## APPENDIX 3.

## DR. DROWN'S REPORT.

At your request I have examined carefully the results you sent me of the chemical analyses of the waters from the Winnipeg artesian wells in connection with your description of the topographical and geological features of the region. I have also made chemical analysis of a sample of water of one of the artesian wells, and of a sample from the Assiniboiue River.

With regard to the free ammonia and chlorine reported in the analyses made in Winnipeg and Montreal, I will say that it is highly improbable that they have any connection with recent surface pollution. Free ammonia is very frequently found in deep artesian well waters; its origin is not always known, but in most cases it is clearly to be referred to nitrogenous matter geologically so remote, that it has no sanitary significance.

Should the free ammonia prove to be permanently characteristic of the well waters there seems to me little question from the geological structure of the region that its origin must be referred to the rocks and not to the surface contamination.

The sample of water from these wells which I received on October 10th, contained no free ammonia. I do not know how to explain this result, in view of the fact that all the samples you have had analyzed contained from 0.013 to 0.022 part of free ammonia.per 100,000, unless it is assumed that the water underwent some change during the week of transportation from Winnipeg. Whether the water in the wells themselves is undergoing a change of composition can only be determined by further analysis. The high content of chlorine is clearly referable to salt deposits in the rocks. You mention in your letter of September 19th that there are strong salt springs near lake Manitoba and possibly there may be salt deposits nearer the

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