(b) Middle stage, clays, sands, loams and limestone, with brackishwater and marine fossils (Cerithium, Planorbis, Limnæa, Melania, Natica, Neritina, Ostrea, Cyrena, etc.)
(a) Lower stage, marls, clays, sandstones and tufaceous lime-

A large number of the marine mollusca of the Headon Beds range downward into the Barton Clay, but about half are peculiar to the Oligocene series. Among the more abundant forms in the Isle of Wight are Cytherea incrassata, Ostrea velata, O. flabellula, Nucula headonensis, Cerithium concavum, Melanopsis subfusiformis, Buccinum labiatum, Murex sexdentatus, Nerita aperta, Neritina concava, Ancillaria buccinoides, Melania muricata, and several species of Cancellaria, Natica, Pleurotoma, and Voluta, with Balanus unguiformis. The estuarine and fresh-water strata are marked by species of Potamomya and Cyrena, while the purely fresh-water deposits are full chiefly of Limnæids belonging to the genera Limnæa and Planorbis, L. longiscata and P. euomphalus being perhaps the most abundant and conspicuous species; Paludina lenta is also plentiful. Mr. Reid has remarked that every variation in the salinity of the water seems to have affected the molluscan fauna of the estuary in which these deposits were accumulated. When the water was quite fresh the pond snails flourished in abundance, and their remains were mingled with those of Unio and Helix. The gradual inroad of salt water is marked by the advent of Potamomya, Cyrena, Cerithium (Potamides), Melania, and Melanopsis, while the thoroughly marine fauna with volutes and cones shows when the sea had entirely replaced the fresh water."

The Bembridge Limestone, one of the most conspicuous members of the Oligocene series in the Isle of Wight, is a remarkable example of a fresh-water limestone, full of freshwater and terrestrial shells and nucules of Chara. The landshells comprise tropical-looking gigantic species of Bulimus and Achatina. An interesting feature in the overlying Bembridge marls is the occurrence of a thin band from two inches to two feet in thickness of a fine-grained limestone like lithographic stone, containing many insect-remains with leaves and fresh-water shells. Some twenty genera of insects have been detected in it, including forms of coleoptera,

⁶¹ C. Reid, "Geology of the Isle of Wight," Mem. Geol. Survey, p. 147.