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SYSTEMATIC POSITION AND VALIDITY OF *EBALA* GRAY, 1847
(EBALIDAE FAM. N., PYRAMIDELLOIDEA, HETEROBRANCHIA)**

KEY WORDS: Taxonomy, Heterobranchia, Pyramidelloidea, Ebalidae, Recent, Paleozoic.

Abstract:

A new family, Ebalidae, differing from the Pyramidellidae mainly in having a complicated «jaw apparatus», is recognized for *Ebala* GRAY, 1847. The genera *Henrya* BARTSCH, 1947; *Murchisonella* MORCH, 1875 (new synonyms *Anisocyclus* MONTEROSATO, 1880, *Bermudaclis* BARTSCH, 1947, and *Pandorella* LASERON, 1951), and, hesitantly, the Paleozoic genus *Donaldina* KNIGHT, 1931 are referred to Ebalidae. The controversy between this generic name and *Anisocyclus* MONTEROSATO, 1880 is discussed, and it is concluded that *Turbo nitidissimus* MONTAGU, 1803 is the type species of *Ebala*.

Riassunto

Nell'ambito della famiglia Pyramidellidae il genere *Ebala* GRAY, 1847 differisce dagli altri generi per la presenza di un «apparato mascellare» alquanto complesso. Viene quindi proposta la nuova famiglia Ebalidae. I generi *Henrya* BARTSCH, 1947, *Murchisonella* MORCH, 1875 (nuovi sinonimi *Anisocyclus* MONTEROSATO, 1880, *Bermudaclis* BARTSCH, 1947 e *Pandorella* LASERON, 1951) e forse il genere paleozoico *Donaldina* KNIGHT, 1931 sono da ascrivere alla fam. Ebalidae. Viene discussa la questione fra i nomi generici *Ebala* e *Anisocyclus* e si conclude che *Turbo nitidissimus* MONTAGU, 1803 è la specie tipo di *Ebala*.

Introduction

The Pyramidelloidea is a group infamous for many problems of the generic classification. Partly this is due to the fact that almost all genera are based on shell characters solely and few workers have described features in the soft parts. Shell characters certainly are useful for classifying species in many cases with similar species, but with more variation, such classification becomes close to impossible.

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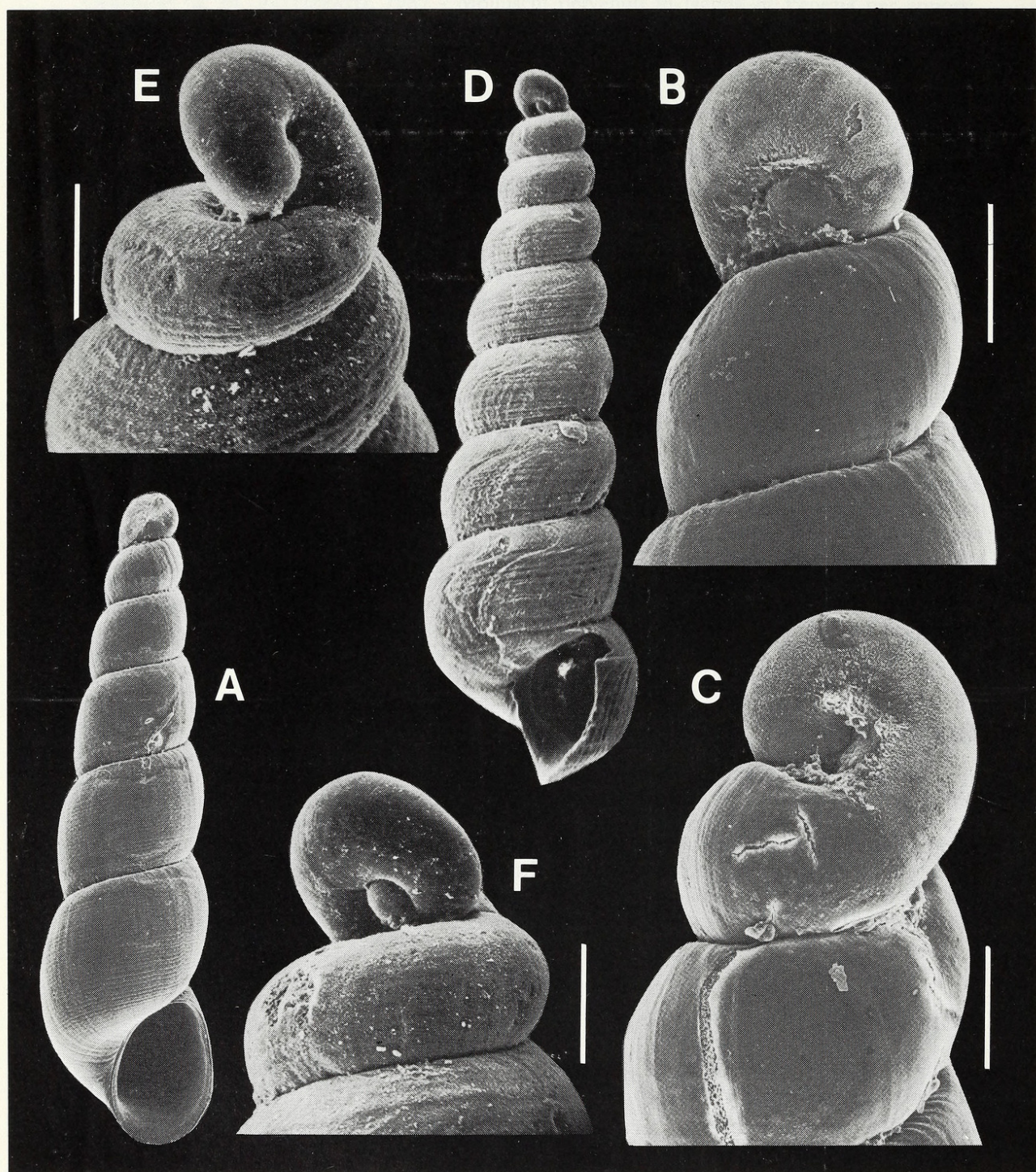


Figure 1A-C. *Ebala nitidissima* (MONTAGU), Swedish West Coast, Koster Area, *Zostera*-bed, 1-3 m depth. A. Small adult specimen, height 1.7 mm. B-C. Larval shell. D-F. *Murchisonella emarginata*, Chaussy, Val-d'Oise, Paris Basin, Middle Lutetian, Eocene, coll. Le Renard, Paris. D. Complete shell, 2.0 mm. E-F. Larval shell. Scale lines 100 μ m.

Some 15 years ago I found that certain species traditionally classified in the Pyramidellidae and the Aclididae instead of a radula, had a complicated «jaw apparatus», possibly derived from the radula. I have since searched many species from various groups for such a structure and found it in more than 10 species of the genera *Ebala* GRAY, 1847, *Murchisonella* MORCH, 1875, and *Henrya* BARTSCH, 1947. The two latter genera are rather easy to recognise (although difficult to classify) conchologically, while the species to be included in *Ebala* can only be safely recognised by the presence of this «jaw apparatus». Other, true pyramidellid genera like *Bacteridium* Thiele, 1929, and *Koolonella* Laseron, 1959 are astonishingly similar to *Ebala* in shell characters, but they lack the «jaw apparatus».

This is a preliminary note to draw attention to these species and to show the problems with a classification based on shells only, as well as a response to a growing demand from colleagues for a validation of the family name.

HETEROBRANCHIA

Superfamily PYRAMIDELLOIDEA

Family EBALIDAE fam.n.

Diagnosis. Pyramidelloids with a small, cylindrical shell (Figs 1A-F), smooth or with faint spiral lines and fine straight or flexous axial lines, often with a notch at suture. Larval shell consisting of 1-2 planispiral, indistinctly hyperstrophic whorls with a slightly sunk nucleus; often tilted at an angle to axis of shell. Animal externally of pyramidellid type, but with a complicated «jaw apparatus» consisting of several paired elements of which one or two pairs are much larger (Figs 2A-D). Recent species of Ebalidae usually live in shallow water, in lagoons, estuaries, and in sea-grass beds.

Remarks. Several genera of incompletely known, small gastropods have been found to have animals with external morphology (see RASMUSSEN 1944) similar to normal pyramidellids but with a complicated «jaw apparatus» of a structure similar to that shown in Fig. 2A-D (own unpublished observations), instead of a stylet as described by FRETTER & GRAHAM (1949) and MAAS (1965). Anatomical and taxonomical work is progressing to prepare a survey of them. So far the following genera have been found to belong here, based, on the shared presence of such a «jaw apparatus»:

Ebala GRAY, 1847. Type species (see below) *Turbo nitidissimus* MONTAGU, 1803, Recent, European Zostera beds.

Henrya BARTSCH, 1947. Type species *H. henryi* Bartsch, 1947, original designation. Recent, Caribbean, hypersaline lagoons.

Murchisonella MÖRCH, 1875. Type species *Murchisonia* (*Murchisonella*) *spectrum* MÖRCH, 1875, Recent, Caribbean.

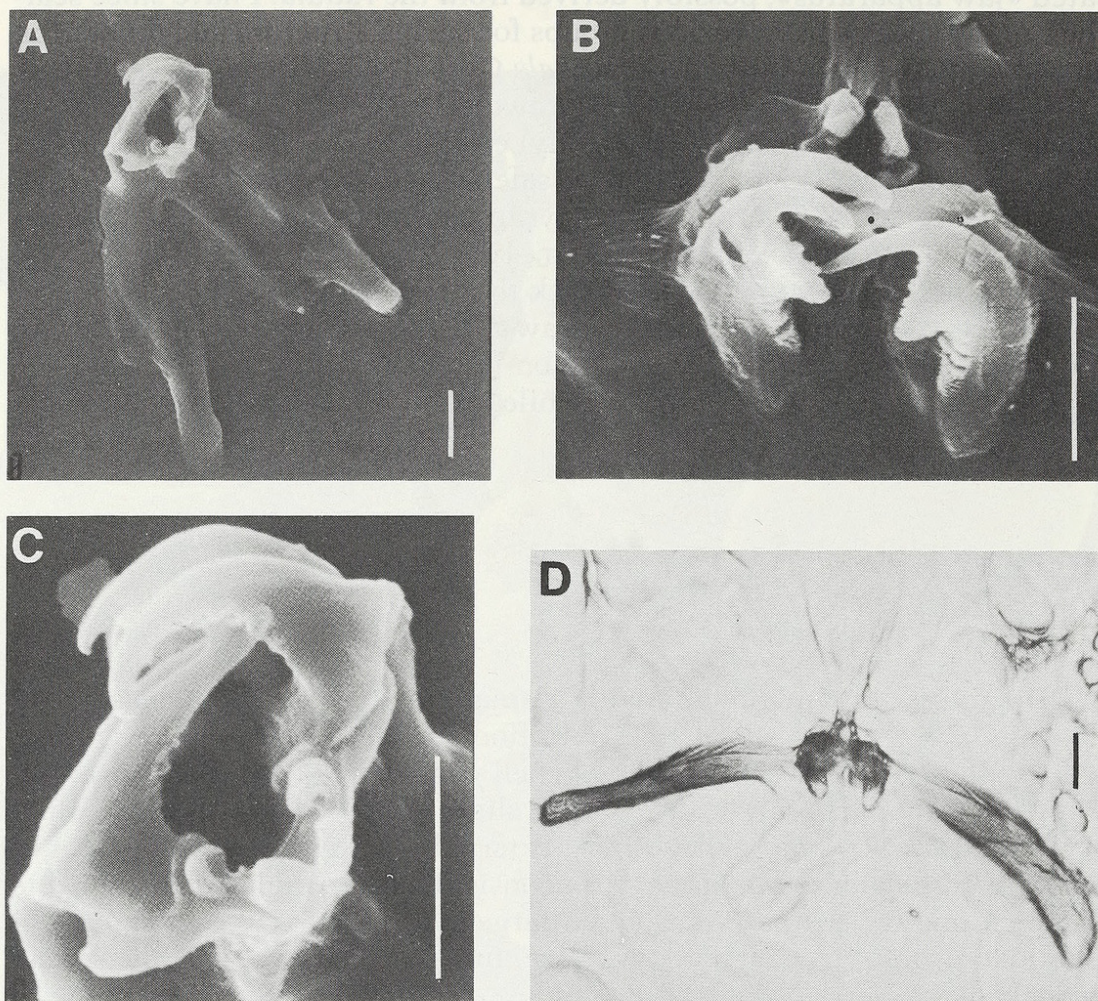


Figure 2. *Ebala nitidissima*, Swedish West Coast, Koster Area, *Zostera*-bed, 1-3 m depth. «Jaw apparatus». A. Complete apparatus. B-C. Details. D. Light micrograph. Scale lines 10 μ m.

New synonyms: *Anisocycla* MONTEROSATO, 1880 (replacement name for *Aciculina* Deshayes, 1862); type species *Aciculina emarginata* DESHAYES, 1862, here designated, Eocene, Paris Basin (Fig. 2D-F) = *Bermudaclis* BARTSCH, 1947, type species *Aclis bermudensis* DALL & BARTSCH, 1911, Recent, Bermuda = *Pandorella* LASERON, 1951, type species *P. declivita* LASERON, 1951, Recent, sea grass beds, New South Wales, Australia.

The presence of a «jaw apparatus» has been confirmed in the type species of these genera and their synonyms except in *Murchisonella emarginata*.

Another possible member of this family is the Paleozoic genus *Donaldina* KNIGHT, 1933 (type species *Aclisina grantonensis* DONALD, 1898, Devonian of Scotland). The type material of the type species has been examined and seem to resemble closely the Australian Carboniferous species *Donaldina filosa* Yoo, 1989, although its protoconch is distinctly tilted and the

shell is slightly more conical, than in the latter species. Such an interspecific variation I have, however, also seen between species of *Henrya*, *Ebala*, and *Murchisonella*, whose generic identity has been confirmed from soft parts. Yoo (1994) described a second Australian Carboniferous species, *D. minutissima*, which also seems to belong here.

The «jaw apparatus» varies considerably between the genera, but principally it consists of one or two pairs of larger, paired, claw-shaped hooks and some smaller elements, all attached to the apical part of two to four large basal plates. Some species also have an unpaired element. The detailed structure of the apparatus and the anatomy is currently being investigated by C. SCHANDER, University of Göteborg. The derivation of the «jaw apparatus» is uncertain; it may be a modified radula, it may be a jaw derivative (less likely), it may even be derived from both.

The occurrence of this very strange structure nevertheless is an excellent synapomorphy supporting the monophyly of these groups. Otherwise, some of the species could, from shell morphology, not be generically distinguished from species traditionally referred to pyramidellid genera like *Eulimella* FORBES, 1844 and *Bacteridium* THIELE, 1929. (The absence of a «jaw apparatus» has been confirmed by examination of soft parts of species of these genera).

***Ebala* LEACH, in GRAY, 1847**

TYPE SPECIES. *Turbo nitidissima* MONTAGU, 1803, by monotypy.

Remarks. There has been a controversy about the name *Ebala* and its type species, brought in absurdum by GOUGEROT & FEKI (1979), who spent nine pages attempting to justify the use of the name *Anisocycla* MONTER OSATO, 1884 (sic!) for species here classified in *Ebala*.

The name *Ebala* was first published by GRAY (1847a) in a book dealing with a system of classification of the British molluscs, proposed by William LEACH, and spread in manuscript form. GRAY's intention was evidently to coordinate LEACH's and existing molluscan names (but not necessarily to validate them). Some of LEACH's names, listed on this paper have afterwards won general acceptance, e.g. *Hinia*, *Turboella*, *Balcis*, *Epheria*, etc.

Ebala was there introduced as a synonym of *Turritella* LAMARCK, 1799, and associated with *Turbo elegantissimus* MONTAGU, 1803 (= *Turbonilla elegantissima* (MONTAGU, 1803)) and *Ebala crenata* «LEACH, 1816» a nomen nudum, manuscript name, and there published for the first time. *Turbo elegantissimus* could therefore be the type species, by monotypy.

A few weeks later GRAY (1847b) published a list of all Recent generic molluscan names. Here *Ebala* is listed as a synonym under *Turbonilla* RISSO, 1826 and with *Turbo nitidissimus* MONTAGU, 1803 as «species as type of the genus». He has thus changed the concept of the genus, and he did not quote LEACH as the author of the name, although he invariably gave the author of all other genera (except those introduced as new).

GRAY's work (1847b) was intended to be a critical list of the classification and each name was evaluated by GRAY. Many of the names that he considered synonyms were assigned a type species «as at some future period that type may be proved really to belong to a different genus». He did not do this with all synonyms, evidently because he considered them so close the established genera, so there would never become a need to distinguish them.

At both occasions (1847a and 1847b), however, the name *Ebala* was introduced as a junior synonym in the sens of Article 11C of the ICZN. A name so introduced is not an available name, unless it before 1961 has been treated as an available name of a taxon or treated as a senior homonym.

No author has, before 1961, used the name *Ebala* in the sense of GRAY (1847a), except HERRMANNSEN (1852), who simply listed *Ebala* as a manuscript name of LEACH «t.[estae = according to] GRAY [1847a]. He did, however, not in any way use the name.

Starting with A. ADAMS (1860) *EBALA* has been used as a genus or as a subgenus of *EULIMELLA*, with *Turbo nitidissimus* MONTAGU, 1803 as type species, in accordance with GRAY (1847b). The name has also been used in this sense in the major handbooks (for example THIELE 1929-35, WENZ 1938-44). It is therefore obvious by a combination of ICZN Articles 11(e) and 67(1), that the name *Ebala* will have to be used with GRAY, 1847(b) as author and *Turbo nitidissimus* MONTAGU, 1803 as type species.

This interpretation of the «Code» has been verified by P.K. Tubbs, Secretary of the ICZN.

Anisocycla was introduced by MONTEROSATO, 1880, as follows: «Sect. [of *Odostomia*] *Anisocycla*, Monts. (nov.) = *Aciculina*, Desh.[ayes], 1864, foss. di Parigi (Anfratti rotondati).

Non *Aciculina*, H. e A. Adams (1853), genere della famiglia Nassidae».

Anisocycla is therefore obviously a replacement name in the sense of the ICZN, and has to take the type species of the name replaced, in this case one of the five species originally included in *Aciculina*.

As far as I am aware, there does not exist a valid type designation for *Aciculina* DESHAYES, or for any of its replacement names: *Baudonia* BAYAN, 1873 (Bull.Soc.Geol. France 3:235), *Raphium* BAYAN, 1873 (Etude Coll. Ecole Mines 2:106) (both preoccupied), and *Anisocycla* MONTEROSATO, 1880. (*Belonidium* COSSMANN, 1892, was introduced as a new generic name for *Aciculina gracilis* DESHAYES, 1862) I therefore designate *Aciculina emarginata* DESHAYES, 1862 (Fig. 1D-F), as type species. This species is very similar to *Murchisonella spectrum* MORCH, 1875, and *Aciculina* will become an older, preoccupied synonym of *Murchisonella* MORCH, 1875, and *Anisocycla* MONTEROSATO, 1880 will become a junior subjective synonym of *Murchisonella*.

The reason for this choice of type species is that *A. emarginata* is one of the few among the originally five species included, which can be well located systematically. The others are less characteristic and can be classified in the rather wide genus *Eulimella*. This selection also has the advantage that it in no way will change current nomenclature, except the use of rarely used name *Anisocycla*.

GOUGEROT & FEKI (1979) rejected the introduction of *Anisocycla* by MONTEROSATO 1880, claiming that there was no statement of type species or diagnosis. (This is, however not necessary, since the intention was to replace *Aciculina* DESHAYES.) Instead GOUGEROT & FEKI accepted MONTEROSATO's second mentioning (1884) of the genus since MONTEROSATO then (invalidly) designated *Turbo nitidissimus* MONTAGU, 1803 as type species of *Anisocycla*.

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