

clined, and the portions inclosed between the arms of the dike having been greatly indurated.

It must be kept in mind, however, that irregular expansions and contractions of dikes may sometimes be caused by subsequent movements of the terrestrial crust. The dikes, for instance, may be plicated together with the rocks among which they have been intruded, and the folds may afterward be pressed in such a way as to give rise to alternate or irregularly distributed enlargements and constrictions, or a similar effect may be produced by shearing or by faulting.<sup>31</sup> Mr. Clough has found that in a great system of dikes traversing the crystalline schists of Argyllshire frequent attenuations of the dikes are produced by faults.

In internal structure, considerable differences may be detected among dikes. The rock may appear (*a*) with no definite structure of any kind beyond irregular jointing; (*b*) columnar, the prisms striking off at right angles from the walls, and either going completely across from side to side, or leaving a central non-columnar part in which they branch and lose themselves; when the side of a dike having this structure is laid bare, it presents a network of polygonal joints formed by the ends of the prisms which, if the dike is vertical, lie of course in a horizontal position, whence they depart in proportion as the dike is inclined: occasionally the prisms are as well-formed as in any columnar bed of basalt; (*c*) jointed parallel with the walls, the joints being sometimes so close as to cause the rock to appear as if it consisted of a series of vertical plates or strata: this platy character is due doubtless to contraction in cooling between parallel walls, and when it occurs in basalt-dikes is best de-

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<sup>31</sup> Compare the structure illustrated by Fig. 312. See also Harker, *Geol. Mag.* 1889, p. 69, and the account of the pre-Cambrian rocks in Book VI. Part I.