

production of regional metamorphism. It is frequently possible to detect portions of the original structures, to show that they belonged to certain familiar and definite types of sedimentary or eruptive rocks, and to trace every stage of transition from them into the most perfectly developed crystalline schist. In the crushing down of large masses of rock during powerful terrestrial movements, lenticular cores of the rocks have frequently escaped entire destruction. Round these cores the pulverized material of the rest of the rock has been made to flow, somewhat like the flow-structure round the porphyritic crystals of a cooling lava. And successive gradations may be followed until the cores, becoming smaller by degrees, pass finally into the general reconstructed material. That this structure is not original, but has been superinduced upon the rocks after their solidification can be abundantly demonstrated. Among the sedimentary formations the elongation and flattening of the pebbles in conglomerates, and the transition from grits or graywackes into foliated masses, prove the structure to have been superinduced. Among eruptive rocks the crushing down of the original minerals, and their transformation into others characteristic of foliated rocks, afford the same kind of proof.⁴⁶

⁴⁶ On the mechanical deformation and dynamical metamorphism of rocks see A. Heim, "Untersuchungen über den Mechanismus der Gebirgsbildung," 1878; A. Rothpletz, *Zeitsch. Deutsch. Geol. Gesell.* xxxi. 1879, p. 374; H. Reusch, "Die fossilien-führenden Krystallinischen Schiefer von Bergen," German translation by Baldauf, 1883. *Neues Jahrb. (Beilageband)*, 1887, p. 56; "Bömmelöen og Karmöen," 1888; *Rep. Geol. Congress, London, 1891*, p. 192; Lehmann, "Untersuchungen über die Entstehung der altkrystallinischen Schiefer," 1884; J. J. H. Teall, *Geol. Mag.* 1886, p. 481; G. H. Williams, *Bull. U. S. Geol. Survey*, No. 62, 1890. For an instance of the metamorphism of a conglomerate into albite schist see J. E. Wolff, *Bull. Mus. Comp. Zool. Harvard*, xvi. No. 10, p. 174, 1891. The Papers on the Crystalline Schists by Heim, Lory, Lehmann, Michel-Lévy, Lawson, and the U. S. Geol. Survey in the report of the London Session of the International Geological Congress (published in 1891) should also be consulted.