

## OBSERVATIONS.

The author has attempted, in this chapter, to give a succinct account of the geological distribution of fossil organic remains, belonging to the animal and vegetable kingdoms. This, he conceives, will interest the learner, for whose use it was chiefly intended, more than a detailed enumeration of the genera or species supposed to be peculiar to different rock formations. With respect to fossil conchology, he is inclined to believe, that the attempt to identify the strata of distant countries by the isolated occurrence of any particular species of shell, has been carried farther than a sound induction from facts or analogy would warrant. His opinion on this subject, given in the second edition of this work, he will here insert:—"It may be doubted, whether the occurrence of similar organic remains is sufficient to identify strata in distant parts of the globe; for, could we admit that strata are universal formations, and extended from the frozen to the torrid zone, it seems more than probable, that the animals which lived on any one particular stratum, would be of very different species in different latitudes."—We know so little respecting the forms or habits of the animals classed by the conchologist, that we are far from being certain whether many shells which he regards as belonging to different species, or even genera, are not mere varieties of form, occasioned by difference of age or situation. Such a change is ascertained to take place by age, in shells of the genus *Cypræa*.

In animals like the mollusca, which have no internal skeleton to determine their form, the construction of the external shell may, probably, admit of considerable variation under a change of circumstances. Few conchologists, excepting M. D'Avilla, have made accurate observations on the living animals inhabiting oceanic shells. His interesting work, entitled "*L'Histoire Naturelle éclaircie dans une de ses parties principales, la Conchologie; et augmentée de la Zoomorphose, ou Répresentation des Animaux à coquilles, avec leurs Explications*,"—presents us with some truly extraordinary forms of molluscous animals, of which we could not have had a remote notion from the mere study of the shell.

In strata belonging to one formation, and in adjacent districts, the existence of certain shells, whether we regard them as distinct species or as varieties, may be of use, in identifying any particular bed:—and in distant countries, where we find the same remarkable species of shell associated with any other remarkable species in considerable numbers, it may serve to identify a particular rock formation, where the mineral character of the rock may be very different from that in which the observer has been accustomed to meet with them. The occurrence of a considerable number of *Gryphææ*, the *Gryphæa arcuata*, in a bed of blue clay in the mountains round the Lake of Annecy, in Savoy, served the author as a key to discover to what formation the calcareous strata belonged, when their mineral characters would have indicated a more ancient series.

Vegetable organic remains have not, till recently, been studied with the attention which they deserve and require.—These remains are never found entire, as is frequently the case with the skeletons and