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# EUROPEAN PYRAMIDELLIDAE: III. *ODOSTOMIA* AND *ONDINA*

## Introduction

In this third part of the series on Pyramidellidae we will deal with a number of smooth (or nearly smooth) shells known as *Odostomia* s.l. The generic and subgeneric division of these shells has always been a matter of discussion. From a practical point of view we can at least exclude all those shells which belong to tall, many-whorled species, which are usually classified as either *Eulimella* or *Syrnola*.

In dealing with the other European (smooth) species it will be clear that there are only a few characters by which they can be separated. In my opinion these characters are basically:

1. The form of the embryonic whorls or protoconch.
2. The form and course of the growthlines.
3. The presence (or absence) of a clear tooth on the columella.
4. The presence (or absence) of teeth on the inside of the outer lip.
5. The presence (or absence) of a clear, well-formed umbilicus.

The following remarks can be made with respect to these characters.

1) The form of the protoconch can be of three basic types, see fig. 1A, B and C. The first type (A) consists of about two whorls with a clearly protruding first whorl, coiled like a small Helix, with its axis at about right angles to the shell axis. Some cases are known where the first regular whorl partly overlaps this protoconch, but even in those cases, eg. *O. conoidea*, the topwhorls can still be clearly seen.

The second type (B) differs from A in that the axis of the protoconch makes a bigger angle (~135°) with the shell axis. Here the topwhorl usually cannot be seen because it is hidden in the first regular whorl. The rest of the protoconch can still be seen however.

A still greater angle between the protoconch-axis and the shell axis leads to a situation where practically none of the topwhorls can be seen. This third type (C) is usually called «intorted». Still there is some variation between species in this respect. For example in *O. lukisii* (fig. 1C) the top of the shell is perfectly flat whereas in *O. eulimoides* the last part of the embryonic whorls is slightly tilted above the first regular whorl.

Within one species there is surprisingly little variation within the pattern of these basic types!

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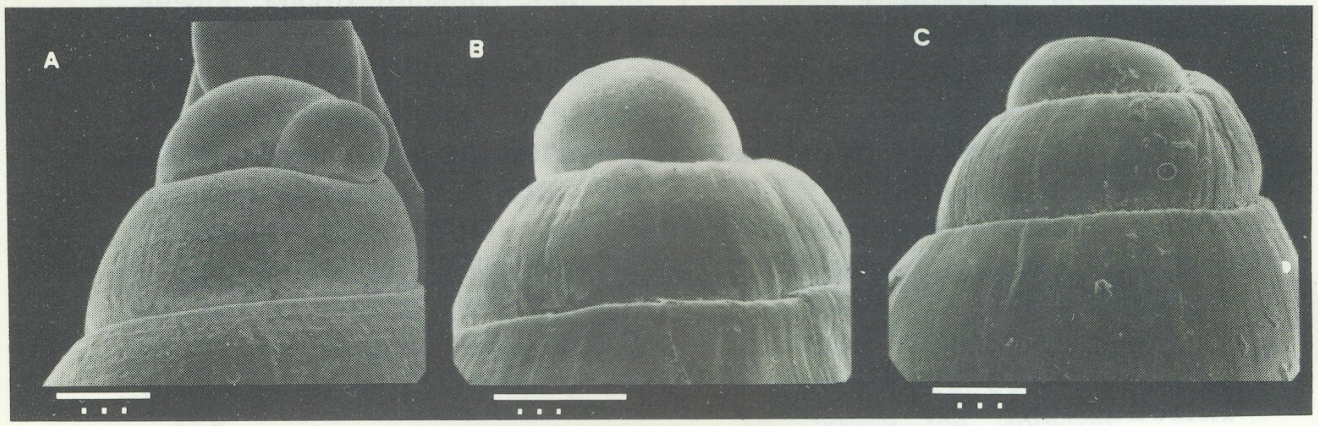


Fig. 1. Different types of protoconchs in *Odostomia*.
A: *Od. acuta*; B: *Od. kromi*; C: *Od. lukisii*.

2) The form and course of the growthlines. A number of species show growthlines with a definite sinus near the upper suture. The growthlines are thus of an «inverted S» - shape. Specimens of these species also consist of (much) thinner material and are usually rather transparent. There is no real tooth on the columella too, but only a slight fold. Along these lines we clearly get a natural group which I prefer to see as a separate genus. This genus has long been known as *Auriculina* GRAY, 1847. Names that are frequently used too are *Evalea* A. ADAMS, 1860 and *Menestho* MÖLLER, 1842. The name *Ondina* FOLIN, 1870 is here adopted for this genus, following VAN AARTSEN (1984: 134).

The course of the growthlines turns out to be more or less vertical (orthocline) or clearly prosocline (making an angle of about 40° with the vertical) in *Odostomia* s.l.. The sinuous growthlines of the *Ondina* species are in the main (slightly) opisthocline. See fig. 2A, B, C.

3) The presence (or absence) of a clear tooth on the columella. In many cases a clear tooth on the columella is present, usually situated about half-way of the aperture height. A more or less developed umbilical chink may be present at the left side behind the tooth. In other cases only a slight fold is winding around the columella. This is not only true for the «*Ondina*» - group but also for the species of the subgenus *Auristomia* MONTEROSATO, 1884. This may be the reason that Monterosato at first included these species also in the «*Auriculina*» group. Lastly the columella may be completely smooth with neither tooth nor fold.

4) The presence (or absence) of teeth on the inside of the outer lip. Most species do not show these teeth. Only four different species in my opinion do show these teeth. These species are *Od. conspicua* ALDER, 1850, *Od. conoidea* (BROCCHI, 1814), *Od. sicula* PHILIPPI, 1851 and *Od. lorioli* (HORNUNG & MERMOD, 1924) (known only from the Israeli mediterranean coast). It should be noted that I consider a number of so called species to belong to *Od. conoidea* (see note 6).

5) The presence (or absence) of a clear, well-formed umbilicus. Although a more or less clear umbilical chink is sometimes found, especially in fully mature specimens, other specimens of the same species do not show it or show such a chink to a much lesser extend. The only species in our area which do show a well-developed real umbilicus are *Od. acuta* JEFFREYS, 1848, and *Od. (Liostomia) clavula* (LOVÉN, 1846).

The general form of the shell can be used too but only **after** the characters cited above have been used. As in my opinion the form (or shape) as well as the dimensions of full-grown specimens are rather variable I consider a number of species or varieties described by past authors to be only forms of other species (not necessarily of the species to which the original author attached the varietal name!).

The right name applicable for the «*Auriculina*» group should now be discussed. Firstly it must be mentioned that the name *Auriculina* GRAY, 1847, cannot be used because of preoccupation by GRATELOUP, 1838. The name *Menestho*, MÖLLER, 1842, as used by e.g. WINCKWORTH (1932) and FRETTER & GRAHAM (1962) in my opinion cannot be used either. The type species of *Menestho* viz. *Turbo albula* FABRICIUS, 1780, is well figured by WARÉN (1974: 126 fig. 7). It is a shell with relatively strong spiral ribs and has an almost smooth columella. I do not see any close relationship between this species and the thin-shelled, oval species of the «*Auriculina*»-group.

The next name to be discussed is *Evalea* A. ADAMS, 1860, based on *Odostomia (Evalea) elegans* A. ADAMS, 1860. Although it has not been possible to locate the type of this species, both the description of the genus and the description of the species by A. ADAMS (1860: 22) mention the presence of a well-developed tooth on the columella. So I thus conclude that

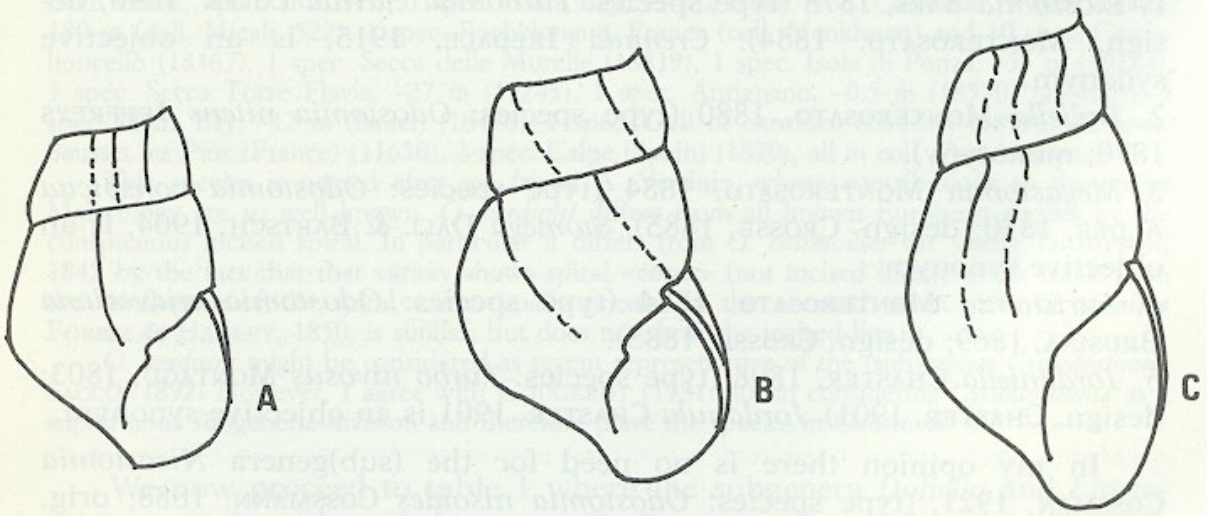


Fig. 2. Growthlines in *Odostomia* and *Ondina*.
A: orthocline (*Od. plicata*); B: prosocline (*Od. turrita*);
C: opisthocline (*Ond. diaphana dilucida*).

the name *Evalea* cannot be used for the species under discussion either. This view is corroborated by the fact that ADAMS himself (1860: 407; 1861: 42) clearly considers *Auriculina* GRAY, 1847, to be quite different from his own *Evalea*! DALL & BARTSCH (1909: 192) consider *Evalea* to be a subgenus of *Odostomia* and at the same time equal to *Auriculina* GRAY, 1847, *Ondina* de FOLIN, 1870 and *Ptychostomon* LOCARD, 1886. Except for the last synonym, the same view is still held by BARTSCH (1955: 84). It will be claar that I cannot share these opinions.

As I have demonstrated earlier (1984: 134) the genus *Ondina* de FOLIN, 1870, should be considered to be based on the species *Ondina semiornata* de FOLIN, 1872. In the same paper I suggested too that *Ondina semiornata* is most probably identical with *Ondina warreni* (THOMPSON, 1845), a species frequently, but erroneously, identified with *Ondina obliqua* (ALDER, 1844). As the type specimen(s) must be considered to be lost, the interpretation of *Ondina semiornata* must be based solely on the description and figure by de FOLIN (1872: 48, pl. 2 fig. 1). In my opinion both point to *Ondina warreni*, which is also the most littoral and widely diffused species along the Atlantic coast of Europe. The real *Ondina obliqua* turns out to be exceedingly rare in my experience! In conclusion the name *Ondina* de FOLIN, 1870, should be used for those species formerly known as *Auriculina* GRAY, 1847, not GRATELOUP, 1838. Note that the type species of *Auriculina* GRAY, 1847, is *Odostomia obliqua* ALDER, 1844, by monotypy.

RODRIGUEZ BABIO & THIRIOT-QUIÉVREUX (1974: 540, 541) have shown that the protoconch of some species of the genus *Ondina* (which they place in *Evalea*) has a special sculpture, whereas the protoconch of *Odostomia* species is always totally smooth. This fact also corroborates the status of *Ondina* as a full genus rather than a subgenus of *Odostomia*.

Apart from the genus *Ondina* I consider the following taxa as subgenera of *Odostomia* FLEMING, 1813.

1. *Liostomia* SARS, 1878 (type species: *Turbonilla clavula* LOVÉN, 1846; design. MONTEROSATO, 1884). *Cremula* IREDALE, 1915, is an objective synonym.
2. *Doliella* MONTEROSATO, 1880 (type species: *Odostomia nitens* JEFFREYS 1870; monotypy).
3. *Megastomia* MONTEROSATO, 1884 (type species: *Odostomia conspicua* ALDER, 1850; design. CROSSE, 1885). *Stomega* DALL & BARTSCH, 1904, is an objective synonym.
4. *Auristomia* MONTEROSATO, 1884 (type species: *Odostomia erjaveciana* BRUSINA, 1869; design. CROSSE, 1885).
5. *Jordaniella* CHASTER, 1898 (type species: *Turbo nivosus* MONTAGU, 1803; design. CHASTER, 1901). *Jordanula* CHASTER, 1901 is an objective synonym.

In my opinion there is no need for the (sub)genera *Nisostomia* COSSMAN, 1921, (type species: *Odostomia nisoides* COSSMANN, 1888; orig. design.), *Cyclodostomia* SACCO, 1892 (type species: *Cyclodostomia mutinensis* SACCO, 1892; orig. design.) and *Brachystomia* MONTEROSATO, 1884 (type species: *Odostomia rissoides* HANLEY, 1844; design. CROSSE, 1885). *Zastoma* IREDALE, 1915, is an objective synonym of *Brachystomia*.

It should be noted, that the genus *Odostomia* was first described by FLEMING in 1813 in the Edinburgh Encyclopedia: 76 and included a strange assemblage of species with one or more teeth-like structures in the mouth. The first valid type designation seems to be *Turbo plicata* MONTAGU, 1803, as selected by GRAY (1847: 159). LOCARD (1886: 571) introduced the genus-name *Ptychostomon*, which is a superfluous synonym. The emendated name *Odontostomia* PHILIPPI, 1849, as used for instance by COSSMANN (1921: 234) has no status in nomenclature and should not be used. *Odontostoma* TURTON & KINGSTON, 1830, is another synonym.

Before proceeding to the first table the species *Odostomia turriculata* MONTEROSATO, 1869, should be singled out. This species is rather small (2.5-3.0 mm) and forms a slender cone with nearly flat whorls, which are smooth except for the sinuous and opisthocline growthlines. The protoconch is of type B viz. planorbid at 135°. This species looks much more like a smooth *Chrysallida* than as a member of the genus *Odostomia*. This species occurs primarely in the Eastern Mediterranean (fig. 3).

A very characteristic species, showing one strongly incised spiral at about one third above (abapical) on each whorl occurs sporadically in the Mediterranean and nearby Atlantic. This species seems never to have been described and I therefore give its description here as.

*Odostomia verduini* spec. nov. (fig. 24)

SHELL: forming a short, truncated cone, with flat sides. Whorls: 3.5-4, rather flat, separated by well-marked but not very conspicuous sutures. The embryonic whorls are of type B, with axis at about 135° tot the shell axis. Sculpture: except for the strongly prosocline growthlines there is a faint spiral striature all over the whorl as well as one spirally incised line at about one third from above (abapically) at each whorl. Last whorl: occupying about 0.60 of the total length. Mouth: slightly oval, occupying about 0.35 of the total length. Columella: concave, with a clear tooth, somewhat adapical from the middle.

HOLOTYPE: 2.0 mm x 1.0 mm, from Castiglioncello, Italy. In Rijksmuseum van Natuurlijke Historie Leiden (RMHN).

PARATYPES: 2 spec. from Castiglioncello, 6 spec. from Bay of Naples, Italy, and 1 spec. from Cadiz, Spain (RMNH), 1 spec. Haifa Bay, –9 m., Israel (coll. Carrozza), 1 spec. Malta, 180 m (coll. Micali, 522), 1 spec. Rocbelongue, France (coll. Menkhorst) and 10 spec. Castiglioncello (18367), 1 spec. Secca delle Murelle (18819), 1 spec. Isola di Ponza, –35 m (19184), 3 spec. Secca Torre Flavia, –27 m (19243), 1 spec. Antignano, –0.5 m (18570) (all Italy), 3 spec. Haifa Bay, –12 m (Israel) (18476), 2 spec. Gulf of Saronico (Greece) (18996), 12 spec. Sausset les Pins (France) (11650), 2 spec. Calpe (Spain) (1870), all in coll. Van Aartsen.

This species is named after my friend A. Verduin, whose contributions to the recent Malacology are so well known. *O. verduini* differs from all known European species by the conspicuous incised spiral. In particular it differs from *O. eulimoides* var. *crassa* THOMPSON, 1845 by the fact that that variety shows spiral «cords» (not incised lines), which result from the confluence of the spiral striae usually present in the nominal taxon. Also *O. striolata* FORBES & HANLEY, 1850, is similar, but does not show the incised line.

*O. verduini* might be considered as recent representative of the (sub) genus *Cyclodostomia* SACCO, 1892. However, I agree with GOUGEROT (1981: 40) in considering *Cyclodostomia* as a superfluous subgeneric division and therefore place the species in *Odostomia*.

We now proceed to table 1 where the subgenera *Doliella* and *Liostomia* are dealt with and the genus *Ondina* as well as *Odostomia (Auristomia)* are separated from the other *Odostomia* - subgenera, which are further disucssed in table 2.

*Odostomia (Auristomia)* and *Ondina* are dealt with in table 3.

## Table 1

| | |
|---|---|
| 1.a. Shells with no tooth nor fold on the columella. | 2 |
| b. Shells with only a slight fold, no tooth, on the columella. | 3 |
| c. Shells with a clear tooth on the columella. | *Odostomia* (Table 2) |
| 2.a. Shell pupoid, growthlines prosocline. | *Od. (Doliella) nitens* JEFFREYS, 1870 (fig. 4) |
| b. Shell rissoid, growthlines nearly vertical. | *Od. (Liostomia) eburnea* (STIMPSON, 1851) (fig. 5) |
| c. Shell forming a small, smooth cylinder, with clear umbilicus. Growthlines vertical. | *Od. (Liostomia) clavula* (LOVÉN, 1846) (fig. 6, 7) [= *Od. pistillus* BRUGNONE, 1873] |
| 3.a. Shells relatively thin, oval. Growthlines with sinus near the upper suture and more or less opisthocline. Sometimes with spirally incised lines. | *Ondina* (Table 3) |
| b. Shells thicker. Growthlines nearly straight and vertical or prosocline. Always with smooth surface, but not shiny. | *Od. (Auristomia)* (Table 3) |

Note 1: The typical lot of *Od. (D.) nitens* JEFFREYS (BMNH 85.11.5.2015-17, from the Porcupine Exp., 1870) contains two sets of specimens.

The first set (3 spec.) from the Atlantic are clearly bigger than the second set (2 spec.) which is from Mediterranean origin. Still all specimens clearly belong to one species.

Mediterranean specimens are about 2 mm.

Note 2: The species *Od. (L.) eburnea* only occurs in high Northern latitudes. I have only seen the specimens of Sars, as figured in SARS (1878: pl. 10 fig. 13a-c). This specimen is here refigured. I did not see the type of STIMPSON and so I am not quite sure of the identity of Sars' and Stimpson's species.

Note 3: The species *Odostomia pistillus* BRUGNONE, 1873 = *Odostomia brugnoni* MONTEROSATO, 1874, is here considered to be only a form of *Odostomia (Liostomia) clavula* (LOVÉN, 1846).

The form *pistillus* is the prevailing form in the Mediterranean, but it also occurs in the Atlantic. In fact a typical lot of *Od. (L.) clavula* in the Jeffreys-collection (USNM 133010, «Figd. type in Brit. Conch.») contained typical *pistillus* as well as the somewhat bigger and slightly more conical *clavula*. Intermediates also were present in the same lot.

Both forms are figured.

## Table 2
## *Odostomia* s. l.

| | | |
|---|---|---|
| 1.a. | Shells with several spiral ribs around the periphery. | *(Jordaniella)* 2 |
| b. | Shell surface smooth or with spiral striature. No (spiral) ribs. | 3 |
| 2.a. | Shell (very) small (at 3,5 whorls only 1,6 mm), whorls well-rounded but not turriculate (in steps). | *Od. (J.) nivosa* (MONTAGU, 1803) (fig. 8) |
| b. | Shell bigger (at 5,5 whorls about 3,5 mm), whorls flattened but with a shoulder at the upper suture. Form turriculate. | *Od. (J.) truncatula* JEFFREYS, 1850 (fig. 9) |
| 3.a. | Inside of the outer lip with a series of list-like teeth. | *(Megastomia)* 4 |
| b. | Inside of the outer lip smooth. | 7 |
| 4.a. | Shell colour light rose to brown, never white. The biggest European *Odostomia* with length up to 9 mm (Mediterranean specimens usually much smaller!). No umbilicus whatsoever. | *Od. (M.) conspicua* ALDER, 1850 (fig. 10, 11) |
| b. | Shells white, growthlines vertical. | 5 |
| 5.a. | Topwhorls helicoid (type A). | *Od. (M.) conoidea* (BROCCHI, 1814) (fig. 12) |
| b. | Topwhorls not helicoid. | 6 |
| 6.a. | Topwhorls of type B. Shell surface perfectly smooth. | *Od. (M.) sicula* PHILIPPI, 1851 (fig. 13) |
| b. | Topwhorls intorted (type C). Shell surface with many, very faint spirals. A Red Sea species, known from the Mediterranean coast of Israel only. | *Od. (M.) lorioli* (HORN. & MERMOD, 1924) (fig. 14) |

| | | |
|---|---|---|
| 7.a. | Embryonic whorls helicoid, of type A. | 8 |
| b. | Embryonic whorls more or less intorted, types B and C. | 11 |
| 8.a. | Growthlines approximately vertical. | 9 |
| b. | Growthlines clearly prosocline. | 10 |
| 9.a. | Whorls well-rounded, with conspicuous umbilicus. | *Od. acuta* JEFFREYS, 1848 (fig. 15) |
| b. | Whorls slightly rounded, no umbilicus. | *Od. plicata* (MONTAGU, 1803) (fig. 16) |
| 10.a. | Shell forming a slender cone; whorls only slightly rounded. Columellar lip straight. Surface smooth. | *Od. unidentata* (MONTAGU, 1803) (fig. 17) |
| b. | Shell smaller than 10a, whorls usually more rounded. Columellar lip concave. Sometimes with spiral «striature». | *Od. turrita* HANLEY, 1844 (fig. 18) |
| 11.a. | Embryonic whorls of type C, exceedingly flat. Shell ivory-white with (usually) shiny surface. Whorls more or less turriculate. | *Od. lukisii* JEFFREYS, 1859 (fig. 19) |
| b. | Embryonic whorls of type B, somewhat tilted. | 12 |
| 12.a. | Growthlines more or less vertical. | 13 |
| b. | Growthlines clearly prosocline. | 16 |

13.a. Shell-surface without any sign of spiral striature, shiny in appearance. — 14

b. Shell-surface with signs of (weak) spiral striature, somewhat dull in appearance. — 15

14.a. Shell small (1,8 mm) with (usually) well-rounded whorls. Not turriculate. — *Od. kromi* VAN AARTSEN, MENKHORST & GITTENBERGER, 1984 (fig. 20)

b. Shell somewhat larger (3,2 mm) with nearly flat whorls, but with strong tendency to turriculation. — *Od. suboblonga* JEFFREYS, 1884 (fig. 21)

15.a. Shells of rissoid shape. Height/Breadth ratio <2.0 — *Od. scalaris* MACGILLIVRAY, 1843 (fig. 22)

b. Shells forming a slender oval. Height/Breadth ratio >2.0 — *Od. angusta* JEFFREYS, 1867 (fig. 23)

16.a. Shells with a subsutural incision at about 1/3 of the height at each whorl. — *Od. verduini* sp. nov. (fig. 24)

b. Surface smooth or with spiral striature at the most. — 17

17.a. Shells forming a relatively broad cone. Whorls nearly flat. Usually with pronounced spiral striature. — *Od. striolata* FORBES & HANLEY, 1850 (fig. 25)
[= *Od. monterosatoi* BDD, 1883]

b. Shells of a rissoid form to broadly oval. — 18

18.a. Deep incisions between the whorls, somewhat canaliculated. Small (1,5 mm) species. — *Od. cf. glabrata* FORBES & HANLEY, 1850 (fig. 26, 27)
[= *Od. megerlei* (LOCARD, 1886)]

b. Shells bigger and of different form. — 19

19.a. Shells more or less spherical, very broad. 20

b. Shells more slender but still (broadly) oval. 21

20.a. In Mediterranean. *Od. nardoi* BRUSINA, 1869 (fig. 28)

b. In Arctic Atlantic (only one specimen known).
Both species are questionable and may prove to be only forms of the generally diffused and rather variable *Od. eulimoides*. *Od. electa* JEFFREYS, 1883 (fig. 29)

21.a. Shell slender, Height/Breadth ratio about 2,1.
Last whorl 0.6 of the total height. *Od. carrozzai* nom. nov. (fig. 30)
[= *Od. albella* auct., not LOVÉN, 1846]

b. Shell more oval, Height/Breadth ratio 2.0 or less. Last whorl 0.7 of the total height. *Od. eulimoides* HANLEY, 1844 (fig. 31, 32)

Note 4: *Od. nivosa* (MONTAGU, 1803) and *Od. truncatula* JEFFREYS, 1850.

*Od. nivosa* has a certain affinity with *Chrysallida*-species, as can be appreciated from the SEM photograph given by VAN AARTSEN ET AL. (1984: 123 fig. 255). *Od. cylindrica* ALDER, 1844, is a synonym.

*Od. truncatula* is best characterized by stating that it most nearly resembles a young *Truncatella subcylindrica* in form. Ofcourse the top-whorls are very different (heterostroph and intorted)!

Note 5: *Od. conspicua* ALDER, 1850.

This is one of the two non-white *Odostomia* species in Europe.

Its colour is intensily rose to chocolate brown. The other species, viz. *Od. acuta* is usually white, but may be coloured rose too, albeit (much) lighter.

Mediterranean specimens of *Od. conspicua* are much smaller than Atlantic ones, but may be differentiated from *Od. acuta* by the absence of a well developed umbilicus, and by a (sharp) carina at the periphery of the last whorl (fig. 11).

Note 6: *Od. conoidea* (BROCCHI, 1814).

A characteristic and widely distributed species. Litoral forms tend to have an evenly rounded last whorl, whereas the forms from deeper water usually show a more or less pronounced carina at the periphery of the last whorl.

The (sub) species *australis* JEFFREYS, 1867, and *tenuis* JEFFREYS 1884, are here regarded as small forms of *Od. conoidea*. Although the name *Od. tenuis* JEFFREYS, 1884, is a primary homonym of *Od. tenuis* CARPENTER, 1857, there is thus no need for a replacement name. MARSHALL (1899: 231) also considered *Od. tenuis* JEFFREYS to be a form of *Od. conoidea* (fig. 33).

*Odostomia polita* (BIVONA, 1832) has been considered to be different from *Od. conoidea* by several authors, among which MONTEROSATO (1874: 266; 1884: 93) and NORDSIECK (1972: 108).

The syntypes of *Ovatella polita* BIVONA, 1832, present in the Coen-collection (HUJ 20845), corroborate the view that the only difference is the evenly rounded last whorl in *polita*. From among the six syntypes present I selected the lectotype here figured (fig. 34).

The name *Od. scotica* WINCKWORTH, 1932, introduced for the British form of *Od. conoidea* should be considered as a mere synonym.

This is also true for *Od. nagli* BRUSINA, 1865, as subsequently recognized by BRUSINA himself (1866: 70).

It should be noted that, although *Od. conoidea* was based on fossil (San Giusto) material, several authors have used the name *Od. conoidea* for fossil shells of different geological age, which are definitely not identical with the real *Od. conoidea*.

See e.g. SORGENFREI (1958: 312, pl. 70 figs. 231a-c).

## Note 7: *Od. sicula* PHILIPPI, 1851.

This species has been held to be synonymous with *Od. conoidea* on the basis of JEFFREYS' authority (1867: 129). However, along the Israeli Mediterranean coast as well as on some of the islands of the Greek Archipelago, a species is found, which is clearly different from *Od. conoidea* in possessing a fundamentally different protoconch viz. type B as opposed to type A for the real *Od. conoidea*. As this species is also smaller and fits the description by PHILIPPI (1851: 88) quite well, I use the name *Od. sicula* PHILIPPI, 1851, for this species.

## Note 8: *Od. lorioli* (HORNUNG & MERMOD, 1924).

This species was found in some samples, dredged in the Haifa region (Israel) and kindly donated by prof. Al. Barash. It is a Red Sea immigrant. The specimens, viz. (number of specimens to be obtained from Dr. Carrozza) in collection Carrozza (Soiana) and 5 in my own collection, were carefully compared with the type material of Hornung & Mermod in the MCSN (Genova) Museo Civico St. Naturale by Dr. Carrozza. They were found identical.

As is apparent from the table, *Od. lorioli* differs from the closely similar *Od. sicula*, which occurs in much greater numbers in the same samples, by its fine spiral striature as well as by its completely flat prococonch (type C).

Possibly this may have been *Odostomia erythraea* PHILIPPI, 1849, although PHILIPPI's diagnosis (1849: 28) does not quite fit the material. In the absence of type material I consider Philippi's taxon as a nomen dubium and use the name given by Hornung & Mermod.

## Note 9: *Od. acuta* JEFFREYS, 1848.

*Od.* (*acuta* var.) *attenuata* MARSHALL, 1893, not *Od. attenuata* JEFFREYS, 1884, is a smaller and more slender variety of this species, as is also *Od.* (*acuta* var.) *gracilis* MARSHALL, 1893, not *Od. gracilis* PEASE, 1868.

*Od. umbilicata* ALDER, 1850, is a somewhat bigger and more broadly conical form.

The «species» *Od. umbilicaris*, described and figured by JEFFREYS (1867: 129; 1869: pl. 73 fig. 7) as of MALM, 1863, in my opinion is a form of *Od. acuta* too. A sample in USNM 132020 «figured type in Br. Conch.» shows these shells to differ only in its more shiny surface and its more convex whorls (fig. 35). Whether these shells really represent *Od. umbilicaris* MALM 1863, I could not check. There is also a *Od.* (*umbilicaris* var.) *elongata* JEFFREYS, 1867, which remains quite uncertain.

## Note 10: *Od. plicata* (MONTAGU, 1803).

*Od.* (*plicata* var.) *carinata* MARSHALL, 1893, not *Od. carinata* H. ADAMS, 1873, is a carinated variety of this species.

*Od. vitrea* BRUSINA, 1865 (not *Monoptygma vitrea* BRUSINA, 1866), is synonymous with *Od. plicata* according to JEFFREYS (1867: 139).

## Note 11: *Od. unidentata* (MONTAGU, 1803).

It was quite a surprise to find that the type-specimen of *Odostomia albella* (LOVÉN, 1846), kept in NHRS, is undoubtly a specimen of *Od. unidentata* (fig. 36).

This implies that the species denoted as *Od. albella* by JEFFREYS (1867: 121) and other authors should have a new name, for which I propose *Odostomia carrozzai*, after my good friend Ferdinando Carrozza from Soiana, whose fine collection I had the privilige to study thoroughly. See note 23.

*Od.* (*unidentata* var.) *elata* Jeffreys, 1867, not *Od. elata* A. ADAMS, 1860, is a more slender and usually also somewhat smaller form (fig. 37).

*Od. litoris* COEN, 1933, the type specimens of which I could study, turned out to be synonymous with *Od. unidentata* too.

The sample HUJ 20846 (ex Coen 7311) contained three specimens, one of which I have selected as the lectotype of *Od. litoris*.

The species *Od. oscitans* (LOVÉN, 1846) is either synonymous with *Od. unidentata*, see JEFFREYS (1848: 340) or with *Od. eulimoides*, according to JEFFREYS (1867: 127). In view of Lovén's description I favour Jeffreys' later opinion.

I consider *Od. (unidentata) sarsi* NORDSIECK, 1972, to be a Northern form of *Od. unidentata*. On the basis of the holotype in ZMO-D1082, I consider the species *Od. turgida* SARS, 1878, to be synonymous with *Od. unidentata* too.

## Note 12: *Od. turrita* HANLEY, 1844.

Atlantic specimens are usually (much) bigger than Mediterranean specimens. The latter mostly correspond to the variety *Od.* (*turrita* var.) *nana* MARSHALL, 1893, not *Od. nana* BRUGNONE, 1873, not *Od. nanum* DESHAYES, 1861, not *Od. nana* A. ADAMS, 1860.

Contrary to many authors in the past, I do not consider *Od. striolata* FORBES & HANLEY, 1850, to be a variety of this species, nor do I consider it to be closely related, because the embryonic whorls are quite different. The spiral striature which is often mentioned as a discriminating factor, cannot be used as such, because it occurs in both species. Both species may also occasionally be smooth. See further under note 19.

## Note 13: *Od. lukisii* JEFFREYS, 1859.

This little known species is characterised by its very flat topwhorls (type C), its shiny, milk-white surface and its vertical growthlines. It occurs sparingly both in the Atlantic and in the Mediterranean.

## Note 14: *Od. kromi* VAN AARTSEN, MENKHORST & GITTENBERGER, 1984.

Recently described by VAN AARTSEN et al. (1984: 52). Not at all rare but most probably frequently confused with *Od. plicata*.

However *Od. kromi* has a protoconch of type B e.g. more or less intorted, whereas *Od. plicata* has the helicoid topwhorls of type A.

## Note 15: *Od. suboblonga* JEFFREYS, 1884.

The earlier name *Od. fallax* MONTEROSATO is a nomen nudum and thus cannot be used. This is a very rare species of which I only saw the types of Jeffreys, USNM 132598 and some specimens of Monterosato, BMNH 1911.10.26.30168-171 s.n. *Od. fallax*. All specimens showed a very smooth and somewhat shiny surface with vertical growthlines. In form this species is most like *Od. sicula* PHILIPPI but there are no teeth on the inside of the outer lip.

## Note 16: *Od. scalaris* MACGILLIVRAY, 1843.

The taxon *Odostomia scalaris* MACGILLIVRAY, 1843, is not a primary homonym of *Melania scalaris* PHILIPPI, 1836, which is a *Turbonilla* species. There is thus no need to use the more recent synonym *Od. rissoides* HANLEY, 1844, for this rather common *Odostomia*. Moreover, IREDALE (1915: 337) has demonstrated that *Od. nitida* ALDER, 1844, has priority over *Od. rissoides* HANLEY, 1844.

The species *Od. alba* JEFFREYS, 1848, *Od.* (*rissoides* var.) *exilis*, JEFFREYS, 1867 and *Od. nitida* ALDER, 1844, are considered to be varieties of this polymorphous species. This was confirmed for the first (fig. 38) and third species (fig. 39) by inspection of the type specimens in USNM-753709 and HMAC respectively. The type specimen(s) of *Od. exilis* JEFFR. should be considered lost, according to WARÉN (1980: 38).

*Od. rissoiformis* MILASCHEWITSCH, 1909, is included in this species too, on the basis of the figure in PARENZAN (1970: Tav. 51 fig. 967), albeit with some doubt. I did not see type material.

The type specimens of *Od. dubia* JEFFREYS, 1848, in USNM 753713, I consider to belong to a form of *Od. eulimoides* HANLEY, 1844, contrary to what many authors, including Jeffreys himself (1867: 123) have stated (fig. 40).

### Note 17: *Od. angusta* JEFFREYS, 1867.

Originally described as a variety of *Od. pallida* (MONTAGU, 1803) [= *Od. eulimoides* HANLEY, 1844], the type specimen, USNM 132101, clearly shows this species to be much more related to *Od. scalaris* because of its nearly vertical growthlines. It is, however, a (much) more slender oval than forms of *Od. scalaris* usually are. Neither is it turriculate. *Od. angusta* occurs in the Atlantic as well as in the Mediterranean.

### Note 18: *Od. verduini* spec. nov.

From the description of this rather rare Mediterranean species it can be concluded that there is a certain resemblance to *Od. eulimoides* HANLEY, 1844, but the very characteristic incised spiral at once marks this species as unique.

### Note 19: *Od. striolata* FORBES & HANLEY, 1850.

As recently shown by VAN AARTSEN, MENKHORST & GITTENBERGER (1984: 51) the species *Od. monterosatoi* BDD, 1883, is synonymous with *Od. striolata* as evidenced by the type specimens of both taxa from the MNHN (Paris) and the Hancock Museum (HMAC) respectively. It occurs in the Atlantic as well as in the Mediterranean.

This species cannot be considered a variety of *Od. turrita* HANLEY, although the spiral striature of *Od. striolata* is sometimes (nearly) absent.

NORDSIECK (1972: 113) mentions the possibility that his species may be synonymous with *Odostomia conica* SOWERBY (without year!). The only taxon I have been able to find in this respect is *Turbo conicus* JDC SOWERBY, 1823, which is no Pyramidellid at all. Moreover the name is preoccupied by *T. conicus* VALLOT, 1801, and thus cannot be used.

### Note 20: *Od. cf glabrata* FORBES & HANLEY, 1850.

*Ptychostomon megerlei* LOCARD, 1886, was proposed as a substitute name and is thus a synonym. Specimens marked «*P. megerlei*» from the Locard-collection in MNHN turned out to belong to several different species. A sample from Soulac contained 2 *Peringia* specimens next to 6 *Odostomia*. The sample from Corcarneau contains only 4 specimens of *Rissoa parva interrupta*.

The sample from Batz contained 1 spec. of *Od. cf. striolata* and one worn *Cingula* (cf. *seministriata*). The fourth sample, from Royan, contained a number of *Odostomia* specimens which might be *megerlei* plus one spec. of *Rissoa inconspicua*.

Unfortunately it has not been possible to locate the type(s) *Od. glabrata*. My identification of the little shells (from the Mediterranean) with the species of FORBES & HANLEY, is therefore entirely based on the figure by these authors (1851: pl. 98 fig. 3) and is by no means certain. However I prefer not to create even more specific names in this already very problematical group if not strictly necessary.

### Note 21: *Od. nardoi* BRUSINA, 1869.

Apparently a rather rare species. I have only seen two specimens which (probably) belong to this species. They are much more egg-shaped than any of the forms of *Od. eulimoides* HANLEY, 1844, and although related, I therefore tentatively regard them to belong to a separate species.

### Note 22: *Od. electa* JEFFREYS, 1883.

The holotype and only specimen BMNH 1885.11.5.4595, is a very thin and perfectly diaphanous shell from high Northern latitudes. It resembles some forms of the variable *Od. eulimoides* HANLEY, 1844, and it seems possible that this is only a form of that species.

### Note 23: *Od. carrozzai* nom. nov. pro *Od. albella* auct., not LOVÉN, 1846.

As mentioned already in note 11, the real *Od. albella* (LOVÉN, 1846) turned out to be synonymous with *Od. unidentata* (MONTAGU, 1803). *Od. carrozzai*, as described by JEFFREYS (1867: 121) is more slender than *Od. eulimoides*, and, although apparently related, the mouth usually occupies less than 0.40 of the total length. *Od. carrozzai* occurs in the Atlantic as well as in the Mediterranean where specimens usually have more convex whorls (fig. 41). *O. subcylindrica* MARSHALL, 1893, described as a variety of *O. albella* auct., is considered a species dubium.

Note 24: *Od. eulimoides* HANLEY, 1844.

As *Od. pallida* (MONTAGU, 1803) should be considered a nomen dubium and *Od. ambigua* (MATON & RACKETT, 1802) is expressly stated to be the same species, I follow VAN AARTSEN, MENKHORST & GITTENBERGER (1984: 53) in calling this all European species *Od. eulimoides* HANLEY, 1844. See also Iredale (1915: 337).

The species *Od. crassa* THOMPSON, 1845, *Od. dubia* JEFFREYS, 1848, *Od. notata* JEFFREYS, 1848, and *Od. novegradensis* BRUSINA, 1865, should all be considered forms of the present, rather variable species.

As mentioned before, the genus *Ondina* de FOLIN, 1870, and the subgenus *Odostomia (Auristomia)* MONTEROSATO, 1884, both show only an incipient fold on the columella and not a real tooth.

Whereas the European representatives of the other subgenera of *Odostomia* could be rather satisfactorily identified, species of the above mentioned groups are rather impercetly known. This is presumable due to the fact that only one species viz. *Odostomia perezi* DAUTZENBERG & FISCHER, 1925, has been found in its natural habitat viz. associated with the sipunculan *Phascolion strombi* (MONTAGU) by KRISTENSEN (1970) and GIBBS (1978).

Although both these authors suggest the identity of the species *Odostomia perezi* with *Ondina diaphana* (JEFFREYS, 1848), I am not at all convinced that this holds true. In the first place the description of *Od. diaphana* by JEFFREYS (1848: 341 and 1867: 141) does not fit *Od. perezi*.

In the second place the so-called holotype of *Ond. diaphana*, USNM 753707 is a partly damaged shell, with no protoconch and a dull surface. This specimen does not fit the original description either, nor does it correspond with the figure recently given by WARÉN (1980: pl. 6 figs. 22).

It should be noted that the figures 18 and 22 as given by WARÉN (loc. cit.) should be interchanged, as confirmed by Warén (in litt.). Fig. 18 represents *Od. pallida* var. *angusta* [USNM 132101] whereas fig. 22 should be *Odostomia diaphana*. Several other samples in the Jeffreys collection turned out to be *Ondina warreni* (THOMPSON, 1845) with the spiral striae much less clear than usual.

On the other hand I have seen specimens with a very smooth and shiny surface, whose form is exactly like a small *On.d warreni*. These correspond with MARSHALL's (1900: 288) opinion about *Ond. diaphana*.

Therefore I consider these shells to represent the real *Ond. diaphana* which is very different from *Ond. perezi*. In fact none of the many specimens of *Ond. perezi* from a lot in USNM 471508, which originated from Roscoff (France), showed a shiny surface, but all were of a dull appearance. The specimens were also slightly bigger than the specimens which I consider to be *Ond. diaphana* and the form of the shell is different too. In my opinion *Odostomia perezi* is another member of the genus *Ondina*, although it was originally described as *Odostomia (Auristomia) perezi*.

Two other, smooth, species of *Ondina* should here be mentioned viz. *Ondina crystallina* LOCARD, 1892 [presumably *Odostomia cristallina*, MONTEROSATO, 1878, nomen nudum], which, based upon the types in MNHN (Paris), I consider a good species, with shiny surface, and *Auriculina dilucida* MONTEROSATO, 1884. Although unfortunately the type(s) of Monterosato are not available for study, this species is very near to *Ond.*

*diaphana*, but somewhat more transparent and of a broader form. I consider it provisionally as a (Mediterranean) subspecies: *Ondina diaphana dilucida* (MONTEROSATO, 1884).

From the preceeding it will be clear that, where the sculptured members of the genus *Ondina* can be identified with relative confidence, the completely smooth forms are not al all sure at the moment. Lack of adequate material has not permitted to get a good idea of the variability within the species and it seems possible, that some «species» as discriminated in the following table, will turn out to be only forms of other species.

Finally it should be noted that I do not see any reason to place the smooth *Ondina*-species in a separate subgenus as suggested by SACCO (1892: 49) and therefore the subgenus *Glabrondina* SACCO, 1892 [type species: *Odostomia diaphana* JEFFREYS 1848; orig. design.] is here considered synonymous with *Ondina*.

## Table 3
## *Odostomia (Auristomia)* and *Ondina*

1.a. Growthlines vertical or prosocline; with only a slight indication of a sinus or no sinus at all. — *Od. (Auristomia)* 2

b. Growthlines opisthocline; usually with clear sinus. — *Ondina* 3

2.a. Growthlines vertical, with only slight sinus or none at all. Dimension 3 mm. Form more or less turriculate. — *Od. (A.) erjaveciana* BRUSINA, 1869 (fig. 42)

b. Growthlines clearly prosocline, shell forming a slender cone. — *Od. (A.) fusulus* MONTEROSATO, 1878 (fig. 43)

Note: The species *Od. (A.) ignorata* (MONTEROSATO, 1917) could not be studied. It is said to be most like *Od. (A.) erjaveciana*, but clearly bigger (length 6 mm). Originally described from the Tripoli coast. Never mentioned again as far as I know.

3.a. Shell surface with spiral sculpture, not always easily detectable! — 4

b. Shell surface completely smooth. — 9

4.a. Spiral sculpture, consisting of many fine spirals, present over the total height of all the whorls, of the same strength throughout. — 5

b. Spiral sculpture, consisting of incised lines, only present on the base of the shell. Much finer spirals may be detected on the older whorls too. — 8

5.a. Shell cylindrical or forming a slender cone. Mouth small, forming <0.4 of total height. 6

b. Shell forming a slender oval. Mouth bigger, forming >0.4 of total height. 7

6.a. Shell cylindrical, topwhorls of type C (intorted). *Ond. coarctata* (SARS, 1878) (fig. 44)

b. Shell forming a slender cone, with slightly convex whorls, topwhorls of type B. *Ond. vitrea* (BRUSINA, 1866) (fig. 45)

7.a. Topwhorls of type B (planorbid). The protoconch can sometimes be seen. Rather rare species. *Ond. obliqua* (ALDER, 1844) (fig. 46)

b. Topwhorls of type C (intorted). Form decidedly turriculate («telescoped»). Rather common, mainly in the Mediterranean. *Ond. warreni scandens* (MONTEROSATO, 1884) (fig. 47)

8.a. A few spirally incised lines at the periphery (and base) of the last whorls. Mainly Atlantic species. *Ond. divisa* (J. ADAMS, 1797) (fig. 48)

Note: In the Adriatic a species occurs, which is quite similar to *Ond. divisa*, but is somewhat more slender and has a much more developed umbilicus than Atlantic specimens usually show. Doubtfully considered to belong to *Ond. divisa*!!

b. Although clear spiral sculpture confined to the base of the last whorl, much finer spirals can be seen on the older whorls too. Decidedly «telescopic» in form. Mainly Atlantic species. *Ond. warreni* (THOMPSON, 1845) (fig. 49)

9.a. Shell surface dull. Length 2.5 mm, breadth 1.1 mm. — *Ond. perezi* (DAUTZENBERG & FISCHER, 1925) (fig. 50)

b. Shell surface shiny. — 10

10.a. Shell form decidedly conical. Shells non-transparent. Length 1.8 mm, breadth 0.8-0.9 mm. — *Ond. crystallina* (LOCARD, 1892 (fig. 51, 52)

b. Shell form more cylindrical, more or less turriculate. — 11

11.a. Small and slender. Length 1.6 mm, breadth 0.80 mm. — *Ond. diaphana* (JEFFREYS, 1848) (fig. 53)

b. Shells broader. Length 1.5 mm, breadth 0.85 mm. Usually transparent. Mediterranean (sub) species. — *Ond. diaphana dilucida* (MONTEROSATO, 1884) (fig. 54)

Note 25. *Od. (Aur.) erjaveciana* BRUSINA, 1869.

A characteristic species, not very variable. A good figure is given by PARENZAN (1970: pl. 51 fig. 971, 972, s.n. *Odostomia nitens* JEFFREYS). Although the type(s) of Brusina were not available, I have seen a specimen BMNH 1911.10.26.30321 from Alger bearing the name *Auriculina erjaveciana* in Monterosato's handwriting. This specimen is taken as typical for the species.

Apart from the Mediterranean it is also known from the Portuguese coast.

Note 26. *Od. (Aur.) fusulus* MONTEROSATO, 1878.

Described from Alger and also known from Sicily, this is apparently a rather rare species. Although I did not see the types from Monterosato, I could study some specimens in the Locard collection MNHN, given to Locard by Monterosato. These can be used as paratypes and confirm the identification. This species is also known from the southern Portuguese coast.

In the Jeffreys' collection there are two samples present under the name *Odostomia fusulus* MONTEROSATO. Both samples (USNM 132731 and 132205) originate from Algiers (ex Joly) and contain one specimen each.

The first specimen is undoubtly a form of *Od. scalaris* whereas the second specimen (132205) is an *Od. plicata*. It is presumably this last specimen on which JEFFREYS (1884: 349) based his conclusion that *Od. fusulus* MONTEROSATO is equal to *Od. plicata*, which is evidently not the case.

My identification of *Od. fusulus* is also based on a specimen from Algiers in MNHN-Locard collection, marked syntype.

Note 27: *Ondina coarctata* (SARS, 1878).

Only known from the holotype, in ZMO-D1126 and from to specimens in the Jeffreys collection, USNM 131928 and 132715. Found at high northern latitudes.

### Note 28: *Ondina vitrea* (BRUSINA, 1866).

Originally described as *Monoptygma vitrea* and therefore not a homonym of *Odostomia vitrea* A. ADAMS, 1860. The substitute name *Evalea spiridionae* NORDSIECK, 1972, is thus superfluous. Besides a number of varieties of this variable species, such as *concinna* MONTEROSATO, 1884, *exigua* MONTEROSATO, 1884, and *simplex* MONTEROSATO, 1884, had already been described and a substitute name, if necessary, should have been chosen from among these.

The name *Noemia striata* de FOLIN, 1872, which is used for this species by D'ANGELO & GARGIULLO (1978: 154, figure), is a nomen nudum.

This well-known Mediterranean species is also known from the Portuguese coast.

### Note 29: *Ondina obliqua* (ALDER, 1844).

Known from the Atlantic as well as the Mediterranean. Rare everywhere. This species has been frequently confused with the much more common (littoral) *Ond. warreni* s.l., but can be separated by its different protoconch, as already pointed out by MARSHALL (1893: 253). Its protoconch is well figured by RODRIGUEZ BABIO & THIRIOT-QUIÉVREUX (1975: pl. 4 figs. J, K).

The same authors also figure the protoconchs of *Ond. divisa* and *Ond. perezi* (1974: pl. 5 figs. J, K and pl. 5 figs. G, I, L respectively).

### Note 30: *Ondina warreni* (THOMPSON, 1845) and *Ondina warreni scandens* (MONTEROSATO, 1884).

Even after study of many specimens, I feel not quite sure that the difference between the nominal, Atlantic species and the Mediterranean form is of subspecific level. Even so, most Mediterranean samples show spiral striature of equal strength all over the whorls, whereas Atlantic samples show the spirals on the lower half of the last whorls much more clear than those on the older whorls. These may seem entirely smooth or only very slightly striated. These differences are less pronounced in material from Portuguese origin. Nevertheless this difference is quite constant and I have therefore, provisionally, indicate the Mediterranean form by the subspecific name *Ond. warreni scandens* (MONTEROSATO, 1884).

As I have not been able to study the type(s) of *Auriculina exilissima* BRUSINA, 1866, I cannot recognize that species and so, for the time being, have to consider it as a spec. dubium.

MONTEROSATO changed his mind several times viz. in 1875: 31, 1877: 39 and 1878: 92 he considered *A. exilissima* a variety of what he called *Auriculina obliqua* (which most probably was in fact *Ond. warreni*). He also suggested that *A. exilissima* was synonymous with *Ondina semiornata* de FOLIN (which is identical with *Ond. warreni* too). In 1884: 97, MONTEROSATO described his *Auriculina scandens* and remarks: «*O. (Auriculina) obliqua* (non ALDER, Brit.)». He then gives *exilissima* as a separate species, adding»? *Ondina semiornata* FOLIN». Monterosato also mentions *Auriculina messanensis* GRANATA, 1877, and *Auriculina monterosati* GRANATA, 1877, as possible synonyms of either *A. obliqua* or, later, *A. exilissima*. In my opinion also these species have to be considered as spec. dubia, at least untill the types can be studied.

### Note 31: *Ondina divisa* (J. ADAMS, 1797).

This (Atlantic) species has long been known as *Ond. insculpta* (MONTAGU, 1808), but Adams' name has priority. The species is not known with certainty from the Mediterranean. The Adriatic species, mentioned in the table, is certainly very similar, but could be a Mediterranean subspecies. It may also turn out to be equivalent with *Ondina messanensis* (GRANATA, 1877), but for the reasons given in note 30, I hesitate to use that name.

### Note 32: «*Odostomia*» *michaelis* BRUGNONE, 1876.

The species figured under this name by d'ANGELO & GARGIULLO (1978: 155 figure) was described by BRUGNONE from a fossil specimen from Altavilla. I have not been able to find a record of its recent occurence in the literature, neither have I had the possibility to study the type, nor have I seen anything like it in public or private collections. It seems doubtful to include this species in the recent Mediterranean molluscan fauna.

This species is different from *Odostomia michaelis* BRUGNONE, 1873, which is a primary homonym. The present species has therefore been renamed *Odostomia bismichaelis* SACCO, 1892.

At the end of this article I give lists of all European species described as or considered as *Odostomia, Ondina* or related groups dealt with here. From these lists it will be clear, that the variability within the species is particularly great.

Also, a number of taxa have remained obscure and could not be identified with certainty. Some others e.g. *Od. (Aur.) bulimulus, Od. (Aur.) clavulina* and *Od. (Aur.) myosotis* may prove to be known only in the fossil state. Several, especially varietal names, are preoccupied, but I see no reason to propose other names for forms, which are, at least in my opinion, within the variability of the species.

For their kind help I wish to thank the late Dr. J. Rosewater (USNM-Washington), Dr. Ph. Bouchet (MNHN), Dr. H.K. Mienis (HUJ-Israel), Dr. T.A. Bakke (ZMO, Oslo), Dr. A Franzén (NHRS, Stockholm) and Mrs. Way (BMNH-London). I also thank Dr. G. Barletta, E. Giovenzana, Ir. A. Verduin and Ir. H. Menkhorst for making quite a number of the photographs.

## INDEX AND SYNONYMS OF GENERA AND SUBGENERA

## APPENDIX

After the present contribution had been put in final form I was enabled to visit the Monterosato-collection in Rome thanks to my good friends Mr. and Mrs. Angioy-Nicolay. Through the, highly appreciated, active collaboration of Dr. F. Gravina, the newly appointed curator at the Museo Civico di Zoologia, several samples could be studied. As the accessibility of the main collection was found to be rather difficult, my attention was primarily concentrated on the samples, which had been selected from the Monterosato-collection for the I[a] Mostra della Conchiglia marina (5-31 Ottobre 1976). The tablets used in this exhibition were still available in its original form and so permitted a rather convenient way to study quite a lot of material in a short time.

With regard to the Pyramidellidae it seems appropriate to mention a number of observations made on this material, using the same numbers and nomenclature as published in the catalogue of the exhibition mentioned above.

### Genus *Evalea*.

0816 *E. anceps* (MTRS., 1878): nom. nud. Two specimens which are both *Ondina vitrea*.

0817 *E. crystallina* (MTRS., 1878): nom. nud. Two specimens which may not be identical with *Ondina crystallina* LOCARD, 1892.

0818 *E. dilucida* (MTRS., 1878): nom. nud. Name available from 1884. One spec., not. very good. Corresponds with own interpretation.

0819 *E. exilissima* (BRUSINA, 1866). One specimen, from Alger, cannot be considered as type material. Seems to be a form of *Ondina obliqua*, not of *Ond. warreni scandens*.

0820 *E. modiola* (MTRS., 1884). Two fragmentary spec. from Trapani which cannot be considered type material and moreover belong to *Ondina vitrea* BRUS.

0821 *E. monterosatoi* (BDD, 1884). Two young spec. of a form of *Odostomia eulimoides*. Not the real *Od. monterosatoi* nor even belonging to *Ondina* [= *Evalea* AUCT. not ADAMS.]

0822 *E. obliqua scandens* ((BRUGN.) MTRS., 1884). Two not very good specimens which correspond with present interpretation: not a subspecies of *Ondina obliqua* but of *Ondina warreni*.

0823 *E. striata* (FOLIN, 1871): nom. nud. Two fine spec. of *Ondina vitrea*.

0825 *E. warreni* (THOMPSON, 1845). Only one top-fragment, which cannot be identified with certainty.

### Genus *Odostomia*.

0829 *Od. conspicua* (ALDER, 1850). Two white spec., none of which is the real *O. conspicua*. One is probably *O. unidentata* and the other may be *O. conoidea*.

0830 *O. albella* (LOVÉN, 1846). One very badly preserved spec. which is not *albella* (LOVÉN) nor *albella* AUCT [= *carrozzai* nom. nov.].

0831 *Od. fallax* MTRS., 1875: nom. nud. Identical with *O. suboblonga* JEFFR.

0832 *Od. nardoi* BRUSINA, 1869. Two fragmentary specimens, which are not in contradiction with the interpretation given here.

0835 *Od. michaelis* BRUGN. 1876. One spec., apparently the same as figured by d'ANGELO & GARGIULO, 1978 [= 1981]: 155.
Seems a (probably fossil) representative of *Acteonidae*.

0840 *Od. turriculata* MTRS., 1869. Fits exactly with the usual interpretation.

0844 *Od. myosotis* (BRUGN.) MTRS., 1884. One specimen from Palermo, which is here designated as the lectotype, is a form of *Odostomia eulimoides*, so that *Auristomia myosotis* MTRS., 1884 becomes one of the many synonyms of this variable species.

0846 *Od. fusulus* MTRS., 1878. One nice specimen, corresponding entirely with the present interpretation plus one fragment of *Rissoa auriscalpium* (L)! The specimen is here designated as the lectotype of *Odostomia fusulus* MTRS., 1878.

## NAMES OF SPECIES

(A = European Atlantic species; M = Mediterranean species

### *Odostomia (sl)* species

AM *acuta, Odostomia.* JEFFREYS, 1848
*alba, Odostomia.* JEFFREYS, 1848 = *O. scalaris* var.
*albella, Turbonilla.* LOVÉN, 1846 = *O. unidentata*
*albella, Odostomia.* AUCT., not LOVÉN = *O. carrozzai* nom. nov.
*alungata, Odostomia.* NORDSIECK, 1972 = *O. conspicua* var.
*ambigua, Voluta.* MATON & RACKETT, 1807 = *Turbo pallida* MONTAGU, 1803, spec. dubia.
AM *angusta, Odostomia.* JEFFREYS, 1867.
*attenuata, Odostomia.* MARSHALL, 1893, not JEFFREYS, 1884 = *O. acuta* var.
*australis, Odostomia.* JEFFREYS, 1867 = *O. conoidea* var.
*brugnoni, Odostomia.* MONTEROSATO, 1874 = *O. pistillus* BRUGNONE, 1873.
*carinata, Odostomia.* MARSHALL, 1893, not H. ADAMS, 1873 = *O. plicata* var.
AM *carrozzai, Odostomia.* nom. nov. = *O. albella* AUCT., not LOVÉN
AM *clavula, Turbonilla.* LOVÉN, 1846
AM *conoidea, Turbo.* BROCCHI, 1814
AM *conspicua, Odostomia.* ALDER, 1850
*crassa, Odostomia.* THOMPSON, 1845 = *O. eulimoides* var.
*cylindrica, Odostomia.* ALDER, 1844 = *O. nivosa*
*dubia, Odostomia.* JEFFREYS, 1848 = *O. eulimoides* var.
A *eburnea, Rissoa.* STIMPSON, 1851
*elata, Odostomia.* JEFFREYS, 1867 not A. ADAMS, 1860 = *O. unidentata* var.
A *electa, Odostomia.* JEFFREYS, 1883 =? form of *O. eulimoides*
*elongata, Odostomia.* JEFFREYS, 1867 = *O. umbilicaris* var.
AM *eulimoides, Odostomia.* HANLEY, 1844.
*exilis, Odostomia.* JEFFREYS, 1867 = *O. scalaris* var.
*fallax, Odostomia.* MONTEROSATO nom. nud. = *O. suboblonga*
A (M) *glabrata, Odostomia.* FORBES & Hanley, 1850
*gracilis, Odostomia.* MARSHALL, 1893 not PEASE, 1868 = *O. acuta* var.
M *kromi, Odostomia.* VAN AARTSEN, MENKHORST & GITTENBERGER, 1984 = *O. pulchella* JEFFREYS ms.
*litoris, Odostomia.* COEN, 1933 = *O. unidentata*
M *lorioli, Syrnola.* HORNUNG & MERMOD, 1924
AM *lukisii, Odostomia.* JEFFREYS, 1859
*marginata, Odostomia.* CAILLIAUD, 1865 = spec. dubia (exotic?)
*megerlei, Ptychostomon.* LOCARD, 1886 = *O. glabrata* FORBES & HANLEY
*minima, Odostomia.* JEFFREYS, 1858 = *Cima minima* (JEFFREYS, 1858) [Aclididae]
*monodon, Eulima.* REQUIEN, 1848 = *O. conoidea*
*monterosatoi, Odostomia.* BDD, 1883 = *O. striolata* FORBES & HANLEY, 1850
*nagli, Odostomia.* BRUSINA, 1865 = *O. conoidea*
*nana, Odostomia.* MARSHALL, 1893, not BRUGNONE, 1873 nec DESH., 1861 = *O. turrita* var.
M *nardoi, Odostomia.* BRUSINA, 1869
AM *nitens, Odostomia.* JEFFREYS, 1870
*nitida, Odostomia.* ALDER, 1844 = *O. scalaris* var.
A *nivosa, Turbo.* MONTAGU, 1803
*notata, Odostomia.* JEFFREYS, 1848 = *O. eulimoides* var.
*novegradensis, Odostomia.* BRUSINA, 1865 = *O. eulimoides*
*oblonga, Odostomia.* MACGILLIVRAY, 1843 = *Chrysallida obtusa* (BROWN)
*oblongula, Odostomia.* MARSHALL, 1895 = unknown
*oscitans, Turbonilla.* LOVÉN, 1846 = *O. eulimoides*
*ovata, Odostomia.* MARSHALL, 1895 = *O. oblongula* var.
*pallida, Turbo.* MONTAGU, 1803 = spec. dubium
*pallidoides, Odostomia.* NORDSIECK, 1972 =? *O. nardoi* var.
*pistilliformis, Odostomia.* BRUGNONE, 1876 = *O. clavula*
*pistillus, Odostomia.* BRUGNONE, 1873 = *O. clavula*

AM *plicata, Turbo.* MONTAGU, 1803
*polita, Ovatella.* BIVONA, 1832 = *O. conoidea*
*rissoides, Odostomia.* HANLEY, 1844 = *O. scalaris*
*rissoiformis* MILASCHEWITSCH, 1909 = ? *O. scalaris*
*sarsi, Odostomia.* NORDSIECK, 1972 = *O. unidentata* var.
AM *scalaris, Odostomia.* MACGILLIVRAY, 1843
*scotica, Odostomia.* WINCKWORTH, 1932 = *O. conoidea* var.
M *sicula, Odostomia.* PHILIPPI, 1851 = not *O. conoidea*
AM *striolata, Odostomia.* FORBES & HANLEY, 1850
*subcylindrica, Odostomia.* MARSHALL, 1893 = spec. dubium
AM *suboblonga, Odostomia.* JEFFREYS, 1884
*tenuicola* MONTEROSATO, nom. nud.
*tenuis, Odostomia.* JEFFREYS, 1884 not CARPENTER, 1857 = *O. conoidea* var.
*teresiana, Odostomia.* ARADAS & BENOIT, 1874 = spec. dubium
A *truncatula, Odostomia.* JEFFREYS, 1850
*turgida, Odostomia.* SARS, 1878 = *O. unidentata*
M *turriculata, Odostomia.* MONTEROSATO, 1869
AM *turrita, Odostomia.* HANLEY, 1844
*umbilicaris* [MALM, 1863] AUCT. = *O. acuta*
*umbilicata, Odostomia.* ALDER, 1850 = *O. acuta* var.
*unidens, Eulima.* REQUIEN, 1848 = *O. plicata*
AM *unidentata, Turbo.* MONTAGU, 1803
(A) M *verduini, Odostomia.* nov. spec.
*vitrea, Odostomia.* BRUSINA, 1865, not A. ADAMS, 1860 = *O. plicata*

## *Odostomia (Auristomia)* species

? *bismichaelis, Odostomia.* SACCO 1892 = *Od. Michaelis* BRUGNONE, 1876, not BRUGNONE, 1873
*bulimoides, Odostomia.* BRUGNONE, 1873, not SOUVERBIE, 1865 = *Ondina bulimulus* (BRUGNONE in MTRS. 1874)
? *bulimulus, Odostomia.* BRUGNONE in MONTEROSATO, 1874 = *O. bulimoides* BRUGNONE, 1873, not SOUVERBIE, 1865
F *clavulina, Odostomia.* FISCHER, 1877. Described from fossil representatives from Rhodos
AM *erjaveciana, Odostomia.* BRUSINA, 1869
AM *fusulus, Odostomia.* MONTEROSATO, 1878
M *ignorata, Auristomia.* MONTEROSATO, 1917
*michaelis, Odostomia.* BRUGNONE, 1876, not BRUGNONE, 1873 = *Od. bismichaelis* SACCO, 1892
? *myosotis, Auristomia.* MONTEROSATO, 1884, nom. nudum. «Consimile alla *O. clavulina*, FISCHER (foss. di Rodi)...»

## *Ondina* species

*alleryi, Evalea.* NORDSIECK, 1972 nom. nov. pro *O. crystallina* MONTEROSATO, 1878 nom. nud. = *Ondina warreni scandens* (MONTEROSATO, 1884) not *Ondina crystallina* LOCARD, 1892
*anceps, Odostomia (Auristomia).* MONTEROSATO, 1878, nom. nudum.
*aquitanica, Evalea coarctata* var. NORDSIECK, 1972. Spec. dubium.
A *coarctata, Auriculina.* SARS, 1878
*concinna, Auriculina elegans* var. MONTEROSATO, 1884 = *Ond. vitrea* (BRUSINA, 1866) var.
*cristallina, Odostomia.* MONTEROSATO, 1878, nom. nudum
AM *crystallina, Ondina.* LOCARD, 1892
*decorata, Odostomia* JEFFREYS, 1850 = *Ondina warreni* (THOMPSON, 1845)
A (M) *diaphana, Odostomia,* JEFFREYS, 1848
M *dilucida, Auriculina.* MONTEROSATO, 1884 = ? *Ondina diaphana* (JEFFREYS, 1848)
A (M) *divisa, Turbo.* J. ADAMS, 1797
*elegans, Odostomia.* MONTEROSATO, 1869, not A. ADAMS, 1860 = *Ondina vitrea* (BRUSINA, 1866)

*exigua, Auriculina elegans* var. MONTEROSATO, 1884 = *Ond. vitrea* (BRUSINA, 1866) var.
*exilissima, Auriculina.* BRUSINA, 1866. Spec. dubium
*farolita, Evalea scandens* n. subspec. NORDSIECK, 1972 = form of *Ond. warreni scandens* (MONTEROSATO, 1884)
*inflata, Odostomia diaphana* var. MARSHALL, 1893, not CARPENTER, 1864 = ? *Ondina dilucida* (MTRS. 1884)
*insculpta, Turbo.* MONTAGU, 1808 = *Ondina divisa* (J. ADAMS, 1797)
*intermedia, Odostomia warreni* var. MARSHALL, 1893, not BRUSINA, 1869, not DESHAYES, 1861 = *Ondina warreni* (THOMPSON, 1845) var.
*laevissima Odostomia* (SARS) MARSHALL, 1893. = *Ondina divisa* (ADAMS, 1797) var.
*marioni, Ptychostomon.* LOCARD, 1892 = *Ondina warreni scandens* (MONTEROSATO, 1884)
*messanensis, Auriculina.* GRANATA, 1877 = ? *Ondina exilissima* (BRUSINA, 1866) [apud MONTEROSATO (1884: 97)]
*modiola, Auriculina.* MONTEROSATO, 1884. Spec. dubium
*monterosati, Auriculina.* GRANATA, 1877 = *Ondina exilissima* (BRUSINA, 1866) [apud MONTEROSATO (1878: 92)]
*neglecta, Odostomia.* TIBERI, 1868, not A. ADAMS, 1860 = *Ondina vitrea* (BRUSINA, 1866)
*nobilis, Auriculina insculpta* var. SARS, 1878 = *Ondina divisa* (J. ADAMS, 1797)
A *normani, Odostomia.* FRIELE, 1886 = ? *Ondina diaphana* (JEFFREYS, 1848)
AM *obliqua, Odostomia.* ALDER, 1844
A *perezi, Odostomia (Auristomia).* DAUTZENBERG & FISCHER, 1925
M *scandens, Auriculina.* MONTEROSATO, 1884 = *Ondina warreni scandens* (MONTEROSATO, 1884) = ? *Ondina exilissima* (BRUSINA, 1866)
*semiornata, Ondina,* DE FOLIN, 1872 = *Ondina warreni* (THOMPSON, 1845) [apud MARSHALL (1917: 172)]
*simplex, Auriculina elegans* var. MONTEROSATO, 1884 = *Ondina vitrea* (BRUSINA, 1866) var.
*spiridionae, Evalea.* NORDSIECK, 1972, nom. nov. pro *Monoptygma vitrea* BRUSINA, 1866, not *Odostomia vitrea* A. ADAMS, 1860. Superfluous synonym.
*striata, Noemia.* DE FOLIN, 1872, nom. nudum = *Ondina vitrea* (BRUSINA, 1866)
*subulata, Evalea.* NORDSIECK, 1972 = *Ondina warreni scandens* (MONTEROSATO, 1884)
*tumida, Odostomia insculpta* var. JEFFREYS, 1869 = *Ondina divisa* (J. ADAMS, 1797) var.
AM *vitrea, Monoptygma.* BRUSINA, 1866
*vixornata, Auriculina elegans* var. MONTEROSATO, 1884 = *Mathilda vixornata* DE FOLIN, 1872, nomen nud. = *Auriculina elegans* var. *simplex* MTRS. 1884; = *Ondina vitrea* (BRUSINA, 1866)
*vixornata, Mathilda.* DE FOLIN, 1872 nom. nud. = *Ondina vitrea* (BRUSINA, 1866) var.
A *warreni, Rissoa.* THOMPSON, 1845
*zetlandica, Odostomia warreni* var. MARSHALL, 1900 = *Ondina warreni* (THOMPSON, 1845) var.

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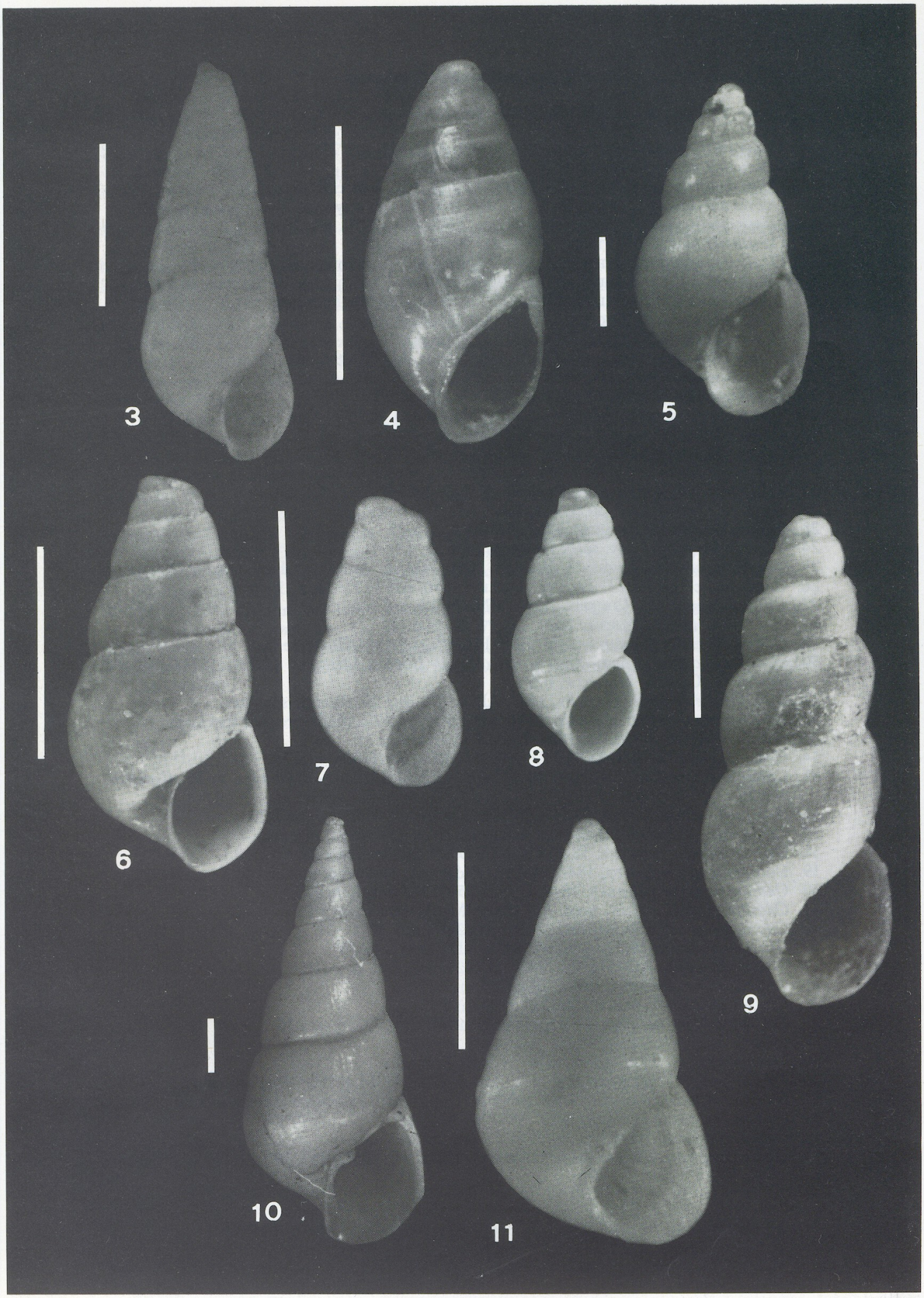
## Explanation of plates

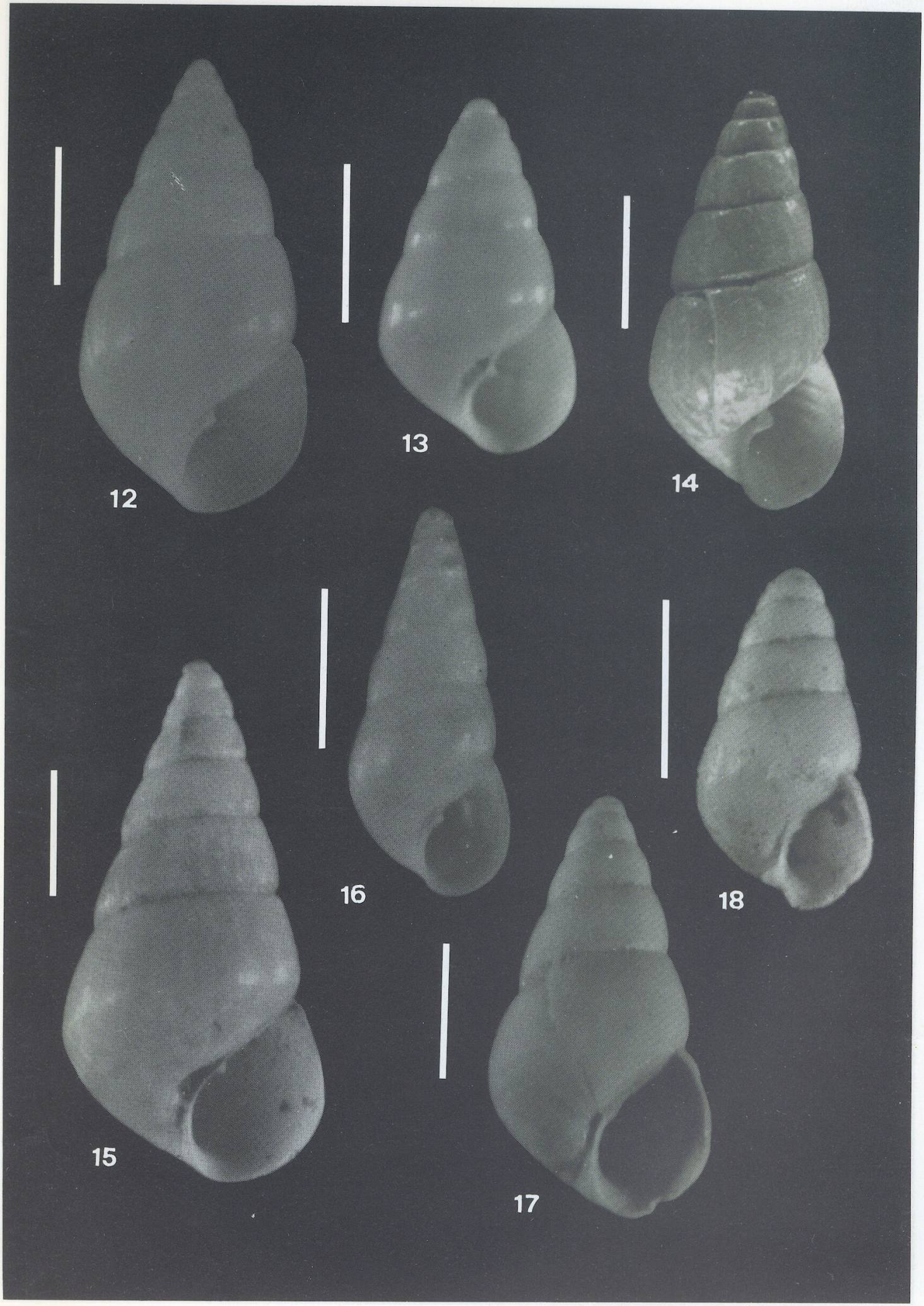
Figure

3. *Odostomia turriculata* MONTEROSATO, 1869. AD 1351. m x 25
4. *Odostomia nitens* JEFFREYS, 1870. AD 12163. m x 40
5. *Odostomia eburnea* (STIMPSON, 1851). ZMO.D 1014. Sars coll. m x 12.5
6. *Odostomia clavula* (LOVÉN, 1846). USNM 133010. «Fig'd type in Br. Conch.». m x 33
7. *Odostomia clavula* = *pistillus* BRUGNONE, 1873. AD 17778. m x 38
8. *Odostomia nivosa* (MONTAGU, 1803). AD 18186. m x 25
9. *Odostomia truncatula* JEFFREYS, 1850. USNM 132017 Lectotype chosen. m x 25
10. *Odostomia conspicua* ALDER, 1850. USNM 133036 «Fig'd type in Br. Conch». m x 8
11. *Odostomia conspicua* ALDER, 1850. AD 17649. m x 30 Mediterranean
12. *Odostomia conoidea* (BROCCHI, 1814). AD 15184. m x 20
13. *Odostomia sicula* PHILIPPI, 1851. AD 13109. m x 25
14. *Odostomia lorioli* (HORNUNG & MERMOD, 1924). AD 13109A. m x 20
15. *Odostomia acuta* JEFFREYS, 1848. AD 3348. m x 20
16. *Odostomia plicata* (MONTAGU, 1803). AD 15182. m x 25
17. *Odostomia unidentata* (MONTAGU, 1803). AD 16830. m x 20
18. *Odostomia turrita* HANLEY, 1844. AD 3490. m x 30
19. *Odostomia lukisii* JEFFREYS, 1859. AD 12840. m x 30
20. *Odostomia kromi* v. AARTSEN, MENKHORST & GITTENBERGER. AD 10600. m x 25
21. *Odostomia suboblonga* JEFFREYS, 1884. USNM 132598. m x 25
22. *Odostomia scalaris* MACGILLIVRAY, 1843. AD 21024 m x 25
23. *Odostomia angusta* JEFFREYS, 1867. AD 3405. m x 25
24. *Odostomia verduini* nov. spec. Holotype. m x 25
25. *Odostomia striolata* FORBES & HANLEY, 1850. HMAC. Alder coll. Holotype. m x 25
26. *Odostomia* cf. *glabrata* FORBES & HANLEY, 1850. AD 12203. m x 25
27. *Odostomia megerlei* (LOCARD, 1886). MNHN. Locard coll. m x 30
28. *Odostomia nardoi* BRUSINA, 1869. AD 21023. m x 30
29. *Odostomia electa* JEFFREYS, 1883. BMNH 1885.11.5:4594 Holotype. m x 33
30. *Odostomia carrozzai* nom. nov. = *Od. albella* (LOVÉN) JEFFREYS. USNM 132482. «Fig'd type in Br. Conch». Holotype. m x 25
31. *Odostomia eulimoides* HANLEY, 1844. AD 16105. m x 20. Atlantic specimen
32. *Odostomia eulimoides* HANLEY, 1844. AD 11432. m x 22. Mediterranean specimen
33. *Odostomia tenuis* JEFFREYS, 1884. USNM 132011. m x 33
34. *Ovatella polita* BIVONA, 1832. HUJ 20845. Lectotype chosen. m x 16
35. *Odostomia umbilicaris* [MALM, 1863] auct. USNM 132020. «Fig'd type in Br. Conch.». m x 25
36. *Odostomia albella* (LOVÉN, 1846). NHRS. Lovén coll. Holotype. m x 20
37. *Odostomia unidentata* forma *elata* JEFFREYS, 1867. AD 18995. m x 20
38. *Odostomia alba* JEFFREYS, 1848. USNM 753709. Syntype. m x 25
39. *Odostomia nitida* ALDER, 1844. HMAC. Alder coll. Holotype. m x 25
40. *Odostomia dubia* JEFFREYS, 1848. USNM 753713. Syntype. m x 25
41. *Odostomia carrozzai* nov. nom. AD 18820. Mediterranean. m x 25
42. *Odostomia erjaveciana* BRUSINA, 1869. AD 2450. m x 30
43. *Odostomia fusulus* MONTEROSATO, 1878. AD 10984. m x 25
44. *Ondina coarctata* (SARS, 1878). ZMO. D 1126. Sars coll. m x 12.5
45. *Ondina vitrea* (BRUSINA, 1866). AD 4725. m x 17
46. *Ondina obliqua* (ALDER, 1844). AD 3502. m x 17
47. *Ondina warreni scandens* (MONTEROSATO, 1884). AD 19030. m x 30
48. *Ondina divisa* (J. ADAMS, 1797). AD 16827. m x 25
49. *Ondina warreni* (THOMPSON, 1845). AD 3882. m x 22
50. *Ondina perezi* (DAUTZENBERG & FISCHER, 1925). USNM 471508. Syntype. m x 25
51. *Ondina crystallina* LOCARD, 1892. MNHN. Locard coll. Lectotype chosen. m x 30
52. *Ondina crystallina* LOCARD, 1892. AD 3467. m x 30
53. *Ondina diaphana* (JEFFREYS, 1848). AD 3964. m x 30
54. *Ondina diaphana dilucida* (MONTEROSATO, 1884). AD 12312. m x 30






The scale-line denotes 1 mm in each case

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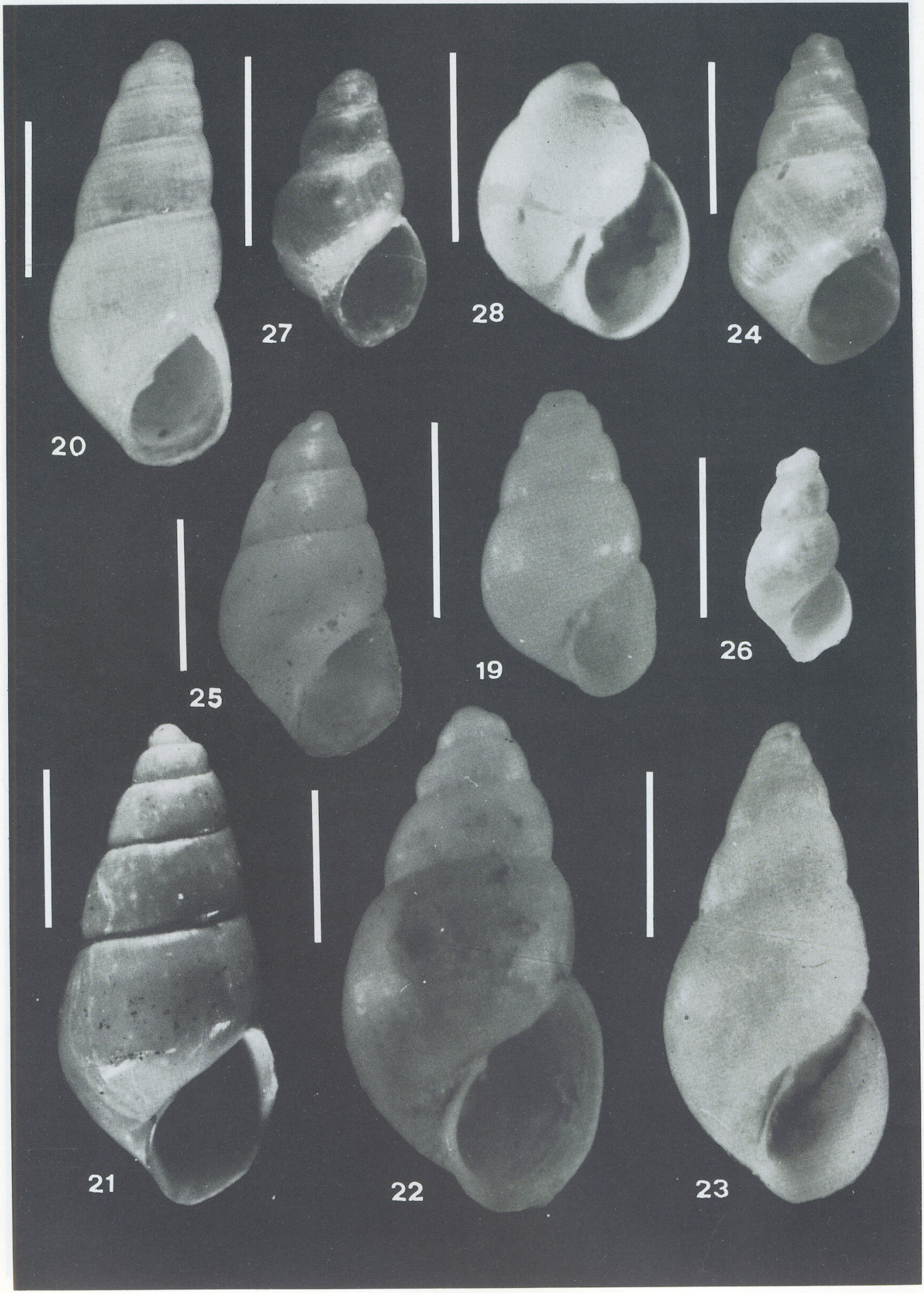
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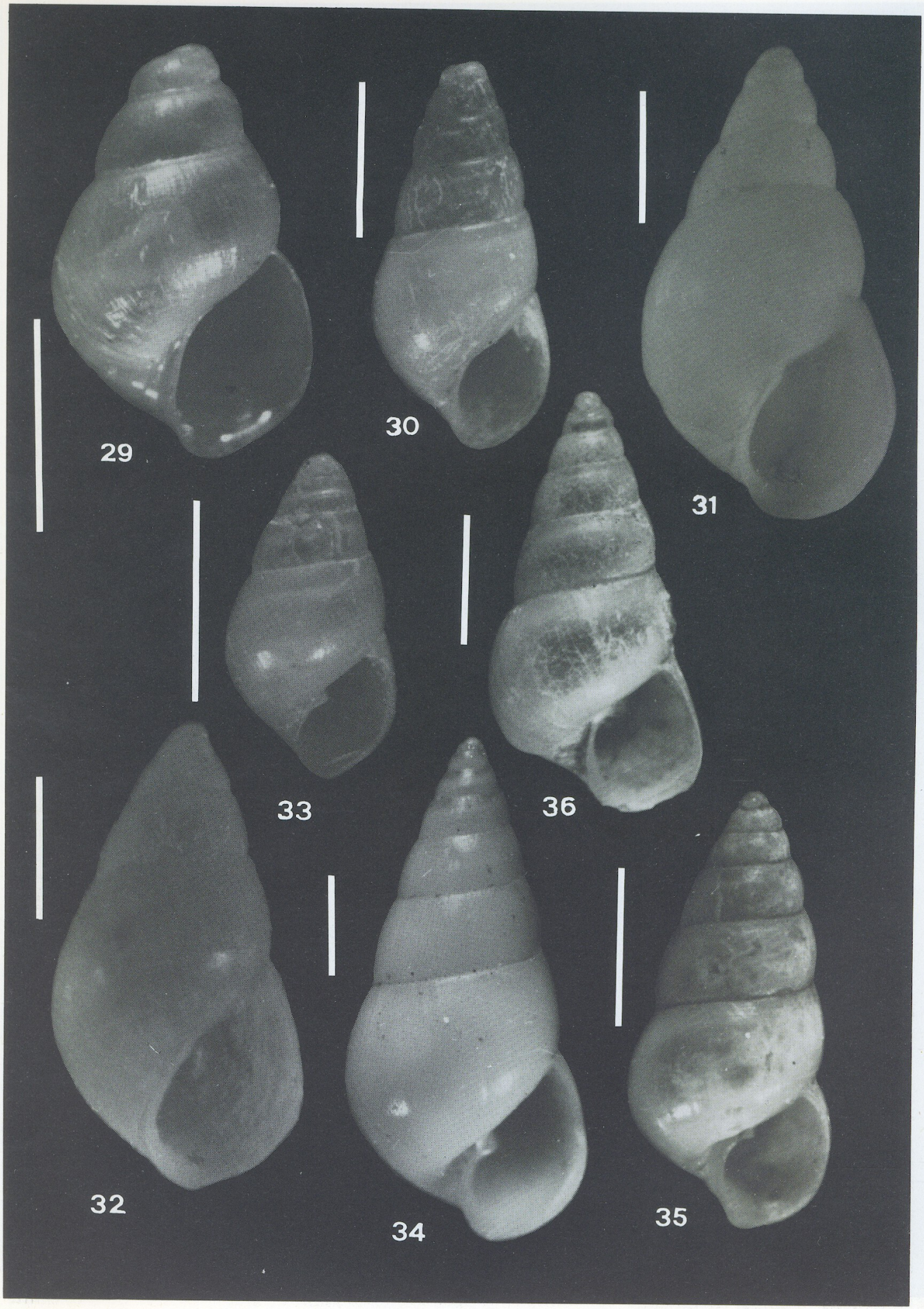


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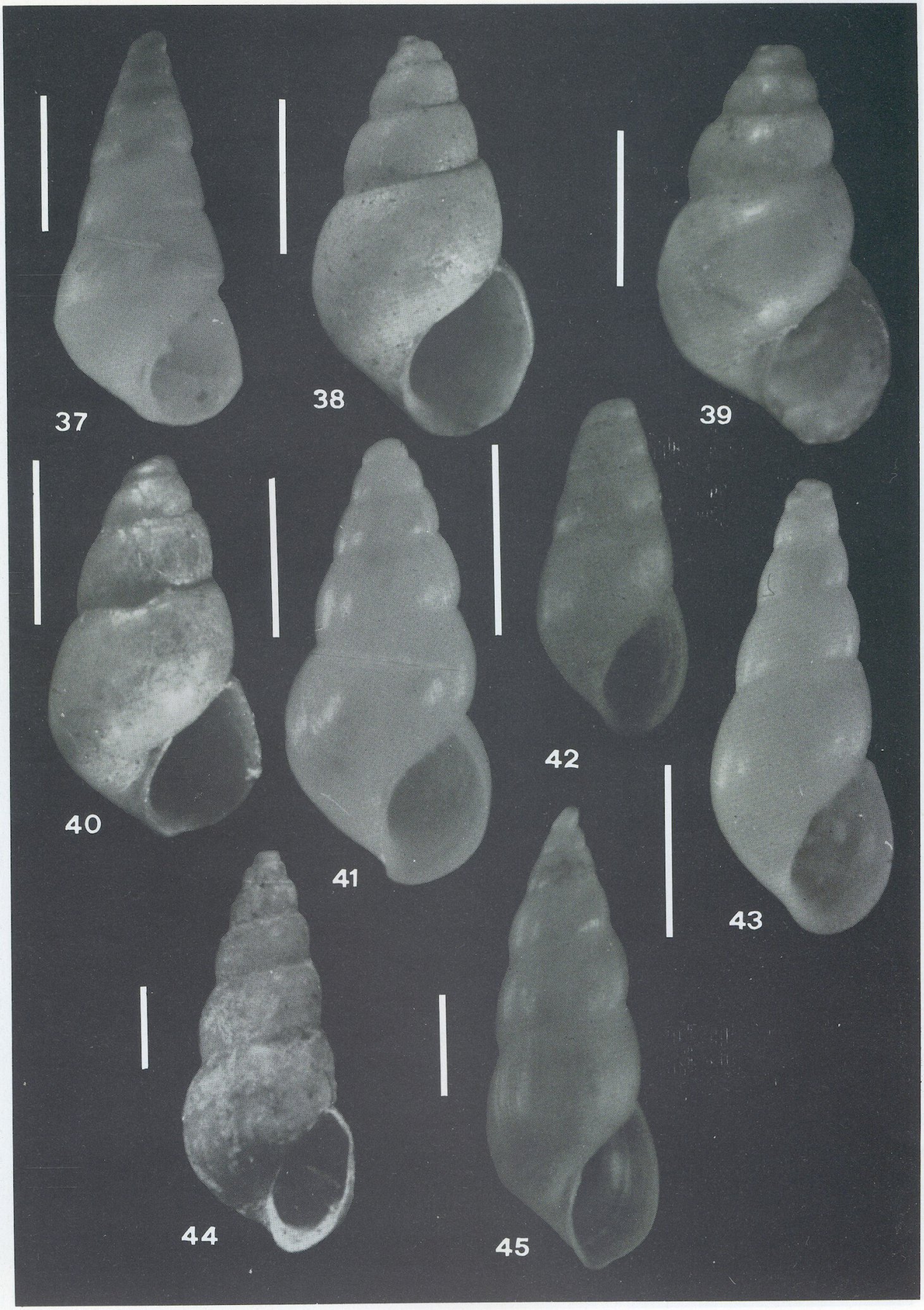




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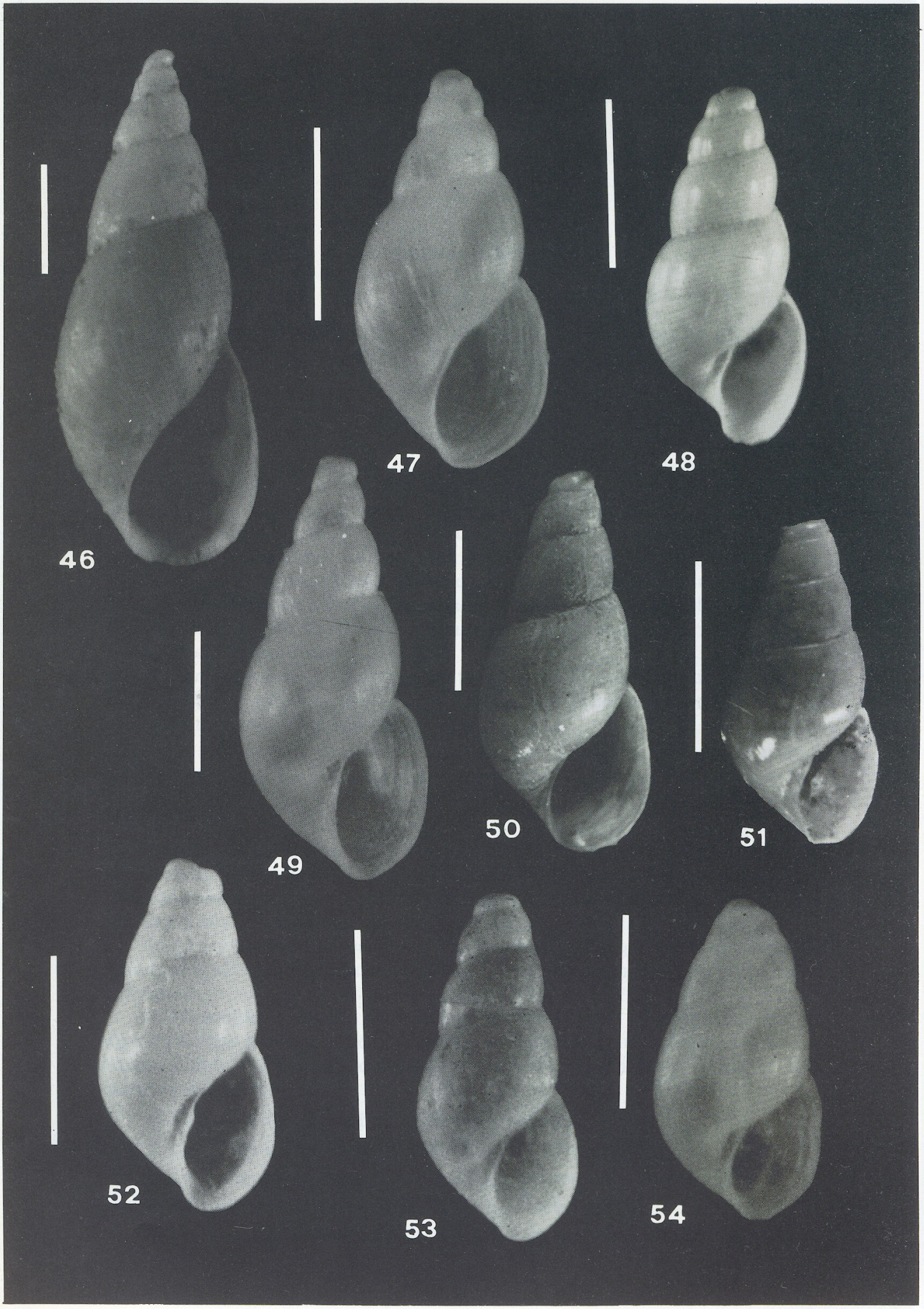


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