

charred the coal on each side of it, and rendered it soft and sooty; to use the language of a quarry man, who was working in the dyke when I visited the place in 1813, "it had burned the coal wherever it had touched it." The same dyke extends from the sea to the western side of the county of Northumberland; its termination in that direction is unknown.

The longest mineral dyke that has been traced in England may be called the Cleveland Basalt Dyke: it extends from the western side of Durham to Barwick in Yorkshire; it crosses the river Tees, at this place, and proceeds in a waving line through the Cleveland Hills in the east riding of Yorkshire, to the sea between Scarborough and Whitby. It rises to the surface, and is quarried, in many parts of its course, for stone to lay upon the roads. From Barwick-on-the-Tees it may be traced in an easterly direction, near the villages of Stanton, Newby, Nunthorp and Ayton. At Langbath-ridge a quarry is worked in it; it passes south of the remarkable hill called Roseberry Toppin, near Stokesly, and from thence by Lansdale to Kildale; it may be seen on the surface nearly all the way in the above track. From Kildale it passes to Denbigh Dale end, and through the village of Egton-bridge, and hence over Leace ridge through Gothland, crossing the turnpike road from Whitby to Pickering near the seven mile stone, at a place called Sillow Cross on a high moor. I examined it at this place, where it is quarried for the roads, and is about ten yards wide. From hence it may be traced to Blea Hill near Harwood Dale, in a line towards the sea, near which it is covered with alluvial soil; but there can be little doubt that it extends into the German Ocean. It is a dark greyish brown basalt which turns brown on exposure to the atmosphere; it is the principal material for mending the roads in the district called Cleveland. I am indebted to Mr. Bird of Whitby for an account of the situations where it may be seen on the surface. He has traced it through Yorkshire and Durham; in the latter county it cuts through the coal strata. Professor Sedgwick, in a valuable paper on the Trap Dykes of Yorkshire and Durham, published since this account of the Cleveland Basalt Dyke was originally written, says that the continuity of this dyke with others west of the Tees, is not fully ascertained: he thinks the length of the dyke may be estimated at from fifty to sixty miles. The course of this dyke is marked in the Geological Map of England, Plate IV. By consulting the large maps of England, the course may be distinctly traced; drawing a line in the direction from Cockfield in the county of Durham to Barwick-on-the-Tees, and extending the line east and west, it will pass near all the places above mentioned. In some situations where the angle in which this dyke cuts the strata can be ascertained, it is about eighty degrees.

A circumstance attending this and other extensive dykes, which has not, I believe, been hitherto regarded by geologists, completely invalidates the theory, that dykes were originally open fissures form-