

PART VIII.

CAINOZOIC OR TERTIARY PERIOD.

CHAPTER L.

GENERAL VIEW OF THE EOCENE OR NUMMULITIC GROUP.

History.—Great geographical changes, or change between the relative position of land and sea, took place at the close of the Mesozoic (Cretaceous) period both in Western and Central Europe. The floor of the Cretaceous sea was partly elevated so as to become estuarine, constituting shallow marine areas. All forms of life that had previously existed slowly and entirely died out; none lived through those changes, which must have occupied a vast period of time.

Denudation of the Chalk.—We have full evidence of the extreme denudation which the Chalk underwent prior to the deposition of the oldest Tertiary beds. This extended denuded surface points to a great gap, or epoch of unrepresented time, between the close of the Secondary and the commencement of the older estuarine Tertiary series. Europe at present shows no data exhibiting the transitional condition that must have occurred between the Upper Chalk and the overlying Sands (Thanet, or other equivalent beds).¹ This hiatus doubtless represents one of the greatest breaks in the successive depositions or sedimentation of the British rocks, if not in the history of the Eastern Hemisphere.

The Tertiary Period chronicles the development of the modern distribution of land and sea, and the commencement of most of the great mountain-chains. The rocks deposited during the early Tertiary Period possess local characters distinguishing them from all previously known; compared with other and older rocks, they are loose and incoherent in structure, presenting marked local variations, showing that they were mainly accumulated in detached basins of comparatively limited extent, and in seas so shallow as to be at times filled up, resulting in their becoming brackish or even freshwater.

In England the transition from the Cretaceous to the Tertiary series is distinct and positive, neither can we say that at any point on the continent of Europe any community of species exists. The *Cre-*

¹ Sables de Bracheux.