

many fossil footprints have been observed on the surface of its rippled layers. These impressions were first noticed by Mr. Abraham, of Montreal, in 1847, and were supposed to be tracks of a tortoise; but Mr. Logan has since brought some of the slabs to London, together with numerous casts of other slabs, enabling Professor Owen to correct the idea first entertained, and to decide that they were not due to a chelonian, nor, as he imagines, to any vertebrate creature. The Hunterian Professor inclines to the belief that they are the trails of more than one species of articulate animal, probably allied to the King Crab, or *Limulus*. Between the two rows of foot-tracks runs an impressed median line or channel, supposed by the professor to have been made by a caudal appendage rather than by a prominent part of the trunk. Some individuals appear to have had three, and others five pairs, of limbs used for locomotion. The width of the tracks between the outermost impressions varies from $3\frac{1}{2}$ to $5\frac{1}{2}$ inches, which would imply a creature of much larger dimensions than any organic body yet obtained from strata of such antiquity. Their size alone is therefore important, as warning us of the danger of drawing any inference, from mere negative evidence, as to the extreme poverty of the fauna of the earlier seas.

Mr. Logan informs us,* that the Lower Silurian strata and the Potsdam Sandstone in Canada rest unconformably on a still older series of aqueous rocks, which, as he says, may be Cambrian (Lower Cambrian, or, perhaps, still older?), and which include conglomerates and beds of limestone. In both of these, nodules of phosphate of lime are frequently observed. That these contorted rocks are of aqueous origin, he infers from the presence of quartz pebbles in the conglomerates. Together with the associated igneous masses, this ancient series attains a thickness of at least 10,000 feet, in the Lake Huron district, and includes the copper-bearing rocks of that part of Canada. Below these again lies gneiss, with interstratified marble, in which crystals of phosphate of lime both large and small are not uncommon. This phosphate, as Mr. Logan suggests, may have "a possible connection with life in those ancient rocks."

In the frontispiece to this volume, and in fig. 83, p. 59, the reader may refer to a section on the coast of Scotland where the Devonian strata lie unconformably on the highly inclined Silurian schists, and I have cited the eloquent reflections of Playfair when he looked, with his teacher Hutton, "so far into the abyss of time." But in the lake district of N. America, the Potsdam Sandstone, forming the upper or horizontal series, is older than even the inclined strata of St. Abb's Head in Scotland. In Canada again, we behold the monuments of still another period in the remote distance, attesting, as Playfair exclaimed, "how much farther the reason may go than the imagination can venture to follow."

Valley of the Upper Mississippi. Mr. Dale Owen has recently published a graphic sketch, in his survey of Wisconsin (1852), of the lowest

* Quart. Geol. Journ. vol. viii. p. 210.