

Jacobus J. van Aartsen (*) - Ferdinando Carrozza (**)

EUROPEAN MARINE MOLLUSCA: NOTES ON LESS
WELL-KNOWN SPECIES.

VII. *DARONIA EXQUISITA* (JEFFREYS, 1883) (***)

KEY WORDS: Gastropoda, Archaeogastropoda, Skeneidae, Eastern Atlantic and Mediterranean.

Riassunto

JEFFREYS nel 1883 e CHASTER nel 1895 descrissero come *Adeorbis exquisitus* e *Adeorbis imperspicuus* — e quindi due specie distinte — una microscopica conchiglia trovata rispettivamente al largo di Creta e delle coste inglesi.

Le diverse descrizioni e il fatto che, apparentemente, i due Autori non ebbero occasione di fare un confronto hanno portato nel tempo alla accettazione dei due taxa che, in effetti e come viene dimostrato, debbono esser messi in sinonimia. Si deve peraltro riconoscere che le misure veramente microscopiche di questa bella conchiglia, se da un lato ne hanno reso difficile e molto raro il ritrovamento da un altro hanno probabilmente impedito a molti studiosi una verifica morfologica e un chiarimento sulla validità delle specie suddette.

Con moderni mezzi di indagine si sono potute ora rilevare e mettere a confronto le caratteristiche morfologiche ed avere conferma che si tratta di una unica specie. Conseguentemente, si è pure proceduto al confronto dei tipi delle due specie degli autori inglesi conservati presso lo USNM di Washington.

Nella impossibilità di un esame di esemplari viventi, è difficile stabilire la collocazione generica della specie. Le caratteristiche della protoconca la assegnano molto probabilmente agli Archaeogastropoda, famiglia Skeneidae, genere *Daronia* A. ADAMS, 1861 e non al genere *Cochliolepis* la cui protoconca indica la appartenenza ai Mesogastropoda.

Summary

JEFFREYS in 1883 and CHASTERS in 1895 described under the names of *Adeorbis exquisitus* and *Adeorbis imperspicuus* a microscopic shell which they found off island of Crete and the British coasts. The difference of the two descriptions and the fact that, most likely, the two authors had apparently no opportunity for a comparison of the two shells has led to the acceptance in the course of time of the two taxa which, as evidenced hereunder, should be considered as synonyms.

(*) Admiral Helfrichlaan 33, 6952 GB Dieren, Holland.

(**) Villa Il Poggio, 56030 Soiana, Pisa.

(***) Lavoro accettato il 18 Novembre 1983.

It should also be noted that the microscopic features of the shell are accountable for its occasional finding and rarity and, in all likelihood, has also prevented a morphological study and a definition of the validity of the two species.

To-day's research methods have given evidence of peculiar morphological characteristics and a key to the identity of a single species. Also, for a definite confirmation of the analysis, a comparison has been made with the types of the two English authors in the USNM in Washington.

Unfortunately, no living specimens have so far been found and therefore the problem of the generic position of the species is highly questionable. The characteristics of the protoconch would suggest its assignment to the Archaeogastropoda, family Skeneidae, genus *Daronia* A. ADAMS 1861 and not to the genus *Cochliolepis* the protoconch of which indicates it to belong to the Mesogastropoda.

The most interesting paper by A. WARÉN on the Jeffreys collection, now in the United States Museum of Natural History, Washington D.C., contains the following remark under the heading *Adeorbis exquisitus*: « This species is *Tornus imperspicuus* (CHASTER) » (WARÉN, 1980:24).

In recent years some authors have published about the species *Tornus imperspicuus*, viz. FRETTER and GRAHAM (1978), NICOLAY and ANGIOY (1980) and PALAZZI (1980) and still not very much is known about this species. In the first place, it should be established that, sharing a statement by PALAZZI (1980:59) we consider as nomina nuda the names *Adeorbis imperspicuus* MONTEROSATO (1875:36) « Rasso-migliante in piccolo all'*A. pulchralis* S. WOOD, fossile del Crag) and *Adeorbis imperspicuus* MONTEROSATO (1878:97).

Although the species was partly described by CHASTER and HEATHCOTE (1894:301) under the erroneous name *Cyclostrema millepunctatum* FRIELE, the first valid description of this species was given by CHASTER (1895:56) and reads as follows:

"*Adeorbis imperspicuus*, MONTS. Figs. I, Ia. Shell very thin, spire scarcely raised; whorls about two, flattened and sloping at the sides, rounded at the periphery, and markedly but bluntly angulated below, sculptured with numerous spiral rows of very minute pits or punctures which, except at the periphery, are obscured by closely-set, flexuous, oblique, raised striae in the direction of the lines of growth; suture channelled; mouth squarish; outer lip thin, flexuous, sinuated above; umbilicus very large, occupying all the under surface. — Height, 0,6 mm.; breadth, 0,8 mm.

Varietas ex forma, var. *elegantula*, nov. In many specimens the exaggerated lines of growth which in the type constitute a true sculpture are almost absent, the shells being hyaline and nearly smooth save for the characteristic punctation. In my limited experience, such shells are of smaller size and may be designated as above.

Distribution. I have met with the type in dredgings from Oban and Roundstone. Marshall records it from off Southport and Monterosato from Palermo and Messina.

The variety I have from Oban, Isle of Man and Tangier Bay (7 fathoms)".

So, in conclusion, the original name of this species is *Adeorbis imperspicuus* CHASTER, 1895.



Adeorbis imperspicuus
MONTS. Figs. I, Ia
height 0,6 mm
breadth 0,8 mm
(CHASTER, 1895)

The species is not mentioned by PARENZAN (1970) whereas NORD-
HECK in his first book (1968:59, no. 30.02) says:

"*Tornus imperspicuus* (Chaster) aus der irischen See, als selten bezeich-
net, habe ich noch nicht ermitteln können..."

and in his third book (1972:146, no. 10.003) he adds

"*Tornus imperspicuus* (Monterosato, 1875) — 1/1 mm. R XIV, 25
(?), orig. von Concarneau (Atl.) — Sizilien, von Chaster in der Irischen
See gefunden. Eine Beschreibung wurde von Monterosato, soweit ich
weiss, nicht gegeben. Sie war jedenfalls nicht erhältlich ».

The figure given (R XIV, 25) is quite different from the original, rather good figure of Chaster and is certainly not referable to the species under discussion.

The photographs given by NICOLAY and ANGIOY (1980:22) of two specimens of the Monterosato collection are not good enough for a certain identification of this very small shell whereas the very nice drawings published by FRETTER and GRAHAM (1978:232, fig. 193 A, B) under the erroneous name *Tornus imperspicuus* (MONTEROSATO, 1895) cannot be considered to belong to the species in question without some doubts because they represent a different form and one which we did not yet see among the specimens we have studied.

The drawings of PALAZZI (1980:63) are of no further help either.

So, the only typical and representative figure which seems to exist of this species is the original drawing of CHASTER (1895:56, fig. 1, 1a), as above given.

Notwithstanding the kind help of Mrs. Kathy Way of the British Museum, Natural History in London and Dr. C. E. O'Riordan, National Museum of Ireland in Dublin it was not possible to locate the type-specimen(s) of Chaster. However, the Jeffreys collection in Washington contains a lot (USNM no. 133526) consisting of four specimens with the following label:

"*Adeorbis imperspicuus* MTR./off Plymouth, England/Chaster"

which the United States Museum of National History obtained from Chaster himself.



Fig. 1. *Daronia exquisita* (Jeffreys, 1883). Specimen of "*imperspicuus*" type. Central Tyrrhenean Sea, — 400 m. (100 x)

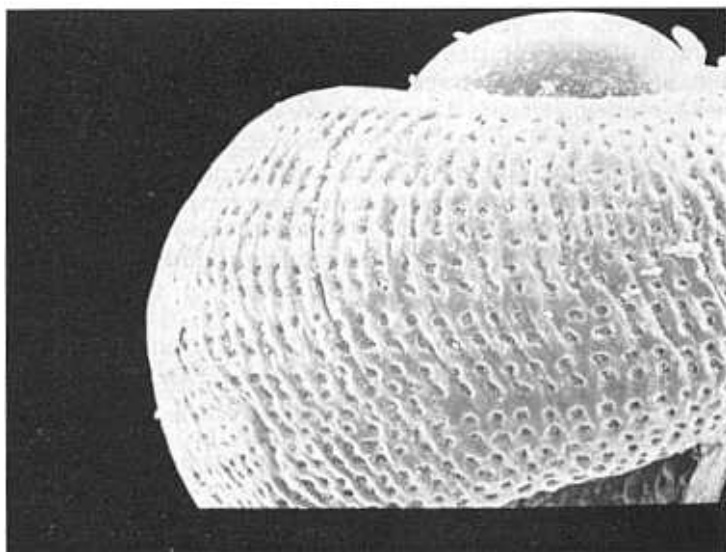


Fig. 2. *Daronia exquisita* (Jeffreys, 1883). Specimen of "*exquisitus*" - type. Capo Passero, 250 m. Detail of sculpture (275 x)

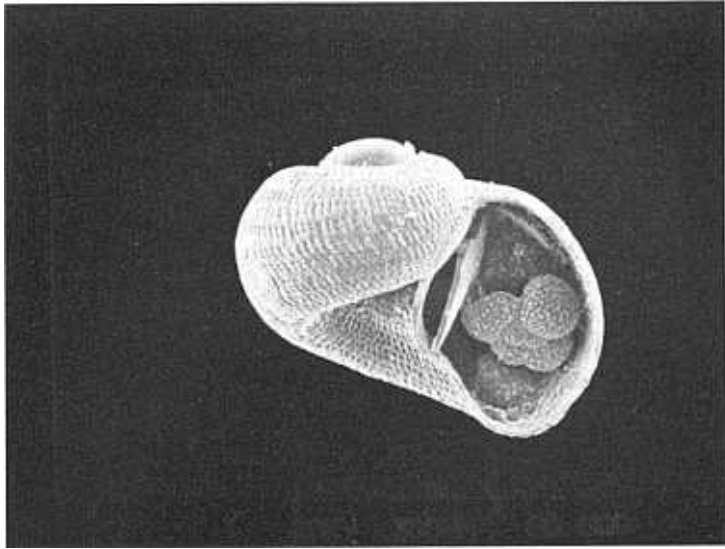


Fig. 3. *Daronia exquisita* (Jeffreys, 1883). Same specimen as fig. 2. (90 x)

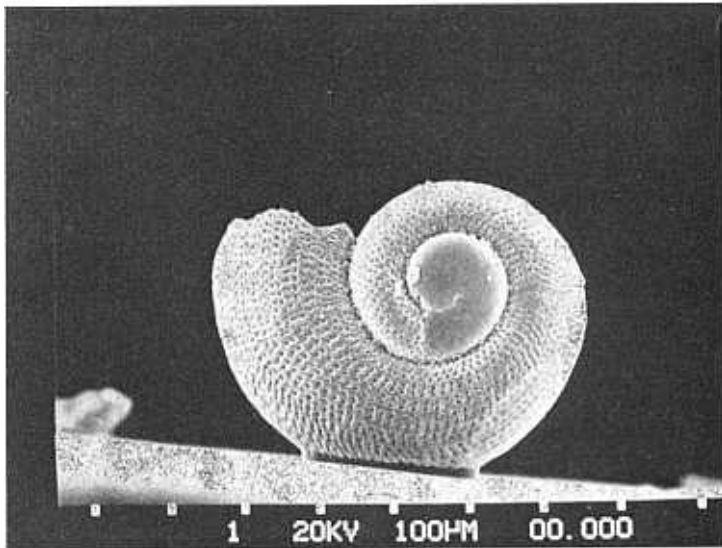


Fig. 4. *Daronia exquisita* (Jeffreys, 1883). Same specimen as fig. 2. (95 x)

We have availed ourselves of this material to make a comparison with several specimens of the species found in shell grits from off Gorgona island, Thyrreanean sea (six specimens from 100/150 meters in collections van Aartsen, Carrozza and Bogi), Savona (one specimen in collection Carrozza, from 80 meters), the Thyrreanean sea (nineteen specimens, different places and depths, in collection van Aartsen), Capo Passero, eastern Sicily (nine specimens in collection Carrozza, from 250 meters), Monaco (four specimens in collection van Aartsen, from 350/400 meters), as well as in shell grits washed ashore at Sidi Ferruch, Algeria (one specimen) and S. Carlos de la Rapita, Spain (one specimen) both in collection van Aartsen.

We publish a SEM photograph (fig. 1) of one of these specimens from the central Thyrreanean sea. Its dimensions are height 0.51 mm and breadth 0.76 mm while the diameter of the « very minute pits or punctures » cited by the Chaster's description is about 4 micron (see fig. 2 of another specimen from Capo Passero, eastern Sicily).

The specimen from the central Thyrreanean sea is identical to the Chaster specimens (USNM no. 133526). In our opinion, there can be no doubt that also the specimen described by PALAZZI (1980:60) from Bonifacio straits, northern Sardinia, dredged from 100/200 meters, belongs to this same species.

The species *Adeorbis exquisitus* JEFFREYS 1883 referred to by WARÉN and consisting of a holotype « off Crete » contained in lot no. 181426 of the USNM in Washington D.C. has been described as follows:

"*Adeorbis exquisitus* JEFFREYS. Pl. XVI fig. 8 Shell semispheroidal, expanding laterally, rather thin, transparent, and glossy: sculpture, numerous and extremely delicate curved longitudinal striae or lines, which are crossed by equally numerous and fine spiral lines, causing a most exquisite kind of microscopic decussation; apex smooth: colour clear white: *spire* short and compressed, placed excentrically: *whorls* 3, convex and rounded; the last occupies four fifths of the shell; top whorl somewhat twisted: *suture* deeply excavated: *mouth* obtusely triangular: *outer lip* semicircular sharp-edged, inflected above at its junction with the periphery, thickened below: *inner lip* attached to the periphery, and slightly folded over the base: *umbilicus* wide, deep, and semicircular. L. 0.025 B 0.0175. (inch!)

A single specimen of this remarkable and beautiful species.

The species is figured at Pl. XVI, fig. 7 (not 8 as indicated in the text).

Although from the description it appears that the sculpture is very different from that of *Adeorbis imperspicuus*, a study of the holotype and only known specimen (USNM no. 181426; off Crete) reveal that the description is not correct and that the specimen shows the same spiral rows of the « very minute pits or punctures » described by CHASTER for *A. imperspicuus*. Among the specimens

found in the various localities above listed, we have noted a number of somewhat smaller dimensions which entirely agree with the Jeffreys holotype of *A. exquisitus* in Washington D.C. We publish (fig. 3 and 4) a SEM photograph of one of these smaller specimens from Capo Passero, easter Sicily.

Although the form is a little different from the *imperspicuus* type (fig. 1), both species show exactly the same sculpture and the same protoconch. The latter has never been described or figured and consists of $5/8$ whorl, the diameter of the total protoconch being 190 micron across whereas the first (initial) swelling measures about 120 micron across.

In our opinion there can be no doubt that *Adeorbis exquisitus* JEFFREYS, 1883 is a younger stage of *Adeorbis imperspicuus* CHASTER, 1895. The species occurs along the european coast of the eastern Atlantic as well as throughout the Mediterranean.

NORDSIECK (1968: 61, no. 33.02) mentions the species as *Trachysma exquisitum* (JEFFREYS) giving as dimensions 2.5 mm and a figure which does not at all correspond with the real *A. exquisitus*. PARENZAN (1970:89) merely echoes Nordsieck and his figure (Tav. 16, fig. 286) is a copy of the one given by Nordsieck. Later on, the German author (1972:147, no. 11.002) describes a *Trachysma exquisitum* (JEFFREYS, 1883) with the same erroneous dimensions (2.5 mm x 1.8 mm) and his new figure (Tafel R II, fig. 27), different from the earlier one, is utterly different from the real *A. exquisitus*.

Noteworthy is the fact that JANSSEN (1967:125, Tafel 1, fig. 3 and Tafel 2, fig. 5) describes a species *Daronia* (? *Cyclostremella*) *punctata* from the Middle Miocene deposits of Dingden (Western Germany). Later on, JANSSEN (1969:154) mentions the finding of one specimen in « recent or semi recent deposits of the Trondheim Fjord, Norway ».

A careful study of the holotype and paratypes of the fossil specimens as well as of the Norwegian specimen failed to show any difference between this species and *A. exquisitus*.

As to the systematic position of this species we entirely agree with WARÉN who writes (1980:24): « The systematic position of this species (....) is most uncertain ».

We do not believe, however, that the genus *Cochliolepis* is appropriate for this species. Besides the fact that *Cochliolepis parastica* STIMPSON 1858, the type species of the genus *Cochliolepis*, is a rather flat (height/breadth ratio is 1:3.5) and smooth shell, not showing anything like the characteristic sculpture of the species *Adeorbis exquisitus*, it also has a protoconch of $1 \frac{2}{3}$ whorls which places *Cochliolepis* in the Mesogastropoda. *Adeorbis exquisitus*, however, has a protoconch of not much more than $1/2$ whorl and thus most probably belongs to the Archaeogastropoda, see MOORE (1972: 106, 107).

With some doubt, we agree with JANSSEN (1967:125) that the best place is probably the genus *Daronia* (? *Cyclostremella*) and we therefore conclude that the correct name of the species is:

Daronia exquisita (JEFFREYS, 1883)
 = *Adeorbis imperspicuus* Chaster, 1895
 = *Daronia punctata* Janssen, 1967

It should also be noted that *Adeorbis unisulcatus* CHASTER, 1897 known from the French coast of the eastern Atlantic should be placed in the same genus and its name changed to *Daronia unisulcata* (CHASTER, 1897) owing to the characteristics of the protoconch as evidenced by RODRIGUEZ BABIO and THIRIOT-QUIÉVREUX (1974: Pl. 2, fig. A and B).

L I T E R A T U R E

- CHASTER, G. W., 1895 - Notes on a few of the less-known British Marine Mollusca. *J. of Malac.* **4**: 56-59.
- CHASTER, G. W., 1897 - *Adeorbis unisulcatus*, new species, from the Irish Coast. *J. Conch.* (London) **8**: 373.
- CHASTER, G. W. and HEATHCOTE, W. H., 1894 - A contribution towards a list of the marine Mollusca and Branchiopoda of the neighbourhood of Oban. *J. Conch.* (London) **7**: 289-312.
- FRETTER V. and GRAHM, A., 1978 - The prosobranch molluscs of Britain and Denmark. Part. 4 - Marine Rissoacea. *J. Moll. Stud. Suppl.* **6**: 153-241.
- JANSSEN A. W., 1967 - Beiträge zur Kenntnis des Miocäns von Dingden und seiner Molluskenfauna 1. *Geol. et. Palaeont.* **1**: 115-173.
- JANSSEN A. W., 1969 - ibid 2. *Geol. et Palaeont.* **3**: 153-193.
- JEFFREYS, J. G., 1883 - Mediterranean Mollusca, No. 3, and other Invertebrata. *Ann. Mag. nat. Hist.* ser. 5, **11**: 393-401.
- MONTEROSATO, T. A. di, 1875 - Nuova rivista delle conchiglie mediterranee. *Atti Acc. Pal. Sc. Lett. Arti*, Palermo Sez. II, **5**: 1-50.
- MONTEROSATO T. A. di, 1878 - Enumerazione e Sinonimia delle Conchiglie Mediterranee. *Giorn. Sci. e Sin. Mat. e Econ.* (Palermo) XIII (1878) 61-115.
- MOORE D. C., 1972 - *Cochliolepis parasitica*, A nonparasitic marine Gastropod, and its place in the Vitrinellidae. *Bull. Mar. Sci.* **22** (1): 100-112.
- NICOLAY K., and Angioy M., 1980 - Brevi note su alcune specie mediterranee della fam. Tornidae Sacco, 1896. *Notiz. C.I.S.M.A.* **2** (1): 18-22.
- NORDSIECK F., 1968 - Die europäischen Meeres-Gehäuseschnecken. (Stuttgart): I-VII, 1-273.
- NORDSIECK F., 1972 - Die europäischen Meeresschnecken. (Stuttgart): I-XIII, 1-372.
- PALAZZI S., 1980 - Taxonomic notes on the Rissoidae and related families. V. On *Cochliolepis imperspicua* (MONTEROSATO, 1875, nom. nud.) CHASTER, 1895). *Notiz. C.I.S.M.A.* **2** (2): 59-63.
- PARENZAN P., 1970 - Carta d'identità delle conchiglie del Mediterraneo. Volume primo: Gasteropodi. (Taranto): 1-283, Tav. I-LIII.
- RODRIGUEZ BABIO C. and THIRIOT-QUIÉVREUX C., 1974 - Gastéropodes de la Région de Roscoff. Étude particulière de la protoconque. *Cab. Biol. Mar.* **15**: 531-549, Planches 1-6.
- WARÉN A., 1980 - Marine Mollusca described by John Gwynn Jeffreys, with the location of the type material. *Conch. Soc. Gr. Britain and Ireland, Special Publication* 1: 1-60, Plates 1-8.