

show that the rocks whence they were derived had already suffered cleavage, before the detritus forming the conglomerate was removed from them. An intrusive igneous rock, traversed with cleavage-planes like its surrounding mass, points to cleavage subsequent to its intrusion (Fig. 259).⁴

Between cleavage and foliation there is in many cases a close relation. Microscopic examination of some cleaved rocks shows that in original clastic sediment a micaceous mineral has been abundantly developed, the plates of which are ranged along the planes of cleavage. This mica can be distinguished from original mica-flakes in the sediment.

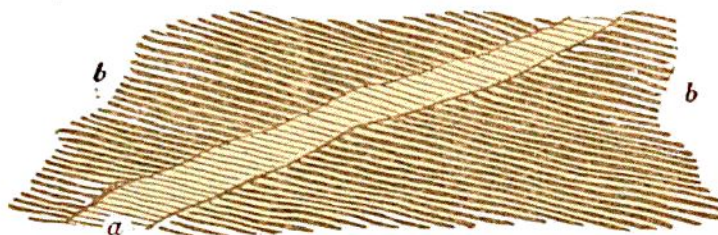


Fig. 259.—Vein of prophyry (*a*) crossing Devonian slates (*b*), Plymouth Sound, both being traversed by cleavage (*B*).

It may be observed, in many cases, to impart a lustrous silvery or silky sheen to the cleavage-faces of a slate, yet may be at right angles to the original lamination of deposit. Such a crystalline rearrangement is indeed an incipient foliation. It is the same structure, further developed and intensified, which gives their distinctive character to schists. The crystalline metamorphosis naturally proceeds along the lines of least resistance, which in cleaved rocks are the cleavage-planes, and in uncleaved sedimentary rocks are the planes of deposition. Foliation, as already remarked (p. 551), may sometimes represent stratification, sometimes cleavage, and sometimes divisional planes superinduced by shearing or faulting.⁵

⁴ De la Beche, "Geol. Observer," p. 621.

⁵ See Sedgwick, Trans. Geol. Soc. (2), iii. p. 461. Darwin on foliation and