

Studia breviora

Uppermost Maastrichtian ammonites from the uninterrupted Upper Cretaceous — Paleogene section at Bjala (East Bulgaria)

A continuous Cretaceous-Paleogene section has been established in the surroundings of the town of Bjala at the Black Sea coast (Stoykova, Ivanov, 1992) in which an iridium anomaly at the boundary clay bed has been proved (Preisinger et al. — in press). The present authors have found macrofossils (ammonites, echinids, inoceramids) in the Upper Maastrichtian deposits.

There is only a few Upper Maastrichtian sections in the world from which ammonites have been recorded. The advantages and shortcomings of these sections, as well as the conclusions in relation to ammonite extinction have been critically reviewed by Wiedmann (1988) and Kennedy (1989). Studying new sections and their ammonites is of great importance to elucidate the nature of ammonite extinction and the Upper Maastrichtian biostratigraphy.

The section is named Bjala 2b and is situated at the Black Sea coast some 800 m east of central entry of Bjala municipal beach. Only a part of the section is being described here. More details have been documented in previous paper, i.e. Stoykova, Ivanov (1992) and Preisinger et al. (in press). The author uses paleontological identifications of nannofossils by Dr. K. Stoykova. Bjala Formation (No 3-1) Upper Maastrichtian — Danian, in part 3. (12 m) Marls, grey- to pale-beige, indistinctly bedded.

alternating with thin beds (0.2–0.4 m thick) of clayey limestones.

2. (0.02–0.04 m) Boundary clay bed — dark-grey, dark-brown to black almost pure clay; wetted, it becomes plastic.

Cretaceous/Tertiary boundary

1. (45 m) Marls — pale- to dark-grey, locally whitish with varying carbonate and clayey content, thin bedded at some levels, slightly silty. In this packet, from the boundary downwards the following fossils have been recorded: from 0 to —10 m — echinids; no ammonites; from —10 to —15 m — unidentified ammonite belonging likely to Gaudryceratidae (gen. et. sp. indet.); from —15 to —25 m — *Phylloceras* (N.) *ramosum*, *Anagaudryceras politissimum*, *Vertebrites kayei*, *Saghalinites wrighti*, *Baculites anceps*, *Pachydiscus* sp. aff. *epilectus* (F. O. at —22 m together with *N. frequens* and rare *M. prinsii*), *P. gollevillensis gollevillensis*, *P. jacquoti*; from —25 to —35 m — *Ph. (N.) ramosus*, *A. politissimum*, *V. kayei*, *Pseudophyllites indra*, *S. wrighti*, *Hoploscapites constructus*, *D. cylindraceum*, *B. anceps*, *B. vertebralis*, *Glyptoxoceras* cf. *subcompressum*, *Desmophyllites larteti*, *D. cf. diphylloides*, *P. jacquoti* (F. O. at —27 m — together with *N. frequens*), *P. gollevillensis gollevillensis* (F. O. at —33 m), *P. gollevillensis armenicus*; from —35 to —45 m — *Ph. (N.) ramosus*, *Ph. (N.) surya*, *A. politissimum*, *A. subtilineatum*, *V. kayei*, *P. indra*, *P. cf. latus*, *H. constructus*, *Phyllopterychoceras* sp. indet., *D. cylindraceum*, *B. anceps*, *B. vertebralis*, *D. larteti*, *D. diphylloides*, *P. gollevillensis armenicus* (F. O. at —43 m), *P. neubergicus* from —45 to —40 m together with *Micula murus*).

The analysis of the ammonite faunas at Bjala 2b section has shown that the genus *Pachydiscus* is relatively diverse, i. e. it is represented by greater number of species, and relatively fast evolutionary rates. The species *P. neubergicus*, *P. gollevillensis gollevillensis*, *P. jacquoti* and *P. sp. aff. epilectus* have been recorded in vertical succession with ranges that overlap one another. This succession is very similar to those described in Zumaya section, Spain, by Wiedmann (1988). Eighteen ammonite species have been recorded from the base of the Upper Maastrichtian at Bjala 2b section, 9–10 species from the middle portion and several specimens from 4 species from upper part. The "last" ammonite has been found 13 m below the Cretaceous-Paleogene boundary.

The fossil record at Bjala 2b section suggests that there was no a sudden ammonite extinction (not a mass extinction) and it was not a consequence of hypothesized impact event at the Cretaceous — Paleogene boundary.

References

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Marin Ivanov Ivanov
 Geological Institute
 Bulgarian Academy of Sciences
 1113 Sofia