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First report of the Jurassic-Cretaceous boundary (Northwest Europe) Working Group (I.U.G.S. Cretaceous Subcommission)

by R. CASEY (Chairman)*

Abstract. The Working Group recommends that the lower limit of the Cretaceous System should be drawn at the base of the *Riasanites rjasanensis* Zone and its equivalents (presumably, e.g. the *Fauriella boissieri* Zone of southeast France and the *Runctonia runctoni* Zone of eastern England). Because of the occurrence of both Tethyan and Boreal ammonites at that level in a thick depositional succession in the northern Caucasus and adjoining regions, the most promising area for selection of the limitotype section appears to be the southern USSR.

The first meeting of the Jurassic-Cretaceous boundary (Northwest Europe) Working Group (International Union of Geological Sciences, Stratigraphy Commission, Cretaceous Subcommission) was held at the Bundesanstalt für Bodenforschung in Hannover 6–10 May 1974, attended by R. CASEY (Chairman), P. ALLEN, F. GRAMANN, N. F. HUGHES, E. KEMPER, P. F. RAWSON, F. SURLYK (Members) and G. DÖRHÖFER.

The following **Recommendations** were agreed:

1. The Northwest European area should be defined to embrace East Greenland.
2. The term "limitotype" should be used provisionally to describe a boundary stratotype.
3. The selection of a limitotype should not be restricted to the areas of the original body stratotypes of the stages concerned.
4. The limitotype should fall in a marine, ammonite-bearing succession.
5. Although time-correlation at this level is currently dependent in the main on ammonites, the correlation potential of as many groups as possible should be available in the limitotype section.
6. The selection of the limitotype should cause the least disturbance to traditional boundary usage over the widest possible area and offer the maximum feasible prospects of correlation between faunal provinces and with non-marine strata.

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7. To meet the requirements of Recommendation 6 the lower limit of the Cretaceous System should be drawn at the base of the *Riasanites rjasanensis* Zone (and of its correlatives, presumably, e.g., the *Fauriella boissieri* Zone of southeast France and the *Runctonia runctoni* Zone of eastern England).
8. The following candidate-areas in Northwest Europe should be included in discussion:
   a) *Eastern England.* Fullest known ammonite sequence across the recommended boundary in Northwest Europe; proximity to non-marine strata. Lacks Tethyan ammonite links; poorly exposed.
   b) *Southern England.* Thick and continuous non-marine sequence with well documented ostracod faunas. No ammonites.
   c) *East Greenland.* More or less continuous depositional sequence with numerous ammonite assemblages. No Tethyan ammonite links at a useful level; insufficiently studied.
   d) *Northern North Sea.* Thick depositional sequence with great microfaunal and microfloral potential. Few megafossils available; insufficiently known; submarine.
   e) *Northwest Germany.* Full ostracod sequence through varying facies; links between non-marine and quasi-marine occurrences in southern England and Poland. No ammonites at required level.
9. Because of its importance as providing the only continuous fully documented marine sequence across the boundary in Northwest Europe, excavations should be made to re-expose the critical ammonite-bearing horizons in Norfolk (eastern England).
10. Because of its proximity to the on-shore sequence of Eastern England and its much thicker depositional succession and biostratigraphical potential, a continuous core through the relevant strata below the Northern North Sea should be made freely available for study.
11. Because none of the other Northwest European areas provides a suitable limitotype section, for the reasons given, and because the sections in southeast France provide ammonites of the Tethyan realm only and are not satisfactory for inter-facies correlation, attention should be turned to sections in other regions, notably in Eastern Europe and Siberia, as follows:
   a) *Central Poland and East Germany.* Mingling of Tethyan and Boreal ammonites; Boreal ammonites intercalated with non-marine faunas. No appropriate continuous succession; subsurface.
   b) *Russian Platform.* Abundant, well-preserved ammonites with some Tethyan immigrants. Sequence greatly condensed; regional disconformity below base of *rjasanensis* Zone.
   c) *Crimea-Northern Caucasus-Mangyshlak Peninsula.* Mingling of Tethyan and Boreal ammonites; calpionellids; thick depositional succession. Ammonite occurrences and structural complications (if any) not yet fully documented; non-marine correlation potential unknown.
   d) *North and West Siberia.* Thick depositional succession with well documented ammonite sequence; some ammonites of Tethyan affinities; buchias; some non-marine correlation possibilities. Firm links with Tethyan not yet established; sections difficult of access.

Conclusion

The southern USSR successions, although not yet known in detail, appear to offer the best opportunities for selection of a limitotype for the Jurassic-Cretaceous boundary in accordance with Recommendations 4–7.

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