a certain proportion of the fossils being identical in species with Limburg and Mayence shells. M. Beyrich enumerates several other localities in North Germany, and particularly one at Magdeburg, and several on the Lower Elbe, where beds of the same age appear.

Mayence basin.—I have already alluded to the elaborate description published by Dr. F. Sandberger of the Mayence tertiary area, which occupies a tract from five to twelve miles in breadth, extending for a great distance along the left bank of the Rhine from Mayence to the neighborhood of Manheim, and which is also found to the east, north, and southwest of Frankfort. M. De Koninck, of Liége, first pointed out to me that the purely marine portion of the deposit (the Lower group of Dr. Sandberger) contained many species of shells common to the Limburg beds near Kleyn Spawen, and to the clay of Rupelmonde, near Antwerp. Among these he mentioned Cassidaria depressa, Tritonium argutum, Brander (T. flandricum, De Koninck), Tornatella simulata, Rostellaria Sowerbyi, Leda Deshayesiana (fig. 167, p. 188), Corbula pisum (fig. 170), and Pectunculus terebratularis.

The marine beds are in some places covered with brackish-water marls containing Cyrenæ in great numbers, among which Cyrena semistriata occurs, with Cerithium plicatum, Corbulomya triangula, Mytilus Fanjasii, and other Limburg and Hempstead shells. Perna Soldani, a shell of the upper Eocene or Mérignac beds of the Bourdeaux basin, but also a Vienna basin shell, is characteristic both of the marine and brackish series. Two species of Anthracotherium, A. magnum, Cuv., and A. alsaticum, are met with in the same deposits.

The upper portion of this Mayence series has at its base a limestone full of *Cerithia* and land-shells; among which *Cerithium plicatum* before mentioned, and another Limburg shell, *Venus incrassata*, Sow., a fossil common to the Headon or *Middle* Eocene of England, are met with; also *Neritina concava* (fig. 194), a Middle Eocene shell, and *Rhinoceros incisivus*, the oldest form of that genus, and called by Kaup Accrotherium. Next above is a limestone, in which Littorinella or Paludina inflata is a very common forsil, with others of the same genus. One of these, very nearly resembling the recent Littorinella ulva, is found through-

out this basin. These shells are like grains of rice in size, and are often in such quantity as to form entire beds of marl and limestone, in stratified masses from fifteen to thirty feet in thickness, just as in the Baltic modern accumulations several feet thick of the *Littorinella ulva* are spread far and wide over the bottom of the sea. In the same beds, several species of



Dreissena abound, a form common to the Headon or Middle Eocene beds of the Isle of Wight, as well as to the existing seas. On the whole, I am not satisfied that this fauna diverges from the Limburg type towards that of the faluns as much as Dr. Sandberger believes. Among the Mammalia, we find Hippotherium gracile, Acerotherium (or Rhinoceros) incisivum, Paleomeryx, Chalicomys, &c. Lastly, the Eppelsheim sand overlies the whole, containing Deinotherium giganteum, and some other true Miocene