

# The Arreux Limestone – the initial deposit of the Transgression of the Lower Lias in the Area of Sedan and Charleville-Mézières

At the southern margin of the Ardenne in the area of Sedan and Charleville-Mézières the deposits of the Lower Lias transgression overly the Palaeozoic basement with unconformity. The marine sedimentation started with thin (max. thickness about 2 m) bioclastic and siliciclastic limestones, which have been accumulated in a shallow and high energetic coastal environment. They are described as "Arreux Limestone (Calcaire d'Arreux)" (Bock, 1989). Sedimentological and ecological investigations about the Arreux Limestone have been carried out on four sections: Fme de Parençart and Givonne in the East of Sedan and Arreux and Laval Morency in the West of Charleville-Mézières (Bock, 1989).

The Arreux Limestone mainly consists of pack- and grainstones. The siliciclastic terrigenous components show a bimodal grain size distribution with very fine to fine sand and pebbles as well as rock fragments. The pebbles and rock fragments are more frequent in the lower part of the limestones and have been reworked directly from the transgression plane or from cliffs and crags. The fine sand was brought into the marine environment from the flat Gallo-Ardennian High. The detritic transparent heavy minerals consist of the ultrastable components Zircon, Tourmaline and Rutile and have been inherited from the Palaeozoic basement. The parautochthonous macrofaunal elements are composed of *Corals*, *Lamellibranchiata*,

*Crinoids* and *Gastropods* and indicate a shallow marine environment with continuous fresh water influx.

In the East of Charleville-Mézières the Arreux Limestone comprises the complete Lower and the lower part of the Middle Hettangian. At Arreux the deposition of the bioclastic limestones reaches till the Bucklandi-Zone of the Sinemurian s.s. whereas the basal layers are uncertain in age. At the westernmost section of Laval Morency only the lower part of the Arreux Limestone is proved by ammonites to be Lower Hettangian in age.

In the course of the Lower Lias transgression the sea, progressing from the South and the East to the North, spread further to the Gallo-Ardennian High. The North and the West of the present Ardenne rested land.

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Bock H. (1989) - Ein Modell zur Beckenauströmung und Fazieszonierung am Westrand der Eifeler Nord-Süd-Zone während der Trias und zur Transgression des Unteren Lias am Ardennensüdrand. – doctorate thesis RWTH Aachen, 417 p.