

PARALLEL BIOZONATION IN THE UPPER CALLOVIAN AND THE LOWER OXFORDIAN BASED ON THE PELTOCERATINAE SUB-FAMILY (AMMONITINA, ASPIDOCERATIDAE)

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Biozonation in the Upper Callovian and in the Lower Oxfordian

Ammonite biozonation in the Upper Callovian is based on two standard scales: (1) in the Sub-Boreal province two sub-families of Boreal origin are utilised (Kosmoceratinae and Cardioceratinae); (2) in the Sub-Mediterranean province the scale is mixed, with some index fossils of Tethyan origin (Reineckeinae, Pseudoperisphinctinae or Peltoceratinae) while others are of Boreal origin (Cardioceratinae). In the Lower Oxfordian, zonation for the Sub-Boreal province is reliant, barring exceptions, on the Cardioceratinae. As these may be rare or absent in the Mediterranean province, it is essential to have a scale based exclusively on taxa of Tethyan origin. The first subdivisions based either on the Perisphinctidae or on the Taramelliceratinae are incomplete.

Interest of the Peltoceratinae subfamily

Revision of the Aspidoceratidae family (Bonnot 1995, Courville & Bonnot 1998) shows that the Peltoceratinae allow a more complete subdivision. This sub-family occurs in the Sub-Mediterranean province right at the base of the Upper Callovian and remains comparatively abundant through to the top of the Lower Oxfordian. The Peltoceratinae are well defined by their ontogenesis and sexual dimorphism. Three characters constitute reliable criteria for identification: (1) the medium position of the rib bifurcation point on the sides (macroconchs and microconchs), (2) presence or absence of an intermediate ornamental stage between costulate and tuberculate stages (macroconchs), and (3) the morphology of the latero-ventral tubercles (macroconchs). These characters have made it possible to define or redefine twelve palaeospecies, with macroconch and microconch, divided into two genera (Peltoceras and Peltoceratoides).

Conclusion

Their relative abundance, their wide geographical distribution and their rapid evolution mean that some species of Peltoceratinae can be used as index fossils for a biochronological scale at the resolution of the sub-zone or even the horizon. We propose a scale based on Peltoceratinae alone in the Upper Callovian and the Lower Oxfordian. This scale is particularly useful when index fossils of Boreal origin are rare or absent.

References

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Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Berichte der Geologischen Bundesanstalt](#)

Jahr/Year: 1999

Band/Volume: [46](#)

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Artikel/Article: [Parallel biozonation in the Upper Callovian and the Lower Oxfordian based on the Peltoceratinae Sub-family \(Ammonitina, Aspidoceratidae\) 25](#)