forms (the *cephalopoda*) inhabit deep waters only, and are provided with an apparatus by which they can rise to the surface; while others are littoral, that is, live only in the shallows along the sea shores; many exist in quiet, others in turbulent waters; some are gregarious, like the oyster, while others occur singly or in small groups. All these varieties of condition are more or less strongly impressed on their shelly coverings, which may be considered as their external skeletons; and the experienced conchologist is enabled by the peculiar characters of the shell, at once, to determine the economy and habits of the animal, and consequently the physical conditions in which it was placed.* In this point of view, fossil shells become objects of the highest importance to the geologist, since they are frequently the only records of the former condition of our planet. But I must return from this digression, and proceed to the consideration of the phenomena presented by the several groups of the tertiary formations.

11. MINERALOGICAL CHARACTERS OF THE TERTIARY SYSTEM.—The predominating characters of the tertiary system, as I have already mentioned, are alternations of marine beds with those of lacustrine and freshwater origin. A large proportion of the strata is arenaceous, having intervening clays and marls. Shingles, the remains of ancient sea-

* See an interesting paper on Shells, by Mr. Gray, of the British Museum. Philosophical Transactions.