Among the chelonians we find a species of *Emys*, and no less than six species of *Trionyx;* among the saurians an alligator and a crocodile; among the ophidians two species of land-snakes (*Paleryx*, Owen); and among the fish Sir P. Egerton and Mr. Wood have found the jaws, teeth, and hard shining scales of the genus *Lepidosteus* or bony pike of the American rivers. This same genus of freshwater ganoids has also been met with in the Hempstead beds of the Isle of Wight. The bones of several birds have been obtained from Hordwell, and the remains of quadrupeds. The latter belong to the genera *Paloplotherium* of Owen, *Anoplotherium*, *Anthracotherium*, *Dichodon* of Owen (a new genus discovered by Mr. A. H. Falconer), *Dichobune*, *Spalacodon*, and *Hyænodon*. The latter offers, I believe, the oldest known example of a true carnivorous mammal in the series of British fossils, although I attach very little theoretical importance to the fact, because herbivorous species are those most easily met with in a fossil state in all save cavern deposits. In another point of view, however, this fauna deserves notice. Its geological position is considerably lower than that of the Bembridge or Montmartre beds, from which it differs almost as much in species as it does from the still more ancient fauna of the Lower Eocene beds to be mentioned in the sequel. It therefore teaches us what a grand succession of distinct assemblages of mammalia flourished on the earth during the Eocene period.

Many of the marine shells of the brackish-water beds of the above series, both in the Isle of Wight and Hordwell Cliff, are common to the underlying Barton clay; and, on the other hand, there are some freshwater shells, such as *Cyrena obovata*, which are common to the Bembridge beds, notwithstanding the intervention of the St. Helen's series. The white and green marls of the Headon series, and some of the accompanying limestones, often resemble the Eocene strata of France in mineral character and color in so striking a manner, as to suggest the idea that the sediment was derived from the same region or produced contemporaneously under very similar geographical circumstances.

Both in Hordwell Cliff and in the Isle of Wight, the Headon beds rest on white sands, the upper member of the Barton series, B. 4, next to be mentioned.

Headon Hill sands and Barton clay, B. 4 (Table, p. 208).—In one of the upper and sandy beds of this formation Dr. Wright found *Chama squamosa* in great plenty. The same sands contain impressions of many marine shells (especially in Whitecliff Bay) common to the upper Bagshot sands afterwards to be described. The underlying Barton clay has yielded about 209 marine shells, more than half of them, according to Mr. Prestwich, peculiar; and only eleven common to the London clay proper (C. 1, p. 208), being in the proportion of only 5 per cent. On the other hand, 70 of them agree with the shells of the *calcaire grossier* of France. It is nearly a century since Brander published, in

Fig. 197.

Chama squamosa, Barton.