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ABSTRACT BOOK

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Late Ordovician echinoderms from the Brabant Massif (Belgium): Taxonomic revision, palaeoecology and palaeobiogeographic implications

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In the Ordovician, the Brabant Massif (Belgium) was situated in the eastern part of the Avalonia microcontinent, which then also comprised eastern Newfoundland, southern Ireland, Wales, England, the Netherlands, southern Denmark and northwestern Germany. With the exception of the British Isles, which yielded a more or less continuous fossil record of the diversification of echinoderms from Cambrian Series 2 (Stage 3) to the Late Ordovician (Hirnantian), data are scarcer in most other Avalonian regions.

First documented by Malaise (1873) and thoroughly investigated by Regnéll (1951), the echinoderm faunas from the Huet Formation (middle Katian, Upper Ordovician) represent the earliest record of the phylum not only in the Brabant Massif, but also in modern Belgium. Their recent taxonomic revision has largely confirmed the validity of Regnéll's (1951) identifications, and has also made it possible to assign to *Haplosphaeronis proiciens* most of the diploporitan taxa left in open nomenclature (sphaeronitid gen. and sp. indet. 3, 4 and 5). Interestingly, two distinct coeval echinoderm assemblages could be evidenced within the Huet Formation. The first one is dominated by sphaeronitids (*H. proiciens*), associated to rhombiferans (*Echinosphaerites belgicus*) and rare cyclocystoids (Fauquez area), whereas the second one is dominated by rhombiferans (*E. belgicus* and *Heliocrinites malaisei*), associated to sphaeronitids indet. and rare specimens of *H. proiciens* (Gembloux area). Future investigations will determine whether the same pattern, which documents the existence of different environmental conditions in the two areas, can be also evidenced for other groups of benthic invertebrates (e.g. brachiopods, trilobites). In the Gembloux area, a relatively diverse younger echinoderm fauna comprising *Heliocrinites* and sphaeronitids was documented for the first time and may originate from the Madot Formation (upper Katian, Upper Ordovician).

From a palaeobiogeographic point of view, the blastozoans of the Huet Formation (diploporitans and rhombiferans) indicate relatively strong affinities with Late Ordovician assemblages from other Avalonian areas and Baltica, but also with late Katian faunas from the higher latitude Mediterranean Province (Boda Event). On the other hand, the cyclocystoids rather suggest affinities with Laurentia (Scotland).

References

- Malaise, C. 1873. Description du terrain silurien du centre de la Belgique. *Mémoires couronnés et mémoires des savants étrangers publiés par l'Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique*, **37**, 1–122.
- Regnéll, G. 1951. Revision of the Caradocian-Ashgillian cystoid fauna of Belgium with notes on isolated pelmatozoan stem fragments. *Mémoires de l'Institut royal des Sciences naturelles de Belgique*, **120**, 1–47.