

has not affected the limestone.* This rock, along the coast of Durham, is covered by a species of breccia, the cement of which is a marle-like substance consisting chiefly of magnesian carbonate of lime; and with this breccia the wide chasms or interruptions in the cliff are filled. The upper strata of the limestone are thin and slaty, and inclining to a buff-colour. Below, the stratification is less distinct, and the colour is hair brown, the texture crystalline and cellular: a variety that is flexible has lately been found. It partakes of the nature of swinestone; and from containing some inflammable matter, it requires only a small quantity of coal to reduce it to lime. (G. T. vol. iv. p. 6.)

It is well ascertained that the magnesian limestone of Durham and Northumberland rests upon the coal-measures; for at Pallion, a little to the west of Sunderland, and but a short distance from the western limit of the magnesian limestone, it was only 12 fathoms thick, and was found to overlie the coal strata, which were bored through to the depth of 140 fathoms, without finding a seam of coal worth working. No coal-mine has yet been won by sinking a shaft through the limestone, although the workings of some collieries, situated on its western boundary, have been carried underneath it. At Hart, near Hartlepool, which is almost the southern extremity of the limestone on that coast, it was bored to the depth of 52 fathoms, without penetrating through it. (G. T. vol. iv. p. 8.)

The dip of the coal strata south of Newcastle is not in conformity with that of the magnesian limestone. It is a circumstance, however, too well ascertained to admit of a doubt, though difficult to be accounted for, that the coal is deteriorated in quality where it is covered by the limestone. (G. T. vol. iv. p. 9.) Botryoidal masses of fetid limestone devoid of magnesia, in balls varying from the size of a pea to two feet in diameter, imbedded in a soft, marly, magnesian limestone, are found at Hartlepool, in a quarry at Building hill near Sunderland, and on the sea coast a mile or two north of

* The subjoined sketch of the position of the magnesian lime-coal measures, and dyke is copied from that given in the volume of the Geological Transactions above referred to.

