

first sought for the manufacture of salt, is now much used for medicinal purposes. Its strength seems subject to some variation, since a specimen from the same well in December 1861 gave me, by a partial analysis, chlorid of sodium 23.00, chlorid of calcium 9.66, chlorid of magnesium 2.40, sulphate of lime 1.75; = 36.81 parts in 1000. No. 6, examined at the same time, is from a second well sunk in 1861, not far from the last.

7, 8.—These are analyses of the waters from two borings in the Trenton limestone at Morton's distillery in Kingston. The analyses are by Dr. Williamson of Queen's College in that city, and were made probably ten or twelve years since. They have been recalculated so as to represent the whole of the sulphuric acid as combined with calcium. The first of these waters gave to Dr. Williamson both bromine and iodine, and the second was found to be sulphurous. These waters differ from the preceding in containing considerable amounts of earthy carbonates, and in this respect are related to those of the second class, while they still show a large predominance of earthy chlorids.

§ 37. The waters of the above table contain, besides chlorid of sodium and a little chlorid of potassium, large quantities of the chlorids of calcium and magnesium, amounting together, in several cases, to more than one half the solid contents of the water. Sulphates are either absent, or occur only in small quantities, and the same is true of earthy carbonates. Salts of baryta and strontia are sometimes present, while the proportions of bromids and iodids, though variable, are often considerable.

In the large amount of magnesian chlorid which they contain, these waters resemble the bittern or mother-liquor which remains after the greater part of the chlorid of sodium has been removed from sea-water by evaporation. The bitters from modern seas, however differ in the presence of sulphates, and in containing, when sufficiently concentrated, only traces of lime. The reason of this, as already pointed out in § 22, is to be found in the fact that in the waters of the present ocean the sulphates are much more than equivalent to the lime, so that this base separates during evaporation as gypsum.* But as shown in § 23 and § 24, the waters of the ancient seas, which held in the form of chlorid of calcium the greater part of the lime since deposited as carbonate, must have yielded by evaporation bitters containing a large proportion of chlorid of calcium. Such is the nature of the

* See farther on this point, Bischof, Chem. Geology, i, 413.