which fill ramified fissures, and are themselves crossed and cut through by straight dykes of porphyry (P). This occurs in Ben Cruachan, by the shore of Loch Awe.

Upon this principle Werner speaks confidently of the relative age of mineral veins; and it is the general impression of miners and geologists, that he is right in so doing.

On a greater scale, the same problem is presented to us by examinations of large districts, like Ireland, the Pyrenees, Cornwall, or the Bohemian mountains. But the data necessary for the solution of this problem are quite different, and the result becomes a part of the history of the formation of the crust of the globe. It is requisite to know in this case what relation the several rocks of igneous origin bear to the stratified rocks among which they appear. In this inquiry we must not assume that all the masses of igneous rocks of the same nature have been forced among the strata at the same time; this would be sometimes erroneous, always insecure. One of the most certain proofs of the exact age of a particular mass of igneous rock, is also one of the rarest. When strata a, b, c, d are traversed by a trap dyke, and these strata, together with the dyke, are over_laid by the next stratified rock in order of time e, it is evident that the dyke was formed in the interval (whether long or short) between the deposition of d and e. Such a case is believed to occur on the line of a trap dyke which crosses the Durham coalfield from Eggleston to Quarrington, dividing the coal strata, but not the superincumbent magnesian limestone. A similar dyke, starting from near the same point, passes into the oolitic system; and thus we learn that the igneous action in Teesdale, which commenced in the early carboniferous period, continued to produce similar basaltic rocks till after the deposition of part of the oolites; and there is nothing which prevents us from supposing that this last eruption may have been of much later date, as the great eruption in the north of Ireland is known to have been.