

though the smallest of all Testudinata are fresh-water species. But it must not be forgotten, that these belong to the temperate zone, while the largest land Turtles are exclusively tropical. Gigantic Testudinata, approaching the size of the largest land Quadrupeds, are known among the fossils.

SECTION XVII.

FIRST APPEARANCE OF TESTUDINATA UPON OUR GLOBE.

Though the period of the first appearance of the Testudinata upon the surface of our globe has been a point of discussion among naturalists, even within the last few years, I do not intend to enumerate here the fossil representatives of this order, now satisfactorily known, nor even to compare the different Turtles which have existed, in former ages, in North America, with those now living. My object, for the present, is simply to point out the period at which this remarkable type of animals first made its appearance, and at the same time to show how important critical investigations are with reference to the affinities of fossil and living animals, and how utterly impossible it is to arrive at any general result respecting the order of their succession in time without such a close and careful study. Only five years ago, Sir Charles Lyell published a supplement to the third edition of his *Manual of Elementary Geology*,¹ intended chiefly to sustain the view that Reptiles had existed much longer upon the surface of our globe than was generally supposed, and that the Chelonians in particular could be traced back to the Potsdam sandstone, that is, to the lowest stratified set of beds in which fossils had been found at all. The identification of these animals rested upon footprints which had been examined by Professor Owen, who published a description of these impressions early in the year 1851.² This report has since gone the rounds of all the scientific and other periodicals, and is now repeated in almost every modern text-book of Geology and Palæontology, though Owen himself has recognized his mistake,³ and in the following year published his opinion, that

¹ Lyell's *Manual of Elementary Geology*. Postscript to the third edition, London, December 10th, 1851.

² Description of the Impressions on the Potsdam Sandstone, discovered by Mr. Logan, in Lower Canada, *Quarterly Journal of the Geological Society*, London, 1851, vol. 7, p. 250.

³ A few days after Professor Owen had read his

first notice in London, an abstract of it was communicated to the American Association for the Advancement of Science, during its meeting at Cincinnati, May, 1851, which led to a discussion, in which I expressed my conviction, based partly on physiological grounds, and partly on the examination of similar impressions, that they were the tracks of some palæozoic Crustacean, and not those of a Reptile.