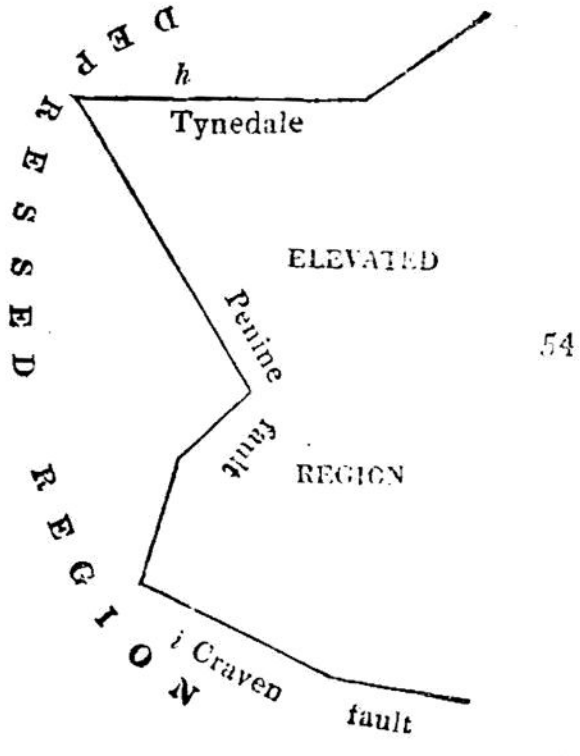
Every coal field in these islands is remarkably dislocated by faults, often traversed by rock dykes, sometimes ridged or furrowed by anticlinal or synclinal dips, which cause great trouble and expense to the coalworker, and call forth all the resources of his art. Into the history of these disturbances we shall only enter, so far as to present a fair basis of comparison with physical theories. One of the most remarkable great faults or dislocations yet known in the world, belongs to this period; viz. that great and continuous fracture of the earth's crust, from Cullercoats, near Newcastle, westward along the valley of the South Tyne to Brampton; thence southward to Brough, Kirkby-Stephen, Dent, and Kirkby-Lonsdale; and afterwards eastward to near Grassington, in Wharfdale, a distance of 110 miles.* The whole of the somewhat rectangular tract of country, included between the northern (Tynedale), southern (Craven), and middle (Penine) portions of this fault, is elevated above the corresponding strata in the depressed surrounding regions, not less than from 1200 to 4000 feet; in consequence of which grauwacke rocks show themselves along the Penine and Craven portions, while small coalfields appear on the parts at *h* and *i*, thrown down 2000 feet below the summits of millstone grit!



On the south side of the Craven branch of this great fault are found many anticlinal ridges, severally ranging north-east and south-west, or nearly, and throwing

* See separate Memoirs by Sedgwick and Phillips in Geological Transactions; also "Geology of Yorkshire," vol. ii.