

UPPER BAJOCIAN - LOWER BATHONIAN AMMONITES OF CABO MONDEGO SECTION (PORTUGAL).

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The Cabo Mondego outcrop exposed along the cliffs, on the western margin of the Iberian Plate, show an expanded section of Lower Bathonian deposits containing abundant ammonoids. Upper Bajocian deposits correspond to similar facies, although ammonoids are scarce. Muddy limestones alternate with marlstones. Beds are normally under 50 cm thick, and marly intervals under 70 cm. Thickening upwards sequences, of metric thickness, are common. Fining upwards sequences are scarce. Several planar based turbidites have been identified near the boundary between the *Garantiana* and *Parkinsoni* zones. Macrofossils include ammonoids, bivalves (*Bositra*), rhynchonellid brachiopods, crinoids and belemnites. Carbonized wood fragments of centimetric size are also present. Bioturbation structures are common (*Zoophycos* and *Chondrites*, in particular). Resedimented and reelaborated ammonoids are dominant. The degree of ammonite packing (estimated by the difference between the number of specimens and the number of fossiliferous levels divided by the number of fossiliferous levels) display low values, but the ammonite stratigraphical persistence (proportion of fossiliferous levels) display high values. Ammonite shells and internal moulds normally appear scattered in the sediment, showing no pattern of imbricated or encased regrouping. The aragonitic shells have been dissolved. Moldic porosity is filled by spar cement. These fossiliferous deposits were developed in an open sea, on a distal and outer environment of carbonate ramp, below wave base.

New field sampling, along up to thirty metres of thickness, allow to distinguish the two highest zones of Bajocian (*Garantiana* and *Parkinsoni* zones) and the lowest zone of Bathonian (*Zigzag* Zone). Parkinsonids characterizing the northern European faunal region or Subboreal Province, as well as Phyllo- and Lytoceratina characterizing the Mediterranean Province, are very scarce. The *Garantiana* Zone is characterized by the abundance of *Spiroceras annulatum* (DESHAYES), associated with *Prorsisphinctes* [M] - *Vermisphinctes* [m], *Garantiana* [M] and *Oppelia subcostata* (J. BUCKMAN). Specimens of *Sphaeroceras* and *Trimarginia* have been identified. However, the uppermost Bajocian zone, the *Parkinsoni* Zone, is poorly characterized due to

the scarcity of well preserved ammonoids. Specimens of *Dimorphinites* occur, but possibilities for correlation of the youngest Bajocian ammonoids with those from Mediterranean and Subboreal provinces remain quite limited.

The Lower Bathonian boundary may be established by the first appearance of the genus *Morphoceras*. The *Convergens* Subzone may be subdivided into a lower biohorizon with the development of *Zeissoceras* [M] - *Nodiferites* [m], *Lobosphinctes* [M] - *Planisphinctes* [m], and *Procerozigzag* [M]- *Zigzagiceras* [m], and an upper biohorizon characterized by the abundance of *Morphoceras* [M]- *Ebrayiceras* [m] and *Procerites* [M]- *Siemiradzka* [m]. In the oldest Bathonian biohorizon, a specimen of *Gonolkites convergens* BUCKMAN has been found. These biohorizons respectively correspond to the *Parvum* and *Macrescens* subzones recognized in diverse areas of the Submediterranean Province.