On the occurrence of the crocodilian tomistoma in the miocene of the Maltese Islands. By R. Lydekker

Extract from: Quarterly Journal Geological Society London, Vol. 42 (1886) p. 20-22

## 3. *On the* Occurrence *of the* Crocodilian Genus Tomistoma *in the* Miocene *of the* Maltese Islands. By R. Lydekker, Esq., B.A., F.G.S., &c. (Read November 18, 1885.)

[Plate II.]

In the collection of the British Museum there is the terminal 13 inches of the rostrum of a large Crocodilian, from the Miocene of Malta, to which Prof. Sir R. Owen has applied the name *Melitosaurus champsoides*, but of which, so far as I am aware, no description has ever been published. The name is, therefore, really a manuscript one; but since it has been quoted by Mr. J. W. Hulke * and the late Prof. Leith-Adams †, and the type specimen referred to as affording grounds for specifically distinguishing another specimen, it seems advisable to take (with the proviso noted below) Sir R. Owen's specific name as dating from the first quotation.

The specimen, which is figured on a reduced scale in the accompanying plate (Pl. II. figs. 1, 2), shows the cranial and mandibular portions of the rostrum. The former has lost all the teeth with the exception of one, but shows eight dental alveoli on the right side; while the latter shows six teeth *in situ* in the left ramus: the whole of the premaxillæ, and the anterior narial aperture, together with the anterior part of the nasals and maxillæ, are preserved. It will perhaps suffice to say that the specimen is nearly double the size of an adult skull of the existing *Tomistoma Schlegeli* (Strauch), and that it agrees with the latter in every essential respect. Thus the rostrum is extremely long and narrow; the first and fourth mandibular teeth are larger than the others, and are received into notches in the cranium; the third premaxillary tooth is large, and the fourth very small; while the premaxillæ themselves are not terminally expanded, are long and narrow, and articulate with the still narrower nasals. Apart, indeed, from its superior size, almost the only noticeable difference of the fossil from the recent *Tomistoma* consists in the circumstance that the extremity of the premaxillæ is more shelving, and that the teeth are perhaps relatively larger, and their fore-and-aft cutting-edges rather less sharp; it also differs, however, in having five teeth in the premaxilla, the additional tooth being, as in *Gharialis* (*Gavialis*) *gangeticus*, interpolated between the proper first and second teeth. Since this additional tooth is very variable in *Crocodilus*, its presence in the present form can scarcely be considered more than a specific character; and as there are no other characters which can be regarded as of generic value, the term *Melitosaurus* appears unnecessary, and the specimen may be referred to the existing genus under the name of *Tomistoma champsoides* (Owen).

* Quart. Journ. Geol. Soc. vol. xxvii. pp. 31, 32 (1871).
† *Ibid.* vol. xxxv. p. 527 (1879).

From the reputed Miocene of the neighbouring island of Gozo another Crocodilian has been described by Mr. J. W. Hulke * under the name of *Crocodilus gaudensis*, which is said to differ from *Tomistoma champsoides* by its smaller size, more slender and more sharply pointed teeth, and the structure of the dental enamel. In his description of the skull of this species, Mr. Hulke says that it agrees with *Tomistoma Schlegeli* † in the long rostrum, elongated premaxillæ (which articulate with the long slender nasals), and in the entrance into the mandibular symphysis of the splenial element. The latter character at once forbids the reference of the species to *Crocodilus*, and as the specimen agrees with *Tomistoma* in essential characters (although differing from *T. Schlegeli* in several details which do not appear of more than specific value) it may be pretty safely referred to that genus under the name of *T. gaudense* (Hulke).

In a recently published paper, Messrs. Toula and Kail ‡ have described a Crocodilian cranium from the apparently Miocene strata of Eggenburg in Lower Austria, which they propose should be provisionally known as *Gavialosuchus eggenburgensis*. This specimen agrees very closely with *T. Schlegeli* in the number of the teeth and in the general contour of the rostrum and the relations of the nasals to the premaxillæ; although differing by the presence of five premaxillary teeth, and the eversion of the anterior border of the orbit. In respect to the number of premaxillary teeth the Austrian form agrees with *T. champsoides*, and the conclusion as to the value of this character in the one case will likewise apply to the other. The eversion or non-eversion of the anterior border of the orbit appears to the writer to be also a character which shonld not be regarded as of generic importance, as he has found it to be very variable in the fossil Gharialoids of the Siwalik Hills of India §; and it accordingly seems that the Austrian form may be included in *Tomistoma*. The two peculiar features of the Austrian species (at least one of which occurs in *T. champsoides*) indicate a decided approach towards *Gharialis* (*Gavialis*). Finally, the question arises whether this *T. eggenburgense* may not be specifically identical with the Maltese *T. champsoides*; but it seems impossible to decide the question until the former shall have been figured. If the two be identical, the specific name applied by Messrs. Toula and Kail has the right of priority, since Owen's species has not hitherto been defined.

The genus *Tomistoma* is represented at the present day solely by *T. Schlegeli* of Borneo, and the three forms noticed above are the only fossil species with which I am acquainted. The occurrence of the genus in the Miocene of the Maltese Islands and Austria

* Quart. Journ. Geol. Soc. vol. xxvii. pp. 30–32 (1871).

† Mr. Hulke employs Huxley's generic term *Rhynchosuchus*, which is of later date than *Tomistoma*.

‡ Anzeig. k. Ak. Wiss. Wien, 1885, pp. 107–109; Ann. & Mag. Nat. Hist. ser. 5, vol. xvi. p. 236.

§ See Palæontologia Indica (Mem. Geol. Surv. Ind.), ser. 10, vol. iii. part 7 (1886).

affords one more instance of the survival of Middle and Upper Tertiary European genera in the oriental region.

P.S. (Jan. 20, 1886).—Since the preceding was in type I have seen the full description and figures * of the so-called *Gavialosuchus eggenburgensis*. This fully confirms my opinion that this form is not generically distinct from *Tomistoma*; the anterior extremity of the premaxillæ of the Austrian specimen is unfortunately imperfect, but from the characters of the remaining portion it is not improbable that this form is specifically distinct from *T. champsoides*.

## EXPLANATION OF PLATE II. Figs. 1, 2.

*Tomistoma champsoides* (Owen); fig. 1. Anterior portion of the rostrum, viewed from the facial aspect; fig. 2. Anterior part of the left ramus of the mandible, viewed from the outer aspect. One half natural size.

## Discussion.

Prof. Boyd Dawkins remarked on the interest attaching to the occurrence of oriental forms in Miocene beds in the European region, such as Eastern deer of *Rusa* type, muntjac, tapir, &c.

Mr. Blanford pointed out that the particular interest in this case was due to a genus once spread through several parts of Europe being now confined to one oriental island, in the purely tropical Malay subregion of the oriental region. Some other European Miocene forms are also now peculiar to the same Malay subregion.

* Toula and Kail, Denkschr. k. Ak. Wiss. Wien, vol. l. pt. 2, pp. 229–356, pls. i.–iii. (1885).