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A note on an early Jurassic ophiuroid from Rachecourt (Lorraine, Belgium)

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Abstract

A fairly well-preserved ophiuroid, collected from micaceous sandy argillites of the Messancy Formation (Domerian, late Pliensbachian) as exposed at Rachecourt (Gaume, Belgian Lorraine) is described and tentatively identified as *Sinosura wolburgi* (Hess, 1960). The rarity of complete ophiuroid fossils in Belgian Jurassic deposits and the poor fossil content of the Messancy Formation (bioclastic beds, crinoid columnals) warrant description of the present specimen.

Key-words: Ophiuroid, Domerian, Belgium.

Résumé

Un spécimen assez bien conservé d'ophiuroïde, découvert dans les argilites feuilletées sablo-micacées de la Formation de Messancy (Domérien, Pliensbachien supérieur), à Rachecourt (Gaume, Lorraine belge), est décrit et identifié comme *Sinosura wolburgi* (Hess, 1960). Les ophiures fossiles complètes sont rares dans le Jurassique belge. A part quelques lumachelles et articles de crinoïdes, de rares ammonites et bivalves, la Formation de Messancy est peu fossilifère.

Mots-clefs: Ophiuroïde, Domérien, Belgique.

Geographic and stratigraphic setting

The specimen was collected by Vivian DEVAUX, in the Rue Basse, N° 102 at Rachecourt (Aubange) (Fig. 1), from the "Macigno, Schistes et Psammites de Messancy, à *Amaltheus margaritatus*", the Vr c of the Belgian Geological Map.

The ophiuroid is preserved as an internal mould in a micaceous, limonitic argillite, typical of the local lower Domerian *margaritatus* Zone.

Previous records of ophiuroids from Belgium and Luxemburg (Lorraine)

MAUBEUGE (1955, section 184) reported a 4 cm long ophiuroid arm from an outcrop in the lower "Argiles à Amalthées" (Pliensbachian, transition between the "Schistes d'Ethe" and the "Schistes et Psammites de Messancy"), in a rail cutting near Latour, associated with columnals of isocrinid crinoids, cidarid spines, "*Aequipecten*" *aequivalvis,* and juvenile ammonites of the genera *Liparoceras* and *Lytoceras* . MAUBEUGE (1973) illustrated and described as *Ophiurites* sp. a specimen closely resembling the Rachecourt find, with a pentagonal disc of 11 mm diameter, and a greatest preserved arm length of 25 mm, from the Grès de Luxembourg (Hettangian) of Côte d'Eich, in the city of Luxemburg. The Natural History Museum of Luxemburg keeps a number of recently collected well-preserved ophiuroids from the ? Domerian of Dahlem (undescribed specimens). KUTSCHER & HARY (1991) recorded the genus *Sinosura* from the early Sinemurian of southeastern Luxemburg.

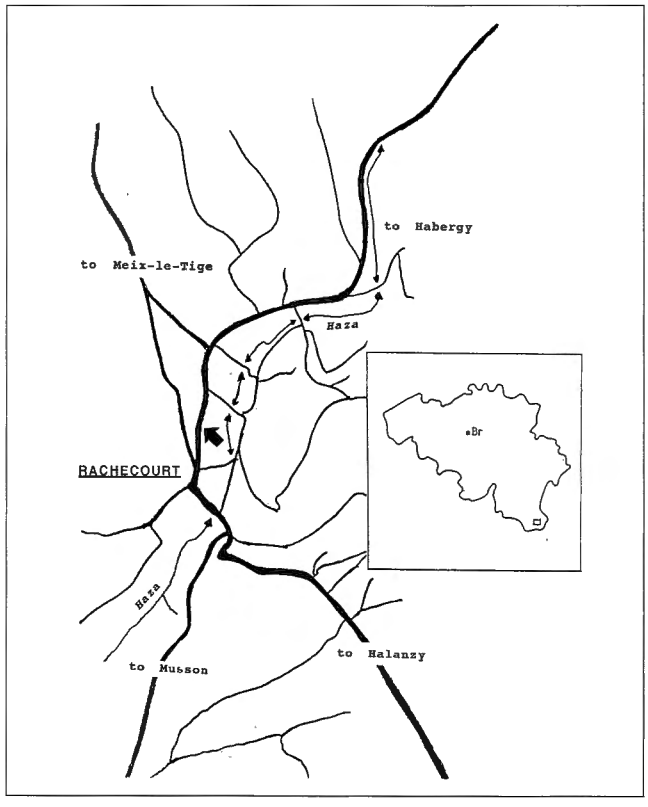

Fig. 1 — Location map showing the locality (arrow). Scale: 1/42.000

Description

Class Ophiuroidea
?Family Ophioleucidae MATSUMOTO, 1915
Genus: *Sinosura* HESS, 1964, p. 779

Type species: *Acroura brodiei* Wright, 1866, by original diagnosis.

Sinosura wolburgi (HESS, 1960)?
Plate 1

1960b *Ophiopinna*? *wolburgi* HESS, p. 411, figs. 29-33.
1963 *Ophiopinna*? *wolburgi* HESS-HESS, p. 1148, figs. 8-10.
1964 *Sinosura wolburgi* (HESS)-HESS, p. 779.
1965a *Sinosura wolburgi* HESS-HESS, p. 1061, figs. 1-3.
1966 *Sinosura wolburgi* HESS-HESS, p. 1036, figs. 17-19, 26.
1975c *Sinosura wolburgi* HESS-HESS, p. 44, figs. 17, 18, pl. 5, fig. 9 ; pl. 6, figs. 1-4, 8 ; pl. 10, figs. 11,12.
1987 *Sinosura wolburgi* (HESS, 1960) - KUTSCHER, p. 58, pl. 5, figs. 1,2.

The disc IRScNB. N° MTC 10661 is low and more or less flat, near-circular with slightly concave interradial margins, with a diameter of *c.* 5-5,5 mm. Above the arm bases (i.e. over the radial plates) the disc is slightly swollen, but this may in part be taphonomically induced, as is the depression of the central area of the disc. The dorsal surface of the disc is granulate (with the granulation extending to the proximalmost parts of the arms), but plating is obscured. Assuming the radial shields to represent the above-mentioned disc swelling, these abutting plates are apparently small, comprising slightly more than one third of disc diameter. The ventral surface of the disc is poorly preserved, a rusty cover obscuring details of plating and mouth frame. The interradial area apparently comprises but a single, granulate plate whose wider distal margin corresponds to the disc margin, and whose proximal margin abuts the comparatively slender oral shield, which is longer than wide, widest at midlength, and with a more or less pointed proximal margin. The outlines of two slender, bar-like adoral shields can be made out, but their proximal margins are poorly preserved; it appears that they do not touch. Such is the state of preservation that it is impossible to describe the mouth slit, apical and oral papillae and genital slit.

All of the arms are more or less complete, one of them comprising at least 30 joints over a length of 18 mm. Arms are widest at the disc margin (*c.* 1,5 mm), and taper comparatively gradually. Partly on account of poor preservation, but also due to the thinness of the lateral arm plates, dorsal arm plates cannot be recognised with certainty, but in the proximal portion of one arm there are seen small, more or less rounded-triangular to pyriform plates where the lateral arm plates meet over the arm, but exact boundaries between these arm plates cannot be determined. Lateral arm plates, which have been angular ventrally, show a distinct striation and meet over the arm dorsally, with 7 to 10 short, appressed, pointed spines, the length of which increases gradually ventrally, and the largest of which may equal nearly half the arm plate length. Dorsally, the distal margin of the lateral arm plates curves back towards the disc. Ventral arm plates apparently have straight or slightly concave distal margins, with large tentacle pores, the size of which is mainly determined by the large ventral indentation of the lateral arm plates. The number of tentacle scales cannot be determined exactly because of poor preservation, but seems to have been one or two. Tentacle pores extend over the entire arm length.

Discussion

Amongst NW European fossil ophiuroids those of Jurassic age are the best known, having been the subject of detailed studies by HESS (1960a-c, 1962a,b, 1963, 1964, 1965a,b, 1966, 1970, 1975a-c, 1985, 1991), ENAY & HESS (1962, 1970), and a number of other authors (GUILLAUME, 1926 ; KUTSCHER, 1987, 1992; KUTSCHER & HARY, 1991; ROMAN *et al.*, 1993).

Although diagnostic features of the Rachecourt specimen are comparatively poorly preserved, the suite of preserved characters suggest the specimen to belong either to *Sinosura wolburgi* (HESS, 1960) or "*Geocoma*" *elegans* HELLER, 1858, type species of the genus *Ophiopinna* HESS, 1960a, of early Callovian age. These species differ primarily in their vertebral structure, while the latter species has feather-like spines in the middle arm portion. None of these features is preserved in the Rachecourt specimen, but it does have the following characters in common with the above-mentioned species:

— large tentacle pores ;
— striation of (at least) lateral arm plates ;
— distal margin of lateral arm plates curving back proximally ;
— many spines on lateral arm plates ;
— ? angular lateral arm plates (ventrally).

A comparison with the material recorded by HESS (1966, p. 1036, figs. 17-19, 26), and especially the proximal arm fragment with parts of the disc preserved (his fig. 19), from the early Late Oxfordian of Switzerland, shows that the character of disc granulation, size of tentacle pores, and number of spine attachment scars on and striation of the lateral arm plates correspond fairly well with that of the Rachecourt specimen.

Of note in this respect is the fact that KUTSCHER & HARY (1991) recorded from the early Liassic *bucklandi* and *semicostatum* Zones (early Sinemurian) of southeastern Luxemburg amongst other ophiuroid species, *Sinosura brodiei* n.ssp.? and *S.* cf. *wolburgi*, remarking that, should the latter ossicles really prove to belong to *S.wolburgi*, the stratigraphic range of that species would be extended from the Sinemurian to the middle Oxfordian. The present record from the Pliensbachian of Rachecourt falls within this range, and the specimen is here referred to that species with a query.

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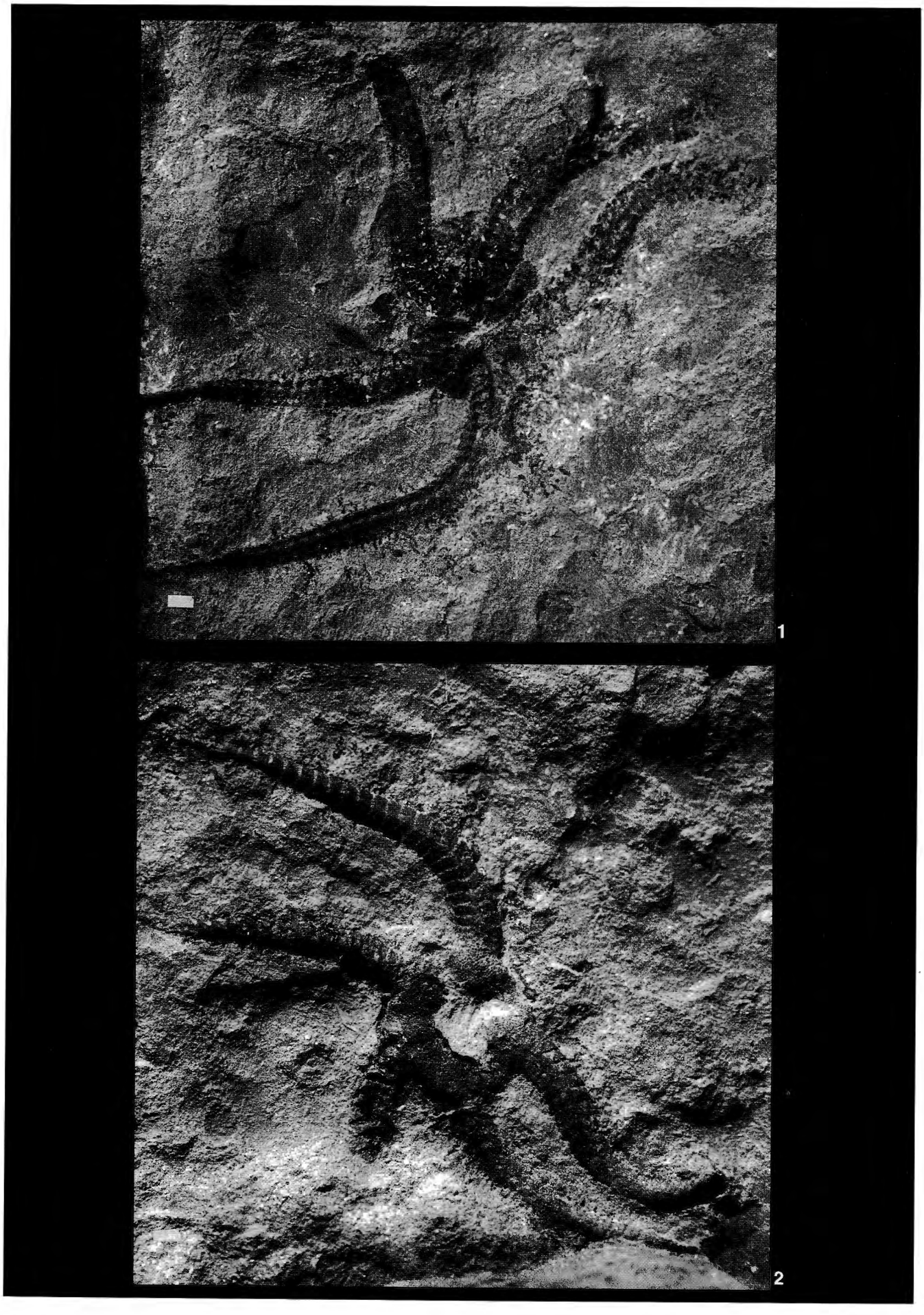
PLATE 1

Sinosura wolburgi (HESS, 1960) ?, from the lower Domerian of Rachecourt.

Fig. 1 — ventral face - face orale (barre-échelle / scale-bar: 1,2 mm)
Fig. 2 — dorsal face - face aborale (barre-échelle / scale-bar: 1,7 mm)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