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discussion as possible at earliest date.**

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### RAILWAY CONSTRUCTION NOTES.

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(To be read before General Section, April 15, 1909.)

This paper is compiled from notes made by the writer whilst Resident Engineer of Construction for the Canadian Pacific Railway Grade Reduction and Revision, Medicine Hat Section, 1907-8.

It is submitted primarily with a view to elicit the practice of the profession with regard to shrinkage and overhaul, and the discussion on points raised herein, the author trusts, will be of greater value than the paper itself.

*Shrinkage.*—The first question that comes up in this connection is, "What is the contractor to be paid for?"

On prairie work, when light, embankment quantities are often taken, and, considering the practical impossibility of accurately measuring shallow borrow pits, as left by the generality of contractors and sub-contractors, it would seem to be the most accurate method.

If, however, work is paid for from cut quantities, to be rational, all borrow pits must be staked and measured. The practice of paying for cuts up to limit of haul and balance on embankment quantities is not logical.

In the case of excavation quantities, the question of shrinkage is not a live one with the contractor, but the reverse is the case when embankment is paid for.

A method of applying shrinkage is required to be sufficiently elastic to meet the variety of conditions met with in the field, and at the same time sufficiently exact to do justice as between the company and the contractor. This question is often a bone of con-