rights of way. They have been based upon information received at Ottawa as to prices of material and labor, and as to the character of the soil and rock expected to be found.

It has been assumed that the sewers are built of brick, with proper care they could with advantage be built of concrete and the 24 inch sewers of pipe, and the cost thereby reduced. In deep rock cuts the sewers were estimated to have an egg shape to save width of cutting All others were assumed to be circular. No allowance was made in the estimates for street water inlets, catch basins, or private sewers to the curb lines.

In order to cover some doubtful features, particularly as to rock excavation, I have added 15 per cent. of the total amounts as a fund for contingencies.

Mr. E. H. Keating's advice, to establish automatic rain gauges in your city, I can heartily endorse. The results to be gained therefrom will be of great economic value at a future time when the city is more densely built up. It will then be necessary to build relief sewers or drains to carry the excessive storm water to the rivers and a record of the intensity of the heaviest storms and of their frequency will enable the dimensions to be accurately determined.

A sewerage system, to be economical and to give perfect satisfaction in its operation, must have great attention given to the proper design of the numerous details. Most of the trouble that usually occurs arises from a neglect in this respect.

In the Appendix will be found:

I. Detailed estimates of cost.

II. Table, showing location, Sizes, Slopes, &c., of Main Sewers.

III. Table, showing depth of Inverts of Sewers below the surface at various points on the lines of the Main and Relief Sewers.

Very Respectfully,

RUDOLPH HERING.