The capacity of the 800 feet of Chazy and Trenton limestones which succeed these lower formations, may be fairly taken at one half that of those just named. But it is unnecessary to multiply such calculations: enough has been said to show that these sedimentary strata include in their pores great quantities of water, which was originally that of the ocean of the p· leozoic age. These strata throughout the great Silurian basin of the St. Lawrence, are now for the greater part beneath the sea-level; nor is there any good reason for supposing them to have ever been elevated much above their present horizon. Wells and borings sunk in various places in these rocks show them to be still filled with bitter saline waters; but in regions where these rocks are inclined and dislocated, surface-waters gradually replace these saline waters, which in a mixed and diluted state appear as mineral springs. These saline solutions, other things being equal, will be better preserved in limestones or argillaceous rocks than in the more porous and permeable sandstones.

§ 17. But besides the saline matters thus disseminated in a dissolved state in ordinary sedimentary rocks, there are great volumes of saliferous strata, properly so called, charged with the results of the evaporation of ancient sea-basins. These strata enclose not only gypsum and rock-salt, but in some regions large quantities of the double chlorid of potassium and magnesium, carnallite; and in others sulphate of soda, sulphate of magnesia, and complex sulphates like blödite and polyhallite. Besides these crystalline salts, the mother liquors containing the more soluble and uncrystallizable compounds, may also be supposed to impregnate, in some cases, the sediments of these saliferous formations. The conditions under which these various salts are deposited from sea-water, and their relations to the composition of the ocean in earlier geological periods, are reserved for consideration in § 22. Infiltrating waters remove from these saliferous strata their soluble ingredients; which, together with the ancient sea-waters of other sedimentary rocks, give rise to the various neutral saline waters; while the mingling of these in various proportions with the alkaline waters whose origin has been described in § 13, produces intermediate classes of waters of much interest.

§ 18. I have elsewhere described the results of a series of experiments on the mutual action of the waters of these two classes.* When a dilute solution of bicarbonate of soda is gradu-

* Silliman's Journal [2] xxviii, 170.