

these footprints "were not made by a Chelonian Reptile,¹ nor by any vertebrated animal." About the same time, Captain Lambert Brickenden² described foot-tracks from the Old red sandstone of Morayshire, which are also ascribed to Chelonians. Though I have not seen these fossil footprints, I have seen the impressions left by Turtles, upon soft mud, often enough to feel justified in saying that the Scotch foot-marks have not the remotest resemblance to the footprints of a Chelonian. These animals, when walking, stretch the legs on opposite sides of the body, in a diagonal position with reference to the body itself, so that the foot-marks of the fore foot of one side and those of the hind foot of the opposite side, form couples which alternate with the corresponding couples arising from the fore foot and the hind foot of the other side. No such succession is observed in the footprints described by Captain Brickenden. No more do the footprints from the Red sandstone near Dumfries, in Scotland, described by Dr. Duncan and by Dr. Buckland, and reproduced by the latter in his Bridgewater Treatise, resemble foot-marks of Turtles.

Long before the publication of these different notices, the existence of Turtles in older geological formations had been asserted by Sedgwick and Murchison,³ who, upon the authority of Cuvier, had referred to the genus *Trionyx* a fragment of bone found in Scotland, in the slates of Caithness, which belong to the Old red sandstone formation. These remains I have shown, in my work on Fossil Fishes,⁴ to be those of a very remarkable type of extinct Fishes, forming a distinct family, the Cephalaspides, and belonging to the genus *Cocosteus*. Kutorga has also described fragments of fish bones of the Old red sandstone, as belonging to the family of *Trionyx*.⁵ In his researches on fossil bones, Cuvier, finally, has referred to Chelonians several remains from the Muschelkalk, which were afterwards shown by Herman von Meyer to belong to the genus *Nothosaurus*.

These are, as far as I know, all the instances in which the existence of Turtles in deposits older than the Jura has been maintained. Though introduced by the highest scientific authorities, there is not one of these alleged cases which stands a careful criticism. Neither the tracks of the Potsdam sandstone of Owen, nor

¹ Description of the Impressions of Footprints of the Protichnitis from the Potsdam Sandstone of Canada, by Professor Owen, Quarterly Journal of the Geological Society of London, 1852, vol. 8, p. 214. The geological description of Sir William Logan, which precedes, p. 199, gives the most minute account of the occurrence of these fossil footprints in Canada.

² Quarterly Journal of the Geological Society of London, vol. 8, p. 97.

³ On the Structure and Relations of the Deposits contained between the Primary Rocks, and the Oolitic Series in North Scotland, by A. Sedgwick and R. I. Murchison, in the Transactions of the Geological Society of London, 2d series, vol. 3.

⁴ Monographie des poissons fossiles du vieux Grès Rouge, Neuchâtel, 1844, 1 vol. 4to. p. 22.

⁵ See the same Monograph, p. 91. These remains belong to the genus *Asterolepis*.