

being covered with fine tissue-paper. An electro-magnet will at once withdraw the particles of minerals which contain far too little iron to be ordinarily recognized as magnetic; in this way the particles of a ferruginous magnesian mica may in a few seconds be gathered out of the powder of a granite.⁴⁰

Where the difference between the specific gravity of the component minerals of a rock is slight, they may be separated by means of a solution of given density. Mr. E. Sonstadt proposed the use of a saturated solution of iodide of mercury in iodide of potassium, which has a maximum density of nearly 3.2.⁴¹ Rohrbach's solution, consisting of iodide of mercury and iodide of barium, has a density of as much as 3.588.⁴² More serviceable is the solution of borotungstate of cadium, with a density of 3.28, proposed by D. Klein.⁴³ The powder of a rock being introduced into one of these liquids, those particles whose specific gravity exceeds that of the liquid will sink to the bottom, while those which are lighter will float. This process allows of the separation of the feldspars from each other, and at once eliminates the heavy minerals such as hornblende, augite, and black mica. By the addition of water or other liquid, as the case may be, the specific gravity may be reduced, and different solutions of given density may be employed for determining and isolating rock-constituents. This method of analysis is important in affording a ready means of separating the quartz and feldspar of a rock.⁴⁴

Hydrofluoric acid may be used in separating the mineral constituents of rocks. The rock to be studied is reduced to powder and introduced gently into a platinum capsule containing the concentrated acid. During the consequent effervescence, the mixture is cautiously stirred with a platinum spatula. Some minerals are converted into fluorides, others into fluosilicates, while some, particularly the iron-

⁴⁰ Mém. Acad. des Sci. xxxii. No. 11; Fouqué and Michel-Lévy, "Minéralogie Micrographique," p. 115.

⁴¹ Chem. News, xxix. (1874), p. 128. ⁴² Neues Jahrb. 1883, p. 186.

⁴³ Compt. rend. xciii. (1881), p. 318. More recently R. Brauns has introduced methylene iodide, which gives a density of 3.33 and is diluted with benzole. Neues Jahrb. 1886, ii. p. 72. See also J. W. Retgers, op. cit. 1889, ii. p. 185.

⁴⁴ Fouqué and Michel-Lévy, "Minéralogie Micrographique," p. 171. Thoulet, Bull. Soc. Min. France, ii. (1879), p. 17. A cheap form of instrument for isolating minerals by means of heavy solutions is described by Mr. J. W. Evans, Geol. Mag. 1891, p. 67.