

4. APPENDIX to a "NOTE on a new and undescribed WEALDEN VERTEBRA," read 9th February 1870, and published in the *Quarterly Journal for August in the same year*\*. By J. W. HULKE, Esq., F.R.S., F.G.S.

On the 9th of February, 1870, I brought under the Society's notice the neural arch of a huge Wealden vertebra which in the preceding summer I had obtained at Brooke, on the south coast of the Isle of Wight. As it was quite unlike any known form, I referred it to a provisional genus *Eucamerotus*. From certain peculiarities of its internal structure I strongly suspected that when evidence of the form of its missing centrum should be obtained, it would be found to resemble a Mantellian Streptospondylian centrum in the British Museum, labelled "No. 28632. Wealden, S. E. England." And in a foot-note to my paper, I wrote "should their identity be hereafter established, there will still be the further question, What is this *Streptospondylus*?"

During the past summer my suspicion has been verified, and the question concerning this *Streptospondylus* is also solved. I find that my *Eucamerotus*, *Ornithopsis*, Seeley, probably *Streptospondylus Cuvieri*, Owen, and the huge *Cetiosaurus*, Owen, whose recently restored remains strike the visitor to the Oxford Geological Museum with amazement, are all members of one genus (the first two are probably one species) characterized by opisthocœlian trunk-vertebræ, having an unusually complex and very highly developed neural arch, but more particularly marked by a large and deep excavation in the side of the centrum beneath the root of the neurapophysis†. I have learned from Prof. Phillips that this *Cetiosaurus* furnished the materials out of which Prof. Owen constructed his genus; it claims, therefore to be its type. Should this be accepted as the type of the genus, then *C. brevis*, Owen, a S. E. England and Wealden form, must, I suppose, find another place, since the trunk-vertebræ assigned to it in the "Report on British Fossil Reptiles" are described as having both articular surfaces concave.

#### DISCUSSION.

Mr. BOYD DAWKINS, who had recently visited Oxford, stated that he had there examined the remains referred to. There was, however, no tooth found with them sufficiently perfect to show the nature of the food on which the animal subsisted. But one of his students had lately found, in the same pit that had afforded the remains, a tooth corresponding with a stump of a Cetiosaurian tooth in the Oxford Museum; and the perfect crown agreed in its principal characters with that of *Iguanodon*, with which, therefore, the *Cetiosaurus* seemed to be allied. It was probably a vegetable feeder. Mr. J. Parker had lately procured from the Oxford Clay a number of saurian remains; and among them were some vertebræ of *Megalosaurus*.

\* Vol. xxvi. p. 318.

† This at once separates them from the vertebræ of *Streptospondylus major*, Owen, another Wealden form.

*saurus*, to which were articulated others presenting distinctly the characters of *Streptospondylus*. He thought that most of the Streptospondylian vertebræ might prove to belong to the cervical region of Dinosaurians.

Mr. SEELEY disputed the attribution to *Cetiosaurus* of the vertebræ described, and questioned whether the remains at Oxford might not be assigned to *Streptospondylus* or *Ornithopsis*. The depressions in the vertebræ, which might be connected with the extension of the air-cells of the lungs, did not exist in *Cetiosaurus*, but were to be found in *Megalosaurus*. As to the tooth mentioned by Mr. Dawkins, he was uncertain whether it should be referred to what he considered *Cetiosaurus* proper or to the Oxford reptile.

Mr. HULKE replied, pointing out that, since the determination of the Oxford reptile as *Cetiosaurus*, numerous other remains of the same species had been discovered which had added materially to the basis of classification.

---

DECEMBER 6, 1871.

John Richard Burton, Esq., B.A. (Lond.), Head Master of Bewdley Grammar School; the Rev. J. Cater, March, Cambridgeshire; Richard Daintree, Esq., Government Geologist of Queensland; John Davies Enys, Esq., of Trilissick, Canterbury, New Zealand; Henry George Bonavia Hunt, Esq., 4 Garden Court, Temple, E.C.; Capt. Alexander Hadden Hutchinson, R.A., South Camp, Aldershot; Joseph Coventry P'Anson, Esq., Darlington; James T. B. Ives, Esq., 30 Weymouth Street, Portland Place, W.; Albert George Kitching, Esq., Enfield; Leonard Lyell, Esq., 42 Regent's Park Road, N.W.; John Earl Hunter Peyton, Esq., F.R.A.S., 108 Marina, St. Leonard's-on-Sea; Sydney B. J. Skertchly, Esq., of the Geological Survey of England and Wales, 13 Clonbrock Road, Stoke Newington, N.; and Henry Walker, Esq., 100 Fleet Street, E.C., were elected Fellows, and Prof. Giovanni Capellini, of Bologna, a Foreign Correspondent of the Society.

The PRESIDENT announced the bequest to the Geological Society, on the part of the late Sir Roderick Murchison, of the sum of £1000, to be invested in the name of the Society or of its Trustees, under the title of the "Murchison Geological Fund," and its proceeds to be annually devoted by the Council to the encouragement or assistance of geological investigations. The donation of the proceeds of the Fund was directed by the Testator to be accompanied by a bronze copy of the Murchison Medal.

The SECRETARY, Mr. Evans, having read the extracts from the Will of the late Sir Roderick Murchison relating to this bequest,

Sir PHILIP EGERTON proposed the following resolution:—"That this Meeting, having heard the announcement of the bequest made to the Geological Society by the late Sir Roderick Murchison, desire to record their deep sense of the loss the Society has sustained by his death, and their grateful appreciation of the liberal bequest for the

advancement of geological knowledge placed at their disposal by their late distinguished Fellow.

Mr. J. GWYN JEFFREYS seconded this proposition, which was carried unanimously.

The following communications were read:—

1. *On the PRESENCE of a RAISED BEACH on PORTSDOWN HILL, near PORTSMOUTH, and on the OCCURRENCE of a FLINT IMPLEMENT on a high level at DOWNTON.* By JOSEPH PRESTWICH, Esq., F.R.S. &c., President.

A FEW years ago\* I traced the well-known old beach of Brighton past Arundel to Chichester and Bourne Common—a distance of 42 miles. At Brighton it is only from 8 to 12 feet above the level of the present beach; near Arundel it attains a height of 100 feet, near Chichester possibly of 130 feet, and at Bourne Common of 140 feet. Westward of this point it had been found on the east coast of the Isle of Wight; but I failed to detect it at any point inland, or at any considerable elevation.

I now beg to call attention to an interesting section which I have more recently observed at a spot 10 miles westward of Bourne Common, and 5 miles inland. It is a mile and a half E.N.E. from Fareham, on the right-hand side of the lane leading from East Cams to Nelson's Monument, which stands on the western extremity of Portsdown Hill. This hill, as is well known, is a bare narrow chalk ridge, running 6 miles from east to west, and rising in the midst of a lower surrounding Tertiary area to a height of from 300 to 400 feet. The subangular flint-gravel of Chichester, Havant, and Portsmouth ranges up to the southern foot of the hill, to a height of about 40 feet above the sea-level. It may be seen in a pit by the side of the railway half a mile west of Porchester station.

Above this lower level the slope of the hill here consists of bare chalk, with the exception of this one spot, on the north side of East Cams Wood. Although the pit is close by the road, it is not readily seen. It is situated at a height of 125 feet above the sea, or of 85 feet above the ochreous flint-gravel at its base—whence the latter stretches westward, forming the great plains of gravel extending past Havant and Southampton to Poole, which have been so well described by Mr. Codrington †.

The pit is a shallow arc, and presents the following section:—

- a. Grey earth and sand, with angular and rolled flints, 0 to 2 feet.
- b. Light-coloured laminated sands, with seams of shingle,
- c. Light-coloured coarse flint-shingle, with a few whole flints, } 4 to 6 feet.
- d. Chalk rubble, patches of.

The beds *b* and *c* constitute a true shore-shingle, composed of rolled and imperfectly rounded flints, imbedded in a matrix of light-coloured sand and loam, very different from the ochreous subangular

\* Quart. Journ. Geol. Soc. 1859, vol. xv. p. 215.

† Ibid. 1870, vol. xxvi. p. 528.