

Peter sandstones. Its thickness (50 feet) is somewhat less than that assigned to the same bed to the south. This in Minnesota is stated as 125 feet; in Iowa, 80 feet, and in Wisconsin, from 80 to 100 feet. The St. Peter sandstone has not elsewhere been recognized in Manitoba, and there is, therefore, no local term of comparison for this and the underlying Cambro-Silurian beds.

If the stratigraphical positions assigned to the foregoing beds are correct, beds 17 to 20 both inclusive, with an aggregate thickness of 110 feet, must occupy the position of the Lower Magnesian limestone, equivalent in age to the Calcareous of the New York section. This limestone in Iowa and Wisconsin, has a thickness of 65 to 250 feet. In Minnesota it is described as a cream-colored magnesian rock, but toward the top it is frequently sandy, and with beds of greenish shale. At Rosenfeld no limestone occurs, and we, apparently, have instead a littoral formation directly overlying the subjacent Laurentian, and marking the limit at this place of the Lower Magnesian Sea.

No sufficient supply of fresh water was met with in this well, but instead, a flow of brine was encountered. A small flow of brine was found below the limestone numbered 10 (30 feet in thickness), a second flow beneath the heavy limestone bed (No. 14) and when the St. Peter sandstone (No. 16) was reached, the supply increased four-fold, and formed a flowing well, which has, I believe, continued to give issue to large quantities of salt water ever since. Mr. Swan states that it rose in a pipe to a height of 18 feet above the surface of the ground, which is three feet below the level of the railway grade.

The most interesting feature in this connection is the great geological age of the rocks from which this brine comes. It appears not improbable that the shoaling of the Cambro-Silurian sea evidenced by the widespread littoral deposit known as the St. Peter sandstone resulted in the enclosure of salt lagoons in this portion of the interior basin, while it merely produced an increased land area further south in Iowa and Wisconsin.

The brine is of a quality well adapted for the manufacture of salt, and might be concentrated by solar evaporation and finally evaporated in pans. It has been examined and is reported on by Mr. G. C. Hoffmann, in the Annual Report of the Geological Survey for 1885 (p. 13 M). Mr. Hoffmann states that it contains but a small amount of deleterious salts, and gives the following as its composition for 1,000 parts by weight :—

Chloride of Potassium.....	0.4179
" Sodium.....	36.4971
" Calcium.....	0.3982
" Magnesium.....	1.7225
Sulphate of Lime.....	4.1511
Borate of Soda.....	traces.
Carbonate of Lime.....	0.0777
" Iron.....	traces.
Bromide of Magnesium.....	undt.
Iodide of Magnesium.....	undt.
Silica.....	0.0126

Another point of interest brought out by this boring is the comparatively thin covering of Palæozoic rocks which here overlaps the Archæan, and the very gradually shelving character of the surface of the latter westward. The slope of this surface, in a westward direction, from the last low Archæan exposures on the Lake of the Woods being