
A new Konservat-Lagerstätte with putative early chordate from the Lower Devonian of Belgium

Aude Cincotta*^{†1}, Bernard Mottequin*¹, Pierre Gueriau², and Sébastien Olive¹

¹D.O. Terre et Histoire de la Vie, Institut royal des Sciences naturelles de Belgique – Belgium

²Institut des Sciences de la Terre – Université de Lausanne, Switzerland

Abstract

The Lower Devonian siliciclastic succession of the southernmost part of Belgium, the Neufchâteau Synclinorium, recently yielded hundreds of enigmatic organisms during field campaigns in 2021 and 2022. The fossils were collected in slates of Pragian age and include various invertebrate taxa, mainly cephalopods and arthropods, and many unidentified specimens. Field campaigns followed the rediscovery of one fossil formerly identified as a cephalochordate, during a visit of local museum collections in 2020. The putative early chordate is preserved as calcite, quartz and pyrite mineralizations. A medial elongate structure is considered as a probable notochord. Most specimens collected from the locality are extensively pyritized with millimetre-sized pyrite crystals obscuring details of the anatomy. Other mineral phases, similar to those observed in the chordate, were identified. Most of the analysed specimens also contain organic matter. X-ray radiographies and CT scans showed that the fossils are highly compressed. The high degree of disarticulation of the fossils and the scarcity of large specimens indicate that they were probably deposited by turbidity currents, similar to those recorded in the Lower Devonian Hunsrück slate deposits of Germany. The Belgian locality constitutes a new Early Devonian *Konservat-Lagerstätte*, with the preservation of both bio- and non-biomineralized organisms. Future identification of problematic taxa should shed more light on the biodiversity of that new fossil locality.

Keywords: Devonian, Pragian, Konservat, Lagerstätte

*Speaker

[†]Corresponding author: acincotta@naturalsciences.be