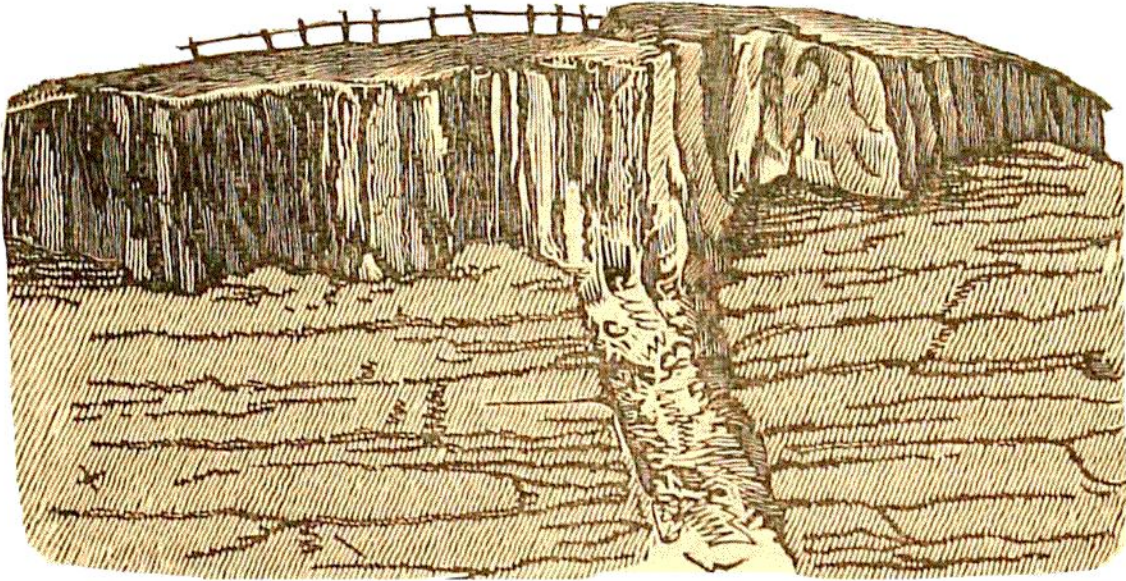


wick) will give a distinct idea of this mode of formation. It may be proper to observe, that the dyke is a continuation of the Cleveland basalt dyke, which I have before described. The horizontal measures through which it passes are coal measures.



There can be no more doubt respecting the cap or expansion of basalt having been erupted through the dyke, than there can be of the origin of a bed of lava, which may be traced to the mouth of an adjacent volcano.

Beds of trap or basalt, interstratified with other rocks, have given rise to much speculation respecting their origin: that such beds are not unfrequent in the coal measures, is a fact well known to miners in the North of England. From the great hardness of trap beds (provincially called beds of whinstone) they increase the difficulty and expense of sinking shafts. These interstratified masses have been frequently described, as regular measures or strata. There is a thick bed of trap in some of the coal-fields in Durham, called the Great Whinstone Sill; the word *sill* being used for stratum by Mr. Westgarth Forster, in his section of these strata published in 1809. This bed or mass of whinstone, though described by Mr. Forster as a regular stratum with the series of strata in which it is found, is admitted to vary in thickness from twelve to sixty yards. It is found at a great depth in some mines; in other situations it rises to the surface. Upon the supposition that this bed is of igneous origin, the question has been proposed, in what manner did it become interstratified with beds that are evidently aqueous depositions? Those who first raised this objection could scarcely have kept in mind, that every bed in the whole series of the coal measures was once the upper surface of the solid ground, whether that surface was covered with water, or was dry. An eruption of lava might therefore flow over any particular bed in the whole series, and this lava might become covered by subsequent aqueous depositions. But there is another mode in which the lava might be introduced among the strata at a later