

lacustrine and fluviatile deposits, it is to be observed, that when a series of such beds lies inclosed in marine sediments, as the gypsum of Montmartre, the lignites of the Isle of Wight, Zurich, and Styria, they must of course be ranked according to the marine strata with which they are associated; but when, as at Headen Hill in the Isle of Wight, on most of the *plateaux* round Paris, at Cœningin, at Georges Gmünd, the freshwater deposits are uncovered by any but superficial accumulations, how can their true geological age, on the scale of marine formations, be known? No method but one is likely to be at all satisfactory, — the study of their embedded organic exuvixæ; which therefore is the method now generally adopted. Mr. Conrad and Professor Rogers have thus classed the tertiaries of North America. How far this mode can be safely trusted will be considered in the next section.

*Organic Remains.* — In general, no contrast can be greater than that offered by comparison of the tertiary with secondary and primary plants, shells, and vertebral reliquiæ — no analogy more striking than between the tertiary and living forms of life. Plants, shells, insects, and even quadrupeds, of the same genera, sometimes even of the same species (as far as naturalists can decide so nice a point), often so similar as to be only distinguishable by minute circumstances, render it doubtful to the inexperienced, whether they are not rather looking upon the buried remains of the present creation, than upon the work of one of those systems which passed away before the birth of man. The number of the species of tertiary fossils is very great, as compared with that of even the rich and well-explored oolites; among them are far more freshwater tribes, and far more terrestrial forms, than among all the older strata taken together; a conclusion which harmonises perfectly with the leading fact of the history of their formation, viz. that before the period of their formation, the great sea of Europe was broken into