

Significance of intermediate forms in phyletic reconstruction of ammonites: Early Jurassic *Phricodoceras* case study

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This paper discusses the phyletic interpretation of the genus *Phricodoceras* and its taxonomic classification at the subfamily, family, and superfamily levels from an historical and critical perspective. First a review of the latest findings on this taxon is presented and the grounds for the attribution of *Phricodoceras* to the Schlotheimiidae (Psiloceratoidea) are summarized and illustrated. This review is a synthesis grounded on evolutionary (e.g., heterochronies, innovations), eco-ethological (e.g., assumed shell hydrodynamic capacities) and spatio-temporal patterns (e.g., bio-chronostratigraphy, palaeobiogeography). Then, the main stages of understanding the taxonomy of *Phricodoceras* since the early nineteenth century are reviewed. Two main taxonomic concepts alternate over time. The first is based on the “overall resemblance” of *Phricodoceras* to some coeval Eoderoceratoidea leading to the genus being included in its own family or subfamily (e.g., Phricodoceratinae) among the Eoderoceratoidea. The second hypothesis, recently confirmed by the discovery of an intermediate form (i.e., *Angulaticeras spinosus*), clearly includes *Phricodoceras* within the Schlotheimiidae (Psiloceratoidea). Comparison of these two very different conceptions reveals how “overall resemblance” can be misleading and shows that the discovery of intermediate forms is often the key to phyletic reconstructions in ammonites.

Key words: Cephalopoda, Ammonoidea, stratigraphy, paleobiogeography, taxonomy, character, homology, ontogeny, adaptation, Jurassic.

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