

at one time fresh and at another brackish, and where, in a certain debatable tract, the fishes, reptiles, and shells of the river met and mingled with the fishes, reptiles, and shells of the sea. I may mention, that in the immediate neighbourhood of the fresh-water or Weald beds, intercalated, as in Ross and Sutherland, with the marine deposits of the Lias or Oolite, there always occur beds of a species of shell, which, though it exhibits internally a peculiar structure of hinge, unlike any other known to the conchologist, bears externally very much the appearance of a mytilus or mussel. It seems to have lived in brackish water, and to have marked a transition stage between the marine and lacustrine, —the salt and the fresh; for immediately under or over it, as the case occurs, the explorer is ever sure to find productions of the land or of fresh water,—lake or river shells, such as cyclas or paludina, or portions of terrestrial plants, and occasionally of fresh-water tortoises. This transition shell is known as the Perna. These notices you will, I am afraid, deem tediously minute; but they indulge us with at least a glimpse of a portion of what is now our country during an immensely extended period, of which no other record exists. Where some nameless river enters the sea, we determine, as through a thick fog, which conceals the line of banks on either hand, that the waters swarm with life, reptilian and ichthyic: the glossy scales of the river *Lepidotus* gleam bright through the depths; while the shark-like *Hybodus* from the distant ocean shows above the surface his long dorsal fin, armed with its thorny spine; and over beds of shells of mingled character, a carnivorous fresh-water tortoise, akin to the fierce *Trionyx* of the southern parts of North America, meets with the scarce more formidable sea-born *Plesiosaurus*.

In these Morayshire outliers of the Weald we first find *in situ* in our country (for we need scarce take into account the Tertiary beds of Mull), fossiliferous deposits that have been