posed at the surface, they must have been subsequently elevated to that position, and the superincumbent rocks have been removed by denudation. Naumann supported the view that most gneiss and crystalline schists represented the oldest rock-sediments, but he agreed with Poulett-Scrope, Darwin, Fournet, Cotta, and others that many gneisses had been produced by the deformation of eruptive rocks, and those might be of different ages. A similar standpoint was afterwards taken by Kjerulf and by Lehmann, the author of an excellent work (1884) on the ancient crystalline schists, with special reference to the metamorphic rocks of the Erz mountains, Fichtel mountains, the mountains of Saxony and of the Bavarian and Bohemian frontiers.

Delesse in 1861 declared himself an adherent of the metamorphic doctrines, and ascribed rock-metamorphism to high temperature, water, pressure, and molecular movements. In his opinion, after the first crust formed on the cooled surface of the earth-magma, it was violently attacked by the action of the condensed vapours and afforded material for a great accumulation of sediments. The metamorphism of these oldest sediments produced gneiss and the crystalline schists, and these could again become plastic and be transformed into plutonic rocks. Thus Delesse assumed the deep-seated granite series to have been produced by the re-melting and re-solidifying of metamorphosed sediments. He was supported in this view by Daubrée (1857). According to Daubrée, the first-formed crust was saturated with the water of the primitive ocean, and the mineral constituents of gneiss and the oldest crystalline schists separated out from a pulpy, softened mass. The younger schists (chlorite schist, mica schist, phyllite) of the primæval mountain-systems were thought by Daubrée to be pre-Cambrian deposits metamorphosed by pressure and superheated water. The metamorphism of the younger Alpine schists was also referred by Daubrée to the same influences.

Sterry Hunt similarly held that the crystalline schists represented the earliest chemical deposits. He thought they owed their planes of schistosity to the contemporaneous effect of intense heat combined with the action of water and pressure. He tried to elucidate the chemical processes of separation, to determine an order of deposition, and even to demonstrate that the eruptive rocks were also metamorphosed sediments, which after having been made plastic penetrated