

Galatheids, chirostylids and porcellanids (Crustacea, Decapoda, Anomura) from the Eocene and Oligocene of Vicenza (northern Italy)

Antonio De Angeli¹ & Alessandro Garassino²

¹Associazione Amici del Museo ëG. Zannatoï, Piazza Marconi, 15, I-36075 Montebelluna Maggiore (Vicenza), Italy; ²Dipartimento di Paleontologia degli Invertebrati, Museo civico di Storia naturale, C.so Venezia 55, I-20121 Milano, Italy

Keywords: Crustacea, Decapoda, Anomura, Eocene, Italy

Abstract

At Monte Magrè a series of calcarenites of Ypresian and Lutetian age is exposed. The anomuran faunas were collected from the lower strata in this succession, along the road from Monte Magrè to Monte di Malo. These levels, indurated and white in color, contain nummulitid foraminifera, nodules and fragments of coralligenous algae, and moulds of corals, molluscs and other decapod crustaceans (e.g. *Cyamocarcinus angustifrons* Bittner, 1883).

Introduction

Cenozoic strata in the Vicenza area have yielded rich assemblages of fossil decapod crustaceans for over two centuries. Numerous scientists have contributed to our knowledge of this group of animals, which is characterized by good preservation and a high diversity. A recent systematic update of fossil decapod crustaceans of the province of Vicenza by de Angeli & Beschin (2001) includes a checklist of all species known to date, as well as a brief synthesis of the main Cenozoic outcrops that yield decapod crustaceans, recording 144 species in total. De Angeli & Garassino (2002) have recently described a rich anomuran assemblages of representatives of the families Galatheidae Samouelle, 1819, Chirostylidae Ortmann, 1892, and Porcellanidae Haworth, 1825, from Eocene and Oligocene deposits in this area (Ypresian coralligenous calcarenites of Monte Magrè, Priabonian of S. Feliciano Hill and Alonte quarry and Lower Oligocene of Valmarana and Creazzo).

Localities

San Feliciano Hill is located about two kilometers south of Alonte quarry; its section shows a sequence of levels similar to that at Alonte quarry. From San Feliciano Hill, Fabiani (1910) described *Phlyctenodes dalpiazii* Fabiani, 1910.

At Alonte quarry levels dated as late Middle Eocene (Bartonian) and Priabonian are exposed. The lower levels comprise biocalcarenes, characterized by the presence of numerous inner moulds of molluscs and corals, fragmentary specimens of *Prototherium*, and some crustaceans [*Italialbunea lutetiana* (Beschinn & De Angeli, 1984), *Hepaticiscus poverelli* Via, 1959, and *Eopalicus imbricatus* de Angeli & Beschinn, 2000 (see de Angeli, 1998; de Angeli & Beschinn, 1999, 2000)]. The middle and upper levels at the quarry, consisting of marly limestone, contain bryozoans, bivalves, echinoderms, and an association of calcareous nannofossils assignable to the lower part of the Priabonian. The top of the quarry, comprising limestones, contains fragments of algae, corals, and decapod crustaceans, as described by de Angeli & Garassino (2002).

Valmarana is situated on the northern edge of Monti Berici. The decapod crustacean-yielding levels here (*Micromaia* sp., *Galathea weinfurteri* Bachmayer, 1950; see Beschinn et al., 1985; Vica-riotto & Beschinn, 1994) comprise nodular limestones, containing corals, algae, rhodophytes, miliolids and small nummulitids. These strata, of Early Oligocene age, correspond to the Level 1 in the stratigraphic series surveyed by Fabiani (1915).

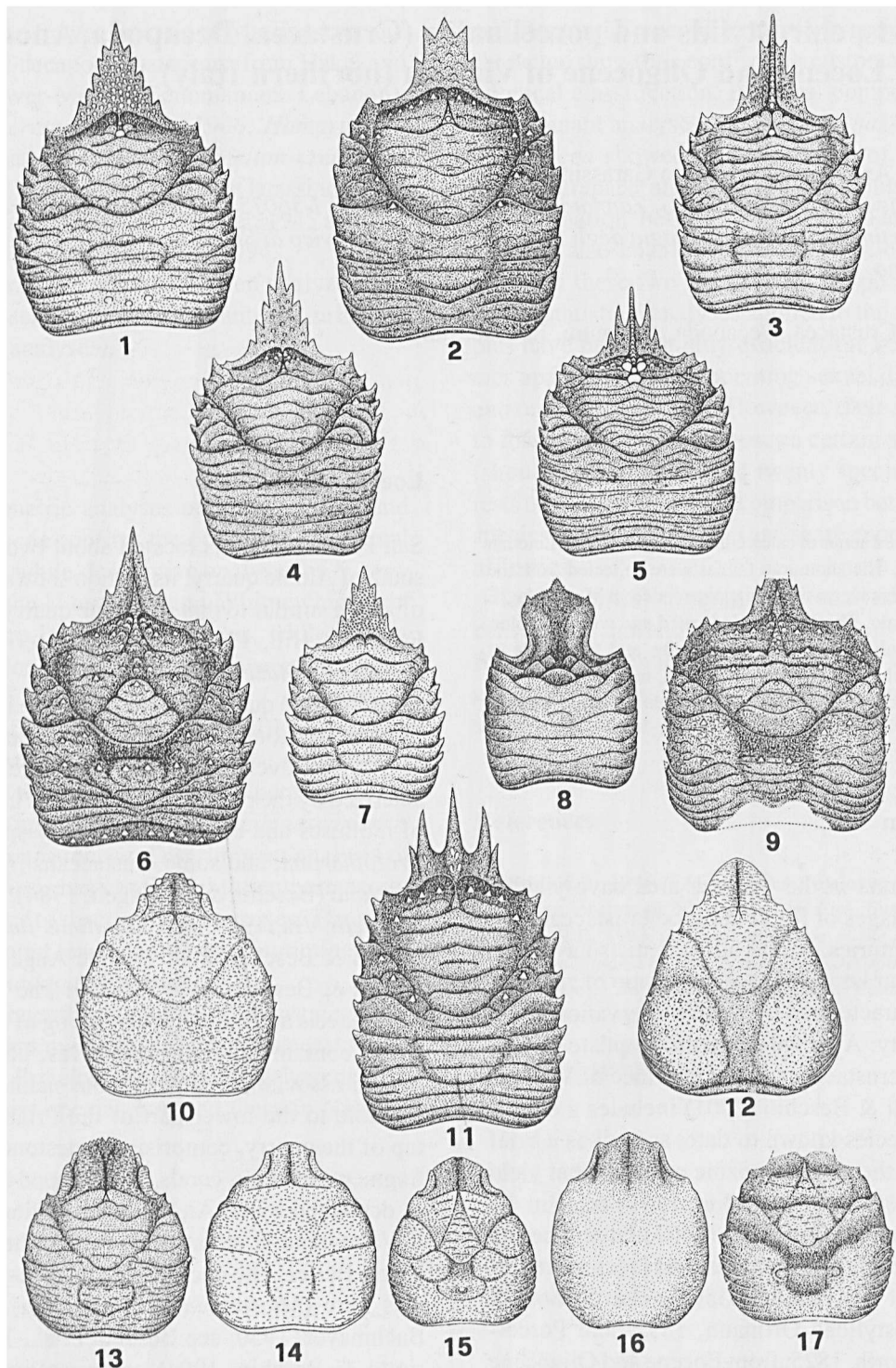


Fig. 1. Eocene and Oligocene galatheids, chirostylids and porcellanids from Vicenza (carapace reconstructions, line drawings): 1 – *Galathea berica*, 2 – *Lessinigalathea regale*, 3 – *Palaeomunida defecta*, 4 – *Galathea valmaranensis*, 5 – *Palaeomunida multicristata*, 6 – *Acanthogalathea parva*, 7 – *Galathea* cf. *weinfurteri*, 8 – *Spathagalathea minuta*, 9 – *Acanthogalathea feldmanni*, 10 – *Lobipetrolisthes blowi*, 11 – *Eumunida pentacantha*, 12 – *Beripetrolisthes mulleri*, 13 – *Eopetrolisthes striatissimus*, 14 – *Petrolisthes bittneri*, 15 – *Petrolisthes vicetinus*, 16 – *Longoporcellana lobata*, 17 – *Pisidia dorsosinuosa*.

Fauna

De Angeli & Garassino (2002) described a sample of 194 specimens preserved in yellow calcarenites, housed at the Museo civico di Storia naturale di Milano and at the Museo civico "G. Zannato" at Montecchio Maggiore (Vicenza). This sample has yielded the following species of galatheids, chirostylids and porcellanids (Fig. 1):

Galatheidae Samouelle, 1819

Acanthogalathea Müller & Collins, 1991

A. parva (Müller & Collins, 1991)

A. feldmanni de Angeli & Garassino, 2002

Galathea Fabricius, 1793

G. berica de Angeli & Garassino, 2002

G. valmaranensis de Angeli & Garassino, 2002

G. cf. weinfurteri Bachmayer, 1950

Lessinigalathea de Angeli & Garassino, 2002

L. regale de Angeli & Garassino, 2002

Palaeomunida Lörenthey, 1901

P. defecta Lörenthey, 1901

P. multicristata de Angeli & Garassino, 2002

Spathagalathea de Angeli & Garassino, 2002

S. minuta de Angeli & Garassino, 2002

Chirostylidae Ortmann, 1892

Eumunida Smith, 1883

E. pentacantha (Müller & Collins, 1991)

Porcellanidae Haworth, 1825

Beripetrolisthes de Angeli & Garassino, 2002

B. mulleri de Angeli & Garassino, 2002

Eopetrolisthes de Angeli & Garassino, 2002

E. striatissimus (Müller & Collins, 1991)

Lobipetrolisthes de Angeli & Garassino, 2002

L. blowi de Angeli & Garassino, 2002

Longoporcellana Müller & Collins, 1991

L. lobata de Angeli & Garassino, 2002

Petrolisthes Stimpson, 1858

P. bittneri de Angeli & Garassino, 2002

P. vicetinus Beschin, de Angeli & Checchi, 2001

Pisidia Leach, 1820

P. dorsosinuosa de Angeli & Garassino, 2002

These taxa are typical of coralligenous settings that characterize three main formations, the oldest of which is of Ypresian (Early Eocene) date, situated near Contrada Gecchelina of Monte di Malo

and Monte Magrè. This has produced *Lessinigalathea regale*. The level with decapod crustaceans, associated with corals, and found on the southwestern edge of Monti Berici at Alonte quarry and S. Feliciano, is of Priabonian (Late Eocene) age. Here amongst the coralligenous branches occur *Galathea berica*, *Acanthogalathea parva**, *A. feldmanni*, *Palaeomunida defecta**, *P. multicristata*, *Spathagalathea minuta*, *Eumunida pentacantha**, *Beripetrolisthes mulleri*, *Eopetrolisthes striatissimus**, *Lobipetrolisthes blowi*, *Longoporcellana lobata*, *Petrolisthes bittneri* and *Pisidia dorsosinuosa*. Five of these (marked with * above) have been described previously from the Priabonian of Hungary (Lörenthey, 1901; Lörenthey & Beurlen, 1929; Müller & Collins, 1991). Limestones with decapod crustaceans, associated with corals, situated on the northern slope of Monti Berici (Valmarana, Perarolo, plus surrounding Case Soghe area and S. Gottardo) and Monti Lessini Vicentini (Monte Grumi di Castelgomberto, plus surrounding area of Creazzo and Colle della Chiesa di Altavilla), are of Early Oligocene age. These have yielded *Galathea valmaranensis*, *G. cf. weinfurteri*, *Palaeomunida defecta* and *Petrolisthes vicetinus*. *Palaeomunida defecta* is a widely distributed species in Priabonian deposits at Alonte quarry and S. Feliciano, and in the Lower Oligocene at Valmarana.

References

- Beschin C, Busulini A, de Angeli A, Tessier G. 1985. Il genere *Micromaia* Bittner (Crustacea, Decapoda) nel Terziario dell'area dei Berici e dei Lessini con descrizione di tre nuove specie. *Lavori Soc. venez. Sci. nat.* 10: 97-119.
- Beschin C, de Angeli A & Checchi A. 2001. Crostacei Decapodi associati a coralli della "Formazione di Castelgomberto" (Oligocene) (Vicenza – Italia settentrionale). *Studi e Ricerche Assoc. Amici Mus. civ. "G. Zonnato", Montecchio Maggiore (Vicenza)* 2001: 13-30.
- de Angeli A. 1998. Gli Albuneidae (Crustacea, Hippoidea) del Terziario vicentino (Italia settentrionale). *Studi e Ricerche Assoc. Amici Mus. civ. "G. Zonnato", Montecchio Maggiore (Vicenza)* 1998: 17-20.
- de Angeli A, Beschin C. 1999. I crostacei Matutinae (Brachyura, Calappidae) dell'Eocene del Veneto (Italia settentrionale). *Studi e Ricerche Assoc. Amici Mus. civ. "G. Zonnato", Montecchio Maggiore (Vicenza)* 1999: 11-22.
- de Angeli A, Beschin C. 2000. Due nuove specie di Eopalicus

- (Decapoda, Palicidae) nel Terziario del Veneto (Italia settentrionale). *Studi e Ricerche Assoc. Amici Mus. civ. "G. Zonnato", Montecchio Maggiore (Vicenza)* **2000**: 7-12.
- de Angeli A, Beschin C. 2001.** I Crostacei fossili del Territorio Vicentino. *Natura Vicent.* **5**: 5-54.
- de Angeli A, Garassino A. 2002.** Galatheid, chirostylid and porcellanid decapods (Crustacea, Decapoda, Anomura) from the Eocene and Oligocene of Vicenza (N Italy). *Mem. Soc. it. Sci. nat. Mus. civ. Storia nat. Milano* **30**: 1-40.
- Fabiani R. 1910.** I crostacei terziari del Vicentino. *Boll. Mus. Vicenza* **1**: 29-45.
- Fabiani R. 1915.** Il Paleogene del Veneto. *Mem. Ist. Geol. Univ. Padova* **3**: 1-336.
- Lőrenthey IE. 1901.** 'Andorina' és 'Darányia' két új ráknem Magyarországból. *Math. Termész. Közlem., vonatk. hazia visz. 28*: 831-838.
- Lőrenthey IE, Beurlen K. 1929.** Die fossilen Dekapoden der Länder der Ungarischen Krone. *Math. naturwiss. Ber. Ungarn* **3**: 1-420.
- Müller P, Collins JSH. 1991.** Late Eocene coral-associated decapods (Crustacea) from Hungary. *Contr. Tert. Quatern. Geol.* **28**: 47-92.
- Vicariotto G, Beschin C. 1994.** Galathea weinfurteri Bachmayer, 1950 nell'Oligocene dei Monti Berici (Italia Settentrionale) (Crustacea, Anomura). *Studi e Ricerche Assoc. Amici Museo civ. "G. Zannato" Montecchio Maggiore (Vicenza)* **1994**: 5-11.

Received: 2 March 2003