The nearly saturated brines from the Saginaw valley in Michigan, which have their source at the base of the Carboniferous series, contain, according to my calculation from an analysis by Prof. Dubois, in 100.00 parts of solid matters : chlorid of calcium 9.81, chlorid of magnesium 7.61, sulphate of lime 2.20, the remainder being chiefly chlorid of sodium. Another brine in the same vicinity gave to Chilton an amount of chlorid of calcium equal to 3.76 per cent.\* In a specimen of salt manufactured in this region, Goessmann found 1.09 of chlorid of calcium ; and in two specimens of Ohio salt, 0.61 and 1.43 per cent of the same The rock-salt from the Lias of Cheshire, according to chlorid. Nicol, contains small cavities, partly filled with air, and partly with a concentrated solution of chlorid of magnesium, with some chlorid of calcium.

\* Winchell; Silliman's Journal [2] xxxiv, 311.

† Cited by Bischof, Lehrbuch, ii, 1671. The results of the analyses by Mr. Northcote of the brines of Droitwich and Stoke in the same region (L. E. & D. Philos. Mag. [4] ix, 32), as calculated by him, show no earthy chlorids whatever, and no carbonate of lime, but carbonates of soda and magnesia, and sulphates of soda and lime. He regarded the whole of the lime present in the water as being in the form of sulphate. If however we replace in calculating these analyses, the carbonate of soda and sulphate of lime by sulphate of soda and carbonate of lime, we shall have for the contents of these brines, chlorid of sodium, with notable quantities of sulphate of soda, some sulphate of lime, and carbonates both of lime and magnesia; a composition which is more in accordance with the admitted laws of chemical combinations. From these results, it would appear that the earthy chlorids, which according to Nichol are present in the rock-salt of this formation, are decomposed by sulphates in the waters which, by dissolving it, give rise to the brines.

It is to be regretted that in many water-analyses by chemists of note, the results are so calculated as to represent the co-existence of incompatible salts. Of the association of carbonates of soda and magnesia with sulphate of lime, as in the analysis just noted, it might be said that I have shown that it may occur in the presence of an excess of carbonic acid. (Silliman's Jour. [2] xxviii, 174). By evaporation, however, such solutions regenerate carbonate of lime and sulphates of soda and magnesia; and by the consent of the best chemists these elements are to be represented as thus combined. But what shall be said when chlorid of magnesium, carbonate of soda, and silicate of soda are given as the constitueuts of a water whose recent analysis may be found in a late number of the *Chemical News*; or when bi-carbonates of soda, magnesia, and lime are represented as co-existing in a water with sulphates and chlorids of magnesium and aluminum? These errors probably arise from