

IV.—*A Letter from DR. HARLAN, addressed to the President, on the Discovery of the Remains of the Basilosaurus or Zeuglodon.*

[Read January 9, 1839.]

MR. PRESIDENT,

WITH your permission, and at the request of several Members, I offer a few observations on the fossil bones from the United States now on the table.

In the early part of the year 1832 a large fossil vertebra was presented to the American Philosophical Society by Judge Bree of Louisiana, found in the “marly” banks of the Washita river, Arkansas territory. We then ventured to consider it as the vertebra of a large extinct Saurian of a nondescript genus, and proposed to name it provisionally *Basilosaurus*; the matrix contained a species of fossil *Corbula*, common in the Alabama tertiary deposits;—these remarks were not published until 1834. In the autumn of the same year a box of similar bones was received from the Hon. Mr. Creagh, from his plantation in Alabama, containing several enormous vertebræ, an *os humeri*, portions of the jaws and teeth, and some other fragments, supposed to belong to the same animal. Specimens of *Nautilus*, *Scutella*, and *Modiolus*, of extinct and new species, together with some fossil Shark’s teeth, were obtained at the same time, from a similar rock in the vicinity. The great disparity in the proportional size of the different bones, which are all destitute of animal matter, presents a remarkable feature in the structure of this animal; so much so indeed, that we were at first disposed to refer the large and small vertebræ to different species; and one rib, obtained at the same time, is evidently that of a fossil *Manatus*. Bearing in view the form and structure of the teeth only, we should have been inclined to have ranked the animal amongst the marine Carnivora, however unlike those organs in any known species; but a careful examination of the other portions of the skeleton, especially of the lower jaw, which is elongated and hollow, appeared to forbid this arrangement, and to characterize it as a lost genus of the saurian order. The immense size and proportions of the vertebræ, and the total length of the vertebral column in the two skeletons—the one noticed at Alabama, the other at Arkansas—being estimated,

one at 100 feet, the other 150 feet in length,—the peculiar structure of the ribs, the form and size of the humerus, all differ widely from those parts in any of the known species of the Cetacea. I nevertheless take pleasure in acknowledging that the accurate and laborious investigations, and intelligent observations, made by my friend Mr. Owen on these fossils, during the several days they remained with him at the Royal College of Surgeons, have thrown new light on their structure and analogy. The remarks which we hope to elicit from him on the present occasion, with the means he possesses to verify them, will no doubt enable the Members to arrive at some final conclusions as to the true position which the animal under discussion ought to occupy in the animal kingdom.

I believe no one doubts that it is generically distinct, at least, from anything fossil or recent hitherto discovered.

I must now be indulged in a few observations on another extinct fossil animal, which has occupied much attention. It is the portion of the snout of a Saurian, said to be upwards of seventy feet in length, the head being only three or four feet long. It was discovered some eight or ten years since by a beaver-trapper, on or near the banks of the Yellowstone river, in the territory of Missouri, imbedded in a hard blue limestone rock. On my first examination of this specimen, I was under the impression, that it belonged to the genus *Ichthyosaurus*, though differing very materially from any species hitherto described; the structure of the teeth, mode of dentition, and the position of the anterior nares, led to this analogy; but the separate alveoli, and the form and position of the intermaxillary bones, separate it from this genus.

On my return from Europe in 1833, the memoir on this animal, which I had offered through the Transactions of the American Philosophical Society, was just passing the press; I had therefore only time to add the following note:—

“Since writing the foregoing essay, the author has enjoyed a more extensive field of observation, in the numerous and magnificent collections of Europe, and has satisfied himself, that the ‘Missouri fossil’ must be considered as an extinct fossil and altogether new, characterized, more particularly in the fragment in question, by the extreme length, breadth, and projection of the intermaxillary bone, in which it presents a marked difference from any of the genus *Ichthyosaurus*, and approaches the Batrachian order.” (*Vide* Transactions of the American Philosophical Society, 1833; and Medical and Physical Researches, p. 148.) As the name under which this animal was originally described, must be changed, I propose to designate it as the *Batrachiosaurus Missouriensis*.

R. HARLAN.

London, January 9, 1839.