

THE  
GEOLOGICAL MAGAZINE.

NEW SERIES. DECADE II. VOL. VI.

No. V.—MAY, 1879.

ORIGINAL ARTICLES.

I.—ON THE DISCOVERY OF A SPECIES OF IGUANODON IN THE  
KIMMERIDGE CLAY NEAR OXFORD; AND A NOTICE OF A VERY  
FOSSILIFEROUS BAND OF THE SHOTOVER SANDS.

By Prof. PRESTWICH, M.A., F.R.S., V.P.G.S., etc.

AN interesting discovery has just been made in this district. A short time since some workmen from Cumnor brought to the Museum a basketful of bones which they said they had found in digging the clay at the brick works, now in course of large extension, at Cumnor Hurst, three miles west of Oxford. On cleaning the specimens, the characteristic vertebræ and teeth of *Iguanodon* were recognized. A large number of the vertebræ are entire, but the jaw is in fragments, with many teeth, however, in position. The skull is wanting, except a small fragment. One of the feet, with the claws, is almost complete. The larger bones are almost all broken, but we hope to be able to reunite many of the fragments, as there is reason to believe that the skeleton was entire or nearly so. The smaller bones and the extremities of the larger bones are in a beautiful state of preservation. It is a smaller animal than the Wealden *Iguanodon Mantelli*, but whether owing to age or difference of species remains to be determined. It seems to me to indicate a different species, with smaller and more delicately-formed bones.<sup>1</sup>

On visiting the place, I found that the specimens had been met with in driving a tramway into the side of the hill, where new pits are being opened out. Consequently a cutting only a few feet wide was made, and which, at the spot where the bones were found, was about seven feet deep. The clay was bare at the top, though a little disturbed. The bones were found at a depth of about four feet, in a thin seam, two or three inches thick, of yellow sandy clay, and they had extended part of the way across the cutting. A further portion of the skeleton may therefore remain in the undisturbed beds on one side. There is reason to believe that some portion of the bones were carted away, but I hope these may yet be traced; while, with the obliging assistance of the manager of the works, a watch will be kept on the clay at the sides when it has to be removed.

<sup>1</sup> The *Scelidosaurus Harrisoni*, Owen, from the Lias of Lyme Regis, is closely allied to *Iguanodon*, but is much smaller; so also is the *Acanthopholis horridus*, Huxley, from the Grey Chalk of Dover.

The thin sandy seam, being very conspicuous in the dark clay, can be traced on the side of the cutting (which deepens gradually as it proceeds further into the side of the hill) in a position nearly horizontal but slightly waved, until it is lost under about ten feet of the clay. In the part over the bone seam, where the men are now digging, I found a few perfectly characteristic shells of the Kimmeridge Clay, such as *Exogyra virgula*, *Cardium striatulum*, *Thracia depressa*, *Ammonites biplex*, together with *Lima pectiniformis*, and *Serpulæ*. A pit a few yards further on showed an additional six feet of clay, overlaid by the ferruginous sands, the equivalent of the Shotover beds, but without any organic remains.

There can be no doubt, therefore, of the position of this remarkable fossil, which shows that the *Iguanodon*, or some closely allied Dinosaur, was not confined to the Lower Cretaceous and Wealden beds, but existed during the period of the Kimmeridge Clay. Nothing else besides a few fragments of drifted wood indicates the neighbourhood of dry land, unless the thinning off of this formation to less than 100 feet in this district be due to the approach to an old shore-line, and not to the removal of higher beds by denudation. With the later setting in of the Shotover sands, with their shells (*Unio*, *Paludina*, *Cyrena*) and plants (ferns and numerous remains of reeds and grasses), we pass into well-marked land and freshwater conditions, but at Shotover the sands of the Portland series intervene between the two. It is probable, however, that the same old land surface, indicated by the latter, was, during the Kimmeridge period, only a short distance further off, and that its gradual rise finally displaced the Portland sea in the Oxford area. We might therefore have had continuity of land conditions and consequently of the land fauna from the Kimmeridge to the Lower Greensand period.

I may take this opportunity to mention, for the information of any geologists who may be visiting the classical district of Shotover Hill, that the above-named freshwater mollusca, which are so rare in the old pits above Headington at the west end of the hill, occur abundantly at the east end of the hill near Wheatley. About three years since, a pit was opened for the extraction of yellow ochre and iron ore, some 200 or 300 yards west of Wheatley windmill. It was twelve feet deep, and consisted of beds of rubbly iron sandstone, impure limonite, and yellow ochre. At the depth of about seven or eight feet a thin seam of iron sandstone, at the base of the main bed, six to eight inches thick, was literally full of casts and impressions of these shells—chiefly *Cyrena* and *Paludina*; while another thin band was covered with ripple markings and matted with indeterminable plant impressions. Soon afterwards, however, owing to the fall in the value of iron and the other products, the pit was, unfortunately for geologists, closed, and has since been filled in; but there still remains on the opposite side of the lane an old pit in which the same shelly seam may be found, though not so well developed and continuous. The only addition to the fauna of these Shotover Sands made since the publication of Prof. Phillips' "Geology of the Neigh-

bourhood of Oxford," etc., is by Prof. Rupert Jones, F.R.S., who found in a small slab of the Ironstone a few bivalved Entomostraca, which he refers to a species of *Candona*, and four species of *Cypridea*. They are described in the *GEOL. MAG.*, 1878, Decade II. Vol. V. pp. 100 and 277. They are Wealden species.

P.S.—Since writing the above, I have taken a few of the remains up to the British Museum, where they have been submitted to examination and comparison by Mr. William Davies, F.G.S., who has kindly pointed out to me that there are, among these, portions of jaws with successional teeth; dorsal, sacral, and caudal vertebræ, scapula, humeri, pelvic bones, portions of femora, fibulæ, astragalus, phalanges; and other bones not yet determined. Mr. Davies has no doubt that the remains are those of a young Iguanodon, the epiphyses of the limb-bones being unanchylosed.—J.P.

## II.—ON *TRIGONIA ELISÆ*—CORNET AND BRIART.<sup>1</sup>

By Dr. LYCETT.

THE Whetstones (Meule) of Bracquegnies, Belgium, are upon the same geological horizon (zone of *Ammonites inflatus*, Sow.) and are identical lithologically with the well-known Whetstones of Blackdown; like to the latter deposits they are characterized by the prevalence of *Trigoniæ* which are allied to, but are for the most part not strictly identical with the species of Devonshire. The *Trigonia Elisæ*, Cornet and Briart, herewith figured, is allied to and equals in

*Trigonia Elisæ*, Cornet and Briart.—Greensand, Bracquegnies, Belgium.

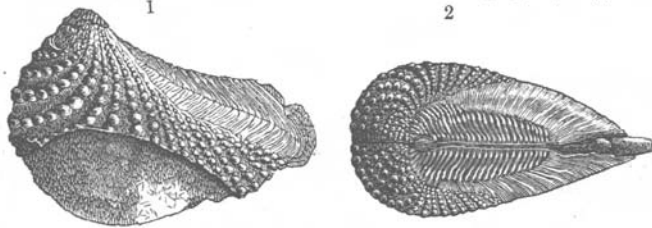


FIG. 1. Side view.

FIG. 2. Umbonal view.

abundance the well-known *T. aliformis*, Park., of Blackdown, and is the Belgian representative of that group of *Trigoniæ*. Like the Devon species it is remarkable for the great length of the hinge-border, and the produced, attenuated posterior side, with its short siphonal border; but is without the antea inflation of the valves and the peculiarities of the costæ which distinguish *T. aliformis*, Park. For the latter, see Monograph of British Fossil Trigoniæ, Palæontographical Society, 1877, pl. 28, figs. 5, 5a.

Another abundant *Trigonia* at Bracquegnies is the *T. dædalea* of Cornet and Briart. This differs from the well-known common

Cornet and Briart, Description de la Meule de Bracquegnies, Mémoires Couronnées et Mem. des savant Etrangers, Acad. Royal de Belgique, t. xxxiv. 1868.