

tween the upper or green sand and the chalk, beds of an argillo-calcareous character are always found, occasionally themselves also mingled with sand; and into those beds the lower chalk seems to graduate by an almost insensible transition, by the admixture of argillaceous and siliceous matter through its substance. To these intermediate beds the name of Chalk marle has been given; hence we have the following subdivisions,—beginning with the highest member of the series and reckoning downwards.

- A. Chalk marle.
- B. Green sand.
- C. Clay dividing the sands; which, as it occurs on the most extensive scale in the Wealds of Kent, Surrey, and Sussex, may be called the Weald clay.
- D. Iron sand.*

In applying the term formations to these subdivisions, we wish to be understood as using it only as a convenient designation for a large assemblage of similar strata. Viewed under a more general aspect, the whole series perhaps might be considered as constituting but one formation; yet each of these subordinate members is in itself of sufficient importance to require a distinct and specific notice, and singly forms the mass of considerable ranges of hills.

All these formations are probably of marine origin. It should be noticed, however, that the *Vivipara*, a fluviatile shell, has

* It would have been considered desirable to subjoin a list of the synonymes under which Mr. Smith describes these formations, but he candidly acknowledges the difficulty of discriminating between them; and it can scarcely be considered as any impeachment of his general accuracy, to add that he has not succeeded in the attempt.

The great foundation of his errors in this respect, appears to have been an hasty identification of the limestone beds associated in the Kentish rag or green sand formation, with those of the Portland series:—an identification which is absolutely contradicted by a comparison of the series of formations as exhibited in the Weald of Kent, in the Isle of Wight, and in Dorsetshire. Hence the clay underlying the Kentish rag and green sand (our Weald clay) is in many instances confounded, under the name of Oak-tree clay, with that underlying the Portland series (our Kimmeridge clay).

The iron sand, described by Mr. Smith, under the names of brick earth, and sand, and rock producing the Portland stone (because it immediately overlies that formation), is from the same cause confounded, in the Weald district, with the real green sand formation.

The writer of this article, when on a tour in the Isle of Wight and Parbeck in 1813, formed detailed lists of the several strata constituting the series as exhibited in the various points where their sections are exposed in that interesting district: these are unfortunately in the custody of a friend now on the continent, but they will be added if possible in an appendix at the end of this work.