

and rocks have been formed, by actual experiments in which these bodies are reproduced artificially. Since the classic experiments of Hall much progress has been made in this subject, notably from the prolonged and admirable researches carried on in Paris by Prof. Daubrée and by Messrs. Fouqué and Michel-Lévy. To some of the results obtained by these observers reference will be made in Book III. Part I. Sect. iv. The processes of investigation have been grouped in three classes. 1st. Those by the "dry way" as in fusion and sublimation, sometimes simply, sometimes with the intervention of a mineralizing agent such as borax, borates, fluorides, chlorides, etc. 2d. Those by the "wet way" where water or steam are used as solvents either by themselves or with the aid of some mineralizing agent; and 3d, Those where some combination of the two foregoing methods is employed, that is, where water or steam is made to act at a high temperature and under great pressure."

iv. *Microscopic Investigation*"

The value of the microscope as an aid in geological research is now everywhere acknowledged. Some information may here be given as to the methods of procedure in microscopical inquiry.

1. **Preparation of microscopic slides of rocks and minerals.**—The observer ought to be able to prepare his own slices, and in many cases will find it of advantage to do so, or at least personally to superintend their preparation by others. It is desirable that he should know at the outset that no costly or unwieldy set of apparatus is needful for his purpose. If he is resident in one place and can accommodate a cutting machine such as a lapidary's lathe, he will find the process

⁵¹ See on this subject Daubrée's great work "Géologie Expérimentale," 1879; Fouqué et Michel-Lévy, "Synthèse des Minéraux et des Roches," 1882; Stanislas Meunier, "Les Méthodes de Synthèse en Minéralogie," 1891; also *postea*, p. 513 *et seq.*

⁵² On the microscopic investigation of rocks consult Fouqué and Michel-Lévy, "Minéralogie Micrographique," 2 vols. Paris, 1879; Michel-Lévy, "Les Minéraux des Roches," Paris, 1888; Michel-Lévy and Lacroix, "Tableaux des Minéraux des Roches," 1889; Rosenbusch, "Mikroskopische Physiographie der Mineralien und Gesteine," 2 vols., one of which has been translated into English by Iddings and published by Macmillan & Co.; also his "Hülftabellen zur Mikroskopischen Mineralbestimmung," 1888, translated into English by F. H. Hatch and published by Swan Sonnenschein & Co.; F. Rutley, "Rock-forming Minerals," London, 1888, and Prof. Cole's volume above cited.