

### ZOOLOGICAL AND BOTANICAL CHARACTER OF THE DILUVIAL PERIOD.

The diluvial deposits appear, in general, characterised by the presence of a great number of land animals, and some sorts of trees, which are much more similar to existing forms of life than are the tertiary quadrupeds and plants. But this general or average result requires to be limited by several considerations: first, there are deposits reputed tertiary, as the sandy deposits of Eppelsheim, on the Rhine, in which occur a vast number of species very nearly approaching to existing races; secondly, among the animals of the diluvial period are species, and even genera, as totally distinct from the actual creation as any of the tertiary groups; thirdly, in deposits of undoubtedly tertiary date, as the sub-apennines of Italy, the sands and marls of the Danube, and flanks of the Carpathians, the crag of Norfolk, bones and teeth of elephant, rhinoceros, mastodon, and other genera of the diluvial period, have been found, though not frequently. It appears, therefore, certain, on this evidence, that the transition from the tertiary to later periods was not accompanied by a sudden destruction of old or a general creation of new quadrupedal forms of life. The same appears to be true with reference to the buried forests so often associated with diluvial deposits. It is confirmed by the gradual change in the proportion of existing among extinct species of tertiary shells; so that the most recent groups of tertiary strata contain 40 to 90 per cent. of living forms, while among a dozen or twenty shells in the gravel of Holderness, one extinct species is met with.

On the other hand, it must be remembered, that no palæotheria, lophiodontes, or other genera, chiefly belonging to the older tertiary genera, are mentioned as occurring among the diluvial accumulations; though in certain freshwater deposits, as at Gmünd, lophiodontes, oxen, hippopotami, &c. occur together.

Again, certain animals which lived in the diluvial