

A NEW 'TRANSITIONAL' PLESIOSAUR FROM THE UPPERMOST LOWER JURASSIC OF GERMANY

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Cryptocleidian plesiosaurs are a diverse and globally distributed clade of plesiosauroids that existed from the Middle Jurassic to the latest Cretaceous and comprised cryptocleidids, elasmosaurids, and leptocleidians. Their emergence is generally thought to be associated with the restructuring of the upper tier of marine ecosystems during the Early/Middle Jurassic transitional interval. However, no plesiosaur taxa have so far been discovered to bridge the gap between 'typical' plesiosauroid representatives of the Early Jurassic, such as microcleidids, and the 'typical' plesiosauroids of the Middle and Late Jurassic—the cryptocleidids. Here we report a new plesiosauroid taxon from the upper Toarcian (uppermost Lower Jurassic) of the Jurensismergel Formation of Mistelgau in Franconia, northern Bavaria, Germany. The new taxon is based upon two exquisite specimens, preserving most of the skeleton and including parts of the mandible, teeth, and a nearly complete postcranium. Phylogenetic analyses place the new plesiosauroid at a well-supported position as a sister taxon to Cryptocleidia, providing evidence for the presence of a 'transitional' plesiosaur that helps to fill the gap between the Early Jurassic and Middle to Late Jurassic plesiosaur faunas.