above it, which implies other oscillations in the level of the same ground, and its alternate occupation by land and water more than once.

Table showing the changes of medium in which the strata were formed, from the Portland Stone up to the Lower Greensand inclusive, in the southeast of England (beginning with the lowest).

1. Marine	Portland Stone.	
2. Freshwater	Lower Purbeck.	
Land		
Freshwater		
Land		
Freshwater		
Land (Dirt-bed)		
Freshwater		
Land		
Brackish		
Freshwater		
3. Marine.	Middle Purbeck.	
Freshwater		
Marine		
Brackish		
Marine		
Brackish		
Freshwater		
4. Freshwater	Upper Purbeck.	
5. Freshwater	Hastings Sands.	
Brackish		
Freshwater		
6. Freshwater	Wealden Clay.	
7. Marine	Lower Greensand.	

The annexed tabular view will enable the reader to take in at a glance the successive changes from sea to river, and from river to sea, or from these again to a state of land, which have occurred in this part of England between the Oolitic and Cretaceous periods. That there have been at least four changes in the species of testacea during the deposition of the Wealden and Purbeck beds, seems to follow from the observations recently made by Prof. Forbes, so that, should we hereafter find the signs of many more alternate occupations of the same area by different elements, it is no more than we might expect. Even during a small part of a zoological period, not sufficient to allow time for many species to die out, we find that the same area has been laid dry, and then submerged, and then again laid dry, as in the deltas of the Po and Ganges, the history of which has been brought to light by Artesian borings.* We also know that similar revolutions have occurred within the present century (1819) in the delta of the Indus in Cutch,† where land has been laid permanently under the waters both of the river and sea, without its soil or shrubs having been swept away. Even, independently of any vertical movements of the ground, we see in the principal deltas, such as that of the Mississippi, that the sea extends its salt waters annually for many months over considerable spaces which, at other seasons, are occupied by the river during its inundations.

It will be observed that the division of the Purbecks into upper, middle, and lower has been made by Prof. Forbes, strictly on the principle of the entire distinctness of the species of organic remains which they include. The lines of demarcation are not lines of disturbance, nor indicated by any striking physical characters or mineral changes. The features which attract the eye in the Purbecks, such as the dirt-beds, the dislocated strata at Lulworth, and the Cinder-bed, do not indicate any breaks in the

* See Principles of Geol. 9th ed. pp. 255–275. † Ibid. p. 460