

# The Canadian Engineer

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## Elimination of Grade Crossings

Relative Advantages of Cuts and Embankments—Each Crossing Calls for Special Study—Paper Read at Conference of County Road Superintendents

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**G**RADE crossings of railways have become such a prolific source of accidents since the advent of automobiles, that their elimination is a problem which must be solved.

The chief difficulty to overcome is the cost, and in a great many cases this is so excessive as to be almost prohibitive.

In Canada, the matter is almost altogether in the hands of the Board of Railway Commissioners, who have the power to order such changes or alterations as they may deem advisable and to assess the cost thereof to the railway and municipality benefited.

A petition from any municipality, or from the residents of a district interested, for the protection of a grade crossing will be considered and passed upon by the Board.

The writer had the privilege of appearing before the commissioners on two occasions; the first was in connection with a grade crossing at Lansdowne, on the Grand Trunk Railway, and in this instance an order was given to place a flagman on the crossing, the cost to be paid by the railway and the local municipality in the ratio of 75 per cent. and 25 per cent. A subway at this point would be very expensive on account of a steep hill paralleling the railway.

On the next occasion, an order was given for a subway on the main line of the Grand Trunk, and for about three-

In the State of Vermont the railways are required to eliminate one grade crossing each year, and as the crossing is not specified, naturally the railways have built the less costly first, irrespective of the conditions of the crossings and the traffic, so that now they are encountering very expensive construction.

As regards the elimination of individual grade crossings, the topography of the location generally decides as



**The Sharp Turn Makes This Subway Dangerous**

to the method of separation. For instance, if there were a grade crossing in a railway cut at the present time, and it were required to eliminate same, the natural sequence would be to carry the highway over the railway by a bridge; or under the railway by a subway if the railway were built on an embankment.

As to cost, it is impossible to give any definite figure and say that same will apply to all crossings. For instance, the unit prices of the various materials entering into construction of grade separation varies with the locality and the prevailing wages in that district; also transportation for both men and materials. Therefore, each crossing is a special case by itself and should be so studied.

As regards grade separation in the cities and towns, the topographical features still control, but as a rule separation never takes place until some time after the railway has been in operation, and then the entire territory is considered as a whole and the grade line of the railway revised. In the majority of cases the grade line is generally laid so that the railway will be elevated approxi-



**A Dangerous Subway**

quarters of a mile of road diversion, which eliminates two other crossings. This is on a county road about three miles west of the town of Brockville. The cost was assessed to the railway, subway fund, township and county, in the ratio of 50, 20, 15 and 15 per cent.