the original rock, we are forced to accept the theory that they have reached their present location through the agency of ice, either in the form of glacial streams or icebergs; that those gigantic bodies of ice at one time moved over this region of country loaded with rounded fragments of rock, some of which lie on the prairie west of us and many occur in the clay upon which Winnipeg stands. Not long ago we were shown a piece of rock which had been broken off a boulder sixty feet below the surface. It could be readily identified as a piece of gneissoid rock, such as occurs in northern districts. The soil which we cultivate dates much of its origin from this period, which is computed by Sir Charles Lyell to have lasted about 150,000 years, sufficient time to grind up much of the limstone below us and the rocks farther north. The material ground up during this long period of time would be scattered in post-glacial days by the torrents flowing down from upland districts to lower, no longer within the icy grasp of an Arctic climate. Still later, silty materials may have been laid down on the bottom of an inland sea, into which the drainage of a surrounding district poured, and thus be derived our deposits which overlie the rock below. The lower clay beds being a glacial and post-glacial deposit, while the upper la[illegible] lacustrine in their origin. From what has been said you will observe that the site of Winnipeg must have been at one time covered by the waters of a nameless sea, a sea along whose shores no mortal ever trod, a sea inhabited by animals extinct millions of years ago. Further, that it was raised again above the waters, and for countless ages its rocky surface exposed to the weathering action of wind, rain, snow and frost.

That either icebergs floated and stranded along the shore of a vast body of water, which again covered it, or that glacial streams, coming from the north glided along, polishing and abrading the surface of the rocks over which they passed.

WINNIPEG WATER.

After an interval of some time, this place seems to have been again submerged by the waters of an inland sea, the shores of which extended along the elevated ridge from Pembina to Riding Mountain. Into this great lake the rivers of the North West poured their muddy waters, charged with saline substances derived from deposits over which they passed. This may have continued for a long time, at least long enough to form the alluvial deposits of the Red River Valley, which we find now largely made up of finely divided clay, strongly charged with saline substances.

This inland sea has passed away, whether by subsidence of land north of us or the elevation of that on which we stand, we cannot say, but the fact presents itself that all that remains now is the river and the lake into which it empties, with a country on either side showing all the characteristics of a deposit which settled on the bottom of a lake no longer in existence.

Viewing the formation of the Red River Valley from this standpoint we can scarcely hope to get good water in our clay beds, which are no doubt impregnated with impurities derived from the river drainage of the saline deposits west and north of us. A comparison of an analysis of the Red River and that of the Assiniboine will at once show how widely they differ. In each case the number of grains in an imperial gallon is given:

	Red River.	Assiniboine
1. Organic matter.....	5.28	7.71
2. Calcium sulphate..	2.42	4.39
3. Calcium carbonate.	10.50	7.05
4. Iron, alumina, silica	3.78	1.09
5. Magnesium sulphate.....	....	7.81
6. Alkaline salts, chiefly as chlorides.....	5.18	9.75

From an examination of this analysis, it will be observed that the water from the Assiniboine contains 30.09 grains of solids in an imperial gallon, while that of the Red River contains only 21.88. The former carries down the drainage of the west, where many of the deposits are largely impregnated with alkaline salts, while the latter flows chiefly over rock composed of limestone; hence the Red River has more carbonates and less sulphates. The presence of so much magnesium sulphate and Epsom salts in the water of the Assiniboine is rather striking. If we wish to secure good water, we must bore through our impure clays into solid rock beneath, or bring it from a distance. Such might be obtained from Lake of the Woods, which is supplied from rivers whose drainage is over rocks of the Lau-