

The thickness of dykes varies from a few inches to twenty or thirty feet or yards; in some instances they exceed three hundred feet. The extent to which they stretch across a country has seldom been explored beyond the mining districts, where a knowledge of them is important, on account of the disturbances which they occasion in the strata.

The intersection of coal strata by dykes is represented Plate IV. fig. 2. and 3. C. C. and D. D. Dykes generally decline a little from a vertical position; and, as before stated, the depth to which they descend is unknown.

The strata are almost always thrown down on one side of a dyke, and elevated on the other; but the dislocation is not proportioned to its breadth. There is a fault extending from Whitley, in Northumberland, to Greenside and Sandgate in Durham, which has thrown down the strata on the north side one hundred and eighty yards; this is a comparatively narrow fissure filled with clay. A great basaltic dyke in the same county, which is seventeen yards wide, has only produced a dislocation of twelve yards.

The whole series of strata which have been raised above the surface on one side of a fault, have sometimes entirely disappeared, and the ground on each side of it is on the same level. See Plate IV. fig. 2, 3.

Trap dykes, and basalt dykes are generally harder than the rocks that they intersect; and when the latter are partly decomposed, often remain, forming vast walls of stone, that rise above the surface of the ground. There are walls of this kind in the counties of Northumberland and Durham, running along the country several miles. Dykes also extend into the sea, and form reefs of rocks; and when they cross the beds of rivers they form fords, and sometimes hold up the water and occasion cascades, of which there are numerous instances on the river Tees. In the interior of North America, basaltic walls of great extent were discovered by Messrs. Lewis and Clark; the walls were composed of columns of basalt arranged horizontally, and were at first supposed to be artificial constructions. Where basaltic dykes are of considerable thickness, the hardness of the stone varies in different parts; sometimes the inner parts are harder, and sometimes softer than the outer, the substance in the dyke being divided by seams or partings. This may be distinctly seen at Coaly Hill near Newcastle-upon-Tyne, where a large basalt or whin dyke cuts through the coal strata, and rises to the surface. The stone, being hard, is quarried for the roads along a line of several hundred yards, forming a deep trench, sufficiently wide to admit a cart road through the quarry, between the sides of the dyke.

The basalt of the dyke is intersected by fissures, and divided into variously shaped masses. In one part of the dyke, it appears to graduate into an indurated ferruginous clay, which is in some places divided into minute, well defined pentagonal prisms. The dyke had