

follow the laminæ of deposit or of cleavage, and that in this way a crystalline foliated structure may be developed. Round masses of granite erupted among Palæozoic rocks, instructive sections may be observed where a transition can be traced from ordinary unaltered sedimentary strata, such as sandstones, graywackes and shales containing fossils, into foliated crystalline rocks, to which the names of mica-schist and even gneiss may be applied. (Book IV. Part VIII.) Not only can the gradual change into a crystalline foliated structure be readily followed with the naked eye, but with the aid of the microscope the finer details of the alteration can be traced. Minute plates of some micaceous mineral and small concretions of andalusite, garnet, quartz, etc., may be observed to have crystallized out of the surrounding amorphous sediment. These, especially the mica, can be seen gradually to increase in size and number toward the granite, until the rock assumes a thoroughly foliated structure and passes into a true schist. Yet even in such a schist, traces of the original and durable water-worn quartz-granules may be detected.⁶⁵ Foliation is a crystalline segregation of the mineral matter of a rock in certain dominant planes which may be those of original stratification, of joints, of cleavage, of shearing, or of fracture.⁶⁶ Mr. Sorby has recognized foliation in three sets of planes even among the same rocks.⁶⁷

Scrope many years ago called attention to the analogy between the foliation of schists and the ribboned or streaked structure of trachyte, obsidian, and other lavas.⁶⁸

⁶⁵ Sorby, Q. J. Geol. Soc. xxxvi. p. 82.

⁶⁶ Darwin, "Geological Observations," p. 162. Ramsay, "Geology of North Wales," in Memoirs of Geol. Survey, vol. iii. p. 182.

⁶⁷ Op. cit. p. 84.

⁶⁸ "Volcanoes," pp. 140, 300.