

of deposits occupying the great central basin of Europe. That on the Italian side of the Alps, although necessarily mentioned in connection with that chain, belongs to a distinct and southern basin; of which a great part of Spain also probably forms a portion. Much of the limestone of that country may perhaps prove to be lias, and the oolites are distinctly described by Mr. Townshend as extending round Anchuela del Campo, about half way between Saragossa and Madrid.

No observations on these formations beyond the limits of Europe have yet been published, which can authorise us in attempting to identify them.

Section II.

Upper division of the Oolitic series, including 1. The Argillaceous Limestone beds of Purbeck; 2. Portland Oolite; 3. Kimmeridge clay.

The natural and geographical relations of these formations having induced us to refer them to a single section, we shall pursue the following order in describing them.

Each formation will be first separately treated of under all the usual heads, with the exception of those assigned to range and extent, height of hills, and inclination, which will be postponed to a general article placed at the end of the particular account of these three formations, as viewed separately, since in all these respects they are so intimately associated together, that confusion and needless repetition would be produced by any other mode of considering them.

As the particular description of the three formations will thus form paragraphs in the same section, the usual letters (*a*) to (*i*) will be employed to mark those devoted to the Purbeck beds; they will be doubled for the Portland (*aa*) to (*ii*), and trebled for the Kimmeridge clay (*aaa*) to (*iii*). (C.)

1. PURBECK BEDS.

(*a*) *Chemical and external characters.* The Purbeck beds, which occupy the highest place in this series, consist of many thin strata of argillaceous limestone, alternating with schistose marles, and forming an aggregate more than 300 feet in thickness. Mr. Webster thus describes them.

The Purbeck stone consists chiefly of shells (principally the *Helix vivipara*), partly whole, and partly in a state of comminution, imbedded in a calcareous cement, which is sometimes very pure and crystallized, and sometimes in a state approach-