

day different species inhabiting different latitudes; and difference of temperature in the waters of different lakes in the same latitude, might occasion a great change in the character of the inhabitants. The consideration that the value of the evidence from organic remains, was originally derived from the evidence of position, and must ever remain, more or less, dependent upon it, appears to have escaped the attention of many geologists, exclusively attached to the study of zoological characters. Among our ingenious neighbours, the French, perhaps too ready to form generalizations from a limited number of facts, the value of the evidence to be derived from the study of fossil conchology is greatly overrated, when they would make it independent of position or *gisement*. Could the most scientific conchologist or naturalist have discovered from the organic remains in the Wealden beds, whether they were deposited before or after the green sand? Certainly not. He might have ascertained that they were fresh water, and not marine beds; but this would not have assisted him in discovering their relative age. Fortunately, we have here the evidence of superposition; for the green sand lies over the upper Wealden beds, and, therefore, is a later deposition. When the different periods of time in which different species of animals first appeared in different latitudes, shall be known, then, and not till then, can we predicate with certainty respecting the relative age of strata from their organic remains alone.

I shall now proceed to state the rules attempted to be established for determining the relative ages of the tertiary strata by organic remains.

M. Deshayes considers, that the relative ages of different groups of strata or formations may be determined, by their zoological characters alone; that is, by the species of shells they contain. He forms two grand divisions of stratified formations:—

1. Those which contain no species of shells analogous to existing species.*

This division is stated to comprise all the secondary strata.

2. Strata which contain a greater or less number of species analogous to existing species.

The last division comprises all the tertiary formations. Again he subdivides this division into three groups, according to the greater or less proportion of species of shells, that they each contain analogous to living species.

In the more ancient group he places the tertiary formations of the Paris basin, the London basin, the Isle of Wight, and of a part of Belgium, a small part of the Gironde, and the tertiary strata of the Vicentin.

* By *espèce analogue*, M. Deshayes means identical species.