

of determining the amount of carbonate of soda. For some remarks on the earthy carbonates of the waters, and on their relation to the results of analysis, see part III of this paper.

The date at which the various waters were collected for analysis is in each case appended to the notice of the spring. This is of the greater importance, inasmuch as it will be shown that in the course of years, some of those springs here described have suffered considerable changes in their composition.

§ 36. In the following table are given the analyses of several waters belonging to the first class, as defined in § 34.*

1.—This water is from a well thirty feet in depth, near the village of Ancaster, on the western shore of Lake Ontario. It is sunk in the Niagara formation; but like the other waters of this class, probably has its source in the Lower Silurian limestones. The water rises nearly to the surface, but there is no perceptible discharge. Its temperature was found to be 48° F. when collected for analysis in September 1847.

2. This water is from a copious spring which issues from the limestones of the Trenton group at Whitby, on the north shore of Lake Ontario. It contained small portions of baryta and strontia, and was collected in October 1853.

3, 4. Several wells have been sunk in the Trenton limestone in the township of Hallowell, on the Bay of Quinté, Lake Ontario, in search of brine for salt-making, and have yielded bitter saline waters, of which the two here noticed are examples. No. 3 was obtained from a well twenty-seven feet deep, in October 1853. No. 4 was taken in the summer of 1854 from a well a mile or two distant from the last. Neither of these waters was examined for baryta or strontia.

5, 6. At St. Catharines, near Niagara Falls, a boring of five inches in diameter was carried to a depth of about 500 feet, and after traversing the Medina formation, is said to have penetrated fifty or sixty feet into the Hudson River shales. It yields about twenty gallons a minute of a saline water, whose analysis by Professor Croft of the University of Toronto, a few years since, afforded the results given under 5. This water, which was

* Of the thirty-seven analyses of waters here given, ten have already appeared in *Silliman's Journal* [2] viii, ix, xi, but for the purposes of comparison it is thought well to reproduce them in the present connection. Of the others, the greater part have appeared in the *Geology of Canada*, but several are now for the first time in print.