

While the instances are few where any satisfactory connection can actually be traced between granitic masses and true lava-form or volcanic rocks, the close relationship between granite and the crystalline schists has long been recognized. It was formerly believed by many geologists that some granite is of metamorphic origin, that is to say, may have been produced by the gradual softening and recrystallization of other rocks at some depth within the crust

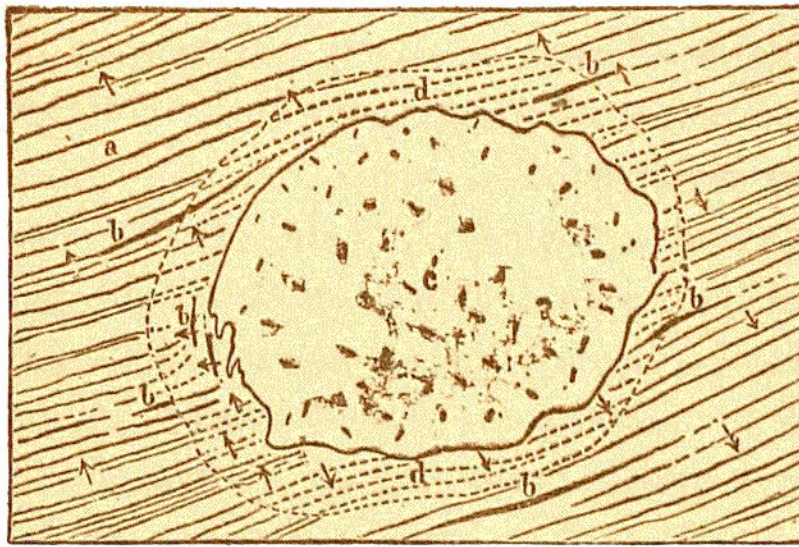


Fig. 282.—Plan of granite boss, Cairnsmore of Fleet, Scotland.

The granite area (c) is from 7 to 10 miles in diameter, rising through highly inclined Lower Silurian strata (a), among which are some conspicuous bands of black anthracitic and graptolitic shales (b). The arrows show the direction of dip; the parallel lines that of the strike. The ring within the dotted line round the granite defines the belt of metamorphism.

of the earth. As gradations can be traced from gneiss through less distinctly crystalline schists into unaltered strata, the granite into which such gneiss seems to pass was by some looked upon as the extreme of metamorphism, the various schists and gneisses being less advanced stages of the process. Prof. Dana has described a series of hornblendic, hypersthentic, augitic, micaceous, and olivine rocks in the valley of the Hudson River, which, as varieties of granite, syenite, diorite, norite, etc., he describes as masses

Soc. xxx. p. 220; Reyer, Jahrb. Geol. Reichsanst. 1879, p. 405, and his "Beitrag zur Physik der Eruptionen."