

as mechanical agents in contorting the strata, sometimes to a considerable extent. The dike which extends from Whitby, in Northumberland, to Greenside, in Durham, has thrown down the strata on the north side about five hundred and forty feet; but this effect is rather to be attributed to the fissure made in the beds than to the ejection of liquefied rocks, for the opening is filled with clay, and the effect produced is called by geologists a fault. The dike at Bartreeford throws down the strata four hundred and eighty feet on its west side; but a branch of the Coaly Hill Dike traverses the beds of the Walker Colliery on the Tyne without causing any alteration in their level, though it is thirty-five feet thick, and quite vertical. There is a very considerable fault near Bilston, in the South Staffordshire Dudley coal-field, and it has the effect of reversing the dip of the beds; on the south side of the fault they dip to the south, while on the north side they dip to the north, presenting an appearance not unlike that of a side section of a roof.

If any farther evidence were necessary to prove that the trap dikes were formed by the agency of heat, and at a period after the deposition of the coal measures, that evidence might be gathered from the effect which has, in many instances, been produced upon the coal-beds. The Coaly Hill Dike, which has been traced from the sea to the western side of Northumberland, has charred the beds of coal with which it is in contact. The Cockfield Dike, which underlies the coal measures of Durham, has reduced the coal in its vicinity to a cinder, and has sublimed the sulphur from the iron-stone. It once happened that the collieries of Durham caught fire, and continued to burn for many years. The heat which was thrown out was so great, that the vegetation on the land above the burning coal was accelerated, the temperature of the water was raised, and the clay that covered them was converted into a species of porcelain jasper.

From these statements it will be evident that coal is of vegetable origin, and that the unstratified rocks have been ejected among them in a heated liquefied state. It may not now be uninteresting to inquire by what means vegetables may be made to become coal. A very celebrated and highly-esteemed geologist once objected to the arguments that are usually employed to prove the vegetable origin of coal. One of the strong arguments in favour of this opinion is founded on the abundance of vegetables enclosed in the coal meas-