

thickness fascia boards $1\frac{3}{8}$ in., projection on side of roof $1\frac{1}{2}$ in., this makes 9 ft. $7\frac{3}{8}$ in., but nothing is said there in regard to the door hood; of course we can get these dimensions of 9 ft. $7\frac{3}{8}$ in. if we do not include the door hood, but I see no reason why the dimensions should not be increased to 9 ft 10 in. I have a memorandum here, of some years' standing, showing the clearances on Pennsylvania lines, and New York, New Haven & Hartford Rd. I notice that the latter can pass a car 9 ft. 10 in., at 12 ft. 8 in., which substantiates my conclusion in regard to the 9 ft. 10 in. car over eaves, at $12\frac{1}{2}$ ft. The Pennsylvania shows that at a height of 12 ft. 6 in. it could handle a car at 9 ft. 4 in. over eaves on some of its lines. This would tend to show that even if the standard car was made 9 ft. $7\frac{3}{8}$ in., it would have to alter its clearances to pass it; therefore, I think that my conclusions are right when I state that the standard car should be not less than 9 ft. 10 in. over eaves at $12\frac{1}{2}$ ft. above the rail. There are some 56 different companies that voted in the American Railway Association at the time of the adoption of this standard car, and only one that voted against it, which shows very plainly that all the western roads, and the southern roads, can pass a car made to the dimensions above stated. I, therefore, object to making a car less than 9 ft. 10 in. over eaves, and if you will refer to THE RAILWAY AND SHIPPING WORLD I think you will agree that my conclusions here drawn are well founded.

S. KING: I would like to ask Mr. Underwood how he will manage the brake pawl and the ratchet wheel if he does not have a brake step?

S. S. UNDERWOOD: On the G.T.R. we are using a pawl which is worked by simply butting it with the foot, and it will fall into the ratchet wheel of its own accord. It does not require a standing position to set the brake. The ratchet is on the top, not at the side of the brake wheel, and I think a man could hold a car wheel well at 13 in. without any trouble.

W. H. ROSEVEAR, J.R., Chief Clerk Motive Power Department G.T.R., Montreal: I do not think I can add anything more to this subject as Mr. Underwood's views coincide with mine; in fact, we worked this matter up together. I remember very well, a few years ago, when going through our freight yards, I discovered that our competitors had made a box car larger than our own. We, of course, then set to work to make a car just a little larger, and so in this way the different roads have gone on increasing the size of their cars until they are becoming more like moving freight sheds than box cars. This calls to mind a little rhyme which I saw chalked on one of such cars:

"Little box car, do not cry,
You will be a freight shed bye-and-bye."

There is no doubt that a standard box car built to these dimensions will prove a great blessing, especially when we have them rated at a cubic as well as tonnage capacity.

S. KING: I have much pleasure in submitting a blueprint showing the dimensions at which the Intercolonial has, in a measure, decided to build some cars, which shows the height from top of rail to the eaves 12 ft. $7\frac{3}{8}$ in., with a width over the eaves of 9 ft. $6\frac{3}{4}$ in. You will notice from the measurements given by the M.C.B. committee, the width is within the dimensions given, which will allow for the increased height at side door covering, on the same principle as Mr. Underwood was describing, and I think it is quite workable to build a car to these dimensions. The framing of the carline at the plate to be 4 in. in width. I notice that some railways are gaining $\frac{1}{2}$ in. at that point by reducing the width of the carline to $3\frac{1}{2}$ in.; I think it is rather a bad construction; I think 4 in. is small enough. I notice also the New York

Central has decreased the width of its floor sills to 8 in. in order to overcome the same difficulty. I think that is also a step in the wrong direction. We ought to maintain as far as possible the foundation of the car. If we get the foundations strong enough so that they will stand the little taps which the shunters give them in the ordinary railway yards, we will be all right, but if we reduce the construction from what it is at present, I am afraid we will have trouble. We get broken sills enough now, and if we reduce the strength at that point, we will certainly have trouble. I do not consider that we should lower the car floor either, as that would be the means of having to lower the platforms all along the railways. As far as the clearance limits are concerned, I think the Canadian railways should take the matter up with the U.S. railways and ask some two or three of the small lines, like the Pennsylvania, to increase their clearance limits in order that our Canadian cars may go through.

S. S. UNDERWOOD: I would like to ask Mr. King a question with regard to the 6 ft. door opening, and the flitched door post. I would like to know wherein he thinks the difference lies between the present door post and that recommended?

S. KING: It is only natural that if a door post constructed from a section $4\frac{3}{8}$ by 5 in. will bend with a load, when spaced 5 ft. 6 in. apart it will bend considerably easier when spaced 6 ft. apart. This is the way I determine there is a weakness at that point; if you take a grain door, as ordinarily made, and pile a weight along the center of this, say to the extent of 1,500 lbs., at $5\frac{1}{2}$ ft. apart, at the center of bearing, and then place a similar door upon bearings 6 ft. apart, putting on the same weight, and you will find that it will bend $1\frac{1}{2}$ in. more than at $5\frac{1}{2}$ ft. If a grain door will do that, the door post will do so in the same proportion. I was working out the idea of putting in a channel iron at one side that would overcome the trouble. In passing through Point St. Charles yard a month ago, I saw a car that had this flitch door post just out of the shops, it had a $\frac{3}{8}$ in. plate of iron let in the center of door post, and the same rule applied to the intermediate post; they had also made the post to answer the thickness of the sheathing, in order to get the strength.

S. S. UNDERWOOD: Do you cover the door post with the sheathing on the inside?

S. KING: We protect the door post with a rib.

PRESIDENT WILLIAMS: I would like to hear from some of the operating department officers. I am inclined to believe that our freight cars, principally on grain-carrying roads, are not loaded to the full capacity more than four months of the year, the balance of the time they are only partially loaded. Perhaps some of our operating department officers could tell us what proportion of our heavy cars are loaded to their full capacity during the year, particularly the larger cars. I do not like to close the discussion, there is so much to be said for and against it; if we could only get the discussion started I know there will be plenty to be said.

— BAKER, C.P.R., Smith's Falls, Ont.: This is a subject I am not interesting myself very much about. We are all well satisfied with the standard car as being built. We have no trouble on that head. I would like to see a stronger car, as they are sometimes shaken to pieces by the roughness of the rails, etc.

— PEARSON: I am not interested in the building of cars, as that does not come under my line of work. As to the height of the car, that is all right. There is only one point on the C.P.R. that we could not get a large car, that is the tunnel at Brockville, and we do not get many of these cars there now. What I would like to see is a standard car; we get a variety of cars that sometimes are running hot, and have not got any brasses to suit,

which is the cause of delay and a great deal of trouble. As for the other parts, I am of the same opinion as Mr. Baker, we have got all the light box cars we want.

Transmission of Niagara Power.

Two charters are being asked for at the current session of the Dominion Parliament for the incorporation of companies to develop electrical power at Niagara and deliver it in Toronto. The first charter is being applied for on behalf of W. Mackenzie, F. Nicholls, S. G. Beatty, H. M. Pellatt, Toronto, and J. Ross, Montreal, who desire incorporation as the Toronto and Niagara Power Co., while the second charter is for the incorporation of a company to be known as the Dominion Railway and Power Co., the applicants being C. D. Warren, C. H. Ritchie, R. Davies, A. H. Royce, H. Sutherland and A. W. Ballantyne. The promoters of the first mentioned company are associated with the Toronto Ry. Co. and the lines to Mimico and Scarborough, and the Toronto Electric Light Co., while the promoters of the second company are connected with the Metropolitan Ry. Co. and the Suburban Ry. Co. Both companies ask for extensive powers as to rights of way over highways, expropriation of land, etc., the Toronto and Niagara Power Co. aiming mainly to deliver power in Toronto for the street railway, and the Dominion Railway and Power Co. desiring, among other powers, to operate a system of electric railways from Niagara Falls to Toronto.

S. G. Beatty, speaking of the method of transmitting power from Niagara to be adopted by the Toronto and Niagara Power Co., recently stated that it was proposed to have a double line of poles, each set of poles to carry three wire cables. He could not say whether cables would be of copper or of aluminum, but they would not be insulated. The duplicate line was necessary as insurance against a break in the service. The great advantage of Niagara power, he said, was the continuity of service afforded by the three plants, one on the Canadian and two on the U.S. side. If the charter was granted, the work of surveying and securing right of way would be commenced at once, and, as soon as that was completed, construction would be commenced from both ends with large forces of men. The distance was 85 miles, and the work would be completed early next year. The loss of power in transmission and transforming would be about a third. On the California line it was about 10 per cent., but the dry climate there favoured it. The cost of construction of the Co.'s lines had been estimated at \$1,500,000.

Recent New Brunswick Legislation.

Among the acts passed at the recent session of the N.B. Legislature were the following:—

Incorporating the Union Telephone Co.

Providing for the adoption of standard time within the province.

Amending the act (63 Vict., chap. 30), authorizing the voting of aid for the construction and equipment of a graving dock at St. John, N.B.

Incorporating the M. Welch Telephone Co. (Ltd.)

Amending the act incorporating the Kent Telephone Lines Co. (Ltd.)

Amending an act to aid in the construction of a graving dock at St. John, N.B.

Reviving the act incorporating the Woodstock and Centreville Ry. Co., and the acts amending the same.

Incorporating the Moncton and Eastern Ry. Co.

Incorporating the Fredericton and Western Ry. Co.