

Ecological significance of the arthropod fauna from the Jurassic (Callovian) La Voulte Lagerstätte

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The La Voulte Lagerstätte is remarkable for its unique soft-bodied fauna (e.g., worms, coleoid squids) and its exceptionally preserved arthropods mainly found in small sideritic concretions. This arthropod fauna includes 30 different species assigned to the crustaceans, the thylacocephalans and the pycnogonids. Crustaceans are the most diversified group with 23 species distributed in a dozen families. Quantitative analyses based on 388 nodules reveals four dominant groups: (i) the enigmatic thylacocephalan arthropods (33%), (ii) the Solenoceridae shrimps (22%), (iii) the Coleiidae crustaceans (15%), and (iv) the Penaeidae shrimps (10%). Converging lines of evidence from depositional environment and modern analogues, indicate that this arthropod fauna probably inhabited a deep water setting most probably exceeding 200 m (= bathyal zone) under dysphotic or aphotic conditions. This new set of data sheds new light on the deep-sea colonisation by animal communities in the Mesozoic.

Key words: Arthropoda, Crustacea, Thylacocephala, Lagerstätte, Jurassic, Callovian, La Voulte, France.

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