

## THE „AVINS EVENT”: A NOTEWORTHY WORLDWIDE SPREAD OF CORALS AT THE END OF THE TOURNAISIAN (LOWER CARBONIFEROUS)

Edouard POTY

Paléontologie animale et humaine, Département de géologie, Université de Liège, Bât. B18, Sart Tilman, B-4000 Liège, Belgium; [E.poty@ulg.ac.be](mailto:E.poty@ulg.ac.be)

On the shallow water shelf of the Namur-Dinant Basin (Belgium and north France), the end of the Tournaisian is marked by the development of crinoidal limestone (Flémalle Member) which are abruptly capped by oolitic limestones (Avins Member), and corresponds to the highstand system tract of the third-order sequence 4 of Hance et al. (2001). The Flémalle Member yields a coral fauna comprising *Sychnoelasma hawbankensis* and the last representatives of *Cyathoclisia*, typical for the Coral RC4□ Subzone. The Avins Member is characterized by the appearance, among others, of the genera *Palaeosmilia*, *Merlewoodia*, and *Amygdalophyllum*, which mark the base of the RC4□ Subzone, and by the last occurrence of *Keyserlingophyllum*. The Avins Member is also marked by the appearance of foraminifera such as *Biseriella bristolensis*, *Loeblichia fragilis*, *Lugtonia monilis* and primitive *Eoparastafella* (*E. rotunda*), while the brachiopod *Levitusia humerosa* is common.

It is noteworthy that the Avins level can be traced throughout Eurasia and as far as Australia on the basis of the biostratigraphy (corals, foraminifera) and the sequence stratigraphy. More, its lithology is relatively constant and usually characterized by grainstones, often oolitic, contrasting sharply with the underlying rocks, usually devoid of ooids, and marking the sharp dramatic change between the „Tournaisian” and the „Viséan” depositional patterns. Among other records, in Europe, it can be correlated with the Gully Oolite of Southern England and with the top of the Mazurowe Doly Formation of southern Poland (Krakow area). In Guangxi (southern China), it corresponds to the lower part of the Penchong Member of the Liuzhou Formation, and in Japan, it corresponds to the base of the Akiyoshi Limestone Group, in which species of *Amygdalophyllum* and *Merlewoodia* are common (attributed to various genera: *Eostroton*, *Rylstonia*, *Akiyoshiphyllum*, *Amygdalophyllum*, «*Menophyllum*», *Carcinophyllum*, etc.). In Australia, it can be correlated with the Rangari oolitic Limestone of New South Wales, which yields also the oldest *Amygdalophyllum* and *Merlewoodia*, and *Endothyranopsis* sp., a foraminifera not known lower than the top of the *anchoralis* Conodont Zone.

Such a very widespread coral assemblage is unusual for the Dinantian, during which most coral faunas are endemic, and shows that good connections between distant areas existed at the end of the Tournaisian, suggesting a very high sea level. This high stand is followed by a strong drop of the sea level which continues during the lowest Viséan and is responsible for the gap of the sequence 5 on the shallow platforms (Hance et al., 2001). During this interval, the coral fauna became isolated in different basins and gave rise by separate evolutions from the same stock of corals to highly endemic coral assemblages characteristic of the Lower Viséan.

### References

- Hance, L., Poty, E. & Devuyst, F.-X., 2001. Stratigraphie séquentielle du Dinantien type (Belgique) et corrélation avec le Nord de la France (Boulonnais, Avesnois). Bulletin de la Société Géologique de France, 172, 4: 411-426.