A NEW GENUS OF FOSSIL SAND CRAB (ANOMURA: ALBUNEIDAE) FROM THE OLIGOCENE OF ITALY

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ABSTRACT. The recently described fossil albuneid *Paralbunea galantensis* De Angeli and Marangon differs from the type of the genus *Paralbunea* Serène and is herein made the type species of a new genus, *Harryhausenia*, which is closely related to *Zygopa* Serène and Umali. A discussion is given on the relationships between the new genus and *Zygopa*, as well as between *Zygopa* and other albuneid taxa.

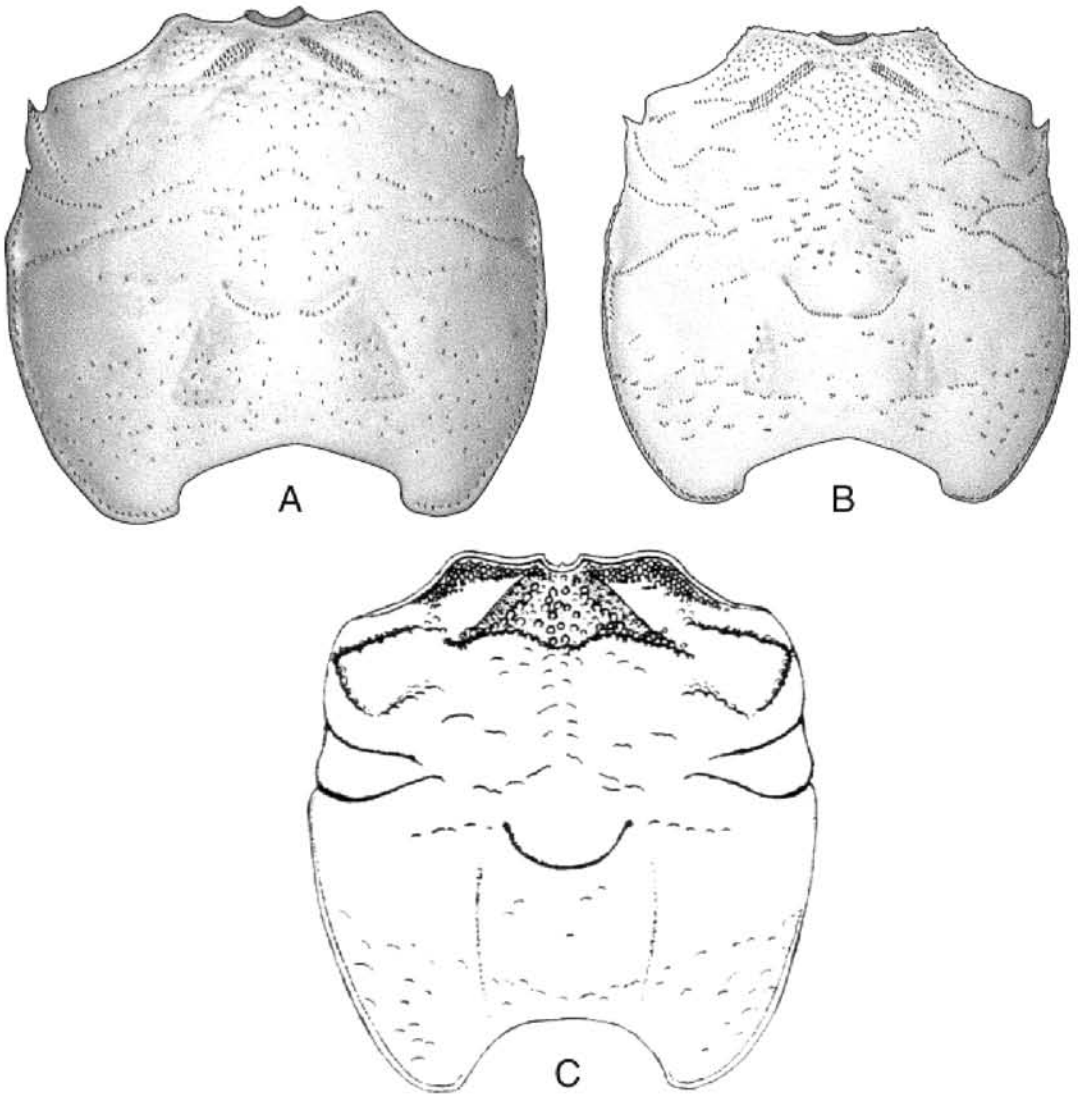
KEY WORDS: Hippoidea, *Zygopa*, *Paralbunea*, phylogeny, taxonomy.

VERY few fossil hippoids (Anomura: Hippoidea) have been reported, and most taxa are known from only a single specimen. Prior to 2001, only four fossil taxa were described in the Albuneidae (see Boyko 2002 for a summary) and one in the Blepharipodidae (Schweitzer and Boyko 2000; then placed in Albuneidae). An additional distinctive albuneid has recently been described from the Late Cretaceous in the Netherlands (Jagt *et al.* 2000; Fraaije 2002).

A distinctive fossil albuneid was described from the Oligocene of northern Italy by De Angeli and Marangon (2001) and named *Paralbunea galantensis*. While this taxon is clearly a member of both the Albuneidae and the Albuneinae (*sensu* Boyko 2002), it exhibits several characteristics that separate it from the type species of *Paralbunea* Serène, 1977 (*Paralbunea* has been rediagnosed by Boyko, 2002). Rather, it is very closely related to the genus *Zygopa* Serène and Umali, 1965, which contains two very similar species known from only a few specimens each, and found in the Western Atlantic (*Z. michaelis* Holthuis, 1961; Text-fig. 1A) and the Philippines (*Z. nortoni* Serène and Umali, 1965; Text-fig. 1B) (Boyko 2002). This Italian fossil species further supports placement of *Zygopa* within the Albuneinae rather than the other albuneid subfamily Lepidopinae. However, *Paralbunea galantensis* cannot be placed within *Zygopa*, as it differs in several diagnostic features from that genus. A new genus, *Harryhausenia*, is accordingly erected herein to contain it. The only known locality for *H. galantensis* (De Angeli and Marangon) is almost equidistant between the known geographic ranges of the two Recent species of *Zygopa*.

Note that the correct date for *Paralbunea* Serène is 1977, not 1979, and the type species is properly *P. manihinei* Serène, 1977, not *Albunea paradoxa* Gordon, 1938 (see Boyko 2002). Serène (1977) introduced the 'nouveau genre' *Paralbunea* and gave morphological characters to distinguish it from *Albunea*, thereby making the name available from the 1977 publication. The type species is therefore *Paralbunea manihinei* Serène by monotypy (*Albunea paradoxa* was not mentioned in the 1977 paper). *Paralbunea* Hu and Tao, 1996, is a junior homonym of Serène's (1977) taxon but belongs to the Raninidae (see Boyko 2002); this problem is discussed in detail and the nomenclature corrected elsewhere (Boyko 2004, companion paper in this issue).

Carapace length is measured from the midpoint of the anterior margin (including rostrum, if any) to the midpoint of the posterior concavity. Acronyms are used for the Museo Civico 'G. Zannato' di Montecchio Maggiore, Vicenza (MCGZ), Philippine National Museum, Manila (NMCR), and Rijksmuseum van Natuurlijke Historie (now Nationaal Natuurhistorisch Museum), Leiden, The Netherlands (RMNH).



TEXT-FIG. 1. A, *Zygopa michaelis* Holthuis, 1961, carapace (female lectotype, 9·2 mm cl, RMNH 14501). B, *Zygopa nortoni* Serène and Umali, 1965, carapace (female paratype, 11·2 mm cl, NMCR 1273). C, *Harryhausenia galantensis* (De Angeli and Marangon, 2001) comb. nov., carapace (holotype, MCGZ I.G. 286339). A–B from Boyko (2002); C after De Angeli and Marangon (2001).

SYSTEMATIC PALAEONTOLOGY

Family ALBUNEIDAE Stimpson, 1858
Subfamily ALBUNEINAE Stimpson, 1858

Genus HARRYHAUSENIA gen. nov.

2001 *Paralbunea* De Angeli and Marangon, pp. 102–103 (non *Paralbunea* Serène, 1977).

Derivation of name. The new genus is named for the great dynamator of fantasy film, Ray Harryhausen, in recognition of his long career during which he brought the imaginary to life on the screen.

Diagnosis. Albuneinae with carapace wider than long, front narrow; anterior margin unarmed; hepatic anterolateral spine small; setal field triangular and extending laterally posterior to frontal margin. Rostrum present, minute. Anterior and posterior width of carapace subequal; cardiac indentations posterolateral to CG6 nearly parallel; posterior concavity smoothly rounded.

Remarks. The similarities between *Harryhausenia* and *Zygopa* are numerous. Both genera share a similar overall carapace shape, relatively narrow front, small hepatic anterolateral spines, and development and placement of carapace grooves. The differences, including the presence of a minute rostrum, well-developed setal field, differing body proportions (the width of *Harryhausenia* is subequal anteriorly and posteriorly while *Zygopa* is distinctly wider posteriorly), different orientation of the cardiac indentations posterolateral to CG6 (posteriorly divergent in *Zygopa* and nearly parallel in *Harryhausenia*), and differing shape of the posterior concavity (distinctly broadly spade-shaped in *Zygopa* and evenly rounded in *Harryhausenia*), clearly separate the two genera. Note that the holotype of *Paralbunea galantensis* was originally described as lacking hepatic spines, but further cleaning has revealed a small spine on the left side (De Angeli, pers. comm. 2002), which confirms the closeness of *Zygopa* and *Harryhausenia*. These differing characters are important in understanding the placement of *Zygopa* and *Harryhausenia* within the Albuneidae. Although Boyko (2002) placed *Zygopa* within the Albuneinae, based on overall shared characters, the presence of large hepatic anterolateral spines in *Zygopa* contrasts with their lack in all other taxa in the Albuneinae. *Harryhausenia*, in having many *Zygopa*-like characters combined with those more typical of the Albuneinae (such as a well-developed setal field and a smoothly rounded posterior concavity), bridges the gap between *Zygopa* and the other Albuneinae, and supports unambiguous placement of *Zygopa* in this subfamily. The hepatic spines of *Zygopa*, *Harryhausenia*, and those found in all taxa placed in the Lepidopinae (except one aberrant and possibly invalid species, *Lepidopa haigae* Efford, 1971; see Boyko 2002) are clearly analogous rather than homologous structures. *Zygopa* and *Harryhausenia* are clearly sister taxa, and the sister taxon to their clade is *Squillalbunea* Boyko, 2002 [with one species, *S. mariellae* (Serène, 1973)].

Harryhausenia galantensis (De Angeli and Marangon, 2001) comb. nov.

Text-figure 1C

2001 *Paralbunea galantensis* De Angeli and Marangon, pp. 102–103, figs 3–4.

Remarks. Placement of *galantensis* in *Paralbunea* cannot be supported as all species in that genus have a much broader front, as well as very different (although variable within the genus) placement of the more numerous carapace grooves. It is unfortunate that the eyes and branchiostegites of *P. galantensis* were not preserved, as these differ strongly between *Paralbunea* (large triangular distal ocular peduncles and armed branchiostegite) and *Zygopa* (reduced and fused ocular peduncles and unarmed branchiostegite). Based on the unique holotype (MCGZ I.G. 286339), the state of these characters in *Harryhausenia* cannot be determined.

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