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THE CABRIÈRES BIOTA (EARLY ORDOVICIAN, FRANCE): WHERE ARE THE ECHINODERMS?

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The biodiversification of metazoans was first documented as two separate events known as the Cambrian Explosion and the Great Ordovician Biodiversification Event. Since the discovery of the Fezouata Shale Biota (Lower Ordovician, Morocco), new data in the form of exceptionally well-preserved fossils have helped to fill the gap between these two events, merging them into one massive diversification event covering the early Palaeozoic (Lefebvre et al., 2016a). In recent years, other Lagerstätten have been uncovered in the Early Ordovician (e.g., Liexi Biota, China; Fang et al., 2022). Here, we report the first case of an Early Ordovician Lagerstätte in the lowermost part of the Landeyran Formation (upper Floian) of the Montagne Noire (southern France): the Cabrières Biota (Saleh et al., 2024).

The Cabrières Biota, a high-latitude, sub-polar marine assemblage (algae, arthropods, brachiopods, cnidarians, molluscs, sponges, worms) shares similarities with the Fezouata Biota, but also exhibits some differences. One notable distinction is the scarcity of echinoderms (few eocrinoids and stylophorans) in the Cabrières Biota compared to their abundance in the Fezouata Biota. In the Montagne Noire, the logging and detailed sedimentological analysis of the Floian succession demonstrate that echinoderms are abundant in the shallower, storm-dominated deposits of the underlying Foulon Formation (eocrinoid meadows) and in the overlying levels of the Landeyran Formation, corresponding to more distal, quiet, offshore deposits (high-diversity, stylophoran-dominated communities). This pattern of a low-diversity echinoderm zone at intermediate depths has also been observed in the Fezouata Shale (Lefebvre et al., 2016b) and the Bulth Inlier Lagerstätte (Late Upper Ordovician, Wales; Botting et al., 2013).

References

- Botting, J.P., Muir, L.A., & Lefebvre, B. 2013. Echinoderm diversity and environmental distribution in the Ordovician of the Bulth Inlier, Wales. *Palaios* 28, 293–304.
- Fang, X., Mao, Y.Y., Liu, Q., Yuan, W.W., Chen, Z.Y., Wu, R.C., Li, L.X., Zhang, Y.C., Ma, J.Y., Wang, W.H., Zhan, R.B., Peng, S.C., Zhang, Y.D. & Huang, D.Y. 2022. The Liexi fauna: a new Lagerstätte from the Lower Ordovician of South China. *Proceedings of the Royal Society B* 289, 20221027.
- Lefebvre, B., Lerosey-Aubril, R., Servais, T. & Van Roy, P. 2016a. The Fezouata Biota: an exceptional window on the Cambro-Ordovician faunal transition. *Palaeogeography, Palaeoclimatology, Palaeoecology* 460, 1–6.
- Lefebvre, B., Allaire, N., Guensburg, T. E., Hunter, A. W., Kouraïss, K., Martin, E. L., Nardin, E., Noailles, F., Pittet, B., Sumrall, C. D., & Zamora, S. 2016b. Palaeoecological aspects of the diversification of echinoderms in the Lower Ordovician of central Anti-Atlas, Morocco. *Palaeogeography, Palaeoclimatology, Palaeoecology* 460, 97–121.
- Saleh, F., Lustri, L., Gueriau, P., Potin, G.J.M., Pérez-Peris, F., Laibl, L., Jamart, V., Vite, A., Antcliff, J.B., Daley, A.C., Nohejlová, M., Dupichaud, C., Schöder, S., Bérard, E., Lynch, S., Drage, H.B., Vaucher, R., Vidal, M., Monceret, E., Monceret, S., & Lefebvre, B. 2024. The Cabrières Biota (France) provides insights into Ordovician polar ecosystems. *Nature Ecology & Evolution* 8, 651–662.