an example of the changes which certain species underwent in the successive stages of their existence. It seems that different varieties of the *Cardium porulosum* are characteristic of different formations. In the Soissonnais this shell acquires but a small volume, and has many peculiarities, which disappear in the lowest beds of the calcaire grossier. In these the shell attains its full size, with many distinctive characters, which are again modified in the uppermost beds of the calcaire grossier; and these last modifications of form are preserved throughout the "upper marine" (or Upper Eocene) series.*

Argile plastique (C, Table, p. 222).—At the base of the tertiary system in France are extensive deposits of sands, with occasional beds of clay used for pottery, and called "argile plastique." Fossil oysters (*Ostrea bellovacina*) abound in some places, and in others there is a mixture of fluviatile shells, such as *Cyrena cuneiformis* (fig. 233, p. 220), *Melania inquinata* (fig. 234), and others, frequently met with in beds occupying the same position in the valley of the Thames. Layers of lignite also accompany the inferior clays and sands.

Immediately upon the chalk at the bottom of all the tertiary strata in France there generally is a conglomerate or breccia of rolled and angular chalk-flints, cemented by siliceous sand. These beds appear to be of littoral origin, and imply the previous emergence of the chalk, and its waste by denudation.

Whether the Thanet sands before mentioned (p. 221) are exactly represented in the Paris basin, is still a matter of discussion.

Wide extent of the nummulitic formation in Europe, Asia, &c.—When I visited Belgium and French Flanders in 1851, with a view of comparing the tertiary strata of those countries with the English series, I found that all the beds between the Upper Eocene or Limburg formations, and the Lower Eocene or London clay proper, might be conveniently divided into three sections, distinguished, among other paleontological characters, by three different species of nummulites, *N. variolaria* in the upper beds, *N. lævigata* in the middle, and *N. planulata* in the lower. After I had adopted this classification, I found, what I had overlooked or forgotten, that the superposition of these three species in the order here assigned to them, had been previously recognized in the North of France, in 1842, by Viscount D'Archiac. The same author, in the valuable monograph recently published by him,† has observed, that a somewhat similar distribution of these and other species in time, prevails very widely in the South of France and the Pyrenees, as well as in the Alps and Apennines, and in Istrea,—the lowest nummulitic beds being characterized by fewer and smaller species, the middle by a greater number and by those which individually attain the largest dimensions, and the uppermost beds again by small species.

In the treatise alluded to, M. D'Archiac describes no less than fifty-two species of this genus, and considers that they are all of them char-

* Coquilles caractéristiques des terrains, 1831.

† Animaux foss. du groupe nummul. de l'Inde: Paris, 1853.