DR. THOMAS STERRY HUNT ON THE

hydrous silicates, the view which supposes the olivine or the enstatite to be simply an instance of the crystallization of an anhydrous silicate in the midst of an anorphous hydrous silicate, is more consonant with the hypothesis of the aqueous origin of serpentine-rocks. It is well known that Scheerer, from his studies of the associated olivine and serpentine of Snarum, was led to reject the notion of the derivation of this serpentine from a previously-formed olivine, and to maintain a simultaneous formation of the anhydrous and the hydrons silicates.*

A somewh t analogous case is presented in the occurrence of grains of anhydrous alumina or corundum found in the earthy and amorphous aluminous hydrate, bauxite, which forms beds in uncrystalline cenozoic rocks. \dagger The notion which has been advanced that the bauxite has come from the hydration of previously-formed beds of corundum is obviously untenable, and we must regard this anhydrous alumina as formed by crystallization in the midst of the uncrystalline mass of hydrated alumina. De Senarmont, in the decomposition of aqueous solutions of chlorid of aluminum, at 250° C. observed a simultaneous production of anhydrous alumina in the form of corundum, and of hydrons alumina as diaspore, both crystallized. \ddagger

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 \S 110. The late studies of Arno Behr throw further light on the association of hydrons and anhydrons species. He has found that solutions of dextrose, within very narrow limits of temperature and concentration, yield crystals either of hydrated or anhydrous dextrose, and that under certain conditions we can obtain an admixture of the two, as the result of simultaneous crystallization. \S

A illustration of the influence of small variations in composition on the result of a chemical process under conditions otherwise similar, is afforded by the recent experiments, of Friedel and Sarrasin on the artificial production of albite in the wet way. When a solution of silicate of soda mixed with silicate of ahumina in the proportions required to form the soda-feldspar, was heated in close vessels to from 400° to 500° C, no albite was formed, but crystals of the hydrated double silicate, analcime; silica, soda, and some alumina remaining in solution. When, however, an excess of the alkaline silicate was employed, the whole of the silicate of alumina was converted into a crystallized anhydrons compound, which was albite.

§ 119. Much obscurity still surrounds the question of the conversion of olivine into serpentine. In the first place, it is to be remembered that the process is one which does not, under ordinary circumstances, take place at or near the surface of the earth, since olivine-rocks, whether exotic masses or indigenous crystalline schists, are often met with, presenting no evidence of such change. This is well seen near Montreal, where the hills of olivine-dolcrite, demonstrably of pre-Silurian age, as well as fragments of the same rock imbedded in Silurian conglomerates, alike contain only unaltered anhydrous olivine. This mineral, on exposed surfaces, is subject to a subacrial decay, analogous to that

Amer. Jour. Sci., 1861 [2] xxxii., 281, also, Chem. and Geol. Essays, p. 326.

Amer. Jour. (1997) [19] ANALY 201, Rest, Rest, Communication from Dr. Behr. See also, his paper in Jour. & For these facts I am indebted to t. private communication from Dr. Behr. See also, his paper in Jour. Amer. Chem. Soc., in 1882., vol. iv., p. 11.

|| Comptes Rendus de l'Acad. des Sciences, July 30, 1883.

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^{*} Scheerer, Pogg. Annalen, lxviii., 319, and Amer, Jour. Science [2] v. 389, vi., 201, also xvi., 217.

⁺ Deville, An. de Ch. et de Phys. ["J lxi., 309, and Hunt, Origin of Some Magnesian and Aluminous Rocks.

Comptes Rendus de l'Acad, des Sciences, 1856, xxxii., 762.