

PALEONTOLOGY. — *On the discovery of a fauna of Albian vertebrates at Timimoun (western Sahara)*. Note (¹) by Messrs. **CH. DEPÉRET** and **J. SAVORNIN**.*

One of us, a charge of the Geological Service of the southern territories, in 1924 received from Mr. Captain Burté, administrator of the indigenous commune of Timimoun, an interesting package of fossil vertebrates recovered from the environs of this place. These pieces came from the great *foggara* (subterranean gallery of water conveyance) that feeds this place, and from two distinct localities of this gallery, one 2 km, the other 5 km from Timimoun. The fossils were recovered in the well cuts that reach this *foggara* at a depth of 36 m for the first, and 40 m for the second.

The geologic cut of the region shows, lying discordantly on a primary, probably Upper Devonian substratum, a regular subhorizontal series weakly dipping to the southeast, including from bottom to top:

1. Impermeable clay forming the base of the Albian;
2. More or less coarse friable sand and small siliceous, ferruginous conglomerates with debris of small pebbles and yellowish quartz. This base is the aquifer bed of the *foggara* and also the bed with the fossil vertebrates;
3. More durable quartzite sand.

This ensemble, of Albian age, passes more to the east concordantly beneath a Cenomanian limestone-marl plateau (Batem bou Demane) identical to those of the Batem Samani (south of Fort Mac-Mahon) and the El Goléa cliff.

The paleontological documents report two orders of reptiles: predatory dinosaurs and crocodilians, and a selachian fish of hybodont type.

II. *Theropod dinosaurs*. — Two caniniform teeth, inclined backward in the form of a saber, very transversely compressed, with two trenchant and crenulated edges, belong to the family Megalosauridae. One of these teeth, found in the wells closer to Timimoun, is incomplete at its base. The terminal part preserved measures 65 mm long with 32 mm maximum width and 15 mm thickness. The two faces are nearly equally convex. The two edges are ornamented along their entire lengths with very fine

¹ Session of 21 December 1925.

crenulations; but moreover on the two sides of these edges there exist folds that are less numerous than the crenulations, oblique near the base, and are erased on the faces of the crown but nevertheless rejoin from one side to another the concentric concave undulations near the top.

The other tooth, found 5 km from Timimoun in the terminal wells of the *foggara*, is still more incomplete, being mutilated on its anterior edge and on its internal face. One can clearly see only the external face and the posterior edge garnished along its entire length with crenulations stronger than on the other tooth. The oblique folds and concentric undulations similar to those of the other piece are found on the external face. This tooth was still larger than the preceding one, because the preserved part of the crown measures 70 mm from the point, and it seems clear that it is hardly about half of the total length.

Thus we have here a megalosaur of very large size.

Relationships and phylogeny. — If only the characters of the dentition are considered, the megalosaurids can be classified in a series of *continuous phyletic appearance* according to the extent of the crenulations on the anterior edge of the teeth. While the posterior edge is crenulated along its entire length in all the species, the anterior crenulations are limited to the upper third of the edge in the older forms: *Megalosaurus bucklandi*, v. Meyer, from the Bajocian and Bathonian; they are extended along half the edge in the Upper Jurassic forms: *Streptospondylus cuvieri*, from the Oxfordian of Dives, *M. insignis* Deslongchamps from the Kimmeridgian and Portlandian, *M. dunkeri* Koken from the Purbeckian and Wealden; and they cover the entire length of the anterior edge in the species from the Gault and Upper Cretaceous: *M. superbus* Sauvage from the Gault of the Paris Basin, *Dryptosaurus aquilunguis* Cope from the Greensand of America, *M. crenatissimus* Depéret, from the Senonian of Madagascar.

Is there a truly phylogenetic series? As one of us indicated to various reprises (¹), it is permitted to make reservations concerning an evolution founded on the consideration of a single structure, and it is more prudent to more surely decide based on the knowledge

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of characters from the entire skeleton. That could lead us perhaps to divide the Megalosauridae into two or more distinct phyletic branches.

No matter what it is, the *Megalosaurus* from Timimoun is connected by its very great size and its entirely crenulated anterior edge with the recent forms of the group, and notably with *M. superbus* from the Albian of the Paris Basin, which however differs by the oblique folds and concentric undulations of enamel on the two faces of the teeth.

Certainly we have here the indication of a new species, to which we give the name *M. saharicus*, while emphasizing that it is the first time that a reptile of this group is noted on the entire extent of the African continent.

II. *Crocodylians*. — To this order belongs a tooth, incomplete at its base, conical, and a little transversely compressed, with slight edges in front and behind and longitudinally striated enamel (length 26 mm, maximum width 12 mm). This tooth is identical to the lateral teeth of *Dyrosaurus*, a mesosuchian crocodylian from the family Teleosauridae, whose type comes from the phosphatic beds of the terminal Cretaceous of Tunisia, Algeria, and Morocco. It may be that we are dealing with a small-sized *Albian mutation* of the genus *Dyrosaurus*; but the generic attribution, founded on a single tooth, must remain completely provisional.

III. *Selachians*. — A shark of the family Hybodontidae is represented by a fragment of spine whose symmetrical form indicates the first ray of a dorsal fin. This spine is ornamented with deep parallel furrows as in the Jurassic *Hybodus*. But we attribute it rather to the nearby genus *Synechodus* S. Woodw., from the Lower and Upper Cretaceous of the Anglo-Parisian Basin. Some species of this genus were described by S. Woodward from the Albian of Folkestone and by Priem from the Albian of Beauvais. We simply note the species from Timimoun under the provisional name *Synechodus* sp.

¹ Notably see C. DEPÉRET, *Les Transformations du Monde Animal* [*Transformations of the Animal World*], 1916.