

relation in its osteology both to chelonians and birds. Other imprints, again, are like those of turtles.

Mr. Darwin, in his "Journal of a Voyage in the Beagle," informs us that the "South American ostriches, although they live on vegetable matter, such as roots and grass, are repeatedly seen at Bahia Blanca (lat. 39° S.), on the coast of Buenos Ayres, coming down at low water to the extensive mud-banks which are then dry, for the sake, as the Gauchos say, of feeding on small fish." They readily take to the water, and have been seen at the bay of San Blas, and at Port Valdez, in Patagonia, swimming from island to island.* It is therefore evident, that in our times a South American mud-bank might be trodden simultaneously by ostriches, alligators, tortoises, and frogs; and the impressions left, in the nineteenth century, by the feet of these various tribes of animals, would not differ from each other more entirely than do those attributed to birds, saurians, chelonians, and batrachians, in the rocks of the Connecticut.

To determine the exact age of the red sandstone and shale containing these ancient footprints in the United States, is not possible at present. No fossil shells have yet been found in the deposit, nor plants in a determinable state. The fossil fish are numerous and very perfect; but they are of a peculiar type, which was originally referred to the genus *Palæoniscus*, but has since, with propriety, been ascribed, by Sir Philip Egerton, to a new genus. To this he has given the name of *Ischypterus*, from the great size and strength of the fulcral rays of the dorsal fin (from *ίσχυς*, strength, and *πτερόν*, a fin). They differ from *Palæoniscus*, as Mr. Redfield first pointed out, by having the vertebral column prolonged to a more limited extent into the upper lobe of the tail, or, in the language of M. Agassiz, they are less heterocercal. The teeth also, according to Sir P. Egerton, who, in 1844, examined for me a fine series of specimens which I procured at Durham, Connecticut, differ from those of *Palæoniscus* in being strong and conical.

That the sandstones containing these fish are of older date than the strata containing coal, before described (p. 330) as occurring near Richmond in Virginia, is highly probable. These were shown to be as old at least as the oolite and lias. The higher antiquity of the Connecticut beds cannot be proved by direct superposition, but may be presumed from the general structure of the country. That structure proves them to be newer than the movements to which the Appalachian or Alleghany chain owes its flexures, and this chain includes the ancient coal formation among its contorted rocks. The unconformable position of this *New Red* with ornithienites on the edges of the inclined primary or paleozoic rocks of the Appalachians is seen at 4 of the section, fig. 505, p. 388. The absence of fish with decidedly heterocercal tails may afford an argument against the Permian age of the formation; and the opinion that the red sandstone is triassic, seems, on the whole, the best that we can embrace in the present state of our knowledge.

* Journal of Voyage of Beagle, &c. 2d edition, p. 89, 1845.