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MONOGRAPHS

ON THE

BRITISH FOSSIL

REPTILIA

OF THE

MESOZOIC FORMATIONS.

PART III.

PAGES 95—97; PLATES XXIII, XXIV.

(OMOSAURUS.)

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MONOGRAPH

ON THE

GENUS *OMOSAURUS.*

(*Continued.*)

Species—*OMOSAURUS HASTIGER*, Owen. (Plates XXIII and XXIV).

If the grounds assigned in the former part of this Monograph[1] for the probable homology of the unsymmetrical spine figured in Plates XXI and XXII, which spine was found with the bones of the fore-limb of *Omosaurus armatus*, should be deemed to warrant such conclusion, a similar one may be provisionally accepted as applicable to the pair of spines of similar size and character discovered in the same division of the Kimmeridge Clay, in the Great Western Railway Cutting at Wootton Bassett, Wiltshire, briefly referred to at p. 68 of that portion of the Monograph.

Many large Saurian fossils were collected from the sections of Kimmeridge Clay at that time exposed; but none have reached me save the subjects of the present Monograph, which were there obtained by William Cunnington, Esq., F.G.S., and have passed with the rest of his collection into the possession of the British Museum. The apical portion of each spine has been broken away, but the degree of decrease from the base affords satisfactory grounds for the restoration given in Plate XXIV, the ratio of decrease being less in the present species than in the almost perfect spine of *Omosaurus armatus*.[2]

The base of the spine (ib., *b*) expands from the body, *a* (Plate XXIV), more suddenly and in a greater degree in *Omosaurus hastiger*. It is suboval in form and, as in *Omos.*

[1] Volume of the Palæontographical Society issued for the year 1875, p. 67.

[2] Ib., pl. xxi, figs. 1 and 2.

armatus, its plane is oblique to the axis of the spine. The long diameter of the base is 9 inches, the short diameter is 7 inches.

The articular surface is divided into two unequal facets by a low ridge of the base (Plate XXIII, fig. 1, *r*, *r*) parallel with the long diameter of the base; each facet is feebly convex lengthwise, less feebly concave transversely. The surface for attachment is roughened by low short ridges diverging from the long ridge, *r*, and is irregularly pierced by vascular canals; the borders are thick and irregularly notched.

The body of the spine is continued more directly from one end (Plate XXIV, figs. 1, 2, 3) of the oval base, *a*, fig. 2, sloping and expanding more gradually to the opposite end of the base, *b*, fig. 2.

The body of the spine is a full oval in transverse section (ib., fig. 4), pointed at each end, where the two opposite edges, *d*, *e*, are cut. The anterior edge (fig. 1, *d*), begins about 6 inches beyond the anterior produced part of the base; the posterior edge (fig. 3, *e*) begins about 2 inches from that end of the base. Both edges extend along the preserved portions of each spine, and were probably continued to, or near to, the pointed end. An additional advantage as a lethal or piercing weapon must have been derived from this two-edged structure.

In the right spine (fig. 1) the length preserved is 14 inches; in the left spine (fig. 3) the length preserved is 10 inches. Each spine may be estimated to have been upwards of 20 inches in length when entire.

The transverse section taken from the broken end of the left spine (fig. 4) gives 4 inches and $3\frac{1}{4}$ inches in the two diameters: the broken end of the better preserved spine gives 3 inches and $2\frac{2}{3}$ inches in the two diameters; the spine approaches to a circular section as it nears the pointed end. The texture of the outer inch is a compact bone susceptible of a high polish; it becomes finely cancellous within a few lines of the central cavity, the section of which at the part cut, viz. $8\frac{1}{2}$ inches from the base of the spine, gives 1 inch 6 lines, and 1 inch 3 lines, in the long and short diameters.

The close correspondence of the present fossil in general form, in basal modifications for attachment, and in texture, with the spine, probably left carpal, of *Omosaurus armatus*, will be obvious on comparison of Plates XXIII and XXIV with Plates XXI and XXII of the former part of this Monograph, treating of that species; and such correspondence may be deemed to support the provisional reference of the carpal (?) spines from the Kimmeridge Clay of Wootton Bassett to the same genus as that from the Kimmeridge Clay of Swindon; they manifestly indicate a distinct species on the above hypothesis of their nature.

The osseous core of the carpal spine in *Iguanodon* ('Wealden Reptilia,' Sup., No. 4, Pal. vol. for the year 1871, issued in 1872, Plate II, fig. 2) differs chiefly in its relative shortness or speedier diminution from the base to the apex.

After a comparison of these fossils with all the examples of carpal and tarsal spines in existing vertebrates, I found the nearest resemblance to the basal expansion, by which

the spine of *Omosaurus* has been attached, in the tarsal spine of the Platypus (*Ornithorhynchus paradoxus*, Plate XXIII, fig. 2, twice natural size). There was the same proportion of breadth to the body of the spine; the same sudden expansion to form the base; the same medial rising in the long axis of the base, and furrows extending therefrom to the margin. But these radiating furrows are more numerous, and the spine, though it is hollow as in *Omosaurus*, has that cavity converted by terminal apertures into a canal, and this canal is traversed, as in the poison-fang of certain Ophidian Reptiles, by the duct of a gland. The affinity shown by the Monotrematous Mammals to the *Reptilia* in certain parts of the skeleton is well known, and is closer in the structure of sternum, coracoids, and clavicles, than in any Bird.

PLATE XXIII.

Omosaurus hastiger.

Fig. 1. Articular surface of base of carpal spine : nat. size.
Fig. 2. Articular surface of base of tarsal spine of *Ornithorhynchus paradoxus*, magn.

The fossil is from the Kimmeridge Clay of Wootton Bassett, Wiltshire. In the British Museum.

Fig. 1.

Fig. 2.

2×

C. L. Griesbach del. et lith.

Omosaurus hastiger.

Mintern Bros. imp.

PLATE XXIV.

Omosaurus hastiger.

Fig.

1. Basal portion of right carpal spine, completed in outline : one third nat. size.
2. Side view of basal portion of right carpal spine, completed in outline : one third nat. size.
3. Basal portion of left carpal spine, completed in outline : one third nat. size.
4. Transverse section of body of left carpal spine, taken one third from the articular base : nat. size.

From the Kimmeridge Clay of Wootton Bassett, Wiltshire. In the British Museum.

Fig. 1.

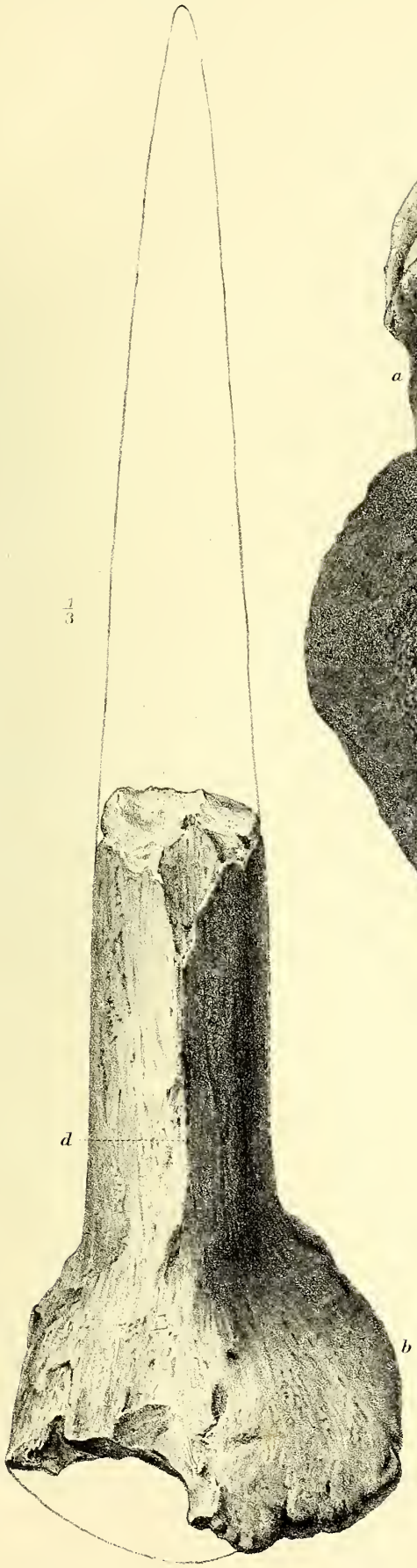

Fig. 2.

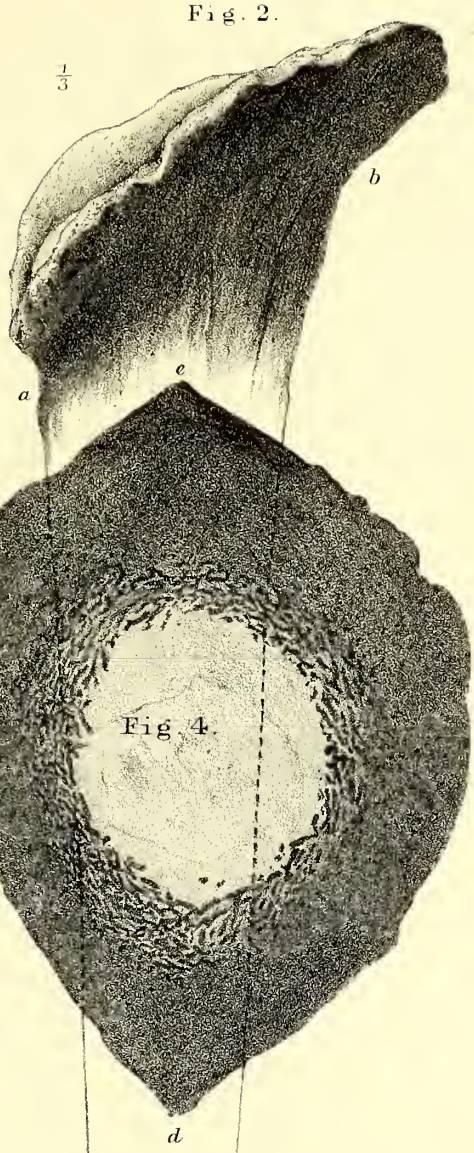

Fig. 4.

Fig. 3.

C L Griesbach del et lith.

Omosaurus hastiger.

Mintern Bros imp