

THE EARLY APTIAN AMMONITE BIOZONATION IN MEDITERRANEAN PROVINCE

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The Lower Cretaceous biozonation of the Tethys has been discussed during recent years. A biozonation has been introduced based on Deshayesitidae for the Upper Barremian-Lower Aptian (e.g. Bogdanova & Tovbina, 1994); a scheme accepted by the Lower Cretaceous Cephalopod Team as a standard for the Mediterranean area (Hoedemaeker *et al.*, 1993). Genera of the family are recorded throughout the Tethyan Realm and extend into the Boreal Realm. Three genera of the family, *Turkmeniceras*, *Deshayesites* and *Dufrenoyia*, are well distributed in the Mediterranean region of Tethys and provide good indices for biozonation. *Turkmeniceras* provides a good index of late Barremian age; *Deshayesites* and *Dufrenoyia* are used for the Lower Aptian biozonation.

The ammonite faunas of the Early Aptian of Aralar Mountain in north Spain have been studied recently (publication submitted, García-Mondéjar *et al.*, 2008). The reported genera and species permit a correlation of the successions in the Mediterranean Tethyan Belt. They demonstrate that the ammonite succession in the Kopet Dagħ (Turkmenistan and north east Iran) at the opposite ends of the northern Mediterranean Tethyan belt (firmly established (Raisossadat, 2002), is uniform.

A *Deshayesites turkyricus* Zone had been proposed for the earliest Early Aptian. However, Raisossadat (2002) showed that *Deshayesites oganlensis* was more

characteristic of this time interval and this revision was accepted by 1st International Workshop of the IUGS Lower Cretaceous Ammonite Working Group (Hoedemaeker *et al.*, 2003). This species could be traced throughout the Mediterranean basin. The assemblage of this Zone is closely comparable in the north Tethyan province successions in Spain, France and the Kopet Dagħ (Turkmenistan and north east of Iran). The English *fissicostatus* Zone (Casey, 1961) can be correlated with the *Deshayesites oganlensis* Zone.

The succeeding Early Aptian ammonite zone is the *Deshayesites weissi* Zone. The *weissi* Zone is established from the stratigraphical range of two species, *Deshayesites weissi* and *Deshayesites planus*. While *D. weissi* is known only from North Germany, Romania, the Greater Balkans, Taurkyr and Kubadag (Kopet Dagħ), the latter species is more widespread. It is believed that the *weissi* Zone in Transcaspia can be correlated with the *forbesi* Zone (Casey, 1961) in England and the *weissi* Zone (Kemper, 1976) in Germany.

The *weissi* Zone is succeeded by that of *Deshayesites deshayesi*, a common species of *Deshayesites* distributed throughout most of the areas from which the genus is recorded. It is thus used widely as the index fossil of the penultimate Early Aptian zone. There is now general agreement that the *Deshayesites deshayesi* Zone of Casey (1961) corresponds to the *deshayesi* Zone of other European authors.

Dufrenoyia is a widely distributed genus and *D. furcata* is the index fossil for the latest Early Aptian in the Mediterranean region. Casey (1961) proposed for this interval an index fossil, *Tropaeum bowerbanki*, which is associated with species of *Dufrenoyia* in southern England. *Tropaeum* is a heteromorph ammonite and is facies restricted and thus unsuitable as a widely recognisable index fossil. The distribution of Deshayesitidae family genera and their species in Mediterranean region will be discussed in this paper.

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

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

Jahr/Year: 2008

Band/Volume: [74](#)

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