

per square mile. The thickest bed of coal is nine feet; in some parts there are sixteen seams of ironstone. The strata of this vast coal-field are deeply cut through by valleys, and are much broken by faults, and the quality of the coal varies greatly in different parts of the field.

At the Clee Hills in Shropshire, the breadth of some of the coal-fields is not a mile. At Ashby Wolds in Leicestershire, in the central part of the field at *e*, Plate IV. fig. 2., the main bed of coal is worked at the depth of two hundred and forty yards; but by the bending and rise of the strata, the same bed comes to the surface at *b*, about three miles distant. The depth of coal strata, from the inclination or bending of the strata, differs much in the same district, as will be evident from what has been stated, and from an inspection of the last-mentioned figure. Some coal-fields extend in a waving form over a district.

On the eastern side of England, the strata generally decline, or, in the miner's language, dip, to the south-east point: on the western side of the strata they are more frequently thrown into different and opposite directions, by what are called faults and dykes.

A fault is a break or intersection of strata, by which they are commonly raised or thrown down; so that, in working a bed of coal, the men come suddenly to its apparent termination. A dyke is a wall of mineral matter, cutting through the strata in a position nearly vertical. (See Plate IV. fig. 2. and 3.) The name *dyke* is originally derived from our Northern neighbors: it signifies a wall. The thickness of dykes varies from a few inches to twenty or thirty feet, and even yards. The dykes which intersect coal strata are composed of indurated clay, or more frequently of basalt, and will be particularly described in the following chapter. In some coal-fields the strata are raised or thrown down on one side of a dyke one hundred and fifty yards or more; and the miner, after penetrating through it (see Plate IV. fig. 3.), instead of finding the same coal again, meets with beds of stone or clay on the other side at *e*: hence he is frequently at a loss how to proceed in searching for the coal which is thus cut off. If the stratum of stone *e* be the same as any of the strata which were sunk through in making the pit or shaft *g g*, it proves that the bed of coal on the other side of the fault is thrown down, and he can determine the exact distance between that stratum, and the coal he is in search of. But if the stone is of a different kind to any which was above the coal he is working, he may be certain that the strata on the other side of the fault are thrown up, but to what distance, if the under strata have not been previously perforated, can be ascertained only by trial. It frequently happens, however, that two or more strata of stone or shale, at different depths, are so similar in their quality and appearance, that it is impossible to distinguish them: in such cases, it is necessary to perforate the stratum, to ascertain its thickness, and examine the quality of the strata