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New occurrence of the Ordovician eocrinoid *Cardiocystites*: Palaeogeographical and palaeoecological implications

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Flattened eocrinoids are very rare in the fossil record, notably because of their fragility. Recent investigations in the Anti–Atlas (Morocco) have provided one of the oldest known specimens of *Cardiocystites* from the Upper Ordovician (early–middle Sandbian). This discovery increases the number of eocrinoid genera known in Morocco. This new material is the fifth published specimen of the genus Cardiocystites. It is well preserved, thus allowing morphological details, such as the location of the anal pyramid and the plane of thecal flattening, to be observed. Palaeoecological reconstruction can be deduced or confirmed from these new details. The respiration of *Cardiocystites* now seems due to the combination of both epidermal gaseous exchange and cloacal pumping. Stem length and synostosial articulation indicate that the stem might have been used as a mooring line allowing the theca to float in the currents. The flattening of the *Cardiocystites* theca seems to be an adaptation to high energy hydrodynamic conditions and cold waters. Occurrences of *Cardiocystites bohemicus* in Morocco, in the early–middle Sandbian, and in Bohemia, in the early Katian, indicate that the genus probably originated in the west Gondwanan margin. Migration could explain the occurrence of *Cardiocystites* in this area and also in Avalonia in the late Sandbian. The global sea–level rise and the presence of cool water circulation from west Gondwana to Avalonia and Laurentia in the early Sandbian favour such a hypothesis.

Key words: Blastozoa, Eocrinoidea, taxonomy, palaeoecology, palaeobiogeography, Ordovician, Gondwana, Morocco

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