

GEOLOGY. — *Reptiles and fishes from the Bathonian of El-Mers (Moroccan Middle Atlas)*. Note by Mssrs. **HENRI TERMIER**, **JEAN GUBLER** and **ALBERT F. DE LAPPARENT**, presented by Mr. Charles Jacob.*

The discovery of dinosaur bones at El-Mers, a locality found 200 km southeast of Fez, occurred in 1926. A paleontological mission could be undertaken recently in this region, under the auspices of the Paleontology Laboratory of the Muséum in Paris and with the effective assistance of the Service of Mines in Rabat; the first results obtained are consigned here.

Stratigraphy. — To place the localities, already classified within the Bathonian by one of us (¹), we point out that the post-Carboniferous series of the Middle Atlas is as follows: a Permo-Triassic (100 m) outcropping in the eroded anticlines; an essentially calcareous Liassic (3 to 400 m); a formation called *Boulemane marls* (2 to 300 m), which corresponds approximately to the Bathonian and is terminated by a limestone cornice belonging to the upper zone of the stage; finally, a series of entirely marine beds, neritic or littoral, whose entirety can exceed a thousand meters. This last series includes green and purplish-red marls, limestones of all natures, quartzites and sandstones with plants, ripple marks, and cross-bedded stratification; the different facies enumerated are repeated a great number of times, so that in spite of the variety of detail, the whole is very monotonous.

The vertebrate bones appear especially confined within the upper part of the last-cited complex, which corresponds to the upper Bathonian, containing *Clydoniceras discus* (²), *Protocardia tikechkachensis*, *Ostrea sandalina*, and *Modiola imbricata*.

175 points that have furnished bones have been currently located around El-Mers, among which 7 true localities must be retained whose exploitation appeared truly fruitful. The group of fossiliferous points is distributed as follows.

* Original citation: Termier, H., J. Gubler, and A. F. de Lapparent. 1940. Reptiles et Poissons du Bathonien d'El-Mers (Moyen-Atlas marocain). *Comptes Rendus de l'Académie des Sciences, Paris* 210:768-770. Translated by Matthew Carrano, Department of Anatomical Sciences, Stony Brook University, August 2002.

¹ H. TERMIER, *Mémoires du Service des Mines du Maroc*, 33, 1936, p. 858.

a. A 100 m thick zone, where the green marl horizons are rich in bones, draws a band plunging northeast from Botane to Tizi N'Julierh, Tamgert N'Tarit, Tissenfelt, Tichou Moulay Said, Tahrzout, and Aït Abdallah; this band is equally fossiliferous on the other flank of the syncline, at Tirardine. The highest locality was that of Tamgert R'Tane at around 100 m from *a*; some bone debris was noted not far from there, about at the summit of the Bathonian layers.

b. The lowest locality was that of Tizi Taharourt at 100 m below *a*; it is connected to band *a* by the important primitive locality called the Moghaznis, and by some dispersed bones at El-Mers. Other bones were noted in place on the western slope of the crest bearing the Marabout d'Aguelmous or Djana: this is the Bathonian of the same facies, one hundred meters above the last bank of the Bajocian *limestone cornice*.

Paleontology. — At first approximation, the vertebrate fauna of El-Mers includes the following groups:

FISHES. — Numerous large *ganoid scales* covered in enamel, with very marked articular teeth and facet; often several are found associated in a characteristic pattern. Some *palatine teeth* found with the preceding scales and belonging to the same form. Several 5 to 6 cm long *ichthyodorulites*, ornamented with parallel striations, whose cross-section shows well the ivory covered in enamel; it cannot yet be specified whether these spiny rays from the dorsal fin belonged to the same ganoid or, in contrast, to an elasmobranch.

REPTILES. — *Turtles.* — Very numerous debris: escutcheons, plates, vertebrae, ribs, long bones.

Crocodylians. — We refer to the *teleosaurid* group (Jurassic marine crocodylians): *a.* a portion of skull connected to a portion of very elongate jaws and presenting four narrow, pointed, rather strongly recurved teeth in place; *b.* a series of six vertebrae with well-developed spinous processes and portions of the ventral plastron found just below these vertebrae; *c.* a group of epidermal escutcheons hollowed by small rounded cups.

Dinosaurs. — 1st, probably a carnivorous *theropod* represented by twenty vertebrae from the same locality; 2nd, a gigantic herbivorous *sauropod* whose enormous bones are common. We already have two femora 1.60 m long, some heads of long bones in rather large number, portions of the ilium and ischium, some very large vertebrae, etc. The Tamgert N'Tarit locality has furnished only the following parts belonging to a single individual: a 1.37 m long left humerus and a less complete right humerus, an articulated tibia and fibula (1.02 m), two radii (1.03 m), six successive vertebrae, a metatarsal, four metacarpals, a carpal bone, an ilium, and some fragments of ribs and scapulae; other bones appear to be still buried and will be exploited later. The shape of the vertebrae and the ratio of the size of the forelimb

² Determination by F, Roman.

to the hind limb already permits specifying that we are dealing with a cetiosaurid, perhaps the same genus *Cetiosaurus* known in the Bathonian of England.

The El-Mers localities show an incontestable interest and merit as complete a study as possible. Indeed, they are the first Jurassic crocodilian and dinosaur bones known in North Africa, where the existence of dinosaurian reptiles had been revealed up to now only by two teeth from the middle Cretaceous of Timimoun [Algerian Sahara (³)] and some footprints (?) from the Liassic of the Great Atlas (⁴).

³ CH. DEPÉRET and J. SAVORNIN, *Bull. Soc. géol. Fr.*, 4th series, 27, 1927, p. 257.

⁴ H. PLATEAU, G. GIBOULET and ED. ROCH, *C. R. somm. Soc. géol. Fr.*, 1937, p. 241.