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Preservation of internal pleurites in a new palaeocorystid crab (Crustacea, Brachyura, Raninoidia) from the Cenomanian (Upper Cretaceous) of Poitou-Charentes, France

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Abstract

A new palaeocorystid crab, *Joeranina houssineaui* n. sp., is described from upper Cenomanian strata in southwest France. Being apparently derived from *J. broderipii*, the new species inhabited a sandier substrate environment than its predecessor. The incomplete holotype reveals portions of the internal pleurites, which are rarely seen in extinct crabs.

Key words: Podotremata, *Joeranina*, new species, internal pleurites

Introduction

Palaeocorystoid crabs are common in Albian and Cenomanian (mid-Cretaceous) sedimentary rocks worldwide, and in Europe in particular. Their phylogenetic relationships have recently been revised by Van Bakel *et al.* (2012), who concluded that the family Palaeocorystidae Lörenthey *in* Lörenthey & Beurlen, 1929 was the most specialised family that was characterized by a back-burrowing mode of life. A major step in developing a shape advantageous to such a mode of life involved a series of coherent adaptations: narrowing of the body, minimizing the posterior thoracic sternal surface, developing arthrodial cavities in a more axial position, and exposing the pleurites. The pleurites are still internal in palaeocorystids, and until now, they were not known from the fossil record. A new member of the genus *Joeranina* Van Bakel, Guinot, Artal, Fraaije & Jagt, 2012 is described herein based upon four specimens, one of which partially reveals the internal pleurites. The genus has a wide stratigraphical and geographical distribution, with representatives known from Greenland, England, France, Spain, Switzerland, Syria, USA, Canada, Colombia, Japan and Madagascar.

Material, locality and stratigraphy

The present lot comprises four near-complete carapaces with well-preserved cuticle. One of these retains portions of the ventral surface and of the axial skeleton.

The quarry which yielded these specimens, the ‘Carrière du Mas’, is situated 3 km northeast of Rouillet-Saint-Estèphe, Poitou-Charentes, southwest France (co-ordinates 45.607688°N/0.061712°E). The quarry floor currently exposes middle Cenomanian marls, overlain by beds of hard limestone which form the basis of the upper Cenomanian (unit C4; see Vullo *et al.* 2007: fig. 1). Above follows approximately 4.5 m of grey-bluish mudstones referred to as *argiles tégulines* (unit Dm), which are slightly silty to sandy at the base and rich in oysters such as *Rhynchostreon suborbiculatum* (Lamarck, 1801) and *Ceratostreon flabellatum* (Goldfuss, 1833). The crabs described herein originate from the uppermost part of this unit, the level yielding them being 3–4 cm thick and approximately 20 cm below the top of the section. Relicts of a coarse, yellow, calcareous-quartzitic sand, replete with fossils such as shark teeth, other fish remains, oysters such as *Pycnodonte bicariculatum* (Lamarck, 1819) and lingulid brachiopods, are located above. This sandy unit is covered by limestones (3.5 m in thickness) which yield rare echinoids. Vullo *et al.* (2007: fig. 1) gave details of these stratigraphic units.