

floor is covered watertight with copper, a longitudinal gutter 3 ins. wide and 1 in. deep being provided in the centre, with holes making it self draining. The use of garbage cans has been avoided by providing a special deflecting device to the garbage chute and fitting it with a covered galvanized iron boxing with hinged lid. The lockers, vegetables bins and provision chests are all unit locked. Thawout tubes for drains are located in ice boxes. The pantry contains the usual storage lockers and sink, and is also furnished with a special water filter. The locker above the conductor's desk contains a special humidor arrangement for cigar storage, consisting principally of a lamp, which burns continually in conjunction with a metal pan filled with an absorbing compound, holding water, which tends to keep the air moist. A central metal perforated shelf is also employed and the doors are fitted with pressed prism plate glass with matted finish, to diffuse the light. Cork tiling is used in the passageways, pantry and main room, so that carpet may be dispensed with during the summer. Vacuum cleaner connections are also installed in common with the practice for sleeping and parlor cars.

Such good results have been obtained with the railway company's standard 12 section sleeping cars that practically no alterations were made on account of the new service, except in the matter of refinement in detail. Electric exhaust fan sets were employed in smoking room and main body of car, entrance buzzers located at entrance to the drawing room, for use by the car porter, specially designed towel boxes were located over washstand in smoking room, to avoid having them saturated with the odor of smoke; boot locker opening into passage way from drawing room, special selfsupporting berth ladder with safety attachment and encased top tread were used, and all berth lamps were divided up in each section, so that a serious car failure would have to obtain if all lights were out in one section.

It is often difficult to design a car, especially a sleeping car, suitable for long distance and local travel as well, and this was the problem which presented itself in the development of the compartment sleeper shown in the accompanying plan which contains 8 standard sections, drawing room and compartments. The car is especially well balanced, and affords a maximum seating capacity without in any way detracting from the generally complex scheme of the layout. The general design embodies all the details which are applicable from the standard 12 section sleeping car already described, including the use of green frieze plush for upholstering throughout, except the smoking room, which is carried out in Spanish leather. The drawing room arrangement is the same as used in the sleeping cars and the compartments are of special design, including a folding washstand, which forms a table when closed, the cover containing a hand mirror, hair brush and comb, tooth brush, holder, clean and soiled towel racks and towel bars also large mirrors. The bottom portion is provided with a central shelf, and doors opening into the compartment and out into the passageway for use as a boot locker. Above the folding washstand is a corner water cooler, which is iced and filled from the passageway, through a small door. The hopper is enclosed and provided with an automatic disinfecting device, which operates continually and can be regulated as desired. Economy of space was of paramount

importance in the design of the observation cars, in order to include necessary storage room, in conjunction with a depressed platform, a seating capacity of 17 in the observation room, 4 compartments and 1 drawing room, also a buffet. It has been found advisable in this type of a car to locate the heater on the opposite side from the drawing room or compartment and wherever this is possible it should be done, otherwise great discomfort will be experienced by passengers in sections adjacent to the heater, for obvious reasons, and this was accomplished on both the compartment sleepers and observation cars. The buffet contains a compact refrigerator sink, humidor cigar locker, 3-burner gas stove with water urn, percolator and toasting and frying attachments, metal lined bread locker, pie locker, canisters and water filter. The space being small, it was found advisable to provide a pair of 8 in. diam. globe ventilators in the top and connected to electric exhaust fan set, which also serves the observation room, smoking being allowed, and is indispensable for conditions of this sort when trains are standing still.

Auxiliary overhead water storage tanks are furnished in all of the cars and supply boxes as required. Suitable lockers are fitted up in each car for the reception of spare belts, train connectors, bulbs, belt fasteners and fuses. All dining and sleeping cars carry their own complement of candle lamps and spare candles in a sealed locker, also special soiled linen lockers with movable front gratings and floor slats.

The trucks for all cars are of the 6-wheel type, builtup from rolled steel sections and plates and provided with cast steel centre plate supports. The wheels are 36 in. diam., steel tired, of bolted type wire section. Axles have 5 in. diam. journals, 9 in. long. The wheelbase of trucks is 11 ft. The colonist tourist, 12 section compartment and observation sleeping cars and the dining cars have locked centre pins and roller centre plates, and the baggage, postal, second class and first class cars have plain centre pins and flat centre plates.

Appreciation of C.P.R. in the Prairie Provinces. The United Farmers of Alberta, in convention at Calgary recently asked the Alberta Government to follow the C.P.R.'s example of pursuing the destruction of gophers. Statistics read, giving a record of the grain movement over C.P.R. lines from Sept. 1 to Dec. 31, evoked applause, and the company was congratulated on the showing made. At a sitting of the Saskatoon Royal Livestock Commission recently, the C. P. R. also came in for praise in connection with its efforts to promote the interest of livestock shippers.

A Quebec Quarry Railway Dispute—The dispute respecting the quarry railway connecting with the C. P. R. at St. Fravers de Salis, Que., which was decided in a Montreal court recently in favor of L. Labelle, has entered another stage. The defendant in the original suit is now preventing the plaintiff from using the line, giving as a reason that the purchase price has not been paid in full, and that he cannot avail himself of the right to operate.

The Pennsylvania Rd. has completed two years without a single fatality amongst its passengers; the lines east of Pittsburg have not had a single passenger fatality for three years. During the past year, 361,572,114 passengers were carried.

The Magnitude of the Railway Industry.

Wm. C. Willard, A.M., Am.Soc.C.E., Assistant Professor of Railway Engineering, McGill University, Montreal, in the introduction to his work on Maintenance of Way and Structures, issued recently, says:

"On June 30, 1914, considering all tracks—single, second, third, fourth, etc., yard tracks and sidings—in round numbers a total of 384,000 miles of track were being operated in the United States, 41,000 miles in Canada and about 20,000 miles in the remainder of North America, making a grand total of approximately 445,000 miles in North America. In order to better realize the vast mileage this represents it can be stated in terms of the circumference of the earth. This track mileage would girdle the earth seventeen times. The distance of the moon from the earth is 239,000 miles and this railway mileage is almost twice that distance. In the year from June 30, 1910 to June 30, 1911, 1,815,239 persons were required to maintain and operate the railways of the United States, 141,224 persons were required to maintain and operate the railways of Canada, and about 75,000 those of the rest of North America. Considering Canada and the United States together, 1,956,463 persons were employed directly by the railways. The combined population of the two countries, according to the census taken in 1910, was 99,178,909. This means that one person out of each 51 was directly supported by the railways. The individual figures are one out of each 51 for both the United States and Canada, a surprising agreement of figures. A study of the report of the United States census for 1910 shows that the production of supplies directly consumed by the railways, but not manufactured by them, such as rails, ties, bridge steel, locomotives, cars, etc., required the employment of about 750,000 persons. In Canada the proportion is doubtless about the same, but if the number is assumed at but 50,000 the total number of persons directly and indirectly employed by the railways of the United States and Canada in 1910 was 2,756,000. The same census report gives the average number of persons per family in the United States as 4.5 in 1910. If it is assumed that but one out of each four persons employed directly or indirectly by the railways had the average family, 2,310,000 must be added, giving 5,066,000 as the number of persons supported by the railways. Dividing this into the total population it is seen that one person out of every 20 of our total population is dependent upon the railways for a living. These figures do not include electric roads or street railways, but stand alone for steam roads."

Australian Railway Construction.—It is reported that a conference is to be held between the Australian military advisers and the railway commissioners of the various states of the Commonwealth, to consider the construction of strategic railways in addition to the transcontinental railways under consideration and building.

The British Government Management Committee, now operating the railways in Great Britain, has decided to abolish the system of booking individual seats in cars, and will only book whole compartments and sleeping berths. The amount of work involved and the shortage of employes are given as reasons for this.