## THE GYPSUM OF NOVA SCOTIA.

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Several theories have been advanced to account for its presence in the geological sequence; none of these, however, are applicable to every condition of its occurrence.

Dr. T. S. Hunt, in the report of the Geological Survey of Canada, 1857-58, gives a detailed account of some interesting experiments made with a view of throwing light on the formation of Canadian Golomites. From these experiments, which may be considered an extension and modification of the researches of Haidinger and Mitscherlich in this connexion, he deduces the following views. First, that in lakes or sea basins not having an outlet, the mutual decomposition of bicarbonate of lime and sulphate of magnesia gives rise to carbonate of magnesia and sulphate of lime, which are successively deposited on concentration; explaining the constant association of magnesian rocks with stratified gypsum. Secondly, that in sea basins the action of waters containing bicarbonate of soda causes the separation of the lime as carbonate, and the formation of a very soluble bicarbonate of magnesia, also deposited on evaporation. This mixture when heated under pressure, readily forms the double carbonate constituting dolomite.

This theory offers a means of accounting for the origin of the gypsum of Ontario, thus described by Sir W. Logan, "Geology of Canada, 1863 :"-In the Onondaga, Upper Silurian, measures of Ontario, between the Niagara and Grand rivers, gypsum occurs as lenticular masses, varying in horizontal diameter, from a few yards to a quarter of a mile, and from three to seven feet in thickness. The strata above them are crushed and broken, while those beneath form a level floor. These deposits are associated with dolomites and marls, and at Goderich, Ontario, with beds of salt up to 60 feet in thickness. At various points in this formation there are springs yielding from three to four thousandths of free sulphurie acid; but Sir William Logan affirms the gypsum to have been contemporaneous with the strata, and to be unconnected with the acid springs of the present day: and also illustrates the origin of the magnesian portion of the Newfoundland Lower Carboniferous.

It does not, however, apply to the gypsiferous measures of the Lower Provinces. These deposits as already described, occur as regular beds, of enormous size, accompanied by measures abounding with the remains of a vigorous marine fauna, and essentially non-magnesian. To meet . these differences of condition, Dr. Dawson, in his "Acadian Geology," has proposed to account for their formation in the following manner :---

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