

on the north-east coast of Northumberland ; by which it appears that the limestone is so altered in quality in those parts of it which lie in the immediate vicinity of the dyke, that it will not burn into lime of any value, nor within 20 feet of it. A stratum composed of felspar and carbonate of lime, is so altered near the dyke, as to resemble the substance of the dyke itself, which is unlike that of the dykes in the *north-western* part of the county ; these are composed principally of hornblende.

The number of *veins*, or *dykes*, *traversing the strata of the Coal-measures* is very considerable, and there is no uniformity in their direction. The circumstances attending them, are in many cases very extraordinary, and the most considerable basaltic dyke in the immediate neighbourhood of Newcastle is that which passes through Coley hill, about four miles west of the town. A long range of quarries has here been opened upon it, in some places to the depth of 50 feet, and laying bare the entire width of the dyke, which is 24 feet. The dyke in this place appears to be *vertical*. The basalt of which it is composed, lies in detached masses which are coated with yellow ochre. The removal of these, brings to view thin layers of indurated clay with which the fissure is lined, and which, breaking into small quadrangular prisms, are used by the country people for whet-stones ; in this substance, clay-ironstone impressed with the figures of ferns, is very abundant.

The upper seam of coal is here found at about 35 feet from the surface, and where in contact with the dyke, is completely charred, forming an ash-grey porous mass, which breaks into small columnar concretions, exactly resembling the coak obtained by baking-coal in close iron cylinders in the process of distilling coal-tar. Calcareous spar and sulphur are disseminated through the pores of this substance.

The basalt itself, when broken, is of a greenish-black colour, and of a coarse-grained fracture. It contains quartz, calcareous spar, and another mineral possessing the following characters. The colour is wax-yellow passing into olive green ; the lustre vitreous, resembling that of glassy felspar ; the fracture foliated. It resists the action of the blowpipe with borax, but with it melts into a white glass. The latter circumstance, and the foliated fracture, distinguish this substance from olivine, which gives a dark green bead with borax, and presents a fracture more or less conchoidal.

Passing to the east-south-east of the Coley hill dyke in the line of its direction, a vein is found traversing Walker colliery, and crossing the Tyne at Walker. This dyke is well defined ; it occasions no alteration in the level of the coal strata, and the depth at which it intersects them is unknown. It has been