

making their appearance in groups of isolated peaks, projecting, as it were, from a sea of alluvium. The author considered that this alluvium could not have been produced by the action of the existing rivers, and suggested that the Indus may formerly have flowed into the sea by the Gulf of Cambay, the land at the same time being much depressed below its present level. He indicated the evidence in favour of this view furnished by various facts in the geology of the district, and referred especially to the mode of occurrence of laterite.

#### DISCUSSION.

Sir P. EGBERTON mentioned that the Secretary of Mr. Burlinghame, the Chinese Ambassador, had informed him that the course of the Yellow River had, within a comparatively short period, changed its course by nearly 500 miles, and, by cutting off the supply of water to the Great Canal of China, had brought on the Taeping rebellion in consequence of the employment of the people being lost.

#### 12. On a NEW ACRODONT SAURIAN from the LOWER CHALK. By JAMES WOOD MASON, Esq. F.G.S., &c. of Queen's College, Oxford.

##### (PLATE XIX.)

WHILE lately inspecting the rich and instructive collection of cretaceous fossils formed by my friend Mr. J. S. Gardner, F.G.S., my attention was arrested by what I at first sight took, judging from the precisely similar mode of implantation of the teeth, to be the anterior end of the snout of *Mosasaurus*, an extinct marine lizard closely resembling, as is well known, in many important structural characters, existing Monitors and Iguanas, and peculiar, as far as we at present know, to rocks of the Cretaceous period, both in Europe and America. But a closer examination of the teeth alone discovered differences from those of *Mosasaurus* altogether inconsistent with such an identification; the incorrectness of this becomes quite evident after the comparison which, thanks to the valuable researches of Dr. Leidy, it is possible to make of the fragment under consideration with the corresponding portion of the snout of *Mosasaurus*; it can further be seen from Dr. Leidy's\* specimen that the structure of the fore part of the face of *Mosasaurus* differed in no essential particular from that of *Monitor niloticus*.

The fossil consists of the whole of the left præmaxilla † together with some portion of the contiguous maxilla; but, owing to the total obliteration of the maxillo-premaxillary suture, it is impossible to arrive at any satisfactory conclusion as to the extent of the former. The bone is so broken away posteriorly that no portion of the contour of the orbit is preserved, neither is the smallest guide furnished as to its position relatively to the aperture of the anterior nares. Its

\* Cretaceous Reptiles of the United States, p. 39, pl. xix. fig. 6.

† It may be that the præmaxilla is absent.

total length is four inches; its outer face is convex in every direction, but more strongly so from above downwards near the anterior end, and is marked by a longitudinal groove running parallel to, and at a distance of about a fourth of an inch from the upwardly curved dentigerous border: this groove (Pl. XIX. fig. 1, *g*), doubtless, gave lodgement to a vessel and a branch of the fifth pair of nerves from which neuro-vascular filaments were sent off for the supply of the teeth through the foramina that pierce the bottom of the groove. Numerous vascular foramina stud the surface of the bone near the end, which is flattened into a facet (figs. 1, 2, *f*) looking upwards and forwards: above, it presents for its posterior half a thin irregular fractured edge; its greatest depth is measured from the angle formed by the junction of this fractured edge with a natural free edge which, sloping downwards and forwards, and curving very little outwards, forms the left lateral boundary of the external nasal aperture.

The removal of a small portion of the matrix revealed the existence of a small bony projection (figs. 1, 2, *b*) from the inner face; this met with a similar projection from the opposite præmaxilla, and furnishes evidence that the points at any rate of the *non*-confluent præmaxillæ entered into the nasal aperture; but whether they were so extended upwards and backwards in the middle line as to meet in lacertine fashion the forward prolongation of the nasals, the limited extent of my materials will not allow me to determine.

The dentigerous edge (= outer alveolar wall) supports eight teeth, the posterior of which only exhibit perfect bony union of their bases with the alveolar margin; the rest are less firmly united to their shallow sockets. This creature evidently had two teeth in front on each side of the middle line; the remains of the inner of these were disclosed by the development of the fossil, but the shallow socket of the other is the sole evidence of its existence; immediately behind, and touching the third tooth, is what appears to be the ossaceous base (fig. 1, *c*) of a shed tooth.

The projection from the inner face at (*a*) in fig. 3, which represents the fractured hind end in section, appears to be the rudiment of what would have been produced inwards and downwards, so as to form the inner alveolar plate, if the teeth had been lodged in a continuous groove or in distinct sockets, and not ankylosed to the terminal border of the external alveolar plate. The teeth are precisely similar in shape to those in the anterior region of the mouth in *Monitor niloticus*; but I do not wish to be understood as suggesting that the posterior teeth were similarly modified for crushing: the smoothness of the enamel is only broken by the faintest trace of folding at the point of its junction with the cement; this is finely furrowed or striated longitudinally, as in the teeth of *Mosasaurus* and *M. niloticus*. The bony bases, which bear nearly the same great proportionate size to the crown as in *Mosasaurus*, were no doubt covered by a gum. The pulp-cavities remain open.

This reptile differs from *Mosasaurus* in the apparently persistent distinctness of the præmaxillæ from each other, and their small development in the middle line, in the more anterior position of the

nasal aperture \*, which, moreover, in *Mosasaurus* looks directly upwards instead of upwards and forwards, in the total obliteration of the maxillo-præmaxillary suture, which, in *Mosasaurus*, remains as a well-defined groove, and, lastly, in the absence from its cylindrical teeth of the opposite denticulated ridges, the total range of variation in the teeth of *Mosasaurus* including at most teeth exhibiting the suppression of one of these (the anterior), and that on the pterygoid teeth †.

I propose for this reptile the name of *Acrodontosaurus Gardneri*—the first obviously in allusion to the mode of attachment of its teeth, the second out of compliment to my indefatigable friend.

The strata of the locality whence this fossil came were so fully and ably described by my friend Mr. Etheridge in fixing the position of *Acanthopholis horridus*, Huxley, that it will only be necessary to say that it was obtained by Mr. Griffiths from the Lower Chalk of Lydden's Spout, near Folkestone, about 10 feet above the Chalk marl.

It will, I think, be better to leave the discussion of the affinities of this reptile till further discoveries furnish a better character for our guidance than the mode of implantation of the teeth.

#### EXPLANATION OF PLATE XIX.

- Fig. 1. Side view of upper jaw of *Acrodontosaurus Gardneri*, nat. size: *b*, process of præmaxilla; *c*, osseous base of shed tooth; *f*, terminal facet; *g*, groove.  
 2. Front view of the same: *b* & *f* as in fig. 1.  
 3. View of fractured hinder end: *a*, inner projection.

#### 13. RODENTIA of the SOMERSET CAVES. By W. AYSHFORD SANFORD, Esq., F.G.S.

(The publication of this paper is deferred.)

[Abstract.]

THE author has examined the Rodents from the caves of Somersetshire contained in the Taunton Museum, and found that many of them cannot be referred to species hitherto regarded as belonging to the fauna contemporary with the Mammoth in Britain. He enumerates species of *Arvicola* (including *A. glareola*, Schreb., and *A. ratticeps*, Blas.=*Lemmus medius*, Nilsson, and a species which may be new, and for which he proposed the provisional name of *A. Gulielmi*), *Lemmus* (*L. norvegicus*, Desm.), *Lagomys* (*L. spelæus*, Owen), *Lepus* (*L. diluvianus*, Pict., *L. timidus*, Linn., *L. hibernicus*, Bell, and *L. cuniculus*, Linn.), *Spermophilus* (*S. erythrogonoides*, Falc.: the citation of *S. citillus* by the author and Mr. Boyd Dawkins is founded on a mistake), and *Cricetus* (*C. songarus*, Pall.).

\* Goldfuss in Nova Acta Acad. Nat. Cur. vol. xxi. p. 1, tab. vi.-viii.

† Teste Dr. Leidy.

6

Fig 1.



c

g

b

f



Fig 2.



Fig 3