

A new plesiosaur from the Lower Jurassic of Portugal and the early radiation of Plesiosauroidea

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A new plesiosaur partial skeleton, comprising most of the trunk and including axial, limb, and girdle bones, was collected in the lower Sinemurian (Coimbra Formation) of Praia da Concha, near São Pedro de Moel in central west Portugal. The specimen represents a new genus and species, *Plesiopharos moelensis* gen. et sp. nov. Phylogenetic analysis places this taxon at the base of Plesiosauroidea. Its position is based on this exclusive combination of characters: presence of a straight preaxial margin of the radius; transverse processes of mid-dorsal vertebrae horizontally oriented; ilium with sub-circular cross section of the shaft and subequal anteroposterior expansion of the dorsal blade; straight proximal end of the humerus; and ventral surface of the humerus with an anteroposteriorly long shallow groove between the epipodial facets. In addition, the new taxon has the following autapomorphies: iliac blade with less expanded, rounded and convex anterior flank; highly developed ischial facet of the ilium; apex of the neural spine of the first pectoral vertebra inclined posterodorsally with a small rounded tip. This taxon represents the most complete and the oldest plesiosaur species in the Iberian Peninsula. It is also the most complete, best preserved, and oldest marine vertebrate in the region and testifies to the incursion of marine reptiles in the newly formed proto-Atlantic sea, prior to the Atlantic Ocean floor spreading in the Early Cretaceous.

Key words: Plesiosauria, radiation, Sinemurian, Jurassic, Iberian Peninsula, Europe.

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