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Anchistrocheles interrupta a new deep-water marine ostracod species (Pussellinae, Ostracoda) from the Plio-Pleistocene of the Mediterranean Basin

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SUMMARY – *Anchistrocheles interrupta* n. sp. is described and illustrated. The generic attribution is discussed with the comparison of the characters of the carapace with those of the closely related genera *Bythocypris* Brady, 1880, *Zabythocypris* Maddocks, 1969 and *Pussella* Danielopol, 1973. The new species shows a stratigraphical distribution restricted to the Plio-Pleistocene of the Mediterranean. In Atlantic its first occurrence is recorded in the Late Tortonian.

RIASSUNTO – [*Anchistrocheles interrupta* (Pussellinae, Ostracoda), una nuova specie profonda del Plio-Pleistocene del bacino del Mediterraneo] – *Anchistrocheles interrupta* n. sp. viene descritta ed illustrata. L'attribuzione a livello generico viene discussa in funzione dei caratteri del carapace, confrontandoli con quelli dei generi sistematicamente prossimi *Bythocypris* Brady, 1880, *Zabythocypris* Maddocks, 1969 e *Pussella* Danielopol, 1973. La nuova specie ha una distribuzione stratigrafica limitata al Plio-Pleistocene del Mediterraneo mentre è già presente nel Tortoniano superiore - Messiniano dell'Atlantico.

INTRODUCTION

During the study of the deep-water ostracod fauna of the Plio-Pleistocene of Southern Sicily (Monte Narbone, Gela) we found a relatively rare species pertaining to the Bairdiidae which attracted our attention for the difficulty at both genus and species attribution.

Following the systematics of the Bairdiidae Sars by Maddocks (1976), this family is subdivided, especially on soft parts characters, into 3 subfamilies: Bairdiinae Sars, 1888, *Bythocypridinae* Maddocks, 1969, and *Pussellinae* Danielopol, 1976.

As far as the generic attribution of the species under study is concerned, 4 genera, that is *Bythocypris* Brady, 1880, *Anchistrocheles* Brady & Norman, 1889, *Zabythocypris* Maddocks, 1969 and *Pussella* Danielopol, 1973 have been taken into consideration.

In the following we try to define the differences between the 4 genera from a paleontological point of view, to be able to attribute the proposed new species to one of them.

The genus *Zabythocypris* is characterized (Maddocks, 1969) by thin valves and left valve much higher than the right one. The type-species *?Bythocypris heterodoxa* Chapman, 1910 shows in the left valve a dorsal spine backward oriented while some other species of the genus do not show this character. Athersuch & Gooday (1979) describe and illustrate *Z. redunca* n. sp. and point out that the presence of the dorsal spine has a generic value. We

accept the opinion of the cited AA. and consequently *Zabythocypris* appears well defined and differentiated from *Bythocypris*, *Anchistrocheles* and *Pussella* in which the dorsal spine is absent.

As far as *Bythocypris* and *Anchistrocheles* are concerned Van Morkhoven (1963) states that «there would not seem apparent differences in the calcareous valves of *Bythocypris* and *Anchistrocheles*». Subsequently Maddocks (1969) defines clear differences between the two genera in comparing the soft parts and shows in *Anchistrocheles* the wide variability in shape from species to species pertaining to this genus (*A. fumata* Brady, *A. antemacella*, *Anchistrocheles* sp. 1).

Part of the species attributed to *Anchistrocheles* (on the basis of soft parts) show almost symmetrical thin valves and an anterior margin obliquely subtruncated and a subrectangular shape in lateral view, characters which are particularly evident in *A. mcquadei* Maddocks, 1976.

As far as our experience related to the Mediterranean species of *Bythocypris* is concerned the RV and LV are asymmetrical with the LV partly overlapping the RV. This fact seems supported also by the asymmetry of the type-species *B. reniformis* Brady, 1880 in both the original drawings and those reported by Maddocks (1969).

The genus *Pussella* has been recorded from interstitial shallow sandy bottoms of Cuba (*P. botosaneanui* Danielopol, 1973) and of Bermuda (*P. danielopoli* Maddocks, 1976). The genus is characterized (emended diagnosis by Maddocks, 1976) by

the following valves' characters and habitat: very small size, carapace elongate and laterally compressed, fragile, smooth; with marginal denticles, narrow fused zone, open vestibules, very few short radial pore canals; males larger and longer than females in the type-species. Habitat: shallow, typically interstitial.

From the previous discussion, in our opinion, the genus *Anchistrocheles*, to which the proposed new species has been attributed, is represented, between others, on the basis of the carapace's characters only, by the following species:

Anchistrocheles antemacella Maddocks, 1969

Anchistrocheles tenera (Bremner, 1975)

Anchistrocheles sp. 1 Whatley & Downing, 1983

Anchistrocheles interrupta n. sp.

SYSTEMATICS

Order PODOCOPIDA G. W. Müller, 1894

Suborder PODOCOPA Sars, 1866

Superfamily BAIRDIACEA Sars, 1866

Family BAIRDIIDAE Sars, 1887

Subfamily PUSSELLINAE Danielopol, 1976

Danielopol (1973) erected the family Pussellidae (type-species *P. botosaneanui* Danielopol, 1973). Maddocks (1976) emended the original diagnosis of Pussellidae declassing it to the rank of subfamily (Pussellinae Danielopol, 1976) and attribute to it the genera *Pussella* Danielopol, 1973 and *Anchistrocheles* Brady & Norman, 1889 of which the emended generic diagnosis is followed (Maddocks, 1976).

ANCHISTROCHELES INTERRUPTA n. sp.

Text-figs. 1 a-e; 2 A-C

1966 *Argilloecia cylindrica* Sars - COLALONGO, p. 88, pl. 10, fig. 6.

1980 *Zabythocypris antemacella* (Maddocks) - COLALONGO & PASINI, p. 68, pl. 30, figs. 9-10.

1981 *Zabythocypris antemacella* (Maddocks) - TSAPRALIS, p. 83, pl. 4, figs. 4, 5.

1989 *Anchistrocheles tenera* (Bremner) - MOSTAFAWI, p. 125, pl. 1, fig. 11.

Etymology - From latin *interruptus* = truncated.

Holotype - LV ♀ (Text-fig. 1a). Stn. 1. B.O.C. 2242.

Hypotypes - RV ♀ (Text-fig. 1b). Stn. 21. B.O.C. 2243; LV ♂ (Text-fig. 1c). Stn. 11. B.O.C. 2245; CC (Text-fig. 1d). Stn. 22. B.O.C. 2244.

Type locality - Monte San Nicola (Gela, Sicily).

Type level - M Pl 3, calcareous marls, Trubi Formation.

Description - Valves in lateral view elongate with anterior margin truncated and posterior subacutely rounded with maximum protrusion at about mid-height, dorsal margin a little sinuous gently sloping posteriorly, ventral a little concave just before the mid-length. Anterior area flattened. In dorsal view carapace elongate and compressed with anterior acuminate and posterior acutely rounded. LV slightly overlapping dorsally the RV. Anterior lamella wide with deep vestibule from which relatively short and rare simple and straight marginal pore-canals depart, more common below the mid-height (Text-fig. 2A, C).

Sexual dimorphism: valves of the ♀ posteriorly more obtusely rounded (Text-fig. 1a, b) than ♂ which appear a little acutely rounded (Text-fig. 1c, e).

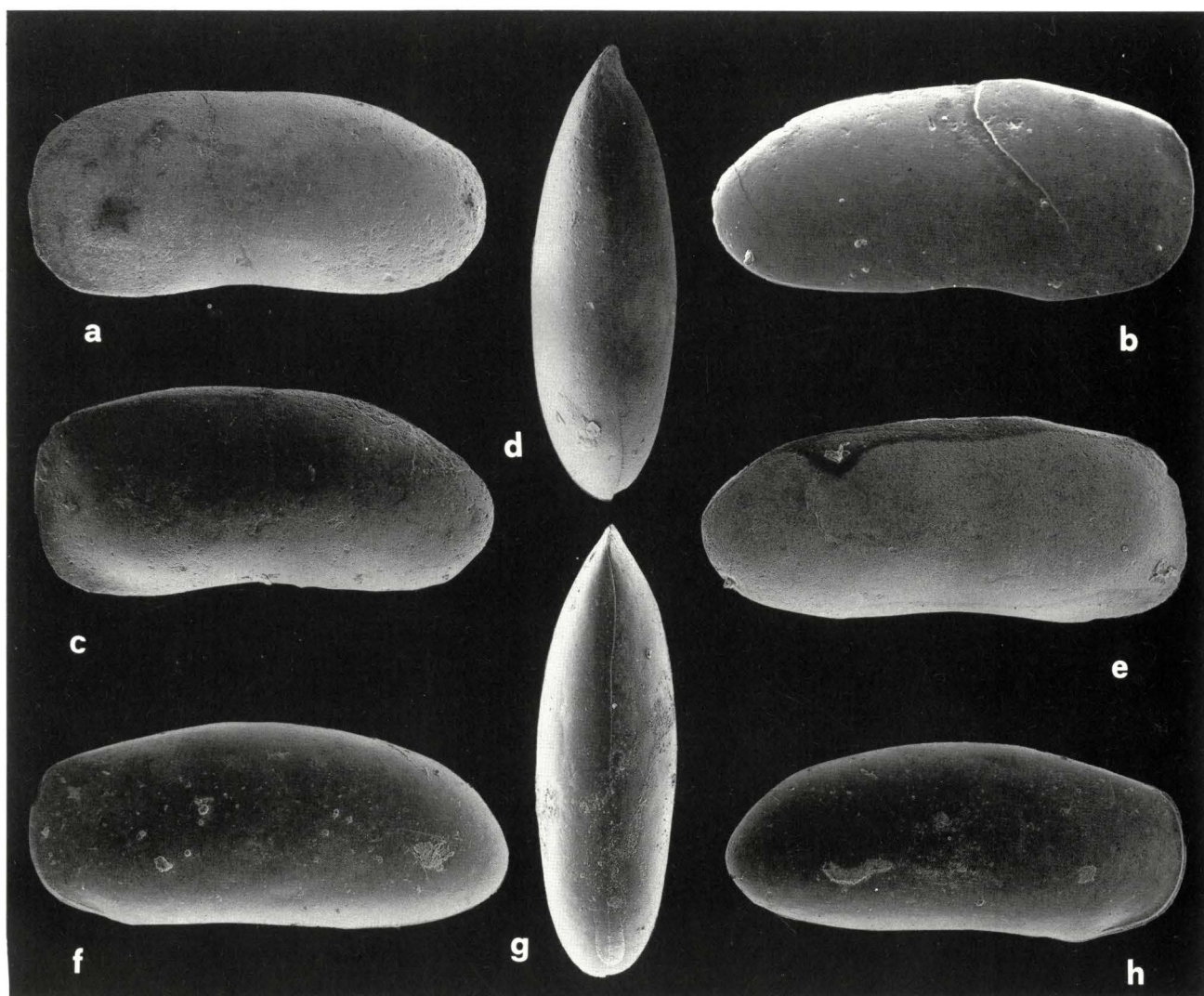
This species seems very conservative in all the characters all along the Italian Pliocene.

Variability - The antero-ventral angle can be very accentuated (Text-fig. 1c, e) or feebly rounded (Text-fig. 1a, b) and the posterior extremity can be sometimes a little acuminate (see *Zabythocypris antemacella* (Maddocks) *sensu* Tsapralis, 1981, pl. 4, fig. 4). As previously pointed out the variability in our opinion is related to the different sexes.

Size (in mm) - LV♀: L = 0.73; H = 0.32; L/H = 2.28 (Text-fig. 1a);
RV♀: L = 0.89; H = 0.39; L/H = 2.28 (Text-fig. 1b);
LV♂: L = 0.70; H = 0.31; L/H = 2.26 (Text-fig. 1c).

Affinities - *Anchistrocheles interrupta* n. sp. differs from *Anchistrocheles antemacella* Maddocks, 1969 in the more elongate valves (L/H ratio = 2.26 - 2.28), in the more acutely rounded posterior extremity, the reduced number of the anterior marginal pore-canals and in the smaller size (*A. antemacella* LV L = 1.17 mm, H = 0.62 mm, L/H = 1.89; RV L = 1.15 mm, H = 0.58 mm; L/H = 1.98).

It differs from *Anchistrocheles tenera* (Bremner, 1975) (Text-fig. 1 f-h) in the shorter valves (*A. tenera* LV L = 0.72 mm, H = 0.30 mm, L/H = 2.40; RV L = 0.71 mm, H = 0.29 mm; L/H = 2.45), in the lack of the anteroventral «indentation» in both valves, in the posterior margin more rounded instead than subacuminate, in the posterior margin with maximum protrusion at mid-height, while in the latter it occurs below the mid-height.



Text-fig. 1 - a-e) *Anchistrocheles interrupta* n. sp.

- a) Holotype, LV♀, M. San Nicola (Gela, Sicily), Stn. 1, B.O.C. 2242, (x 89);
- b) Hypotype, RV♀, M. San Nicola (Gela, Sicily), Stn. 21, B.O.C. 2243, (x 77);
- c) Hypotype, LV♂, M. San Nicola (Gela, Sicily), Stn. 11, B.O.C. 2245, (x 87);
- d) Hypotype, CC in dorsal view, M. San Nicola (Gela, Sicily), Stn. 22, B.O.C. 2244, (x 93);
- e) RV♂, Punta di Maiata (Agrigento, Sicily), Stn. 83, B.O.C. 2246, (x 103).
- f-h) *Anchistrocheles tenera* (Bremner 1975).
- f) LV, Gulf of Naples (Tyrrhenian Sea), Stn. Is 7, 735 m, B.O.C. 2247, (x 95);
- g) CC in dorsal view, Gulf of Naples (Tyrrhenian Sea), Stn. Is 8, 850 m, B.O.C. 2248, (x 91);
- h) RV, same specimen of fig. 7, (x 87).

It is also close to *Anchistrocheles* sp. Whatley & Downing, 1983 from which it differs especially in the shape of the posterior margin which in the latter is more curved downwards.

Remarks on distribution – *Anchistrocheles interrupta* n. sp. is always cited from bathyal-epibathyal environments and in the Mediterranean Basin exclusively in the age-range Pliocene-Pleistocene.

The citations known to us are the following:

Colalongo (1966): Pliocene and Pleistocene of Le

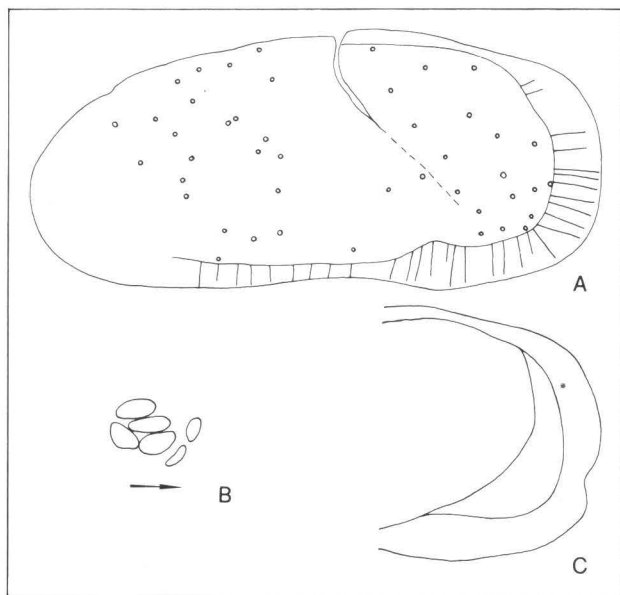
Castella (Calabria), as *Argilloecia cylindrica* Sars.

Ruggieri (1974): Early Pleistocene of Monasterace (Calabria), as *Zabythocypris antemacella*.

Colalongo & Pasini (1980): Late Pliocene and Early Pleistocene of the Vrica Section, as *Zabythocypris antemacella*.

Colalongo & Pasini (1988): Late Pliocene and Early Pleistocene of the ODP drilling Leg 107 well 654A, as *Zabythocypris antemacella*.

Mostafawi (1989): Early Pleistocene of Rhodes (Greece), as *Anchistrocheles tenera* Bremner, 1975.



Text-fig. 2 - *Anchistrocheles interrupta* n. sp. Transmitted light drawings done by Visopan Reichert. (x 100.5)
 A) Hypotype, RV♀, same specimen of Text-fig. 1 b, B.O.C. 2243;
 B) Hypotype, central muscle-scars, RV, M. San Nicola (Gela, Sicily), Stn. 22, B.O.C. 2266;
 C) RV, anterior vestibule, Punta di Maiata (Agrigento, Sicily), Stn. 73, B.O.C. 2267.

It occurs also: Late Tortonian - Messinian of the drilling of Ain el Beida (Rabat, Morocco) and in the Pliocene - Early Pleistocene of Monte S. Nicola (Gela, Sicily) and of Punta di Maiata (Agrigento, Sicily), unpublished data (Bonaduce).

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