## (*a*) THE GREAT COAL-FIELD OF NORTHUMBERLAND AND DURHAM.

The coal-field of the north-eastern extremity of England extends over a great part of the counties of *Northumberland and Durham*. Of this district we have two accounts; one by N. J. Winch, Esq. published in the 4th volume of the Transactions of the Geological Society; the other by Dr. Thomson, in the Annals of Philosophy for November and December, 1815. We proceed to select from both, recommending them, and particularly the former, to the perusal of the reader afterwards. This part of England is highly interesting both in a geological and economical point of view. Geological, since the facts it discloses are extremely curious; and economical since it supplies London, and the east and south coasts of England with coal, besides what is consumed by the inhabitants themselves.

The *coal-measures* of this field commence near the river Coquet on the north, and extend nearly to the Tees on the south: the length of this tract is about 58 miles, and its greatest breadth about 24. The strata of the millstone-grit and shale series pass under those of the coal-measures; which latter pass beneath the magnesian limestone; the northernmost point of which is near the mouth of the river Tyne.

The strata of this, as of many other coal-fields, appear to dip from the surface, and rise again to it after attaining a certain depth; so that a section of them gives the idea of a form of a boat. A place called Jarrow, which is about five miles from the mouth of the Tyne, and on its southern bank, is the spot beneath which the beds of *coal in the coal-measures*, are found at their greatest depth. One of the thickest beds, called the High Main, is 960 feet below the grass at Jarrow, and rises on all sides; but as the dip of the strata (which averages one inch in 20) is not uniform in every part in the surrounding district, that bed does not rise to the surface at equal distances around that place.

We may assume that Jarrow is the centre* of the coal-measures, since it is the spot beneath which the *High Main* coal is found at the greatest depth beneath the surface. There is a considerable though not a perfect uniformity in the distance of the several coal-beds from each other. Hence, as the High Main coal rises to the surface of the alluvial soil, around Jarrow,

* In forming this conclusion, it is necessarily inferred that the coal-measures once extended far to the east of the present coast of Durham, and *above* the level of the sea: that they exist *beneath* it, is proved by the workings under it.