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Are there pelagic ostracods in Silurian Seas?

PERRIER, V.¹, VANNIER, J.¹ & SIVETER, D.J.²

(1) Université Claude-Bernard Lyon 1, UFR Sciences de la Terre, UMR 5125 PEPS, Bâtiment Géode, 2 rue Raphaël Dubois, 69622 Villeurbanne, France; vincent.perrier@univ-lyon1.fr

(2) University of Leicester, Department of Geology, Bennett Building, University Road, Leicester LE1 7RH, UK; djs@le.ac.uk

The Silurian myodocopes (bolbozoids, cypridinids and entomozoids) are atypical and poorly documented ostracods, usually much larger (up to 2 cm long) than the average Lower Palaeozoic ostracods. They are present in many European localities during the Late Silurian and show a great numerical abundance and a relatively high diversity. We present here a revision of the different groups and the description of eight new species. The main diagnostic features of Silurian myodocopes are the outline of their carapace, the shape of their rostrum, the shape and the location of the muscle scar and the external ornament of the valves.

Some species such as *Parabolbozoe bohémica* or *Richteria migrans* (PERRIER *et al.* 2007) have a wide palaeogeographic distribution (transoceanic distribution). This widespread distribution added to the facies where they were deposited (black shales), their recurrent pelagic faunal associates, and several morphological features of functional significance (rostrum and caudal process) led us to envisage a pelagic lifestyle for these faunas, an assumption formulated in the 1980's (e.g., SIVETER 1984, SIVETER *et al.* 1991, VANNIER & ABE 1992) which we are testing here.

We describe nodules containing swarms of ostracodes with remains of cephalopods, eurypterids or phyllocarids. These peculiar associations, probably preserved *in situ* question the autecological niches occupied by myodocopes. The scavenging behaviour of myodocopes possibly feeding on carrions of larger animals deposited on the sea floor could explain this type of assemblages. If this assumption is correct then, it should be envisaged that these ostracods did not live permanently in the water column and were not pelagic organism *sensu stricto* as it is classically believed.

The abundant 3D-preserved material shows that the anterodorsal bulb of bolbozoids was an unornamented and virtually hemispherical structure. The bulb seems to have housed the lateral eyes as well as a part of the swimming antenna (i.e. A2 protopod). An unornamented area is present in cypridinids and *R. migrans*, these groups probably also possessed a lateral eye. The rostral complex (e.g. rostrum, rostral incisure) of bolbozoids and cypridinids is identical to that of recent swimming myodocopes. The strengthening of the rostrum and the rounded shape of the notch led us to think that the Silurian myodocopes were swimmers using their second antennae (A2) in the same way as their Recent representatives. In conclusion, our data provide precise details on the possible lifestyle of Silurian myodocopes, interpreted here as swimmers (powerful antennae), living above the dysoxic bottom (hyperbenthic niches), having scavenging habits (assemblages in nodules) and possibly visually adapted to dim-light environments (eye hypertrophy, bioluminescence). Environmental changes (oxygenation) probably played a key role in the Myodocopes ecological shift of during the Silurian.

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