

XVII. *On a Dorsal dermal Spine of the Hylæosaurus, recently discovered in the Strata of Tilgate Forest.*

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IN the highly interesting and unique specimen of part of the skeleton of the Hylæosaurus discovered by me in 1832, and now preserved in the Gallery of Organic Remains of the British Museum, the most striking peculiarity is a series of large thin angular processes extending nearly parallel with the left side of the vertebral column. These bones vary in length from 4 to 17 inches, and in form from a somewhat obtuse to an isosceles triangle: there are six or seven in a connected line, and several others detached and dispersed in the block. They terminate distally in a blunt apex, and are expanded at the base in the antero-posterior diameter, but unfortunately in every instance the proximal end is so imperfect that their mode of attachment to the other parts of the skeleton is not clearly demonstrable.

From the general resemblance of these processes to the dermal bones imbedded in the surrounding stone, I was induced to consider them as the remains of a dorsal crest formed by a series of erect dermal plates or spines, which extended along the back of the Hylæosaurus, in the same manner as the cartilaginous scaly dorsal fringe in the Iguana; an opinion which appeared to be corroborated by some detached specimens of a similar character that were subsequently discovered*.

Professor OWEN, however, whilst admitting the probability of that suggestion, considered it more likely that the bones in question were abdominal ribs, remarking that “the want of symmetry, and the difference in size and form, in the four succeeding spine-shaped plates, agreed better with the costal than with the dermal hypothesis†.” Mr. BRODERIP and other naturalists have regarded this opinion of Professor OWEN as conclusive‡.

For reasons fully stated in my former memoirs on the Wealden Reptiles, it appeared to me highly improbable that these spines could have belonged to the costal system. In 1848 I had an opportunity, for the first time, of making sections of a specimen for microscopical examination, and I then found the internal structure to

* A comparison of these spines with the dermal crest of the *Cyclura*, is given in my original memoir on the Hylæosaurus; *Geology of the South-East of England*, 1832.

† *British Association Report on Fossil Reptiles*, by Professor OWEN, 1841, p. 116.

‡ *Zoological Researches*, Chapter on Reptiles.

be identical with that of the dermal scutes of the Hylæosaurus, presenting "long, straight, spicular fibres, decussating each other in all directions, and representing, as it seems, the ossified ligamentous fibres of the original corium*."

At length, after the lapse of eighteen years, I have obtained one of these spines in which the proximal end or base is sufficiently entire to show the nature of its connection with the body of the reptile. This specimen (for which I am indebted to the liberality of Mr. PETER FULLER of Lewes) was found a few weeks since in the same quarry in Tilgate Forest, whence the first discovered skeleton of the Hylæosaurus was obtained; and there is reason to conclude that it may have belonged to the same individual, for several detached dermal scutes and spines of corresponding size and character, have from time to time been found in the sandstone near the spot.

This spine, if perfect, would be 15 inches in length; its base or proximal end is of an elliptical form, with a longitudinal median depression, which is bordered by a gentle rounded eminence; the articulating surface has the corrugated aspect that characterizes the ossified dermal scutes of the Hylæosaurus; and a comparison of the base of this spine with that of the unquestionable dermal bones, confirms the correctness of my original interpretation of the nature of these remarkable processes.

In the accompanying drawings the characters of the original are sufficiently defined, to render further description unnecessary.

This fact is of considerable interest, since it demonstrates in the dermal system of the extinct colossal Saurians of the secondary geological æras, a similar exaggerated development to that which prevails in the living diminutive representatives; but while in the existing Lizards the dermal appendages are flexible and cartilaginous, in the fossil reptiles they are rigid osseous spines; the difference arising from the ossification of the ligamentous fibres of the corium in the dermal bones and spines of the Hylæosaurus.

DESCRIPTION OF THE PLATE.

PLATE XXVII.

Fig. 1. Lateral view of the dorsal dermal spine of the Hylæosaurus; reduced to one-half linear.

Fig. 2. View of the articulating surface of the base.

Fig. 3. Magnified view of a portion of the internal structure, showing the decussating ossified fibres of the corium, the bone-cells, and the Haversian canals, as exposed in a section seen by transmitted light.

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* See Wonders of Geology, 6th edition, p. 437.