

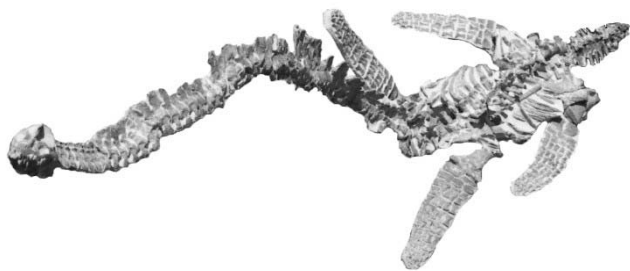
***Libonectes atlasense*, an elasmosaur (Reptilia: Sauropterygia) from the Turonian (Upper Cretaceous) of Morocco - why such teeth and such a neck?**

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The area around the city of Goulmima, in the Moroccan Atlas, is well known for its abundant Cenomanian-Turonian fish assemblage (e.g. Cavin 1997); marine reptiles are rarer, and include mosasaurs and polycotyloid plesiosaurs (Bardet et al., 2003a, b; Buchy et al., 2005).

The subcomplete skeleton of an elasmosaurid plesiosaur recently acquired by the Staatliches Museum für Naturkunde Karlsruhe (State Museum of Natural History in Karlsruhe, Germany; specimen SMNK-PAL 3978) represents the first diagnostic elasmosaur of this assemblage, and one of the most complete and best preserved elasmosaurs known in the world (Buchy 2005; Fig. 1). Only portions of the limbs are genuine and some are misplaced, but, except for a few aesthetic patches of coloured resin mainly in the skull and mandible the rest of the skeleton appears genuine. The length of the skeleton is about 7.2 m. Fusion e.g. of the neural arches indicate an adult. Some of the bones (e.g. cervical vertebrae, ulna) show an unusual type of preservation that might indicate an old-age related pathology inducing a multilocus decrease in bone density. Associated ammonites confirm a late early Turonian to early middle Turonian age for the fossil.



**Fig. 1** — SMNK-PAL 3978, *Libonectes atlasense*, holotype; general view of the mounted specimen. Total length about 7.2 m.

Owing to the present uncertainties about elasmosaurs systematics, it was referred mainly on strati-

graphical grounds to a new species of the genus *Libonectes* Carpenter, 1997, *L. atlasense*, differing from the type species of the genus in its rostral anatomy and atlas/axis complex (Buchy, 2005).

The excellently preserved skull and neck allow some considerations upon the function of the teeth, in biomechanical contradiction with the fish piercing function they are usually assigned (e.g. Massare, 1987). It is suggested the dentition of elasmosaurs constitute a sediment sieving device. Other aspects of elasmosaurian anatomy as well as reported gastric contents (McHenry et al., 2005) and embedding environments suggest non obligatory feeding upon sea floor invertebrates - which appears at present the best justification for such a neck.

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