

Railroad has asked for 16 ft. or  $16\frac{1}{2}$  ft. clearance for all overhead bridges within the electric zone, extending 16 miles from the Grand Central Station, in the City of New York.

Electric traction within limits for such large centres of traffic as Montreal and Toronto, with hydro-electric energy, abundant or soon to be, is easily within the range of probability in the not distant future. Smoke abatement alone points in this direction. The vexed question of grade separation would at once assume an entirely different aspect if these conditions were accompanied by a cutting down of the vertical clearance requirement to 17 feet, or even to 18 feet.

It is submitted that with conditions as they are and more so with regard to the future, 20 ft. ( $13\frac{1}{2}$  ft. for car and  $6\frac{1}{2}$  ft. for man), is a reasonable vertical clearance. It has been shown that  $13\frac{1}{2}$  ft. covers the height to running board of all but a very small percentage of freight cars now in use, and that cars higher than 14 ft. to running board, *i. e.*, higher than 14 ft. 6 in. "over all," or to top of brake rod, can only to a limited extent traverse beyond their home railways. That higher cars will be economical or practicable is as little probable as that the gauge of railways will be widened or their entire structure changed. For a vertical clearance requirement greater than 21 ft. (14 ft. plus 7 ft.), there can, in any event, be no conceivable rational need.

In the United States there is no federal law fixing vertical clearance for bridges over railways. A number of States deal with the question. In Massachusetts there is a special Grade Crossing Commission. The minimum clearance required by this Commission is in general 18 ft. Connecticut and Rhode Island also specify 18 ft. In New York the Public Service Commission has charge of grade crossing regulations. While this Commission requires 21 ft. clearance where practicable, many lower bridges are built throughout the State, some, as already stated, are as low as  $16\frac{1}{2}$  ft. New Hampshire, Ohio, and Indiana require 21 ft. The only States requiring more are Illinois and Vermont, where 22 ft. is specified, but exception is made where this height is not practicable. In all other States there is no statute or regulation, as far as has been ascertained, and heights of overhead bridges vary from 16 or 18 ft. to 22 ft.

In Canada the Dominion Railway Act of 1904 specifies a minimum clearance of 22 ft. 6 in. above rail top for bridges over railways, with no deviation except by leave of the Board of Railway Commissioners; and this board has hitherto not allowed a deviation in any case.