

the Ouse the cliff is again resumed, having, at Newhaven castle hill, another outlier of plastic clay and sand reposing against it: hence, the chalky cliffs, though gradually declining in height in proceeding westward, are continued to the neighbourhood of Brighton, where they finally disappear, the beds of this formation having sunk beneath the superstrata of the Isle of Wight basin.*

West of Brighton, the coasts of Sussex and Hants present only a low uninteresting tract; but crossing to the Isle of Wight, the chalk re-emerges from the superstrata near its eastern point, and rises with its usual magnificence into Culver cliffs. Here, indeed, appearances of more than usual interest occur; for here we first enter upon that remarkable district in which these beds, so generally characterized by their horizontal position, assume that vertical arrangement which has been hastily assumed as peculiar to older and more chemical depositions, and as resulting in such from the circumstances of their original formation; but which, as we shall hereafter have occasion to shew, are limited to no single geological æra, and in the great majority of instances, if not in all, have been demonstrably produced by the mechanical force of subsequent convulsions. In our examination of this part of the coast, we have the further advantage of following an able and enlightened guide, the author of the excellent letters to Sir H. Englefield; to the correctness of whose description the writer of this article can bear the fullest testimony, having verified them all by a careful personal survey throughout the whole district.

* In the Royal Institution Journal, No. 8, p. 227, is an account of the cliffs at Brighton and on the east of it, by J. F. Daniell, Esq. who describes a bed consisting chiefly of flints, but containing rounded masses of granite, slate and porphyry, and resting near the town on chalk, but as being there covered by chalk rubble. This superincumbent rubble, as it proceeds eastward, is described by him as partaking more and more of a regular aspect, as having the appearance of chalk about half way between Brighton and Rottingdean, and as containing two contorted layers of flint, while others passing down it obliquely, also traverse the bed of alluvium, containing masses of flint, granite, porphyry, and slate. Having, as I conceive, some reasonable doubts as to the correctness of the preceding observations, which seemed to imply the opinion that the alluvial bed of rounded masses of primary rocks was interstratified with the chalk, I requested my friend Thomas Hodgkin, then a resident at Brighton, to re-examine the cliff, which he has done with attention, and the result is, that every oblique bed of flint perceived by him above the bed of granite, &c. stopped at it, resuming its direction beneath it; and he is of opinion that this bed of decayed alluvium, instead of being interstratified with the beds of chalk, was heretofore washed by the action of the sea, when at a higher level than it now is, into a crevice, either created by that action in the chalk, or by washing out a bed of soft chalk marl, once occupying the place of the masses of granite and of other rocks—an opinion extremely reasonable. (P.)