

The beds of red marl and sandstone of this formation, occupy a considerable part of the midland counties in England, extending from the eastern side of Yorkshire into Devonshire, and on the west, with some interruption, from Cumberland to Gloucestershire. The beds or strata never attain any considerable elevation in England; they cover or enclose rocks of other formations: in Leicestershire and Warwickshire they surround rocks of sienite, granite, porphyry slate, greenstone, and quartz. The granite and greenstone of the Malvern Hills, are covered, on the southern side, by the same red marl and sandstone. In Devonshire, several rocks of greenstone and amygdaloidal trap are also surrounded by it; and at Rouvray in France, on the road to Dijon, I observed a low range of sienitic and granitic rocks, rising from a similar red marl, which, like the English red marl, was covered by blue lias with gryphites. It was formerly maintained by Mr. Farey, that the sienitic and granite rocks of Charnwood Forest and Malvern, were merely anomalous masses in the red marl; and though this opinion was deemed extravagant, and afterwards abandoned by Farey himself, I am inclined to believe, that there is a greater connection between these different formations, than has hitherto been admitted.

The red marl and sandstone of England, appear to me to have been formed principally by the disintegration of rocks of trap, greenstone, sienite, and granular quartz: the iron in the decomposing trap rocks, has probably given to this formation its red colour. I conceive that the argillaceous marls have also been formed principally from the trap rocks, and the siliceous sandstone from the granular quartz rock. That rocks of sienite, trap, and quartz, were once extensively spread over the districts now covered with red marl, might, I think, be sufficiently ascertained, by tracing them through the red marl districts, where they just peep above the surface, or they might be discovered by sinking. The sienitic rocks of Charnwood Forest may be distinctly traced into Warwickshire; from thence to the Malvern Hills the connection may be followed; and from the Malvern Hills to the trap rocks in Gloucestershire, Somersetshire, and Devonshire; but every where accompanied by the red marl, or near to it. The quartz rock at the Lickey, near Bromsgrove, is not, as has hitherto been believed, the only rock of the kind in the midland counties; it may be found near Atherstone in Warwickshire, and is, doubtless, associated with the greenstone rocks in that neighborhood, as members of the Charnwood Forest range of hills.\*

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\* In the village of Hartshill, near Atherstone, when the author was at school there, the quartz rock was employed in mending the roads: it is granular without cement, and breaks into sharp edged fragments: it has a light reddish colour. When a handful of the fragments are taken from the roads, and thrown upon the ground forcibly in the dark, they produce numerous scintillations like stars,—an experiment which has often excited the surprise of the author and his schoolmates.