet car interior arrangement, the baggage section is 25 ft. 4 $\frac{1}{4}$ in. long. The buffet space is 7 ft. 6 in. long, and is so arranged that there is aisle space around it at one side of the car. The main room, with seating capacity of 28, occupies 28 ft. of the car length, and at the end of the car are arranged the men's and women's toilet facilities, occupying 8 ft. 3 in. of the car length. These cars, like the mail and

express cars, are of all-steel construction, and the bodies are mounted on 4-wheel cast steel trucks.

The bottom, side and end framing details is given above for the mail and express cars are generally applicable to the baggage and buffet cars. In the baggage and buffet cars, the window sills are continuous from one end of the car to the other, and the windows are self flush, the window arrangement includes Thermosash with aluminum frames and dehydrated air space, the sash being of Robert Mitchell Co. manufacture. The car insulation is generally the same as that applied to the mail and express cars, but there is an extra layer of $\frac{1}{2}$ in. Salamander throughout. The interior finish of the baggage compartment of the baggage and buffet cars is the same as that of the express end of the mail and express cars, there being hardwood floor, and interior steel sheathing painted the same buff color. The baggage compartment is fitted with fish racks. The buffet section is lined with Masonite, painted green, and the floor is covered with linoleum. A great deal of Monel metal is used in the buffet section. In the main section, the sides are in Masonite, below the windows the surface is painted a dark green; from the windows to the freeze the finish is in a lighter green, and the green used on the ceiling shades into a cream color, this color scheme being a very attractive one. The baggage racks in the car are of cast aluminum, of Robert Mitchell Co. manufacture, and the lighting fixtures are integral with the baggage racks. There is an individual switch for each lighting fixture. The seats of the hardwood Wakefield reversible bucket type and with cushions in Dunlopville coalfining material and with spring backs, are upholstered in green fabric. The floor is covered with linoleum. The blinds are of silk-faced Pantasote in green. An arrangement of small tables at the seats is provided, with the table support, angled



Interior Layout of the Buffet Classes of Cars
Left, mail and express car; center, baggage

by wall brackets. Fifteen persons may be accommodated at table at one time. The buffet counter is 7 ft. 3 in. long and opens into the coach; the arrangement is ideal for the serving of light meals and refreshments, which are provided at moderate rates. The buffet equipment includes all necessary culinary appliances, and, as indicated above, Monel metal fixtures are the general rule.

The baggage and buffet cars and the first class cars are air-conditioned throughout; the Sturtevant water-sprayed ice system being employed, and the air conditioning unit in the baggage and buffet cars is located over the buffet section. Ice is carried under the car body; air is brought in through a central diffusing duct, and expelled via ventilators in the roof, at the four corners of the car body. Heating is by Vapor Car Heating Co. equipment, with an tube radiation, employing thermostatic control. The pressure ventilation system of air conditioning ensures maximum comfort in summer travelling. The air supplied the car interior is not only clean and fresh, but in hot weather is cooled to desirable temperature.

The baggage and buffet car trucks, with Commonwealth cast steel frames and bolsters, have A.A.R. 5 x 9 in. axles operating in Sheppard no. 514-A roller bearings. Side bearings are the Stock A-5010 type. The air brake equipment is the same as that on the mail and express cars; also, as on the mail and express cars, the trucks include Fabreka friction plate pads, alloy steel elliptical and helical springs, and rolled steel wheels.

The equipment on the baggage and buffet cars, not specifically referred to in the foregoing, includes Peacock no. 320 hand brakes; Miner special spring buffing gear; Fabreka buffer stem guides; C.P.R. standard buffer upper springs; A.A.R. type E, swivel butt, bottom-operating couplers; C.P.R. standard coupler centering device; cast steel swivel butt coupler yokes; Cartwell P.D. 6 draft gear; Westinghouse Air Brake Co. schedule K signal equipment; Canadian Car and Foundry Co. steam train line anchors.

The First-Class Cars

The first-class cars, of which eight were acquired, and two of which operate as the last two cars in each of the complete semi-streamlined trains, have the same dimensions as the mail and express cars as concerns length inside-coupler knuckles (75 ft. 10 1/2 in.) and distance between truck centers (49 ft. 3 in.), but they are only 65 ft. long over-end frames, compared with 70 ft. 7 1/2 in. for the mail and express cars and 57 ft. 9 1/4 in. for the baggage and buffet cars. These cars, like the other two classes, are of all-steel construction. Light weight is 112,000 lb., the baggage and buffet car weight being the same; this compared with 109,000 lb. for the mail and express cars. Extreme width of the first-class cars and width over steps is the same as for the mail and express cars.

From one end to the other, the total

car length is composed as follows:—Main toilet facilities on one side of the main, 3 ft. 3 1/2 in.; men's lavatory with seating capacity of 10 (with toilet at one side), 12 ft. 6 in.; main room with seating capacity of 36, and with central aisle of 10 ft. 10 in.; women's lavatory with two seats, with toilet at side of car opposite to that which it occupies at opposite end, 3 ft. 4 1/2 in.; women's toilet facilities at one side of main, 3 ft. 9 1/2 in. Total seating capacity of car is 61. The layout is shown on the accompanying floor plan.

As concerns underframes, side and end framing, etc., the construction is generally the same as in the mail and express cars and baggage and buffet cars, and the same bowed sides and rounded roof are in evidence. As in the other cars, much welding has been employed. As in the baggage and buffet cars, the heating is by Vapor Car Heating Co. equipment, with an tube radiation and thermostatic control, and the cars are air-conditioned throughout by the Sturtevant water-sprayed ice system, the conditioning unit being at the end of the car containing the men's lounge. As in the baggage and buffet cars, the baggage racks and lighting fixtures are integral; the fixture over each seat being controlled by individual switch. The seats, particularly comfortable and attractive, are of the individual, self-adjustable, reclining and rotating type, spaced much farther apart than usual and providing maximum of comfort for the passengers. The occupants can arrange the seats at any angle or facing any direction desired. The seat cushions are of Dacronillo cushioning material, and the seats (excluding those in the men's lounge which are upholstered in leather) are upholstered in brown friezeette. In the men's and women's lounges, sofas are provided.

The car floor is covered with linoleum. The hoppers and basins throughout are of porcelain. The car interior, as in the baggage and buffet cars, is painted, but the color arrangement is a series of browns, with the upper portions of the walls and the ceiling in a lighter shade than that employed below the window line. The window blinds throughout the car are in silk-faced Parasette.

The bodies of the first-class cars are mounted on Commonwealth cast steel trucks, with 5 x 9 in. axles; they have rolled steel wheels, disc brakes, and roller bearings for the journals. However, whereas the mail and express cars are fitted with Timken roller bearings, and the baggage and buffet cars with Sheppard no. 514-A roller bearings, the roller bearings for the first-class cars are of Pettair manufacture. The truck side bearings, as in the other two classes of cars, are the Stock A-5010 type; the brake shoes are the Dominion Brake Shoe Co.'s C-59-X type, and Fabreka friction plate pads and alloy steel elliptical and helical springs are employed. The cars are equipped with the Westinghouse schedule UC-4 air brake equipment, with 3 x 8 in. cylinders; Peacock no. 302 hand brakes; Miner special spring buffing gear; A.A.R. type E,

swivel butt, bottom-operating couplers; and Peacock no. 320 hand brakes. The cars are A.A.R. type E, swivel butt, bottom-operating couplers; and Peacock no. 320 hand brakes. The cars are A.A.R. type E, swivel butt, bottom-operating couplers; and Peacock no. 320 hand brakes.

The cars are equipped with Vapor Car Heating Co. equipment, with an tube radiation and thermostatic control, and the cars are air-conditioned throughout by the Sturtevant water-sprayed ice system, the conditioning unit being at the end of the car containing the men's lounge.

An added feature of the first-class cars is the main room of the baggage and buffet car, 36 ft. 10 in. long, while the total seating capacity in the first-class car is 61. The main room plus 10 in. main room plus 10 in. women's lavatory. In these are two first-class cars in each train. The total passenger seating capacity per train is 24 seats 1st, 2nd, or 3rd.

Operation—Advice from the Canadian Pacific management over the month of August was that the trains were scheduled for operation as follows:—Between Montreal and Quebec, between Toronto and Windsor, and between Calgary and Edmonton. Our advice stated that schedules had not been finally determined upon, pending actual road trials of the trains, capabilities, and that the initial operation would be in local service.

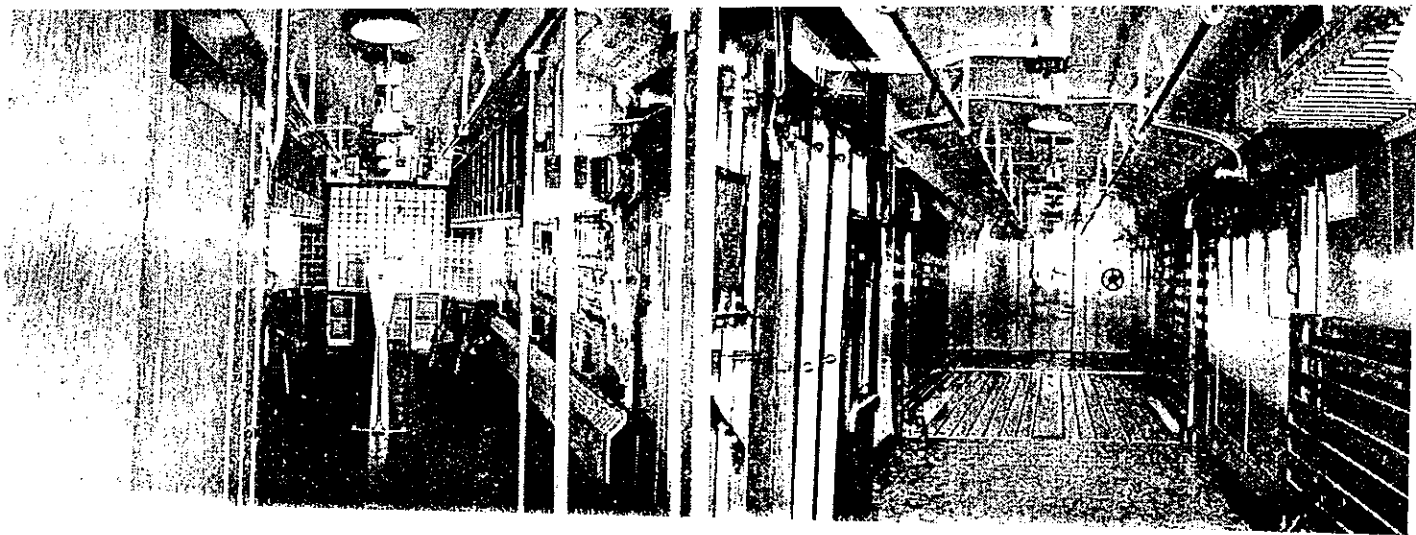
Inspection by public.—Arranged in our September issue in connection with the description of the locomotive, the first of the complete trains to be acquired was placed on display at the Windsor Street Station, Montreal, at the beginning of August, and during the few days it remained there it was inspected by some 80,000 people. A train was exhibited at Toronto on Aug. 26 and 27 and was viewed by many thousands of citizens; it was shown in London, Ont., on Aug. 29, and in Windsor, Ont., on Aug. 31, and attracted large crowds of people.

Another train left Montreal on the afternoon of Aug. 31, bound for Western Canada. It was exhibited at North Bay, Ont., on Aug. 24, and at Sudbury, Ont., on the following day. It was then displayed at Port Arthur and Port William, after which it continued to various western Canadian points, where it attracted as much attention and was the cause of as much favorable comment as in Eastern Canada. The train, the one to operate between Calgary and Edmonton, has been named "Calisco" according to announcement by W. A. Neil, Vice President, Canadian Pacific, Law West of Port Arthur, made in Windsor on Sept. 11. To that date the train had been exhibited at many Prairie Provinces points, and was en route to British Columbia lines. By actual count more than 150,000 people passed through the train while it was on exhibit in the various towns and cities on the prairie.

The public acceptance of the train has been remarkably favorable. During the past two or three years, the streamlined trains operated on U.S.A. railways have received a great deal of publicity in the daily press, and it was only natural that Canadian citizens should avail themselves of the opportunity to see the first light-weight, high-speed train built for service in Canada. The many thousands



In Canadian Pacific Semi-Streamlined Trains.
and Buffet car, right, First-class car.



Left, Mail End, Mail and Express Car; Right, Express End, Mail and Express Car.

plates are 4 in. 5.4 lb. channels, back to back. The outside sheathing is $\frac{1}{8}$ in. copper bearing steel, welded to the posts, side sills and side plates. A feature of these cars is the large amount of welding employed in their construction, the rivets in the side framing being confined to three horizontal rows. The roof is of the round or turtle-back type, of $\frac{1}{8}$ in. plate, with the carlines, of the same section as the posts, extending across the car. The hoods are not rounded off in the conventional manner, but are practically square with the car end. The vestibule end posts are 8 in. 21.4 lb. ship channel, of Man-Ten steel. Holco one-fold, open-top diaphragms are applied.

The trucks are of the Commonwealth 4-wheel type, fitted with Timken roller bearings. The journals are $5\frac{1}{2} \times 10$ in. and the wheels are of the rolled steel type, A.A.R. standard, 36 in. diam. The air brakes are the Westinghouse UC-4 schedule, with 8 x 8 in. cylinders, truck-mounted, two cylinders per truck, and Simplex clasp brakes are fitted, with Dominion Brake Shoe Co.'s C-50-X shoes.

In the interior, the car is finished in 6 gauge steel to 7 ft. above the floor, and above in 20 gauge steel, and the walls are painted in buff color. The floor is of hardwood. By way of insulation, in the floor there is one layer of $\frac{3}{4}$ in. and one layer of $\frac{1}{2}$ in. Salamander, and on the sides there is one layer of 1 in. salamander, the roof being insulated similarly. Around the entire interior there is one layer of no. 65 J-M deaden-felt, adhering to the inside of the exterior sheathing.

A feature of these cars is that they are electrically lighted; heretofore gas illumination has been the rule in cars of mail and express service. The cars are heated by thermostatically-controlled Vapor Car Heating Co. apparatus, employing fin tube radiation.

Equipment in the mail and express cars, not specifically mentioned in the foregoing, includes the following:—16 lbs. of Exide Ironclad MV. MH. type battery, 29 plates in single cell units;acock hand brakes; Miner special ring buffing gear; Fabreeka buffer em guides; C.P.R. standard buffer per springs; Safety Car Heating and Lighting Co. no. 282 candle brackets; Witt cinder guards; A.A.R. type E, level butt couplers; C.P.R. standard plier centering device; Vapor Car Heating Co. no. 813 steam heat couplers; rdwell PF6 draft gear; Safety Car Heating and Lighting Co. fans; Pyrene

fire extinguishers; Safety Car Heating and Lighting Co. letter bag rack, storage fixtures, letter case and door fixtures; Safety Car Heating and Lighting Co. gas equipment with one tank and 2-burner gas plate; Safety Car Heating and Lighting Co. 4 kw. electric generator complete with control switch; Pitt type generator drive; Duner double pan gravity type hopper; Rex pouch racks; Westinghouse Air Brake Co. schedule K signal equipment; Kendal sorting table; Barco 2 in. steam heat connectors; Vapor Car Heating thermostats and heating valves; C.P.R. standard ventilators; folding type wash basins; water coolers as per C.P.R. drawing; Stucki type A-5010 side bearings; Commonwealth cast steel truck bolsters; A.A.R. $5\frac{1}{2} \times 10$ in. axles; Commonwealth cast steel truck frames; Fabreeka truck friction plate pads; alloy steel elliptical and helical springs.

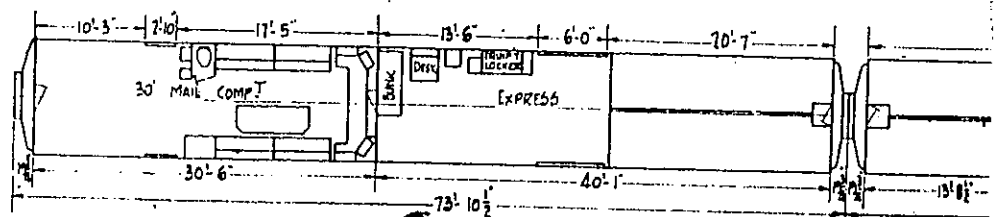
The Baggage and Buffet Cars

The baggage and buffet cars, one of which occupies a position behind the mail and express car in each of the four trains, are, like the mail and express cars, 73 ft. 10 $\frac{1}{2}$ in. long inside coupler knuckles, and have the same distance between truck centers, viz., 49 ft. 8 in. The length over end frames, however, is a little less than in the mail and express cars, being 67 ft. 9 $\frac{1}{2}$ in. Height from rail to top of roof is the same, at 12 ft. 11 in., but extreme height, 13 ft. 2 in., is 2 in. less than that of the mail and express cars. The width dimensions are the same in both classes of cars.

In the baggage and buffet car interior arrangement, the baggage section is 25 ft. 4 $\frac{1}{2}$ in. long. The buffet space is 7 ft. 6 in. long, and is so arranged that there is aisle space around it at one side of the car. The main room, with seating capacity of 28, occupies 28 ft. of the car length, and at the end of the car are arranged the men's and women's toilet facilities, occupying 6 ft. 3 in. of the car length. These cars, like the mail and

express cars, are of all-steel construction, and the bodies are mounted on 4-wheel cast steel trucks.

The bottom, side and end framing details as given above for the mail and express cars are generally applicable to the baggage and buffet cars. In the baggage and buffet cars, the window sills are continuous from one end of the car to the other, and the windows are set flush; the window arrangement includes Thermosash with aluminum frames and dehydrated air space, the sash being of Robert Mitchell Co. manufacture. The car insulation is generally the same as that applied to the mail and express cars, but there is an extra layer of $\frac{1}{2}$ in. Salamander throughout. The interior finish of the baggage compartment of the baggage and buffet cars is the same as that of the express end of the mail and express cars, there being hardwood floor, and interior steel sheathing painted the same buff color. The baggage compartment is fitted with fish racks. The buffet section is lined with Masonite, painted green, and the floor is covered with linoleum. A great deal of Monel metal is used in the buffet section. In the main section, the sides are in Masonite; below the windows the surface is painted a dark green; from the windows to the frieze the finish is in a lighter green, and the green used on the ceiling shades into a cream color, this color scheme being a very attractive one. The baggage racks in the car are of cast aluminum, of Robert Mitchell Co. manufacture, and the lighting fixtures are integral with the baggage racks. There is an individual switch for each lighting fixture. The seats, of the Heywood-Wakefield reversible bucket type and with cushions in Dunlopillo cushioning material and with spring backs, are upholstered in green friezette. The floor is covered with linoleum. The blinds are of silk-faced Pantasote, in green. An arrangement of small tables at the seats is provided, with the table support aided



Interior Layout of the Three Classes of Cars
Left, mail and express car; center, baggage

be accommodated at table at one time. The buffet counter is 7 ft. 6 in. long and opens into the coach; the arrangement is ideal for the serving of light meals and refreshments, which are provided at moderate rates. The buffet equipment includes all necessary culinary appliances, and, as indicated above, Monel metal fittings are the general rule.

The baggage and buffet cars and the first class cars are air-conditioned throughout, the Sturtevant water-sprayed ice system being employed, and the air conditioning unit in the baggage and buffet cars is located over the buffet section. Ice is carried under the car body; air is brought in through a central diffusing duct, and expelled via ventilators in the roof, at the four corners of the car body. Heating is by Vapor Car Heating Co. equipment, with fin tube radiation, employing thermostatic control. The pressure ventilation system of air conditioning ensures maximum comfort in summer travelling. The air supplied the car interior is not only clean and fresh, but in hot weather is cooled to desirable temperature.

The baggage and buffet car trucks, with Commonwealth cast steel frames and bolsters, have A.A.R. 5 x 9 in. axles operating in Sheppard no. 514-A roller bearings. Side bearings are the Stucki A-5010 type. The air brake equipment is the same as that on the mail and express cars; also, as on the mail and express cars, the trucks include Fabreeka friction plate pads, alloy steel elliptical and helical springs, and rolled steel wheels.

The equipment on the baggage and buffet cars, not specifically referred to in the foregoing, includes Peacock no. 320 hand brakes; Miner special spring buffing gear; Fabreeka buffer stem guides; C.P.R. standard buffer upper springs; A.A.R. type E, swivel butt, bottom-operating couplers; C.P.R. standard coupler centering device; cast steel, swivel butt coupler yokes; Cardwell PF-6 draft gear; Westinghouse Air Brake Co. schedule K signal equipment; Canadian Car and Foundry Co. steam train line anchors.

The First-Class Cars

The first-class cars, of which eight were acquired, and two of which operate as the last two cars in each of the complete semi-streamlined trains, have the same dimensions as the mail and express cars as concerns length inside-coupler knuckles (73 ft. 10½ in.) and distance between truck centers (49 ft. 8 in.), but they are only 65 ft. long over end frames, compared with 70 ft. 7 in. for the mail and express cars and 67 ft. 9½ in. for the baggage and buffet cars. These cars, like the other two classes, are of all-steel construction. Light weight is 112,000 lb., the baggage and buffet car weight being the same; this compares with 109,000 lb. for the mail and express cars. Extreme width of the first-class cars and width over steps is the same as for the mail and express cars.

From one end to the other, the total

car length is occupied as follows:—Men's toilet facilities at one side of the aisle, 3 ft. 9¾ in.; men's lounge, with seating capacity of 10 (with aisle at one side), 12 ft.; main room, with seating capacity of 36, and with central aisle, 36 ft. 10 in.; women's lounge, with five seats (with aisle at side of car opposite to that which it occupies at opposite end), 8 ft. 6½ in.; women's toilet facilities, at one side of aisle, 3 ft. 9¾ in. Total seating capacity of car is 51. The layout is shown on the accompanying floor plan.

As concerns underframe, side and end framing, etc., the construction is generally the same as in the mail and express cars and baggage and buffet cars, and the same bowed sides and rounded roof are in evidence. As in the other cars, much welding has been employed. As in the baggage and buffet cars, the heating is by Vapor Car Heating Co. equipment, with fin tube radiation and thermostatic control, and the cars are air-conditioned throughout by the Sturtevant water-sprayed ice system, the conditioning unit being at the end of the car containing the men's lounge. As in the baggage and buffet cars, the baggage racks and lighting fixtures are integral, the fixture over each seat being controlled by individual switch. The seats, particularly comfortable and attractive, are of the individual, self-adjustable, reclining and rotating type, spaced much farther apart than usual and providing maximum of comfort for the passengers. The occupants can arrange the seats at any angle or facing any direction desired. The seat cushions are of Dunlopillo cushioning material, and the seats (excluding those in the men's lounge, which are upholstered in leather) are upholstered in brown frieze. In the men's and women's lounges, sofas are provided.

The car floor is covered with linoleum. The hoppers and basins throughout are of porcelain. The car interior, as in the baggage and buffet cars, is painted, but the color arrangement is a series of browns, with the upper portions of the walls and the ceiling in a lighter shade than that employed below the window line. The window blinds throughout the car are in silk-faced Pantasote.

The bodies of the first-class cars are mounted on Commonwealth cast steel trucks, with 5 x 9 in. axles; they have rolled steel wheels, clasp brakes, and roller bearings for the journals. However, whereas the mail and express cars are fitted with Timken roller bearings, and the baggage and buffet cars with Sheppard no. 514-A roller bearings, the roller bearings for the first-class cars are of Fafnir manufacture. The truck side bearings, as in the other two classes of cars, are the Stucki A-5010 type; the brake shoes are the Dominion Brake Shoe Co.'s C-50-X type, and Fabreeka friction plate pads and alloy steel elliptical and helical springs are employed. The cars are equipped with the Westinghouse schedule UC-4 air brake equipment, with 8 x 8 in. cylinders; Peacock no. 302 hand brakes; Miner special spring buffing gear; A.A.R. type E,

swivel butt, bottom-operated couplers; cast steel swivel butt coupler yokes; Miner A-5-X B draft gear; Westinghouse schedule K signal equipment and Canadian Car and Foundry Co. steam train line anchors.

The car exteriors are finished in Tuscan red, with black striping and gold lettering, and at each side the Canadian Pacific emblem is prominently displayed.

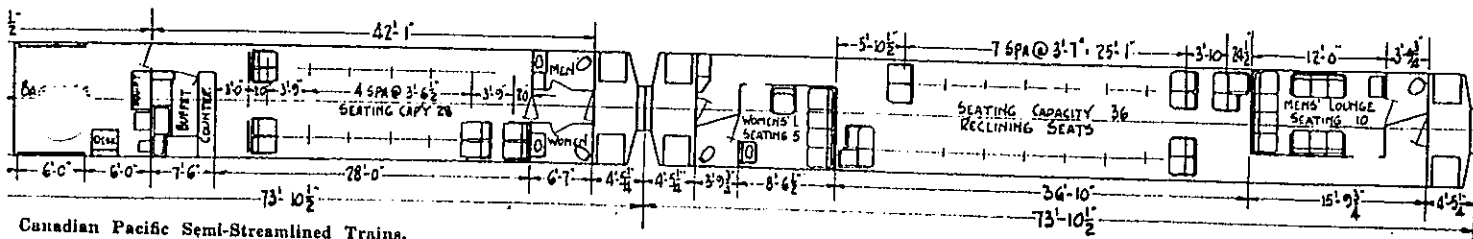
As stated, the seating capacity in the main room of the baggage and buffet car is 28, while the total seating capacity in the first-class car is 51 (36 in main room plus 10 in men's lounge plus five in women's lounge). As there are two first-class cars in each train, the total passenger seating capacity per train is 28 plus 102, or 130.

Operation—Advice from the Canadian Pacific management near the end of August was that the trains were scheduled for operation as follows:—Between Montreal and Quebec, between Toronto and Windsor and between Calgary and Edmonton. Our advice stated that schedules had not been finally determined upon, pending actual road trials of the trains' capabilities, and that the initial operation would be in local service.

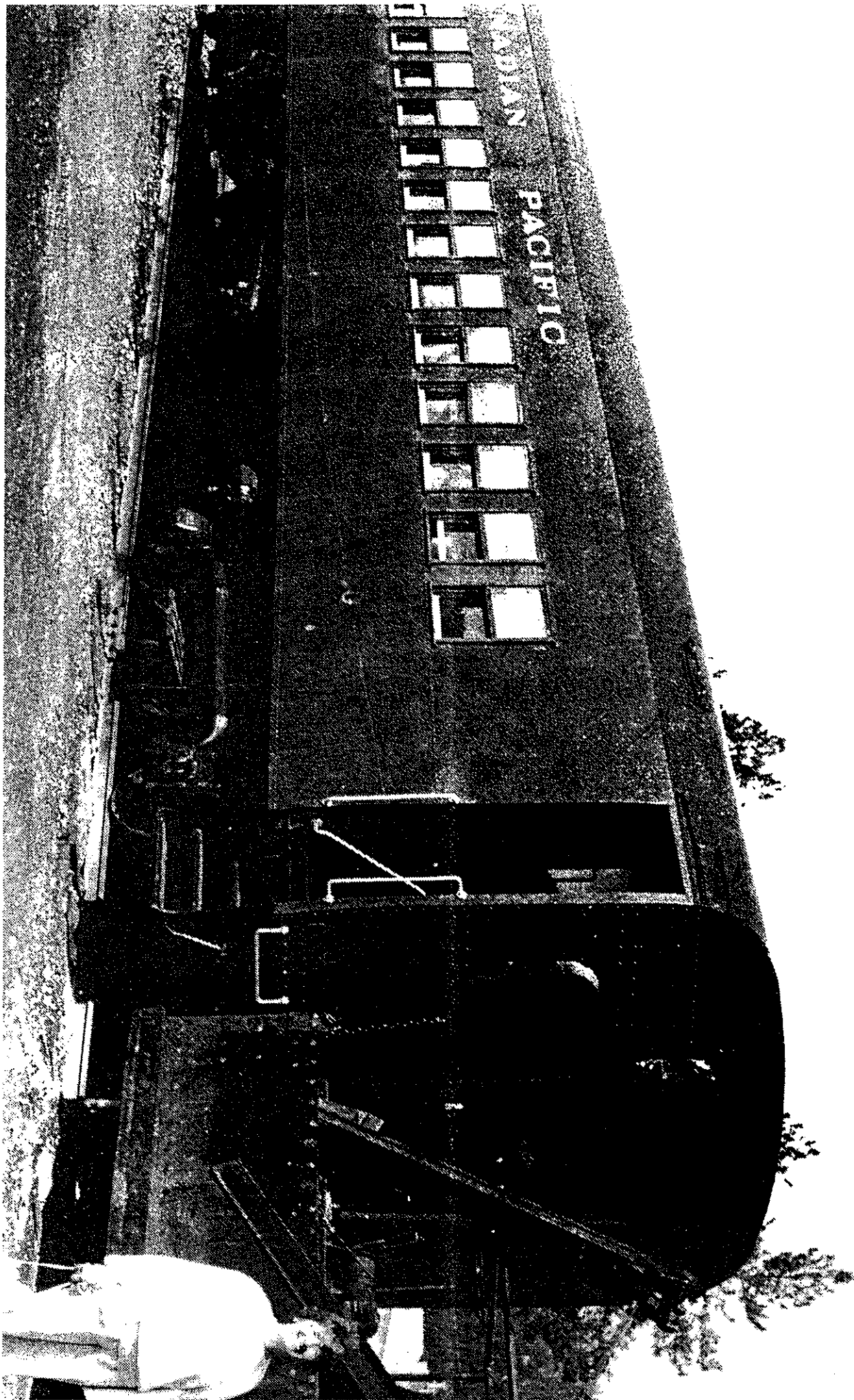
Inspection by public—As stated in our September issue, in connection with the description of the locomotive, the first of the complete trains to be acquired was placed on display at the Windsor Street Station, Montreal, at the beginning of August, and during the few days it remained there it was inspected by some 60,000 people. A train was exhibited at Toronto on Aug. 26 and 27 and was viewed by many thousands of citizens; it was shown in London, Ont., on Aug. 29, and in Windsor, Ont., on Aug. 31, and attracted large crowds of people.

Another train left Montreal on the afternoon of Aug. 21, bound for Western Canada. It was exhibited at North Bay, Ont., on Aug. 24, and at Sudbury, Ont., on the following day. It was then displayed at Port Arthur and Fort William, after which it continued to various western Canadian points, where it attracted as much attention and was the cause of as much favorable comment as in Eastern Canada. This train, the one to operate between Calgary and Edmonton, has been named "Chinook", according to announcement by W. M. Neal, Vice President, Canadian Pacific Lines West of Port Arthur, made in Winnipeg on Sept. 11. To that date the train had been exhibited at many Prairie Provinces points, and was en route to British Columbia lines. By actual count more than 160,000 people passed through the train while it was on exhibit in the various towns and cities on the prairies.

The public acceptance of the trains has been remarkably favorable. During the last two or three years, the streamlined trains operated on U.S.A. railways have received a great deal of publicity in the daily press, and it was only natural that Canadian citizens should avail themselves of the opportunity to see the first light-weight high-speed train built for service in Canada. The many thousands



Canadian Pacific Semi-Streamlined Trains.
d buffet car; right, first-class car.



New Baggage Cars for Canadian Pacific

The C.P.R. has placed in service ten lightweight steel baggage cars, featured by end door, with large opening, at one end, and by a folding bulkhead to divide the interior into two compartments.

AMONG the rolling stock placed in service by the Canadian Pacific within recent months are ten light weight steel baggage cars, which were built by the Canadian Car and Foundry Co. and delivered in June this year. These cars, illustrations of one of which appear herewith, are 83 ft. 10½ in. long inside coupler knuckles and 80 ft. 2 in. long

Underframe—The car underframe includes A.A.R. center sill members, sec. Z-26, 31.3 lb. per ft., extending from end to end of the car in one piece, with the top flanges joined together by continuous welding. The side sills are Z sections, 5 x 3 3/16 x ¼ in., continuous in one piece between the end sills.

At the "B" end of the car, the end sill is formed with a 3/16 in. pressing, while at the "A" end the wide door frame is designed to take the place of the end sill.

The body holsters are of the single diaphragm type, of welded plate construction, and the webs, cut from ¼ in. plate, are reinforced at both sides, at all openings, with plate of the same thickness. The holster top cover, ½ in. thick, and 20 in. wide at the side sills, extends across the car and is welded direct to the underside of the side sill top flange. The holster bottom cover is of the same dimensions, but is applied in two pieces, welded direct to the lower flange of the center sills and riveted to the side sill. The floor beams, of which there are 20 per car, are 5 in. 6.7 lb. rolled channels, extending over the top of the center sills. The floor sheets are 20 U.S. gauge galvanized steel, laid transversely and butted on top of the floor beams and side sills, the sheets being welded together.

The end framing, at the "B" end of the car, consists of diaphragm posts of 8 in. 28.2 lb. Man-Ten steel channels, with 4 in. 4.5 lb. rolled channel corner posts. The door and intermediate corner posts are 4 x 1½ x ½ in. pressed steel channels, and the body end plate is a 7 1/16 in. channel pressing. At the "A" end, a complete structural steel frame is built up of 5 1/16 in. plate, welded together, to form the opening for the wide end doors.

The side framing has side posts of channel sections, pressed from ¼ in. plates.

The bottom chord is a 2½ x 2 x 3/16 in. rolled steel angle, riveted to the top of the lower flange of the side sill, with the 2½ in. flange horizontal.

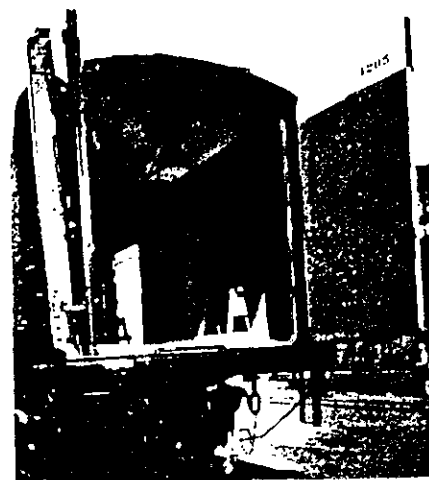
The side plates are 3 in. 5.7 lb. I beams, extending the full length of the car body in one piece.

The outside sheathing is of blue annealed, roller levelled, copper-bearing steel, ⅝ in. thick.



The Baggage Car End Door Closed.

inside, and, by means of a folding bulkhead, can have the interior divided into two compartments. Thus divided, one compartment, containing desk, equipment locker, etc., is 20 ft. 2 9/16 in. long, and the other is 59 ft. 11 7/16 in. long. At the end of the long compartment, large end doors are provided, with door opening 7 ft. 6 in. wide by 8 ft. high, thus permitting of the loading of automobiles and long or bulky shipments of various kinds.

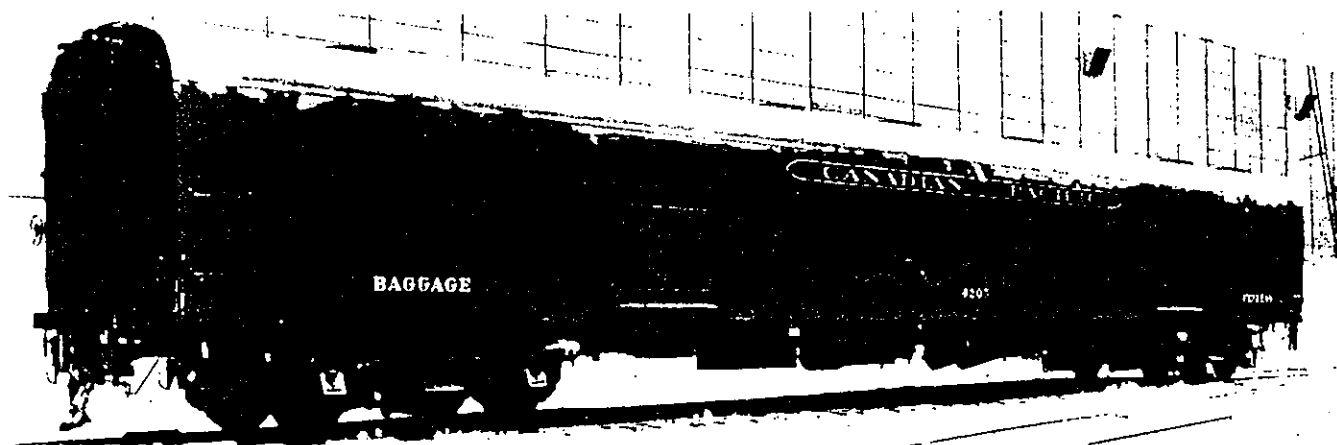


The Baggage Car End Door Open.

Clear opening of the door at the end of the long compartment is 7 ft. 6 in. wide and 8 ft. high, permitting the loading of long and large shipments.

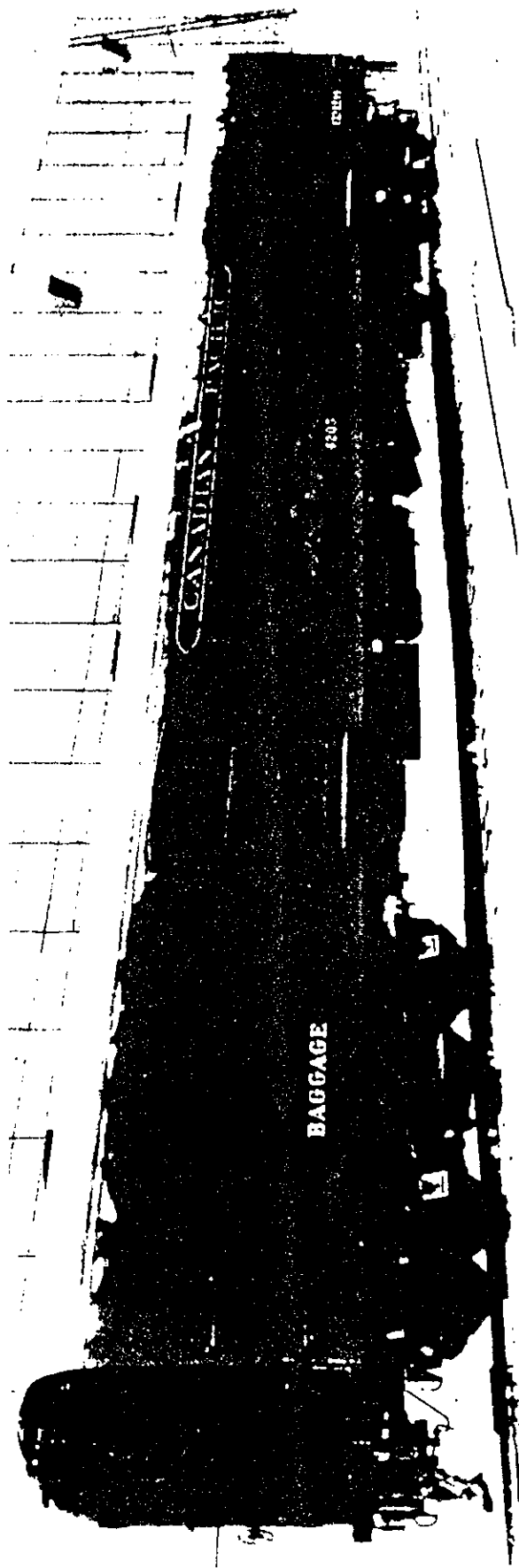
Roof—The roof sheets consist of ¼ in. steel at the sides of the car and 1/16 in. sheets along the center roof, carried on 3 x ½ in. pressed channel roof carlines. The center roof purlin is a 3 in. 5.7 lb. I beam, extending continuously the full length of the roof.

Trucks—These cars are carried on four-wheel trucks, with cast steel frames and integral pedestals, and with straight equalizers. The holsters, spring planks



New Light Weight Steel Baggage Car for Canadian Pacific.

This car, 83 ft. 10½ in. long, is one of ten built by Canadian Car and Foundry Co., and delivered in the early summer of this year.



New Light Weight Steel Baggage Car for Canadian Pacific.

This car, 83 ft. 10½ in. long, is one of ten built by Canadian Car and Foundry Co., and delivered in the early summer of this year.

10/1941

August, 1942

Notable Dining Car on Canadian Pacific

New heights in clever interior arrangement, tasteful decoration and efficiency in meal preparation equipment have been attained in a dining car placed in the Montreal-Saint John service recently.

SPECIALLY designed and arranged for service between Montreal and Saint John, N.B., the Canterbury, newest of the Canadian Pacific Railway Company's fleet of dining cars, is providing improved dining car service on that run. The importance of the Canadian Pacific line to the Maritimes has been reflected in heavily increased passenger traffic since the beginning of the war.

The car, now in service, has seating facilities for 30 diners at a time, and the modern equipment in its slightly more than 200 square feet of kitchen space makes it possible to turn out a large number of meals each day.

The dining room section of the car is beautifully finished throughout in natural satin finish birch, with the exception of the wainscoting and bulkheads, which are one-eighth-inch Masonite Presdwood. The tables and chairs are natural finish birch, the chairs being covered with brown Morocco leather. On the panel, between the tables, there is a peach-colored mirror extending from the wainscoting to the curtain box.

Curtain boxes of stainless steel serve both to cover the roller curtains and supply a light over each table, the light being inside the box and shining through a frosted glass in the bottom. The car and the passages are also lighted by inset ceiling lights. The curtain rods at the sides of the windows are extended in such a manner that the curtain slides in a groove, preventing it from bulging out, and also preventing light from entering around the edges of the curtain.

Adding to the gleaming appearance are the heating pipe grilles, window sills and rods, which, like the curtain boxes, are of stainless steel.

The ten tables are comfortably spaced, separated by a 2 ft. 4 in. aisle, with a space of 3 ft. 8 in. between adjoining tables. The tables are set out in the usual style, five large ones on one side of the car and five small ones on the other. The spotless linen and gleaming silver and glassware complete an attractive picture.



The Dining Room in the C.P.R. Dining Car "Canterbury". With exceptionally attractive finish in natural birch, combining with Masonite wainscoting and bulkheads, natural finish birch tables and chairs with brown Morocco leather upholstery, rounded ceiling and stainless steel accessories, a most inviting and attractive appearance is presented.

The ceilings are rounded to meet the curtain boxes, in the main room, and the curtains throughout the car are light green with a gold pattern. The floor is covered with a rug, brownish in tone, and the floor in the passageways is covered with red-tone maroleum.

Next in interest to the dining room itself is the modern kitchen, where hundreds of satisfying meals can be prepared with very little trouble and no confusion. The kitchen is 30 ft. 7 in. long and 6 ft. 8 in. wide, providing area of slightly more than 200 sq. ft., but this measurement is deceiving, because it includes the space covered by the in-

sulated range, charcoal broiler, refrigerator, ice chests, meat trays, storage space, several sinks and various cupboards. The kitchen is actually three feet longer than in previous dining cars, providing better working space and also permitting the application of a creep door between the kitchen and passage, an emergency door for the crew, so that members do not have to pass through the main dining room.

Another innovation is that the overhead lockers are equipped with a device which locks a complete row with one lock, replacing individual locks for each locker.



The C.P.R. Dining Car "Canterbury", in service between Montreal and Saint John.

JAN 1942

Canadian Transportation

New First Class Coaches on Canadian Pacific

Twenty new light weight, steel passenger coaches, each with seating capacity for 72 passengers, were added to the C.P.R. fleet stock during 1941, and are described hereunder.

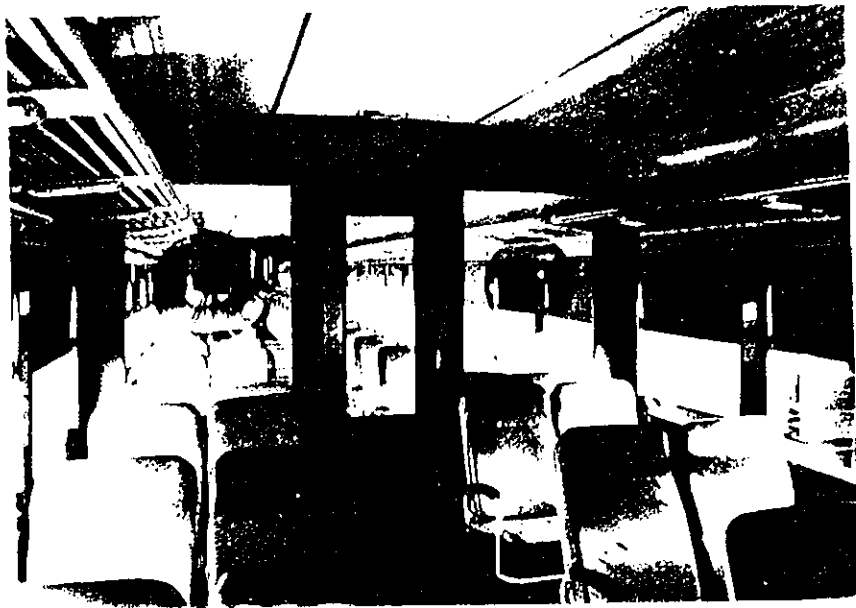
AMONG the rolling stock acquired and placed in service by the Canadian Pacific Ry. in 1941 were 25 light weight, steel passenger coaches, the steel frames of which were built by Canadian Car and Foundry Co., the interior work having been completed at the C.P.R. Angus Shops. These coaches conform to the C.P.R. standard of passenger coach length, viz., 83 ft. 10½ in. inside the coupler knuckles. The interior arrangement is such as to provide two rooms, viz., the main room, with seating accommodation for 56 passengers, and a smoking room with seats for 16 passengers, providing seating capacity for a total of 72 passengers.

The Underframe

In these coaches, the underframe includes A.A.R. section center sill, 31.3 lb. per foot, extending from end to end of car, with the top flanges joined by continuous welding. The side sills, Z sections, 3 x 3 3/4 x 16 x 1/2 in., are in one continuous section between the end sills. At the vestibule end of the car, the end sill is a pressing of U shape, with the outer leg flanged at the top to carry the platform floor, and the inner flange level with the floor beams. The end sill at the other end of the car is a pressing of Z shape, extending from the platform casting to the side sill. The body bolsters, of welded plate construction, are of the single diaphragm type; the top cover, 15 x 9 1/2 in., is continuous across the car and welded directly to the top flange of the side sill. The bottom cover, of plate of the same dimensions,

is applied in two pieces, welded direct to the lower flange of the center sill and riveted to the side sills. At each end

beams are 5 in., 6.7 lb. rolled channels, extending over the top of the center sills and secured to the side sill webs. The



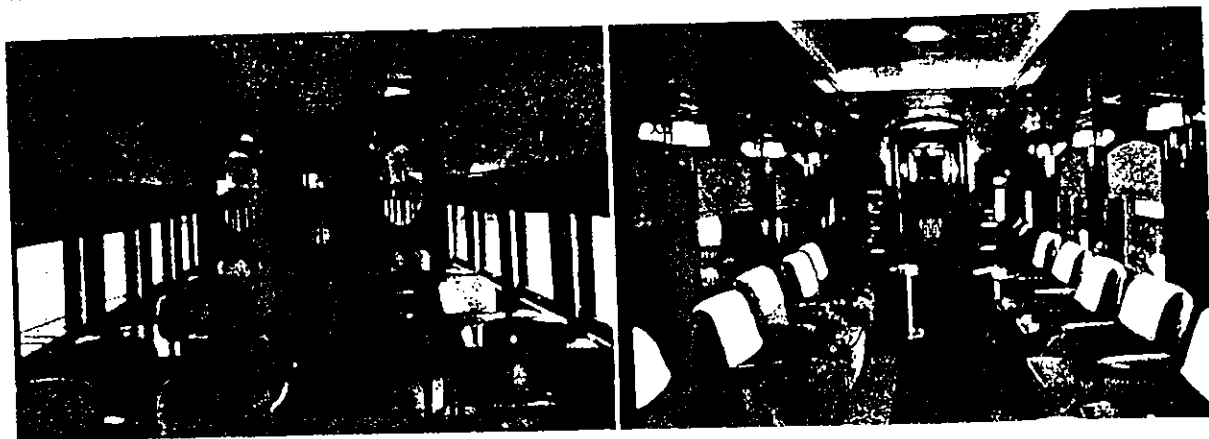
Interior of One of the New First Class Coaches.

of the car, the platform castings are of cast steel, and are riveted to the center sills; these castings form, also, the housing for the bolting gear. The floor

floor sheets are 20 U.S. gauge galvanized steel, laid transversely and butted on top of the floor beams. The transverse butts are secured by continuous welding.



One of the New First Class Passenger Coaches on the Canadian Pacific.



Interior Views of One of the Two Cafe-parlor Cars Converted from "River" Class Cars.

At the left is shown the dining room, with the sideboard beyond the partition, while at the right is the observation parlor, with seating accommodation for 17 passengers, and beyond it, the eight-passenger solarium; the latter two rooms at the A end of the car having been left undisturbed in the re-arrangement work.

Cape Morra, Cape Dee, Cape Liard, Cape Thames, Cape Tyne. Before conversion, while in the "River" class, they were named after the Severn, Humber, Madawaska, Morra, Otonabee, Liard, Thames and Tyne rivers.

Conversion of "River" Class Cars to Cafe-Parlor Cars

As stated, two of the "River" class solarium lounge cars were remodelled to form cafe-parlor cars nos. 6590 and 6591. In this conversion, the solarium, with seating capacity for eight passengers, and the observation parlor, with seats for 17, were left undisturbed, while the balance of the car was changed to provide a standard cafe kitchen and pantry, and a dining room with six tables, to accommodate 18 diners at one sitting. In the remodelled car, the dining room adjoins the observation parlor. All six tables in the dining room are 2 ft. 8 in. wide, with the three at one side of the car 2 ft. 9 in. long, and the three at the other side 4 ft. long, four diners being accommodated at each of the long tables, and two at each of the short ones. The end of the dining room nearest the A end of the car opens on a space in which is a large sideboard, with a linen locker at one side of the doorway, with space for soiled linen below, and a fruit locker and mineral water locker at the other side, the mineral water locker being used from the roof. Behind the sideboard is the pantry, fitted with storage for milk, cream and ice cream, and with a table, with lockers above and below. Adjoining is the kitchen, very completely fitted, the equipment including range, grill, carving table, dish shelves, pastry table, vegetable storage, drainboard, sink with lock with garbage receptacle below, coffee and cup warmer, and refrigerator with the ice chamber filled from the roof. A 2 ft. 4 in. aisle passes at one side of the kitchen, through which a 2 ft. 2 in. side door gives access at the other side of the car. Toward the A end of the car, beyond the kitchen, the aisle becomes central of the car, to pass between the men's and women's toilets. The coal for the kitchen is supplied from the roof. The combined kitchen and pantry take up 22 ft. 7 in. of the car length, while the dining room

takes up 19 ft., and the observation parlor and solarium, as in the original car, take up 20 ft. 6 in. and 10 ft. 9 in., respectively.

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TORONTO, CANADA, JANUARY, 1948

Rolling Stock Orders and Deliveries

Canadian National Rys.—During the
period November 21-December 19, the
C.N.R. received from General Motors
Corp., Electro-Motive Division, six
1,000 h.p. Diesel-electric switching loco-
motives.

To December 19, the C.N.R. received
780 50-ton box cars from Eastern Car
Co.

During the period November 21-De-
cember 19, the C.N.R. ordered two 3-
unit, 4,500 h.p., Diesel-electric locomotives
from General Motors Corp., Electro-
Motive Division. These are the two
locomotives referred to in our Decem-
ber issue, page 657. It is said that
these will be the first road Diesel-electric
locomotives to be purchased for service
in Canada. They will be able to serve
as heavy duty freight locomotives, with
top speed of 50 m.p.h., or can be em-
ployed to handle standard Pullman
trains at speeds up to 102 m.p.h. An
outstanding feature is the ability to
start heavy trains quickly and smoothly.
When R. C. Vaughan, C.M.G., Chairman
and President, C.N.R., announced the
placing of the order for these two loco-
motives, he recalled that the C.N.R.
had pioneered the use of Diesel units
in regular service on the North Amer-
ican continent, in 1925. A large
number of these early units remain in
service, although they are a far cry
from the powerful machines recently
ordered. Mr. Vaughan cautioned, how-
ever, against underrating the worth
of steam locomotives, which represent
the product of more than a century
of motive power technology. Both in
Canada and the United States, he
pointed out, the bulk of motive power
is provided by steam, and many factors
must be weighed in evaluating the
merits of the two forms of motive
power. As explained in the December
issue reference, each of the Diesel-
electric locomotives ordered is com-
posed of three units of 1,500 h.p. each.
Operation may be with a single unit,
furnishing 1,500 h.p.; with two units
coupled together, furnishing 3,000 h.p.,
or with all three units coupled together,
furnishing 4,500 h.p. In each unit,
power is generated in three 16-cylinder,
two-stroke Diesel engines, any one of
which may be cut out of service tem-
porarily for repair work. Running re-
pairs may be made without interruption
of service, including replacement of
pistons, cylinder liners and bearing
shells. Current is taken from the en-
gine-driven generator to traction motors
in the trucks, geared directly to the
driving axles. A dynamic braking sys-
tem enables reduction of train speed
for curves or other conditions by load-
ing the traction motors to check their
speed, without applying brakes to the
wheels.

Mr. Vaughan mentioned availability
as a strong point in favor of the new
road Diesels. They require little water,
carry fuel for long runs, and are free
from boiler washing, firebox cleaning
and ash removal, which tie up steam
locomotives for long periods.

Automatic windshield wipers and de-
frosters keep the windows of the loco-
motive cab clear in rain or snow-
storms. Leather-covered swivel arm-
chairs afford comfort to both engineer
and fireman. There is an unobstructed
view of the right-of-way and ap-
proaches. No-draft rolldown windows
provide cooling in hot weather, and
hot water heaters keep the cab warm
in winter. Two powerful air horns are
mounted on top of the cab.

The simplicity of the controls makes
it possible for steam locomotive crews
to take over the Diesels after only a
few practice trips with an instructor.
Control cabs are located at both ends
of the locomotive.

The new Diesels carry 3,600 gallons
of fuel oil and can haul a 100-car
freight train under average operating
conditions between 450 and 500 miles
before refueling. Each is 151 ft. 4 in.
long, 15 ft. high and 10 ft. 7 in. wide,
and weighs 350 tons.

Canadian Pacific Ry.—During the
period November 20-December 20, the
C.P.R. received 331 steel box cars from
Canadian Car and Foundry Co., Ltd.,
making a total of 1,749 received on
an order for 1,750; two first class coach
frames from National Steel Car Corp.,
Ltd., completing an order for 35 such
frames; three 1,000 h.p. Diesel-electric
switching locomotives from American
Locomotive Co., completing an order
for 13, and 347 steel box cars from
National Steel Car Corp., making a
total of 463 received on an order for
750.

During the period, the company com-
pleted construction of five first class
coaches at the Angus Shops, Mont-
real, making a total of six completed.
These employ the frames furnished by
National Steel Car Corp., Ltd.

In our December issue, page 657,
there appeared an illustration of the
first unit delivered of 10 baggage-ex-
press cars ordered by the C.P.R. from
Canadian Car and Foundry Co., Ltd.
The illustration made evident that these
cars are of very distinctive appear-
ance; their exterior lines are such as
to make the cars match the streamlined
contour of the 35 new passenger coaches
which are beginning to make their ap-
pearance in main line trains. A brief
description of these new passenger
coaches appeared in the December issue
article.

The new baggage-express cars are
of all-welded construction and have
four-wheel, cast steel trucks, with 6 x
11 in. journals. The cars are 83 ft.
10½ in. long inside the coupler knuckles
and 81 ft. long over the end frames.
Width inside is 9 ft. 7 in. Light weight
is 117,000 lb. and capacity is 35 tons.
Each car has four steel doors, two of
which are double. The double doors
provide clear opening of 10 ft. 1¼ in.,
while the clear opening at the others
is 6 ft. 1¼ in.

The interior finish in these baggage-
express cars is in steel, and the equip-

Rolling Stock Orders and Deliveries

viz., the "R" end. The cars are of comparatively light weight construction, and the four-wheel trucks are equipped with roller bearings.

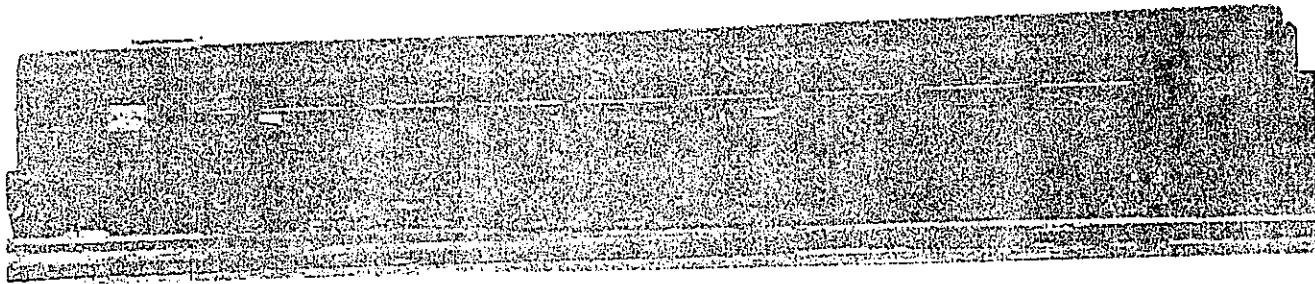
With the exception of one small window at each side adjacent to the ladies' end of the car, the windows in the main and smoking rooms are 5 ft. 10 in. wide. The window blinds are of a pastel green color, with an aluminum protector bar at the lower end; the blinds are adjustable to any position by merely pushing up or down on the protector bar. The floor covering between the seats is of a red marble pattern, while that in the aisles is of a tan marble pattern, with narrow edging in dark green. The backs of the 68 "Sleepy Hollow" seats, with which each car is fitted, are adjustable to eight positions, and the seat footrests are adjustable to six positions, in addition to which the seats are of the revolving type, and may be swung to face one another. The upholstery is green Chevalier in both the main and smoking rooms, and the usual head ties are provided. In the smoking

water. Paper cup racks are built into the side wall, immediately over the drinking water taps, and the taps are recessed and equipped with a light. Not only are all corners in the car interior rounded, as noted previously, but the smooth finish provided makes the walls and ceiling easy to keep clean.

Each car has two rest rooms for women and two for men, these rooms being built with complete plastic wainscoting, to facilitate cleaning. All piping is covered, and the towel racks and soap dispensers are built in. All taps are of the push button type. One of the rest rooms for women is fitted with a chair and a plastic vanity table, while both of the rooms for men are equipped with electric razor outlets.

The cars feature considerable use of aluminum. The "Sleepy Hollow" seats, built in Canada by Ottawa Car and Aircraft, Ltd., have arm rests and pedestals of aluminum permanent-mould castings of Alcan 135 alloy. The lighting fixtures for the aluminum baggage racks, referred to in the foregoing, are of cast aluminum, in a new design. The

Canadian Pacific Ry.—During the period February 21-March 18, the C.P.R. received eight first-class passenger cars from its Angus Shops, Montreal, bringing to 26 the number received on an order for 35. Also received during the period were two cabooses from Angus Shops, completing an order for 30, and a 50-ton box car, with welded sides and ends, from Canadian Car and Foundry Co., Ltd.



One of the 35 New First Class Passenger Cars on the Canadian Pacific.
An illustration showing an interior view of one of these outstanding new cars appeared in the March issue, page 125.

This welded car completed an order for 1,750 box cars; it was the only welded car in the lot, and is for experimental operation.

An accompanying illustration presents an exterior view of one of the 35 new first class passenger cars now going into service on the C.P.R.; an illustration of the interior of one of the cars was presented in the March issue, where attention was directed to some of the car's features. As stated, 18 of the new cars are being assigned to service in Eastern Canada and the remainder to service in Western Canada. The expectation at the time of writing, at the middle of March, is that deliveries of all 35 cars will be completed by the end of April. The following information supplements that presented in our March issue.

These passenger cars are the first newly-built ones acquired by the C.P.R. since October, 1942, but, in the interval, during the war and in the reconstruction period to date, passenger cars to the number of 77 were rebuilt and returned to service, notwithstanding the fact that priority had to be given to freight carrying equipment. These new cars have a vestibule at one end only,

room, there is an ash receptacle in the side wall at each side. The partition between main and smoking rooms is solid, with a small circular window at each side of the door. There are round mirrors on each side of the end walls. The luggage racks are wide, and continuous throughout the car. They are of aluminum construction, and fluorescent lights are installed under the racks. Also, there is a small double coat hook at each window.

The lighting throughout the car is of the fluorescent type. For the passenger who wishes to take a nap, each seat, in both the main and smoking sections, is fitted with individually controlled lights. There are six ceiling lighting fixtures in the body of the car and two in the smoking room, and the corridor at each end of the car is equipped with a round ceiling light.

Heating is by means of a unit at the base of and in the side wall; warm air rises and enters the car immediately under the window sill, thus ensuring warm walls.

Water for all purposes is contained in one tank. There is a mechanical refrigeration unit, and also a filter unit at each end of the car for drinking

windows, which were furnished by the Robert Mitchell Co., Ltd., include some of "Adlake" design, with aluminum sash. Aluminum trim, supplied by Aluminum Co. of Canada, Ltd., some of which received a "Permalum" finish by Robert Mitchell Co., Ltd., is used for such items as curtain boxes, window sills, curtain guides, door frames, floor cove moldings, etc. The panelling in the cars is a combination aluminum-faced plywood, designated as "Haskelite Plymet". The heating system radiation tubing, supplied by Vapor Car Heating Co. of Canada, Ltd., has aluminum fins. The elimination of considerable weight was achieved by the use of aluminum for the electrical conduit and switchboxes, heating and air-conditioning ducts, sub-floor sheeting, roof sheets, the interior lining and its supporting framework, ice-tanks, battery boxes, and water tank casings. In the vestibules, aluminum tread plate and diaphragm face plates are employed.

United States Railways—On February 1, all railways and private car lines in the U.S. had 119,711 new freight cars on order, compared with 119,786 on January 1. The Class 1 railways and railway-owned refrigerator car lines

Canadian Transportation

Welded Steel Construction of Railway Cars

In this article, we describe the all-welded steel construction of cars for the Canadian transcontinental railways by Canadian Car and Foundry Co., Ltd.; the thoroughly modern methods employed have been demonstrated as efficient and economical, and are accepted as standard, where applicable, by practically the entire railway car building industry on this continent.

THE all-welded steel construction of railway cars was first developed in Europe about 20 years ago, and a few years later this adaptation of modern processes to an old-established industry was being introduced in some of the car building plants in the United States. After a period of development and experimentation, this new method of car manufacture has been accepted, where applicable, by practically the whole American railway car building industry, including that of Canada. For some time past, the Canadian railways have been requesting the procurement of facilities for producing, in Canada, modern, streamlined, all-welded passenger cars, in addition to which considerable discussion has taken place in regard to the desirability of building an all-welded freight car, instead of the types heretofore adopted as standard. In 1946, to meet the production requirements of the two Canadian transcontinental railways, Canadian Car and Foundry Co., Ltd., began installation of a new production line in its Montreal plants, for the welded steel construction of passenger cars, and the first completed units left the plant in the spring of 1947. The company had previously produced light welded passenger cars by arc tack welding, but, believing that the job could be better done by spot welding, the management decided to adopt that procedure. Automatic spot welding produces more uniform welds more

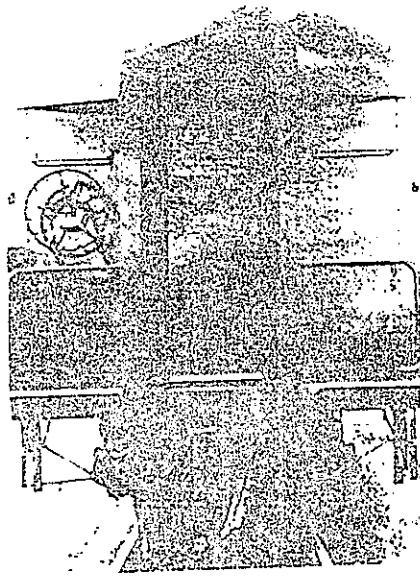


Fig. 1—End View of Completed Baggage and Express Car for Canadian Pacific.

rapidly, and reduces the effect of the human element in quality of weld, compared with hand arc welding. To save time and avoid costly and dangerous errors, the company's engineers first made a survey of leading U.S. plants where the new processes were in operation, and the successful practices noted were adopted for the company's plants, with various modifications necessary to

meet local conditions. Arrangements were made with Pullman Standard Car Mfg. Co. for utilizing some of its patented processes, and, with those as a foundation, Canadian Car and Foundry Co. developed a successful manufacturing technique for the production of modern welded steel passenger cars to A.A.R. specifications and the special requirements of customers. To date, two types of steel welded cars have been produced in the Montreal shops, and the experience gained in this work, as well as the success obtained with the finished products, make it quite apparent that the car welding equipment installed in the shops of the company have brought its manufacturing facilities to the same level as those of the foremost car builders anywhere.

The accompanying illustrations, figs. 1 and 2, show end and side views, respectively, of an express and baggage car for the Canadian Pacific Ry., representative of the first lot of spot welded steel railway cars produced in Canada. These cars have both sides and roofs entirely of spot welded steel construction. The double curvature of the sides, evident in fig. 1, introduced some technical complexities, particularly with respect to precambering, which required considerable forethought, during fabrication, to achieve the desired results in the finished unit. This car, the first one built by the new method, showed that certain changes in design should be introduced, to better suit the new

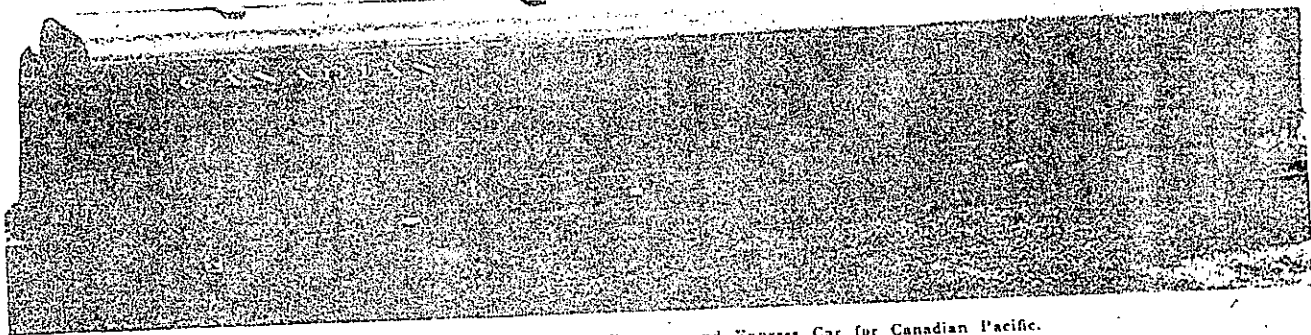


Fig. 2—Side View of Completed Baggage and Express Car for Canadian Pacific.

Rolling Stock Orders and Deliveries

Algoma Central and Hudson Bay Ry. —National Steel Car Corp., Ltd., has completed delivery of 350 70-ton gondola cars built for Algoma Central and Hudson Bay Ry. Co.

Canadian National Rys.—On November 25, R. C. Vaughan, C.M.G., Chairman and President, Canadian National Rys., announced the placing of orders for two three-unit, 4,500 h.p. Diesel-electric locomotives. These will be built by General Motors Corp., Electro-Motive Division, and are the first road Diesel-electric locomotives ordered for service in Canada. In making his announcement, Mr. Vaughan referred to the tests made on C.N.R. lines last July with a demonstrator unit, as described in these columns. These tests convinced the C.N.R. management of the practical value of locomotives of this type. The units, each of 1,500 h.p., may be operated singly, or either two or three

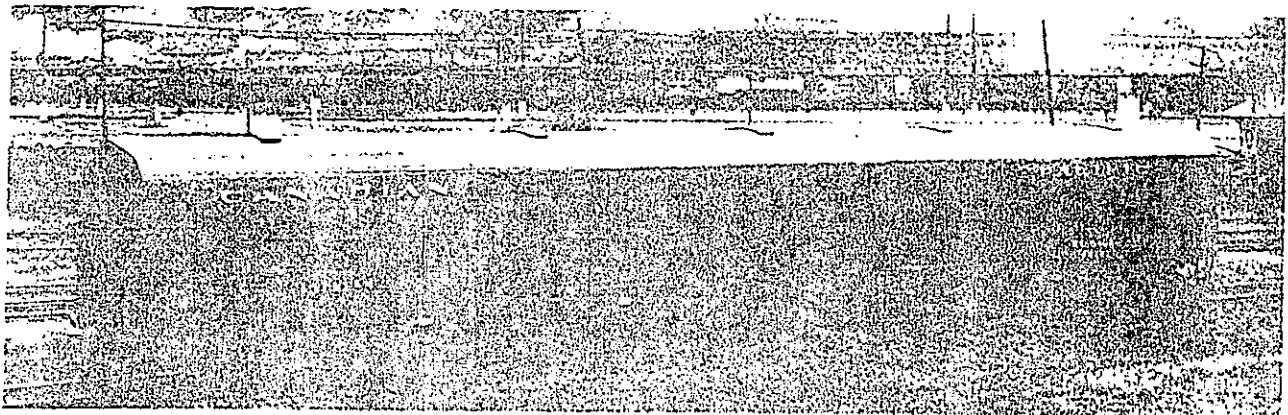
Windsor Station, Montreal, November 17, by William Manson, Vice President in charge of system rail lines and communications, and other C.P.R. officials, following which the car was sent on a test run to Sherbrooke, Que. One car a week is to be delivered over the next four months. These cars, costing more than \$90,000 each, are the first new passenger cars added to C.P.R. rolling stock since October, 1942. Since that time priority in materials has been given freight-carrying equipment. However, during the period the C.P.R. has rebuilt 77 passenger cars and placed them back in service.

Each of the new passenger coaches is fitted with 68 "Sheepy Hollow" chairs, a type described and illustrated in these columns previously. The cars are divided into smoking and non-smoking sections. They have unusually wide observation type windows, with a blind

research work on the part of C.P.R. Mechanical Department officials. The frames were built by National Steel Car Corp., Ltd., Hamilton, Ont., and the cars are being finished at the C.P.R. Angus Shops, in Montreal. As above indicated, all should be in service in about four months' time. These cars are considerably lighter than their predecessors, the approximate weight of each being 112,000 lb.

Accompanying Mr. Manson on his inspection of the first car were George Stephen, Vice President, Traffic; H. H. Boyd, Assistant Chief of Motive Power and Rolling Stock; G. E. Carter, Assistant Passenger Traffic Manager; H. C. James, General Passenger Agent, and H. J. Main, Assistant to the Vice President, C.P.R.

Indian State Railways.—The Canadian locomotive builders have received additional orders for locomotives for



One of the Ultra-modern Baggage-express Cars Built for the C.P.R. by Canadian Car and Foundry Co., Ltd. These cars have air-ventilated sides. The car shown is the first of 10 which were ordered.

may be coupled together, to provide 1,500, 3,000 or 4,500 h.p. for the train. Further particulars of these locomotives will appear in the January issue.

To November 21, Eastern Car Co., Ltd., had delivered 450 60-ton box cars to Canadian National Rys. on a preceding order.

Canadian Pacific Ry. During the period October 20-November 20, the C.P.R. received 648 steel box cars from Canadian Car and Foundry Co., Ltd., making a total of 1,418 received on an order for 1,750.

During the period specified, the C.P.R. received eight first-class coach frames from National Steel Car Corp., Ltd., making a total of 33 received; 22 cabooses from the C.P.R. Angus Shops, Montreal, to complete an order for 50; seven 1,000 h.p. Diesel-electric switching locomotives from American Locomotive Co., and 116 steel box cars from National Steel Car Corp., Ltd., the first receipts on an order for 750 of these cars.

The first of 35 new day coaches acquired by the C.P.R. and featuring extra-comfortable reclining chairs, pastel colored interior finish and lightweight construction, was inspected at

which can be raised or lowered by a touch anywhere along its length. For the convenience of a passenger desiring to take a nap, each seat is fitted with individually controlled lights, and the fluorescent lighting in the car does away with any harsh glare. The combination plastic and enameled interior finish presents a very attractive appearance, and the cars are the first in Canada to be fitted with plastic ceilings. The cars are air-conditioned, and the ceilings have multivalent distribution systems for warm or cool air. The walls and ceilings are easy to keep clean. There are no corners or angles in the car interior, all surfaces being rounded to prevent accumulation of dust and dirt. A feature is the provision of electrically-refrigerated water coolers, with filters.

There are two rest rooms for men and two for women in each car, built with complete plastic wainscoting, to facilitate cleaning. All piping is covered, and the towel racks and soap dispensers are of built-in type. One of the rooms for women is fitted with a chair and powder table of plastic material.

The new cars are the product of

the government railways of India. The India Supply Mission has ordered 60 locomotives from Canadian Locomotive Co., Ltd., Kingston, Ont., and 90 locomotives and 10 boilers from Montreal Locomotive Works, Ltd., Montreal. During the war, Canadian Locomotive Co., Ltd., built 190 locomotives for Indian State Railways, and Montreal Locomotive Works, Ltd., built 247 locomotives for Indian State Railways, 70 of which were built in 1944 and 177 in 1945. The locomotives recently ordered, like those built in preceding years, will be of the 2-8-2 (Mikado) type, and of 5 ft. 6 in. gauge. They will be essentially duplicates of those supplied previously, the main difference being the use of cast steel cylinders instead of the cast iron cylinders applied on the locomotives in the preceding lots.

Payment for these locomotives will be in United States dollars. The order placed with Montreal Locomotive Works, Ltd., amounts to approximately \$7,500,000. Delivery is to begin in August, 1948, and the locomotives are to be supplied at the rate of from fifteen to twenty per month. The expectation is that the order will be com-