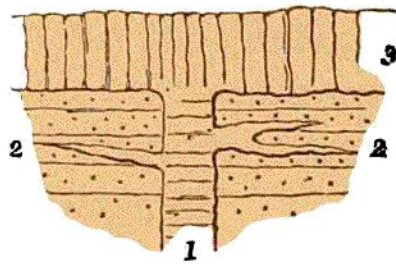


ficial lava, formed of the silica and alumina of the iron ore and its flux of lime, melted together and still retaining a percentage of iron. Ancient lavas, such as those of Snowdon, of Lower Silurian age, often still possess a slaggy and ribboned structure. Further, igneous rocks are apt to alter any strata through which they are ejected or over which they flow. Accordingly, in rocks of all ages, and of various composition, felspathic, doloritic (hornblende and felspar), dioritic

FIG. 4.



(augite and felspar), and various others, as in fig. 4, we frequently find veins (2) that have been injected among the strata, from dykes, as they are termed (1), rising vertically or nearly vertically through the beds from the end of which sometimes an overflow of lava (3) proceeded, that may or may not be columnar. In such cases the stratified rocks are apt to be altered for a few inches or even for several feet at their junction with the igneous rocks. If shales, they may be hardened or baked into a kind of porcellanic substance; if sandstones, turned into quartz-rock, something like the sandstone floor of an iron-furnace that has long been exposed to intense heat. Occasionally the strata have been actually softened by heat, and a semi-crystalline structure has been developed.

From these and many other circumstances, a skilled geologist finds no difficulty in deciding that such and such rocks are of igneous origin, or have been melted