BASTERIA, 56: 83-90, 1992

On Cantrainea peloritana (Cantraine, 1835) from the Mediterranean Sea (Gastropoda, Prosobranchia: Colloniidae)

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Cantrainea peloritana (Cantraine, 1835) from the Mediterranean Sea is here reported upon; the authors give additional data about its morphology, distribution and ecology.

Key words: Gastropoda, Prosobranchia, Colloniidae, *Cantrainea*, morphology, distribution, Mediterranean Sea, Italy.

INTRODUCTION

In the Mediterranean Sea the genus *Cantrainea* Jeffreys, 1883, is represented only by *Cantrainea peloritana* (Cantraine, 1835), which was definitely confirmed to be a living species about a decade ago by Babbi (1982). The author in his interesting report comments on the taxonomic position of *C. peloritana*, giving data on some of its synonyms and reasonably guessing that this species could belong to the deep-sea coral biocoenosis (Pérès & Picard, 1964) present in the Mediterranean Sea. According to Babbi (1982), *C. peloritana*, based on conchological characters only, shows two distinct morphs which in turn represent the two nominal species *Turbo peloritanus* (typical form) and *Turbo carinatus* (carinate form) originally created by Cantraine (1835) for fossil specimens. These two shell forms are both present in the Atlantic Ocean; on the contrary, only the carinate form occurs in the Mediterranean Sea. Living specimens of *C. peloritana* from the Mediterranean Sea have been reported rarely, the first time by Jeffreys (1882), who published a small note about some molluscs dredged between Sardinia and Naples at a depth of 307 m, during the scientific expedition carried out by the R. V. 'Washington' in 1881. The second report was made by D'Amico (1912), who described the material dredged during the same expedition offshore the Egadi Islands (Sicily), at a depth of 400 m. Settepassi (1972) in his book shows a living specimen of *C. peloritana* dredged offshore Capo Teulada (Sardinia), at a depth of 400 m. Babbi (1982) reported four living individuals collected in the area mentioned by D'Amico (Egadi Islands, depth of 500-600 m), while Cecalupo (1985) confirmed the geographical distribution of this species off the coast of Sardinia (36 miles SW. of Cagliari), reporting eight specimens (three of them alive) dredged at a depth of 480-600 m. In all these papers the shells figured clearly belong to the carinate form.

On the other hand, there are many records of *C. peloritana* as fossil shells, subfossil shells and of shells lacking the soft parts: Seguenza (1875), Di Geronimo (1971, 1979), Curini-Galletti (1977), Taviani (1978), Nofroni & Sciubba (1985), Rindone & Vazzana (1989).

In the present paper we give a first record of *C. peloritana* from the Central Tyrrhenian Sea (Latium) and a great number of fossil and Recent specimens of this species from different areas, which allowed us to gain a more detailed knowledge of its morphology.

SYSTEMATICS

Ordo	Vetigastropoda
Superfamilia	Trochoidea
Familia	Colloniidae
Genus	*Cantrainea*

MATERIAL

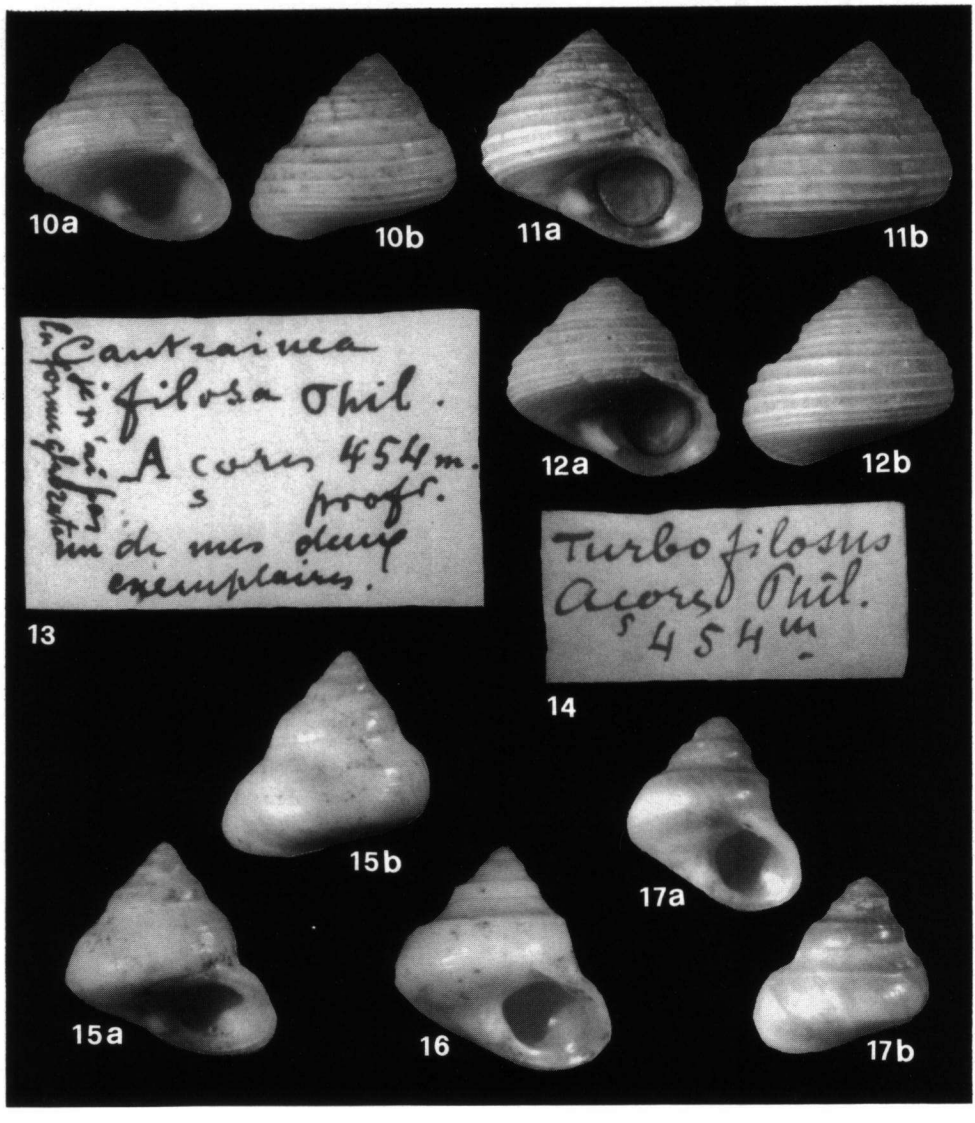
Several fossil individuals belonging to the Monterosato collection deposited in the Museo di Zoologia di Roma (MCZR), many fossil specimens collected in Calabria (Italy), and some living specimens from the Mediterranean Sea of *C. peloritana* have been analysed. Three specimens containing soft parts of this species from the Atlantic Ocean, deposited in the Monterosato collection, have also been examined.

We describe this material in more detail here on: six fossil specimens labeled as *Trochus filosus* (Philippi, 1844) (MCZR 10882); seven fossil specimens labeled as *Trochus glabratus* (Philippi, 1844) (MCZR 10883); three specimens containing soft parts labeled as *Cantrainea filosa* (Philippi, 1844) and *Turbo filosus* (Philippi, 1844) (MCZR 10804). Two hundred and fifty-five fossil specimens of *C. peloritana* collected in Catrica-Lazzaro and 147 fossil specimens collected in Archi, Calabria (Italy), in different stages of development. Four very fresh specimens, two of them containing soft parts, of *C. peloritana* dredged at a depth of 300-600 m from the Central Tyrrhenian Sea (coast of Latium, 41°51'N 11°28'E; 41°24'N 12°3'E); one living specimen of *C. peloritana* dredged at a depth of 600 m offshore from Capo Carbonara, Sardinia (Italy).

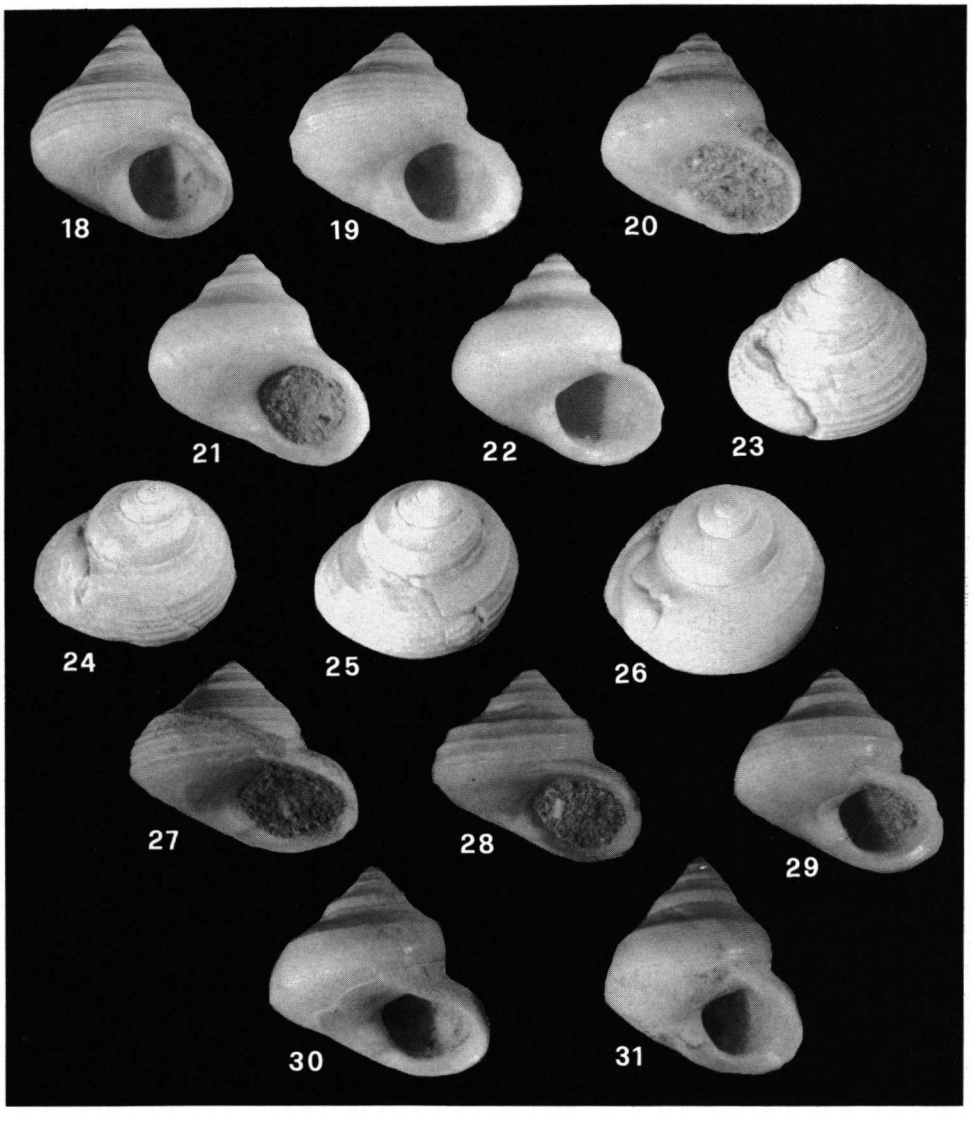
DISCUSSION

All the specimens analysed in this work have been divided into three categories: (A) typical form, (B) intermediate stages and (C) carinate form. The ratio H/D (height/major diameter) of the individuals of the three groups have been calculated and it turns out that this value cannot be considered a diagnostic feature since it does not show any significant difference among these categories (table 1). Each group is always well represented in the analysed fossil material from different areas, pointing out the great variability of this species during the Quaternary. On the contrary, it seems that only the carinate morph occurs in the observed living individuals from the Mediterranean Sea, as already mentioned by Babbi (1982).

Figs. 1-9. Fossil shells of *Cantrainea peloritana*. 1-5, *Trochus filosus* (Philippi), Monterosato collection (MCZR); 1, H 14.0 mm, D 14.0 mm; 2, H 16.0 mm, D 16.0 mm; 3, H 0.8 mm, D 0.9 mm; 4, H 11.0 mm, D 12.0 mm; 5, original label. 6-9, *T. glabratus* (Philippi), Monterosato collection (MCZR); 6, H 10.0 mm, D 10.0 mm; 7, H 14.0 mm, D 14.0 mm; 8, H 15.0 mm, D 15.0 mm; 9, original label (H = height, D = major diameter).



Figs. 10-17. Fossil and recent shells of *Cantrainea peloritana*. 10-14, *Trochus filosus* (Philippi); 10, H 12.0 mm, D 13.0 mm; 11, H 13.0 mm, D 14.0 mm; 12, H 12.0 mm, D 13.0 mm; 13, original label; 14, original label. 15-16, *C. peloritana* (Cantraine), Central Tyrrhenian Sea; 15, H 12.0 mm, D 13.0 mm; 16, H 14.0 mm, D 12.0 mm. 17, *C. peloritana* (Cantraine), Capo Carbonara-Sardinia, H 8.0 mm, D 8.0 mm.



Figs. 18-31. Fossil shells of *Cantrainea peloritana*. 18-26, Catrica-Lazzaro (South Italy); 18, H 12.0 mm, D 12.0 mm; 19, H 12.0 mm, D 14.0 mm; 20, H 12.0 mm, D 12.0 mm; 21, H 12.0 mm, D 13.0 mm; 22, H 12.0 mm, D 12.0 mm; 23, H 13.0 mm, D 13.0 mm; 24, H 12.0 mm, D 13.0 mm; 25, H 13.0 mm, D 14.0 mm; 26, H 12.0 mm, D 14.0 mm. 27-31, Archi (South Italy); 27, H 12.0 mm, D 15.0 mm; 28, H 13.0 mm, D 14.0 mm; 29, H 13.0 mm, D 14.0 mm; 30, H 14.0 mm, D 15.0 mm; 31, H 15.0 mm, D 16.0 mm.

Locality	Number of individuals	Group A (H/D)	Group B (H/D)	Group C (H/D)
Rometta	3	1.00 ± 0.00	-	-
Rometta	6	-	0.98 ± 0.07	-
Rometta	4	-	-	0.93 ± 0.09
Catrica-Lazzaro	79	0.93 ± 0.07	-	-
Catrica-Lazzaro	107	-	0.93 ± 0.07	-
Catrica-Lazzaro	69	-	-	0.96 ± 0.05
Archi	25	0.97 ± 0.06	-	-
Archi	62	-	0.97 ± 0.07	-
Archi	60	-	-	0.98 ± 0.05
Azores Islands	3	0.92 ± 0.01	-	-
Central Tyrrhenian Sea	4	-	-	1.02 ± 0.01
Capo Carbonara	1	-	-	1.00

Table 1. H/D values of *Cantrainea peloritana*. The ratio H/D is given as mean value ± standard deviation ($\bar{X} \pm$ s.d.). The analysis of variance revealed F values not significant inter the groups A, B and C (1% level of probability).

It was observed that in all the different fossil material deposited in the Monterosato collection (MCZR), some shells show characters intermediate between the two extreme forms (typical morph, figs. 1a-b; carinate morph, figs. 4a-b and figs. 8a-b). In fact, we could find some individuals strongly sculptured with spiral cords but already showing a keel (figs. 2a-b, 7a-b), other ones less sculptured showing a pronounced keel (figs. 3a-b), while some juvenile specimens clearly present a typical form without sculpture (figs. 6a-b).

We have also examined a large number of fossil specimens of *C. peloritana* collected at two sites in Calabria (figs. 18-31), in which a fossil fauna belonging to the bathyal muds of the layer "Siciliano" (lower Pleistocene) is present (Rindone & Vazzana, 1989). In this case, it has been found that about 40% percent of the shells analysed show intermediate characters (figs. 19-20 and 28-29). It is noteworthy to mention that a certain number of shells, regardless to which form they belong, have been found with a typical jagged interruption on the outer surface, which is due to damage inflicted by some crushing predator. Examples of repaired shell damage are shown in figs. 23-26. We found about the same percentage of damaged shells of the three forms (typical, carinate and intermediate). There is no substantial difference in shell thickness in these three groups, so it seems that there was no selective trend in predation.

As regards the nomenclature, two synonyms of *C. peloritana* have been identified in the Monterosato collection (MCZR), viz. *Trochus filosus* (figs. 1a-4b, fig. 5 shows the label) and *Trochus glabratus* (figs. 6a-8b, fig. 9 shows the label). *T. filosus* and *T. glabratus* were proposed as specific names by Philippi (1844) for fossil specimens collected in Calabria and Sicily (Italy).

Three specimens containing the soft parts, labeled *T. filosus* and *C. filosa*, have been found in the Monterosato collection (MCZR), and are shown in figs. 10a-12b. The data reported on the labels (Açores, 454 m, figs. 13 and 14) strongly suggest that these individuals have been dredged during the scientific campaign performed by the

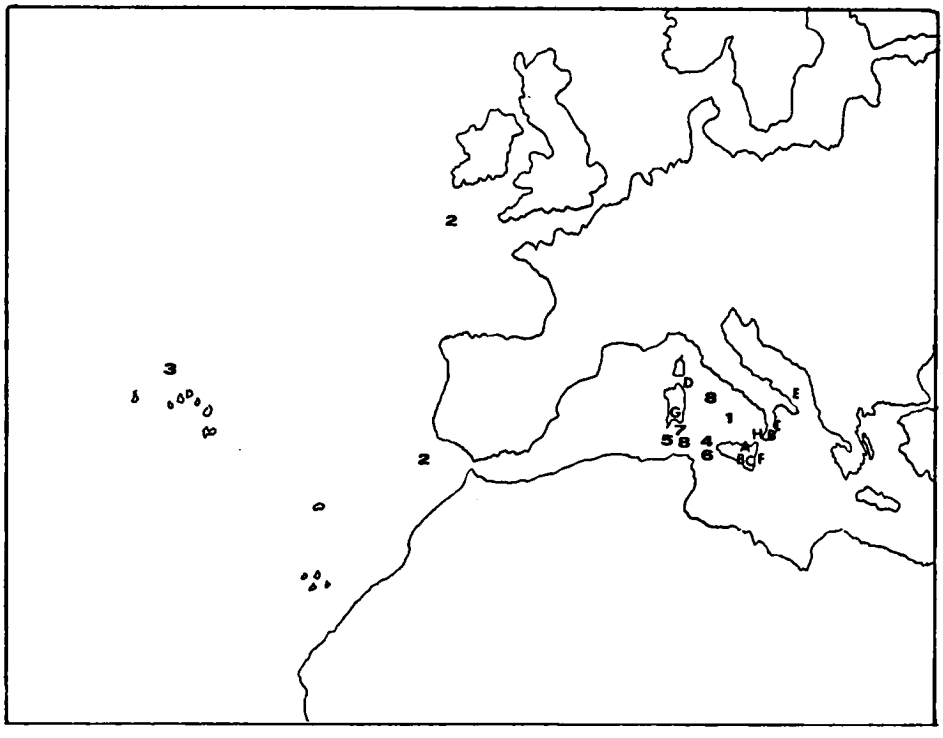


Fig. 32. Recent distribution (numbers) and fossil, subfossil and empty shell records (letters) of *Cantrainea peloritana*. Recent distribution according to: (1) Jeffreys (1881); (2) Jeffreys (1883); (3) Dautzenberg & Fischer (1897); (4) D'Amico (1912); (5) Settepassi (1972); (6) Babbi (1982); (7) Cecalupo (1985); (8) this report. Fossil, subfossil and empty shell records according to: (A) Cantraine (1835); (B) Philippi (1844); (C) Seguenza (1875); (D) Curini-Galletti (1977); (E) Taviani (1978); (F) Di Geronimo (1979); (G) Nofroni & Sciubba (1985); (H) Rindone & Vazzana (1989).

'Hirondelle' of Prince Albert I of Monaco, as reported by Dautzenberg & Fischer (1897, s.n. *Leptothyra filosa*); they represent the typical form.

Four very fresh specimens (two of them still containing the soft parts) from the Central Tyrrhenian Sea (Latium) (figs. 15a-16) and one living individual from the coast of Sardinia (figs. 17a-b) of *C. peloritana* were dredged on deep-sea coral banks (some of them partially described with their faunal assemblages: Smriglio et al., 1989). Therefore we can confirm that this species belongs to the deep-sea coral biocoenosis and with this report the distribution of *C. peloritana* is shown to cover more of the Mediterranean Sea than originally known, as shown in fig. 32. The three individuals from the Azores represent too small a sampling to make a more general statement about the presence of both forms in the Atlantic Ocean. In the literature we could find *C. peloritana* from the Atlantic Ocean depicted only by Warén (1980), who reported the type material dredged during the 'Porcupine' expedition previously described by

Jeffreys (1883) as *Leptothyra peloritana*; in this case the specimen figured was a typical form.

It still remains an open question why the two distinct morphs have such a kind of different distribution.

ACKNOWLEDGEMENTS

We are grateful to Dr. Vincenzo Vomero (MCZR), who allowed us to study the material of the Monterosato collection. We are very indebted to Dr. Angelo Vazzana for kindly supplying the fossil material from Catrica-Lazzaro and Archi, Reggio Calabria (South Italy).

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