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Banudian Society of Eivil Engineers.

INCORPORATED 1887.

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NOTES ON RETAINING WALLS IN MONTREAL.

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(To be read Thursday, Ootober 25th, 1894.)

Having obtained some information as to the complete or partial failure of some retaining walls in Montreal during the last few years, the writer thinks that it may not be altogether uninteresting to bring this information under the notice of the members of this Society, in order that it may, if possible, induce some of them to give the results of their experience in the construction of walls, particularly of those that have proved too light, as the failure of a structure generally teaches more than its sneees.

Before taking up the subject, however, the writer thinks it only fair to state that neither the Chief Engineer of the Railway on which he is employed, nor the writer himself, was in any way responsible for the design of any of the walls herein alluded to as having failed.

The various cases will be taken up in the order of the numbering of the figures,

The wall shown in section by Fig. 1 is of dry masonry, built of stones from three feet to eight feet in length, by from ten inches to fourteen inches thick, the beds of the stones being fnirly flat, but the back of the wall, in some places, scens to be rather poor, the stones being too small; the top front course was built with large, flat stones from five feet to eight feet six inches in length, but the writer has not been able to find out what proportion of through stones were used. The filling behind the wall is principally clay, a small proportion being earth and sandy clay, and was dumped from cars running on a temporary treatle.

The bank on which the filling rests has an average slope of about $2\frac{1}{2}$ to 1, and was not benched before the filling was begun; at the temporary trestle must have largely helped to keep the embaukment from sliding, as it was built for a double track and was well braced longitudinally.

Indeed, possibly, this treatle, so far as it went, was better than benching, us the greasy clay would easily slide from one bench to another, unless the benches were cut down very deep ; however, no doubt it would have been better to have benched the part of the slope below the treatle.

The bank under the filling is of gravel, which absorbs the melting snow in the spring very quickly, so much so that the catchwater ditch on the upper side of the slope soldom has any water in it, and there is never any sign of water passing down between the original slope and the elay filling.

The wall at the foot of the slope was built with a face batter of 1 in 12, the batter of the back being 1 in 4; and shortly after the filling was finished it pushed the wall gradually forward till the top overhung the base by about 1 in 12, the embandment rising behind the wall.