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New crustacean records from the Late Campanian of the Gschliefgraben (Cretaceous, Austria)

by

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Abstract

Three species of crustacean, two malacostracans and one cirripede, are described from the Late Campanian *Polyplocum* Zone of the Gschliefgraben, Gmunden (Austria). *Palaega huetteri* n. sp. is the first Cretaceous isopod to be reported from Austria. A specimen of the scalpellid cirripede *Arcoscalpellum maximum sulcatum* (J. DE C. SOWERBY, 1829) preserved in the body chamber of the large heteromorph *Pseudoxybeloceras (Schlueterella) pseudoarmatum* (SCHLÜTER, 1872) is considered to represent stomach contents of the ammonite. The co-occurrence of the giant isopod *Palaega huetteri* n. sp. and the presumable swimming crab *?Xanthilites* sp. is indicative of a relatively deep palaeoenvironment.

Introduction

Records of Cretaceous crustaceans from Austria are rather scanty. In 1931, GLAESSNER mentioned a crustacean fauna from a presumed late Jurassic limestone from the non-alpine Waschberg belt, near Klement. A recent re-examination by WRIGHT (1997) of this small crab faunule revealed it to be of Cenomanian age comprising *Rathbunopon obesum* (VAN STRAELEN, 1944), *Pithonoton cenomanense* (WRIGHT & COLLINS, 1972), *Palaeodromites incertus* (BELL, 1863) and *Diaulax oweni* (BELL, 1863). A chela of *Dromiopsis* sp. was recorded by GROSS (1984) from presumed allochthonous Santonian limestones. Morphologically, this specimen is almost identical with the *Dromiopsis* chelae known from the Campanian of northern Germany. WANK (1986) mentioned the presence of the crab *Cyomocarcinus* [sic] cf. *angustifrons* from the Santonian of Klein St. Paul (Carinthia). This specimen is in need of re-examination; it most probably belongs to the genus *Graptocarcinus*, an identification which is supported by MÜLLER (1998) which has been recorded from the Cenomanian rudist limestones of NE Italy (COLLINS & DIENI, 1995).

In 1882 VON AMMON described the first fossil isopods from Austria from the Oligocene (HESSLER, 1969). The oldest Austrian isopods were described by BACHMAYER (1949) from late Jurassic limestones of Ernstbrunn. Two years earlier, BACHMAYER (1947) had reported on two new isopods from the Miocene of Deutsch-Altenburg. In 1950, TAUBER added another Miocene isopod species from the Vienna Basin. *Palaega huetteri* n. sp. is the first Cretaceous isopod from central Europe. No late Cretaceous cirripedes have been described previously from Austria. For more detailed stratigraphic and palaeontological information of the Gschliefgraben area we refer to PREY (1983), KENNEDY & SUMMESBERGER (1984), CHRISTENSEN (1998), KENNEDY & SUMMESBERGER (this volume), JAGT (this volume) and TRÖGER, SUMMESBERGER & SKOUMAL (this volume).

Conventions All studied specimens are deposited in the Naturhistorisches Museum Wien, Austria (NHMW registration numbers, *ex* Hütter collection).

Systematic Palaeontology

Class Cirripedia BURMEISTER, 1834
Order Thoracica DARWIN, 1851
Suborder Lepadomorpha PILSBRY, 1916
Family Scalpellidae PILSBRY, 1916
Subfamily Arcoscalpellinae ZEVINA, 1978
Genus *Arcoscalpellum* HOEK, 1907

Arcoscalpellum maximum sulcatum
(J. DE C. SOWERBY, 1829)

(Plate 1, Fig. A, C)

1829 *Pollicipes sulcatus* J. DE C. SOWERBY, p. 221, pl. 606, fig. 2.
1935 *Scalpellum (Arcoscalpellum) maximum* var. *sulcatum* (J. DEC. SOWERBY); WITHERS, p. 253, pl. 32, figs. 5–8.
1953 *Scalpellum (Arcoscalpellum) maximum* var. *sulcatum* (J.DE C. SOWERBY); CARLSSON, p. 20, pl. 5, fig. 1.

Material: The body segments of what appears to be a single specimen is preserved in a portion of the

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relatively large body chamber of the ammonite *Pseudoxybeloceras (Schlueterella) pseudoarmatum* (SCHLÜTER, 1872) (NHMW 1998z29/11). Preserved are the carina, both terga and one scutum.

Description For a detailed description of this taxon reference is made to WITHERS (1935). The Gschliefgraben specimen most closely resembles the specimens from the late Campanian of Norwich, England.

Remarks Examples of late Cretaceous cirripedes preserved within the body chambers of relatively large ammonites have been recorded by several authors (e.g. FRITSCH & KAFKA, 1887, ERNST, 1967; COLLINS, 1986; OEKENTORP, 1989; HAUSCHKE, 1994). In all of these cases only cirripedes of the family Stramentidae WITHERS, 1920 were involved.

Although the majority of these cirripedes have been found inside or attached to the bodychambers of ammonites, they have mostly been interpreted as hitchhikers on living ammonites or as epibionts on/in empty ammonite shells (benthic islands). OEKENTORP (1989) was the only author who considered the possibility, that the lepadomorph cirripedes could represent stomach contents of the ammonites. The Gschliefgraben cirripede is situated in the posterior half of the body chamber, as do the majority of the above mentioned examples. JÄGER & FRAAYE (1997) reported portions of chelipeds and abdominal segments of decapod crustaceans as ammonite stomach contents. The majority of these remains have been found in the posterior half of the body chambers. This fact and OEKENTORP's reported size-relationship (larger cirripedes are found in larger body chambers and smaller cirripedes in smaller ones) are seen as evidence in favour of the view that most "in ammonite" cirripedes are in fact ammonite stomach contents.

The genus *Arcoscalpellum* is common in the late Cretaceous of Europe. *Arcoscalpellum maximum sulcatum* is known from the Campanian and Maastrichtian of Denmark, England, France, Germany (WITHERS, 1935), Sweden (CARLSSON, 1953), Belgium (JAGT & COLLINS, 1989) and the Czech Republic (FRITSCH & KAFKA, 1887)

Class Malacostraca LATREILLE, 1806
Order Isopoda LATREILLE, 1817
Suborder Flabellifera G.O. SARS, 1882
Family Cirolanidae DANA, 1852
Genus *Palaega* WOODWARD, 1870

***Palaega huetteri* n.sp.**
(Plate 1, Fig. D)

Material Holotype and sole specimen (NHMW 1998z42/2), an external mould lacking the anterior part, from the late Campanian (*Polyplocum* Zone) of Gschliefgraben, Gmunden (Austria).

Description: Large-sized palaegid; inner side of posterior part of elongated body preserved, pleotelson with axial keel on the anterior half with tripartite ending in the centre; pleotelson and five partially preserved pleonites are covered with fine, more or less uniform dense punctae. Pleotelson slightly wider (c.3.1 cm) than long (c. 2.8 cm); posterior border with 17 spines, median spine very large (c. 3 mm), others smaller (c. 0.5 mm) and more or less of equal size; anterior border irregularly covered with numerous small incisions. Pleonites subequal in width and length, with posteriorly pointed pleurae. Smooth ventral side of partially preserved right uropod.

Etymology This species is named after Mag. Herbert HÜTTER, who donated not only the three specimens described herein but also his complete Gschliefgraben collection to the Museum of Natural History, Vienna.

Remarks *Palaega huetteri* n.sp. differs from all species known to date in having 17 spines on, and a tripartite subdivision of, the pleotelson. Cenozoic forms have only 11 or fewer spines. Of all Cretaceous forms, the overall morphology, ornament and especially pleotelson morphology of *P. huetteri* n. sp. most closely resembles *P. guadalupensis* from the Coniacian-Campanian of Texas, USA (RATHBUN, 1935; WIEDER & FELDMANN, 1992).

Palaega guadalupensis differs in having 21 small teeth on the posterior border of the pleotelson. Recent *Palaega* species occur at depths between 70 and 2140 metres, with an acme between 100 and 800 metres (KARASAWA, NOBUHARA & MATSUOKA, 1992).

The occurrence of *P. huetteri* n.sp. in the present faunule thus corresponds well to a relatively deep and open marine palaeoenvironment.

Order Decapoda LATREILLE, 1803
Infraorder Brachyura LATREILLE, 1803
Section Brachyrhynchia BORRADAILLE, 1907
Superfamily Xanthoidea DANA, 1852
Family Xanthidae DANA, 1852

? ***Xanthilites*** sp.
(Plate 1, Fig. B)

Material The only known specimen (NHMW 1998z42/1) is the incomplete ventral part of a brachyuran decapod.

Description: Although the ventral part of the specimen is very well preserved it lacks the carapace, which must have been wider than long as deduced from the preserved ventral parts (abdomen, sternites, legs and mouth parts). Left chela almost twice as large as right one. Both chelae uniformly covered with fine pustules. Elongated fingers with curved smooth tips and cutting edge darker coloured. Fixed finger gently curving down- and inwards with a longitudinal shallow groove extending from the tip to the middle of three cusps. Longer dactylus with two grooves running parrallel, the first close to the cutting edge, the

second more centrally, both starting from the basal cusp and extending to the last of four sharp cusps. A row of pits runs parallel to the entire strongly serrated outer edge.

R e m a r k s : The overall morphology of the chelae, the probable spindle shape of the carapace and especially the typically elongated and strongly pointed fingers indicate a relationship with presumably members of the probable swimming Xanthidae such as *Xanthilites*, *Xanthosia* or *Aulacopodia*, which all occur in the Late Cretaceous (FÖRSTER, 1970; JAGT, COLLINS & FRAAYE, 1991; FRAAYE, 1996). In Austria, species of *Xanthilites* are known from the Eocene and Paleocene of the environs of Salzburg (FÖRSTER, 1970) and from a new, fairly rich decapod crustacean fauna of Danian age in the Kambühel area (PÁL MÜLLER pers. comm.).

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PLATE 1

A, C. *Arcoscalpellum maximum sulcatum* in the body chamber of the heteromorph ammonite *Pseudoxybelocera (Schlueterella) pseudoarmatum* (NHMW 1998z29/11) A x1, C x2,

B. ventral side and chelae of ?*Xanthilites* sp. (NHMW 1998z42/0001) x2, D. external mould of posteriorportion of *Palaega huetteri* n. sp., holotype (NHMW 1998z42/2), x1.

PLATE 1