

## A late Maastrichtian “out-of-the-ordinary” ophiuroid from The Netherlands

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### Abstract

A tetramerous specimen of a new late Maastrichtian ophiuroid species from the Meerssen Member (Maastricht Formation) as exposed at the ENCI NV quarry, south of Maastricht, is described and briefly discussed. Non-pentamerous specimens of this species which dominates ophiuroid assemblages known from this member at this locality, are extremely rare.

**Key-words:** Late Maastrichtian, ophiuroids, pathology.

### Résumé

Un exemplaire tétramérique d'une espèce nouvelle d'ophiure du Maastrichtien supérieur (Assise de Meerssen, Formation de Maastricht)

affleurant dans la carrière ENCI NV au sud de Maastricht, est décrite et brièvement discutée. Des exemplaires non-pentamériques de cette espèce, qui domine les assemblages d'ophiures dans cette assise à cet endroit, sont fort rares.

**Mots-clefs:** Maastrichtien supérieur, ophiurides, pathologie.

### Introduction

Recent field work at the Eerste Nederlandsche Cement Industrie (ENCI) NV quarry, south of Maastricht (The Netherlands), has yielded rich ophiuroid faunules from the upper part of the Meerssen Member (late Late Maastrichtian). Many well-preserved specimens of at least three species have been collected.

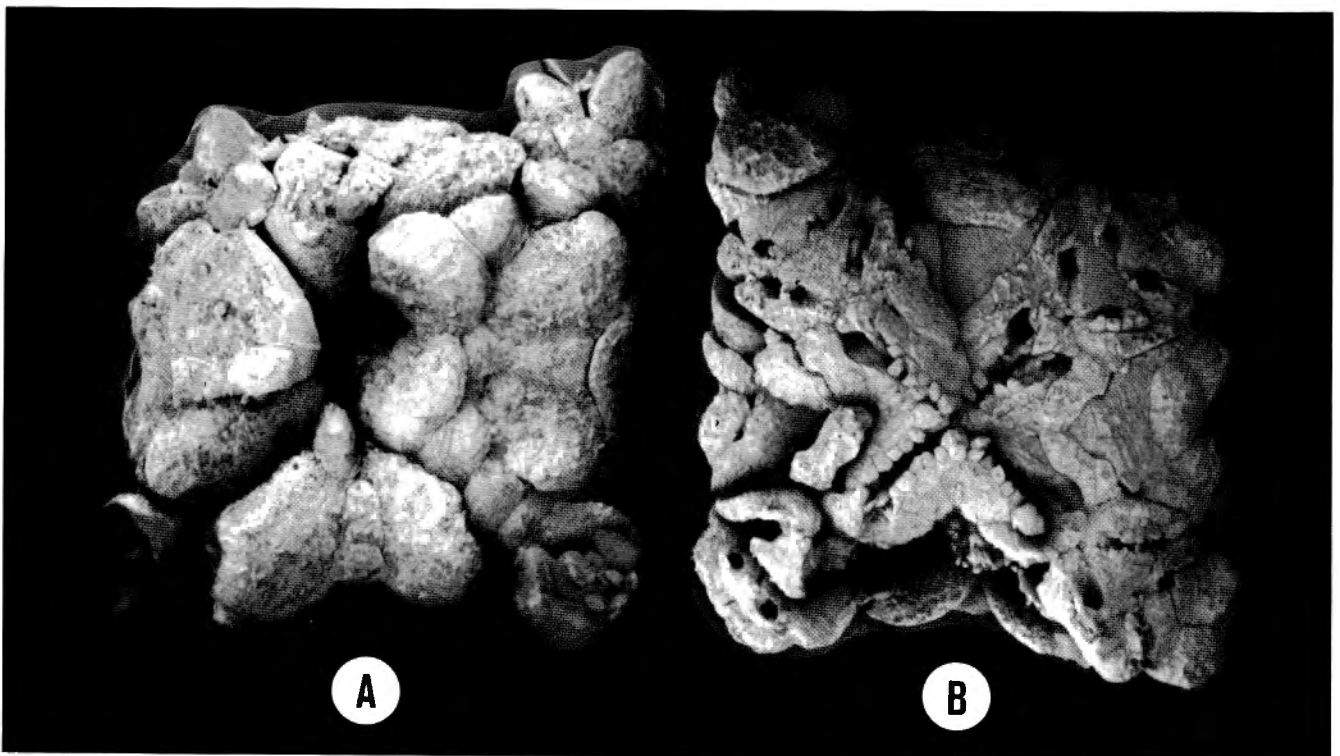


Fig. 1. — Ophiuridae (n. gen. ?) n. sp., late Late Maastrichtian, Meerssen Member (Maastricht Formation), ENCI NV quarry, Maastricht (The Netherlands), A - adoral aspect, B - oral aspect. Natuurhistorisch Museum Maastricht Collections, no. NHMM 1994675 (ex DECKERS Coll., no. 3239), x 12.5.

One of these, *Felderophiura vanderhami* JAGT, 1991, is comparatively rare, the dominant taxon being a superficially similar, undescribed species of ophiurid. Associated is an ?amphiurid species, which appears to be new as well. Taxonomical, palaeoecological and taphonomical aspects of these faunules will be published elsewhere (JAGT, in prep.). The fact that one of the ophiurid specimens before us is tetramerous and does not show any signs of predation warrants description.

## Description and discussion

The present specimen (Fig. 1) is part of an ophiuroid faunule of some 40 specimens, recently collected from the upper part of the Meerssen Member (Maastricht Formation, late Late Maastrichtian, *Belemnella casimirovensis* Taxon Range Zone; see JAGT, in press), as exposed at the ENCI NV quarry, south of Maastricht.

Plotting the disc diameter of twenty-five specimens in the DECKERS Collection on a graph revealed that there are two size classes, one with diameters ranging between 5 and 6.1 mm, the other between 7.2 and 8.6 mm (a juvenile specimen in this lot measures 3.4 mm). The present tetramerous specimen belongs to the first size class, being 6 mm across.

This new species of ophiurid is easily distinguished from *Felderophiura vanderhami*, on details of adoral and oral disc plating. Typical features include a prominent primary cirlet, well-developed but partially concealed radial shields, large interradial plates on disc margins, large adoral shields, single apical papillae, fairly many oral papillae, tentacle scales in proximal portions of arms and confinement of tentacle pores to proximal portions of arms.

Although the specimen before us (Fig. 1) lacks the centrodorsal plate, the primary cirlet and some interradial plates, it is clear that it is perfectly tetramerous, and does not show any sign of accidental damage and regeneration. It can thus be assigned to Type I as distinguished by BOMWER & MEYER (1987). These authors described tetramerous and hexamerous specimens of the non-fissiparous Recent amphiurid *Amphiura filiformis* (O.F.

MÜLLER, 1776) and the fossil ophiurid *Ophiomusium gagnebini* (THURMANN, 1851) (see also MEYER, 1984). In discussing the occurrence of non-pentamerous, non-fissiparous fossil and modern ophiuroids, BOMWER & MEYER (1987, p. 899) distinguished two principal types of deviation; Type I, comprising "genuine alterations in total body symmetry" and Type 2, comprising "partial changes due to accidental causes and influenced possibly by regeneration."

BOMWER & MEYER (1987, p. 904) pointed out that symmetry deviation is common in fissiparous species (see also LAWRENCE, 1987), that their Recent and fossil tetramerous ophiuroids did not show any sign of recent regeneration of the disc and that it was possible that their type I symmetry deviation resulted from genetic factors which affected the early stages of development.

The fact that the present specimen (Fig. 1) does not display any trace of predation (see ARONSON, 1987 for a discussion of ophiuroid predation), shows that it is pathological and assignable to the above Type I.

Records in the literature of fossil and Recent non-pentamerous ophiuroids appear to be rare; MUNAR (1984, fig. 8) illustrated from off Mallorca a specimen of the non-fissiparous ophiomyxid species *Ophiomyxa pentagona* (LAMARCK, 1816), while KOEHLER (1922, pl. 84, fig. 1) figured a Recent tetramerous specimen of the ophiurid *Stegophiura sladeni* (DUNCAN, 1879) from the Pacific. The only other Cretaceous specimen we know of is that of SPENCER (1907, p. 105, pl. 28, fig. 4, 4a), who illustrated a small, tetramerous specimen (Natural History Museum London Collections, no. E.5058) which he assigned with a query to his new species *Ophiotitanos laevis* from the Cenomanian Lower Chalk of Dover, and about which he remarked that it was "peculiar in having only four arms, probably an abnormality."

## Acknowledgements

We extend our best thanks to members of the "Vijlen Groep" for assistance during field work and, in particular, to Jef Reynders for preparing the photomicrographs, and to René Fraaye for an item of literature.

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*Bolletín de Societat d'història Natural de les Balears*, **28**: 59-66.

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Typescript received August 31, 1994

Corrected typescript received October 21, 1994

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