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The erymid lobster *Enoploclytia leachii* (MANTELL, 1822) from the Upper Campanian of northeast Belgium

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Abstract

To date, at least six species of lobster have been recorded from Upper Cretaceous (Campanian-Maastrichtian) strata in the extended type area of the Maastrichtian Stage (NE Belgium, SE Netherlands), but none of these species occurs in the Late Campanian Zeven Wegen Member (Gulpen Formation). In the present paper, a fragmentary moult of the erymid *Enoploclytia leachii* (MANTELL, 1822) from this unit, which preserves most of the cephalothorax and portions of chelae and walking appendages, is described and illustrated. The new specimen represents one of the youngest records of this long-ranging (latest Cenomanian-Late Campanian) species.

Key words: Astacidea, Erymidae, Campanian, Belgium.

Résumé

Comparés aux anomoures et brachyoures, les astacidés sont rares et assez mal connus dans le Crétacé supérieur (Campanien-Maastrichtien) de la région type de l'étage Maastrichtien et ses environs (NE de la Belgique, SE des Pays-Bas). Jusqu'à présent, six espèces de homards ont été signalées dans ces couches, mais aucune de ces espèces n'est présente dans le Membre des "Zeven Wegen" (Formation de Gulpen) du début du Campanien terminal, tel qu'il affleure dans la région d'Haccourt-Lixhe (Province de Liège, NE de la Belgique). Dans cette note est décrit et figuré un moule fragmentaire de l'érymidé *Enoploclytia leachii* (MANTELL, 1822) ayant conservé la majeure partie du céphalothorax ainsi que des portions de chelae et d'appendices de locomotion. Le nouveau spécimen fait partie des plus jeunes représentants de cette espèce à grande extension stratigraphique (Cénomanien terminal-Campanien terminal) et constitue un intéressant ajout à la faune d'astacidés de la région.

Mots-clefs: Astacidea, Erymidae, Campanien, Belgique.

Introduction

To date, over forty species of anomuran and brachyuran are known from Upper Cretaceous strata in southern Limburg (The Netherlands) and adjacent areas in Liège-Limburg (Belgium; see JAGT *et al.*, 2000), the commonest element being representatives of the thalassinidean family Callianassidae (SWEN *et al.*, 2001). In contrast, only six species of lobster are currently on record from the area. The early Early Campanian Vaals Formation in the Haccourt-Lixhe area has yielded the nephropids *Oncopareia coesfeldiensis* (SCHLÜTER, 1862) (p. 728, pl. 13, figs 3, 6) and *Paraclythia nephropiformis* (SCHLÜTER, 1879) (p. 591, pl. 16, fig. 2). From the late Early/early Late Maastrichtian Vijlen Member (Gulpen Formation) in the same area, fairly numerous specimens of *Oncopareia bredai* BOSQUET, 1854 (p. 118 [128], pl. 10, figs 5, 6'; *sensu* TSHUDY, 1993) are known (FELDMANN *et al.*, 1990). The same species is common in the so-called Kunrade Limestone facies (Maastricht Formation; Late Maastrichtian) in the Kunrade area (southern Limburg), along with other nephropids such as *Hoploparia beyrichi* SCHLÜTER, 1862 (p. 721, pl. 13, fig. 4), and *Jagtia kunradensis* TSHUDY & SORHANNUS, 2000 (p. 224, figs 1, 2). The sixth species, an indeterminate ?nephropid is based on an associated pair of chelae from the basal Gronsveld Member (Maastricht Formation), of early Late Maastrichtian age.

In the present paper a notable addition to the astacidean faunas of the area is described: a moderately preserved moult of the erymid *Enoploclytia leachii* from the lower Zeven Wegen Member (Gulpen Formation) at the Ciments Portland Liégeois (CPL) SA quarry, Haccourt. The material is housed in the collections of the Natuurhistorisch Museum Maastricht (abbreviation: NHMM; JJ - J.W.M. Jagt Collection).

Description

Order Decapoda LATREILLE, 1803
Suborder Pleocyemata BURKENROAD, 1963
Infraorder Astacidea LATREILLE, 1803
Family Erymidae VAN STRAELEN, 1924
Genus *Enoplocytia* M'COY, 1849

TYPE SPECIES *Astacus leachii* MANTELL, 1822, by monotypy.

Enoploclytia leachii (MANTELL, 1822)
(Pl. 1)

* 1822 *Astacus leachii* MANTELL, pp. 142, 221, pl. 29, figs 1, 4, 5; pl. 30, figs 1, 2; pl. 31, figs 1-4.

1966 *Enoploclytia leachi* (MANTELL), 1822 - FÖRSTER, p. 148, fig. 33; pl. 19, figs 3-5, 7, 8 (with additional synonymy).

MATERIAL

NHMM JJ 6632 (Pl. 1) is a fragmentary moult, consisting of an almost complete cephalothorax and portions of chelae and walking appendages. Although preservation is far from ideal, and additional preparation would only lead to loss of specific features, the material may be described as follows:

As preserved, the cephalothorax, including the fragmentary rostrum, is *c.* 55 mm long and *c.* 26 mm in height. Only part of the short, deep gastro-orbital groove is visible; the postcervical groove is deep and continues to the hepatic groove; only part of the short branchiocardiac groove is visible. The posterior hepatic region is slightly raised. Cephalothorax ornament consists of irregularly distributed thorns of varying size, on the gastric and cardiac regions, with the branchial region showing a more uniform and denser arrangement of smaller tubercles and granules, also of varying size. Only part of the strongly denticulate rostrum remains. The chelae are poorly preserved, but show a comparable ornament of closely spaced tubercles of varying size. Of walking appendages only small portions remain; the abdomen is missing.

Discussion

From what is visible of the cephalothorax (general outline, proportions, groove pattern as well as distinctive ornament), the present specimen may be assigned to *Enoploclytia leachii*. MERTIN (1941) synonymised *E. heterodon* SCHLÜTER, 1862 (p. 724, pl. 11, figs 2-4) and *E. granulicauda* SCHLÜTER, 1879 (p. 599, pl. 14, figs 1-4) with *E. leachii*. He noted slight morphological differences, in both cephalothorax and chelae, in the material at his disposal. FÖRSTER (1966, p. 149) corroborated MERTIN's findings, but favoured specific distinction for *E. granulicauda*, because it exhibited an unreduced branchiocardiac groove continuing into the hepatic groove, and a slightly stronger dorsal ornament.

Enoploclytia leachii appears to be a long-ranging species. FÖRSTER (1966), who presented the most recent overview, recorded it from the uppermost Cenomanian of Germany; the Turonian of Germany, England, the Czech Republic, and France; the Santonian of Germany and England, and the Campanian of Germany.

With respect to NHMM JJ 6632, Campanian examples of *E. leachii* are here briefly commented upon. The type of *E. heterodon* is of early Early Campanian age, and this probably holds true for all material from the Dülmen area (Münsterland), where there is good stratigraphic control based upon ammonites (KENNEDY & KAPLAN, 1995). From data listed by MERTIN (1941), a Late Santonian to earliest Early Campanian age may be inferred for German records of *E. leachii* at the localities Salzberg (Quedlinburg), Heudeber-Danstedt (Dardesheim), and Broitzem (Braunschweig). The type, and only known specimen, of *E. granulicauda* is younger, having been collected from the upper Lower Campanian of the Coesfeld area (Münsterland).

The stratigraphically youngest record of *E. leachii*, according to FÖRSTER (1966, p. 150), is a specimen from the so-called 'Baumberger Sandstein'. In addition, this is also the latest erymid known from Europe. Currently, the Baumberge Beds are subdivided into a lower and an upper unit, with the former corresponding to the Campanian 5 and the latter to the Campanian 6 as used in the area (KAEVER & KETTELHACK, 1998). The 'Baumberger Sandstein' proper, 1-8 m in thickness (see RIEGRAF, 1990, p. 177), appears to correspond to the 'Flies' unit of KAEVER & KETTELHACK (1998, fig. 13). Within the Flies, which is an argillaceous, sandy limestone unit, there is a thin seam which is referred to as 'Hoetmar'. It is this level that produced numerous well-preserved fishes, and it is here assumed that the specimen of *E. leachii* stemmed from this level as well. Unfortunately, FÖRSTER (1966) did not indicate its repository.

There appears to be a general consensus with regard to the (late) Late Campanian (*polyplocum* Zone and?higher) age of the Baumberge Beds (HAUSCHKE *et al.*, 1999). In NW Münsterland, they overlie the 'Coesfelder Schichten' (HAUSCHKE, 1994, fig. 2), which are correlative with the 'Beckumer Schichten' and 'Vorhelmer Schichten' in SE Münsterland. Based on ammonoid and inoceramid bivalve evidence (KAPLAN *et al.*, 1996 and WALASZCZYK, 1997, respectively), these units are of early Late Campanian age (*conica/mucronata* and *basiplana/spiniger* zones).

Specimen NHMM JJ 6632 was collected (22 June 1991) from the lower Zeven Wegen Member (Gulpen Formation, *sensu* FELDER, 1975; ALBERS & FELDER, 1979), at the Ciments Portland Liégeois (CPL) SA quarry (Haccourt). Macrofaunal elements of correlative value in this very fine-grained, coccolithic white chalk facies include coleoid and ammonoid cephalopods, benthic foraminifera and some species of echinoid and asteroid. These all confirm that the lower portion of the Zeven Wegen Member equates with the *conica/mucronata* and *basiplana/spiniger* zones (KENNEDY & JAGT, 1998; JAGT, 1999, 2000a, b; KEUTGEN & JAGT, 1999), or in the ammonite zonal scheme with the *Neancyloceras phaleratum* Zone. In stratigraphic terms, NHMM JJ 6632 thus bridges the gap between occurrences from the Dülmen area on the one hand, and from the Baumberge area on the other.

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PLATE 1

Enoploclytia leachii (MANTELL, 1822), NHMM JJ 6632, lower part of Zeven Wegen Member (Gulpen Formation; early Late Campanian), CPL SA quarry, Haccourt (Liège, NE Belgium):
A, B: outer and inner moulds of fragmentary cephalothorax, respectively (arrows point anteriorly);
C: portion of chela, showing comparable ornament (arrow points anteriorly).

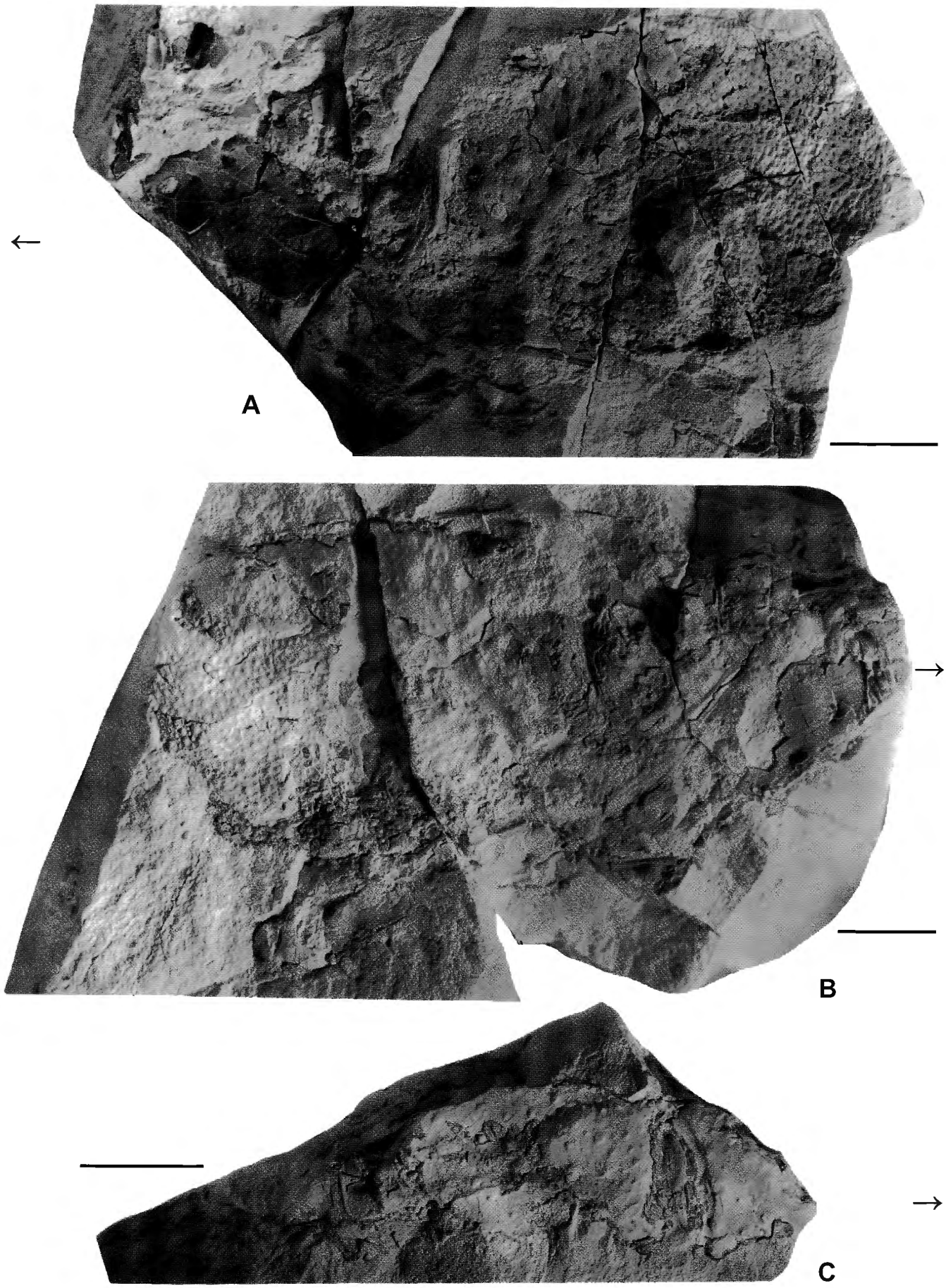

PLATE 1