

A. A. SCHILEYKO



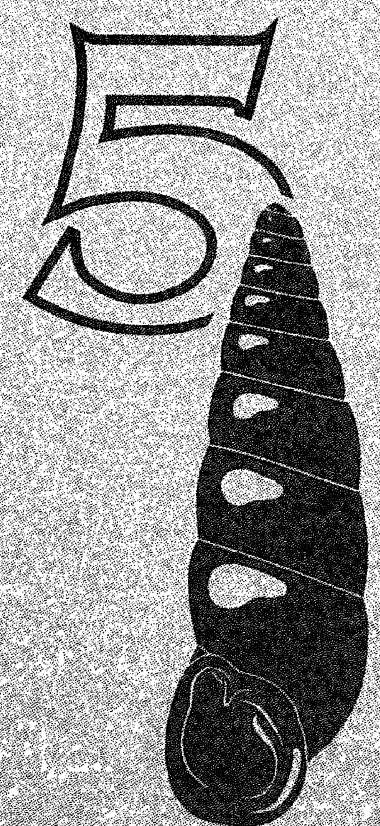
TREATISE

ON

**RECENT TERRESTRIAL
PULMONATE MOLLUSCS**

RUTHENICA

SUPPLEMENT 2



A. A. Schileyko

TREATISE ON RECENT TERRESTRIAL
PULMONATE MOLLUSCS

Part 5

Clausilliidae



Ruthenica, Supplement 2
Moscow ♦ May, 2000

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CLAUSILIOIDEA Mörch, 1864

Mörch, 1864: 291 (as Clausilieae).

Shell mostly sinistral, medium to small, slender, fusiform to pillar-shaped. Embryonic whorls not enlarged. Aperture and columella with a conspicuous closing apparatus which sometimes more or less reduced.

Jaw aulacognathous, soft, scarcely vertically striated, rarely with a weak, blunt median projection.

Kidney of mesurethral type, long, with tiny lateral orifice located at short distance from distal end of kidney; ureters as such not developed.

Female part of reproductive tract simple; male part sometimes with flagellum or penial caecum. Spermathecal stalk often with diverticle.

DISTRIBUTION. Range composed of three isolated parts. 1. NW mountain regions of S America; 2. Tropical forest regions of S and E Asia (including Japan and S Korean Peninsula); 3. Western Palearctic eastward to Ural Mountains and Yemen. Besides, a few mostly monotypic genera in Africa (Ethiopia, Kenya, S Africa).

CLAUSILIIDAE Mörch, 1864

Mörch, 1864: 291 (as Clausilieae).

Shell often decollated, of medium size (height 9-20 mm, rarely larger), of many (up to 18) whorls. Embryonic whorls smooth or nearly so, later variously sculptured, mostly with radial ribs. Aperture relatively small, rhomboid, pear-shaped or irregularly ovate, usually with distinct sinus. Within body whorl more or less complex system of plicae and lamellae (closing apparatus) located. The most characteristic element of closing apparatus is clausilium — a flexible spoon-like structure (wide plate + narrow handle) lying in lumen of body whorl and attached to columella by upper end of handle (filament) at border between last and penultimate whorls. In a few cases closing apparatus and clausilium reduced to various degree. Shape of clausilium plate variable, sometimes with keels, folds or incisions.

Cephalopodium relatively small and may withdraw deeply (up to 4 whorls).

Sole undivided, caudal apparatus absent.

Excretory system of mesurethral type, kidney short.

Male division of reproductive tract variable in structure. In most genera it is built according to typical for *Geophila* scheme: vas deferens at first runs down to atrium alongside free oviduct and vagina; then it directs to upper end of epiphallus or penis. Sometimes descending part of vas deferens highly musculized and enters directly atrium, sometimes enlarged into pseudoepiphallus and parepiphallus. Flagellum may be present. In some groups on upper end of penis there is a massive musculized caecum. Spermatheca often with a special retractor, arising on columellar muscle.

DISTRIBUTION. As in superfamily.

PHAEDUSINAE A. Wagner, 1922

Wagner A., 1922: 98.

— Zapytcheae Zilch, 1959: 391 (as tribe).

Juvenile shell without columellar lamella. Periostracal layer of shell well developed. Last whorl without basal keel. Aperture non-apostrophic, its margins mostly smooth, only rarely with marginal knobs. Superior lamella attends aperture margin, continuous with spiral lamella. Inner end of subcolumellar lamella located on columella. Lunella entire or desintegrated into a number of short plicae.

Ommatophoran retractor passes through peni-oviducal angle. Vas deferens not modified, thin. Flagellum not present. Epiphallus shorter than penis. Penis large, usually cylindrical, without accessory organs, of 2-3 parts, mostly much longer than vagina. Penial retractor arises from diaphragm, attached to proximal part of epiphallus at entrance of vas deferens. Vagina shorter than free oviduct or of nearly same length. Retractor of spermathecal stalk consists mainly of connective tissue. Reservoir of spermatheca not lies on spermoviduct. Diverticle of spermatheca usually long, thin. Neck of spermathecal stalk varies in length, but mostly (rather) long.

DISTRIBUTION. SE Asia including Indonesia, Japan and China; 1 genus (*Caspiophaedusa*) in Caucasus.

Megalophaedusini Zilch, 1954

Zilch, 1954a: 3 (as Megalophaeduseae). Nord-sieck, 1998a: 24.

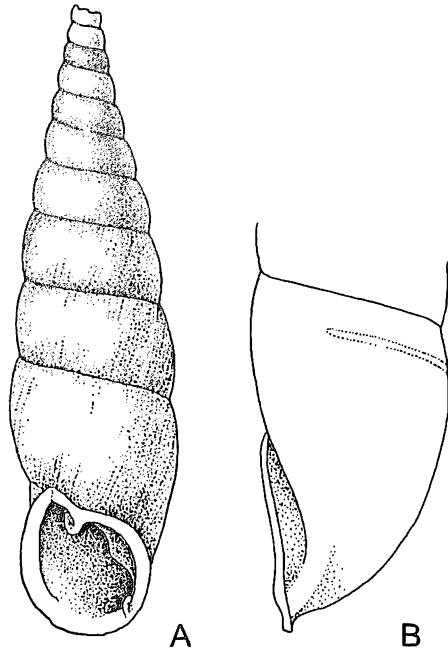


Fig. 733. *Hemiphaedusa (Hemiphaedusa) pluviatilis* (Benson, 1842). China.
A — shell. B — location of plicae within last whorl. Moscow No. Lc-9414.

Inferior lamella steeply ascending. Plate of clausilium narrow.

DISTRIBUTION. SE Asia, Japan.

Hemiphaedusa O. Boettger, 1877

Boettger O., 1877: 65 (*Clausilia*, *Phaedusa* sect.; "Gruppe").

— *Synprosphyra* A. Wagner, 1920: 12 (t.-sp. *Clausilia acrostoma* Bavay et Dautzenberg, 1909; SD Loosjes & Loosjes-van Bemmelen, 1973).

— *Synprosphyra* Thiele, 1931: 527 (nom. err. pro *Synprosphyra* Wagner, 1920).

TYPE SPECIES — *Clausilia pluviatilis* Benson, 1842; OD.

Shell generally fusiform, thin to solid. Superior lamella mostly continuous with spiral lamella. Inferior lamella not strong, subvertical, occupies back side of columella. Subcolumellar lamella mostly weak, immersed or attending aperture edge. Principal plica of various length. Lunella more or less

oblique, occupying right side. Palatal plica mostly short.

Vas deferens a little expanded at prostate, entering epiphallus apically. Penial retractor attached near entrance of vas deferens. Neck of spermathecal stalk and diverticle expanded.

DISTRIBUTION. Nepal, NE India (Assam), China, N Vietnam, Japan.

Hemiphaedusa (Hemiphaedusa s. str.) Fig. 733

Shell fusiform, moderately thin, a little shining, of about 10 slightly convex whorls. Last whorl with a short parumbilical crest. Color yellowish-corneous to reddish-brown. Postembryonic sculpture of fine, irregular, crowded wrinklets. Aperture ovate to pear-shaped, (sub)vertical, with reflexed, somewhat expanded, thin or scarcely thickened margins. Superior lamella sometimes separated from spiral lamella by more or less wide space. Inferior lamella subvertical, occupies back side of columella. Subcolumellar lamella attending aperture edge. Principal plica starts on right or right-ventral side. Lunella broad. Palatal plicae absent. Height 10-35, diam. 2-8 mm (26.0 × 6.6 mm).

DISTRIBUTION. China, N Vietnam. About 30 spp.

Hemiphaedusa (Hemizaptyx) Pilsbry, 1905 Fig. 734

Pilsbry, 1905: 824 (*Clausilia* sect.).

— *Paganizaptyx* Kuroda et Habe in Inaba et Oyama, 1977: 94 (t.-sp. *Clausilia strictaluna* O. Boettger, 1877; OD).

Nordsieck, 1998a: 27

TYPE SPECIES — *Clausilia pinto* Pilsbry, 1901; OD.

Shell fusiform or fusiform-turreted, thin, semitransparent, dull or shining, of 8-11 slightly convex or nearly flat whorls. Color corneous. Postembryonic whorls with radial sculpture of very fine, irregular wrinklets. Aperture generally squarish-ovate or pear-shaped [exception: *Hemiphaedusa (Hemizaptyx) takarai* (Kuroda, 1960) has very peculiar aperture in which sinulus sharply sepa-

rated and somewhat turned backward]. Boundary between superior and spiral lamellae marked by change of height: superior much higher. Inferior lamella remote from superior lamella, receding, inconspicuous or invisible in frontal view, obliquely ascending and straightened within back of last whorl. Subcolumellar lamella weak. Principal plica starting on right-dorsal side. Lunella oblique, above united with or contiguous to upper palatal plica which is short, upper end of lunella located under its middle. Plate of clausilium parallel-sided, flattened, round at its end, with a narrow incision at base of handle. Height 7.5-16.5, diam. 2-4 mm (10.2 × 2.6 mm).

Free oviduct and vagina rather long, of approximately equal length. Diverticle of spermathecal stalk longer than stalk proper + reservoir.

DISTRIBUTION. Japan (Tanegashima and Yakushima to N Ryukyu Islands); 1 sp. in Russian Far East (suburbs of Khabarovsk). 14-15 spp. & subspp.

Hemiphaedusa (Pinguiphaedusa)
Azuma, 1982)
Fig. 735

Azuma, 1982: 116 [*Pinguiphaedusa* Kuroda & Habe, 1949" (nom. nud.)]. Nordsieck, 1998a: 27

TYPE SPECIES — *Clausilia platydera* Martens, 1876; OD.

Shell quite solid, a little shining, of 9-11 slightly convex whorls. Color yellow to light-corneous. Postembryonic whorls with variously developed, rounded, radial riblets; besides, spiral lines sometimes present. Aperture pear-shaped, vertical, with reflexed, somewhat thickened margins. Boundary between superior and spiral lamellae absent. Inferior lamella low, subvertical, lies on back side of columella. Subcolumellar lamella short, attending aperture margin. Principal plica starting on right-ventral side and ending at some distance from plane of aperture. Lower end of lunella connected with very short lower palatal plica. Height 18-35, diam. 4.8-8.5 mm (23.0 × 5.3 mm).

Epiphallus somewhat enlarged. Free oviduct markedly shorter than vagina. Stalk of spermathecal reservoir + reservoir proper a little longer than diverticle.

DISTRIBUTION. Japan. 17 spp. & subspp.

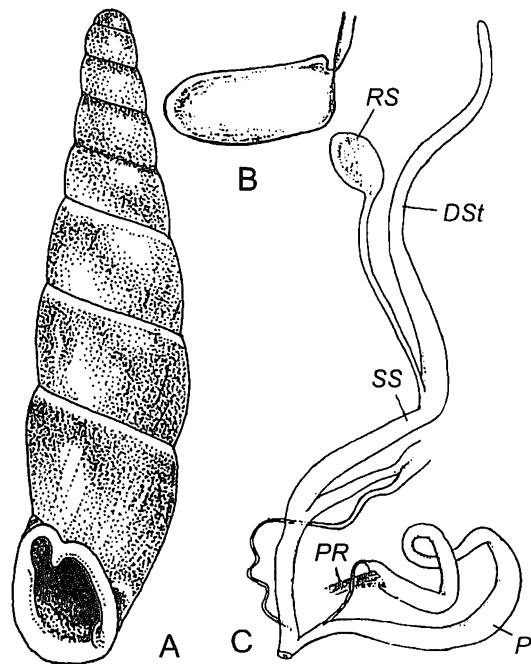


Fig. 734. *Hemiphaedusa (Hemizaptyx) pinto* (Pilsbry, 1901).

A — shell: Tanegashima, Osumi, Japan. Senck. No. 30453. B — clausilium. C — reproductive tract. After Minato, 1994.

Hemiphaedusa (Placeophaedusa)
Minato, 1994)
Fig. 736

Minato, 1994: 62.

TYPE SPECIES — *Clausilia expansilabris* O. Boettger, 1877; OD.

Shell moderately thin to quite solid, silky glossy, sometimes translucent, of 8-10 slightly convex whorls. Color reddish-corneous to corneous. Postembryonic whorls finely, densely, radially rib-striated. Aperture ovate to pear-shaped, (sub)vertical, with shortly reflexed, markedly thickened margins. Ridge of superior + spiral lamella even. Inferior lamella inconspicuous, on back side of columella. Subcolumellar lamella small, usually immersed and mostly invisible in frontal view. Principal plica rather long, lateral. Plicae and lunella below principal plica very variable. Clausilium tongue-like, thickened at columellar side, with a weak incision near filament. Height 10.5-21.0, diam. 2.7-4.0 mm (14.7 × 3.6 mm).

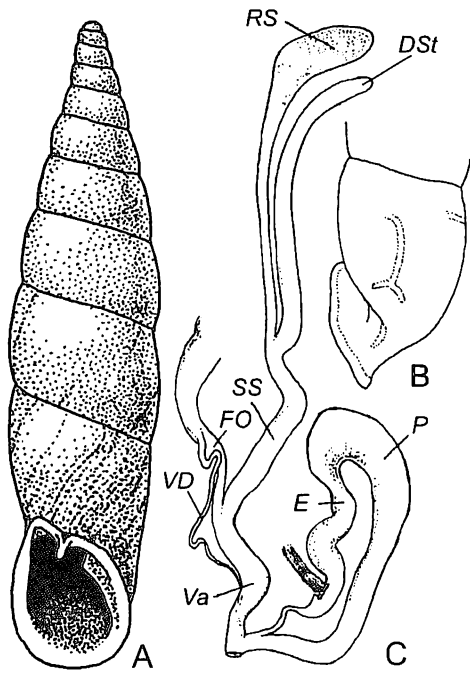


Fig. 735. *Hemiphaedusa (Pinguiphaedusa) pinguis platydera* (Martens, 1876).
A — shell: Miyama-mura, Hidaka-gan, Wakayama-ken, Japan. B — location of plicae within last whorl. Moscow No. Lc-24713 (gift of H. Minato). C — reproductive tract. After Minato, 1994.

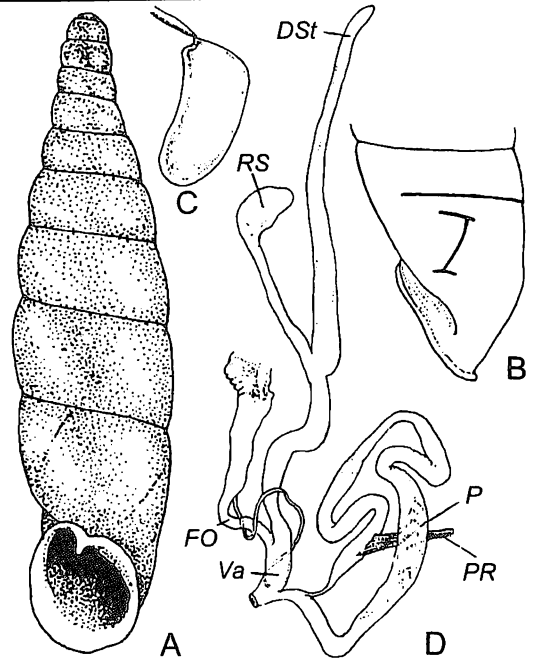


Fig. 736. A — ! *Hemiphaedusa (Placeophaedusa) awajiensis* (Pilsbry, 1900).
Shell: Tairiuuji, Tokushima-pref., Japan. Moscow No. Lc-24714. B, C, D — *Hemiphaedusa (Placeophaedusa) expansilabris* (O. Boettger, 1877). B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

Penis long, sinuous, internally with V-shaped, transversal plicae. Free oviduct twice longer than vagina. Diverticle of spermathecal stalk much longer than duct of reservoir + reservoir itself.

DISTRIBUTION. Japan. 7 spp. & subsp.

Megalophaedusa O. Boettger, 1877

Boettger O., 1877: 62 (*Clausilia*, sect. *Dilataria*; "Gruppe").

— *Aprosphyra* A. Wagner, 1920: 9 (part.; t.-sp. *Clausilia yokohamensis* Crosse, 1873; SD Kenard & Woodward, 1923).

TYPE SPECIES — *Clausilia yokohamensis* Crosse, 1873 (= *Clausilia martensi* Martens, 1860); OD.

Shell mostly entire, rarely shortly decolated, fusiform to nearly subulate, thin to quite solid. Color yellowish-white to dark-brown. Postnuclear whorls with fine radial sculpture or nearly smooth. Aperture ovate

to pear-shaped, with reflexed, slightly thickened margins. Inferior lamella mostly deeply lying, steeply ascending. Subcolumellar lamella variously developed. Principal plica starting on ventral or right side. Lunella entire or variously broken into a series of short plicae.

Epiphallus of various length, usually demarcated from penis by circular narrowing. Free oviduct and vagina usually not long, of more or less equal length. Diverticle of spermathecal stalk long.

DISTRIBUTION. Japan.

Megalophaedusa (Mesophaedusa) Ehrmann, 1929

Fig. 737

Ehrmann, 1929: 41.

— *Vastina* Ehrmann, 1929: 41 (*Megalophaedusa* sect.; t.-sp. *Clausilia vasta* O. Boettger, 1877; OD).

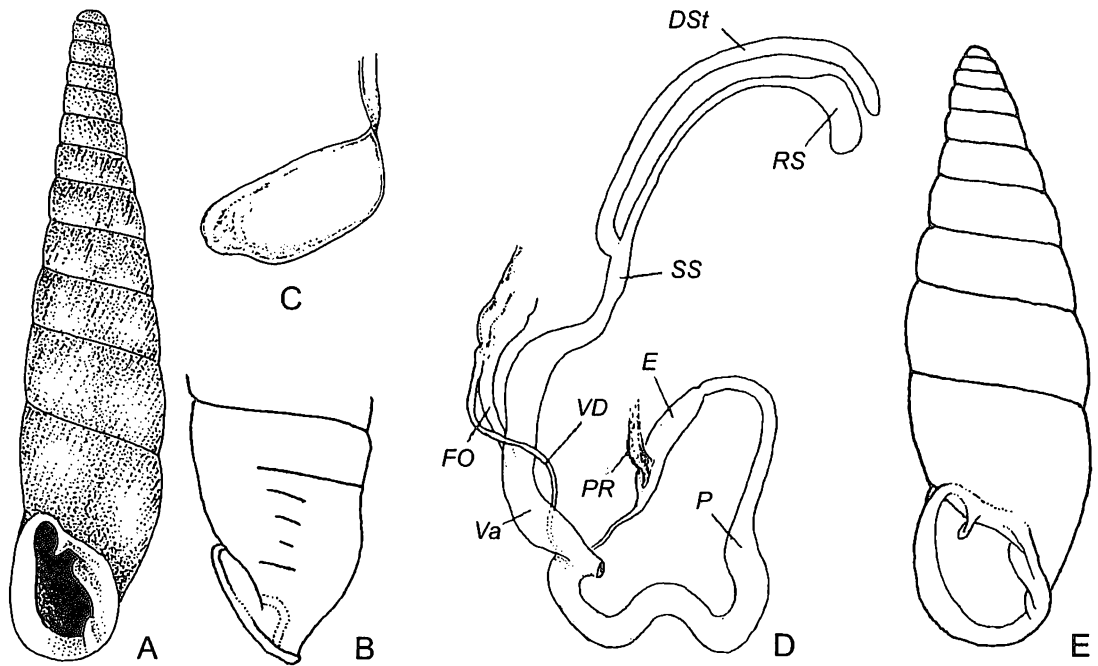


Fig. 737 A, B, C, D — *Megalophaedusa (Mesophaedusa) hickonis* (O. Boettger, 1878). A — shell. B — location of plicae within last whorl. Omi, Japan. Vienna No. R 70.762. C — clausilium. D — reproductive tract. After Minato, 1994. E — ! *Megalophaedusa (Mesophaedusa) vasta* (O. Boettger, 1877). Shell: Nagasaki [Japan]. Paris.

TYPE SPECIES — *Clausilia hickonis* O. Boettger, 1878; OD.

Shell obesely fusiform to nearly subulate, quite solid, sometimes translucent, of 10-19 slightly convex to strongly flattened whorls. Color corneous or yellowish. Sculpture represented by variously expressed fine, dense, sharp radial striation. Aperture ovate to distinctly pear-shaped, (sub)vertical, with shortly reflexed, not strongly thickened margins. Inferior lamella well developed. Subcolumellar lamella variously developed, usually reaching aperture edge. Principal plica starting on ventral or right-ventral side. Lunella callouse, on right side, sometimes broken into a few short plicae. Plate of clausilium comparatively broad, irregularly elongated-ovate, with shallow incision at distal end. Height 14.5-32.0, diam. 3.3-8.5 mm (*hickonis*: 25.1 × 5.4 mm; *vasta*: 25.8 × 7.4 mm).

Epiphallus short, separated from penis by circular furrow. Penis long. Penial retractor attached to epiphallus near base of vas

deferens. Free oviduct and vagina not long, of about equal length. Neck of spermathecal shaft approximately equal to duct of reservoir + reservoir proper or somewhat longer, sometimes spirally twisted; diverticle shorter or longer.

DISTRIBUTION. Japan. 16 spp. & a few subspp.

Megalophaedusa (Megalophaedusa s. str.)

Fig. 738

Shell entire or shortly decollated, fusiform-cylindrical, rather solid, silky glossy, of 9-10 (when entire) flattened whorls. Color corneous to yellowish. Embryonic whorls vaguely granulate, later finely, densely, irregularly striated; locally with weak spiral striation. Aperture ovate, vertical, with a little reflexed, thickened margins. Superior lamella high; sometimes boundary between superior and spiral lamellae

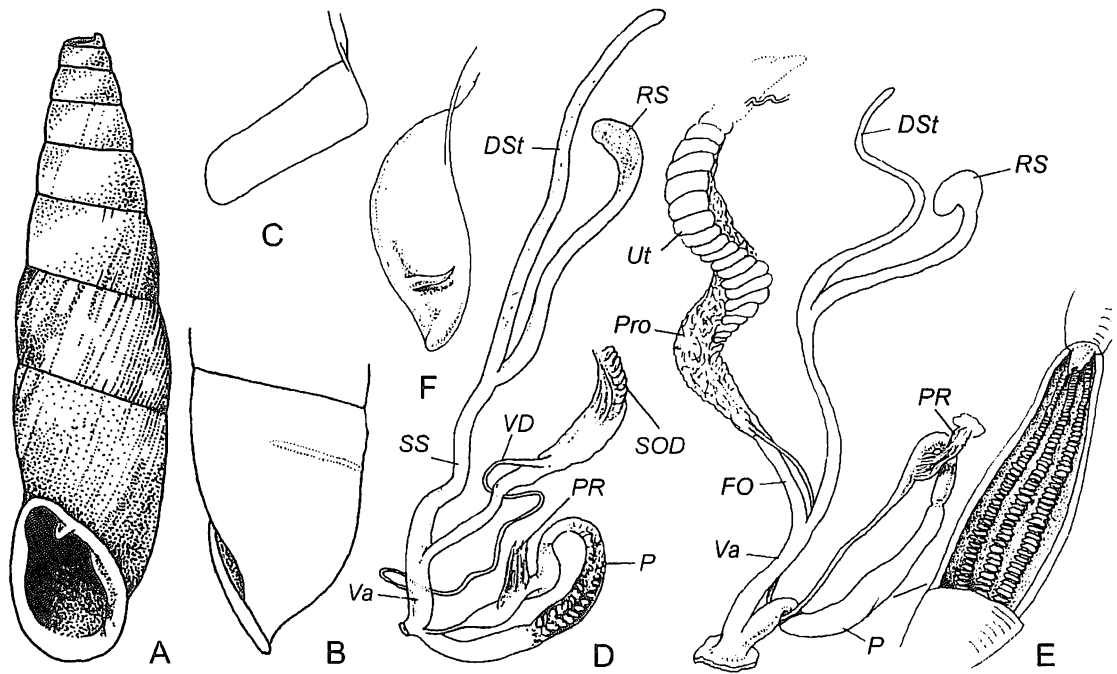


Fig. 738. *Megalophaedusa (Megalophaedusa) martensi* (Martens, 1860).

A — shell. B — location of plicae within last whorl. C — clausilium. Mt. Ishimaki, Toyohashi-C, Japan. Moscow No. Lc-24704 (gift of H. Minato). D — reproductive tract. After Minato, 1994. E, F — Hakono Mts., Japan. E — reproductive tract and interior of penis. F — clausilium. Vienna No. 77118 (as *yokohamensis* Crosse, 1873).

marked by a shallow depression. Inferior lamella low. Subcolumellar lamella weakly developed. Principal plica not long, starts on right side. Below it a short upper palatal plica located. Lunella entire or variously desintegrated into a series of very short plicae, running from upper palatal. Umbilicus closed. Lobe of clausilium triangular or with nearly parallel sides; sometimes lancet-shaped with distinct hook (see Remark). Height 36-45 diam. 7.5-11.0 mm (44.3×10.9 mm).

Epiphallus not long. Penis consists of 2 parts, distal internally with rows of lamellar tubercles and minute verge, proximal without regular relief. Penial retractor attached to middle of epiphallus, base of retractor wide, band-like. Free oviduct longer than vagina or of about same length. Neck of spermathecal stalk long, diverticle longer than stalk proper + reservoir.

DISTRIBUTION. Japan. 1 or 2 spp.

REMARK. Clausilium of the shell of *M. (M.) martensi* from Mt. Ishimaki lacks a hook; Minato (1994, pl. 47, fig. 5) also did not indicate the presence of a hook in this spe-

cies. However, in the specimen from Hakono Mts. (Vienna, determined as *yokohamensis* Crosse, 1873) clausilium has different shape and a hook, like in *Formosana* (see fig. 779), *Phaedusa* (see Loosjes, 1948) and some *Tyrannophaedusa* (see Minato, 1981b). At the same time other conchological and anatomical characters of *martensi* and *yokohamensis* are practically identical.

Megalophaedusa (Mundiphaedusa)
Minato, 1979)
Fig. 739

Minato, 1979: 141.

Kuroda & Habe in Habe, 1958: 62 (66) (nom. nud.).

— *Vitriphaedusa* Azuma, 1982: 135 ["*Vitriphaedusa* Kuroda & Habe, 1949" (nom. nud.); t.-sp. *Clausilia opeas* Moellendorff, 1885 (= *Clausilia subulina* Moellendorff, 1882; OD)].

Minato, 1988: 79; 1994: 128. Nordsieck, 1997: 62; 1998a: 27

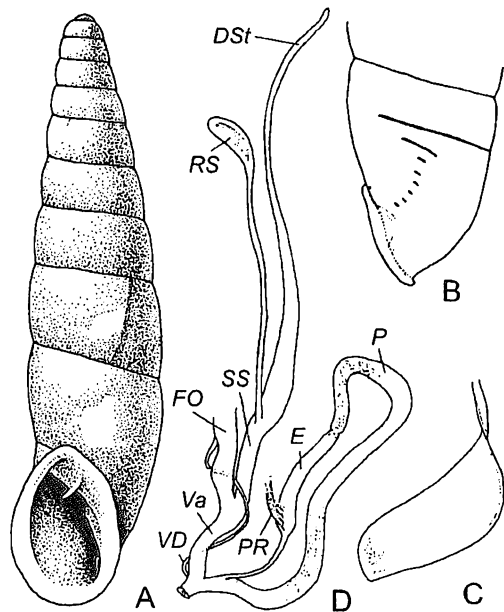


Fig. 739. *Megalophaedusa (Mundiphaedusa) ducalis* (Kobelt, 1876).
 A — shell: Kaga, Japan. Vienna No. 70.758.
 B — location of plicae within last whorl.
 C — clausilium. D — reproductive tract.
 After Minato, 1994.

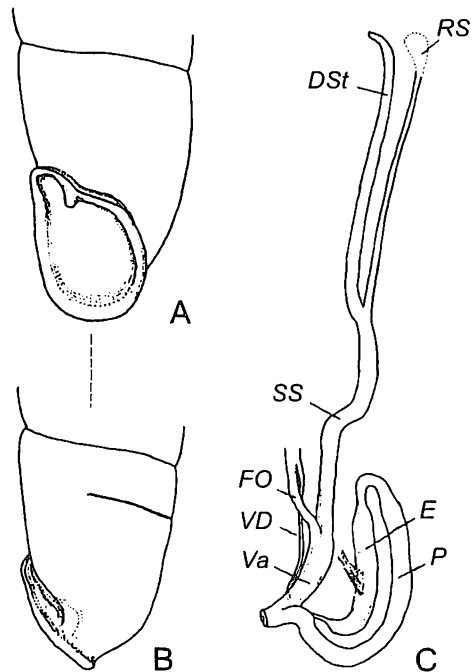


Fig. 740. *Megalophaedusa (Pauciphaedusa) toshiyukii* (Minato et Habe, 1983).
 A,B — last whorl and position of principal plica. C — reproductive tract. After Minato, 1994.

TYPE SPECIES — *Clausilia ducalis* Kobelt, 1876; OD.

Shell club-shaped, rather thin, more or less shining, of 9-11 slightly convex whorls. Apex blunt. Color yellow to dark-brown. Postnuclear whorls nearly smooth, with only smoothed irregular wrinklets. Aperture elongated-ovate, a little oblique, with reflexed, thickened margins. Superior lamella evenly continuous with spiral lamella. Inferior lamella steeply ascending. Subcolumellar lamella short, emerging, but rarely immersed. Principal plica starting on right or right-ventral side. Lunella either entire or broken into a series (1-6) of very small plicae. Clausilium without incision on inner side. Height 8.5-41.0, diam. 1.8-10.0 mm (34.8 × 8.2 mm).

Vas deferens adherent to basal part of penis, enters epiphallus apically. Epiphallus rather short, demarcated from penis by circular narrowing. Penial retractor attached to epiphallus at entry of vas deferens. Penis long, subcylindrical, with tubercular inner surface. Free oviduct short, vagina generally a little longer. Neck of spermatheca short,

duct of reservoir thin, diverticle basally enlarged, longer than reservoir.

DISTRIBUTION. Japan. 26 spp.

Megalophaedusa (Pauciphaedusa)
 Minato et Habe, 1983)
 Fig. 740

Minato & Habe, 1983: 240. Minato, 1988: 78.

TYPE SPECIES — *Pauciphaedusa toshiyukii* Minato et Habe, 1983; OD.

Shell fusiform, with subcylindrical upper part, rather thin, of about 9 slightly convex whorls. Color light-corneous. Postembryonic whorls nearly smooth. Aperture pyriform, a little oblique, with slightly reflexed margins. Superior lamella small. Inferior lamella deeply lying. Subcolumellar lamella weak, not visible in frontal view. Principal plica starting on right side. Lunella not present. Height 8.5-9.0, diam. 2.1-2.2 mm.

Vas deferens short. Epiphallus cylindrical, a little swollen, separated from penis by a narrowing. Penial retractor attached to

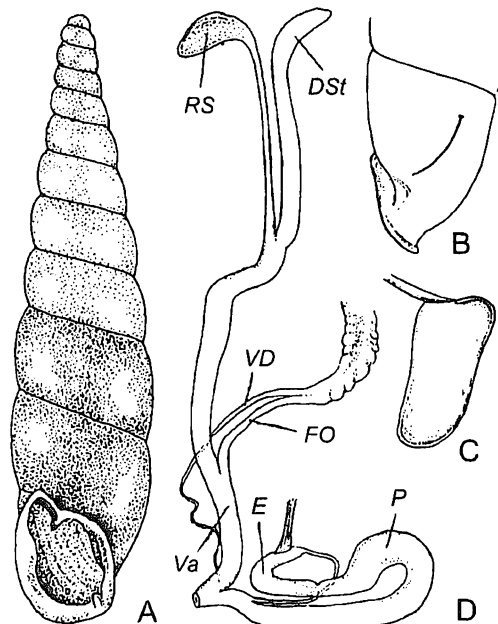


Fig. 741. *Zptychopsis buschi* (L. Pfeiffer, 1846). A — shell: Ozu, Japan. Moscow No. Lc-24733. B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

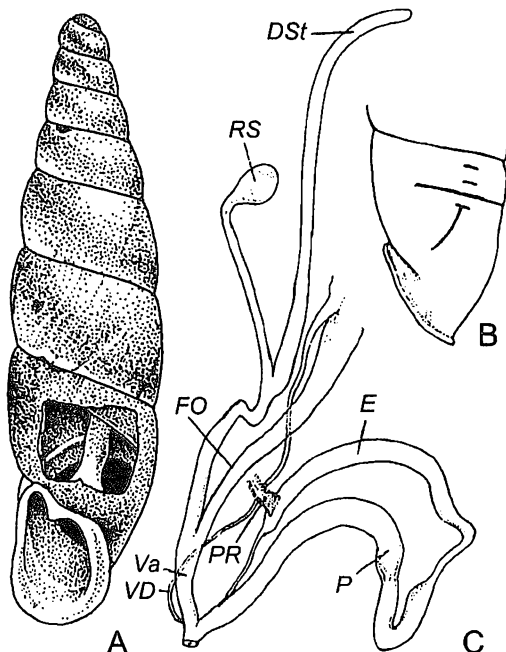


Fig. 742. *Zptyx hirasei* Pilsbry, 1900. A — shell: Kagashima, Satsuma, Japan. Paratype. Phil. No. 78789. B — location of plicae within last whorl. C — reproductive tract. After Minato, 1994.

middle part epiphallus. Free oviduct and vagina not long, of about equal length. Length of neck of spermathecal stalk, diverticle and duct of reservoir + reservoir itself approximately equal.

DISTRIBUTION. Japan (Kagoshima Island). 1 sp.

Zptychopsis Ehrmann, 1927 Fig. 741

Ehrmann, 1927: 33, 42, 44 (*Zptyx* subg.).

TYPE SPECIES — *Clausilia buschi* L. Pfeiffer, 1846; OD.

Shell subfusiform, rather solid, shining, translucent to semitransparent, of 10-11 rather convex whorls. Color uniformly corneous-yellow. Postembryonic whorls with very fine regular riblets. Aperture ovate, a little oblique, with shortly reflexed and a little thickened margins. No visible boundary between superior and spiral lamellae. Inferior lamella high. Subcolumellar lamella nearly reaching aperture edge. Principal

plica starting on right-ventral side, its ridge directed to space between inferior and superior + spiral lamellae. Lunella long, at its upper end there is a tiny rudiment of principal (or upper palatal ?) plica. Height 11-20, diam. 4.4-4.7 mm (19.5 × 4.4 mm).

Vas deferens a little expanded at prostate, entering epiphallus apically. Epiphallus not long, separated from penis by a light narrowing. Penial retractor attached near entrance of vas deferens. Free oviduct thin, moderately long, of about same length as expanded vagina. Neck of spermathecal stalk long, expanded; diverticle also stout; stalk of reservoir thin, a little longer (together with reservoir) than diverticle.

DISTRIBUTION. Japan (Hondo). 1 sp.

Zptyx Pilsbry, 1901 Fig. 742

Pilsbry, 1901: 672 (*Clausilia* sect.).

— *Idiozptyx* Pilsbry, 1909a: 584 (*Clausilia* sect.; t.-sp. *Clausilia idioptyx* Pilsbry, 1909; OD).

TYPE SPECIES — *Clausilia hirasei* Pilsbry, 1900; OD.

Shell fusiform, moderately thin, sometimes translucent, of 8-9 rather convex whorls. Color light-corneous to brown. Sculpture of fine, irregular radial striation. Aperture ovate, with a little thickened margins. Superior lamella small, more or less separated from much reduced spiral lamella. Fulcrum and parallel lamella short but distinct. Inferior lamella receding, massive, almost straightly ascending. Subcolumellar lamella often reaching aperture margin. Principal plica starting on right side; above it 1 or 2 short sutural plicae located. Lunella dorsal, pressed by its end against very short to rather long upper palatal plica. Height 7-11, diam. 1.8-3.0 mm (9.1 × 2.3 mm).

Vas deferens a little expanded at prostate, entering epiphallus apically. Epiphallus long, consisting of 3 parts: long subcylindrical proximal; short, narrowed middle; also nearly cylindrical distal. Boundary between epiphallus and penis marked by a light thickening. Penial retractor attached to proximalmost part of epiphallus. Free oviduct 2-3 times longer than vagina. Spermathecal stalk and diverticle a little enlarged, stalk of reservoir narrower, its length (together with reservoir) much shorter than diverticle.

DISTRIBUTION. Japan (S Kyushu to Ryukyu Islands), Philippines. 9 spp.

Tyrannophaedusa Pilsbry, 1901

Pilsbry, 1901: 676 (*Clausilia* sect.). Nordsieck, 1998a: 27

TYPE SPECIES — *Clausilia mikado* Pilsbry, 1900; OD.

Shell entire or shortly decollated, slender, more or less translucent, of 7-16 moderately convex to nearly flat whorls. Post-embryonic whorls with fine radial striation or riblets. Aperture ovate or pear-shaped, with shortly reflexed, thickened margins. Superior lamella evenly continuous with spiral lamella. Inferior lamella weak or wanting. Subcolumellar lamella immersed or reaching aperture edge. Principal plica starting on ventral or right side. There are 2-4 short palatal plicae.

Vas deferens bound to adatrial portion of penis, entering epiphallus apically. Epiphallus poorly demarcated from penis.

DISTRIBUTION. Japan.

Tyrannophaedusa (*Tyrannophaedusa* s. str.) Fig. 743

— *Decolliphaedusa* Azuma, 1982: 129 [*Decolliphaedusa* Kuroda & Habe, 1949" (nom. nud.); t.-sp. *Clausilia bilabrata* Smith, 1876; OD.]. Minato, 1988: 69.

— *Ventriphaedusa* Azuma, 1982: 130 [*Ventriphaedusa* Kuroda & Habe, 1949" (nom. nud.); t.-sp. *Clausilia platyderula* Pilsbry, 1903; OD.]. Minato, 1988: 72.

— *Spinulaphaedusa* Minato, 1994: 103 (t.-sp. *Tyrannophaedusa nankaidoensis* Kuroda, 1955; OD).

Shell entire or shortly decollated, fusiform, sometimes with cylindrical upper spire, solid, of 7-16 moderately convex to nearly flat whorls. Color pale yellowish-white to brown. Postapical sculpture of fine, crowded, not very regular, sometimes silky, radial striation. Aperture generally ovate, (sub)vertical. Inferior lamella remote from superior lamella or absent. Subcolumellar lamella fine, reaching aperture edge. Principal plica long, starting on ventral wall above aperture. Lunella latero-ventral or ventral, united to both upper and lower palatal plicae or separated from upper palatal plica. Below this plica 2 short, somewhat oblique, palatal plicae often situated. Plate of clausilium somewhat thickened on columellar side towards base and buttress formed by erected spine fold on inside of clausilium. Height 11-23, diam. 2.8-5.5 mm (*mikado*: 20.7 × 5.3 mm; *tosaensis*: 19.5 × 4.0; *bilabrata*: 20.7 × 5.3 mm).

Epiphallus and penis long to very long. Free oviduct and vagina long, of about equal length. Neck of spermathecal stalk long, diverticle shorter to longer than duct of reservoir + reservoir itself.

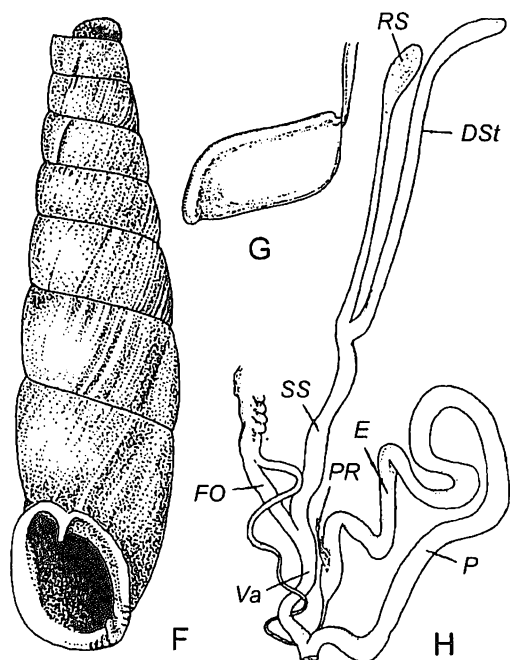
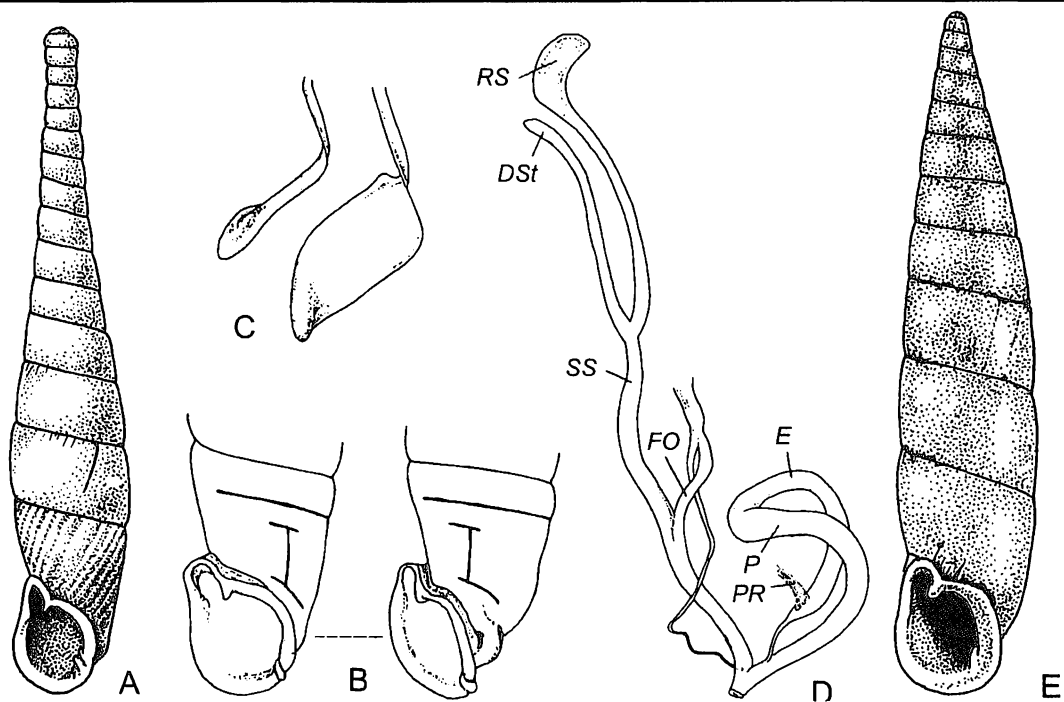
DISTRIBUTION. Japan. 16 spp.

Tyrannophaedusa (*Aulacophaedusa*) Azuma, 1982) Fig. 744

Azuma, 1982: 136 [*Aulacophaedusa* Kuroda & Habe, 1949" (nom. nud.)]. Minato, 1988: 72.

TYPE SPECIES — *Clausilia gracilispira* Moellendorff, 1882; OD.

Shell slender, pillar-shaped to subfusiform, moderately thin but firm, of 9-10.5 a little convex whorls. Color light-corneous,



reddish or pale yellowish-green. Embryonic whorls smooth, later whorls rib-striated or finely regularly ribbed. Aperture pear-shaped, subvertical to a little oblique. Inferior lamella not or scarcely visible in apertural view, very receding. Subcolumellar lamella very deeply immersed. Principal plica starting on right side, below it 3-4 short plicae situated. Clausilium plate parallel-sided, acuminate below, abruptly and deeply emarginate on columellar side of handle. Height 8-14, diam. 2-3 mm (11.2 × 2.2 mm).

Epiphallus and penis of moderate length. Free oviduct 2-3 times shorter than vagina. Neck of spermathecal stalk short; length of diverticle nearly equal to length of stalk of reservoir + reservoir itself.

DISTRIBUTION. Japan. 3 spp.

Fig. 743. A, B, C, D — *Tyrannophaedusa (Tyrannophaedusa) mikado* (Pilsbry, 1900).

A — shell: Mt. Ibukiyama, Shiga Pref., Japan. Moscow No. Lc-24706 (gift of H. Minato).

B — location of plicae within last whorl. C — clausilium in two positions. D — reproductive tract. After Minato, 1994. E — ! *Tyrannophaedusa (Tyrannophaedusa) tosaensis* (Pilsbry,

1903). Tosayama, Kouchi Pref., Japan. Moscow No. Lc-24716 (gift of H. Minato). F, G,

H — ! *Tyrannophaedusa (Tyrannophaedusa) bilabrata* (Smith, 1876). F — shell: Hosokawa,

Japan. Vienna No. K 29861. G — clausilium. H — reproductive tract. After Minato, 1994.

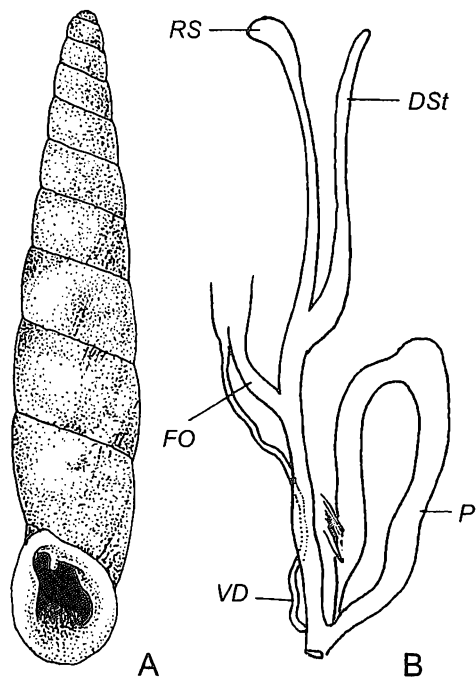


Fig. 744. *Tyrannophaedusa (Aulacophaedusa) gracilispira* (Moellendorff, 1882).
A — shell: Awa, Japan. Vienna No. R 70.789. B — reproductive tract. After Minato, 1994.

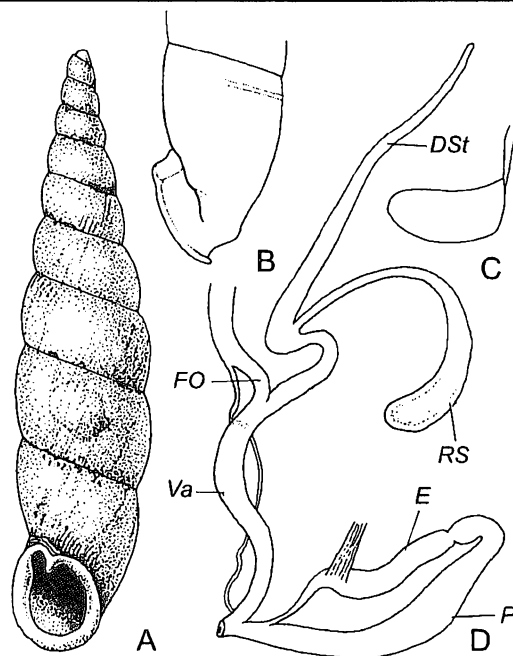


Fig. 745. *Pliciphaedusa tosana* (Pilsbry, 1901). Mt. Yokokura, Kochi-Pref., Japan.
A — shell. B — location of plicae within last whorl. C — clausilium. Moscow No. Lc-24708 (gift of H. Minato). D — reproductive tract. After Minato, 1994.

Pliciphaedusa Nordsieck, 1998

Fig. 745

Nordsieck, 1998a: 27, 30.

TYPE SPECIES — *Clausilia tosana* Pilsbry, 1901; OD.

Shell fusiform, rather solid, of 9-11 slightly to quite convex whorls. Last whorl with a furrow outside above principal plica. Color corneous. Embryonic whorls smooth, later finely rib-striated. Aperture relatively small, pear-shaped, subvertical, built forward, with strongly thickened, reflexed margins. Boundary between superior and spiral lamellae marked with light depression. Inferior lamella subvertical, weakly developed, visible only in oblique view. Subcoluellar lamella very deeply immersed. Principal plica starting on right side. Lunellar region right-dorsal, variable: from entire lunella and upper and lower palatal plicae to 4-5 short plicae standing upon a ridge (which is probably a rudiment of lunella). Plate of clausilium irregularly ovate, with-

out incisions. Height 11-17, diam. 2.5-3.5 mm (15.0 × 3.2 mm).

Vas deferens tightly bound to adatrial part of penis. Epiphallus rather short, separated from penis by distinct circular narrowing. Penis not long. Penial retractor attached to epiphallus near entrance of vas deferens. Free oviduct very short, vagina 4-5 times longer. Neck of spermathecal stalk of about same length as duct of reservoir + reservoir itself; reservoir poorly demarcated from duct. Diverticle long.

DISTRIBUTION. Japan. 4 sp.

Euphaedusa O. Boettger, 1877

Fig. 746

Boettger O., 1877: 57 (*Clausilia*, sect. *Phaedusa*; "Gruppe").

TYPE SPECIES — *Clausilia shanghaiensis* L. Pfeiffer, 1852; OD.

Shell fusiform, rather solid, somewhat shining, of 10-11 moderately convex whorls. Color yellowish to chestnut. Embryonic whorls smooth, later mostly weakly sculp-

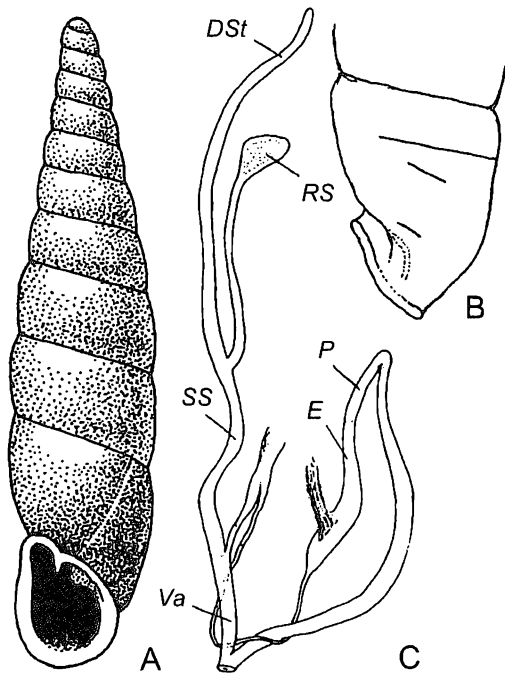


Fig. 746. *Euphaedusa shanghaiensis* (L. Pfeiffer, 1852). China. A — shell. B — location of plicae within last whorl. Moscow No. Lc-1982. C — ! *Euphaedusa digonoptyx* (Boettger, 1877). Reproductive tract. After Minato, 1994.

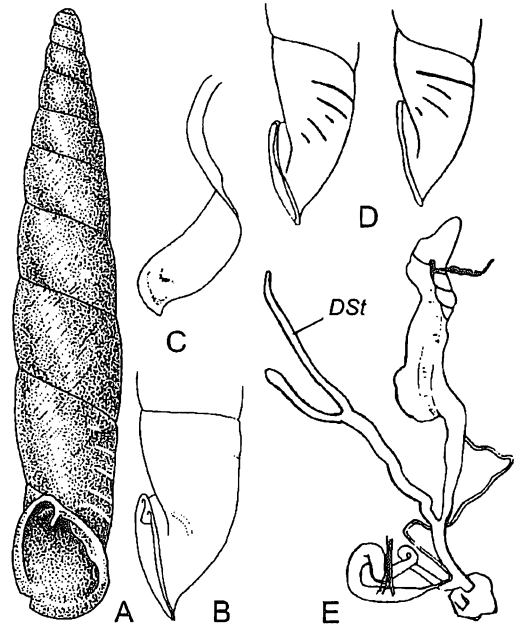


Fig. 747. *Pseudonenia (Pseudonenia) javana* (L. Pfeiffer, 1846). A, B, C — Pelabuhan Ratu, W Java. A — shell. B — location of plicae within last whorl. C — clausilium. Private coll. of R.V Egorov. D — location of plicae within last whorl in two specimens. E — reproductive tract. After Loosjes, 1953.

tured with low, rounded riblets. Aperture rounded to subquadrate, vertical to slightly oblique, with thickened, shortly reflexed margins. Superior lamella short, spiral lamella weak or absent. Inferior lamella forms wide, even spire. Subcolumellar lamella rudimentary or absent. Lunella absent. Principal plica short, occupies left side of penultimate whorl. Palatal plicae (1-2) weak or wanting. Height 10-33, diam. 2.2-5.5 mm (17.0 × 3.8 mm).

Boundary between epiphallus and penis marked by a very light circular groove. Free oviduct and vagina about equal in length. Neck of spermathecal stalk rather long, diverticle longer; duct of reservoir + reservoir itself shorter than diverticle.

DISTRIBUTION. India, China, Korea, Japan. About 20 spp.

Pseudonenia O. Boettger, 1877

Boettger O., 1877: 59 (*Clausilia*, *Phaedusa* sect.; "Gruppe").

— *Macrenoica* A. Wagner, 1920: 9 (part.; *Aprophyma* subg.; t.-sp. *Clausilia javana* L. Pfeiffer, 1846; SD Kennard & Woodward, 1923).

Loosjes, 1953: 56. Nordsieck, 1973a: 66; 1998b: 127 (as syn. of *Oospira* Blanford, 1872).

TYPE SPECIES — *Clausilia javana* L. Pfeiffer, 1846; OD.

Shell fusiform or turreted, thin, spire with convex to straight outlines. Radial wrinkles straight, not wavy. Superior lamella continuous with spiral lamella. Below principal plica there are some long (2 or more, exceptionally only 1) and usually some short (1 or more) plicae regularly distributed over height of whorl. Lunella absent.

DISTRIBUTION. E and SE Asia.

Pseudonenia (Pseudonenia s. str.)

Fig. 747

Shell slender, fusiform, thin to moderately solid, shining, sometimes strongly translucent, of 8-11 slightly convex to nearly flat

whorls. Color reddish to yellowish-corneous. Embryonic whorls smooth, polished, subsequent from nearly smooth to having delicate, fine, crowded, radial striation. Aperture mostly pyriform, (sub)vertical to somewhat oblique, with thin, broadly reflexed and expanded margins. Superior lamella continuous with spiral lamella. Inferior lamella low, ascending almost vertically. Subcolumellar lamella often reaches margin of aperture. Principal plica starting on right-ventral side; below its inner end there are 0-7 shorter palatal plicae. Very short sutural plica may be present. Plate of clausilium with very short attenuate process, thickened at edges. Height 18-28, diam. 3.7-5.5 mm (22.3 × 4.2 mm).

Talon not exposed. Vas deferens rather short, entering epiphallus apically at atrium. Free oviduct and vagina of about equal length. Neck of spermathecal stalk long, diverticle a little shorter, duct of reservoir + reservoir itself short.

DISTRIBUTION. E and SE Asia, including Sumatra, Java and Kalimantan. At least 20 spp. & subsp.

Pseudonenia (Juttingia) fucosa Loosjes, 1965
Fig. 748

Loosjes, 1965: 35

TYPE SPECIES — *Pseudonenia fucosa* Loosjes, 1963; OD.

Shell rather solid, of 9-11 moderately convex whorls. Color reddish- or yellowish-brown, sometimes covered with greyish-white periostracum. Sculpture of dense radial striae which become coarser and more widely spaced behind aperture. Aperture ovate to subtriangular, slightly oblique, with well reflexed, a little thickened margins. Superior lamella high, continuous with well developed spiral lamella. Inferior lamella low, not reaching aperture margin. Subcolumellar lamella not visible through aperture, begins behind inferior lamella. Principal plica starting on left-ventral side. Below it there are 2-4 short plicae running more or less parallelly to principal; below these there is one more nearly vertical plica, representing lower part of lunella. Clausilium plate rather broad, strongly curved, with nearly parallel margins. Height 17.4-27.5, diam. 3.9-6.0 mm (26.0 × 5.8 mm).

DISTRIBUTION. Java. 2 spp.

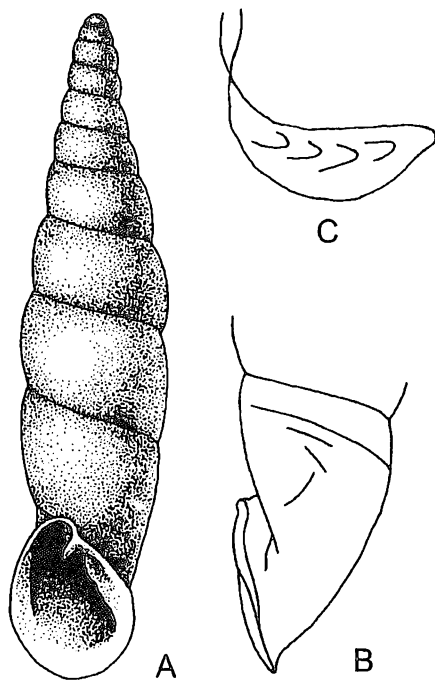


Fig. 748. *Pseudonenia (Juttingia) fucosa* Loosjes, 1963.

A — shell: W Java, 3 km of kampong Tamandjaja. Holotype. Leiden. B — location of plicae within last whorl. C — clausilium. After Loosjes, 1963.

Acrophaedusa O. Boettger, 1877
Fig. 749

Boettger O., 1877: 64 (*Clausilia*, sect. *Phaedusa*; "Gruppe"). Loosjes, 1953: 147

TYPE SPECIES — *Clausilia cornea* Philippi, 1847; OD.

Shell subfusiform, more or less solid, of about 10 a little convex whorls. Color corneous. Postembryonic sculpture of fine regular striation. Aperture ovate to ovate-subquadrangular, vertical, with rather thin, reflexed margins. Superior and spiral lamellae evenly fused. Inferior lamella rather low, with thickened ridge. Subcolumellar lamella short, not reaching aperture edge. Principal plica starting on right side; below it there are at least 2, usually 3, sometimes 4 palatal plicae. Lunella wanting. Lobe of clausilium subquadrangular, with somewhat thickened external edge. Height 17-22, diam. 4.0-4.4 mm (20.0 × 4.2 mm).

Talon, a simple curvature of hermaphroditic duct. Vas deferens a little expanded

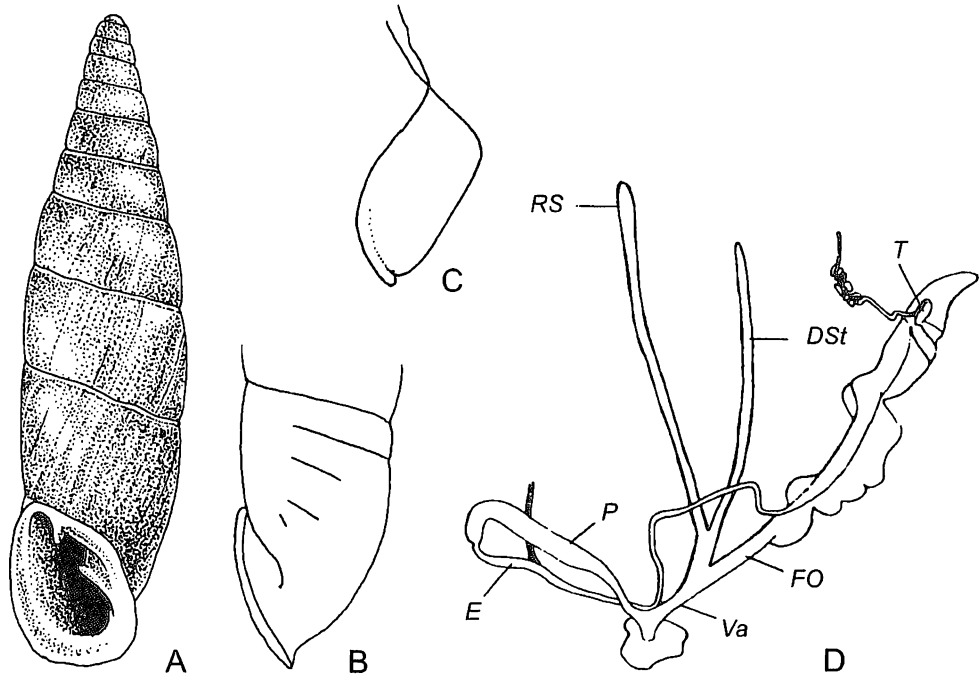


Fig. 749. *Acrophaedusa cornea* (Philippi, 1847). A, B, C — Java [Indonesia]. A — shell. B — location of plicae within last whorl. C — clausilium. Paris. D — reproductive tract. After Loosjes, 1953.

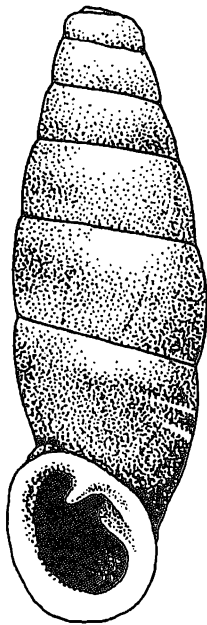


Fig. 750. *Excussispira fargesiana* (Heude, 1885). "Lang Son et That-Khé" N Vietnam. ? Syntype. Paris.

before entering penis. Penial retractor attached to expanded part (epiphallus?) of vas deferens. Free oviduct moderately long, a little longer than vagina. Neck of spermathecal stalk short, diverticle about as long as stalk proper, reservoir poorly demarcated.

DISTRIBUTION. Java, Sumatra, Nicobar Islands, SE Asia. 9-10 spp.

Excussispira Lindholm, 1925
Fig. 750

Lindholm, 1925: 265 (*Phaedusa* sect.).

TYPE SPECIES — *Clausilia fargesiana* Heude, 1885; OD.

Shell decollated, obesely fusiform, very solid, of 6-6.5 (when decollate) slightly convex whorls. Color chestnut, aperture margins white. Embryonic whorls smooth, later nearly so. Aperture subcircular, subvertical, margins reflexed, strongly thickened. Superior and spiral lamellae fused, but superior markedly higher. Inferior lamella high. Subcolumellar lamella not present. Principal

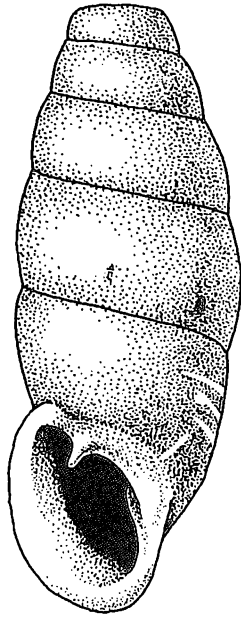


Fig. 751. *Liparophaedusa freyi* (Bavay et Dautzenberg, 1899). "Tonkin" [N Vietnam]. Paris.

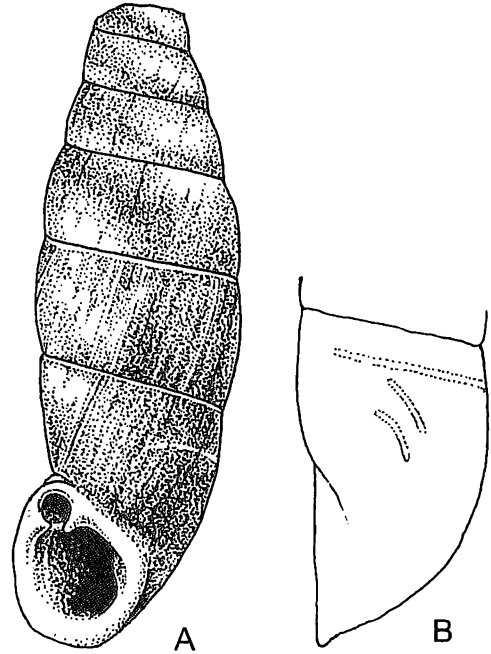


Fig. 752. *Siphonophaedusa grangeri* (Bavay et Dautzenberg, 1899). Between Lang Son and That-Khé, N Vietnam. Syntype. Paris. A — shell. B — location of plicae within last whorl.

plica starting on right-ventral side. Below it, on right side, there are 2 short palatal plicae and oblique lunella. Height 30-35, diam. 10.0-10.5 mm (32.5 × 10.3 mm).

DISTRIBUTION. China, N Vietnam. 2-4 spp.

Liparophaedusa Lindholm, 1924
Fig. 751

Lindholm, 1924: 62, 71 (*Phaedusa* sect.).

TYPE SPECIES — *Clausilia freyi* Bavay et Dautzenberg, 1899; OD.

Shell entire, obesely fusiform, rather solid, of 5-6.5 slightly convex whorls; embryonic whorls form flat apex. Color corneous, aperture margins milk-white. Embryonic whorls smooth, later with vestigial radial striation (practically glabrous). Aperture ovate, vertical, interrupted on parietal wall, with thickened, a little reflexed margins. Superior and spiral lamellae fused, without visible boundary. Inferior lamella strongly developed. Subcolumellar lamella very weak. Principal plica starting on ventral or right-

ventral side. Below it 2 palatal plicae, upper longer than lower. Lunella visible from outside as a short subvertical line just above parieto-columellar angle, its upper end directed to middle of lower palatal plica. Plate of clausilium elongated-ovate, saddle-shaped, pointed at distal end. Height 25-38, diam. 9-12 mm (25.5 × 9.2 mm).

DISTRIBUTION. N Vietnam. 2-3 spp.

Siphonophaedusa Lindholm, 1924
Fig. 752

Lindholm, 1924: 62, 71 (*Phaedusa* sect.).

— *Syphonophaedusa* Ehrmann, 1927: 33 (nom. err. pro *Siphonophaedusa* Lindholm, 1924).

TYPE SPECIES — *Clausilia grangeri* Bavay et Dautzenberg, 1899; OD.

Shell decollated, obesely fusiform, solid, of about 7 (after decollation) a little convex whorls. Color chestnut to yellow, margins of aperture white. Postembryonic whorls finely, regularly radially striated. Aperture subcircular, vertical, interrupted on parietal wall, with thickened, somewhat reflexed

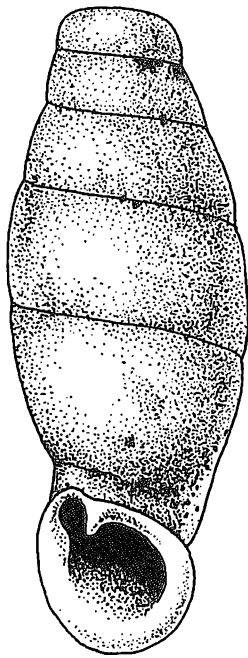


Fig. 753. *Atractophaedusa rhopaloides* (Moellendorff, 1901).
He Krieu, N Vietnam. Paris.

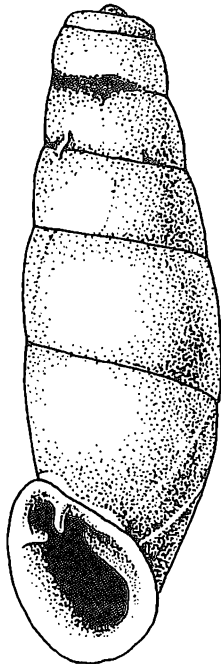


Fig. 754. *Dautzenbergiella duella* (Mabille, 1887).
N Vietnam. "Type" Paris.

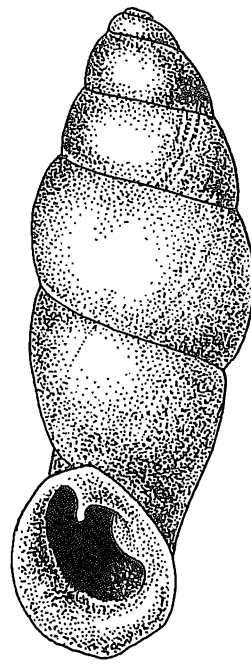


Fig. 755. *Oospira philippiana* (L. Pfeiffer, 1847).
Moulmein, Burma. Paris.

margins and well developed parietal callus. Superior and spiral lamellae evenly fused. Inferior lamella occupying back side of columella. Subcolumellar lamella very small. Principal plica starting on right-ventral side and reaching palatal margin of aperture. Lunella occupies right side, broken into 3-6 short, parallel plicae lying at acute angle to principal plica; sometimes a few more dot-like plicae may be present. Height 18-20, diam. 6-7 mm (18.9 × 6.0 mm).

DISTRIBUTION. N Vietnam. 1 sp.

Atractophaedusa Ehrmann, 1927

Fig. 753

Ehrmann, 1927: 33, 39 [*Hemiphaedusa* (*Liparophaedusa*); sect.].

TYPE SPECIES — *Phaedusa* (*Oospira*) *rhopaloides* Moellendorff, 1901; OD.

Shell not decollated, obesely fusiform or elongated-ovate, quite solid, of 6-7 slightly convex whorls. Embryonic whorls form a flat summit. Color uniformly corneous. Surface nearly smooth throughout. Aperture comparatively small, rounded, slightly obli-

que, with strongly thickened, a little reflexed, sometimes doubled margins. Superior and spiral lamellae fused, but boundary between them visible as a rather abrupt decrease in height. Inferior lamella weak, not visible in frontal view. Subcolumellar lamella scarcely developed or wanting. Principal plica starting on right-ventral side. Lunella presented by several more or less bent plicae. Plate of clausilium small, saddle-shaped, with narrowly rounded end and weak incision at handle. Height 15-22, diam. 6-7 mm (17.7 × 6.5 mm).

DISTRIBUTION. N Vietnam. 3-5 spp.

Dautzenbergiella Lindholm, 1924

Fig. 754

Lindholm, 1924: 62, 71 (*Phaedusa* sect.).

TYPE SPECIES — *Clausilia duella* Mabille, 1887; OD.

Shell decollated, cylindrical-fusiform, quite solid, of 6-7 slightly convex whorls; last scarcely ascending in front. Color uniformly corneous to brown. Surface finely silky striated. Aperture irregularly ovate to

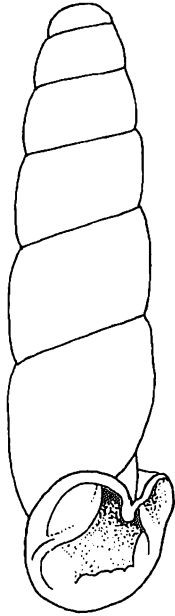


Fig. 756. *Adversaria inversa* (Heude, 1885).
After Heude, 1885.

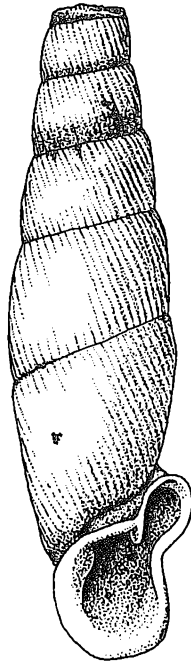


Fig. 757. *Foraminigera fargesiana* (Heude, 1890).
China. Phil. No. 25013.

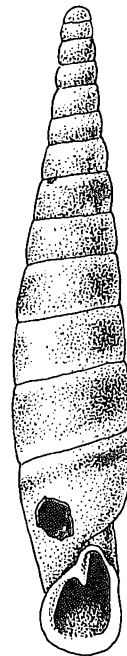
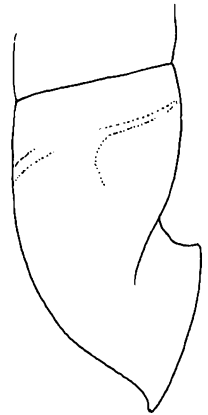


Fig. 758. *Sinigena bisdelineata* (Heude, 1885).
China. Phil. No. 25010. [Worn shell].



rhomboid, with quite thickened, a little reflexed margins. Sinulus well defined. Superior lamella evenly continuous with spiral lamellae. Inferior lamella strong, subcolumellar somewhat weaker, usually not visible in frontal view. Principal plica very long, starting on ventral side. Below it there are 2 moderately long, oblique palatal plicae and 3rd, more inclined; ends of plicae connected by curved lunella. Plate of clausilium long, narrow, saddle-shaped, distal part of its external margin wing-like elevated. Height 18-19, diam. 5.5-5.7 mm (18.2 × 5.5 mm).

DISTRIBUTION. N Vietnam. 1 sp.

Oospira Blanford, 1872
Fig. 755

Blanford, 1872: 205 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia philippiana* L. Pfeiffer, 1847; OD.

Shell obesely fusiform, rather solid, dull, of 6 slightly convex whorls. Color uniformly chestnut. Sculpture of fine, irregular radial striae. Aperture vertical, margins thickened and flatly reflexed. Superior and spiral la-

mellae fused, but differ in height: superior shorter and higher. Inferior lamella visible in frontal view, spirally ascending. Subcolumellar lamella deeply lying, not visible in apertural view. Principal plica starting on right-ventral side. Lunella right in position, usually broken into 5-7 short, parallel plicae. Height 19-29, diam. 6.5-8.5 mm (21.3 × 7.3 mm).

DISTRIBUTION. SE Asia. 3-4 spp.

Adversaria Lindholm, 1925
Fig. 756

Lindholm, 1925: 265 (*Phaedusa* sect.).

TYPE SPECIES — *Clausilia inversa* Heude, 1885; OD.

Shell decollated, dextral, subcylindrical, rather solid, of 6-7 slightly convex whorls. Color white or corneous. Postapical whorls densely, delicately, radially rib-striated. Aperture of irregular outlines because of strong development of sinulus. Closing apparatus as in *Excussispira*. Height 21-28, diam. 6-7 mm.

DISTRIBUTION. China. 1 sp.

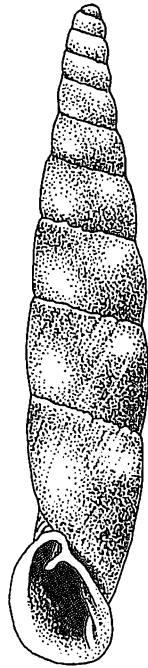


Fig. 759. *Notoptychia gisota* (Bavay et Dautzenberg, 1899).
That-Khé, N Vietnam. Holotype. Paris.

nearly straight, occupies left side of last whorl. Height 11.5-17.0, diam. 3.0-3.5 mm (12.0 × 3.1 mm).

DISTRIBUTION. China. 1 sp.

Sinigena Lindholm, 1925
Fig. 758

Lindholm, 1925: 265 (*Phaedusa* sect.).

TYPE SPECIES — *Clausilia bisdelineata* Heude, 1885; OD.

Shell dextral, slender, fusiform, not shining, of 13-14 slightly convex whorls. Color corneous. Postembryonic whorls finely, densely rib-striated. Aperture pear-shaped, free, well oblique, upper part of sinulus curved backward. Embryonic whorls smooth, later finely ribbed. Aperture margins reflexed, expanded, a little thickened. Superior lamella continuous with spiral, slightly protruded from aperture plane. Inferior lamella low, steeply ascending. Subcolumellar lamella visible in frontal view. Principal plica starts on ventral side. Lunella distinct, left-ventral, convex. Palatal plicae absent. Height 20-21, diam. 3.6-3.8 mm (20.3 × 3.8 mm).

DISTRIBUTION. China. 1 sp.

Foraminigera Lindholm, 1925
Fig. 757

Lindholm, 1925: 265 (*Phaedusa* sect.).

TYPE SPECIES — *Clausilia fargesianella* Heude, 1890; OD.

Shell decollated, dextral, fusiform to fusiform-cylindrical, comparatively solid, silky glossy, of about 6 (after decollation) flattened whorls. Color yellowish-corneous. Postembryonic whorls finely, more or less regularly rib-striated. Aperture pear-shaped, with concave palatal wall and very deep sinulus; margins reflexed, a little thickened. Superior lamella very strong, high, continuous with spiral lamella. Inferior lamella rather deeply lying. Subcolumellar lamella joined with lower end of inferior lamella. Principal plica corresponds to palatal depression of aperture margin, its ridge very closely approached ridge of superior lamella; only very narrow space remains between these ridges. Upper palatal plica not long. Lunella

Notoptychia Ehrmann, 1927
Fig. 759

Ehrmann, 1927: 36 (*Hemiphaedusa* sect.).

TYPE SPECIES — *Clausilia gisota* Bavay et Dautzenberg, 1899; OD.

Shell slender, fusiform, very shining, of about 10 slightly convex whorls. Color uniformly chestnut or upper spire whitish. Surface of postapical whorls with delicate irregular radial wrinkles to nearly smooth. Aperture ovate-subtriangular, only slightly oblique, with somewhat reflexed margins. Superior and spiral lamellae united, but differ in height and length: superior much higher and shorter. Inferior lamella deeply lying. Subcolumellar lamella variously developed. Principal plica starting on dorsal side. Lunella dorsal, long, subvertical. Plate of clausilium long, narrow, without incisions. Height 15-25, diam. 3.5-4.6 mm (24.5 × 4.6 mm).

DISTRIBUTION. N Vietnam. 2-4 spp.

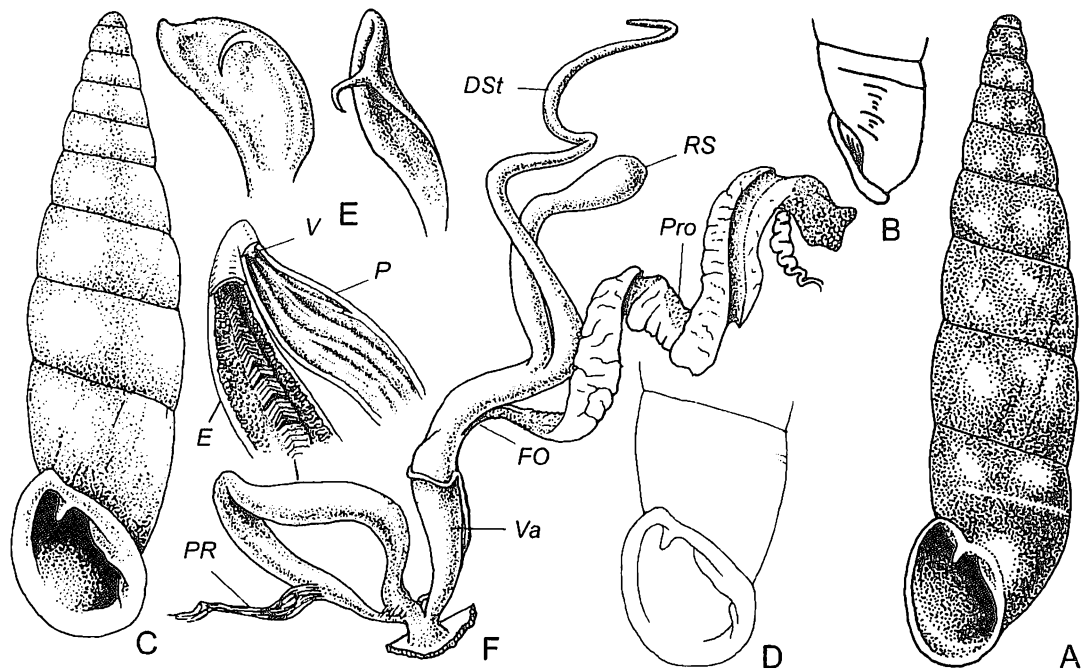


Fig. 760. A, B — *Formosana swinhoei* (L. Pfeiffer, 1865).
 A — shell: Taiwan. Moscow No. Lc-24745. B — location of plicae within last whorl. After Minato, 1975. C, D, E, F — ! *Formosana cambodiensis* (L. Pfeiffer, 1861). "Thailand: Kao Sabab Gebirge, Aufstieg von Klong Na Rai, 600 m, 13.IX.1964." C — shell. D — location of plicae within last whorl. E — clausilium. F — reproductive tract and interior of penis and epiphallus. Bern No. 1661/2482.

Formosana O. Boettger, 1877
 Fig. 760

Boettger O., 1877: 63 (*Clausilia*, sect. *Phaedusa*; "Gruppe").

— *Macrophaedusa* Moellendorff, 1883: 251 (*Clausilia*, sect. *Phaedusa*; subsect.; t.-sp. *Clausilia fortunei* L. Pfeiffer, 1852; monotypy).

TYPE SPECIES — *Clausilia swinhoei* L. Pfeiffer, 1865; OD.

Shell fusiform, somewhat ventrose, moderately to quite solid, of 10-11 moderately convex whorls. Apex broadly rounded. Color corneous or reddish-brown, peristome white. Postembryonic sculpture of very delicate radial striation. Aperture ovate to squarish, only slightly oblique, with continuous, somewhat reflexed, thickened margins. Superior lamella evenly continuous with spiral lamella. Inferior lamella subvertical. Subcolumellar lamella usually almost reaching edge of aperture. Principal plica

starting on ventral or right-ventral side. Lunella as such wanting but there are 3-8 short palatal plicae. Plate of clausilium rather small, curved, with attenuated proximal end and thin thorn on convex side. Height 14-35, diam. 3-8 mm (*swinhoei*: 29.5 × 7.5 mm; *cambodiensis*: 28.7 × 7.0 mm).

Talon, a simple curvature of hermaphroditic duct, hidden in albumen gland. Vas deferens adherent to vagina and adatrial part of penis, entering epiphallus apically. Epiphallus externally separated from penis by a sharp curvature, internally with a strong pilaster consisting of triangular leaflets; rest surface of epiphallus covered by minute papillae. Penis internally with tiny verge and longitudinal branching folds. Free oviduct short, narrow. Vagina expanded, rather long. Neck of spermathecal stalk not long, somewhat shorter than duct of reservoir; diverticle very long.

DISTRIBUTION. Taiwan, China, SE Asia. 5-7 spp.

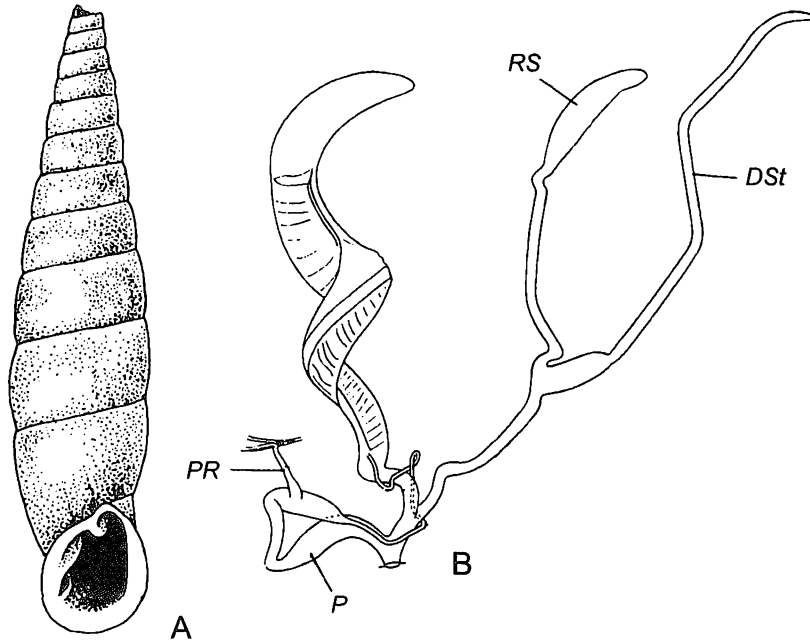


Fig. 761. A — *Dextroformosana semprinii* (Gredler, 1884). Shell: "Hunan" Paris. B — † *Dextroformosana miranda* Loosjes et Loosjes-van Bommel, 1973. Reproductive tract. After Loosjes & Loosjes-van Bommel, 1973.

Dextroformosana O. Boettger et
Schmacker, 1894
Fig. 761

Boettger & Schmacker, 1894: 111 (*Clausilia*,
sect. *Phaedusa*; subsect.).

TYPE SPECIES — *Clausilia semprinii* Gredler, 1884; OD.

Shell entire or shortly decollated, dextral, subfusiform, moderately solid, of 10-12 slightly convex whorls. Color corneous to chestnut. Postembryonic whorls delicately, irregularly radially striated. Aperture ovate or pyriform, with reflexed and more or less thickened margins. Superior + spiral lamella occupies marginal position. Inferior lamella oblique. Subcolumellar lamella visible in apertural view but not reaching aperture edge. On left side 5-6 palatal plicae situated: upper of them (longest) is principal plica, lowest — lower palatal plica. Rest plicae — a result of desintegration of lunella. Height 14-32, diam. 4.5-7.0 mm (30.7 × 6.7 mm).

Boundary between epiphallus and penis marked by a sharp curvature. Penial retractor attached to middle section of epiphallus.

Free oviduct and vagina rather short, of about equal length. Neck of spermathecal stalk rather long, diverticle somewhat swollen basally, longer than duct of reservoir + reservoir itself.

DISTRIBUTION. China (Hunan, Hupei, Kiangsi). 6 spp. with a few forms.

Rufospira Moellendorff, 1883
Fig. 762

Moellendorff, 1883: 254 (*Megalophaedusa* subsect.).

— *Rufospira* Paetel, 1889: 311 (nom. err. pro *Rufospira* Moellendorff, 1883).

TYPE SPECIES — *Clausilia gerlachi* Moellendorff, 1881; monotypy.

Shell cylindrical-fusiform, thin, translucent, shining, of 8-9 moderately convex whorls. Color rich chestnut. Embryonic whorls smooth, later whorls weakly radially wrinkled, behind aperture ribbed. Aperture rounded, vertical, with markedly thickened and slightly reflexed margins. Boundary between superior and spiral lamellae marked by a shallow oblique depression. Inferior la-

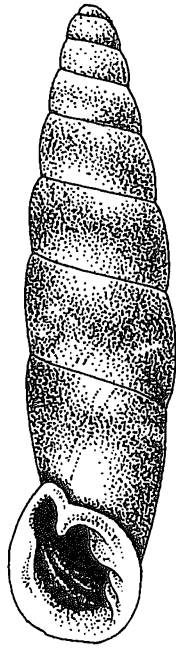


Fig. 762. *Rufospira gerlachi* (Moellendorff, 1881). Lo-Fu-shan, Kwangtung [China]. Lectotype. Senck. No. 42189.

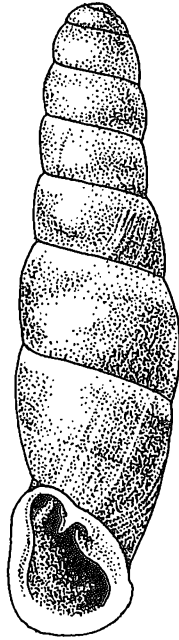


Fig. 763. *Fuchsiana paradoxa* (Gredler, 1887). Yün-dshou-fu, Hunan Prov., China. Paratype. Senck. No. 42166.

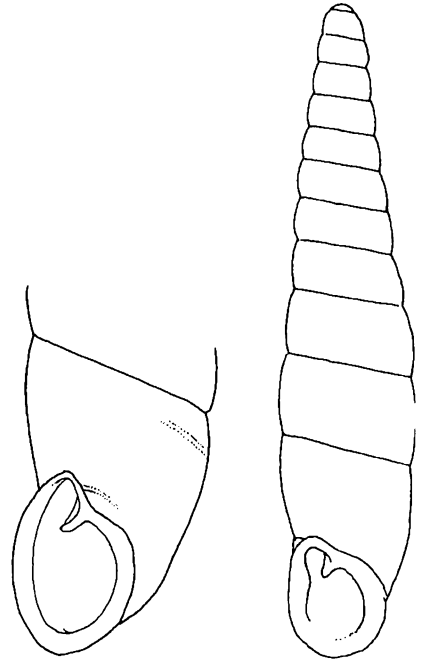


Fig. 764. *Bathyptychia aplostoma* (Heude, 1890). After Heude, 1890.

mella subvertical. Subcolumellar lamella weak, but there are 2 marginal knobs. Principal plica starting on right side. Lunella wanting. 3-5 palatal plicae situated on right side. Plate of clausilium small, with almost parallel margins, rounded below. Height 13-16, diam. 3-4 mm (14.0 × 3.6 mm).

DISTRIBUTION. China (Kwangtung). 1 sp.

Fuchsiana Gredler, 1887
Fig. 763

Gredler, 1887: 148 (*Clausilia* "group").

TYPE SPECIES — *Clausilia* (*Phaedusa*) *paradoxa* Gredler, 1887; monotypy.

Shell consists of cylindrical upper and subfusiform lower parts, rather solid, silky glossy, of 8.5-10 slightly convex whorls. Apex blunt. Color red-brown, below suture whitish. Postembryonic whorls indistinctly radially striatulate, last whorl behind aperture rib-striated. Aperture pear-shaped, subvertical, with reflexed margins. Superior lamella fused with spiral lamella, boundary between them marked by a very weak sinua-

tion. Inferior lamella strong, steeply ascending. Subcolumellar lamella deeply-lying, oblique. Principal plica starting on dorsal side. Lunella represented by 1-4 short palatal plicae. Height 17-21, diam. 4.3-5.0 mm (17.0 × 4.3 mm).

DISTRIBUTION. China (Hunan). 1 sp.

Bathyptychia Lindholm, 1925
Fig. 764

Lindholm, 1925: 265 (*Phaedusa* sect.).

TYPE SPECIES — *Clausilia aplostoma* Heude, 1885; OD.

Shell entire, fusiform, of about 12 flattened whorls. Color reddish-brown. Postembryonic sculpture of fine radial striae. Aperture pointed-ovate. Superior lamella strong. Inferior and subcolumellar lamellae deeply lying, not visible in frontal view. Principal plica starting on left-ventral side. On ventral side 4 short plicae situated. Height 16, diam. 2.5 mm.

DISTRIBUTION. China. 1 sp.

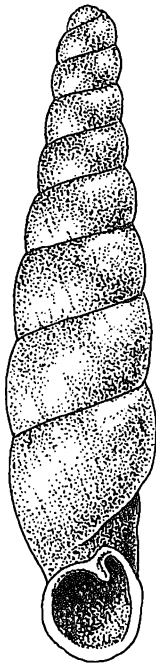


Fig. 765. *Streptodera trachelostropha* (Moellendorff, 1885). Hupei, Patung, China. Vienna No. K 58389.

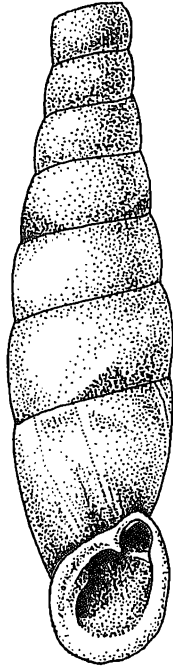


Fig. 766. *Leptacme sykesi* (Bavay et Dautzenberg, 1909). "Bac-Khan, Tonkin" [Vietnam]. Syntype. SPb.

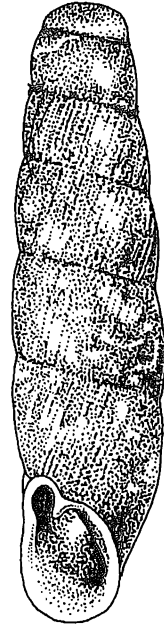


Fig. 767 *Cyliindrophaedusa cylindrica* (L. Pfeiffer, 1846). "Himalaya" Paris.

Streptodera Lindholm, 1925
Fig. 765

Lindholm, 1925: 265 (*Phaedusa* sect.).

TYPE SPECIES — *Clausilia* (*Garnieria*) *trachelostropha* Moellendorff, 1885; OD.

Shell dextral, fusiform, rather slender, thin, glass-like, semitransparent, silky glossy, of about 9 slightly convex whorls. Last whorl with shallow depression behind aperture. Almost colorless. Postnuclear whorls finely rib-striated. Aperture subcircular, oblique, with slightly thickened, shortly reflexed margins. Superior lamella strong, connected by sharp sinuosity with spiral lamella. Inferior lamella deeply lying. Subcolumellar lamella also deep, short, high. Principal plica starting on right-dorsal side. Lunella pressed by its upper end against middle part of principal plica. Height 11, diam. 2.5 mm (11.0 × 2.5 mm).

DISTRIBUTION. China. 1 sp.

Leptacme Ehrmann, 1927
Fig. 766

Ehrmann, 1927: 25, 33 (*Aprosphyra* subg.).

TYPE SPECIES — *Clausilia sykesi* Bavay et Dautzenberg, 1909; OD.

Shell dextral, entire or decollated, cylindrical-fusiform, moderately solid, of 6-10 (after decollation; up to 14.5 in entire shell) a little convex whorls. Color generally yellowish. Postembryonic sculpture of very delicate, irregular wrinklets (shell looking smooth). Aperture ovate, with thickened, slightly reflexed margins. Superior lamella evenly fused with spiral lamella. Inferior lamella deeply lying. Subcolumellar lamella short, not visible in frontal view. Principal plica almost attending aperture margin; below it 3 moderately long palatal plicae and a rudiment of 4th situated. Lunella wanting. Plate of clausilium long, narrow, bent, with spoon-shaped distal end; its external margin with wing-like lobe. Height 13.5-17.8 (up to 25 when entire), diam. 3.1-4.0 mm (14.9 × 3.9 mm).

DISTRIBUTION. N Vietnam, Annam. 2 spp.

Cyliindrophaedusa O. Boettger, 1877
Fig. 767

Boettger O., 1877: 64 (*Clausilia*, sect. *Phaedusa*; "Gruppe").

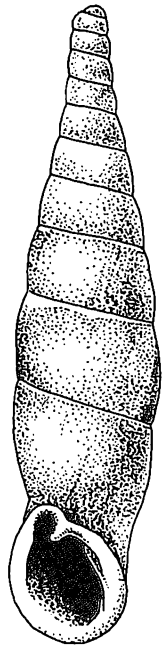


Fig. 768. *Selenophaedusa porphyrostoma* (Bavay et Dautzenberg, 1909).
Pac-Kha, N Vietnam. Paris.



Fig. 769. *Lindholmiella aciculata* (Bavay et Dautzenberg, 1909).
Phang-To, N Vietnam. Paris.

TYPE SPECIES — *Clausilia cylindrica* L. Pfeiffer, 1846; OD.

Shell decollated, subcylindrical, thin, translucent, of about 6 (after decollation) flattened whorls. Color corneous or yellowish-corneous. Postembryonic sculpture of delicate radial striation to rib-striation. Aperture narrowly ovate or rounded-rhomboid, margins slightly thickened and a little reflexed; palatal and columellar margins nearly parallel. Superior and spiral lamellae discontinuous, located on one line. Inferior lamella almost straight, obliquely ascending, becoming bifurcate inside. Subcolumellar lamella very deep-lying, not visible from outside. Principal plica starting on right-ventral side, below it there are 2 short palatal plicae. Lunella absent. Height 12-17, diam. 3-5 mm (12.3 × 3.1 mm).

DISTRIBUTION. Hindustan Peninsula. 2-3 spp.

Selenophaedusa Lindholm, 1924

Fig. 768

Lindholm, 1924: 63, 72 (*Synprosphyra* sect.)

TYPE SPECIES — *Clausilia porphyrostoma* Bavay et Dautzenberg, 1909; OD.

Shell fusiform, moderately solid, of 10-11 only slightly convex whorls. Color uniformly chestnut. Postapical whorls sculptured with very fine regular riblets (at first glance looking nearly smooth). Aperture rounded, subvertical, slightly oblique, with reflexed, a little thickened margins. Superior lamella continuous with spiral lamella, boundary between them marked by a light depression. Inferior lamella situated on back side of columella. Subcolumellar lamella weak, scarcely or not visible in frontal view. Principal plica long. Lunella short, slightly curved, occupies right side. Height 29-33, diam. 6.8-7.0 mm (29.8 × 6.8 mm).

DISTRIBUTION. N Vietnam. 4-6 spp.

Lindholmiella Ehrmann, 1927

Fig. 769

Ehrmann, 1927: 33 (*Hemiphaedusa* subg.).

TYPE SPECIES — *Clausilia aciculata* Bavay et Dautzenberg, 1909; OD.

Shell entire, slender, aciculate, modera-

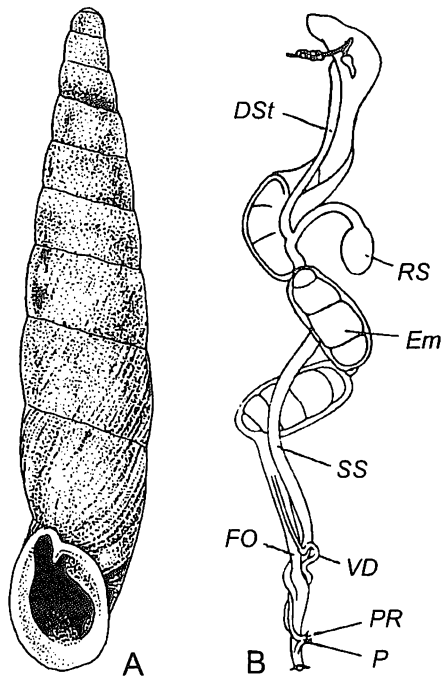


Fig. 770. A — *Renschiphaedusa cumingiana cumingiana* (L. Pfeiffer, 1845). Shell: Island Liquijor, Philippines. Vienna No. M 3140. B — *Renschiphaedusa cumingiana moluccensis* (Martens, 1864). Reproductive tract. After Loosjes & Loosjes-van Bemm, 1973.

tely solid, of 16 flattened whorls. Color uniformly corneous. Embryonic whorls smooth, later delicately vertically striated. Aperture small, ovate, vertical, with a little thickened, shortly reflexed margins. Superior and spiral lamellae evenly fused. Inferior lamella weak, deeply lying. Subcolumellar small, not visible in frontal view. Principal plica starting on right side, nearly attending aperture margin; below it 3 parallel palatal plicae of about equal length located. Umbilicus, a short and narrow slit. Height 23-24, diam. 3.5-3.6 mm (23.0 × 3.6 mm).

DISTRIBUTION. N Vietnam. 1 sp.

Renschiphaedusa Loosjes et
Loosjes-van Bemm, 1973
Fig. 770

Loosjes & Loosjes-van Bemm, 1973: 309 (*Euphaedusa* subg.).

TYPE SPECIES — *Clausilia cumingiana* L. Pfeiffer, 1845; OD.

Shell slender, subfusiform, moderately thin, faintly glossy to dull, of 9-12 flattened whorls. Color brown to chestnut, aperture margins white. Sculpture weak, of light radial striae; sometimes faint papillae below suture may be present. Aperture elongated-ovate, with slightly thickened and reflexed margins. Superior lamella evenly continuous with spiral lamella. Inferior lamella high. Subcolumellar lamella weak, not reaching aperture edge. Principal plica starting on right-ventral side. On right side upper and lower palatal plicae located. Lunella not present. Lobe of clausilium short, wide. Height 16-21, diam. 3.0-3.8 mm (17.7 × 3.5 mm).

Penis vestigial, only visible as a small bend of vas deferens and scarcely wider. Free oviduct and vagina of about equal length. Neck of spermathecal shaft very long, diverticle somewhat longer than duct of reservoir + reservoir itself. Uterus contains 2 or 3 embryos.

DISTRIBUTION. Philippines, Moluccas. 1 sp. with a few subsp.

Caspiophaedusa Lindholm, 1924
Fig. 771

Lindholm, 1924: 62, 72 (*Phaedusa* sect.).

— *Phaedusa* Westerlund, 1902: 112 (non H. Adams & A. Adams, 1855; t.-sp. *Clausilia perlucens* O. Boettger, 1877; OD).

TYPE SPECIES — *Clausilia perlucens* O. Boettger, 1877; OD.

Shell decollated, turritid-fusiform, thin, translucent, shining, of 11 (5.5-7 after decollation) moderately convex whorls. Color light-brown to greenish-corneous. Sculpture of postembryonic whorls of fine, irregular wrinklets. Aperture pear-shaped or ovate-quadrangular, with shortly reflexed, thickened margins. Superior lamella evenly continuous with spiral. Inferior lamella lanceolate, subvertical, widely separated from superior. Subcolumellar lamella extended down to aperture margin. Lunella right in position. Principal plica medium-sized. Palatal plicae absent. Umbilicus, a very narrow slit. Height 11.5-15.5 (when decollated), diam. 3.4-4.2 mm (14.5 × 3.5 mm).

Talon, a simple curvature of hermaphroditic duct. Vas deferens long, sinuous, entering epiphallus subapically at attachment of penial retractor. Penis bulky, clavate to

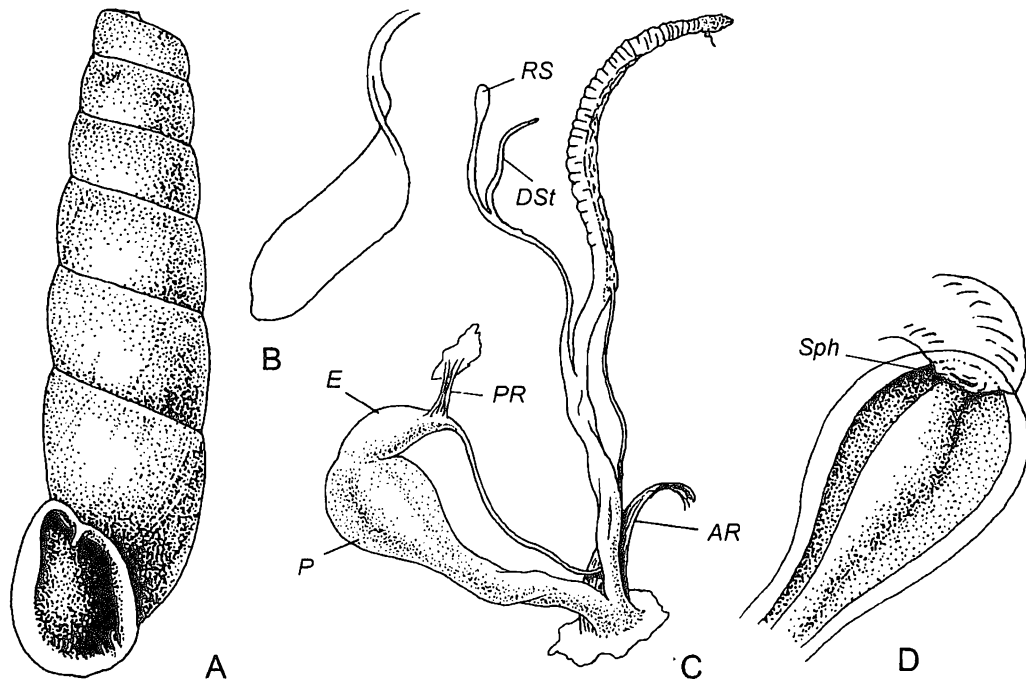


Fig. 771. *Caspiophaedusa perlucens* (O. Boettger, 1877).

Left bank of Lenkoran-Chaj River in about 40 km from mouth, Talysh Mts., SE Transcaucasus, March 25, 1965. A — shell. B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-24692.

fusiform. internally with a very short, sphincter-like verge and a strong longitudinal pilaster. Free oviduct moderately long, vagina 2-3 times longer. Neck of spermathecal stalk long, diverticle shorter, equal to duct of reservoir + reservoir itself.

DISTRIBUTION. Forest zone of Elburs and Talysh Mts., SE slopes of Great Caucasus, Daghestan, N and NE Caucasus Minor. 1 sp.

Phaedusini A. Wagner, 1922

Nordsieck, 1998a: 24.

Inferior lamella spirally ascending. Plate of clausilium broad.

DISTRIBUTION. Indonesia, N India, SE Asia, China, Japan.

Neophaedusa Kuroda et Minato, 1975

Fig. 772

Kuroda & Minato, 1975: 1.

— *Mesozaptyx* Kuroda, 1963: 29 (*Zaptyx* subg.; nom nud.).

Nordsieck, 1997: 62; 1998a: 27, 28.

TYPE SPECIES — *Neophaedusa ishikawai* Kuroda et Minato, 1975; OD.

Shell cylindrical-fusiform, thin, of 8-9 slightly convex whorls. Apex blunt, of 1.5-2 smooth, shining whorls. Color yellowish-white or corneous. Postembryonic whorls finely radially rib-striated. Aperture pear-shaped, with shortly reflexed, slightly thickened margins. Inferior lamella spirally ascending. Subcolumellar lamella immersed. Principal plica very long. Upper and lower palatal plicae short, oblique. Lobe of clausilium broad, with straight inner margin and deep incision on inner side at base of handle. Height 9.4-11.3, diam. 2.3-3.0 mm.

Epiphallus moderately long, separated from penis by a narrowing. Penis much longer, subcylindrical. Penial retractor attached on epiphallus near entrance of vas deferens. Free oviduct thinner and shorter than vagina. Neck of spermathecal stalk of

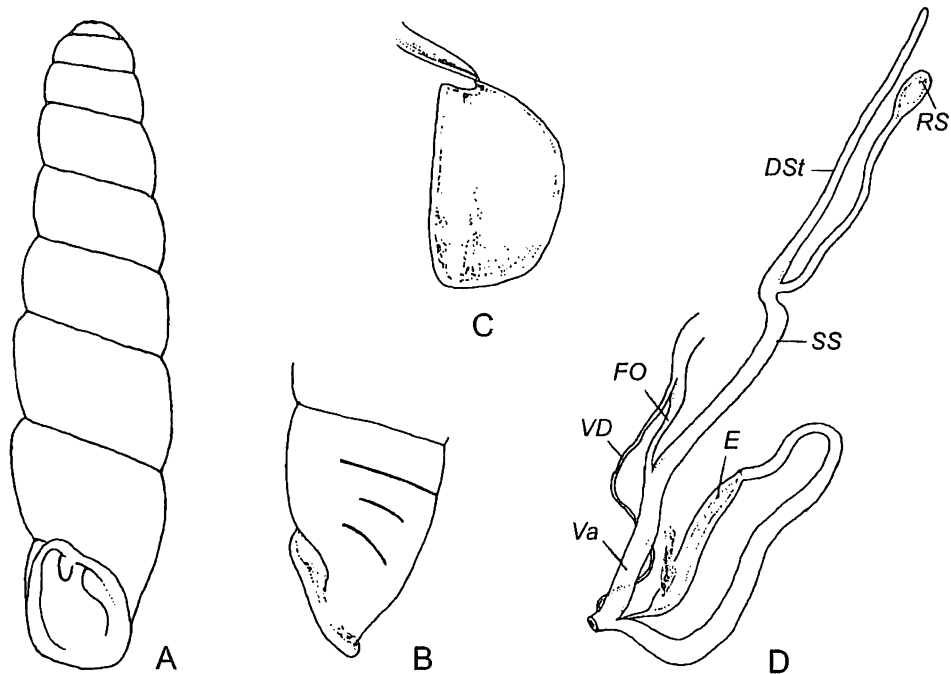


Fig. 772. *Neophaedusa ishikawai* Kuroda et Minato, 1975.

A — shell. B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

about same length as duct of reservoir + reservoir itself; diverticle a little longer.

DISTRIBUTION. Japan. 4 spp.

Tyrannozyptyx Käufel, 1930

Fig. 773

Käufel, 1930: 54.

TYPE SPECIES — *Tyrannozyptyx adulta* Käufel, 1930; OD.

Shell slender, cylindrical-fusiform, thin, translucent, of 9-10 somewhat flattened whorls. Color corneous to chestnut. Postnuclear sculpture of weak radial riblets (behind aperture ribbing much stronger). Aperture narrowly pyriform, scarcely oblique, with a little reflexed, slightly thickened margins. Boundary between superior and spiral lamellae hardly expressed. Inferior lamella rudimentary. Subcolumellar lamella reaching edge of aperture. Principal plica starting on left or left-ventral side, markedly remote from suture. Upper palatal plica short, ventral. Lunella also ventral, stretching by its upper end against upper lamella. Clausilium unusually broad, roughly subtriangular,

with thickened inner margin. Height 10.0-13.5, diam. 2.1-2.8 mm (13.5 × 2.8 mm).

Anatomically very similar to *Heterozyptyx*, but neck of spermathecal stalk longer.

DISTRIBUTION. Ryukyu Islands (Yaeyama Island). 2 spp.

Heterozyptyx Pilsbry, 1906

Fig. 774

Pilsbry in Pilsbry & Hirase, 1906: 739 (pro sect.).

TYPE SPECIES — *Clausilia munus* Pilsbry, 1901; OD.

Shell subfusiform, rather solid, of 8-10 moderately convex whorls. Color yellow. Surface finely ribbed to rib-striated. Aperture more or less ovate, with reflexed and thickened margins. Boundary between superior and spiral lamellae not expressed. Inferior lamella situated on back side of columella. Subcolumellar lamella not very strong, reaching aperture edge. Principal plica starting on right-ventral side. Lunella on right side. Lobe of clausilium ovate, swollen, with strongly thickened inner mar-

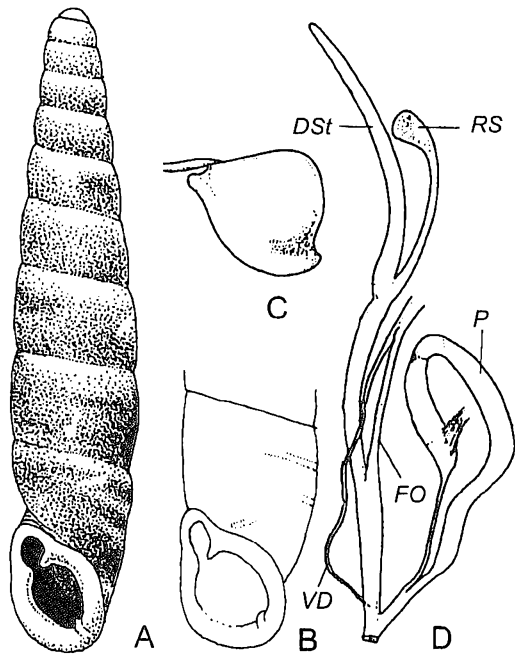


Fig. 773. *Tyrannozaptyx adulta* Käufel, 1930. A — shell: Sachieda, Yaeyama, Rin-Kin, Japan. Paratype. B — location of plicae within last whorl. Senck. No. 30481. C — clausilium. D — reproductive tract. After Minato, 1994.

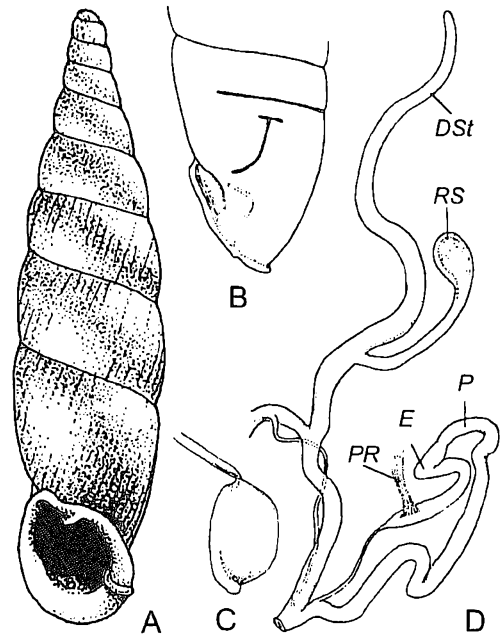


Fig. 774. A, B — *Heterozaptyx munus* (Pilsbry, 1901). A — shell: Oshima, Osumi Islands, Japan. Paris. B — location of plicae within last whorl. After Minato, 1994. C, D — ! *Heterozaptyx oxypomatica* (Pilsbry, 1908). C — clausilium. D — reproductive tract. After Minato, 1994.

gin and angular or rounded end. Height 10-15, diam. 2.0-3.5 mm (14.2 × 3.5 mm).

Epiphallus comparatively short, separated from penis by a narrow, shallow circular groove. Penis much longer than epiphallus. Penial retractor attached to epiphallus at short distance from entrance of vas deferens. Free oviduct short, vagina slender, much longer. Neck of spermathecal shaft somewhat longer than free oviduct, duct of reservoir + reservoir itself a little longer, diverticle considerably longer.

DISTRIBUTION. Ryukyu Islands, Taiwan. 4 spp.

Pulchrzaptyx Minato, 1981
Fig. 775

Minato, 1981a: 238.

TYPE SPECIES — *Clausilia (Heterozaptyx) longiplicata* Pilsbry, 1908; monotypy.

Shell slender, rather thin, strongly shining, translucent, of 7.5-9 moderately convex whorls. Color light-corneous or yellowish.

Regular sculpture almost wanting. Aperture ovate to subquadrangular, vertical, with shortly reflexed, slightly thickened margins. Superior lamella high, flattened, evenly continuous with spiral. Inferior lamella short, deeply lying, somewhat rudimentary. Subcolumellar lamella reaching aperture edge, where it margined by shallow grooves. Principal plica starting on right-ventral side. Upper palatal plica very long, attending aperture margin. Lunella short, ventral, nearly basal. Lower palatal plica visible through aperture. Clausilium short, broadly ovate, very expanded distally. Height 10-11, diam. 2.3-2.9 mm (10.7 × 2.7 mm).

Epiphallus short, separated from penis by shallow circular groove. Penis long, with short, rounded caecum. Penial retractor attached to proximal part of epiphallus. Free oviduct thin, twice longer than vagina. Neck of spermathecal stalk enlarged, very long. Diverticle of about equal length as duct of reservoir + reservoir itself.

DISTRIBUTION. Japan (Ryukyu Islands). 1 sp.

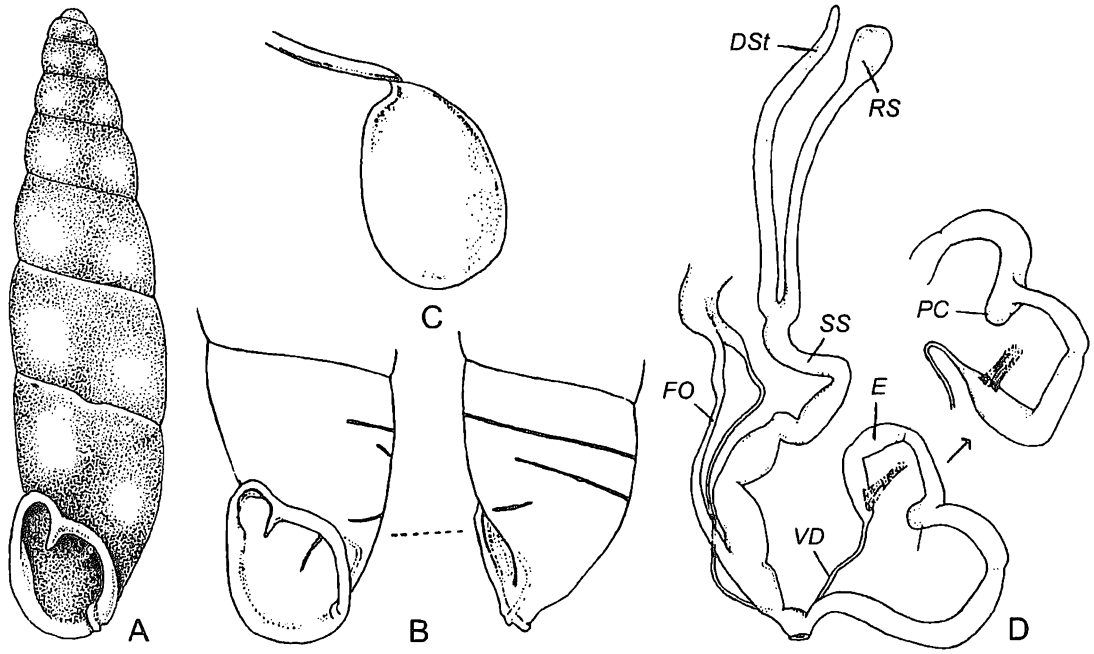


Fig. 775. *Pulchraptix longiplicata* (Pilsbry, 1908).

A — shell: Kakeroashima, Ryukyu Islands, Japan. Lectotype. Phil. No. 89892a. B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

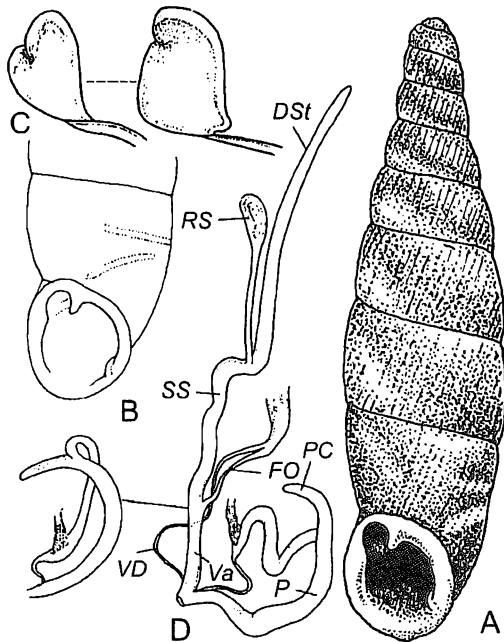


Fig. 776. *Selenoptyx novulina* (Pilsbry, 1908).

A, B — Iheyajima, Ryukyu Islands, Japan. A — shell. B — location of plicae within last whorl. Paris. C — clausilium in two positions. D — reproductive tract and penis from other side. After Minato, 1994.

Selenoptyx Pilsbry, 1908

Fig. 776

Pilsbry, 1908: 510 (*Clausilia* sect.).

— *Stenoptyx* Kobelt, 1908: 45 (nom. err. pro *Selenoptyx* Pilsbry, 1908).

— *Selenoptyx* Lindholm, 1924: 61 (nom. err. pro *Selenoptyx* Pilsbry, 1908).

TYPE SPECIES — *Clausilia novulina* Pilsbry, 1908; OD.

Shell fusiform, relatively solid, glossy, of 8.5-10.5 whorls; upper convex, lower flattened. Color yellowish or brown. Postembryonic whorls densely, very finely striated throughout. Aperture subcircular to rhombic-ovate, entire, with shortly reflexed, thickened margins. Superior lamella slightly oblique, thin, rather high, evenly continuous with spiral lamella. Inferior lamella receding, vertical below, then bent leftward within back of last whorl. Subcolumellar lamella small, reaching edge of aperture. Principal plica long, starting on ventral side. Suture and lower palatal plicae wanting. Lunella ventral, merely a continuation obliquely downwards of upper palatal plica.

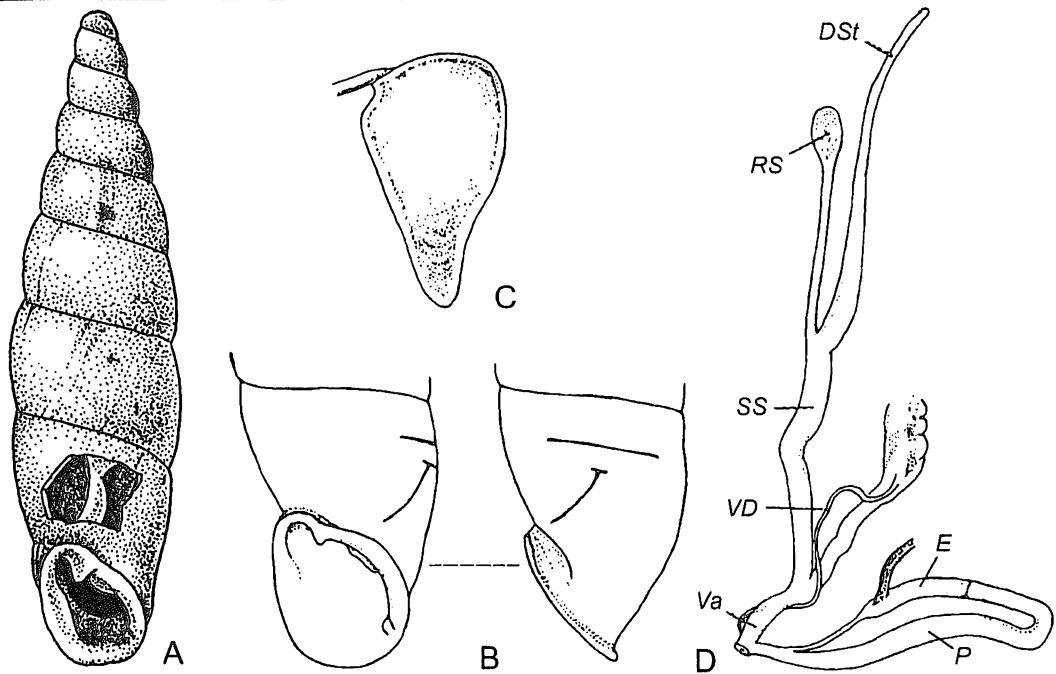


Fig. 777 *Stereozaptyx entospira* (Pilsbry, 1901).
 A — shell: Tane-ga-Shima, NE Loochoo [= Okinawa] Gr., Ozumi [Japan]. Holotype. Phil. No. 82558a. B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

Lobe of clausilium abruptly excised on columellar side of handle; in middle of palatal margin there is a backwardly projecting point or angle of recurved margin, below which edge notched and irregular. Height 8.5-11.8, diam. 2.3-2.8 mm (9.6 × 2.5 mm).

Penis with long, tapering caecum. Free oviduct somewhat longer than vagina. Neck of spermathecal stalk long, diverticle longer than duct of reservoir + reservoir proper.

DISTRIBUTION. Japan (Ryukyu Islands), Taiwan. 3 spp.

Stereozaptyx Pilsbry, 1905

Fig. 777

Pilsbry, 1905: 824 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia entospira* Pilsbry, 1901; OD.

Shell fusiform, rather slender, thin, shining, of 8.5-10 moderately convex whorls. Color yellowish-corneous. Regular sculpture nearly absent. Aperture comparatively small, irregularly ovate, with narrowly reflexed, more or less thickened margins. Superior lamella short, high, shortly separated

from weak, low spiral lamella. Fulcrum minute. Inferior lamella ascending in a broad spiral curve, approaching superior lamella. Subcolumellar lamella wanting or very weak. Principal plica short, occupying right side. Sutural plicae weak or not present. Upper palatal plica short. Lunella right-ventral, joining middle part of upper palatal plica. Clausilium subtriangular, pointed below, buttressed externally. Height 9-13, diam. 2.0-2.6 mm (9.9 × 2.7 mm).

Epiphallus short, indistinctly separated from penis. Free oviduct a little longer than vagina. Neck of spermathecal stalk somewhat enlarged, of approximately same length as duct of reservoir + reservoir itself; diverticle markedly longer.

DISTRIBUTION. Ryukyu Islands. 3 spp.

Diceratoptyx Pilsbry, 1905

Fig. 778

Pilsbry, 1905: 836 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia cladoptyx* Pilsbry, 1905; monotypy.

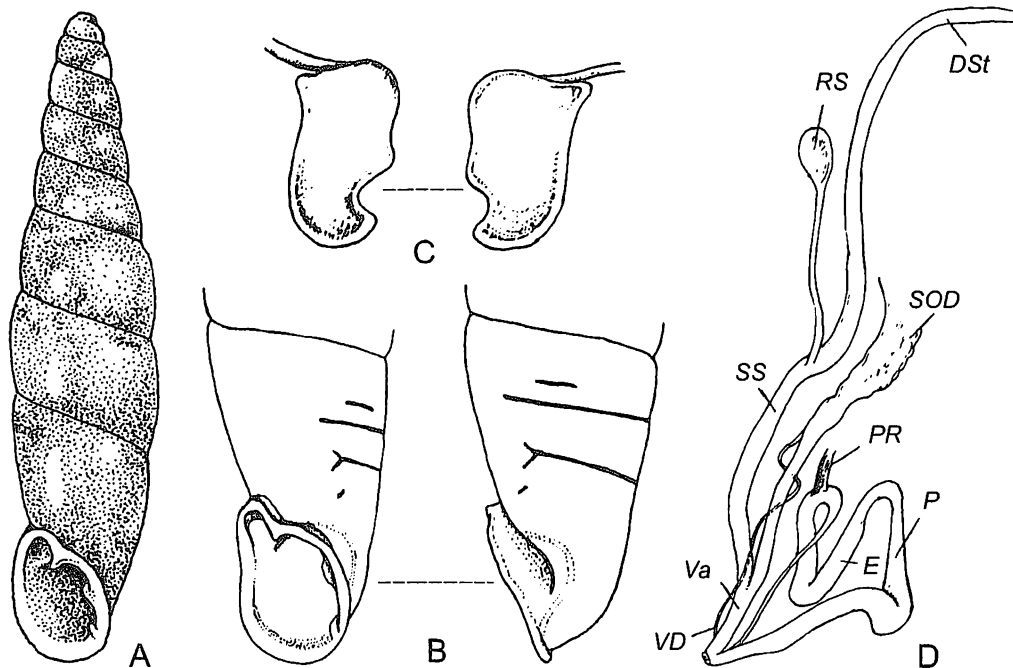


Fig. 778. *Diceratoptyx cladoptyx* (Pilsbry, 1905).
 A — shell: Tokunoshima, Osumi, Japan. Senck. No. 61723. B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

Shell slender, fusiform, rather thin, (sub)transparent, shining, of 8.5-9 slightly convex whorls. Color corneous. Surface nearly smooth throughout. Aperture vertical, with thickened, shortly reflexed margins. Boundary between superior and spiral lamellae marked by a light depression. Inferior lamella ascends as a broad, sigmoid curve. Subcolumellar lamella reaching aperture edge. There is a very short sutural plica on right side. Principal plica starting on right-ventral wall. Upper palatal plica long, rudiment of lunella joining its inner end. Small lower palatal plica developed. Plate of clausilium of irregular shape, with broad and deep incision below. Height 9.0-10.2, diam. 2.0-2.2 mm (9.3×2.2 mm).

Epiphallus moderately long, a little wider than proximal part of penis. Penis long, more or less sinuous. Free oviduct about twice longer than vagina. Neck of spermathecal stalk somewhat expanded, of about same length as narrow duct of reservoir + reservoir itself; diverticle markedly longer, stout.

DISTRIBUTION. Ryukyu Islands (Tokunoshima). 1 sp.

Luchuphaedusa Pilsbry, 1901

Pilsbry, 1901b: 411 (*Clausilia* sect.).

— *Oophaedusa* Pilsbry, 1905: 820 (*Clausilia* sect.; t.-sp. *Clausilia ophidoon* Pilsbry, 1905; monotypy).

TYPE SPECIES — *Clausilia* (*Luchuphaedusa*) *callistochila* Pilsbry, 1901; OD.

Shell turritid-fusiform to elongated-ovate, rather thin to solid, of 6-11 slightly to moderately convex whorls. Color yellow or yellowish-corneous. Surface nearly smooth to regularly ribbed. Postembryonic whorls nearly smooth to distinctly ribbed, sometimes with elements of spiral striation. Aperture with reflexed, expanded and thickened margins. Superior lamella evenly continuous with long spiral lamella. Inferior lamella spirally ascending. Subcolumellar lamella not strong, sometimes reaching edge of aperture. Principal plica of various length. Lunella present or wanting. Lower palatal plica sometimes present.

Epiphallus short. Penial retractor attached to epiphallus at base of vas deferens. Free oviduct longer than vagina. Neck of spermathecal stalk (rather) long.

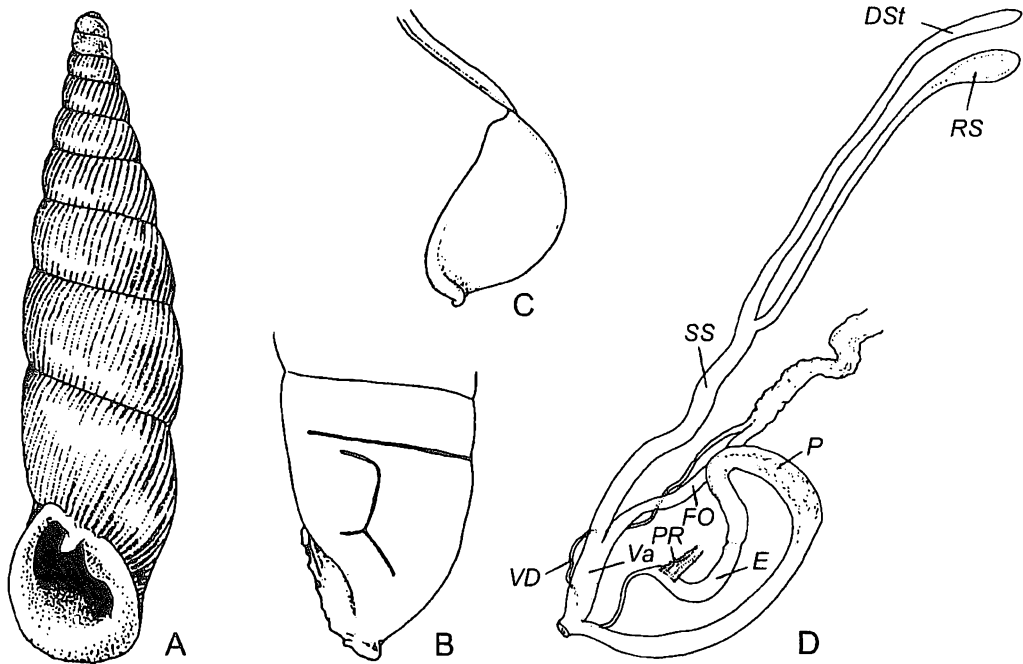


Fig. 779. *Luchuphaedusa (Nesiophaedusa) praeclara* (Gould, 1859).

A — shell: Nagodake, Nago, Okinawa, Loo Choo [= Okinawa] Ids. [Japan]. Phil. No. 141200. B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

DISTRIBUTION. Ryukyu Islands.

Luchuphaedusa (Nesiophaedusa)
Pilsbry, 1905)
Fig. 779

Pilsbry, 1905: 815 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia bernardii* L. Pfeiffer, 1861 (= *Clausilia praeclara* Gould, 1859); OD.

Shell turreted-fusiform, rather thin, of about 10 somewhat convex whorls. Color yellow. Postembryonic whorls finely radially ribbed, last whorl with delicate spiral striation in intervals between ribs. Aperture pear-shaped. Superior lamella high. Inferior lamella visible in frontal view. Subcolumellar lamella weak. Principal plica starting on right side. Upper palatal plica short, its posterior end joining upper end of lunella. Lower end of lunella touches lower palatal plica. Clausilium with straight external and convex inner margins. Lower end of clausilium attenuated. Height 24-31, diam. 5-8 mm (28.1 × 7.1 mm).

Epiphallus separated from penis by cir-

cular shallow groove. Proximal part of penis internally with corrugated plicae. Free oviduct two times longer than vagina. Neck of spermathecal stalk long, diverticle and duct of reservoir + reservoir itself of about equal length, somewhat longer than neck.

DISTRIBUTION. Japan. 1 variable sp.

Luchuphaedusa (Luchuphaedusa)
s. str.)
Fig. 780

Shell fusiform to elongated-ovate, rather solid, of 6-11 slightly to moderately convex whorls. Color generally yellowish-corneous. Surface of postembryonic whorls nearly smooth to distinctly ribbed. Aperture irregularly ovate. Parietal and columellar sides with variously developed lamellar marginal knobs. Superior lamella marginal, projecting, evenly continuous with long spiral lamella. Inferior lamella thickened, sometimes splitted longitudinally. Subcolumellar lamella reaching aperture edge, dilated, adjacent to very long and strong lower palatal plica; sometimes palatal plicae absent. Principal plica of various length, starting on dor-

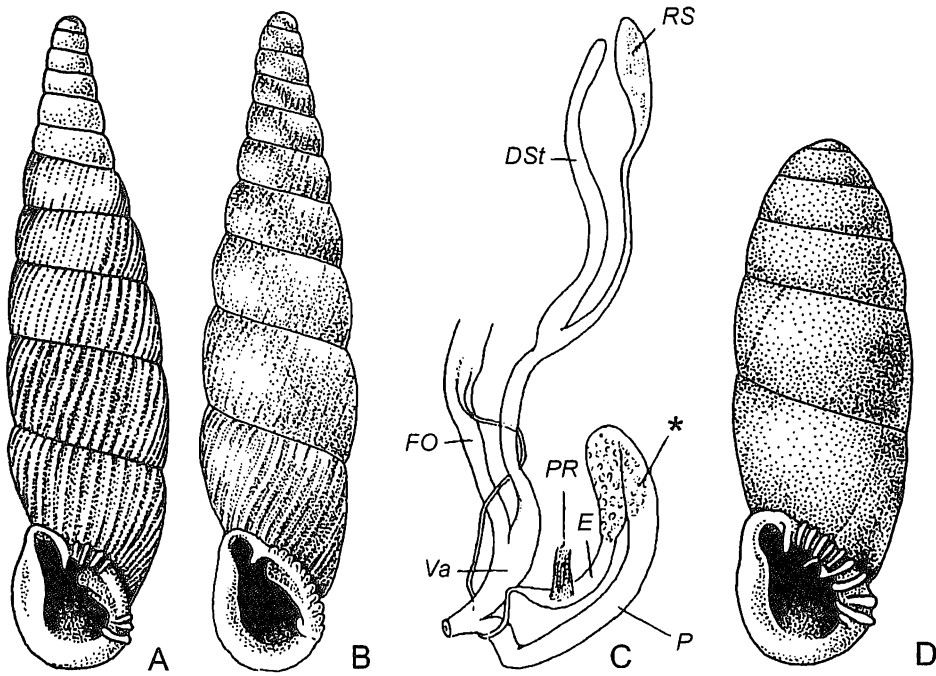


Fig. 780. A, B, C — *Luchuphaedusa (Luchuphaedusa) callistochila* (Pilsbry, 1901). A, B — shells. A — Okinawa, Japan. Moscow No. Lc-24702. B — Nango, Okinawa, Japan. Vienna No. E 50117 C — reproductive tract. After Minato, 1994. D — ! *Luchuphaedusa (Luchuphaedusa) ophidoon* (Pilsbry, 1905). Shell: Shimokoshikijima Island, Kagoshima-pref., Japan. Moscow No. Lc-24719.

sal or ventral side. Lunella wanting. Clausilium plate comparatively wide, truncated or notched distally, with a thickened or finger-like process on columellar side of apex, standing at nearly right angle with plate. Height 8-31, diam. 3.5-7.0 mm (Moscow: 23.5 × 5.7 mm; Vienna: 23.3 × 5.4 mm; *ophidoon*: 12.8 × 4.4 mm).

Epiphallus rather thin. Penis somewhat enlarged, inside its proximal end there is a zone covered with small rounded tubercles. Free oviduct a little longer than vagina. Neck of spermathecal shaft rather long, diverticle of about same length; duct of reservoir thin, tip of reservoir somewhat pointed.

DISTRIBUTION. Ryukyu Islands. 8 spp.

Oligozptyx Pilsbry, 1905

Fig. 781

Pilsbry, 1905: 835 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia hedleyi* Pilsbry, 1905; OD.

Shell fusiform, thin, shining, somewhat translucent, of 8-9 flattened or slightly con-

vex whorls. Color light-corneous. Sculpture of quite irregular, delicate radial striae (generally surface looking glabrous). Aperture comparatively small, (irregularly) ovate, with a little reflexed, slightly thickened margins. Superior lamella low or wanting. Fulcrum and parallel lamella developed. Inferior lamella saddle-shaped, spirally ascending. Subcolumellar lamella absent. Principal plica starting on right-ventral side; above it on right side there is a minute sutural plica. Upper palatal plica fused by its inner end with upper end of lunella. Lower end of lunella pressed against middle of lower palatal plica. Plate of clausilium short, subquadrangular, with incision on lower side. Height 7.5-9.3, diam. 1.7-2.0 mm (7.5 × 1.9 mm).

Epiphallus not long, separated from penis by shallow, wide narrowing. Penial retractor attached to proximal end of epiphallus. Free oviduct slightly longer than vagina. Neck of spermathecal stalk quite long; diverticle stout, tapering, of about equal length of duct of reservoir + reservoir itself.

DISTRIBUTION. Japan (Ryukyu Islands). 1 sp.

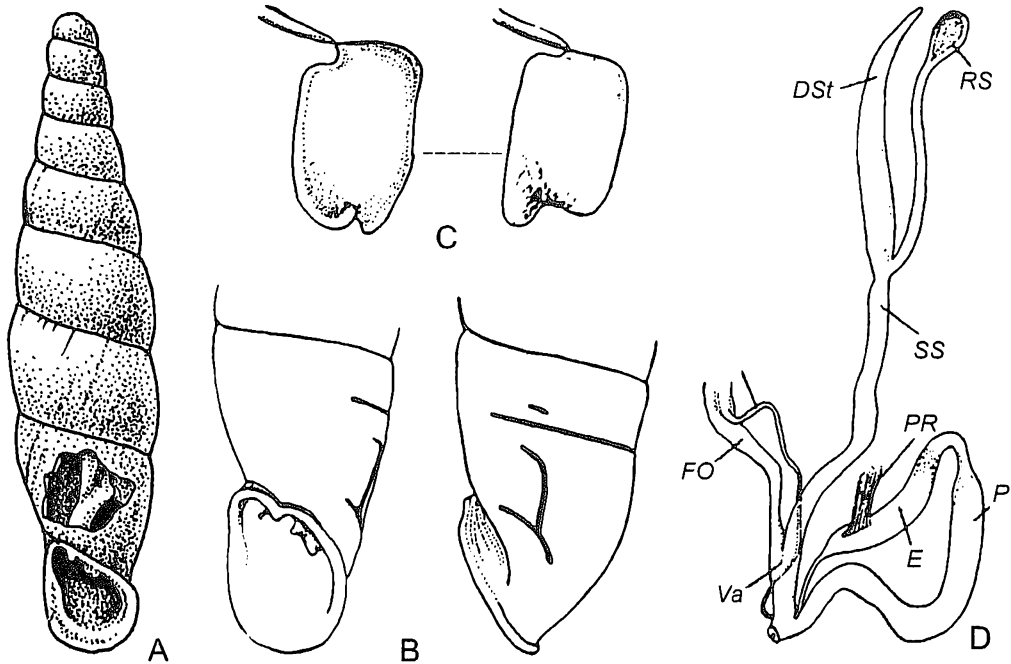


Fig. 781. *Oligozptyx hedleyi* (Pilsbry, 1905).

A — shell: Tokunoshima, Ozumi (Matsubara) [Japan]. Paratype. Phil. No. 87589. B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

Prozptyx Loosjes, 1950

Fig. 782

Loosjes, 1950: 543 (*Zptyx* sect.).

TYPE SPECIES — *Zptyx rehderi* Loosjes, 1950; OD.

Shell subcylindrical, thin, not transparent, dull, of 8.5-10 whorls; first 5 whorls rather convex, lower flattened. Apex broad, obtuse. Color grayish-white, peristome whitish. Postapical whorls faintly, densely striatulate; sculpture slightly coarser on body whorl. Aperture ovate, with thin, continuous, narrowly reflexed margins. Superior lamella short, vertical, widely separated from deeply lying spiral lamella. Between spiral lamella and suture there is fulcrum and parallel lamella. Inferior lamella visible in frontal view as a low fold only in lower half of aperture, where it reaches margin; in oblique view it visible, increasing in height as it ascends vertically. Subcolumellar lamella deeply immersed. Principal plica starting on right-ventral side; above it 2 short, delicate sutural plicae situated. Lunella oblique, nearly straight, its upper

end connected with short upper palatal plica, lower end touches a faint lower palatal plica that extended mainly outward. Plate of clausilium with incision at base of handle; its sides nearly parallel. Height 16.7-19.5, diam. 3.8-3.9 mm.

DISTRIBUTION. Philippines (Calayán Island). 1 sp.

Tosaphaedusa Ehrmann, 1929

Fig. 783

Ehrmann, 1929: 27 (*Hemiphaedusa* subg.).

TYPE SPECIES — *Hemiphaedusa* (*Phaedusa*) *cincticollis* Ehrmann, 1900; OD.

Shell slender, upper spire cylindrical, lower fusiform, moderately solid, dull, of about 17 flattened whorls. Color corneous or brown. Postnuclear whorls finely, densely ribbed. Aperture small, subtriangular or pear-shaped, with reflexed, thickened margins; behind aperture there is a thick circular crest running parallel to peristome. Boundary between short superior and long spiral lamellae marked by local depression.

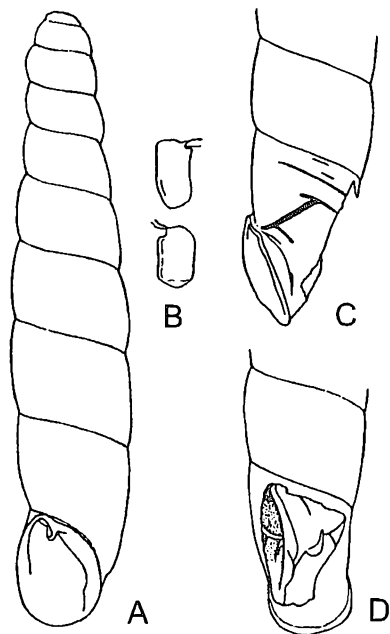


Fig. 782. *Prozapytyx rehderi* (Loosjes, 1950).
A — shell. B — clausilium. C, D — location of plicae within last whorl. After Loosjes, 1950.

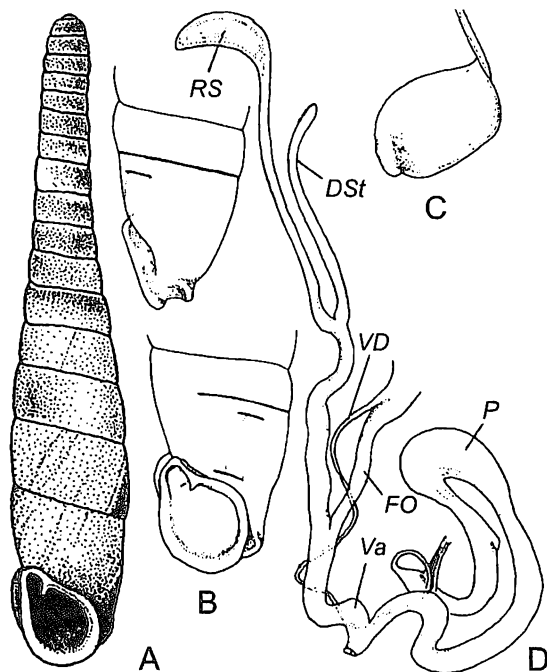


Fig. 783. *Tosaphaedusa cincticollis* (Ehrmann, 1900).
A — shell: Nakamura-Tosa, Kochi-pref., Japan. Moscow No. Lc-24698 (gift of H. Minato). B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994 (fig. B somewhat changed to show lunella).

Inferior lamella nearly vertical, low, occupying back side of columella. Subcolumellar lamella wanting. Principal plica starts on left-ventral side, so its length equal to whole whorl, its ridge turns to spiral lamella; between these two there is a very narrow slit-like space. Lunella very low, callouse, vertical, ventral. Upper and lower palatal plicae short, connected with upper and lower ends of lunella. Clausilium subovate, with a small incision on lower margin. Height 22-23, diam. 4.0-4.5 mm (22.0 × 4.0 mm).

Epiphallus not long, with a small tubercular thickening (vestigial caecum?), demarcated from penis by shallow narrowing. Penis long, consisting of proximal and distal parts, internally with wide longitudinal folds. Penial retractor attached at short distance from entrance of vas deferens. Free oviduct and vagina of about equal length. Neck of spermathecal stalk long, diverticle of about same length, duct of reservoir + reservoir itself markedly longer.

DISTRIBUTION. Japan (Tosa). 1 sp.

Metazapytyx Pilsbry, 1905 Fig. 784

Pilsbry, 1905: 831 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia (Metazapytyx) pattalus* Pilsbry, 1905; SD Pilsbry, 1909.

Shell turritid or fusiform, thin, shining, semitransparent, of 8-9 rather convex whorls. Last whorl basally conspicuously sack-like. Color yellowish to chestnut. Regular sculpture absent but last part of body whorl sharply striated. Aperture ovate, with thin, shortly reflexed margins. No visible boundary between superior and very low spiral lamella. Inferior lamella very broad within, ascends spirally and visible in oblique view as a strong fold approaching superior lamella. Subcolumellar lamella usually not visible in frontal view. Principal plica starting on right or right-ventral side, above it 1-3 short sutural plicae located. Lunella oblique, only slightly curved, right in position, its upper end touching very short upper palatal plica. Umbilicus slit-like. Plate of clausilium subquadrangular, wide distally, with rounded

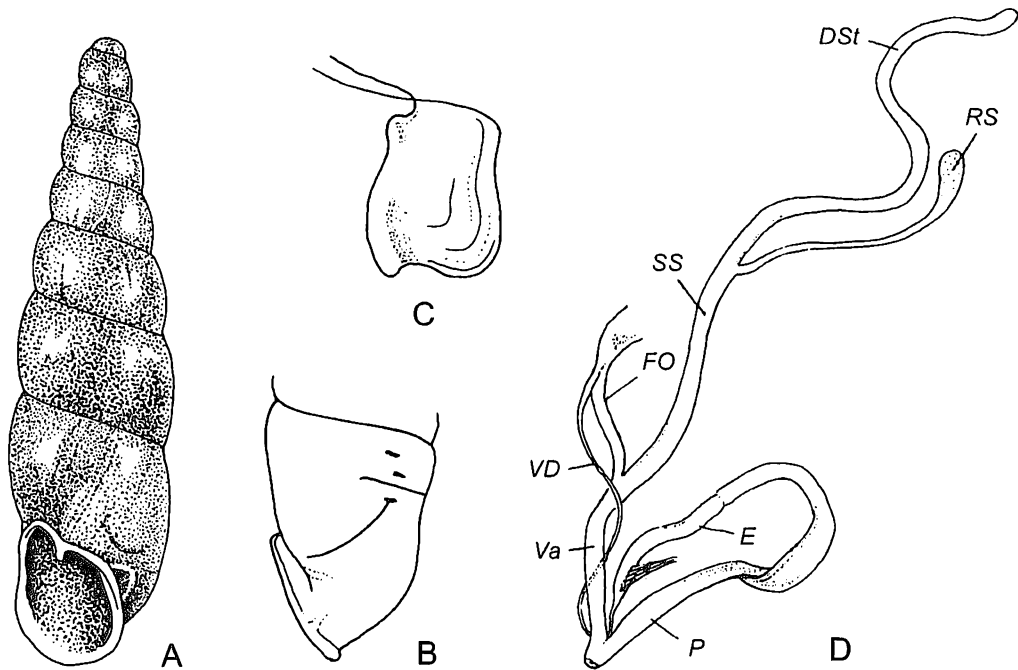


Fig. 784. A, B, C — ! *Metazaptyx hachijoensis* (Pilsbry, 1901).

A — shell. B — location of plicae within last whorl. C — clausilium. Hakiyo [Hachijo] Island, Japan. Paris. D — *Metazaptyx pattalus* (Pilsbry, 1905). Reproductive tract. After Minato, 1994.

apex and broad, shallow incision on lower margin. Height 9.5-13.0, diam. 2-3 mm (10.1 × 2.6 mm).

Comparatively short epiphallus separated from penis by circular groove. Free oviduct markedly shorter than vagina. Neck of spermathecal stalk of moderate length. Diverticle considerably longer than duct of reservoir + reservoir itself.

DISTRIBUTION. Japan (Ryukyu Islands). 4 spp.

Phaedusa H. Adams et A. Adams,
1855

Adams H. & Adams A., 1855: 184 (*Clausilia* subg.).

— *Polyptychephora* A. Wagner, 1920: 10 (*Aprospthyma* subg.; t.-sp. *Clausilia elisabethae* Moellendorff, 1881; SD Kennard & Woodward, 1923).

— *Polyptychophora* A. Wagner, 1922: 98 (nom. err. pro *Polyptychephora* A. Wagner, 1920).

— *Calcariclavis* Lindholm, 1924: 62, 72 (*Euphaedusa* sect.; t.-sp. *Clausilia bocki* Sykes, 1895; OD).

TYPE SPECIES — *Clausilia corticina* L. Pfeiffer, 1842; SD Martens in Albers, 1860.

Shell entire or shortly decollated, fairly solid to thin, spire with convex to straight outlines. Color yellowish or rufo-corneous. Aperture free, margins continuous. Superior lamella usually separated from spiral, sometimes continuous with it. Inferior lamella not very high in its dorsal or dorso-lateral part. Below principal plica there is a distinct upper palatal plica. Lunella replaced by a few to many small parallel plicae. In middle of last whorl they are very small or totally absent.

Diverticle of spermathecal stalk present or wanting.

DISTRIBUTION. Indonesia, N India, SE Asia, China, Japan.

***Phaedusa* (*Phaedusa* s. str.)**
Fig. 785

Shell generally slender, fusiform to cylindrical-fusiform, rather solid, of 9-12 slightly

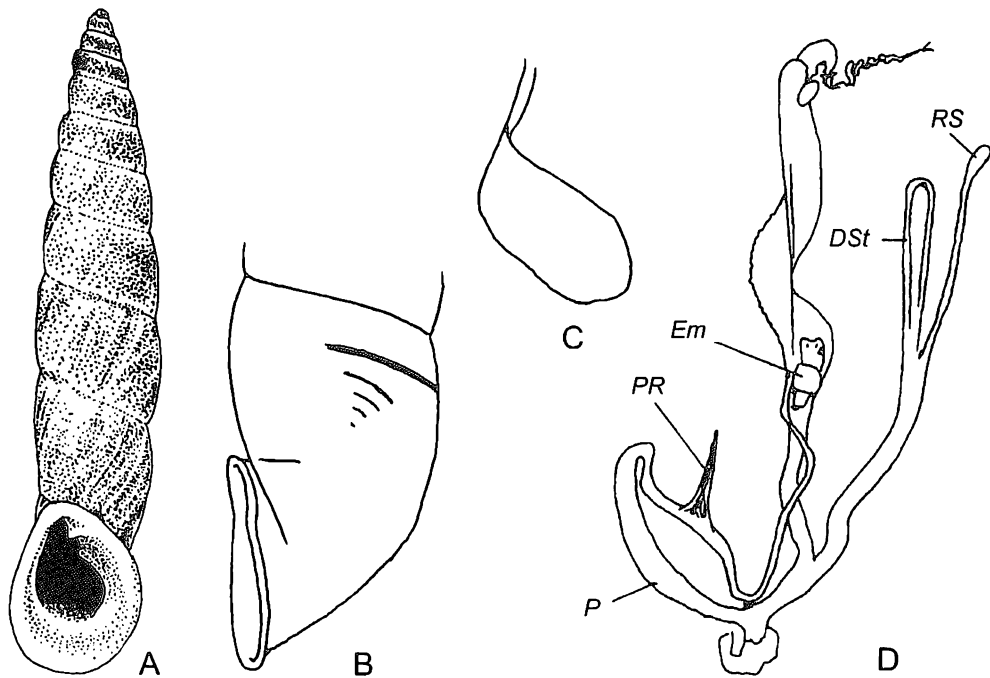


Fig. 785. *Phaedusa (Phaedusa) corticina* (L. Pfeiffer, 1842). Java.

A — shell. B — location of plicae within last whorl. C — clausilium. Phil. No. 69840. D — reproductive tract. After Loosjes, 1953.

convex whorls. Color yellowish-brown to reddish. Postembryonic whorls sculptured with radial wavy striae, which may be especially distinct behind aperture. Aperture irregularly ovate, nearly vertical. Superior lamella usually separated from spiral lamella by a distinct gap. Inferior lamella seen in aperture, first as a low fold, then it increases in height and directed nearly horizontally, after that it ascends steeply. Subcolumellar lamella not visible in frontal view, ascends as a high plate. Principal plica starting on right side; below it there are 3-6 palatal plicae, diminishing in size downward. Lowest plica, near peristome, may lie in a callous patch. Clausilium with a broad plate lacking incisions. Height 12-33, diam. 3-6 mm (27.0 × 5.5 mm).

Epiphallus only slightly wider than vas deferens. Penial retractor attached to middle part of epiphallus. Uterus may contain a few shelled embryos. Free oviduct longer than vagina. Neck of spermathecal stalk comparatively very long, stout, diverticle also expanded, somewhat shorter; duct of reservoir thin, its length + reservoir itself a little longer; reservoir minute.

Phaedusa (Pseudophaedusa)
Tomiya, 1984)
Fig. 786

Tomiya, 1984: 201.

TYPE SPECIES — *Phaedusa (Pseudophaedusa) arborea* Tomiyama, 1984; OD.

Shell fusiform, rather thin, a little transparent, of 8-9 moderately convex to flattened whorls. Color light-corneous to yellowish, sometimes with accidental whitish radial streaks. Postembryonic sculpture of fine, obliquely-radial rib-striation. Aperture subcircular, vertical, with evenly reflexed, expanded, a little thickened margins. Superior lamella not long, widely separated from spiral lamella. Inferior lamella at first subhorizontal, then spirally ascending. Subcolumellar lamella short, deeply lying. Principal plica starting on right-ventral side, ending on dorsal side. Two short palatal plica occupy right side: one right under inner end of principal plica, the other — near basal wall. Height 13.3-15.0, diam. 3.0-3.4 mm (14.6 × 3.2 mm).

Epiphallus fusiform. Penial retractor at-

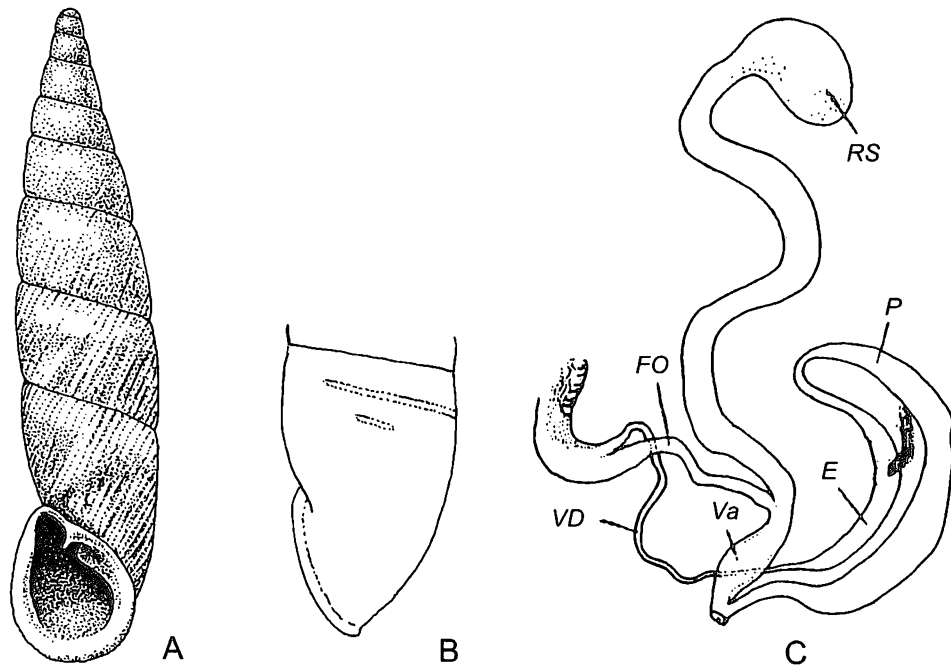


Fig. 786. *Phaedusa (Pseudophaedusa) arborea* Tomiyama, 1984. Muko-jima, Uji-gunto, Kagoshima-ken, Ryukyu Islands, Japan. Paratype. A — shell. B — location of plicae within last whorl. Phil. No. 359063. C — reproductive tract. After Minato, 1994.

tached to distal part of epiphallus, i.e. nearer to penis. Vagina obesely fusiform, shorter than free oviduct. Spermathecal stalk long, stout, lacking diverticle.

DISTRIBUTION. Japan, Java, Sumatra, Borneo, Malay Peninsula. 4 spp.

Phaedusa (Stereophaedusa)
O. Boettger, 1877)
Fig. 787

Boettger O., 1877: 61 (*Clausilia*, sect. *Phaedusa*; "Gruppe").

— *Stereostoma* Kobelt, 1906: 241 (nom. praecoc., non Murrey, 1857; nom. err. pro *Stereophaedusa* O. Boettger, 1877).

— *Sterophaedusa* Annandale in Annandale & Prashad, 1924: 39 (*Clausilia* subg.; nom. err. pro *Stereophaedusa* O. Boettger, 1877).

— *Aprosphyra* A. Wagner, 1920: 9 (part.; t.-sp. not designated).

— *Breviphaedusa* Azuma, 1982: 145 ("*Breviphaedusa* Kuroda & Habe, 1949"; nom. nud.; t.-sp. *Clausilia stimpsoni* A. Adams, 1868; OD).

Minato, 1988: 89. Nordsieck, 1998a: 28.

TYPE SPECIES — *Clausilia valida* L. Pfeifer, 1850; OD.

Shell entire or shortly decollated, fusiform, rather thin, glossy, translucent, of 9-11 moderately convex whorls. Last whorl without basal keel. Apex narrow. Color yellow, sometimes with wide chestnut band. Embryonic whorls smooth, later whorls finely radially striated to ribbed. Aperture ovate, (sub)vertical, with shortly reflexed, thickened margins. Superior lamella continuous with spiral lamella. Inferior lamella spirally descending. Subcolumellar lamella visible at standard position of shell. Principal plica long, starting on ventral or right-ventral side of penultimate whorl. Upper palatal plica short. Plate of clausilium short and broad, acuminate and thickened distally, very strongly arcuate. Height 18-33, diam. 4.5-6.0 mm (*valida*: 30.5 × 7.4 mm; *stereoma*: 20.4 × 5.6 mm).

Epiphallus separated from penis by narrowed part. Neck of spermathecal stalk not long; diverticle very long; duct of reservoir

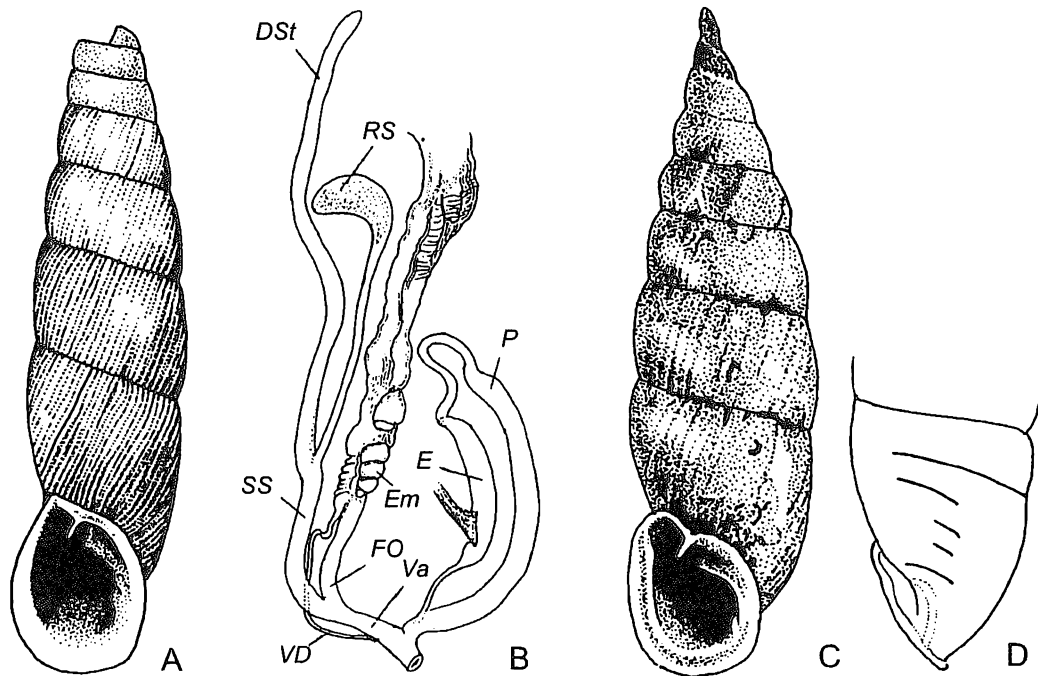


Fig. 787 A, B — *Phaedusa (Stereophaedusa) valida* (L. Pfeiffer, 1850).

A — shell: Okinawa Island, Japan. Moscow No. Lc-24709. B — reproductive tract. After Minato, 1994. C, D — ! *Phaedusa (Stereophaedusa) stereoma* (Pilsbry, 1901). C — shell: Yakushima Island, Kagoshima-pref., Japan. Moscow No. Lc-24718. D — location of plicae within last whorl. (Both shells — gifts of H. Minato).

+ reservoir itself markedly shorter than diverticle.

DISTRIBUTION. Japan, China. About 20 spp. & subsp.

Parazptyx Pilsbry, 1905

Fig. 788

Pilsbry, 1905: 834 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia thaumatopoma* Pilsbry, 1905; monotypy.

Shell turritid-fusiform, moderately thin, of about 9 rather convex whorls. Color light-corneous. Embryonic whorls smooth, later silky radially striated. Aperture irregularly rounded, subvertical, margins shortly reflexed, only slightly thickened. Boundary between superior and spiral lamellae marked by shallow depression. Sutural plicae and fulcrum wanting. Inferior lamella receding, not visible in apertural view. Subcolumellar lamella reaching edge of aperture. Principal plica starting on right-ventral

side. Upper palatal plica short. Lunella right in position. Clausilium tapering to bluntly angular end, buttressed outside by an erect transverse plate. Height 9.5-11.5, diam. 2.3-2.8 mm (11.4 × 2.8 mm).

Rather short epiphallus separated from penis by a light circular furrow. Free oviduct somewhat longer than vagina. Neck of spermathecal stalk unusually long. Diverticle as long as duct of reservoir + reservoir itself.

DISTRIBUTION. Ryukyu Islands. 1 sp.

Paraphaedusa O. Boettger, 1899

Fig. 789

Boettger O., 1899: 57 [*Clausilia (Phaedusa)*; subsect.]. Loosjes, 1953: 122.

TYPE SPECIES — *Clausilia subpolita* Smith, 1896; OD.

Shell pillar-shaped, rather thin, shining, subtransparent, of about 8 slightly convex whorls. Color light-yellow or shell colorless. Regular sculpture nearly wanting. Aperture

ovate, with thin, shortly reflexed margins. Superior lamella high. Inferior lamella occupies back side of columella, very high, wing-like. Subcolumellar lamella sometimes visible in aperture and usually reaches peristome. Principal plica starting on left-ventral side. Usually there are 2 ventral palatal plicae, rather far apart, which may be connected by a callous, lunella-like thickening. Lobe of clausilium short, wide, gutter-shaped, with more or less distinct notches at its top and at columellar side near handle. Height 12-24 diam. 2.8-5.0 mm (12.1 × 2.8 mm).

DISTRIBUTION. Indonesia (Sulawesi Island). 8 spp.

Thaumatoptyx Pilsbry, 1908
Fig. 790

Pilsbry, 1908: 511 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia bivincta* Pilsbry, 1908; OD.

Shell subfusiform, glass-like, transparent but not fragile, of about 7 rather convex whorls. Colorless. Right side of penultimate whorl concave. Aperture discontinuous, ovate, vertical, margins somewhat thickened and shortly reflexed; palatal margin arched forward. Superior lamella thin, continuous into spiral lamella. Inferior lamella receding, subvertical, occupies back side of columella, abruptly bent inward in middle. Subcolumellar lamella reaching aperture edge. Principal plica starting on ventral side. Upper palatal plica and lunella indistinguishably united into unusually long, arcuate plica starting on ventral or left-ventral side and running nearly parallel to principal plica; at inner end it curves down. Plate of clausilium with an angular projection near middle of palatal side. Height 7.3-9.0, diam. 1.8-1.9 mm (7.6 × 1.9 mm).

DISTRIBUTION. Taiwan. 1 sp.

Reinia Kobelt, 1876

Kobelt, 1876a: 34 (*Balea* subg.).

TYPE SPECIES — *Balea variegata* A. Adams, 1868; OD.

Shell entire, (obesely) fusiform to pillar-shaped, thin, fragile, shining, more or less translucent, of few (6-8) whorls. Color light-yellow to corneous, usually with radial streaks and/or markings. Radial sculpture

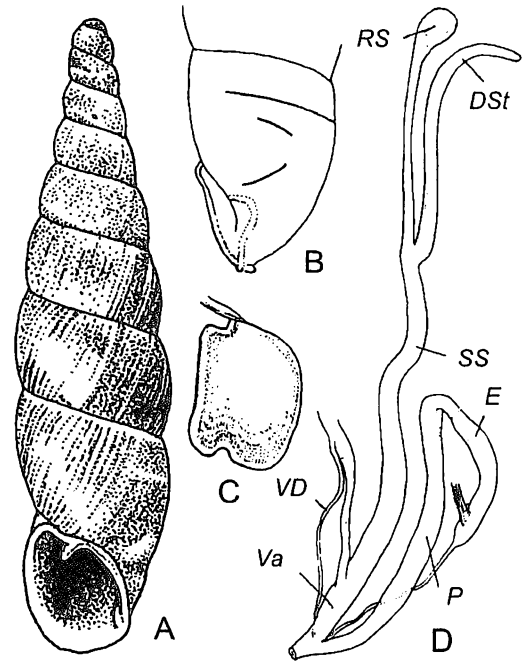


Fig. 788. *Parazaptyx thaumatopoma* (Pilsbry, 1905). Kumejima, Liukiu [= Ryukyu], Japan. A — shell. B — location of plicae within last whorl. Senck. No. 61718. C — clausilium. D — reproductive tract. After Minato, 1994.

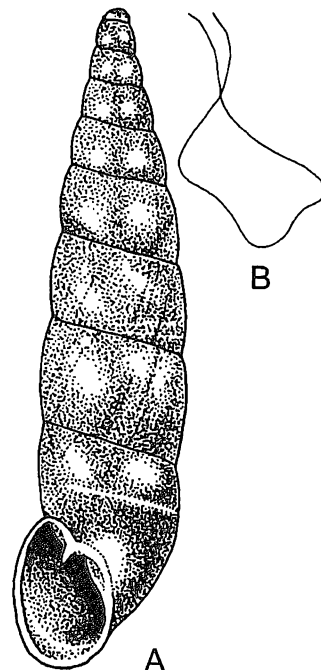


Fig. 789. *Paraphaedusa subpolita* (Smith, 1896). Sulawesi. A — shell. B — clausilium. Paris.

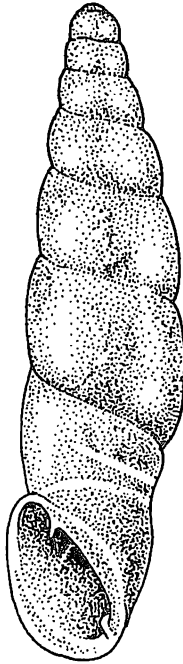


Fig. 790. *Thaumatoptyx bivincta* (Pilsbry, 1908).
Hotawa, Formosa (Taiwan). Senck. No.
61742.

weak, spiral striation often present. Aperture generally ovate, with thin, reflexed margins. Closing apparatus more or less reduced.

Diverticle of spermathecal stalk inclined to reduction.

DISTRIBUTION. Japan, Taiwan, China.

Reinia (*Parareinia* Nordsieck, 1998)
Fig. 791

Nordsieck, 1998a: 28, 30.

TYPE SPECIES — *Clausilia euholostoma* Pilsbry, 1901; OD.

Shell obesely fusiform, of 6.5-7.5 quite convex whorls. Color (light) corneous with irregular paler streaks. Sculpture weak, irregular, of fine radial striae. Aperture nearly continuous, broad, squarish-ovate, vertical. Superior lamella wanting, spiral lamella very short, deeply immersed. Inferior lamella comparatively strong. Subcolumellar lamella very deeply immersed. Principal plica very short, right-dorsal. Lunella absent. Upper and lower palatal plicae short.

Umbilicus, a tiny slit. Plate of clausilium widened into sutural angle. Height 7.3-9.0, diam. 2.2-2.7 mm (7.7 × 2.3 mm).

Epiphallus long, demarcated from penis by distinct narrowing. Penis consists of two subequal portions, separated by shallow circular groove. Penial retractor attached to epiphallus at short distance from entrance of vas deferens. Free oviduct thin, short, vagina longer and more stout. Spermathecal stalk long, much expanded, lacking diverticle.

DISTRIBUTION. Japan. 1 sp.

Reinia (*Proreinia* Thiele, 1931)
Fig. 792

Thiele, 1931: 531 (*Reinia* sect.).

TYPE SPECIES — *Clausilia eastlakeana* Moellendorff, 1882; monotypy.

Shell of 6.5 whorls. Color light-yellow, with darker radial-oblique streaks. Both embryonic and postembryonic whorls with weak radial wrinkles and clear, well spaced spiral incised lines. Aperture irregularly ovate to subquadrangular. Superior lamella short, its inner end shortly bent toward columella; spiral lamella separated from superior by a short space. Inferior lamella low. Subcolumellar lamella deeply lying. Principal plica starting on right side. Lunella and palatal plicae wanting or short lower palatal plica present. Height 7-18, diam. 2.0-4.5 mm (11.4 × 3.0 mm).

Visible demarcation between epiphallus and penis wanting. Free oviduct and vagina of about equal length. Diverticle of spermathecal stalk vestigial, branched off from stalk at short distance from reservoir.

DISTRIBUTION. Japan, Taiwan, China. About 10 spp. & subsp.

Reinia (*Reinia* s. str.)
Fig. 793

Shell pillar-shaped, of 6 moderately convex whorls. Color greyish-corneous, sometimes with weak whitish streaks. Sculpture of relatively coarse radial irregular wrinkles and fine incised spiral lines between wrinkles. Aperture ovate, only slightly oblique, with reflexed and expanded margins. Closing apparatus strongly reduced; superior lamella short, spiral deep-lying; no more teeth

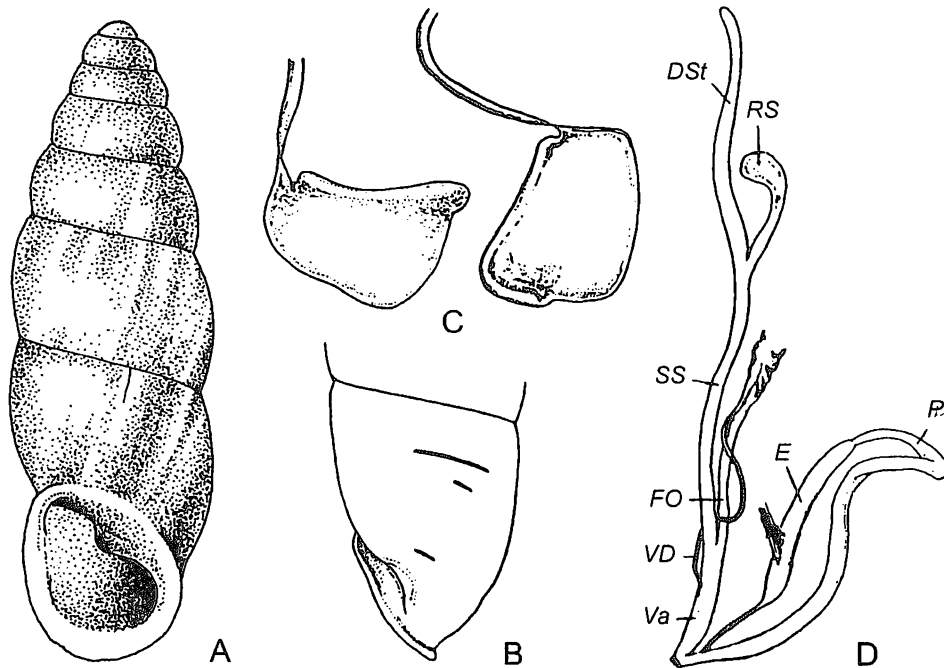


Fig. 791. *Reinia (Parareinia) euholostoma* (Pilsbry, 1901).

A — shell: Suruga, Japan. Vienna No. 70.657 B — location of plicae within last whorl. C — clausilium. D — reproductive tract. After Minato, 1994.

except weak columellar. Height 8.5-9.5, diam. 2.9-3.0 mm (9.3 × 2.9 mm).

Anatomy very similar to that of *Reinia (Proreinia)*.

DISTRIBUTION. Japan. 1 sp.

Reinia (Pictophaedusa) Azuma, 1982

Fig. 794

Azuma, 1982: 151 [*Pictophaedusa* Kuroda & Habe, 1949" (nom. nud.)]. Minato, 1988: 94.

TYPE SPECIES — *Clausilia (Euphaedusa) holotrema* Pilsbry, 1902; OD.

Shell (sub)fusiform, of about 8 rather convex whorls. Color yellowish-corneous to chestnut, usually with whitish radial streaks and markings. Embryonic whorls smooth, polished, later whorls finely radially ribbed; on lower spire spiral striae between riblets present. Aperture pear-shaped, vertical to scarcely oblique. Superior lamella absent or vestigial. Spiral lamella well developed, lies very deep, not visible through aperture. Inferior lamella thin. Principal plica not long, lies on right side. Lunella broken into 2-3 short plicae. Lower palatal plica short, often

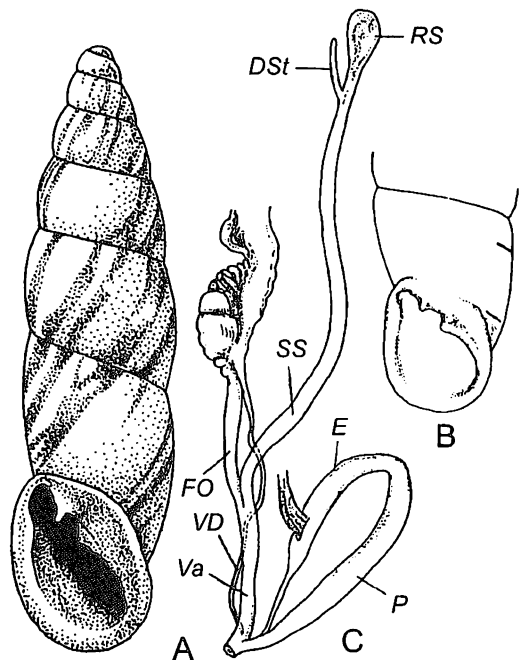


Fig. 792. A — *Reinia (Proreinia) eastlakeana* (Moellendorff, 1882).

Shell: Ozumi Island [Japan]. Paris. B, C — ! *Reinia (Proreinia) vaga* (Pilsbry, 1909). B — lower part of shell. C — reproductive tract. After Minato, 1994.

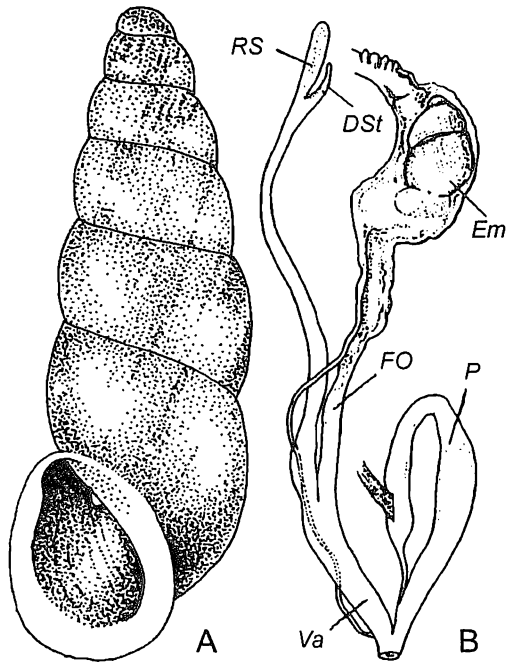


Fig. 793. *Reinia (Reinia) variegata* (A. Adams, 1868).
A — shell: Hirado, Hizen, Japan. Vienna No. 38718. B — reproductive tract. After Minato, 1994.

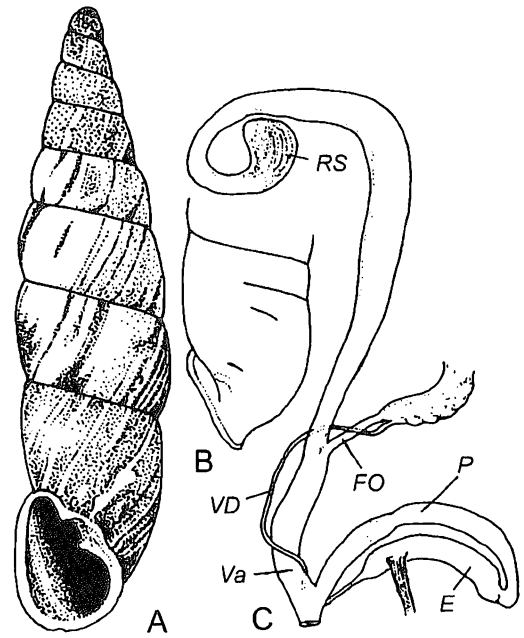


Fig. 794. ! *Reinia (Pictophaedusa) hungerfordiana* (Moellendorff, 1882). Yoshii-cho, Okayama-prov., Japan.
A — shell. B — location of plicae within last whorl. Moscow No. Lc-24705 (gift of H. Minato). C — reproductive tract. After Minato, 1994.

tubercular. Height 10.5-14.0, diam. 2.3-4.4 mm (12.3 × 3.0 mm).

Reproductive tract similar to that of *Reinia (Parareinia)* but male loop markedly shorter.

DISTRIBUTION. Japan. 4 spp.

GARNIERIINAE Ehrmann, 1927

Ehrmann, 1927: 33. Nordsieck, 1978a: 79.

Juvenile shell lacking columellar lamella. Periostracum present. Last whorl without basal keel. Aperture semiapostrophic or apostrophic, its margins smooth, without knobs or with 1-2 parietal knobs. Superior lamella continuous with spiral lamella or between them a smooth space remains. Lunella entire.

Ommatophoral retractor passes through peni-oviducal angle. Vas deferens not modified, thin. Flagellum not present. Length of epiphallus approximately as long as penis. Penis mostly somewhat longer than vagina,

with short, globose caecum. Penial retractor arises from diaphragm, attached to penis. Vagina mostly longer than free oviduct. Retractor of spermathecal stalk consists mainly of connective tissue. Spermathecal stalk very short to long, reservoir adherent to spermoviduct. Diverticle of spermatheca well developed.

DISTRIBUTION. SE Asia.

Indonienia Ehrmann, 1927

Fig. 795

Ehrmann, 1927: 51.

— *Indonienia* Szekeres, 1998b: 175 (nom. err. pro *Indonienia* Ehrmann, 1927).

Nordsieck, 1978a: 80 [as syn. of *Tropidauchenia* Lindholm, 1924].

TYPE SPECIES — *Clausilia masoni* Theobald, 1864; OD.

Shell fusiform, moderately solid, of about 10 slightly convex whorls. Color yellowish-corneous, with scattered white ele-

vated fragments of riblets. Surface finely, irregularly rib-striated. Aperture large, irregularly rounded, vertical, with thin, widely reflexed margins. Superior lamella short, its boundary with spiral lamella marked by more or less distinct curvature. Edge of inferior lamella more or less approaching ridge of superior lamella. Subcolumellar lamella small, deeply lying. Principal plica long. Lunella short. Plate of clausilium long, slender, with parallel margins, slightly saddle-like curved, with somewhat twisted tip. Height 25-40, diam. 5.5-7.0 mm (30.0 × 5.7 mm).

Epiphallus rather short and slender. Penis with rounded caecum at boundary between penis and epiphallus. Penial retractor attached to penis. Length of free oviduct and vagina nearly equal. Neck of spermathecal stalk rather short. Diverticle long, with swollen base, slightly shorter than duct of reservoir + reservoir itself.

DISTRIBUTION. Indochina, S China. 3-5 spp.

Garnieria Bourguignat, 1877
Fig. 796

Bourguignat, 1877: 2.

TYPE SPECIES — *Clausilia mouhoti* L. Pfeiffer, 1862; monotypy.

Shell fusiform, solid, slightly translucent, composed of 10 somewhat convex whorls. Last whorl with not sharp basal crest. Color whitish-yellow to corneous, often with scattered, sharp, white streaks. Embryonic whorls vaguely microgranulated, rest surface with crowded, very fine, weak radial riblets and variously developed spiral striation in interspaces between riblets. Aperture rounded, vertical, with broadly reflexed and expanded margins. Parietal wall with 1-2 additional knobs. Superior lamella consists of two portions separated by a smooth area: oblique angular plate and low, thin superior lamella proper. Spiral lamella is a derivative of fusion spiral lamella proper with inferior lamella; as a result it has mushroom-like appearance. Subcolumellar lamella strong, abruptly truncated at lower end. Lunella right in position. Principal plica starts on right-dorsal side, its inner end close to upper end of lunella. Clausilium without a notch, sharply folded longitudinally.

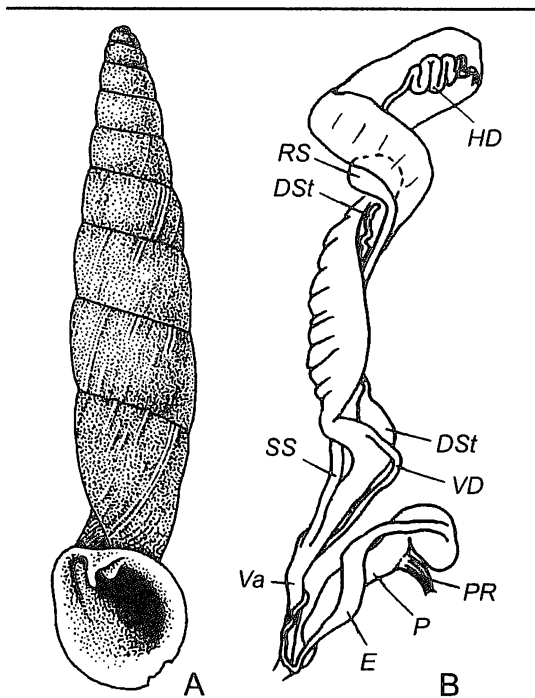


Fig. 795. *Indonenia masoni* (Theobald, 1864). A — shell: "Viaggio in Birmania" [Burma]. Paris. B — ! *Indonenia ardouiniana* (Heude, 1882). Reproductive tract. After Szekeres, 1998b.

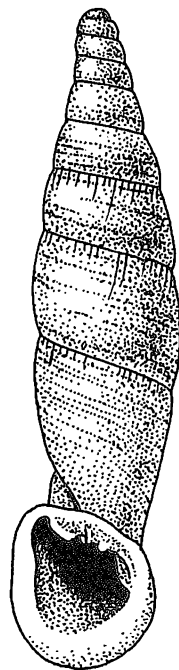


Fig. 796. *Garnieria mouhoti* (L. Pfeiffer, 1862). Laos. SPb.

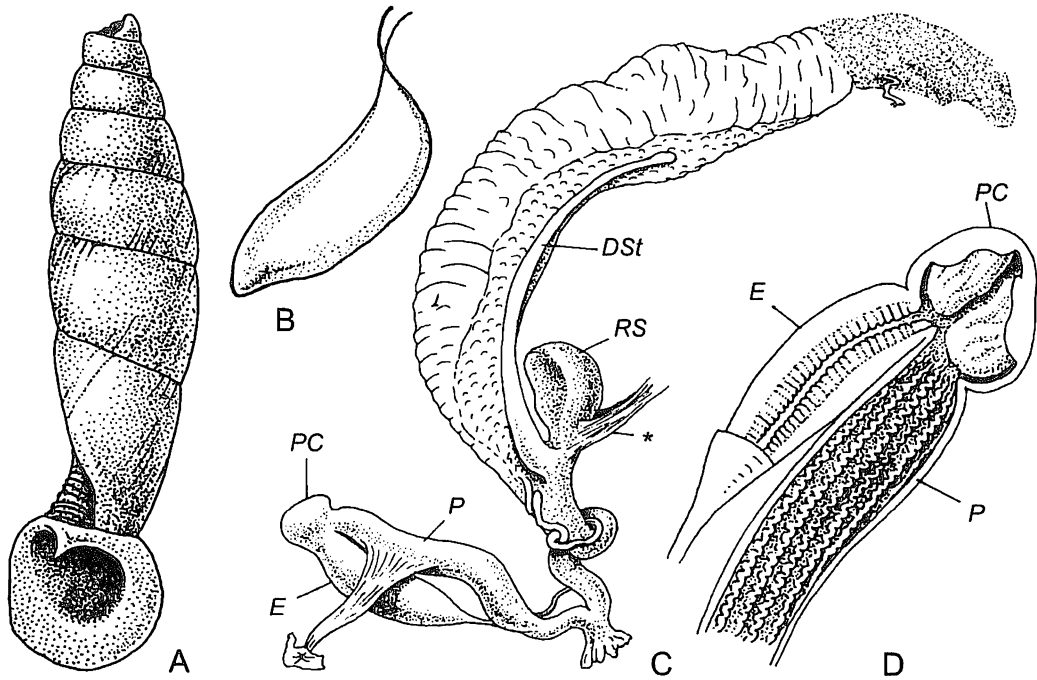


Fig. 797 A — *Tropidauchenia bavayi* (Lindholm, 1924). Shell: Bac-Kan near Be-Be Lake, Vietnam. Syntype. SPb.
 B, C, D — ! *Tropidauchenia proctostoma* (Mabille, 1889). National Park Nam Cat Tien, Dongnai Prov., N Vietnam, June 10, 1999. B — clausilium. C — reproductive tract. D — interior of penis and epiphallus. Moscow No. Lc-24636. Asterisk — retractor of spermathecal stalk.

No umbilicus. Height 33-35, diam. 7.5 mm (33.8 × 7.5 mm).
 DISTRIBUTION. SE Asia. 1 sp.

Tropidauchenia Lindholm, 1924
 Fig. 797

Lindholm, 1924: 57, 70 (*Garnieria* sect.).

TYPE SPECIES — *Garnieria* (*Tropidauchenia*) *bavayi* Lindholm, 1924; OD.

Shell fusiform, mostly decollated, (rather) solid, dull, only slightly translucent. Color yellowish-corneous to light-brown. Sculpture of postnuclear whorls of smoothed radial ribs, that become sharper on body whorl. Aperture large, subvertical, round, not interrupted, its margins broadly expanded and reflexed. Superior lamella parallel to inferior lamella. Between superior lamella and palatal margin there is an accessory lamella, sharpened ridge of which situated next to superior lamella and parallel to it. Inferior lamella not attending aperture margin and not visible in frontal

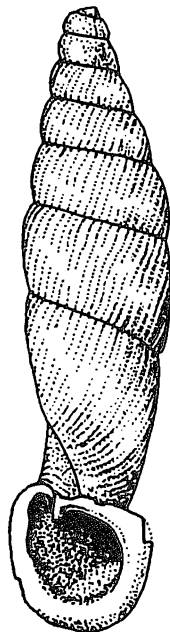


Fig. 798. *Symptychia orientalis* (Mabille, 1827). "Than-Moi, Tonkin" [N Vietnam]. SPb.

view; it strong, steeply descending, its edge sometimes folded. Subcolumellar lamella located very deep. Principal plica starting on right side. Lunella long, convex, right in position. Anterior ridge of clausilium bean-shaped, pointed. Umbilicus absent. Height 25-27 (of decollated shells), diam. 6-7 mm (26.8 × 6.8 mm).

Talon, a simple curvature of hermaphroditic duct. Epiphallus stout, subfusiform, with narrow lumen, internally lined with numerous, minute papillae which tightly bound to each other. Rounded caecum located at penis/epiphallus junction; inside caecum 2 pad-like thickenings (stimulators?) situated. Penis rather short, internally with thin, corrugated longitudinal folds. Penial retractor attached to middle section of penis or a little shifted to caecum. Free oviduct extremely short. Vagina moderately long. Neck of spermathecal stalk rather long to exceptionally short; diverticle moderately long, tapering.

DISTRIBUTION. N Vietnam. About 15 spp. & forms.

Symptychia Ehrmann, 1927

Fig. 798

Ehrmann, 1927: 51 (*Indonenia* sect.).

TYPE SPECIES — *Nenia orientalis* Mabile, 1827; OD.

Shell differs from *Tropidauchenia* by structure of spiral lamella: its anterior end, curving itself, united with superior lamella, i.e. superior starts in aperture and soon bifurcates, then both branches run parallel to each other. Height 32-35, diam. 7.5-8.5 mm (33.8 × 8.4 mm).

DISTRIBUTION. N Vietnam. 3-5 spp.

?*Grandinenia* Minato et Chen, 1984

Fig. 799

Minato & Chen, 1984: 301.

TYPE SPECIES — *Steatonenia mirifica* Chen et Gao, 1982; OD.

Shell irregularly obesely spindle-shaped, solid, of 8-8.5 rather convex whorls; first 2 form conic-cylindrical, mammilate apex. Penultimate whorl widest, much inflated; last whorl abruptly constricted, tortuous, forming a narrow neck. Color yellowish-brown. Embryonic whorls smooth, later whorls

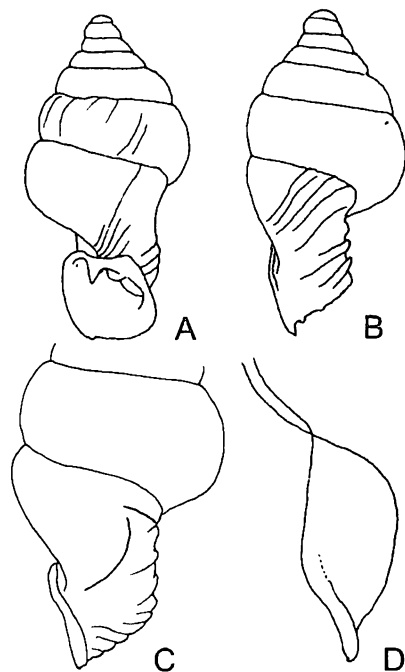


Fig. 799. *Grandinenia mirifica* (Chen et Gao, 1982).

A — ventral view. B — right lateral view. C — location of plicae within last whorl. D — clausilium. After Minato & Chen, 1984.

with fine radial wrinkles, behind aperture sculpture represented by coarse ribs. Aperture subcircular, free, subvertical, with well reflexed and expanded margins. Superior lamella rather strong, continuous with spiral lamella. Inferior lamella greatly coiled inside. Subcolumellar lamella narrow, spindle-shaped. Principal plica starting on right side. Lunella dorso-lateral, strongly arched. Clausilium narrow, acuminated at distal end. Height 18.6-22.0, diam. 8.5-11.0 mm.

DISTRIBUTION. China, Guangxi Zhuang Autonomous Region. 1 sp.

REMARK. Taxonomical position of this genus is unclear. Minato & Chen (1984) attributed it to the subfamily Neniinae because of apostrophic shell. However, *Tropidauchenia*, for example, also has an apostrophic shell, although its anatomy distinctly differs from that of Neniinae. I think, Neniinae is purely American group and *Grandinenia* is an aberrant representative of Garnieriinae. We can make a final decision only after anatomical study of *Grandinenia mirifica*.

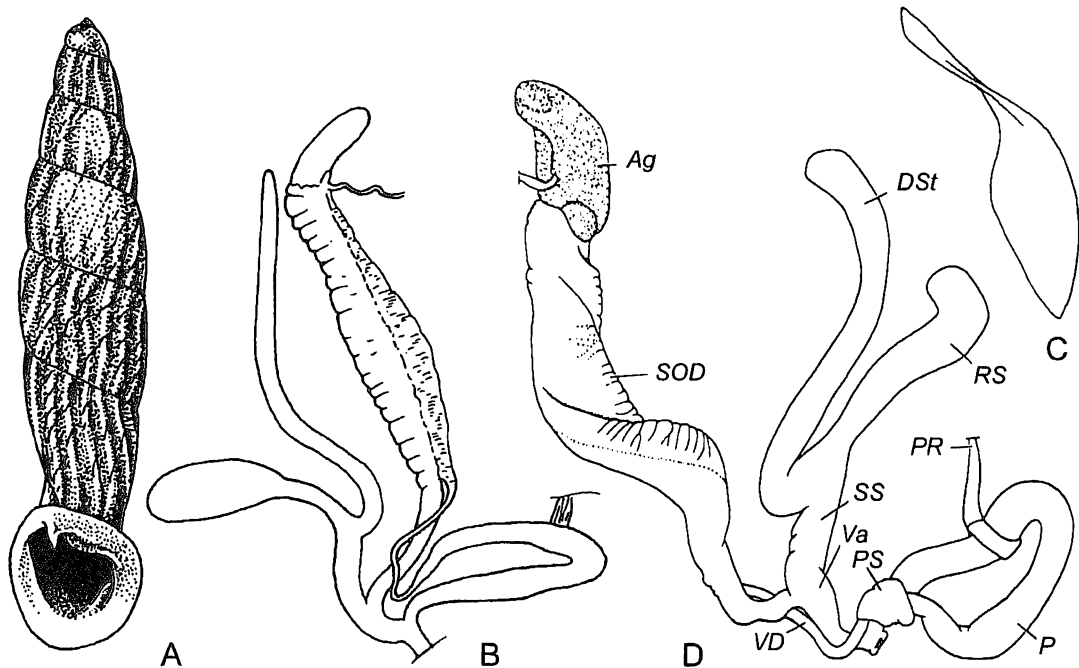


Fig. 800. *Nenia tridens* (Chemnitz, 1786).

A — shell: San Juan, Puerto Rico. Moscow No. Lc-24761 (Bern No. 1385.1441). B — reproductive tract. After Hesse, 1925. C — clausilium. D — reproductive tract. After Thompson, 1998.

NENIINAE Wenz, 1923

Wenz, 1923 (1923-1930): 757

— Neniastriinae Baker, 1956: 128.

Loosjes & Loosjes-van Bommel, 1966: 4. Nord-sieck, 1978a: 81.

Juvenile shell without columellar lamella. Periostracal layer normally developed. Basal keel present or wanting. Aperture apostrophic (only exception — genus *Symptychiella*), with smooth (without plicae or knobs) margins. Superior lamella mostly continuous with spiral. Subcolumellar lamella starting on columella. Lunella, if present, entire.

Vas deferens distally often a bit wider than proximally, but without distinct modification. Flagellum present. Epiphallus usually shorter than penis. Penis simple, with ligament, shorter or longer than vagina. Penial retractor always present. Retractor of spermatheca mostly of muscular tissue. Vagina mostly longer than free oviduct. Spermathecal stalk without sharp curvature below reservoir. Reservoir adhering to spermoviduct. Diverticle of sperma-

thecal stalk unusually thin, shifted downward and, in some cases, even to free oviduct.

DISTRIBUTION. NW part of S America, from Colombia and Venezuela to NW Argentina, West Indies (Puerto Rico and Haiti).

Nenia H. Adams et A. Adams, 1855 Fig. 800

Adams H. & Adams A., 1855: 185 (*Clausilia* subg.).

— *Neniastrum* Bourguignat, 1876: 8 (*Nenia* subg.; t.-sp. *Turbo tridens* Chemnitz, 1786; SD Lindholm, 1924).

Loosjes & Loosjes-van Bommel, 1966: 5.

TYPE SPECIES — *Turbo tridens* Chemnitz, 1786; SD Martens in Albers, 1860 (as *Clausilia tridens* Schweigger).

Shell decollated for loss a single whorl, of 6-7 slightly convex whorls. Color corneous, more or less uniform. Radial sculpture of two kinds: strong, oblique, broad, rounded, moderately distant ribs and crossing

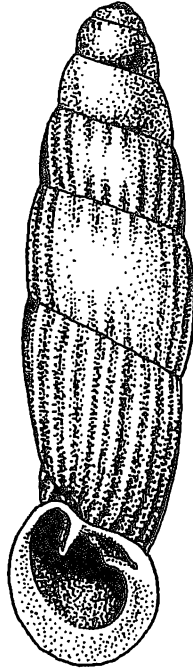


Fig. 801. *Paranenia perarata* (Martens, 1873).
Ocana, Colombia. SPb.



Fig. 802. *Neniops karsteniana* (Dohrn, 1859).
Santa Fé de Bogota, Colombia. Senck. No.
62055.

them fine radial lines. Aperture irregularly circular, vertical, with broadly reflexed, thin margins. Superior lamella arching, protruding, evenly continuous with spiral lamella. Inferior lamella lies high, closely to superior. Subcolumellar lamella nearly vertical, visible at oblique view. Principal plica starting on right side. Lunella absent. Palatal plicae wanting. Height 24-27, diam. 4.5-5.2 mm (25.2 × 5.0 mm).

Talon small, exposed or hidden. Vas deferens bound to distal portion of penis by a connective tissue sheath. Epiphallus and penis of nearly equal length, boundary between them marked by a sharp curvature. Epiphallus internally with 4 longitudinal folds. Penis contains 6-7 similar folds. Verge not developed. Basal section of penis together with adjacent part of vas deferens coated by a short sheath. Penial retractor attached to epiphallus near penis/epiphallus junction. Free oviduct about 2 times longer than vagina. Neck of spermathecal stalk short; diverticle thick, slightly wider and longer than shaft above place of bifurcation. Reservoir spatula-shaped.

DISTRIBUTION. Puerto Rico. 1 sp.

Paranenia Rehder, 1939
Fig. 801

Rehder, 1939: 173 (*Nenia* subg.).

TYPE SPECIES — *Clausilia perarata* Martens, 1873; OD.

Shell not decollated, fusiform, rather stout, solid, slightly shining, of 6.5-7 weakly convex whorls. Apex narrowly rounded. Color brown to chestnut. Embryonic sculpture of microscopic radial striae, later whorls with subvertical, rounded ribs. Aperture subcircular, vertical, with broadly reflexed, expanded margins. Lunella short. Height 25-27, diam. 6.5-6.7 mm (25.2 × 6.5 mm).

DISTRIBUTION. Colombia (New Granada). 1 sp.

Neniops Pilsbry, 1926
Fig. 802

Pilsbry, 1926: 9 (*Nenia* subg.).

TYPE SPECIES — *Clausilia magistra* Sow-

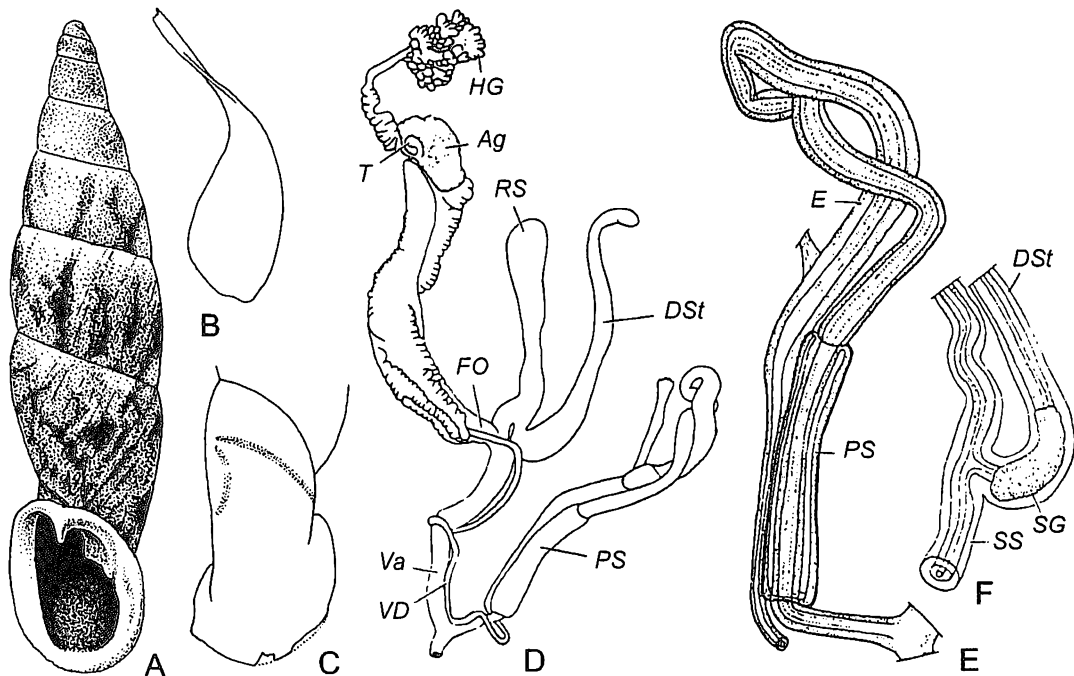


Fig. 803. A — *Nenisca bartschi* (Rehder, 1939). Shell: Top of Mt. Rochelle, Dept. du Sud, Haiti. Paratype. Phil. No. 180068. B, C, D, E, F — ! *Nenisca franzi* Thompson, 1998. B — clausilium. C — location of plicae within last whorl. D — reproductive tract. E — interior of penis. F — interior of spermathecal stalk and diverticle. After Thompson, 1998.

erby, 1892 (= *Clausilia karsteniana* Dohrn, 1859); OD.

Shell decollated, cylindrical-fusiform, dull, slightly translucent, of about 7 (after decollation) strongly flattened whorls. Color uniformly corneous. Upper whorls nearly smooth, later with oblique, low, fine, locally anastomosing, retractive riblets. Aperture subcircular, nearly vertical, with thin, broadly reflexed margins. Superior lamella rather short, place of its joining with spiral lamella marked by abrupt "fracture" Inferior lamella low. Principal lamella starting on right or right-dorsal side. Lunella well developed, right in position. Height 21-42, diam. 4-8 mm (38.8 × 7.7 mm).

DISTRIBUTION. Colombia, Venezuela. 4 spp. & subspp.

Nenisca Rehder, 1939
Fig. 803

Rehder, 1939: 171 (*Nenia* subg.). Thompson, 1998: 35.

TYPE SPECIES — *Nenia* (*Nenisca*) *bartschi* Rehder, 1939; OD.

Shell entire, fusiform, moderately solid, dull, of 6-8 moderately convex whorls; back of last whorl somewhat flattened. Coloration consists of brown background and whitish or yellowish streaks and bars; apex reddish-brown. Embryonic whorls smooth, later nearly so or with rounded radial riblets. Aperture large, rounded, vertical, with thin, widely reflexed and expanded peristome; palatal margin slightly arching forward. Superior lamella high, short, not continuous with spiral lamella. End of spiral lamella passing periferad to end of superior lamella and then converging upon it. Inferior lamella high, very strong, steeply ascending. Subcolumellar lamella short, not visible from aperture. Lunella present, occasionally reduced to a calloused crescent. Principal plica starting on right side, present in middle half of last whorl. Lunella short. Palatal plicae absent. Clausilium spatulate, simple. Height 15-25, diam. 5-6 mm (21.4 × 5.0 mm).

Talon exposed or hidden. Vas deferens gradually passing into epiphallus. Male

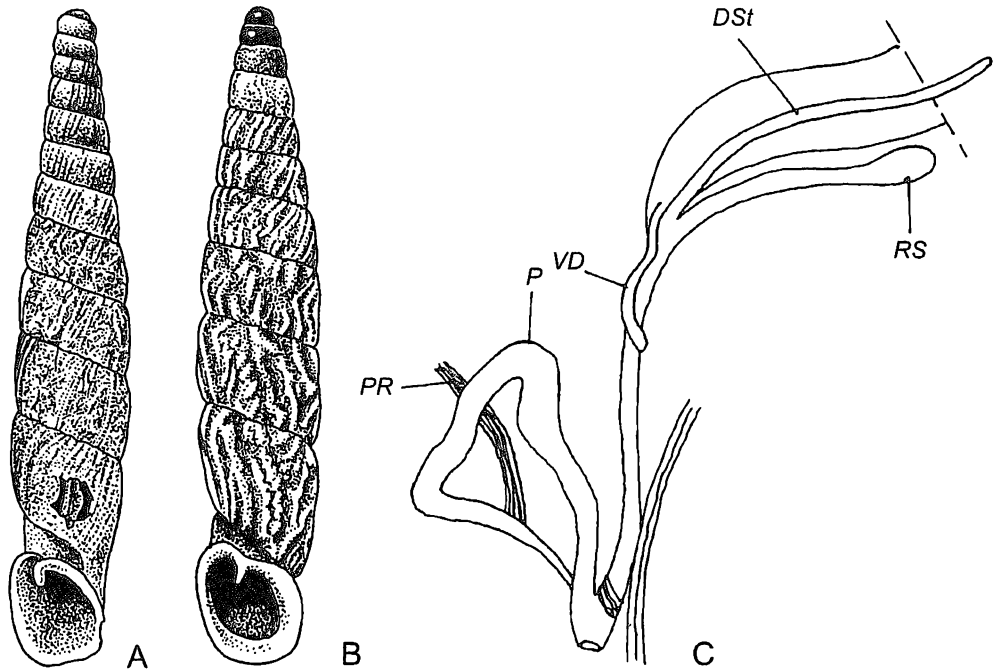


Fig. 804. A — *Temesa (Neniactra) belahubbardi* (Pilsbry, 1922). Shell: Caspisapa, Rio Huallaga, Peru. Holotype. Phil. No. 129568. B — ! *Temesa (Neniactra) olssoni* (Pilsbry, 1949). Shell: Near Anco, road Mejorada, Valley of Rio Matara-Huanta, Peru. Holotype. Phil. No. 185176. C — ! *Temesa (Neniactra) parcecostata* (Polinsky, 1922). Reproductive tract. After Loosjes & Loosjes-van Bemmell, 1966.

loop (epiphallus + penis) long, internally with longitudinal folds. Lower portion of penis covered with rather long sheath. Penial retractor attached to proximal part of epiphallus. Free oviduct very short, vagina 5-6 times longer. Neck of spermathecal stalk short. Walls of basal portion of diverticle contain a gland of alveolar structure. Reservoir of spermatheca indistinctly separated from duct.

DISTRIBUTION. Haiti. 2 spp.

Temesa H. Adams et A. Adams, 1855

Adams H. & Adams A., 1855: 175 (*Balea* subg.).

— *Parabalea* Ancey, 1882: 60 (*Balea* subg.; t.-sp. *Balea dohrniana* Nevill, 1881; OD).

— *Exbalea* Jousseume, 1900: 34 (t.-sp. *Balea peruviana* Philippi, 1867; OD).

Loosjes & Loosjes-van Bemmell, 1966: 24.

TYPE SPECIES — *Bulimus clausilioides* Reeve, 1849; SD Kobelt, 1880 (1876-1881).

Shell entire, subcylindrical to turrated, of 8-12 whorls. Color brownish, often with

whitish spots and/or flammes. Surface finely to coarsely radially ribbed. Aperture armature more or less reduced. Subcolumellar lamella deeply immersed, dorsal. Clausilium absent.

Male loops rather short to moderately long. Penial retractor attached to epiphallus near base of vas deferens. Free oviduct shorter than vagina. Neck of spermathecal stalk nearly absent. Diverticle rather thin, a little longer than duct of reservoir.

DISTRIBUTION. Peru, Bolivia, Colombia, Argentina.

Temesa (Neniactra) Pilsbry, 1926

Fig. 804

Pilsbry, 1926: 10 [*Nenia (Gracilinenia)* sect.].

— *Incagliaia* Pilsbry, 1949: 215 (*Nenia* subg.; t.-sp. *Nenia olssoni* Pilsbry, 1949; OD).

Weyrauch, 1957: 22. Loosjes & Loosjes-van Bemmell, 1966: 32.

TYPE SPECIES — *Nenia belahubbardi* Pilsbry, 1922; OD.

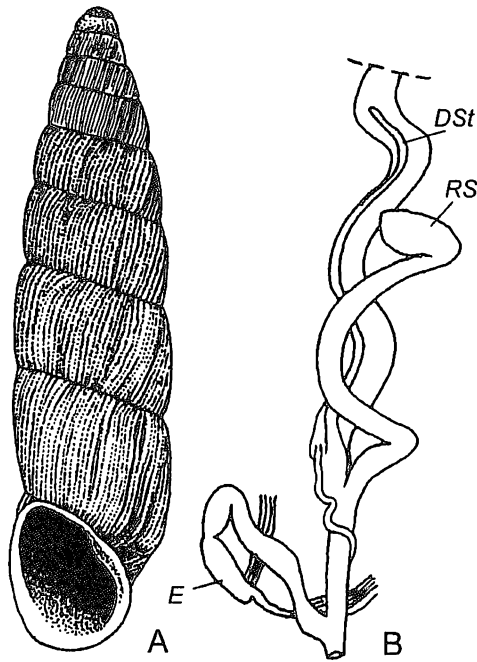


Fig. 805. A — *Temesa (Temesa) clausilioides* (Reeve, 1849). Shell: Peru. Paris.
B — ! *Temesa (Temesa) pilsbryi pilsbryi* (Weyrauch, 1956). Reproductive tract. After Loosjes & Loosjes-van Bemmelen, 1966.

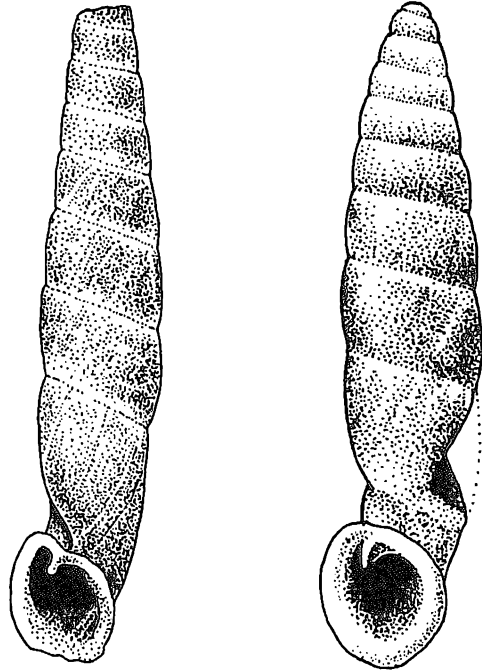


Fig. 806. *Gonionenia dohrni* (L. Pfeiffer, 1861). Colombia. Phil. No. 105072.

Fig. 807. *Gibbonenia raimondi* (Philippi, 1867). Between San Gregorio and Patipampa, Peru. Syntype. Senck. No. 135519a.

Shell sinistral or dextral, not decollated, slender, cylindrical-fusiform, solid to very solid, of about 10-12 flattened to moderately convex whorls. Last whorl usually with 1 or 2 basal crests. Color corneous, with whitish striae or parts of striae, which may be clustered, forming white patches; sometimes there is a pattern of white patches running diagonally. Postnuclear sculpture rather fine to very coarse, of white large wrinkles directed predominantly radial-obliquely, which may be sinuous, angularly bent or interrupted. Aperture rounded-subquadrangular, with thin, scarcely reflexed margins. Superior lamella high, vertical. Spiral lamella deviated from superior lamella. Inferior lamella receding, inconspicuous in frontal view. Lower end of lunella not provided with a long, thin palatal plica, but usually connected with or, more seldom, narrowly separated from lower end of subcolumellar lamella. Clausilium tapers anteriorly, calloused along columellar side and projects in a prominent point at its end. Height 11-28, diam. 2.3-

4.7 mm (*belahubbardi*: 13.6 × 2.5 mm; *olsoni*: 26.4 × 4.5 mm).

Male loop moderately long. Vas deferens entering epiphallus without visible boundary. Epiphallus poorly demarcated from penis; both ducts subcylindrical.

DISTRIBUTION. Peru, (?) N Argentina. About 12 spp. & subspp.

Temesa (Temesa s. str.) Fig. 805

Shell mainly turreted, of 7-9 moderately convex to flattened whorls. Color uniformly brownish or with thin white lines. Surface finely regularly ribbed or rib-striated. Aperture pear-shaped, slightly oblique, with thin, shortly reflexed margins. Closing apparatus represented only by vestigial inferior lamella. Height 10.0-28.5, diam. 3.0-4.5 mm (13.2 × 3.2 mm).

Male loop rather short. Vas deferens enters epiphallus with more or less distinct boundary. Epiphallus short, internally with three longitudinal folds. Penis cylindrical

to swollen, contains a verge, accompanied by small papilla, just beyond retractor.

DISTRIBUTION. Peru, Bolivia, Colombia. 27 spp. & subspp.

Gonionenia Pilsbry, 1926

Fig. 806

Pilsbry, 1926: 10 [*Nenia* (*Columbinia*); sect.].

TYPE SPECIES — *Clausilia dohrni* L. Pfeiffer, 1861; OD.

Shell decollated, slender, subcylindrical, solid, of about 9 (after decollation) nearly flat whorls. Last whorl with a sharp basal keel. Surface covered with very fine, not very regular radial riblets. Aperture rhomboid or irregularly ovate, with reflexed, a little thickened margins. Superior lamella high, evenly continuous with spiral lamella. Inferior lamella lies mainly on back side of columella. Subcolumellar lamella weak, not visible in frontal view. Principal plica starting on dorsal side. Lunella arched. Height 29-38, diam. 5.7-7.0 mm (31.5 × 6.0 mm).

DISTRIBUTION. Venezuela, Colombia. 1 sp.

Gibbonenia Zilch, 1954

Fig. 807

Zilch, 1954b: 66 (*Nenia* subg.).

TYPE SPECIES — *Clausilia raimondii* Philippi, 1867; OD.

Shell not decollated, slender, fusiform, translucent, moderately thin, of 9-10 slightly convex whorls. Last whorl descending neck-like; base of body whorl with 2 short, distinct crests. Color brown. Embryonic whorls smooth, subsequent very finely, regularly, radially striated. Aperture rounded, nearly vertical, margins a little thickened and widely reflexed. Superior lamella vertical, high, short, continuous with spiral lamella. Inferior lamella strong, deeply lying, not or scarcely visible in frontal view. Subcolumellar lamella deeply immersed. Principal plica starting on dorsal side. There is a long sutural plica. Lunella callus-like. Upper palatal plica short, thickened. Clausilium spoon-shaped, somewhat pointed distally, with small incision at handle. Height 15.3-19.7, diam. 3.2-4.0 mm (17.0 × 3.8 mm).

DISTRIBUTION. N Peru. 1 sp. with 2 subspp.

Peruinia Polinski, 1922

Fig. 808

Polinski, 1922: 125 (*Nenia* subg.).

TYPE SPECIES — *Clausilia peruana* Troschel, 1847; SD Pilsbry, 1926.

Shell entire or shortly decollated, fusiform-cylindrical, moderately thin, more or less translucent, of 5.5-7.5 (when decollated) slightly convex whorls; full whorls number up to 14. Color light corneous to yellowish. Postnuclear sculpture of very fine riblets and distinct spiral striation in intervals. Aperture large, subcircular, with broadly reflexed, expanded, thin margins. Superior lamella high, not connected with spiral lamella which becoming very low as it approaches superior lamella. Subcolumellar lamella weak, connected with lower end of lunella. Plate of clausilium broadly lancet-shaped, with lower end pointed. Height 22.0-61.6, diam. 5-8 mm (30.0 × 7.0 mm).

Talon minute, club-shaped, exposed. Vas deferens enters short epiphallus with a more or less distinct widening. Epiphallus internally with two large and some small longitudinal pilasters, forming a tree-shaped lumen in cross-section. Penis rather to moderately short, with thick muscularized walls, its inner surface with strong papillae that penetrate far into lumen. Free oviduct about as long as vagina or 2-3 times longer. Neck of spermathecal shaft very short. Diverticle very slender, short to long. Reservoir poorly defined, with apical ligament.

DISTRIBUTION. Peru. 9 spp. & subspp.

Pseudogracilinenia Loosjes et Loosjes-van Bemmelen, 1984

Fig. 809

Loosjes & Loosjes-van Bemmelen, 1984: 10.

TYPE SPECIES — *Gracilinenia huallagana* Pilsbry, 1949; OD.

Shell decollated, slenderly fusiform, thin, glossy, translucent, of 6-8 (after decollation) slightly to quite convex whorls. Last whorl strongly, neck-like descending. Color corneous, sculpture elements paler. Postembryonic whorls covered with thin, irregular, radial riblets which expressed better on lower whorls. Aperture somewhat squarish, turned more or less outward; parietal margin straightened, peristome

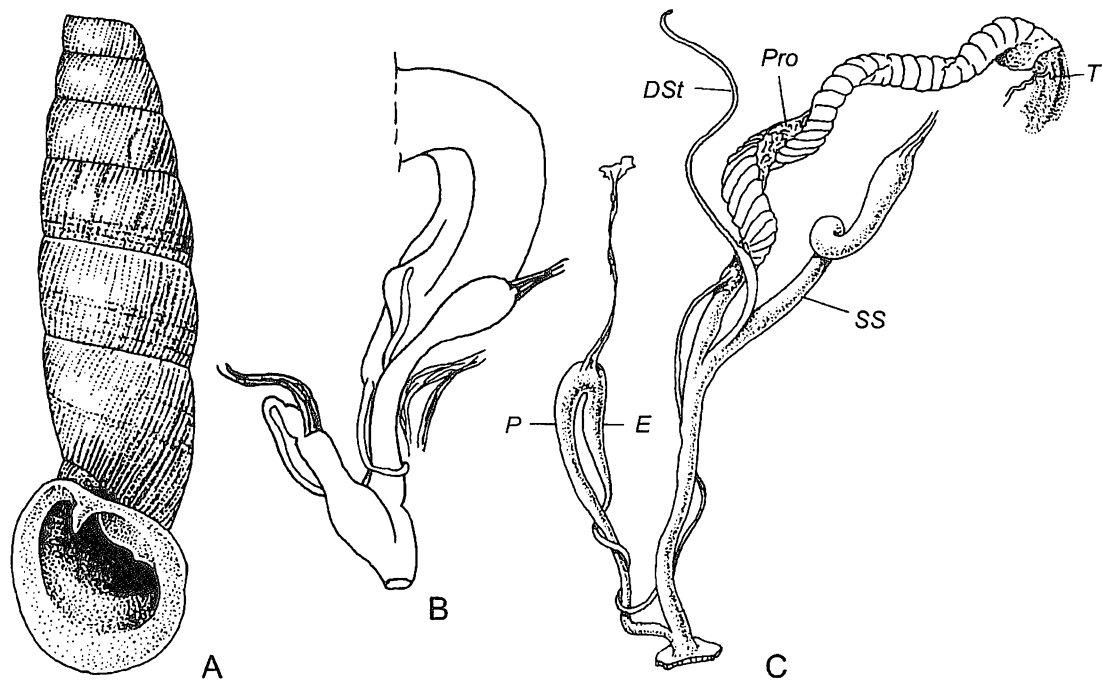


Fig. 808. A, B — *Peruinia peruana* (Troschel, 1847).
 A — shell: Peru. Paris. B — reproductive tract. After Loosjes & Loosjes-van Bommel, 1966.
 C — ! *Peruinia flachi tingamariae* (Pilsbry, 1922). Reproductive tract. Cueva de las Pavas, Dept. Huanuco, Prov. Leoncico Prado, Peru, March 21, 1975. Moscow No. Lc-24638 (Leiden).

shortly reflexed. Superior lamella narrow, rather high, diminished within, connected with short but sharp spiral lamella by a low curved callus. Inferior lamella deeply placed, not visible in frontal view, runs parallelly to superior lamella. Subcolumellar lamella very deeply immersed, its lower end extending past lower end of lunella. Principal plica short, dorsal. Lunella weak, low, strongly curved. Lobe of clausilium short, broad, tapering a little toward end. Height 11-14, diam. 2.6-3.0 mm (11.1 × 2.7 mm).

Epiphallus distinctly enlarged at its entrance to penis. Penial caecum not present. Oviduct somewhat more than half as long, or as long as vagina. Spermathecal stalk not long, rather stout, with a short and slender, somewhat vestigial diverticle.

DISTRIBUTION. Peru. 2 sp.

Steeriana Jousseume, 1900

Jousseume, 1900: 33, 34.

— *Steereana* Pilsbry, 1926: 10 (nom. err. pro *Steeriana* Jousseume, 1900).

TYPE SPECIES — *Clausilia (Nenia) steeriana* Sykes, 1893 (= *Clausilia malleolata* Philippi, 1867); tautonymy.

Shell decollated, obese, solid to rather thin, not shining, cylindrical to fusiform-cylindrical, of 5-8 (after decollation) moderately to slightly convex whorls. Last whorl nearly rounded or with 2 weak crests. Aperture generally rounded, with reflexed margins. Superior and spiral lamellae fused or more or less discontinuous. Principal plica high in position. Lunella present.

Diverticle of spermathecal shaft more or less remote from its base.

DISTRIBUTION. Peru.

Steeriana (Andiniella) Weyrauch, 1958) Fig. 810

Weyrauch, 1958: 93. Loosjes & Loosjes-van Bommel, 1966: 8.

TYPE SPECIES — *Andinia (Ehrmanniella) flammulata* Loosjes, 1957; OD.

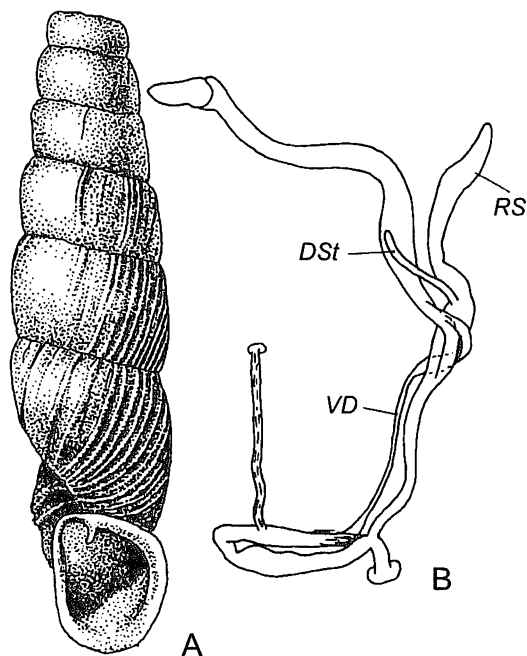


Fig. 809. *Pseudogracilinenia huallagana* (Pilsbry, 1949).

A — shell: Tingo Maria, Peru. Holotype. Phil. No. 185174a. B — reproductive tract. After Loosjes & Loosjes-van Bemmél, 1984.

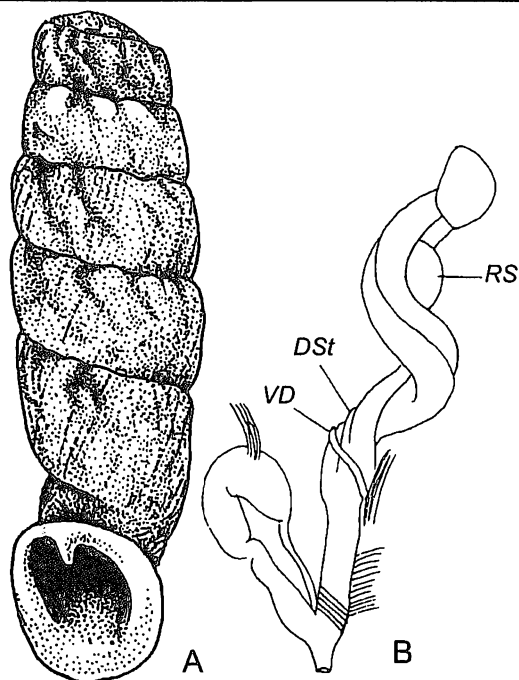


Fig. 810. *Steeriana (Andiniella) flammulata* (Loosjes, 1957).

A — shell: Cerro Huibcashpata near Palta (Rio Tarma) [Peru]. Paratype. Phil. No. 225961. B — reproductive tract. After Loosjes & Loosjes-van Bemmél, 1966.

Last whorl basally rounded. Color reddish-corneous-brown to dark-brown, with variously developed darker, obliquely-angled streaks; riblets mostly white. Postembryonic sculpture of regular, accurate, fine riblets. Aperture subcircular to ovate. Superior lamella continuous with spiral lamella. Principal plica high in position. Lower palatal plica mostly rudimentary, connected with hook- or T-shaped lunella. Subcolumellar lamella and lunella mostly separated, rarely connected. Height 10-17, diam. 3.0-4.5 mm (12.0×3.3 mm).

Vas deferens passes into epiphallus with a distinct widening. Epiphallus internally with two large and one small longitudinal folds, forming a T-shaped lumen in cross-section. Penis short, with a circular lumen, its inner wall with many wrinkled folds. Penial retractor comparatively weak. Oviduct short, about $1/5$ of length of vagina and as wide as spermathecal stalk. Basal portion of stalk very short. Reservoir distinctly defined.

DISTRIBUTION. Andes of Peru, at elevation of 3100-3600 m above sea level. 4 spp.

Steeriana (Steeriana s. str.)

Fig. 811

Last whorl basally rounded. Color uniformly corneous. Sculpture of very fine, dense, rather regular ribbing. Aperture rounded, with a deep basal sulcus; margins broadly reflexed and expanded. Superior and spiral lamellae widely discontinuous, spiral lamella situated farther from columella than superior. Inferior lamella with thickened ridge, ascending alongside columella. Subcolumellar lamella rather weakly developed. Principal plica thin, with sharp ridge. Umbilicus absent. Height 10-23, diam. 6.2-7.6 mm (18.5×7.0 mm).

Vas deferens passes into epiphallus with a clear thickening. Epiphallus internally with two longitudinal folds, T-shaped in cross-section. Penis more or less cylindrical, internally with many wrinkled folds. Oviduct short, about $1/4$ of vagina length. Diverticle of spermathecal shaft displaced to oviduct (see remark in description of *Andinia s. str.*).

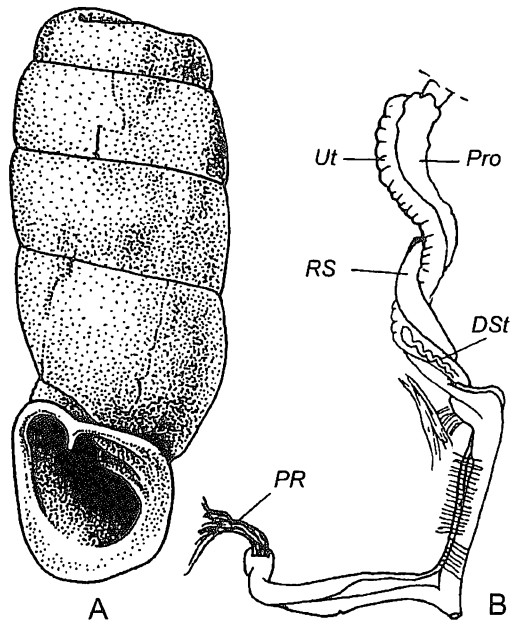


Fig. 811. *Steeriana (Steeriana) malleolata* (Philippi, 1867).
A — shell: Peru. SPb. B — reproductive tract. After Loosjes & Loosjes-van Bemmél, 1966.

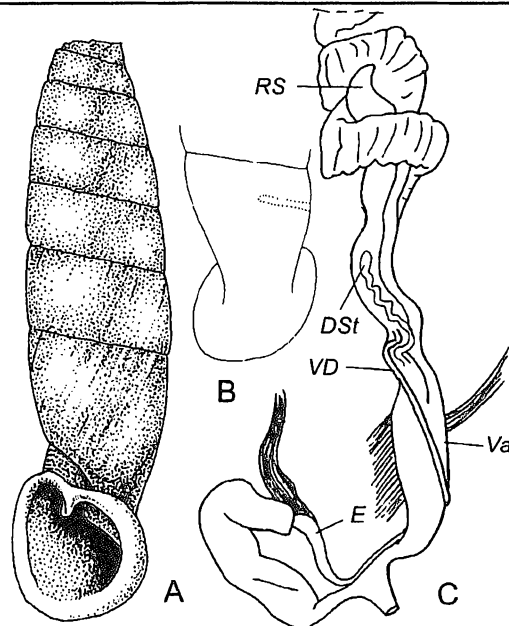


Fig. 812. A, B — *Steeriana (Cylindronenia) maranhoniensis* (Albers, 1854). "Columbia ad fluvium Maranhon"
A — shell. B — location of plicae within last whorl. Bern No. 1701.101. C — ! *Steeriana (Cylindronenia) canescens* (Polinsky, 1922). Reproductive tract. After Loosjes & Loosjes-van Bemmél, 1966.

DISTRIBUTION. Peru. 6 spp., subsp. & forms.

Steeriana (Cylindronenia)
Ehrmann, 1949)
Fig. 812

Ehrmann, 1949: 104 (*Nenia* subg.).

TYPE SPECIES — *Clausilia maranhoniensis* Albers, 1854; OD.

Last whorl basally rounded or with 2 weak basal keels. Color light-corneous, usually with whitish radial striae, especially below suture. Postembryonic whorls finely, regularly ribbed; some riblets with white touches. Aperture rounded, vertical, with thin, widely reflexed and expanded margins. Superior lamella high, continuous with spiral lamella. Inferior lamella obliquely bent or S-shaped. Subcolumellar lamella small, not visible in frontal view. Principal plica starting on dorsal side. Lower end of lunella with a short top or bluntly widened. Clausilium quite oblique an-

teriorly, pointed at palato-anterior end or with a finger-like projection. Height 17-27, diam. 4.5-6.5 mm (25.5 × 6.2 mm).

Vas deferens separated from epiphallus by a distinct, abrupt boundary. Latter internally with four longitudinal folds, its lumen cross-like in cross-section. Penis wide, with 12 strong longitudinal folds. Free oviduct about half as long as vagina. Spermathecal shaft relatively narrow, reservoir well defined. Spermathecal diverticle enters oviduct at some distance above base of shaft (see remark to description of *Andinia*).

DISTRIBUTION. Peru. 4 spp. & subsp.

Andinia Polinski, 1922
Fig. 813

Polinski, 1922: 124.

TYPE SPECIES — *Clausilia taczanowskii* Lubomirski, 1879; monotypy.

Shell decollated, subcylindrical, stout, solid, of about 6 (after decollation) flattened whorls. Last whorl lacking basal

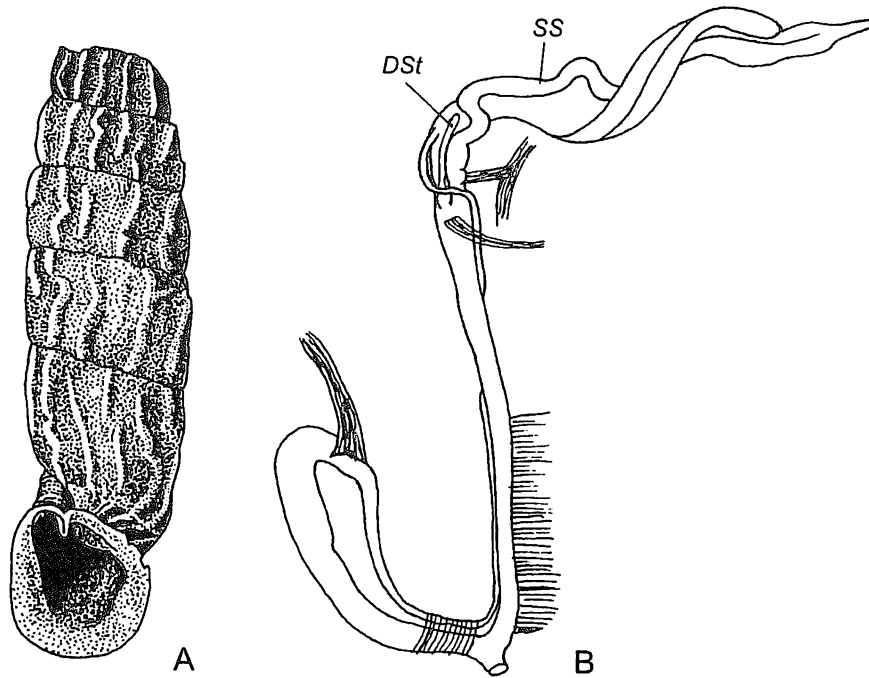


Fig. 813. *Andinia taczanowskii* (Lubomirski, 1879).

A — shell: Bambamarca ca. Chota, Peru. Syntype. SPb. B — reproductive tract. After Loosjes & Loosjes-van Bemmél, 1966.

keels. Color brownish-corneous, sculpture elements lighter. Most prominent elements — well spaced, irregular, rough, broad, sinuous radial ribs; in interspaces rather regular, fine elements of spiral striation sometimes present. Aperture rounded-subquad-rangular, with thin, widely reflexed margins. Superior lamella relatively short, its posterior end slightly deviated rightward and continuous with spiral lamella. Inferior lamella high in position, its lower end occupies upper portion of columellar and part of parietal wall. Subcolumellar lamella abruptly truncated below, deeply lying. Principal plica and lunella well developed. Palatal plicae rudimentary or absent. Height 25-26, diam. 7.0-7.5 mm (25.6 x 7.1 mm).

Vas deference bound to basal portion of penis by well developed fibers. No distinct demarcation between vas deferens and epiphallus. Interior of epiphallus with two large and one small longitudinal fold, approximately T-shaped in cross-section. Penis subcylindrical, internally with about twelve rather strong folds, without verge. Free oviduct very short (1/4-1/5 of vagina

length). Diverticle of spermathecal stalk thin, short, entering vagina at base of long spermathecal stalk.

DISTRIBUTION. Peru. 1 sp.

REMARK. Loosjes & Loosjes-van Bemmél (1966: 36) stated that "The pedunculus has no diverticulum, the clear oviduct however has a short and narrow appendix, which has a lumen distally but which ends without a lumen a short distance distally from the entrance of the pedunculus into the vagina" I think this "appendix" is a diverticle of spermathecal stalk, shifted down to oviduct; in this connection it should be reminded that diverticle in a number of genera (*Pfeifferiella*, *Neniactra*, *Zilchiella*, *Cylindronenia*) is situated at the very base of shaft.

Ehrmanniella Zilch, 1949

Fig. 814

Zilch, 1949: 97 (*Andinia* subg.). Loosjes & Loosjes-van Bemmél, 1966: 6.

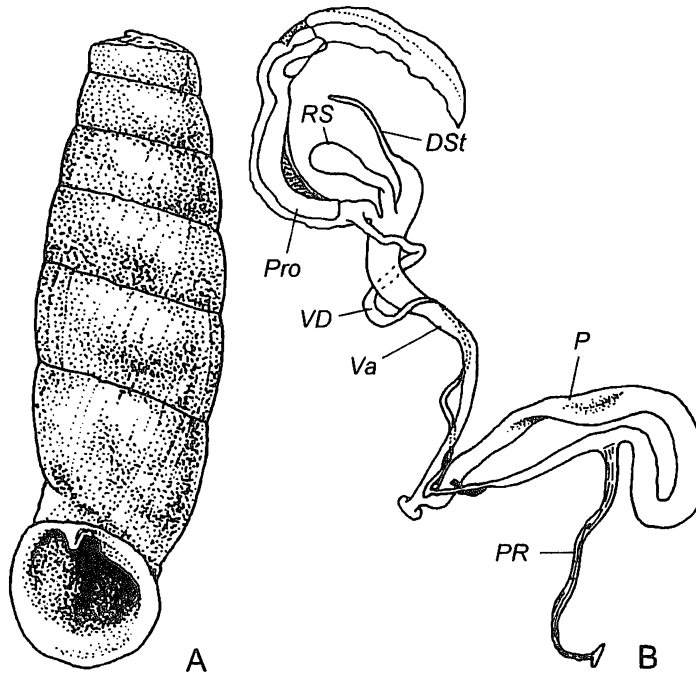


Fig. 814. *Ehrmanniella quadrata* (O. Boettger, 1880).

A — shell: Acobamba (Rio Tarma) between Tarma and Palca, Peru. Senck. No. 89495a (as *Iubomirskii* Polinsky, 1922). B — reproductive tract. After Loosjes & Loosjes-van Bemmelen, 1984.

TYPE SPECIES — *Clausilia quadrata* O. Boettger, 1880; OD.

Shell decollated, cylindrical-fusiform, stout, solid, of about 6 (after decollation) flattened whorls. Last whorl with 2 basal keels. Color uniformly chestnut-corneous. Postnuclear surface silky rib-striated, behind aperture sculpture becomes coarser. Aperture subcircular, nearly vertical, with broadly reflexed, thin margins. Superior lamella very short, with "fracture" at its joining with spiral lamella. Inferior lamella situated high. Principal plica short, dorsal. Lunella also dorsal, its lower end nearly united with interior end of subcolumellar lamella. Height 12-26, diam. 5-7 mm (20.7 × 6.0 mm).

Vas deferens passes into epiphallus with externally visible widening. Epiphallus internally with about 6 longitudinal folds. Penial retractor rather weak. Oviduct very short, about 1/10 of length of vagina. Spermathecal diverticle entering vagina at base of stalk, swollen basally, longer than upper portion of shaft together with reservoir.

DISTRIBUTION. Peru. 3-4 sp.

Hemicena Pilsbry, 1949
Fig. 815

Pilsbry, 1949: 229 (*Nenia* subg.).

TYPE SPECIES — *Nenia (Hemicena) polinskiana* Pilsbry, 1949; OD.

Shell entire, slender, conic-fusiform, rather thick and strong, dull, of 10-11 nearly flat whorls. Color brown, near suture usually lighter; aperture chestnut-brown within, peristome white. Embryonic whorls smooth or indistinctly granulate, rest surface with fine, crowded radial riblets, having a fibrous appearance; under suture light papillae may be present; lower half of last whorl with strong, rounded, radial folds. Aperture pyriform, with reflexed, somewhat thickened margins. Superior lamella rather short, marginal, concave on left side, contiguous to, or shortly separated from or continuous with spiral lamella, though very low at junction. Spiral lamella low, short, penetrating to a mid-dorsal position. Inferior lamella low, remote from superior. Subcolumellar lamella, clausilium, palatal plicae and lunella ab-

sent. Height 20.0-24.6, diam. 4.6-5.2 mm (22.7 × 5.0 mm).

Distal part of male division much reduced, extremely small. Vas deferens enters epiphallus without distinct boundary. Both penis and epiphallus internally without conspicuous structure, their lumens rounded in cross-sections. Free oviduct about half as long as vagina. Spermathecal stalk relatively short, reservoir well defined; diverticle inserts on oviduct at base of shaft.

DISTRIBUTION. Peru. 1 spp. with 4 subspp.

Incania Polinski, 1922
Fig. 816

Polinski, 1922: 125 (*Nenia* subg.).

TYPE SPECIES — *Clausilia chacaensis* Lubomirski, 1879; SD Pilsbry, 1926.

Shell not decollated, fusiform to slenderly turrated, solid, a little shining, of 7-8 convex whorls. Last whorl basally rounded. Color uniformly corneous. Postapical sculpture, a silky oblique striation. Aperture relatively very large, roundly triangular, its margins widely expanded, reflexed, a little thickened. Superior lamella continuous with spiral lamella; boundary between them marked by a shallow depression. Inferior lamella high. Subcolumellar lamella weak or absent. Height 9-22, diam. 2.2-3.5 mm (13.4 × 2.8 mm).

Vas deferens passes into epiphallus with gradual widening. Lumen of epiphallus as faintly curved line. Penis more or less cylindrical, without verge, its inner surface bears 5 or more wrinkled longitudinal folds. Penial retractor rather strong. Free oviduct about as long as vagina. Spermathecal shaft long, with spatula-shaped reservoir; diverticle absent.

DISTRIBUTION. Ecuador, Peru. About 10 spp.

Pfeifferiella Weyrauch, 1957
Fig. 817

Weyrauch, 1957: 3 (*Columbinia* subg.). Loosjes & Loosjes-van Bemmél, 1966: 23.

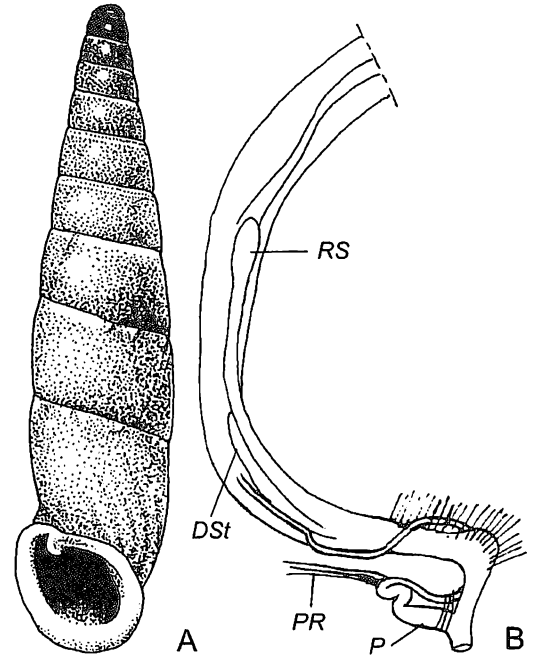


Fig. 815. *Hemicena polinskiana* (Pilsbry, 1949). A — shell: Topococha, Peru, 3000 m. Senck. No. 62672. B — reproductive tract. After Loosjes & Loosjes-van Bemmél, 1966.

TYPE SPECIES — *Columbinia (Pfeifferiella) haasi* Weyrauch, 1957; OD.

Shell entire, ventrose, spindle-shaped, solid, of about 9 slightly convex whorls. Last whorl without basal crest. Apex stout, blunt. Color yellowish; aperture margins white or pinkish. Postembryonic sculpture of thin crowded wrinkles, with small bands of whitish patches under suture, upper ends of wrinkles light, thickened; two last whorls with indistinct malleation. Aperture subcircular, with widely reflexed, thin margins. Closing apparatus reduced, however superior lamella strong and high. Clausilium reduced in size or missing. Height 15.6-28.8, diam. 3.9-5.7 mm (26.0 × 5.5 mm).

Vas deferens enters epiphallus without distinct demarcation. Internally epiphallus with single large and a number of small longitudinal folds. Penial retractor rather short. Free oviduct and vagina rather long, of about equal length. Spermathecal shaft thick, reservoir hardly defined. Diverticle very thin, sinuated, enters stalk very low — just above its base.

DISTRIBUTION. Peru. 3 spp.

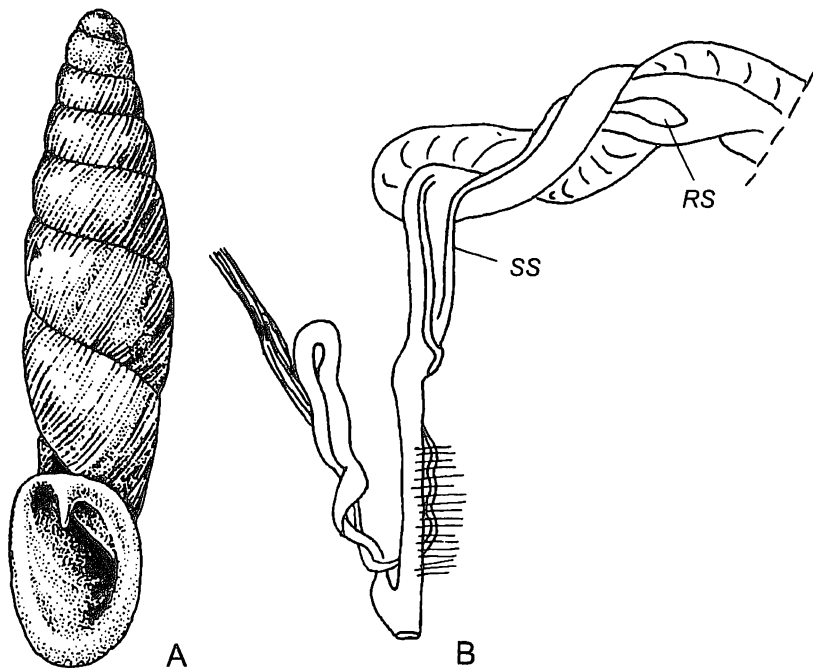


Fig. 816. A — *Incania chacaensis* (Lubomirski, 1879). Shell: Chaca near Huanta, Peru. Syntype. Phil. No. 143116. B — ! *Incania trigonostoma* (O. Boettger, 1879). Reproductive tract. After Loosjes & Loosjes-van Bemmél, 1966.

Cyclonemia Nordsieck, 1999
Fig. 818

Nordsieck, 1999b: 172.

TYPE SPECIES — *Clausilia cyclostoma* L. Pfeiffer, 1850; OD.

Shell entire, fusiform, of 8-9 slightly convex whorls. Last whorl with more or less pronounced basal keel (rarely missing). Color reddish- or violet-brown. Postapical whorls densely rib-striated; at suture of upper whorls rib-striae forming minute papilla-like patches. Aperture nearly circular, with well reflexed margins. Superior lamella continuous with spiral or (rarely) these lamellae separated. Inferior lamella relatively high, medium in position, obliquely ascending, S-likely bent in front. Subcolumellar lamella deeply lying. Principal plica starting dorsolaterally. Lunella dorsal, nearly reaching subcolumellar lamella. Upper palatal plica short to long, steeply continuous with lunella. Posterior lower palatal plica well developed to nearly missing. Basal plica very short or absent. Plate of clausilium with narrowed distal end. Height 17-20, diam. 4.4-4.7 mm.

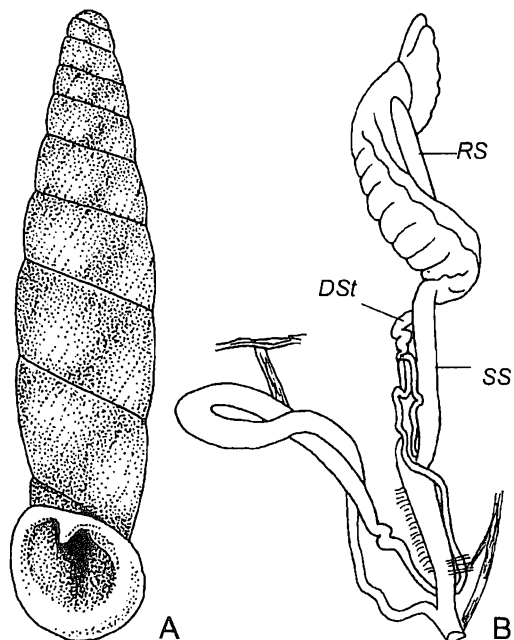


Fig. 817 *Pfeifferiella haasi* (Weyrauch, 1957). A — shell: Between Chiclayo and Cutervo, 2350 m, Cerro Chunrun near Llama, Peru. Paratype. Phil. No. 204508. B — reproductive tract. After Loosjes & Loosjes-van Bemmél, 1966.

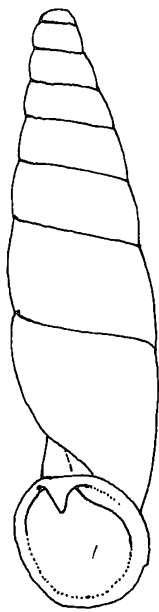


Fig. 818. ! *Cyclonena violetta*
Nordsieck, 1999.
After Nordsieck, 1999b.

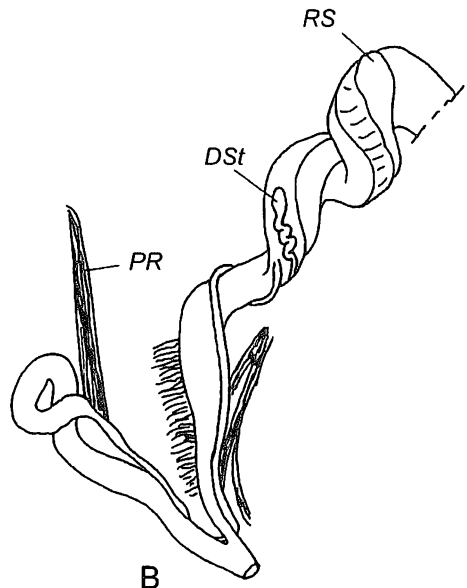
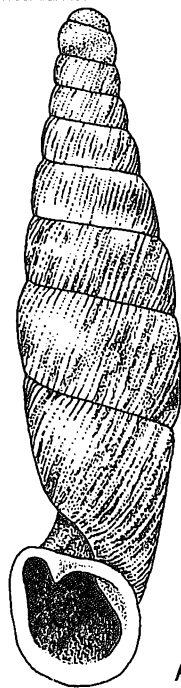


Fig. 819. *Bequaertinenia bequaerti* (Weyrauch, 1957).
A — shell: 1 km NE of Bambamarca, 2800 m, Peru. Paratype.
Phil. No. 204607 B — reproductive tract. After Loosjes &
Loosjes-van Bommel, 1966.

Epiphallus nearly as thin as vas deferens. Male loop strikingly small, penis + epiphallus shorter than vagina. Penial retractor strong, broadly inserted. Spermathecal stalk lacking diverticle.

DISTRIBUTION. Colombia, Peru, Ecuador, Bolivia. 7 spp.

Bequaertinenia Weyrauch, 1964

Fig. 819

Weyrauch, 1964: 150.

TYPE SPECIES — *Temesa (Neniactra) bequaerti* Weyrauch, 1957; OD.

Shell not decollated, more or less ventrose spindle-shaped, rather solid, dull, of 9-12 scarcely convex whorls. Last whorl with very oblique, variously developed basal crest. Color brown, riblets white. Embryonic whorls convex, smooth, later whorls with filiform, regular, dense, radial riblets. Aperture rounded to subquadrate, nearly vertical, with shortly reflexed, a little thickened margins. Sinulus curved backward. Palatal wall behind aperture strongly flattened. Superior lamella continuous with

spiral lamella. Inferior lamella low, spirally ascending. Subcolumellar lamella wanting. Principal plica starts on right side and continuing down to aperture. Lunella very convex. Clausilium plate elongated, with blunt apex. Height 12.4-18.2, diam. 3.1-3.8 mm (14.0 × 3.3 mm).

Vas deferens bound to penis by more or less developed fibers. Epiphallus internally with two strong and a few small longitudinal folds. Oviduct short to very short. Vagina long. Spermatheca with a slender sinuated glandular diverticle which enters very base of stalk.

DISTRIBUTION. N Peru. 1 sp.

Steatonenia Pilsbry, 1926

Fig. 820

Pilsbry, 1926: 9 (*Nenia* subg.).

TYPE SPECIES — *Nenia cooki* Pilsbry, 1919; OD.

Shell not decollated, inflated, obesely fusiform, thin, somewhat translucent, mat, of 6 quite convex whorls. Last whorl rounded basally, shortly descending, free in

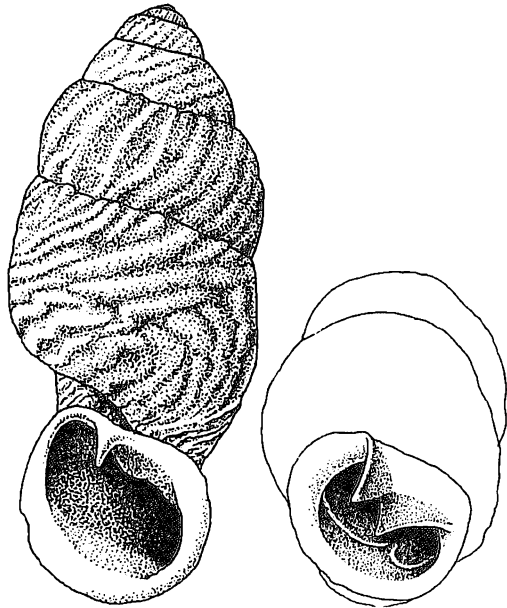


Fig. 820. *Steatonenia cooki* (Pilsbry, 1919). 1 mile above San Miguel, Lower Urubamba Valley, at foot of Mt. Machu Picchu, 6000 feet, Peru. Holotype. U.S. National Museum, Washington, No. 215084.

front. Surface of chamois tint, paler on last whorl; aperture ivory-yellow inside. 1st whorl smooth, 2nd with delicate radial striae, on 3rd whorl low, coarse wrinkles appear, following whorls have coarse sculpture of irregular, retractive wrinkles; on neck they become sharper, more crowded, and less oblique to growth lines. Aperture rounded, with narrowly reflexed white margins. Superior lamella high, sinuous, continuous with spiral lamella. Inferior lamella strong. Subcolumellar lamella deeply immersed. Principal plica starts on dorsal side, where its inner end closely contiguous to upper end of lunella. Lunella crescentic, deeply curved, wholly visible in aperture. Clausilium plate widest in middle, tapering towards both ends, a little thickened at distal end. Height 27.8, diam. 11.5 mm.

DISTRIBUTION. Peruvian Andes (Urubamba Valley, Prov. of Caxamarca). 1 sp.

Zilchiella Weyrauch, 1957

Fig. 821

Weyrauch, 1957: 9. Loosjes & Loosjes-van Bemmel, 1966: 20.

TYPE SPECIES — *Zilchiella grandiportus* Weyrauch, 1957; OD.

Shell entire or shortly decollated, turreted, rather thin, dull, of 7-8 flattened, slightly shouldered whorls. Last whorl with basal keel. Color dark-brown with violet hue. Postembryonic whorls with crowded, fine, lamellar riblets. Aperture unusually large, a little oblique, with thin, sharp, more or less reflexed margins. Closing apparatus much reduced, represented by low, rudimentary, elongated inferior lamella. Height 17.0-28.9, diam. 5.5-6.5 mm (23.0 × 6.5 mm).

Vas deferens passes gradually into epiphallus, which has a hook-shaped lumen. Proximal portion of epiphallus bound to penis by strong ligament. Penis moderately wide, with S-shaped lumen in cross-section. Penial retractor comparatively weak. Free oviduct about 3 times shorter than vagina. Spermathecal shaft wide and long, reservoir large. Diverticle very narrow, about half as long as shaft, entering base of shaft just above its entrance.

DISTRIBUTION. N Peru. 1 sp.

Columbinia Polinski, 1924

Fig. 822

Polinski, 1924: 743 (*Nenia* subg.).

TYPE SPECIES — *Nenia columbiana* Polinski, 1924; SD Pilsbry, 1926.

Shell not decollated, fusiform, slender to more or less pupiform, solid, of 7-8.5 slightly convex whorls. Last whorl strongly narrowed and neck-like descending. Apex widely rounded. Color dark brown, near suture lighter. Surface weakly obliquely striated to ribbed. Aperture circular or ovate, somewhat oblique, with more or less reflexed margins. Superior lamella high, continued by slight flex with spiral lamella. Inferior lamella receding, approaching superior lamella. Subcolumellar lamella often visible through aperture. Principal plica starts on dorsal side. Lunella arched. Plate of clausilium spatulate. Height 16-26, diam. 3.6-4.5 mm (24.4 × 4.4 mm).

Talon hidden. Epiphallus passes into penis with distinct widening. Penis short, somewhat expanded, containing short conic verge. Penial retractor weak. Free oviduct almost twice as long as vagina or nearly equal to it. Spermathecal shaft long,

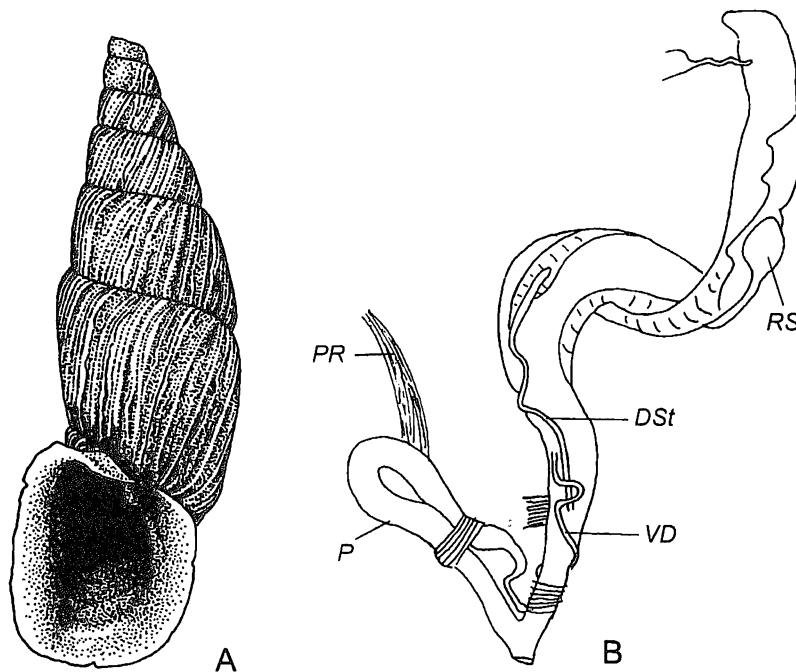


Fig. 821. *Zilchiella grandiportus* (Weyrauch, 1957).

A — shell: Left-side Rio Llaucan, 8 km NE of Bambamarca, Peña Rata, Dept. Cajamarca, Peru. Paratype. Leiden No. 51362. B — reproductive tract. After Loosjes & Loosjes-van Bemmell, 1966.

lacking diverticle, reservoir small or practically not defined.

DISTRIBUTION. Venezuela, Colombia, Ecuador, E Bolivia, Peru. 21-25 spp.

Weyrauchiella Loosjes et Loosjes-van Bemmell, 1966
Fig. 823

Loosjes & Loosjes-van Bemmell, 1966: 48.

TYPE SPECIES — *Nenia angrandi huanuensis* Pilsbry, 1949; OD.

Shell entire, fusiform, solid, dull, of 8-10 a little to moderately convex whorls. Last whorl with a more or less distinct furrow between 2 basal crests which may be weak or sometimes almost obsolete. Apex blunt. Color dark corneous. Sculpture very peculiar, consists of short oblique wrinkles, whose ridges often lighter than ground color; wrinkles incidentally interrupted. Aperture well detached from penultimate whorl, subcircular, margins reflexed and somewhat thickened. Superior lamella strong, continuous with spiral lamella which is low and short. Inferior lamella strong, receding, more or less sigmoid. Sub-

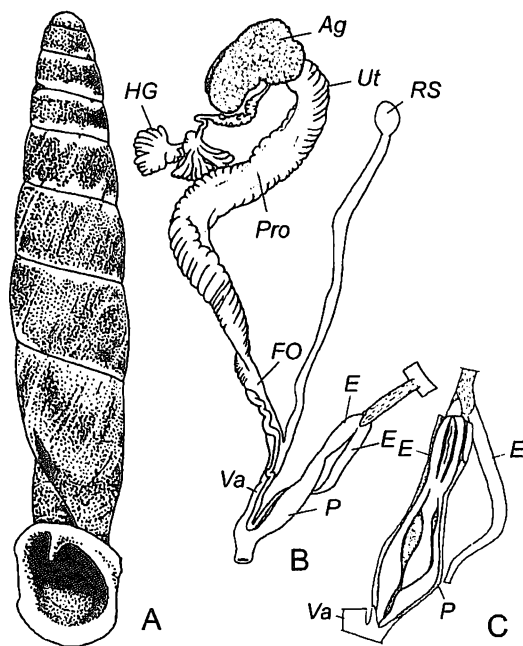


Fig. 822. *Columbinia columbiana* (Polinski, 1924). A — shell: Aquacadal, W Cordillera, Colombia. Syntype. Phil. No. 142075.

B, C — ! *Columbinia vasquezii* Thompson, 1985. B — reproductive tract. C — interior of penis. After Thompson, 1985.

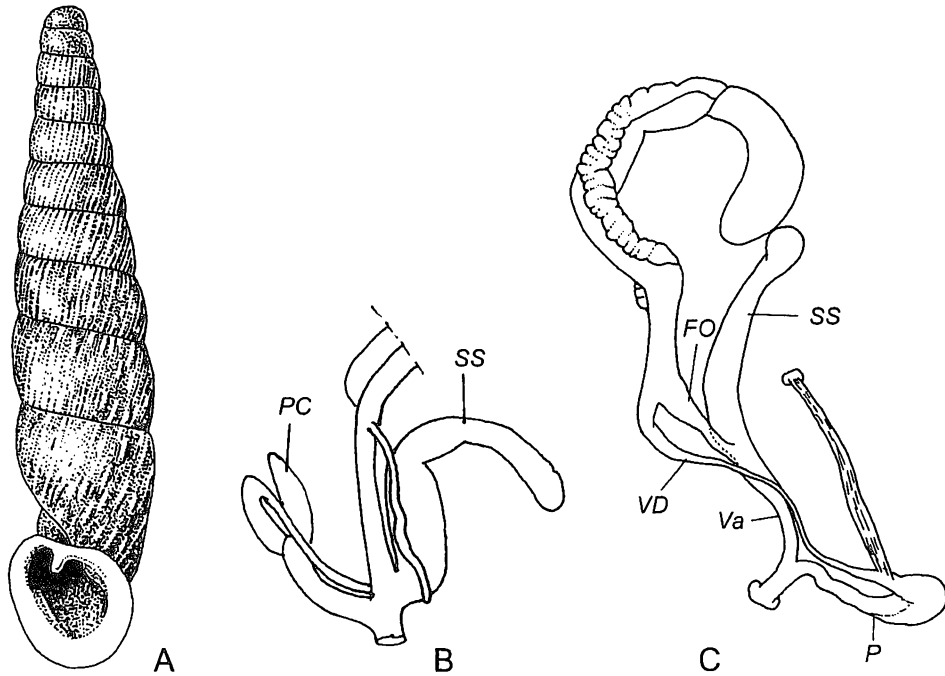


Fig. 823. A — ! *Weyrauchiella angrandi* (Morelet, 1849). Shell: Urubamba River, 1400 m, Huadquena, Peru. Vienna No. E 60542. B, C — *Weyrauchiella huanucensis* (Pilsbry, 1949). Reproductive tract. B — After Loosjes & Loosjes-van Bemmelen, 1966. C — After Loosjes & Loosjes-van Bemmelen, 1984.

columellar lamella connected with lower end of weak, nearly straight lunella. Principal plica strong but short, extending from dorsal to lateral position. Plate of clausilium rather wide, strongly curved in upper half, its columellar margin somewhat excised near handle. Height 11-17, diam. 2.7-3.5 mm (15.5 × 3.2 mm).

Vas deferens gradually passes into epiphallus, which has a circular lumen. Penis has a lumen like a slightly curved line and may be supplied with a rather long caecum. Penial retractor strongly developed. Free oviduct much shorter than vagina. Spermathecal shaft lacking diverticle, stout, expanded, reservoir indistinctly defined.

DISTRIBUTION. Peru. 2 spp. with a few subspp.

Gracilinenia Polinski, 1922

Fig. 824

Polinski, 1922: 125 (*Nenia* subg.). Loosjes & Loosjes-van Bemmelen, 1966: 19.

TYPE SPECIES — *Clausilia flicostulata* Lubomirski, 1879; SD Pilsbry, 1926.

Shell decollated, slender, elongated-fusiform to nearly aciculate, thin, translucent, of about 9 moderately convex whorls. Color uniformly light corneous. Sculpture of fine irregular radial riblets, between them there is finer radial striation; on body whorl riblets become lamellar. Aperture relatively small, rounded, with thin, broadly reflexed margins. Superior lamella continuous with spiral lamella. Inferior lamella lies very high. Subcolumellar lamella and lunella approached but not connected. Principal plica low, thin. Umbilicus absent. Height 11-18 (up to 31 when entire), diam. 2.6-3.1 mm (17.2 × 3.0 mm).

Vas deferens enters epiphallus with a distinct widening. Epiphallus very short, internally with several small pilasters, its lumen being a faintly curved line. Penis with a tapering caecum at boundary with epiphallus, internally with two longitudinal pilasters, forming M-shaped lumen in cross-section. Free oviduct slender, a half as long as cylindrical vagina. Spermathecal shaft comparatively short, wide, its basal portion markedly swollen. Diverticle wanting.

DISTRIBUTION. Peru. 4 spp. & subspp.

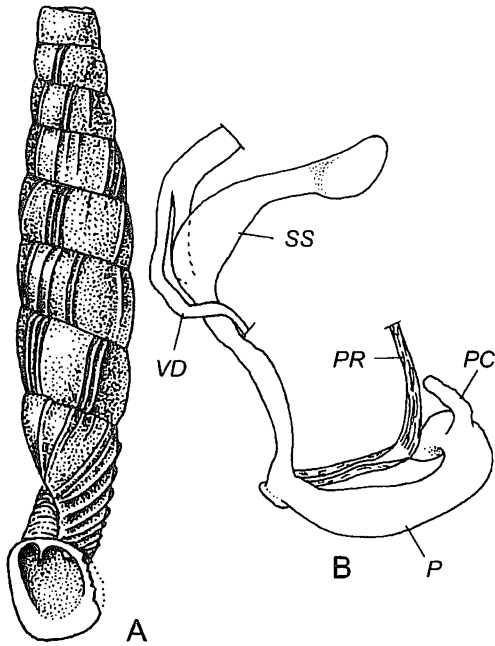


Fig. 824. *Gracilinenia filicostulata* (Lubomirski, 1879).
A — shell: Peru. SPb. B — reproductive tract.
After Loosjes & Loosjes-van Bemmelen, 1984.

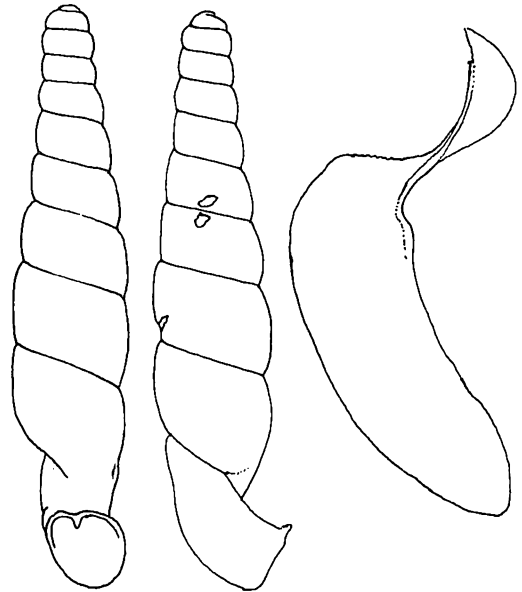


Fig. 825. *Symptychiella annae* Nordsieck, 1999.
After Nordsieck, 1999a.

Symptychiella Nordsieck, 1999
Fig. 825

Nordsieck, 1999a: 165.

TYPE SPECIES — *Symptychiella annae* Nordsieck, 1999; OD.

Shell fusiform, slender, rather thin, of about 10 rather convex, somewhat shouldered whorls. Last whorl descending and strongly protruding. Color yellowish-brown. Embryonic whorls smooth, later whorls from 2nd whorl rib-striated, on lower whorls striae broader and faded, on neck strong. Aperture roundish-ovate, with simple margins; parallel to peristome a weak palatal callus present. Only one lamella instead of superior and inferior lamellae, in front similar to superior lamella opposite to principal plica. This lamella onwards higher and more concave on palatal side, like an inferior lamella near subcolumellar lamella, not decreasing toward its end, but ending abruptly in a nearly lateral position.

Subcolumellar lamella immersed. Principal plica weakend, running from dorsal side to palatal callus. Lunella dorso-lateral, straight. Upper palatal plica diverging from suture, connected with lunella. Lower palatal plica missing. Plate of clausilium rather narrow, obliquely truncated, somewhat excised at handle, palatal margin slightly convex, distally with a pointed tip, columellar margin concave. Height 14.6, diam. 3.0 mm.

DISTRIBUTION. Peru (Cordillera Central). 1 sp.

REMARK. Nordsieck (1999a) thinks that this species does not belong to Neniinae because the shell of *S. annae* is not apostrophic. However, Asian Garnieriinae are semiapostrophic or apostrophic, and Westpalearctic Laminiferinae are apostrophic but I am not sure if these subfamilies are closely related. That is why I include *Symptychiella* in Neniinae, at least until the anatomy of *S. annae* is known.

LAMINIFERINAE Wenz, 1923

Wenz, 1923 (1923-1930): 794.

— Metabaleinae A. Wagner, 1913: 7 (part.).

— Fusulinae Lindholm, 1924: 67 (part.).

Juvenile shell without columellar lamella. Last whorl rounded or somewhat keeled. Aperture apostrophic, often with folded margins. Superior lamella continuous with spiral lamella. Subcolumellar lamella starting on columella. Lunella entire.

Vas deferens not modified, thin. Flagellum not present. Epiphallus shorter than penis. Penis of two parts, longer than vagina. Vagina of about same length as free oviduct. Retractor of spermathecal stalk mainly of connective tissue. Reservoir of spermatheca adhering to spermoviduct. Spermathecal stalk curved below reservoir. Diverticle of spermathecal stalk present.

DISTRIBUTION. Iberian Peninsula.

Neniatlanta Bourguignat, 1876

Fig. 826

Bourguignat, 1876 (1876-1877): 20 (*Nenia* subg.).

— *Pyrenaica* O. Boettger, 1877: 102 (t.-sp. *Clausilia pauli* Mabile, 1865; OD).

— *Tortula* Westerlund, 1878: X, 124 (*Laminifera* subg.; t.-sp. *Clausilia pauli* Mabile, 1865; monotypy).

— *Laminifera* Westerlund, 1884 (1884-1890): 8 (non O. Boettger, 1863; no species mentioned).

TYPE SPECIES — *Clausilia pauli* Mabile, 1865; SD Lindholm, 1924.

Shell entire, slender, fusiform, rather thin, shining, translucent, of about 12 moderately convex whorls. Last whorl basally rounded. Color reddish-brown. Postembryonic whorls finely, regularly, radially ribbed. Aperture roundly pear-shaped, with moderately to shortly reflexed, somewhat thickened margins; parieto-columellar side with 2-3 marginal folds. Inferior lamella not parallel to superior lamella. Subcolumellar lamella thin, curved. Principal plica long. Lunella absent, at its place there is a short palatal plica. Distal end of clausilium plate somewhat pointed. Height 13-15, diam. 2.0-2.5 mm (13.8 × 2.3 mm).

Flagellum minute but distinct, tapering. Epiphallus short, clearly separated from penis. Penis consists of swollen proximal and

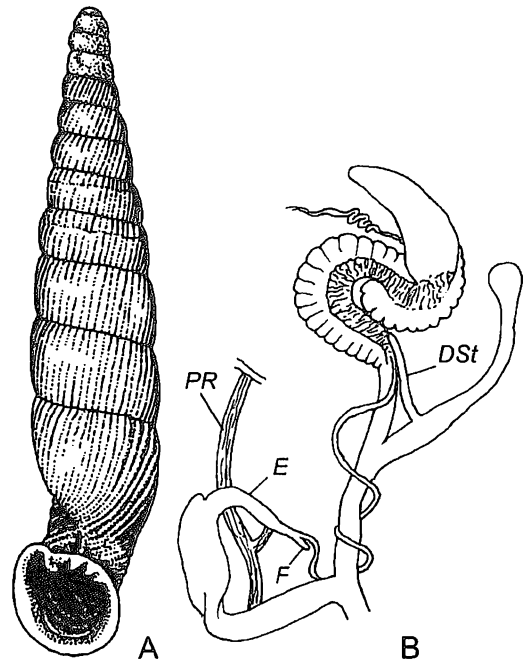


Fig. 826. *Neniatlanta pauli* (Mabile, 1865). A — shell: Near Puerto Otsondo-pass, prov. Navarra, Spain. LEIDEN. B — reproductive tract. After A. Wagner, 1913.

subcylindrical distal parts. Penial retractor biramous, one (shorter) arm attached to epiphallus near base of flagellum, the other (longer) — to cylindrical section of penis. Free oviduct shorter than vagina. Neck of spermathecal stalk short, diverticle somewhat longer, thin; duct of reservoir + reservoir itself much longer.

DISTRIBUTION. S France (Dept. Basses-Pyrénées) and adjacent parts of Spain. 1 sp.

Bofilliella Ehrmann, 1927

Fig. 827

Ehrmann, 1927: 56 (pro subg.).

TYPE SPECIES — *Nenia subarcuata* Bofill, 1897; OD.

Shell decollated, subcylindrical, with slightly curved axis, glass-like, subtransparent, of about 5-6 (after decollation) flattened whorls. Color yellowish-corneous or shell colorless. Surface finely regularly ribbed. Aperture rounded-pear-shaped, with a large sinulus and scarcely expanded, thickened margins. Inferior lamella approached superior lamella, parallel to spiral lamella. Subcolumellar lamella spirally coiled. Prin-

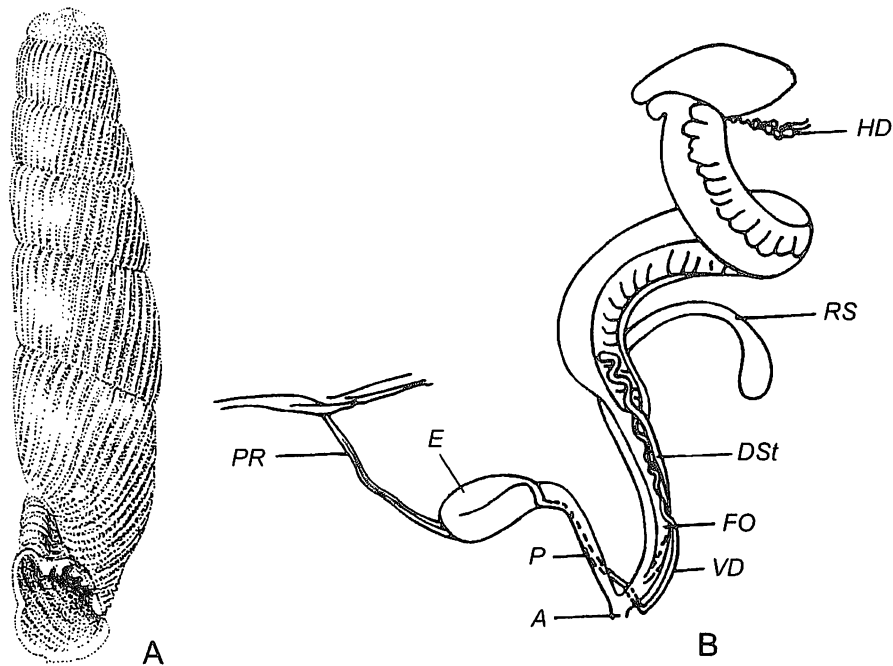


Fig. 827 *Bofilliella subarcuata* (Bofill, 1897).
 A — shell: Prov. Gerona, Spain. Vienna No. E 58.636. B — reproductive tract. After Loosjes & Altimira Aleu, 1970.

cipal plica short, attending palatal margin of aperture, its inner end directed downward. Lunella wanting. Palatal (basal) plica present. Plate of clausilium very wide, shortly ovate. Height 9-11, diam. 2.2-2.5 mm (10.7 × 2.4 mm).

Vas deferens long, narrow, entering short epiphallus apically. Penis of moderate length, lacking any appendages. Penial retractor arising on diaphragm, attached to penis/epiphallus junction. Free oviduct long, vagina very short. Neck of spermathecal stalk practically missing, diverticle narrow, somewhat vermiform; reservoir not reaches albumen gland.

DISTRIBUTION. Spain, Prov. Gerona and Barcelona. 1 sp.

SERRULININAE Forcart, 1935

Forcart, 1935: 428. Nordsieck, 1978: 82.

Juvenile shell with 1-2 columellar lamellae. Periostreal layer absent, therefore shell often glass-like. Last whorl without basal keel. Aperture non-apostrophic or

semiapostrophic, its margins mostly with marginal folds and knobs. Superior lamella anteriorly attends aperture margin, posteriorly continuous with spiral lamella. Inner end of subcolumellar lamella situated on columella. Lunella either entire or more or less broken into a series of small palatal plicae.

Vas deferens thin, not modified. Flagellum not present. Epiphallus either shorter or longer than penis. Penis of two parts, much longer than vagina. Vagina shorter than oviduct. Retractor of vagina consists predominately of muscular fibers. Reservoir of spermatheca turned away from sperm-oviduct. Spermathecal stalk curved below reservoir. Diverticle of spermathecal stalk thin, long, not differing from stalk proper neither in cross section nor histologically.

Distribution. SE Europe (near Black Sea), W Turkey, Caucasus, N Iran (Elburs Mts.).

Serrulina Mousson, 1873

Mousson, 1873: 214 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia sieversi* L. Pfeiffer, 1871; SD Lindholm, 1924.

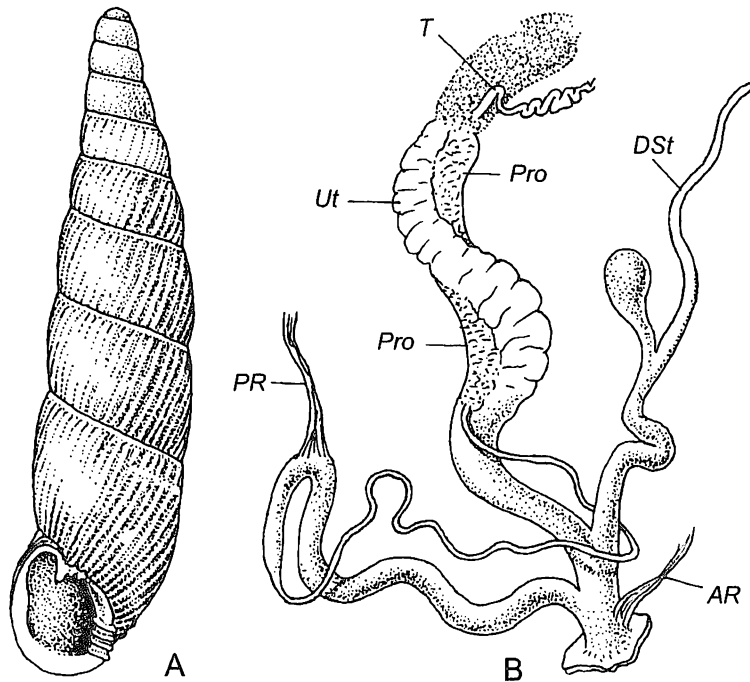


Fig. 828. A — *Serrulina (Serrulina) sieversi occidentalis* Likharev, 1962. Lagodekhi Natural Reserve, Caucasus. Moscow No. Lc-24628. B — *Serrulina (Serrulina) sieversi sieversi* (L. Pfeiffer, 1871). Reproductive tract. Forest in 20 km W of Lenkoran, Talysh Mts., June 22, 1964. Moscow No. Lc-24641.

Shell not decollated, of 8.75-10 whorls. Postembryonic sculpture of distinct, rounded radial ribs. Aperture protruded, more or less pear-shaped, with a high sinus. Peristome throughout or only at columellar side with small folds or knobs. Inferior lamella comparatively short, not visible in frontal view, strong, subvertical, remote far from superior lamella. It starts on right side of body whorl, then directed downward and ends at lower end of columella; one of marginal folds connects it with margin of aperture. Spiral lamella begins at border with penultimate whorl. Subcolumellar lamella starts above inferior, sharply truncated on right side at long distance from aperture margin. There is a small parallel lamella. Palatal plicae not present. Lobe of clausilium comparatively short, without a keel.

DISTRIBUTION. As in subfamily.

Serrulina (Serrulina) s. str.

Fig. 828

Shell slender, pillar-shaped or subfusi-

form, shining, of 8-9 a little convex whorls. Colorless. Aperture ovate to pear-shaped, with thickened margins. Inferior lamella rather short, stout, vertical, weakly curved, quite remote from superior lamella. Subcolumellar lamella starts above inferior lamella, abruptly interrupted on right side of shell at considerable distance from edge of aperture. There is a small parallel lamella. Large lunella situated on right side, both its ends turned backward. Palatal plicae wanting. Lobe of clausilium comparatively short, lacking keel. Height 9.7-12.6, diam. 2.4-3.0 mm (12.0 × 2.8 mm).

Talon exposed, a curvature of hermaphroditic duct. Vas deferens free throughout its length. Epiphallus short, its boundary with long, cylindrical penis marked by insertion of penial retractor. Penis internally with longitudinal, spirally ascending folds. Free oviduct much longer than very short vagina. Neck of spermathecal stalk and diverticle long, duct of reservoir very short.

DISTRIBUTION. Carpathians, Caucasus, N Turkey. 4 spp. & subspp.

Serrulina (Serrulinella)

Nordsieck, 1984)

Fig. 829

Nordsieck, 1984: 213.

TYPE SPECIES — *Serrulina senghanensis* Germain, 1933; OD.

Shell fusiform-turritid to subcylindrical, somewhat curved, translucent, shining, of 9 rather convex whorls. Color light-yellow. Aperture pear-shaped, with small rounded sinulus. Aperture margins thickened, weakly reflexed, with numerous folds and knobs occupying right side of aperture from superior lamella over columellar margin. Superior lamella evenly continuous with spiral lamella. Inferior lamellae large, subcolumellar not visible. Principal plica comparatively short, dorsal. Upper palatal plica below principal. Lunella missing. Clausilium with a small plate. Height 8.0-9.5, diam. 1.7-1.9 mm (9.3 × 1.9 mm).

DISTRIBUTION. N Iran (Ghilan Prov.). 1 sp.

Pravispira Lindholm, 1924

Fig. 830

Lindholm, 1924: 63, 73 (*Serrulina* sect.). Likharev, 1962: 121.

TYPE SPECIES — *Clausilia semilamellata* Mousson, 1863; OD.

Shell not decollated, irregularly fusiform, with somewhat distorted axis, thin, semitransparent, brilliant, of 9-10 convex whorls. Color light-corneous or greenish. Surface vaguely and finely radially striated. Aperture pear-shaped, subvertical, with thin, slightly thickened margins. Columellar margin between superior and subcolumellar lamellae furnished with 5-7 lamellar knobs. Small superior lamella oblique, gradually continuous with spiral lamella. Inferior lamella lies deeply, at lower end it passes in 2-3 marginal knobs. Subcolumellar lamella extends down to aperture margin. Lunella disintegrated into 3 short plicae lying on right side. Principal and lower palatal plicae well developed, between their lower ends a big tubercle stands. Lobe of clausilium has a longitudinal keel along inner side and (sometimes) a light incision. Height 11.0-13.5, diam. 2.6-2.8 mm (13.3 × 2.7 mm).



Fig. 829. *Serrulina (Serrulinella) senghanensis* Germain, 1933.

Siah-Senghan, N Iran. Holotype. Paris.

Talon exposed, a simple curvature of hermaphroditic duct. Vas deferens bound to base of penis by connective tissue bands. Epiphallus and penis of about equal length, boundary between them marked by a sharp curvature. Penial retractor attached to epiphallus near vas deferens entrance. Penis internally with corrugated longitudinal folds. Atrial retractor thin. Free oviduct somewhat longer than vagina. Neck of spermathecal stalk and diverticle long, duct of reservoir markedly shorter.

DISTRIBUTION. NW part of Great Caucasus, Transcaucasus and Black Sea maritime regions of Asia Minor. 2 spp.

Nothoserrulina Németh et Szekeres, 1995

Fig. 831

Németh & Szekeres, 1995: 93.

TYPE SPECIES — *Nothoserrulina subterranea* Németh et Szekeres, 1995; OD.

Shell not decollated, pillar-shaped,

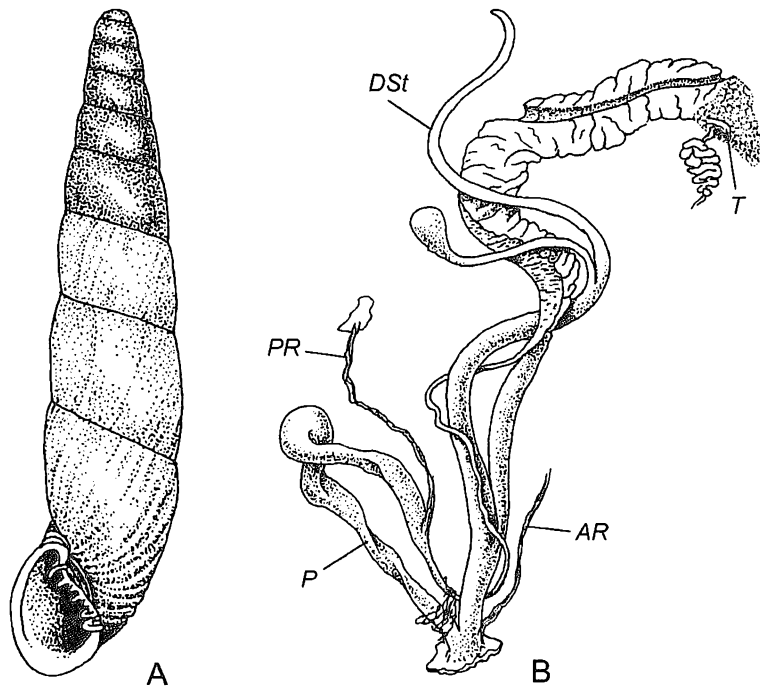


Fig. 830. *Pravispira semilamellata* (Mousson, 1863).
Left bank of Ubin River near Ubinskaya, NW Caucasus, Sep-
tember 17, 1970. A — shell. B — reproductive tract. Moscow
No. Lc-24634.

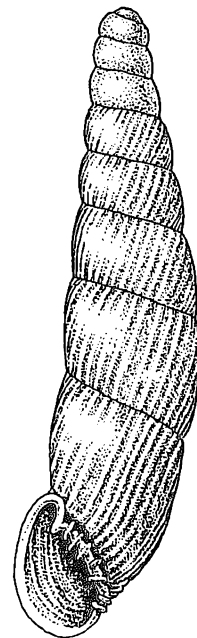


Fig. 831. *Nothoserrulina subterranea* Németh et Szekeres, 1995.
Ünye, 75 km E of Sam-
sun, Turkey. Paratype.
Senck. No. 310679.

slightly but distinctly curved, translucent, of 8-9.5 flattened whorls. Color pale-grayish, sometimes with a faint brown tint. Embryonic whorls smooth, later whorls regularly ribbed; ribs become much sharper and more widely spaced behind aperture. Aperture irregularly ovate, moderately oblique, with shortly reflexed margins. Parietal and columellar margins of aperture with several marginal knobs. Superior lamella weakly developed, continuous with spiral. Spiral lamella entering deeper inside than inferior lamella. Lamella inserta absent. Inferior lamella lies far from superior; it divided on dorsal side and reaches aperture margin in 2 equally developed branches. Subcolumellar lamella reaches peristome close to end of inferior lamella. Principal plica starts on right-ventral side and approaches aperture; below its inner end there are a few palatal plicae which gradually decreasing in size toward base. Clausilium simple, with parallel sides and a blunt end. Height 8.2-11.0, diam. 1.8-2.6 mm (10.4 × 2.4 mm).

DISTRIBUTION. N Turkey. 1 sp.

Dobatia Nordsieck, 1973

Fig. 832

Nordsieck, 1973a: 80.

— ? *Miralinda* Lindholm, 1924: 65 [*Laciniaria* (*Pseudalinda*); sect.; nom. nov. pro *Mira* O. Boettger, 1877].

— ? *Mira* O. Boettger, 1877: 77 (nom. praeocc., non Schellenberg, 1803; *Clausilia*, sect. *Pseudalinda*, "Gruppe"; t.-sp. *Clausilia mirabilis* A. Schmidt, 1868; monotypy).

Nordsieck, 1993b: 33.

TYPE SPECIES — *Serrulina goettingi* Brandt, 1961; OD.

Shell entire, slender, fusiform-cylindrical, rather thin, shining, translucent, of 9-11 moderately convex whorls. Color greenish-corneous to gray. Postembryonic sculpture of fine, rounded riblets. Aperture irregularly subtriangular, ovate or pear-shaped, rather oblique, with shortly reflexed, somewhat thickened margins. Sinulus very deep. Parieto-columellar margin with several small lamellar knobs. Superior lamella strong, long, continuous with spiral lamella. Inferior lamella rather strong but low,

not visible in frontal view. Principal plica starts on lateral side. Lunella dorso-lateral in position. Height 8.7-13.3, diam. 2.0-2.6 mm (13.3 × 2.4 mm).

Male loop short. Epiphallus not long, its distal and proximal parts of about equal length. Penis short, with strongly swollen upper (proximal) part.

DISTRIBUTION. Central Turkey, ? SE Bulgaria (Ropotamo Natural Reserve). 2 or 3 spp., one of them with 2 subspp.

REMARK. As Németh & Szekeres (1995) stated, the occurrence of *D. gottingi* in Bulgaria requires further confirmation, because this finding was based on a single specimen collected from flotsam at mouth of Ropotamo River; it perhaps came incidentally from Turkey over Black Sea (it is known that a number of Turkish species have been found in shore flotsam of Crimea).

Graecophaedusa Rähle, 1982

Fig. 833

Rähle, 1982: 45.

TYPE SPECIES — *Graecophaedusa sperrlei* Rähle, 1982; OD.

Shell entire, slender, subcylindrical, of 9 whorls; upper convex, lower strongly flattened. Last whorl without basal keel. Embryonic whorls (3) smooth, of equal width, forming rounded apex. Remaining surface with narrow, strong, crowded radial ribs. Aperture pear-shaped, its lower half bent backward, margins a little thickened, reflexed. Parietal and columellar sides bear numerous marginal knobs. Sinulus narrow, deep. Superior lamella evenly continuous with spiral lamella. Inferior lamella high in position, thickened, reaching aperture margin. Subcolumellar lamella not interrupted. Lunellar region occupies ventrolateral position, consists of upper and lower palatal plicae. Height 11.2, diam. 2.3 mm.

DISTRIBUTION. N Greece (Pangäon Mts.). 1 sp.

Pontophaedusa Lindholm, 1924

Fig. 834

Lindholm, 1924: 62, 72 (*Phaedusa* sect.). Likharev, 1962: 123. Nordsieck, 1978: 95.

TYPE SPECIES — *Clausilia funiculum* Mousson, 1863; OD.

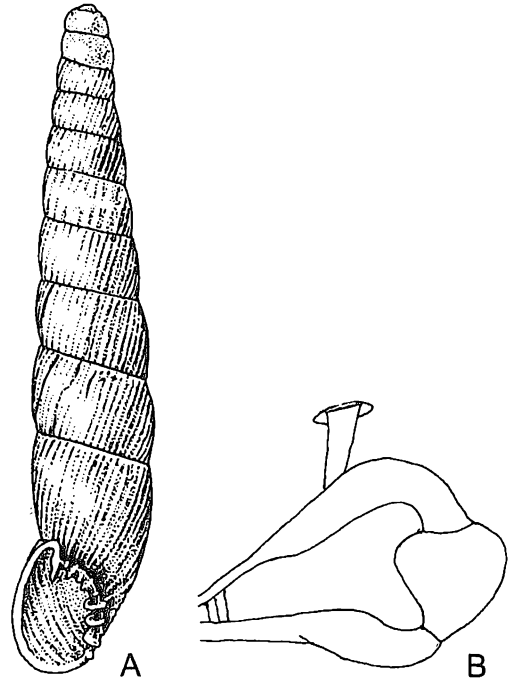


Fig. 832. *Dobatia gottingi* (Brandt, 1961). A — shell: Abant Sea, vilayet Bolu, Turkey. Private coll. of R.V Egorov. B — distal portion of male division. After Nordsieck, 1973a.

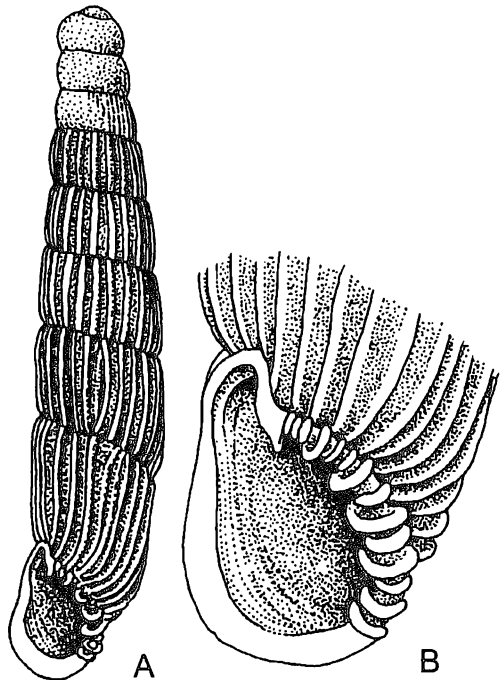


Fig. 833. *Graecophaedusa sperrlei* Rähle, 1982. A — shell. B — aperture enlarged. After Rähle, 1982.

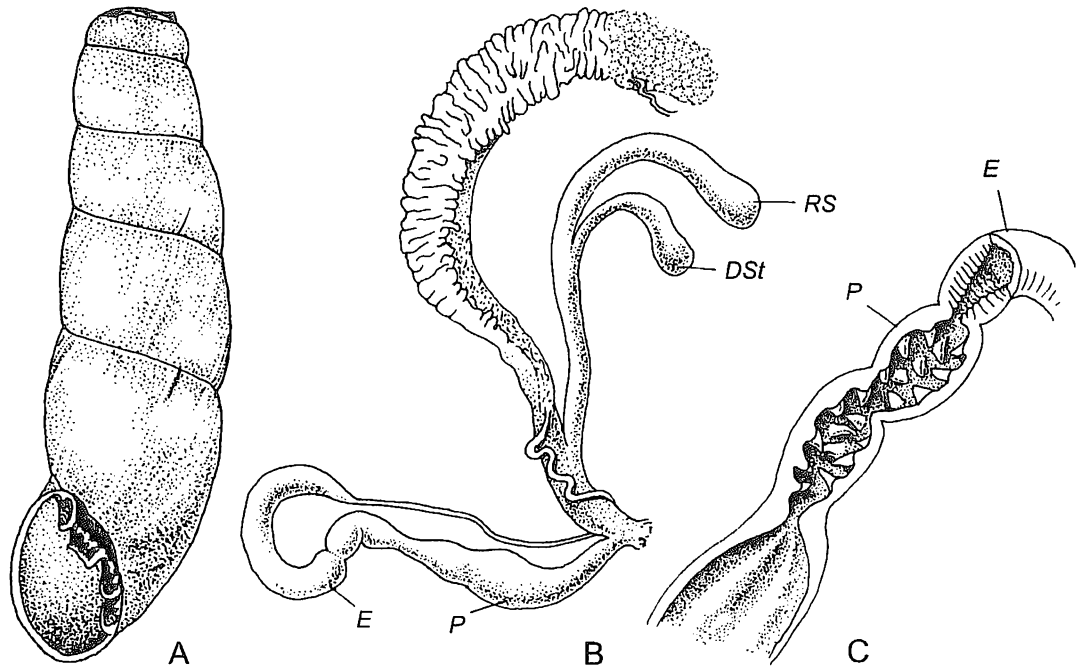


Fig. 834. *Pontophaedusa funiculum* (Mousson, 1863).
 A — shell: Batumi [Adzharia]. Moscow No. Lc-24726. B — reproductive tract. C — interior of penis. Botanical Garden, Batumi [Adzharia], May 30 June 7, 1981. Moscow No. Lc-20074.

Shell decollated, turrated-fusiform or subcylindrical, thin, moderately translucent, shining, of 12-13 (5.5-6.5 after decollation) slightly convex whorls. Color yellowish-corneous. Postapical surface irregularly rib-striated. Aperture slightly oblique, pear-shaped, with shortly reflexed margins. Columellar margin with few short knobs. Inferior lamella starts on ventral side (a little deeper than spiral), its end splitted in two short marginal plicae. Upper (lying on parietal wall) portion of subcolumellar lamella much reduced; lower (lying on columella) well developed and extends down to aperture margin. Lunella situated on right-dorsal side. Lobe of clausilium without keel. Height 14.6-16.8, diam. 4-5 mm (15.0 × 4.0 mm).

Talon hidden. Vas deferens forms a few bends on female duct. Epiphallus separated from penis by a deep circular narrowing, internally with numerous circular grooves. Penis of irregular shape, consists of somewhat swollen basal and narrowed upper parts; basal part internally with several wide, smoothed longitudinal folds, proximal part bears on inner surface conspicu-

ous large, soft conic papillae. Free oviduct very short, vagina 2-3 times longer. Neck of spermathecal stalk long, approximately equal to length of duct of reservoir + reservoir itself; diverticle somewhat shorter.

DISTRIBUTION. W Transcaucasia. 1 sp.

Truncatophaedusa Majoros,
 Németh et Szili-Kovacs, 1994
 Fig. 835

Majoros et al., 1994: 123.

TYPE SPECIES — *Truncatophaedusa evae* Majoros, Németh et Szili-Kovacs, 1994; OD.

Shell decollated, cylindrical, shining, translucent, of 5.5-6 flattened whorls. Color yellowish-corneous when fresh. Post-embryonic sculpture of very fine blunt ribs which become sharper behind aperture. Aperture ovate, continuous, with somewhat inflated margins. Superior lamella well developed, its inner end joins spiral lamella with smooth transition. Inferior lamella ends divided at medium height in aperture. Subcolumellar lamella discon-

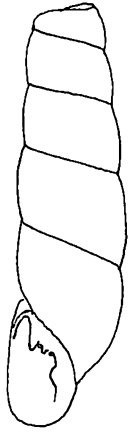


Fig. 835. *Truncatophaedusa evae* Majoros, Németh et Szili-Kovacs, 1994. After Majoros et al., 1994.

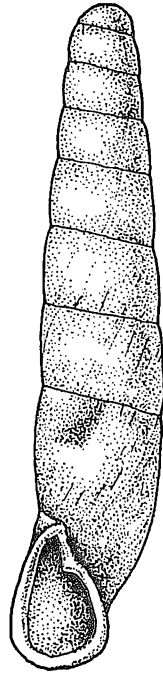


Fig. 836. *Microphaedusa morgani* Nordsieck, 1978. Chah-Nichin, Ghilan Prov. Iran. Holotype. Paris.

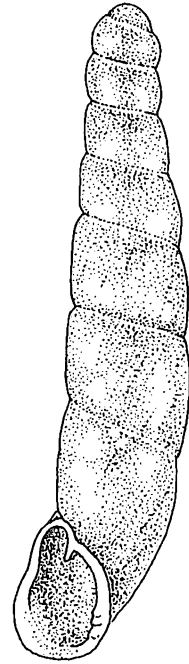


Fig. 837 *Sciocochlea collasi* (Sturany, 1904). "Höhle des Mt. San Salvatore auf Korfu" [Greece]. Holotype. Vienna No. 39544.

tinuous. Lunellar region lies laterally. Height 7.9-9.1, diam. 1.9-2.3 mm.

DISTRIBUTION. W Caucasus (Sochi). 1 sp.

Microphaedusa Nordsieck, 1978
Fig. 836

Nordsieck, 1978b: 96.

TYPE SPECIES — *Microphaedusa morgani* Nordsieck, 1978; OD.

Shell slender, pillar-shaped, moderately thin, of about 8 flattened whorls. Apex widely rounded. Color corneous to greyish-white. Embryonic whorls smooth, subsequent whorls with fine, irregular radial riblets. Aperture pear-shaped, with shortly reflexed, markedly thickened margins lacking marginal knobs. Superior lamella continuous with spiral lamella. Inferior lamella lies high. Subcolumellar lamella visible in oblique view. Principal plica starting on dorsolateral side. Lunella dorsal, vestigial. Distal end of clausilium plate simple. Height 9.2-9.6, diam. 2.1-2.4 mm (9.6 × 2.1 mm).

DISTRIBUTION. Iran, Ghilan Prov. 1 sp.

Sciocochlea C. Boettger, 1935
Fig. 837

Boettger C., 1935: 53, footnote (nom. nov. pro *Phygas* A. Wagner, 1914).

— *Phygas* A. Wagner, 1914: 34, 38 [nom. praeocc., non Treitschke, 1833; t.-sp. *Serrulina collasi* Sturany, 1904; monotypy].

Subai & Szekeres, 1999: 9.

TYPE SPECIES — *Serrulina collasi* Sturany, 1904; monotypy.

Shell somewhat curved, thin but relatively firm, glass-like, transparent, colorless, of 7-8 flattened whorls separated by rather deep suture. Sculpture of very delicate, irregular radial wrinkles or riblets. Aperture pear-shaped, with shortly reflexed, somewhat thickened margins. Columellar margin bears 2-7 small knobs. Superior lamella evenly continuous with spiral lamella. Inferior and subcolumellar lamellae deeply lying. Principal plica starts on right or right-dorsal side; vestigial palatal plica

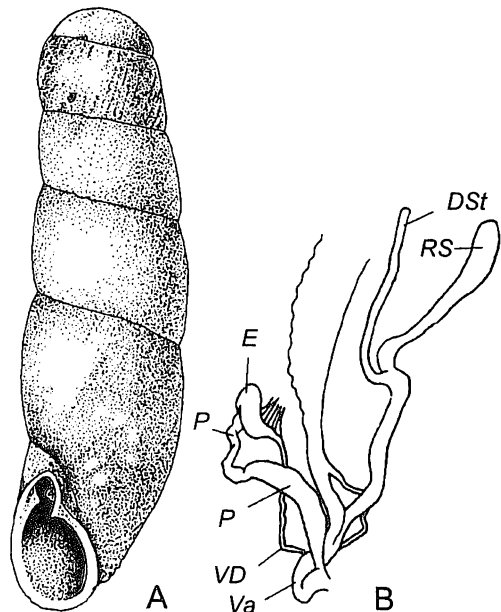


Fig. 838. *Pontophaedusella ofensis* Nordsieck, 1994.

A — shell: 2 km SW of Of, Vilayet Trabzon, Turkey. Paratype. Chicago No. 280279. B — reproductive tract. After Szekeres, 1998a.

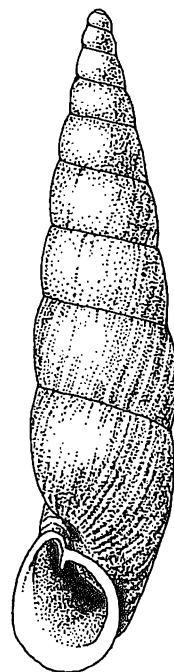


Fig. 839. *Laeviphaedusa hyrcanica* (Morgan, 1933).

Haouzi, Ghilan Prov., N Iran. Moscow No. Lc-24742 (Paris).

also present. Lunella rudimentary or wanting. Height 8.4-11.0, diam. 2.0-2.7 mm (10.0 × 2.1 mm).

DISTRIBUTION. NW Greece, Corfu (Kerkyra) Island. 3 spp.

Pontophaedusella Nordsieck, 1994

Fig. 838

Nordsieck, 1994: 5.

TYPE SPECIES — *Pontophaedusella ofensis* Nordsieck, 1994; OD.

Shell decollated, pillar-shaped, moderately thin, a little shining, of 5-5.25 (when decollated) slightly convex whorls. Last whorl with a very weak basal keel. Color yellowish. Sculpture of delicate radial riblets which are more crowded on upper whorls. Aperture pear-shaped, well oblique, with a large sinulus; its margins shortly reflexed, scarcely thickened, without knobs. Superior lamella high, continuous with lower spiral. Inferior lamella steeply ascending, with thickened ridge. Subcolumellar lamella not reaching margin of aperture, visible in oblique view. Principal plica

weak, short, starting on dorsal side, not attending aperture margin; opposite to its external end there is a palatal thickening of margin which shortly extended inward. Lunella dorsal. Upper palatal plica connected with lunella, lower palatal separated from it. Lower end of clausilium acuminate. Height of holotype 9.5, diam. 2.6 mm (9.4 × 2.5 mm).

Epiphallus short, somewhat swollen; penis much longer, consisting of slender proximal and wider distal parts. Penial retractor broad, attached to epiphallus at entrance of vas deferens. Free oviduct and vagina of about equal length. Neck of spermathecal stalk long, length of diverticle approximately same as length of duct of reservoir + reservoir itself.

DISTRIBUTION. NW Turkey (vilayet Trabzon). 1 sp.

Laeviphaedusa

Likharev et Steklov, 1965

Fig. 839

Likharev & Steklov, 1965: 129.

—*Protophaedusa* Szekeres, 1970: 267 [t.-sp. *Phaedusa* (*Caspiophaedusa*) *hyrcanica* Morgan, 1933; OD].

TYPE SPECIES — *Phaedusa* (*Caspiophaedusa*) *hyrcanica* Morgan in Germain, 1933; OD.

Shell fusiform, slender, moderately solid, of 10-11 rather convex whorls. Last whorl with smoothed basal keel. Color uniformly brown. Surface radially ribbed. Aperture rounded pear-shaped, prominent, with smooth margins. Superior lamella gradually passes into spiral. Inferior lamella lies near to superior, its lower part located in aperture lumen nearly horizontally. Subcolumellar lamella lies deeply, its lower end visible only in oblique view. Lunella situated on dorsal side, its upper end slightly curved backward, lower end enlarged. Principal plica starts above lunella or hardly deeper. There is a small lower palatal plica. Umbilicus, a narrow rim. Height 15-18, diam. 3.0-3.4 mm (15.1 × 3.3 mm).

DISTRIBUTION. Forest provinces of N Iran. 1 sp.

ALOPIINAE A. Wagner, 1913

Wagner A., 1913: 5. Likharev, 1962: 130. Nordsieck, 1978a: 84.

Juvenile shell without columellar lamella. Periostracal layer present or absent; sometimes this layer may be present along suture as narrow line or spots, or as radial streaks or ribs. Basal keel weak to strong. Aperture non-apostrophic, not protruded, with smooth margins. Superior and spiral lamellae situated at different distance from columella and not connected with each other. Subcolumellar lamella deeply enters in form of more or less horizontal spiral. Lunella present or absent; in last case palatal plicae usually well developed. Clausilium, if present, may be grooved, with incision(s) at anterior end.

Vas deferens thin, not modified. Epiphallus + flagellum usually longer than penis. Penis mostly shorter than vagina, sometimes with a large appendix. Vagina either shorter or longer than free oviduct. Retractor of spermathecal diverticle composed by connective tissue or muscular. Reservoir of spermatheca adherent to spermoviduct. Spermathecal stalk without cur-

vature below reservoir. Diverticle inserts to spermathecal stalk far from its lower end.

DISTRIBUTION. Middle and eastern regions of Mediterranean.

Alopiini A. Wagner, 1913

Wagner A., 1913: 5. Nordsieck, 1979: 254.

Penis internally without verge. Penial caecum more or less developed. Penial retractor simple or forked. Vaginal retractor connective-tissued.

DISTRIBUTION. SE Europe including S Carpathians, Transylvania, Yugoslavia, Italy, Greece, Malta; W Asia: Turkey, Syria, Palestine, Lebanon.

Triloba Vest, 1867

Fig. 840

Vest, 1867: 165.

— *Eutriloba* Westerlund, 1884 (1884-1890): 16 (t.-sp. *Clausilia sandrii* Küster, 1847; SD Lindholm, 1924).

— *Trilobella* Woodward in Lindholm, 1924: 59 [nom. nov. pro *Triloba* Vest, 1867 (footnote: "In my estimation *Triloba* and *Trilobus* are homonyms and I suggest *Trilobella* as a substitute.")].

TYPE SPECIES — *Clausilia sandrii* Küster, 1847; OD.

Shell obesely fusiform, rather solid, slightly translucent, of about 10 moderately convex whorls. Last whorl with rounded circumumbilical crest. Color corneous to reddish-brown. Embryonic sculpture indistinctly granulated or smooth. Postapical whorls with fine, smoothed riblets becoming weaker on 1-2 last whorls. Aperture ovate-subquadrangular, vertical, with shortly reflexed, thin margins. Superior lamella high, thin, its posterior end lies a little deeper than anterior end of spiral lamella. Inferior lamella subhorizontal in frontal view, with thickened edge. Subcolumellar lamella short, low. Principal plica starts on dorsal side. Lunella absent. Palatal plicae 2 or 3. Clausilium with 1 or 2 deep incisions on distal end. Height 18-26, diam. 5.3-6.5 mm (23.4 × 6.3 mm).

Talon hidden. Vas deferens very long, bound to vagina and entering epiphallus

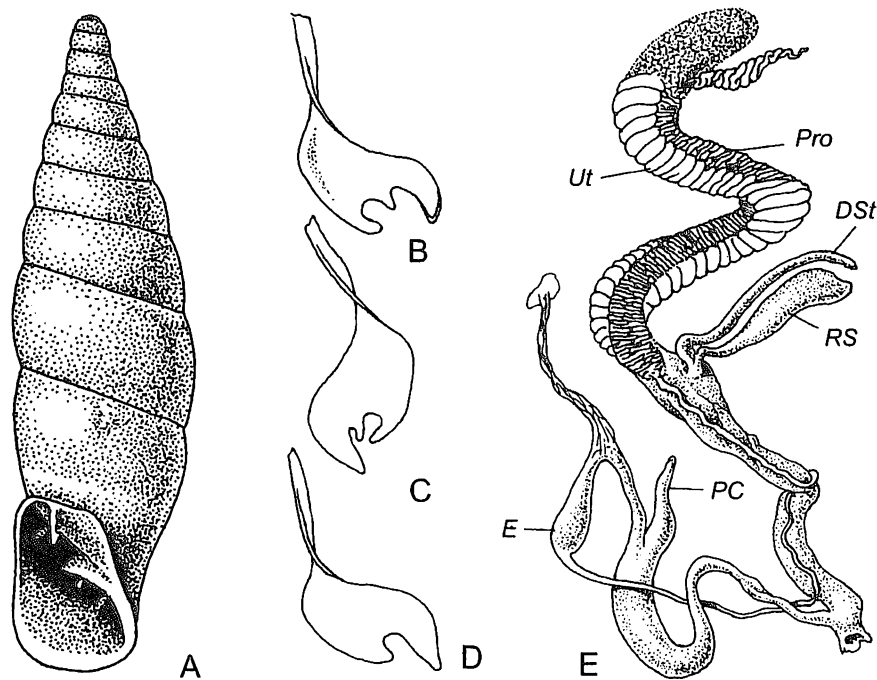


Fig. 840. A, B, C — *Triloba sandrii* (Küster, 1847). "Lacroma in mare" [Albania]. A — shell. B, C — clausilium in two positions. Moscow No. Lc-2011. D, E — ! *Triloba thaumasia* (Sturany, 1907). NW of Mavrovi Hanovi, Macedonia, Yugoslavia. August 10, 1985. D — clausilium. E — reproductive tract. Moscow No. Lc-24639 (Cardiff No. 1993.052.007).

apically. Epiphallus elongated, clavate, internally with tiny, crowded papillae. Penis long, with tapering caecum, internally with a few wide, somewhat corrugated, longitudinal folds; in caecum these folds become narrower. Penial retractor attached to middle of epiphallus. Spermatheca not long, consisting of exceptionally short neck, irregularly clavate, elongated reservoir and a little longer diverticle adhering to reservoir.

DISTRIBUTION. N Albania, Macedonia, ? Montenegro. 2-3 spp. with few subspp.

Herilla H. Adams et A. Adams, 1855
Fig. 841

Adams H. & Adams A., 1855: 181 (*Clausilia* subg.).

— *Bosnica* Westerlund, 1884 (1884-1890): 50 (t.-sp. *Clausilia bosniensis* L. Pfeiffer, 1868; SD Lindholm, 1924).

TYPE SPECIES — *Clausilia dacica* L. Pfeiffer, 1848; SD Martens in Albers, 1860.

Shell generally fusiform, usually thin,

shining, frequently translucent, of about 10 flattened whorls. Color corneous to red-brown and chestnut, often with dove taint; suture whitish. Postembryonic whorls with fine radial wrinklets or without regular sculpture. Aperture ovate, slightly oblique, with thin, reflexed margins. Superior lamella thin, high, its inner end located markedly deeper than external end of spiral lamella. Inferior lamella subhorizontal. Subcolumellar lamella thin, high, visible in slightly oblique view. Principal plica starting on dorsal side, not reaching aperture edge. Lunella more or less perfect, straight, with curved upper end which connected with or separated from inner end of upper palatal plica. Lower palatal plicae strong and conspicuous. Plate of clausilium with a shallow to very deep incision. Height 13-32, diam. 3.5-6.5 mm (27.5 × 6.2 mm).

Talon exposed, as a minute curvature of hermaphroditic duct. Vas deferens adherent to vagina, entering epiphallus apically. Penis short, with conic, more or less coiled caecum. Internally penis with low, irregular, longitudinal folds; lumen of penis

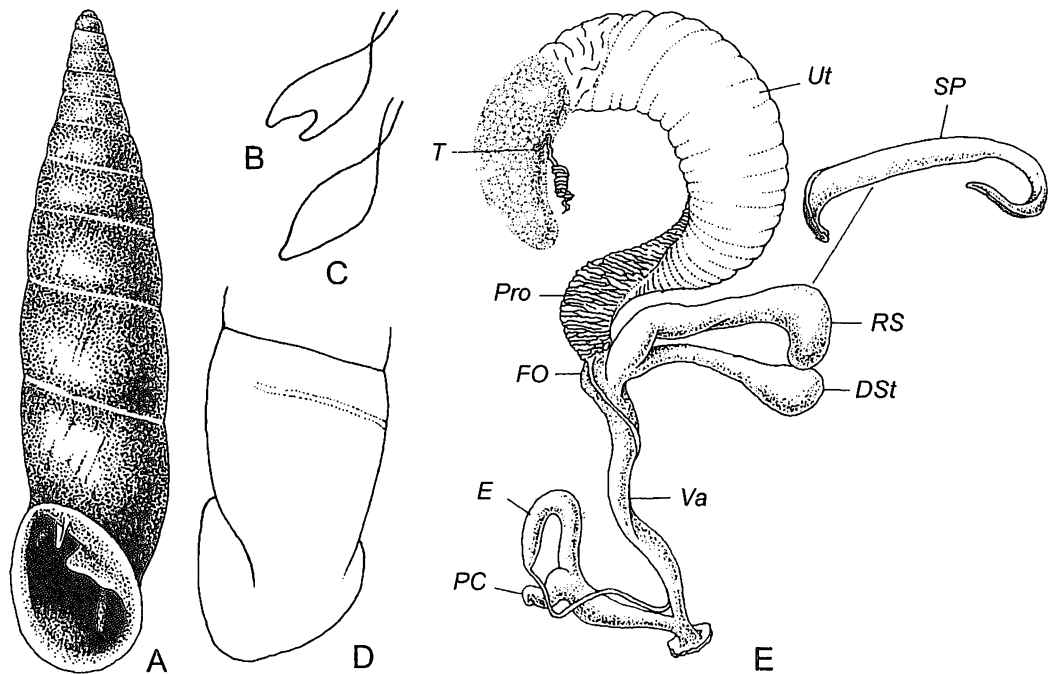


Fig. 841. A, B — ! *Herilla zieglerei perfecta* (A. Wagner, 1913). Ustripraca in Praca Valley between Foca and Visegrad, Bosnia i Hercegovina, Yugoslavia.
A — shell. B — clausilium. Private coll. of A.G. Kuznetsov. C, D, E — ! *Herilla bosniensis* (L. Pfeiffer, 1868). Mödling near Vienna, Austria, October 2, 1996. C — clausilium. D — position of plicae within last whorl. E — reproductive tract and spermatophore. Moscow No. Lc-23113.

separated from lumens of caecum and epiphallus by a sphincter. Free oviduct exceptionally short, vagina long. Spermathecal stalk forked at its base into 2 nearly equal, stout arms — diverticle and duct of reservoir; in one of them a spermatophore has been found. Posterior end of spermatophore curved into the other arm. Spermatophore, a light-yellow fusiform body with thin, low, lamellar, longitudinal keel.

DISTRIBUTION. Yugoslavia (Dinar Upland, E Serbia), S Carpathians. About 40 spp. & subspp.

Alopi H. Adams et A. Adams, 1855
Fig. 842

Adams H. & Adams A., 1855: 181 (*Clausilia* subg.).

— *Baleo-Clausilia* Bielz, 1863: 98 (t.-sp. "*B. perversa* L."; OD).

— *Eualopia* Westerlund, 1884 (1884-1890): 10 (nom. praeocc., non O. Boettger, 1877; t.-sp.

Clausilia bielzi L. Pfeiffer, 1840; designated here).

— *Transsilvanica* Westerlund, 1890 (1884-1890): 50 (t.-sp. *Clausilia bielzi* L. Pfeiffer, 1840; SD Lindholm, 1924).

— *Nixa* Szekeres, 1976: 395 [*Alopi* subg.; t.-sp. *Clausilia (Alopi) nixa* Kimakowicz, 1894; OD].

TYPE SPECIES — *Clausilia bielzi* L. Pfeiffer, 1840; SD Westerlund, 1902.

Shell entire, sinistral or dextral, fusiform, moderately solid but more or less translucent, of 9-11 slightly convex, sometimes a little shouldered whorls. Color yellowish to red-brown; over ground color often there is an opaque bluish layer. Regular sculpture absent or fine radial wrinklets may present. Aperture ovate to piriform, with more or less reflexed, a little thickened margins. Inner end of superior lamella lies on the same radius as external end of spiral lamella. Lower part of inferior lamella high, subhorizontal. Lower end of subcolumellar lamella scarcely visible in frontal view. Principal plicae starting on

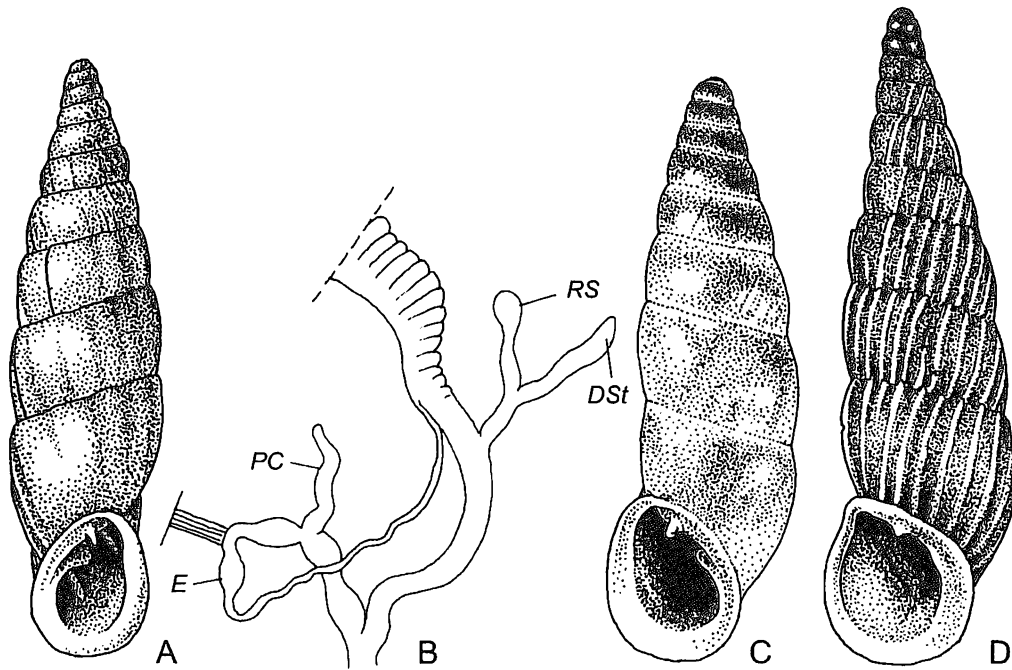


Fig. 842. A, B — *Alopia bielzi* (L. Pfeiffer, 1840).
 A — shell: Transylvania. Moscow No. Lc-1993. B — reproductive tract. After Wagner, 1913.
 C — ! *Alopia nixa* (Kimakowicz, 1894). Bucegi-Mecet, Siebenbürgen, 2400 m above sea level [Romania]. Vienna No. 79208. D — ! *Alopia canescens costata* (Bielz, 1859). "Rumänien, Bodzaer Gebirge, Transylvanien" Zürich, No. 541176 (as *mirabilis* Kimakowicz, 1894).

dorsal side; below it 2-3 palatal folds situated. Clausilium with more or less deep subapical incision. Height 11-25, diam. 3.5-6.0 mm (15.0 × 4.0 mm).

In highland species and forms closing apparatus rudimentary or absent, in snails living at lower altitudes and foothills it normally developed.

Epiphallus and penis sometimes with local swellings. Penis with well developed caecum. Penial retractor attached to middle section of epiphallus. Free oviduct shorter than vagina by 3-4 times. Neck of spermathecal stalk rather short, length of diverticle approximately equal to duct of reservoir + reservoir itself.

DISTRIBUTION. Carpathians and Transylvania; a few species penetrate farther northward or eastward. 16 spp.

Kimakowiczia Szekeres, 1969

Fig. 843

Szekeres, 1969: 27 (*Alopia* subg.).

TYPE SPECIES — *Balea glauca* Bielz, 1853; OD.

Shell entire, sinistral, fusiform to nearly turritid, shining, of about 9 slightly convex whorls. Color dark-brown to chestnut; suture, aperture margins and area behind aperture white or yellowish. Postembryonic sculpture weak, of irregular radial wrinklets. Aperture ovate, a little oblique, with scarcely reflexed, slightly thickened margins. Closing apparatus reduced. Superior lamella short, tuberculiform. Spiral lamella rudimentary or missing. Inferior lamella short, markedly reduced. Subcolumnar lamella absent. Lunellar apparatus and clausilium not present. Height 13-17, diam. 3.5-4.7 mm (16.1 × 4.6 mm).

Anatomically differs from *Alopia* mainly by considerable length of male loop and absence of penial caecum.

DISTRIBUTION. Carpathians and Transylvania. 3 spp.

Agathylla H. Adams et A. Adams, 1855

Adams H. & Adams A., 1855: 184 (*Clausilia* subg.).

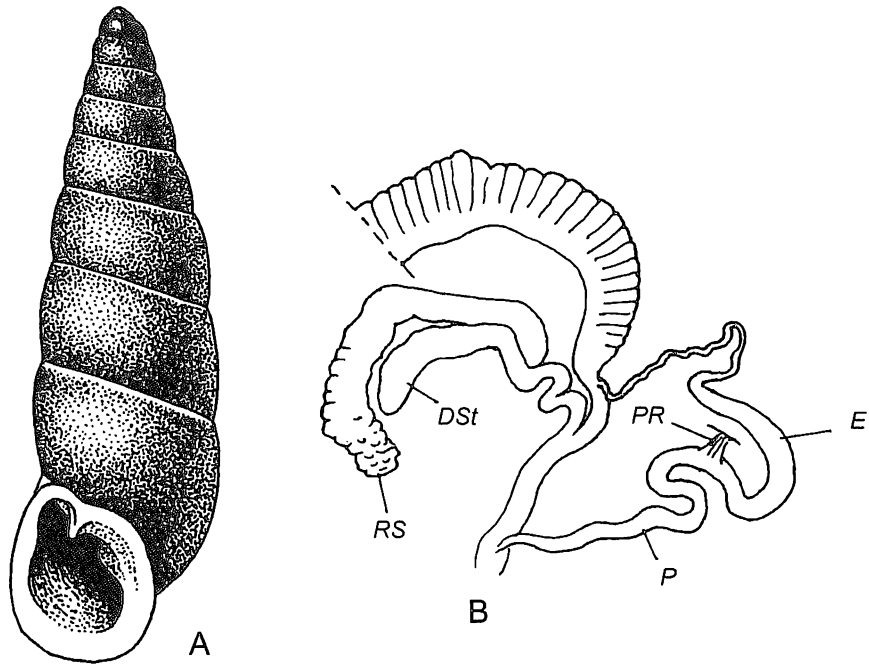


Fig. 843. *Kimakowiczia glauca* (Bielz, 1853).

A — shell: Transylvania. Moscow No. Lc-1915. B — reproductive tract. After A. Wagner, 1913.

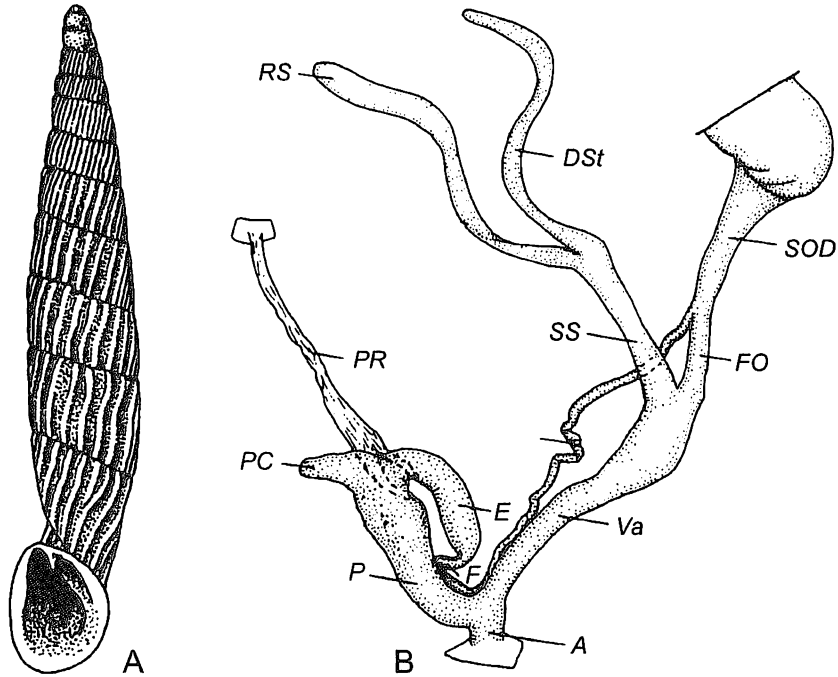


Fig. 844. *Agathylla (Agathylla) exarata* (Rossmäessler, 1835).

A — shell: "Dalmatia" [Yugoslavia]. Moscow No. Lc-1981 & Lc-1992. B — ! *Agathylla (Agathylla) meridiana scraparana* Nordsieck, 1996. Reproductive tract. After Gittenberger, 1998.

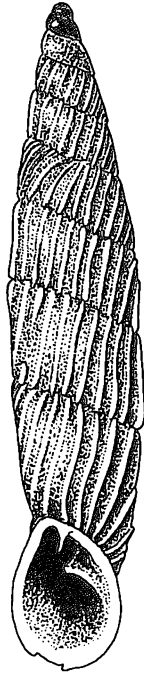


Fig. 845. *Agathylla (Agathyllina) lamellosa* (M. Wagner, 1829).
"Strasse südl. Ragusa bei Kote 142" [Yugoslavia]. Vienna No. E 44.200.

TYPE SPECIES — *Clausilia exarata* Rossmäessler, 1835; SD Martens in Albers, 1860.

Shell very slender, fusiform to cylindrical-fusiform, rather thin, of 10-12 nearly flat whorls. Last whorl with strong, rounded 1 or 2 basal keels. Color corneous to brown, ribs white. Embryonic whorls smooth or vaguely granulated, subsequent whorls with variously developed, well spaced hollow ribs; sometimes ribs reduced. Aperture pear-shaped, subvertical, with widely reflexed, expanded margins. Superior lamella thin, lamellose, its inner end situated deeper than external end of spiral lamella. Inferior lamella strong. Subcolumellar lamella visible in oblique view. Principal and upper palatal plicae long. Lunella mostly callouse, lateral to dorsal. Lower palatal (basal) plica developed or wanting. Lobe of clausilium flatly gutter-shaped, pointed distally, rarely rounded or with incision.

Vas deferens enters epiphallus subterminally. Flagellum tightly adhering to vas deferens. Epiphallus swollen, subfusiform. Penis short, bulky, with a variously developed conic caecum. Penial retractor simple

or biramous, one arm attached to epiphallus, the other — to penis. Free oviduct as long as vagina or shorter. Neck of spermathecal stalk long, reservoir and diverticle of about same length.

DISTRIBUTION. Albania, Yugoslavia (coastal Dinar Upland).

Agathylla (Agathylla) s. str.
Fig. 844

Lunellar apparatus located mostly laterally. Lower palatal (basal) plica present. Height 9.5-23, diam. 2.5-5.0 mm (17.6 × 3.0 mm).

Penial caecum more or less long, not less than 1/2 of penis length. Penial retractor mostly biramous. Reservoir of spermatheca (nearly) reaching albumen gland.

DISTRIBUTION. Albania, Dalmatia, Bosnia and Herzegovina. 7 spp.

Agathylla (Agathyllina)
Nordsieck, 1969
Fig. 845

Nordsieck, 1969b: 256.

TYPE SPECIES — *Clausilia lamellosa* M. Wagner, 1829; OD.

Lunellar apparatus located dorsally to dorsolaterally. Basal plica wanting. Height 11-14, diam. 2.4-2.7 mm (13.5 × 2.6 mm).

Penial caecum short, less than 1/2 of penis length. Penial retractor uniramous. Reservoir of spermatheca reaching middle of spermoviduct.

DISTRIBUTION. Yugoslavia (coastal Dinar Upland). 6 spp. & subspp.

Cristataria Vest, 1867
Fig. 846

Vest, 1867: 170.

— *Strangulata* Westerlund, 1884 (1884-1890): 152 [t.-sp. *Clausilia (Cochlodina) strangulata* L. Pfeiffer, 1841; tautonymy].

— *Cristaria* Westerlund, 1884 (1884-1890): 153 (nom. praeocc., non Schumacher, 1817; t.-sp. *Clausilia boissieri* Charpentier, 1852; SD Lindholm, 1924).

— *Rhipsauchenia* O. Boettger, 1890: 140 [t.-sp.

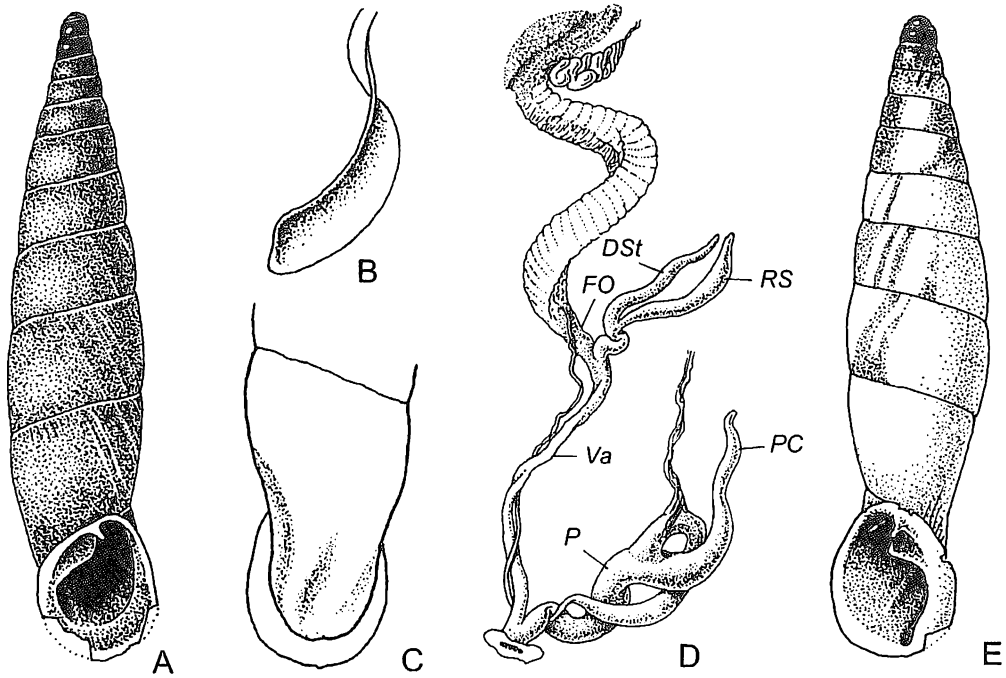


Fig. 846. A, B, C, D — *Cristataria colbeauiana* (L. Pfeiffer, 1861). Antakia, vilayet Hatai, Turkey, September 8, 1995. A — shell. B — clausilium. C — location of plicae within last whorl. D — reproductive tract. Moscow No. Lc-24647 E — ! *Cristataria boissieri* (Charpentier, 1847). Shell: Nahr el-Kelb near Beyrouth. Vienna No. K8282.

Clausilia (Cristataria) staudingeri O. Boettger, 1890; monotypy].

- *Westerlundella* Lindholm, 1924: 56 [*Medora (Cristataria)*]; sect. "c"; t.-sp. *Clausilia boissieri* Charpentier, 1847; OD].
- *Delessertia* Pallary, 1939: 55, 57 (*Cristataria* sect.; t.-sp. *Clausilia delesserti* Bourguignat, 1853; tautonymy).
- *Florienia* Pallary, 1939: 56, 58 (*Cristataria*, sect. *Delessertia*; subsect.; t.-sp. *Clausilia floreini* Pallary, 1939; tautonymy).
- *Callopleura* Pallary, 1939: 57 [*Clausilia* sect.; t.-sp. *Clausilia (Cristataria) callopleura* Westerlund, 1892; monotypy].

Nordsieck, 1971: 237

TYPE SPECIES — *Clausilia colbeauiana* L. Pfeiffer, 1861; OD.

Shell dextral or sinistral, fusiform, moderately solid, slightly shining, of 10-12 moderately to strongly flattened whorls. Last whorl with 1 or 2 sharp keels. Color white to chestnut, in latter case suture white; apex always dark. Embryonic whorls smooth, polished. Postnuclear sculpture either weak, of delicate, crowded radial striae, or consisting of variously developed

ribs. Aperture ovate to subquadrangular, (sub)vertical, with thin, broadly reflexed margins. Superior lamella moderately long, spiral lamella long. Inferior lamella large. Subcolumellar lamella comparatively weak, scarcely or not visible in apertural view as it covered up by inferior lamella. Principal plica not long. Lunella dorsal. Posterior end of upper palatal plica lies between principal plica and upper end of lunella. Plate of clausilium narrow, with acuminate tip. Height 14-25, diam. 2.7-5.2 mm (*colbeauiana*: 23.3 × 5.0 mm; *boissieri*: 20.9 × 4.0 mm).

Talon hidden, a simple curvature of hermaphroditic duct. Vas deferens thin, stretched along vagina, entering epiphallus apically. Epiphallus forms a short loop. Penial caecum mostly long. Penis, epiphallus and caecum internally with irregular longitudinal folds; cavity of penis separated from cavity of epiphallus by a sphincter. Penial retractor splitted basally, both arms attached to epiphallus. Free oviduct very short, vagina thin, long. Neck of spermatheca comparatively short, branched into enlarged reservoir and narrower diverticle; these ducts of about equal length.

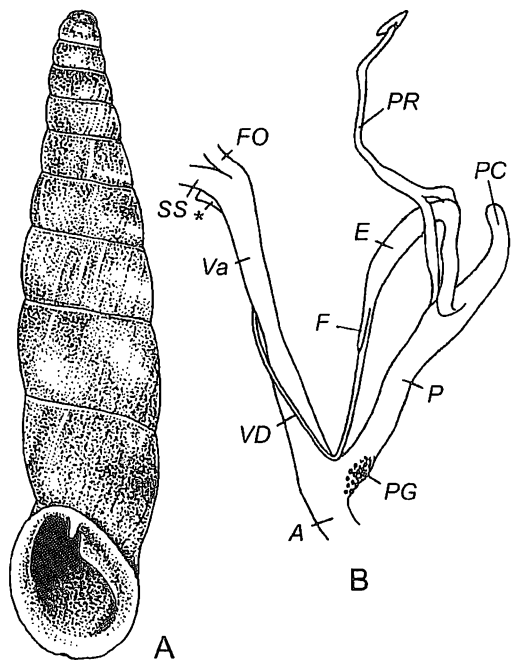


Fig. 847 A — *Sericata (Sericata) sericata* (L. Pfeiffer, 1850). Shell: "Steni am Dirphys, Euboea" [Greece]. Vienna No. 55.311. B — ! *Sericata (Sericata) bathyclista* (O. Boettger, 1885). Reproductive tract. After Nordsieck, 1974. Asterisk — retractor of spermathecal stalk.

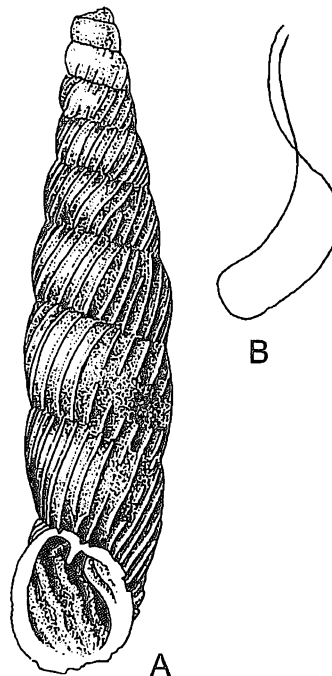


Fig. 848. *Sericata (Olympicosta) albicosta* (O. Boettger, 1877). 1 km W of Lithohoro, Macedonia, Greece. A — shell. B — clausilium. Private coll. of R.V. Egorov.

DISTRIBUTION. Maritime territories of Turkey, Syria and Palestine. About 25 spp. & subspp.

Sericata O. Boettger, 1878

Boettger O., 1878: 42 [*Clausilia (Albinaria)* sect.; "Gruppe"].

TYPE SPECIES — *Clausilia sericata* L. Pfeiffer, 1850; OD.

Shell entire or decollated, sinistral or dextral, fusiform, moderately solid, slightly translucent, of 8-11 slightly convex to nearly flat whorls. Basal keel weak or absent. Color corneous to reddish-brown or somewhat violet, sometimes chestnut. Sculpture either of fine, dense, sharp radial riblets (some of them whitish) or of thin, lamellar, well spaced, white ribs. Aperture subcircular, with thin, broadly reflexed, expanded margins. Inner end of superior lamella lies deeper than external end of spiral lamella. Inferior lamella weak, its inner end somewhat forked. Subcolumellar lamella

small. Principal plica starting on right or dorsal side. Linella callouse, broad, its upper end connected with upper palatal plica; sometimes lunella absent. Lower palatal plica situated at lower end of lunella.

Penial caecum present or absent. Penial retractor simple or forked. Free oviduct of about same length as vagina or shorter. Neck of spermathecal stalk moderately long, diverticle a little longer than duct of reservoir + reservoir itself.

DISTRIBUTION. N and Middle Greece (except NE part).

Sericata (Sericata s. str.) Fig. 847

— *Bathyclista* O. Boettger, 1885: 191 (t.-sp. *Clausilia bathyclista* O. Boettger, 1879; tautonymy).

— *Charites* Westerlund, 1901: 55 (t.-sp. *Clausilia bathyclista* O. Boettger, 1879; SD Lindholm, 1924).

Shell entire, with fine, dense, sharp radial riblets. Principal plica lateral. Closing

apparatus well developed. Height 16-24, diam. 3.2-4.2 mm (18.0 × 3.8 mm).

Penial caecum present or missing.

DISTRIBUTION. Greece. 10-12 spp.

Sericata (Olympicosta)

Nordsieck, 1972)

Fig. 848

Nordsieck, 1972: 17

TYPE SPECIES — *Clausilia (Agathylla) albicosta* O. Boettger, 1877; OD.

Shell shortly decollated, of 8-10 (after decollation) moderately convex whorls. Last whorl with short, rounded basal keel. Color brown, ribs white. Postembryonic sculpture of sharp, well spaced, lamellar, hollow ribs. Aperture subcircular, with thin, fragile, reflexed margins. Inferior lamella well developed. Subcolumellar lamella visible in oblique view. Principal plica starting on dorsal side. Lunella reduced. Upper palatal plica short, located below inner end of principal plica. Clausilium spatula-shaped. Height 19-28, diam. 4.0-4.3 mm (19.4 × 4.0 mm).

Rather short (about 1/4 of penis length) penial caecum present.

DISTRIBUTION. Greece. 1 sp.

Isabellaria Vest, 1867

Fig. 849

Vest, 1867: 188.

— *Venusta* O. Boettger, 1877: 50 (*Clausilia*, *Papillifera* sect.; "Gruppe"; t.-sp. *Clausilia venusta* A. Schmidt, 1868; OD).

— *Euclista* O. Boettger, 1878: 49 (*Clausilia*, *Papillifera* sect.; "Gruppe"; t.-sp. *Clausilia saxicola* L. Pfeiffer, 1848; OD).

— *Nymphogena* Sajó, 1968: 58 [*Isabellaria* subg.; t.-sp. *Isabellaria (Nymphogena) praecipua* Sajó, 1968; OD].

TYPE SPECIES — *Clausilia isabellina* L. Pfeiffer, 1842; OD.

Shell entire or decollated, fusiform, thin, somewhat translucent, of 9-10 (about 7 when decollated) slightly convex whorls. Last whorl with basal crest. Color uniformly whitish-corneous to chestnut. Postembryonic whorl with fine crowded radial riblets which sometimes may be obsolete. Aperture irregularly ovate, somewhat oblique, with thin reflexed peristome. Inferior

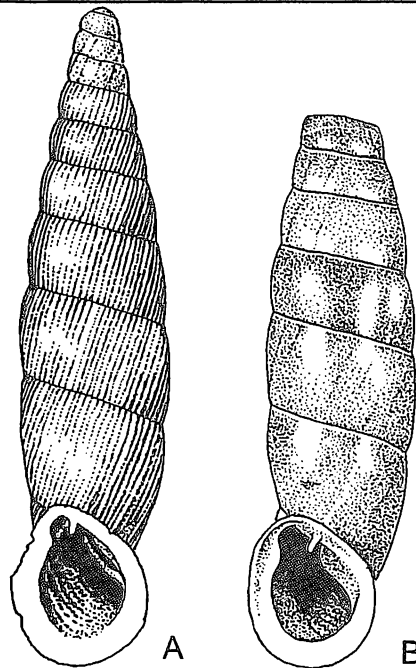


Fig. 849. A — *Isabellaria isabellina* (L. Pfeiffer, 1842).

Palaea Korinthos, Peloponnes Peninsula, Greece. Moscow No. Lc-22954. B — ! *Isabellaria praecipua serviana* Nordsieck, 1972. "Servia bei Kosani, Griechenland, Makedonien" Paratype. Vienna No. 77934.

lamella low, sharp. Subcolumellar lamella ends far from aperture edge. Principal plica starting on dorsal side; there are 2-3 sutural plicae. Lunella strong, dorsal, its upper end closely approaching inner end of principal plica. Lower palatal plica connected with lower end of subcolumellar lamella. Clausilium with simple, roundly pointed plate. Height 13-18, diam. 3.0-4.1 mm (*isabellina*: 17.6 × 3.9 mm; *praecipua serviana*: 15.9 × 4.1 mm).

Penial caecum long. Penial retractor simple or biramous. Diverticle of spermatheca longer than duct of reservoir + reservoir itself.

DISTRIBUTION. SE Dinar Mts., Greece. About 15 spp.

Strigilodelima A. Wagner, 1924

Fig. 850

Wagner A., 1924: 125 (*Delima* subg.).

TYPE SPECIES — *Clausilia platystoma* Küster, 1852 (= *Clausilia conspersa* L. Pfeiffer, 1848); SD Zilch, 1959.

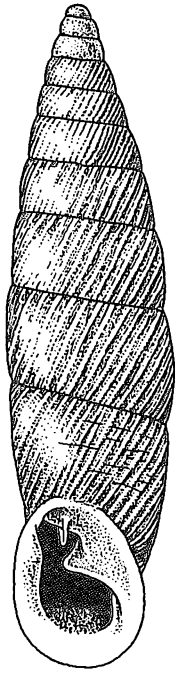


Fig. 850. *Strigilodelima conspersa* (L. Pfeiffer, 1848). Mt. Zebia near Oroshi, Albania. Senck. No. 32807a (as *S. platysoma* Küster, 1852).

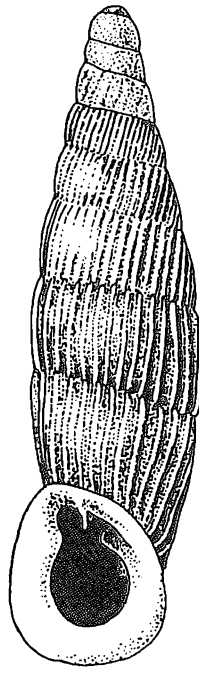


Fig. 851. *Lampedusa (Lampedusa) lopadusae* (Calcare, 1846). Island of Lampedusa, Guitgira, Italy. Private coll. of A.G. Kuznetsov.

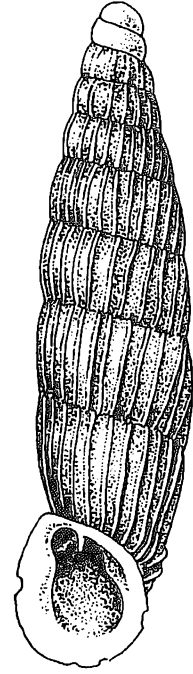


Fig. 852. *Lampedusa (Imitatrix) imitatrix* (O. Boettger, 1879). Malta. Private coll. of A.G. Kuznetsov.

Shell fusiform, ventrose, silky glossy, rather solid, of 9-10 slightly convex whorls. Color corneous to red-brown with light touches on ridges of ribs. Embryonic whorls vaguely granulated. Postnuclear sculpture of fine rather regular riblets and widely spaced spiral incised lines. Aperture pear-ovate, with reflexed and somewhat thickened margins. Superior lamella situated nearer to columella than spiral lamella. Posterior end of former lies at the same level that anterior end of latter. Inferior lamella strong, subhorizontal, with thickened ridge. Subcolumellar lamella thin. Principal plica starting on right side. Lunella lateral, thin. Height 13-20, diam. 3.0-4.3 mm (15.4 × 4.0 mm).

DISTRIBUTION. Yugoslavia (Serbia, Montenegro), N Albania, Corfu (Kerkyra) Island. 2 spp.

Lampedusa O. Boettger, 1877

Boettger O., 1877: 50 (*Clausilia*, *Papillifera* sect.; "Gruppe").

— *Lopadusaria* Monterosato, 1892: 29 (part.;

Clausilia subg.; t.-sp. *Clausilia lopadusae* Calcare, 1846; tautonymy: Lindholm, 1924).

— *Priodelima* A. Wagner, 1924: 126 (*Delima* subg.; t.-sp. *Clausilia sublamellosa* O. Boettger, 1883; monotypy).

TYPE SPECIES — *Clausilia lopadusae* Calcare, 1846; OD.

Shell mostly entire but sometimes de-collated, fusiform, rather solid, of 8-10 scarcely convex whorls. Last whorl with 2 basal keels. Color yellowish-corneous or brown, ribs white. Postapical whorls with sharp, regular, more or less crowded, lamellar ribs. Aperture irregularly ovate with broadly reflexed, expanded, white, thickened margins. Superior lamella short, situated nearer to columella than spiral lamella. Inferior lamella strong. Subcolumellar lamella indistinct, subvertical. Principal plica variously developed. Lunella well developed. Anterior arm of lower palatal (basal) plica short or absent. Lower end of clausilium plate more or less rounded and thickened.

DISTRIBUTION. Malta and Lampedusa Islands.

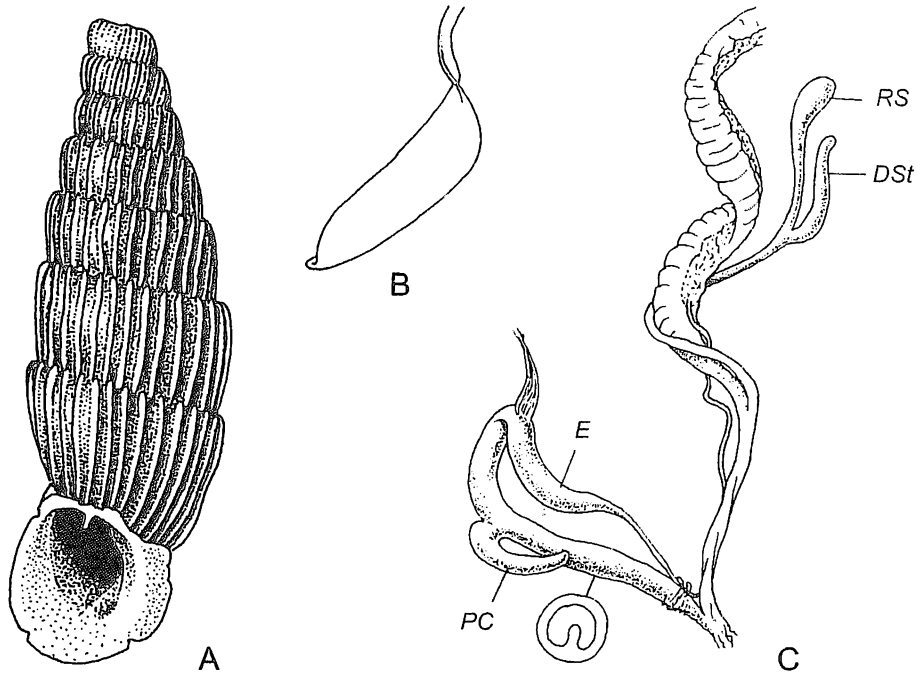


Fig. 853. A — *Muticaria scalaris* (L. Pfeiffer, 1848). Shell: Gozzo Island, Malta. Vienna No. 83.000/629. B, C — ! *Muticaria syracusana* (Philippi, 1836). NW of Rabat, Malta, October 27, 1983. B — clausilium. C — reproductive tract. Moscow No. Lc-24769 (Cardiff No. 1993.052.015).

Lampedusa (*Lampedusa* s. str.)

Fig. 851

Basal keels well developed. Principal plica not long, comparatively weak. Upper palatal plica short, callouse. Lower palatal plica vestigial. Lunella nearly dorsal, only slightly oblique. Height 14-20, diam. 3.6-4.1 mm (16.9 × 4.0 mm).

DISTRIBUTION. Lampedusa Island. 1 sp.

Lampedusa (*Imitatrix*)

Westerlund, 1884)

Fig. 852

Westerlund, 1884 (1884-1890): 50.

TYPE SPECIES — *Clausilia imitatrix* O. Boettger, 1879; tautonymy.

Basal keels weakly developed. Principal plica long, strong. Upper palatal plica elongated, lamellar. Lower palatal plica very long, connected with lunella. Lunella lateral, strongly oblique. Height 15.0-16.0, diam. 3.5-3.8 mm (16.0 × 3.7 mm).

DISTRIBUTION. Malta. 2 spp.

Muticaria Lindholm, 1925

Fig. 853

Lindholm, 1925: 262 (nom. nov. pro *Lamellifera* Monterosato, 1892).

— *Lamellifera* Monterosato, 1892: 30 (nom. praecoc., non Westerlund, 1890; *Clausilia* "gruppo"; t.-sp. *Clausilia scalaris* L. Pfeiffer, 1848; monotypv).

TYPE SPECIES — *Clausilia scalaris* L. Pfeiffer, 1848; monotypy.

Shell decollated, obesely fusiform to pupoid, rather thin but firm, of 5-8 (after decollation) much flattened, often shouldered whorls. Last whorl with a strong basal keel. Color yellowish-corneous to nearly white, ribs white. Postnuclear sculpture of lamellate coarse or fine ribs. Aperture sub-circular, uninterrupted, markedly oblique, with broadly reflexed, expanded, thin margins. Superior lamella short, spiral lamella missing. Inferior lamella strong, deeply lying. Subcolumellar lamella well developed, visible in oblique view. Principal plica strong, starting on right-dorsal side; there are 2-3 sutural plicae. Lunella only slightly

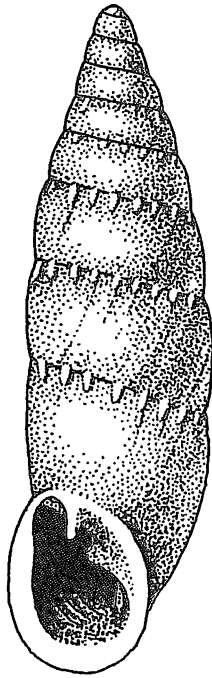


Fig. 854. *Leucostigma candidescens* (Rossmäessler, 1835).
Tivoli near Roma, Italy. Moscow No. Lc-9453.

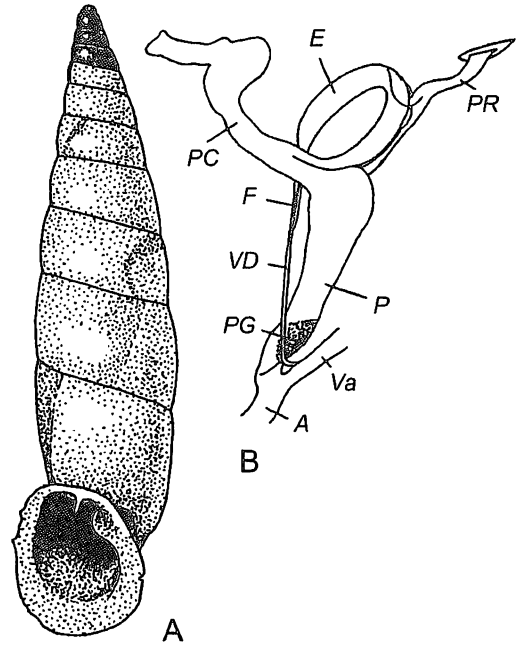


Fig. 855. *Medora macarana* (Rossmäessler, 1835).
A — shell: "Dalmatia" [Yugoslavia]. Moscow No. Lc-1937 B — male loop. After Nordsieck, 1969b.

arched. Plate of clausilium narrow to rather wide, rounded below, with oblique incision at handle; its distal part a little pointed, external edge of plate rolled backward. Height 10-14, diam. 4-5 mm (13.2 × 4.1 mm).

Epiphallus of moderate length, penial retractor attached to its middle. Penis cylindrical, internally with a single longitudinal fold. Boundary between epiphallus and penis marked by curved, well developed caecum. Free oviduct of moderate length; vagina markedly longer, very thin. Neck of spermathecal stalk long, diverticle much shorter, duct of reservoir of about same length.

DISTRIBUTION. Malta, Sicily. 2 spp. with 4 subsp.

Leucostigma A. Wagner, 1919
Fig. 854

Wagner A., 1919: 145 (*Papillifera* subg.).

TYPE SPECIES — *Clausilia leucostigma* Rossmäessler, 1836 (= *Clausilia candidescens* Rossmäessler, 1835); tautonymy.

Shell obesely fusiform, rather thin, translucent, shining, of 9-10 flattened whorls. Color light- or reddish-corneous to white; summit usually darker. Regular postapical sculpture absent; there are weak radial wrinklets, their upper ends form whitish subsutural nodules. Aperture ovate, interrupted on parietal wall, a little oblique, with thin, reflexed margins. Superior lamella short, widely separated from spiral lamella. Inferior lamella high, lower end of subcolumellar lamella not attending aperture edge. Lunella strong, subvertical. Principal and palatal plicae wanting. Plate of clausilium rounded or somewhat pointed distally, with incision at handle. Umbilicus closed. Height 11.0-18.5, diam. 3.2-4.2 mm (12.0 × 3.6 mm).

DISTRIBUTION. Middle and S Italy. 1 sp. with 2 subsp.

Medora H. Adams et A. Adams, 1855
Fig. 855

Adams H. & Adams A., 1855: 183 (*Clausilia* subg.).

— *Medorella* Woodward in Lindholm, 1924: 56, footnote [t.-sp. *Clausilia macarana* Rossmassler, 1835; OD (“*Medora* and *Medoria* may by some be considered homonyms, in which case *Medorella* can be substituted”)].

Nordsieck, 1970: 23.

TYPE SPECIES — *Clausilia macarana* Rossmassler, 1835; SD.

Shell (obesely) fusiform, rather solid, of 9-11 slightly convex to flat whorls. Basal crest low, rounded. Color whitish to bluish, cretaceous; apex dark. Surface smooth except ribbed lower half of last whorl. Aperture subquadrangular to pear-shaped, continuous, vertical, sometimes shortly protracted, with thin, reflexed margins. Superior lamella moderately long, its inner end lies approximately on one radius with external end of spiral lamella; latter often forked. Inferior lamella strong. Subcolumellar lamella thin, visible in oblique view. Parallel plica often present. Sutural plica always present. Principal plica starting on right or right-dorsal side. Lunella more or less perfect, usually callouse, connecting upper and lower palatal plicae. Plate of clausilium comparatively small, spoon-shaped, without incisions. Height 12-32, diam. 3.3-7.6 mm (27.5 × 6.0 mm).

Flagellum rather short, very slender, tightly bound to vas deferens. Epiphallus somewhat narrowed toward penis. Penis clavate, swollen at upper end, with well developed, blunted caecum and penial gland (glandular zone) near atrium. Shorter arm of penial retractor attached to middle of epiphallus, longer arm — to swollen portion of penis.

DISTRIBUTION. Yugoslavia (Dinar Upland), Middle and S Italy. About 60 spp. & sub spp.

Albinaria Vest, 1867

Fig. 856

Vest, 1867: 170.

— *Graeca* O. Boettger, 1877: 50 (*Clausilia*, sect. *Papillifera*; “Gruppe”; t.-sp. *Clausilia graeca* L. Pfeiffer, 1849; OD).

— *Striata* O. Boettger, 1878: 27 [*Clausilia*, *Albinaria* sect.; “Gruppe”; t.-sp. *Clausilia striata* L. Pfeiffer, 1850 (non Spix, 1827) (= *Clausilia candida* L. Pfeiffer, 1850); OD].

— *Archipelagica* O. Boettger, 1878: 28 (*Clausilia*,

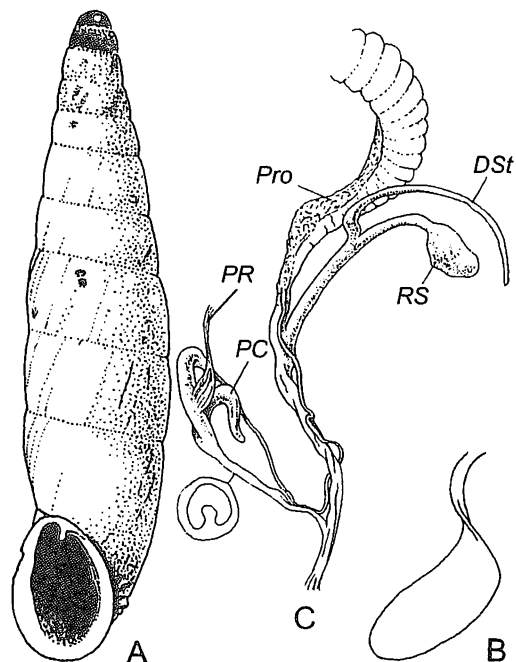


Fig. 856. *Albinaria coerulea* (Rossmassler, 1835).

A — shell: “Constantinople”, Turkey. Paris. B, C — *Albinaria coerulea* f. *calcareea* (O. Boettger, 1878). Ruins of Efesus, 3 km SW of Selçuk, vilayet Aydin, Turkey, June 12, 1997 B — clausilium. C — reproductive tract. Moscow No. Lc-24780.

Albinaria sect.; “Gruppe”; t.-sp. *Clausilia coerulea* Rossmassler, 1835; OD).

— *Cretica* O. Boettger, 1878: 41 (*Clausilia*, *Albinaria* sect.; “Gruppe”; t.-sp. *Clausilia byzantina* Charpentier, 1852; OD).

— *Filumna* O. Boettger, 1878: 41 [*Clausilia*, *Albinaria* sect.; “Gruppe”; t.-sp. *Clausilia filumna* L. Pfeiffer, 1866 (= *Clausilia hedenborgi* L. Pfeiffer, 1849); OD].

— *Egana* O. Boettger, 1878: 42 (*Clausilia*, *Albinaria* sect.; “Gruppe”; t.-sp. *Clausilia hippolyti* O. Boettger, 1878; OD).

— *Bigibbosa* O. Boettger, 1878: 42 (*Clausilia*, *Albinaria* sect.; “Gruppe”; t.-sp. *Clausilia bigibbosa* Charpentier, 1847; OD).

— *Interstriata* O. Boettger, 1878: 44 (*Clausilia*, *Albinaria* sect.; “Gruppe”; t.-sp. *Clausilia lerosiensis* L. Pfeiffer, 1841; OD).

— *Corrugata* O. Boettger, 1878: 44 (*Clausilia*, *Albinaria* sect.; “Gruppe”; t.-sp. *Clausilia corrugata* Draparnaud, 1805; OD).

— *Mirabellina* O. Boettger, 1878: 44 (*Clausilia*,

Albinaria sect.; "Gruppe"; t.-sp. *Clausilia moreletiana* O. Boettger, 1878; OD).

- *Munda* O. Boettger, 1878: 45 (nom. praeocc., non Stål, 1877; t.-sp. *Clausilia munda* Rossmessler, 1836; OD).
- *Teres* O. Boettger, 1878: 45 (*Clausilia*, *Albinaria* sect.; "Gruppe"; t.-sp. *Clausilia olivieri* Roth, 1839; OD).
- *Scopulosa* O. Boettger, 1878: 45 (*Clausilia*, sect. *Albinaria*; "Gruppe"; t.-sp. *Clausilia scopulosa* Charpentier, 1852; OD).
- *Laconica* O. Boettger, 1878: 46 (*Clausilia*, *Albinaria* sect.; "Gruppe"; t.-sp. *Clausilia voithii* Rossmessler, 1836; OD).
- *Graja* O. Boettger, 1878: 46 (*Clausilia*, *Albinaria* sect.; "Gruppe"; t.-sp. *Clausilia maculosa* Deshayes, 1833; OD).
- *Cerigana* O. Boettger, 1878: 46 (*Clausilia*, *Albinaria* sect.; "Gruppe"; t.-sp. *Clausilia discolor* L. Pfeiffer, 1846; OD).
- *Naevosa* O. Boettger, 1878: 47 (*Clausilia*, *Albinaria* sect.; "Gruppe"; t.-sp. *Clausilia naevosa* Roth, 1855; OD).
- *Pistillum* O. Boettger, 1892: 65 [*Albinaria* subg.; t.-sp. *Clausilia* (*Albinaria*) *broemmi* O. Boettger, 1892; SD Lindholm, 1924].
- *Protalbinaria* A. Wagner, 1923: 6, 7 (*Albinaria* subg.; nom. nud.).
- *Mundaria* Lindholm, 1924: 57 [nom. praeocc., non Kerremans, 1896 (Insecta); nom. nov. pro *Munda* O. Boettger, 1878].
- *Cathariella* Lindholm, 1925: 261 (nom. nov. pro *Mundaria* Lindholm, 1924; t.-sp. *Clausilia munda* Rossmessler, 1836; OD).

Nordsieck, 1977a: 285; 1979: 256.

TYPE SPECIES — *Clausilia coerulea* Rossmessler, 1835; OD.

Shell entire or shortly decollated, more or less obesely fusiform, solid to rather thin, of 10-12 slightly to moderately convex whorls. Last whorl with or without basal keel. Color white, often speckled, with dark and black summit to uniformly corneous; aperture inside dark-yellow. Embryonic whorls smooth, shining. Later whorls with low, rounded ribs or may be smooth, with all intermediate transitions; behind aperture usually with coarse wrinkles or ribs. Sometimes there are rather to very strong, widely spaced ribs (for example, *Albinaria kocki* Nordsieck, 1979). Aperture ovate, only slightly oblique, with shortly reflexed, somewhat thickened margins. Superior lamella short, sometimes reduced in size. External end of spiral lamella lies usu-

ally deeper than inner end superior lamella. Inferior lamella situated deeply. Principal plica starting on dorsal or right-dorsal side. Lunella dorsal. Clausilium elongated-ovate, without incisions. Height 11-28, diam. 2.5-5.5 mm (18.0 × 4.0 mm).

Vas deferens somewhat sinuated on vagina, gradually passes into epiphallus. Penis thin, thread-like, internally with a single longitudinal fold. Penial caecum well developed, tapering. Penial retractor attached to distal part of epiphallus at short distance from base of caecum. Free oviduct short, vagina and atrium thin, long. Neck of spermathecal stalk long, diverticle a little longer, duct of reservoir rather short.

DISTRIBUTION. S Albania, Greece, W Turkey, Cyprus, Lebanon. Over 300 spp. & subspp.

Montenegrinini Nordsieck, 1972

Nordsieck, 1972: 26.

Penis with more or less developed verge. Penial caecum absent. Penial retractor mostly simple. Vaginal retractor more or less muscular.

DISTRIBUTION. SE Europe.

Carinigera Moellendorff, 1873

Moellendorff, 1873b: 141 [*Clausilia* (sect.?)].

TYPE SPECIES — *Clausilia eximia* Moellendorff, 1873; monotypy.

Shell fusiform, of 9-12 scarcely convex whorls. Last whorl with rounded basal keel. Superior lamella short, thin, its posterior end lies behind level of anterior end of spiral lamella.

Penial caecum wanting.

DISTRIBUTION. E Serbia, SE Dinar Mts., Rhodope Mts., N Greece.

Carinigera (*Carinigera* s. str.)

Fig. 857

Shell often somewhat curved, moderately solid, mat, of about 9 whorls. Color light-corneous to whitish. Embryonic whorls smooth, polished, later whorls with weak, irregular radial wrinklets; last whorl

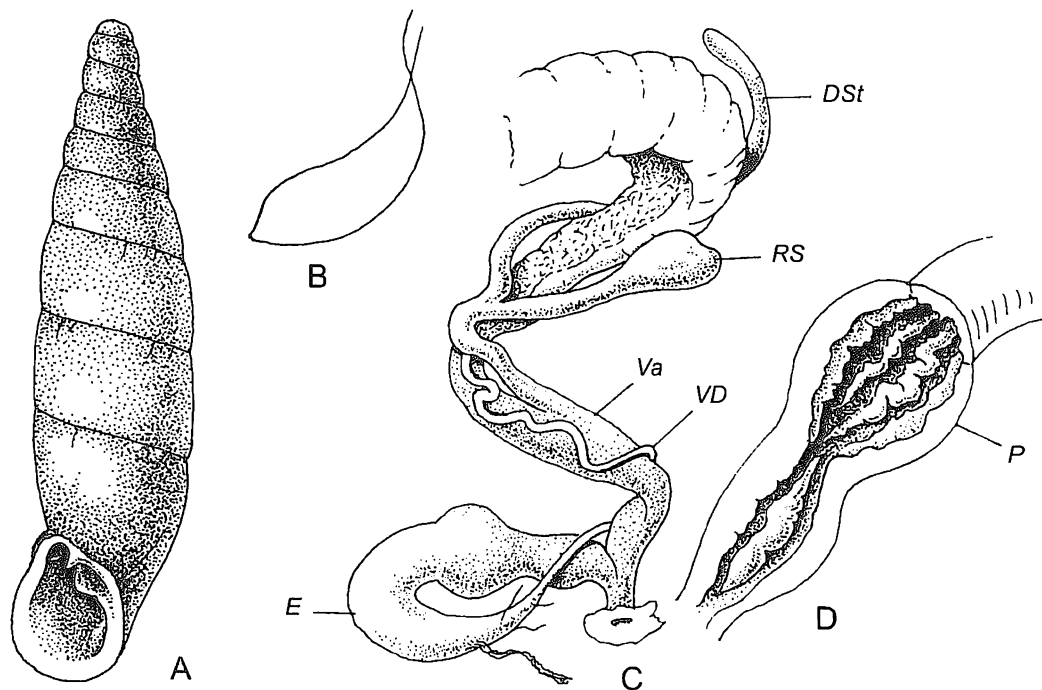


Fig. 857 *Carinigera (Carinigera) eximia* (Moellendorff, 1873). 25 km NW of Pirot, Yugoslavia, April 22, 1981.
 A — shell. B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-24778 (Cardiff No. 1993.052.506).

behind aperture ribbed. Aperture ovate to pear-shaped, with scarcely thickened, a little reflexed margins. Inferior lamella high, strongly protruded in lumen of aperture. Subcolumellar lamella well developed, visible in oblique view. Principal plica long. Lunella normally developed. Upper palatal plica completed by fold-like callus. Lower palatal plica long. Plate of clausilium thickened, rounded, slightly pointed at lower end. Height 13.5-22.0, diam. 3.3-5.5 mm (14.0 × 3.4 mm).

Epiphallus rather short, curved, tapering. Penis consisting of two parts separated by narrowing: (sub)globular proximal and more or less swollen distal. Internally proximal part with few coarse, corrugated longitudinal folds, distal with 1-2 folds. Penial retractor weak, attached to proximal part of epiphallus. Free oviduct equal to vagina or somewhat shorter. Neck of spermathecal stalk not long, duct of reservoir + reservoir itself much shorter than diverticle.

DISTRIBUTION. As in genus. More than 10 spp.

Carinigera (Angiticosta)
 Nordsieck, 1977)

Fig. 858

Nordsieck, 1977b: 83.

TYPE SPECIES — *Carinigera (Angiticosta) superba* Nordsieck, 1977; OD.

Shell rather thin and fragile, of 11-12 a little convex whorls. Ground color chestnut, ribs white. Besides coarse ribs, in intervals between them, there are crowded, somewhat lamellar, fine, sharp wrinklets. Aperture ovate, with reflexed margins. Superior lamella very short. Spiral lamella remote from inner end of superior lamella. Inferior lamella low, S-like curved. Subcolumellar lamella poorly developed, not visible in frontal view. Principal plica starting on dorsal side. Lunella dorsal, somewhat reduced, its upper end approaches inner end of principal plica. Height 18.1-22.4, diam. 4.2-5.1 mm (20.1 × 4.2 mm).

Penis with a large verge (stimulator?) which has a distinct base and not pierced by a canal. Penial retractor simple.

DISTRIBUTION. N Greece. 1 sp.



Fig. 858. *Carinigera (Angiticosta) superba*
Nordsieck, 1977
A — shell: Angitis near Prossotsani, Macedonia, Greece. Paratype. Vienna No. K 70811.

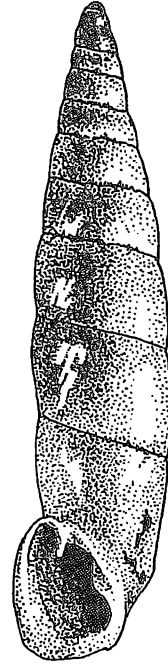


Fig. 859. *Montenegrina cattaroensis* (Rossmassler, 1835).
"Spiljarischlucht bei Kotor, Montenegro"
Moscow No. Lc-24738.

Montenegrina O. Boettger, 1877
Fig. 859

Boettger O., 1877: 37 (*Clausilia*, *Delima* sect.; "Gruppe").

— *Heteroptycha* Westerlund, 1884 (1884-1890): 5 (t.-sp. *Clausilia helvola* Küster, 1860; monotypy).

— *Heteroptychia* Kennard et Woodward, 1923: 308 (nom. err. pro *Heteroptycha* Westerlund, 1884).

— *Albanodelima* A. Wagner, 1925: 59 (*Delima* subg.; t.-sp. not designated).

— *Beieriella* Klemm, 1962: 242 [*Montenegrina* subg.; t.-sp. *Montenegrina (Beieriella) irmengardis* Klemm, 1962; OD].

Nordsieck, 1972: 26.

TYPE SPECIES — *Clausilia cattaroensis* Rossmassler, 1835; OD.

Shell fusiform to cylindrical-fusiform, thin, glossy, translucent to subtransparent, of 10-12 flattened whorls. Last whorl rounded or with smoothed basal keel. Color yellowish-gray to corneous. Shell surface smooth throughout except lower part of last whorl behind aperture where there are

more or less developed wrinkles or riblets. Aperture rounded, subvertical, with thin, reflexed and more or less expanded margins. Superior lamella moderately long, its height gradually diminishing backward; its posterior end located deeper than anterior end of spiral lamella. Inferior lamella low, with thickened ridge. Subcolumellar lamella short, subvertical. Principal plica starts on right side. Upper palatal plica short, close to principal. Lunella dorsal to lateral. Lower palatal plica very short, visible through aperture, sometimes missing. Height 16-25, diam. 4-5 mm (21.1 × 4.4 mm).

Epiphallus shorter than penis. Penis with a short verge peacing by a canal. Penial retractor simple.

DISTRIBUTION. S Albania, N Greece, Dinar Upland and adjacent maritime territory. About 20 spp. & subspp.

Protoherilla A. Wagner, 1921

Wagner A., 1921: 42.

TYPE SPECIES — *Protoherilla janickii* A. Wagner, 1921; SD Nordsieck, 1972.

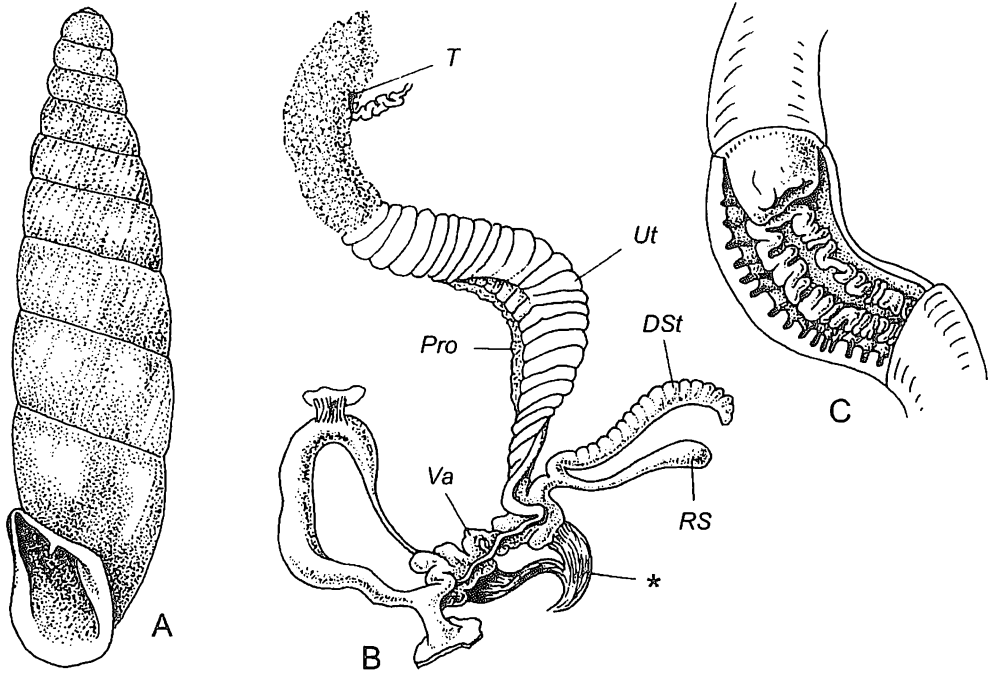


Fig. 860. A — *Protoherilla (Taraclusilia) mirabilis* (Nordsieck, 1972). Shell: "Taratal b. Sjerogoste oberh. Mojkovac" [Montenegro]. Paratype. Vienna No. K 65155. B, C — ! *Protoherilla (Taraclusilia) pseudofallax* Nordsieck, 1972). "Jugoslavia, Crna Gora, Cakor Pass. August 8, 1985" B — reproductive tract. C — interior of penis. Cardiff No. HS 1985.261.10. Asterisk — vaginal retractor.

Shell turreted- to obesely-fusiform, thin, translucent, of 8-9 rather convex whorls. Color corneous to yellowish-corneous. Apex smooth, rest whorls gently ribbed, especially upper ones. Aperture ovate to irregularly pear-shaped, subvertical, with moderately reflexed margins. Angular area of sinulus attenuated. Superior lamella usually very thin, thread-like. Sometimes vestigial inferior and subcolumellar lamellae may be present. Clausilium somewhat rudimentary, transparent, plate entire.

DISTRIBUTION. N Albania, Montenegro.

Protoherilla (Taraclusilia)
Nordsieck, 1972)
Fig. 860

Nordsieck, 1972: 35 (pro gen.); 1979: 258.

TYPE SPECIES — *Taraclusilia mirabilis* Nordsieck, 1972; OD.

Shell turreted-fusiform, shining, of about 9 whorls. Color yellowish-corneous. Early postnuclear whorls finely ribbed, on lower whorls riblets either very much weakened,

thus surface looking almost smooth and polished, or ribs well developed; weak spiral striae may be present. Aperture ovate, margins only slightly reflexed and thickened. Middle portion of palatal wall arched forward. Superior lamella markedly reduced in height, more or less separated from spiral lamella. Inferior lamella of various height. Subcolumellar lamella truncated anteriorly, visible in oblique view. Principal plica rather short. Lunella (nearly) dorsal. Clausilium plate tongue-like. Height 9.9-12.0, diam. 2.4-3.8 mm (9.9 × 2.4 mm).

Talon exposed, pigmented with black. Proximal part of vas deferens a little enlarged. Male loop not long, without visible demarcation between epiphallus and penis. Internally penis with a few high, strongly sinuous longitudinal folds and wide, well developed, completed verge. Penial retractor simple, attached to middle of epiphallus. Free oviduct very short. Vagina long, more or less convoluted; strong muscular band (vaginal retractor) arising from columellar muscle and attached by two arms to distal and proximal portions of vagina. Neck of spermathecal stalk very short, di-

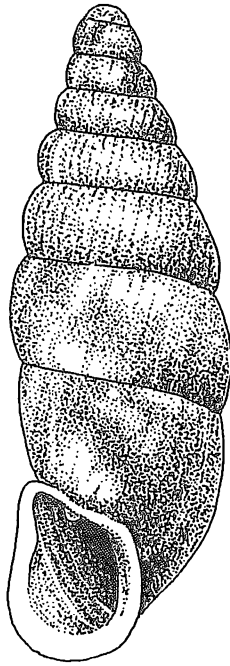


Fig. 861. *Protoherilla (Protoherilla) janickii* (A. Wagner, 1921).
 "N Albanien: Bjelic Planina am Weg vom Caf Bor zur Alm" Senck. No. 92327

verticle "segmented" by numerous semicircular grooves, a little longer than duct of reservoir + reservoir itself.

DISTRIBUTION. Montenegro. 2 spp.

Protoherilla (Protoherilla s. str.)
 Fig. 861

Shell obesely fusiform, of 8-9 rather convex whorls. Color uniformly corneous or yellowish-corneous; some ribs lighter. Early postembryonic whorls with smoothed radial ribs, last 2 whorls nearly smooth. Aperture irregularly pear-shaped, with slightly reflexed, markedly thickened margins; palatal margin arching forward. Closing apparatus reduced: there are weak superior lamella, weak inferior lamella and tubercular lunella. Clausilium somewhat rudimentary, transparent. Umbilicus, a narrow slit. Height 8-12, diam. 2.5-3.8 mm (11.9 × 3.8 mm).

DISTRIBUTION. N Albania. 2 spp. & 2 subspp.

Cochlodinini Lindholm, 1925

Lindholm, 1925: 262 (nom. nov. pro Marpessinae Wenz, 1923).

— Marpessinae Wenz, 1923 (1923-1930): 757 (based on name *Marpessa* which is junior syn. of *Cochlodina*).

Shell basically without sharp sculpture, mostly smooth.

Flagellum thin, tightly adherent to vas deferens. Proximal part of penis with tubular verge or stimulator with epiphallic pore at its base. Penial retractor not bifurcated, attached to epiphallus. Vaginal retractor muscular. Diverticle of spermathecal stalk present.

DISTRIBUTION. Europe, Caucasus.

Macedonica O. Boettger, 1877
 Fig. 862

Boettger O., 1877: 30 (*Clausilia*, *Triloba* sect.; "Gruppe").

— *Attica* O. Boettger, 1877: 25 (*Clausilia*, *Alopi* sect.; "Gruppe"; t.-sp. *Clausilia guicciardii* Roth, 1856; OD).

— *Serbica* O. Boettger, 1877: 31 [*Clausilia*, *Marpessa* sect.; "Gruppe"; t.-sp. *Clausilia (Clausiliasutra) transiens* Moellendorff, 1874; OD].

— *Turcica* O. Boettger, 1877: 33 (nom. praeocc., non H. Adams & A. Adams, 1854; *Clausilia*, *Herilla* sect.; "Gruppe"; t.-sp. *Clausilia frivaldskiana* Rossmassler, 1839; OD).

— *Neoserbica* A. Wagner, 1919: 135 (t.-sp. *Clausilia macedonica* Rossmassler, 1839; SD Kennard & Woodward, 1923).

— *Balkanica* Kennard et Woodward, 1923: 307 (nom. nov. pro *Turcica* O. Boettger, 1877).

TYPE SPECIES — *Clausilia macedonica* Rossmassler, 1839; OD.

Shell fusiform, comparatively thin, silky glossy, of 9-11 flattened whorls. Color light-corneous, whitish, brown or chestnut, sometimes with darker radial streaks. Sculpture of more or less regular thin radial riblets or wrinklets, which become sharper on last whorl. Aperture ovate, a little oblique, with thin, reflexed margins. Superior lamella short, its inner end situated farther from aperture than external end of spiral lamella; however spiral lamella sometimes more or less reduced, in this case it

lies deeply. Inferior lamella strongly developed. Subcolumellar lamella short, not visible in frontal view; sometimes absent. Principal plica long, starting on right side. Lunella wanting. Palatal plica short, somewhat oblique. Height 17-23, diam. 3.8-4.3 mm (*macedonica*: 17.2 × 3.9 mm; *transiens*: 19.6 × 4.1 mm; *frivaldskyana*: 15.8 × 4.2 mm).

DISTRIBUTION. Balkan countries. 13 spp.

Cochlodina Férussac, 1821

Férussac A., 1821 (January): 65 (*Helix* subg.).

— *Volvulus* Oken, 1815: 313 (part.; t.-sp. not designated).

— *Marpessa* Gray, 1821 (March): 239 (*Clausilia* sect.; t.-sp. *Turbo laminata* Montagu, 1803; SD Lindholm, 1924).

— *Clausiliastra* L. Pfeiffer, 1856: 180 (*Clausilia* sect.; t.-sp. *Turbo laminata* Montagu, 1803; SD Lindholm, 1924).

— *Stabilea* Betta, 1870b: 63 (t.-sp. *Clausilia costata* C. Pfeiffer, 1828; SD Lindholm, 1924).

TYPE SPECIES — *Clausilia bidens* Draparnaud, 1805 (= *Turbo laminata* Montagu, 1803); SD Pilsbry, 1922.

Shell sinistral, not decollated, glossy, without any traces of external non-translucent layer. Last whorl with neck thickening. Color yellowish, reddish, or brown. Sculpture of irregular weak radial wrinkles. Aperture adnate or nearly so, without basal keel. Sinulus shallow, wide. Inferior lamella in aperture lumen forms a broad, almost horizontal bend, after that it continues downward and ends not far from aperture margin. Principal and palatal plicae start on dorsal side (or slightly shifted to the right). At some distance from aperture edge there is a palatal callus. Lobe of clausilium with a deep incision on external margin.

Narrow vas deferens expanded before entering penis, forming an epiphallus. Penis thicker than epiphallus. Slender flagellum adherent to lower portion of vas deferens. Internally flagellum has numerous longitudinal folds. There is a narrowing between penis and epiphallus. Internally penis with semicircular fold(s) or variously developed verge. Penial retractor simple. Diverticle of spermathecal shaft shorter than neck of shaft.

DISTRIBUTION. Most part of Europe, ex-

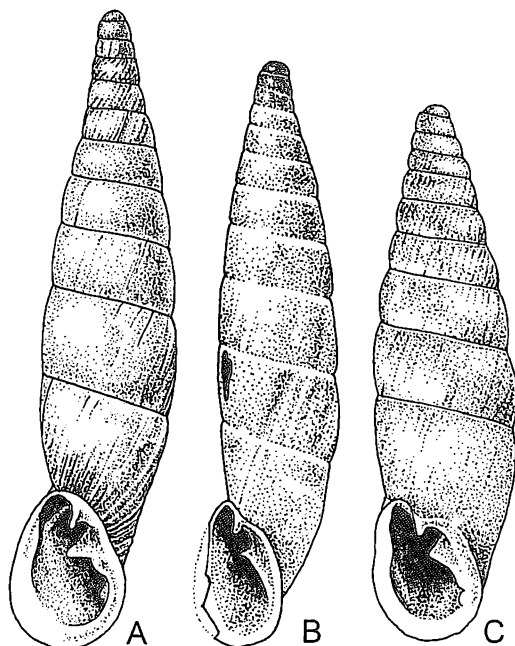


Fig. 862. A — *Macedonica macedonica* (Rossmessler, 1839). Kavalla, Greece. SPb. B — ! *Macedonica transiens* (Moellendorff, 1873). Serbia. Zürich No. 515353. C — *Macedonica frivaldskyana* (Rossmessler, 1839). Papaz-cair, Pirin Mts. Bulgaria. Vienna No. 78008.

cept northernmost and southernmost regions; predominantly SE Alps and NW Balkan Mts.

Cochlodina (*Paracochlodina*)

Nordsieck, 1969)

Fig. 863

Nordsieck, 1969b: 258.

TYPE SPECIES — *Clausilia orthostoma* Menke, 1828; OD.

Shell shortly fusiform, thin, shining, of 8.5-10.5 moderately convex whorls. Apex blunt, stout. Color light- or reddish-corneous. Sculpture very weak. Aperture ovate-pear-shaped, interrupted on parietal wall, with somewhat thickened, nearly straight margins. Superior lamella thin, short, not attending aperture margin. Spiral lamella high, starts on right side of shell and, gradually lowering, extended to left side. Inferior lamella starts above spiral. Principal plica starts on dorsal or right-dorsal side. On dorsal side of last whorl upper and lower palatal

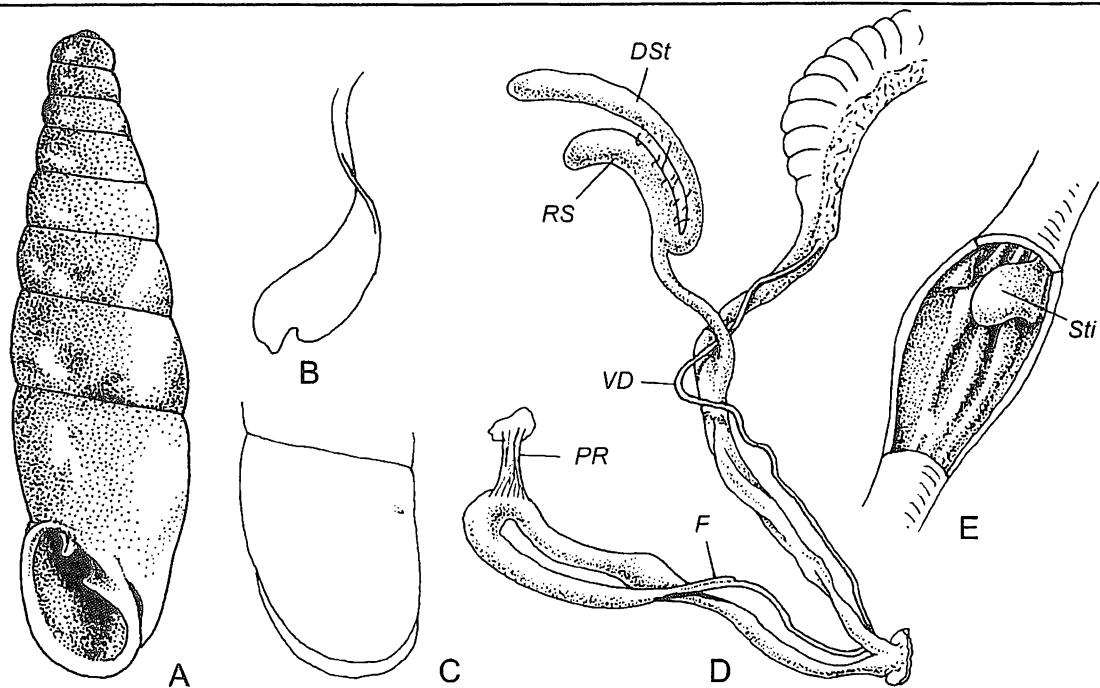


Fig. 863. *Cochlodina (Paracochlodina) orthostoma* (Menke, 1828). Kvasy village near Rakhov, E Carpathians, September 14, 1969. A — shell. B — clausilium. C — location of plicae within last whorl. D — reproductive tract. E — interior of penis. Moscow No. Lc-246734, Lc-24665.

plicae situated. Plate of clausilium rather narrow, with a deep, narrow subapical incision. Height 10.3-13.0, diam. 2.8-3.2 mm (10.5 × 2.9 mm).

Flagellum short. Penis internally with few longitudinal folds and variously developed papilla-like stimulator at epiphallic pore. Diverticle of spermathecal stalk longer than duct of reservoir + reservoir proper. Fragments of spermatophore have been found in reservoir.

DISTRIBUTION. Central and E Europe. 3 spp.

Cochlodina (Cochlodinastra

Nordsieck, 1977)

Fig. 864

Nordsieck, 1977b: 89.

TYPE SPECIES — *Clausilia comensis* L. Pfeiffer, 1850; OD.

Shell obtusely fusiform, thin, translucent, glossy, of about 10 slightly convex whorls; last narrowed behind the aperture.

Color yellowish-corneous to pale-yellow. Postnuclear whorls with delicate, rather regular rib-striation. Aperture irregularly ovate, shortly interrupted on parietal wall, with thin, shortly reflexed margins. Superior lamella short, its inner end lies on one radius with lower end of spiral lamella. Inferior lamella very strong, with thickened ridge. Subcolumellar lamella short, curved, its lower end often visible in frontal view. Principal plica starting on dorsal side. Also on dorsal side 2 oblique palatal plicae situated; there is a small basal plica. Lunella rudimentary. Plate of clausilium with attenuated distal end. Height 11-13, diam. 3-4 mm (11.2 × 3.2 mm).

Talon, a sharp curvature of hermaphroditic duct on surface of albumen gland. Flagellum reduced. Penis with sharp, distinct folds at epiphallic pore and penial gland below them. Penial retractor attached to middle of epiphallus. Free oviduct shorter than vagina. Neck of spermathecal stalk somewhat shorter than duct of reservoir + reservoir itself; diverticle of intermediate length.

DISTRIBUTION. N Italy. 1 sp. with 3 subspp.

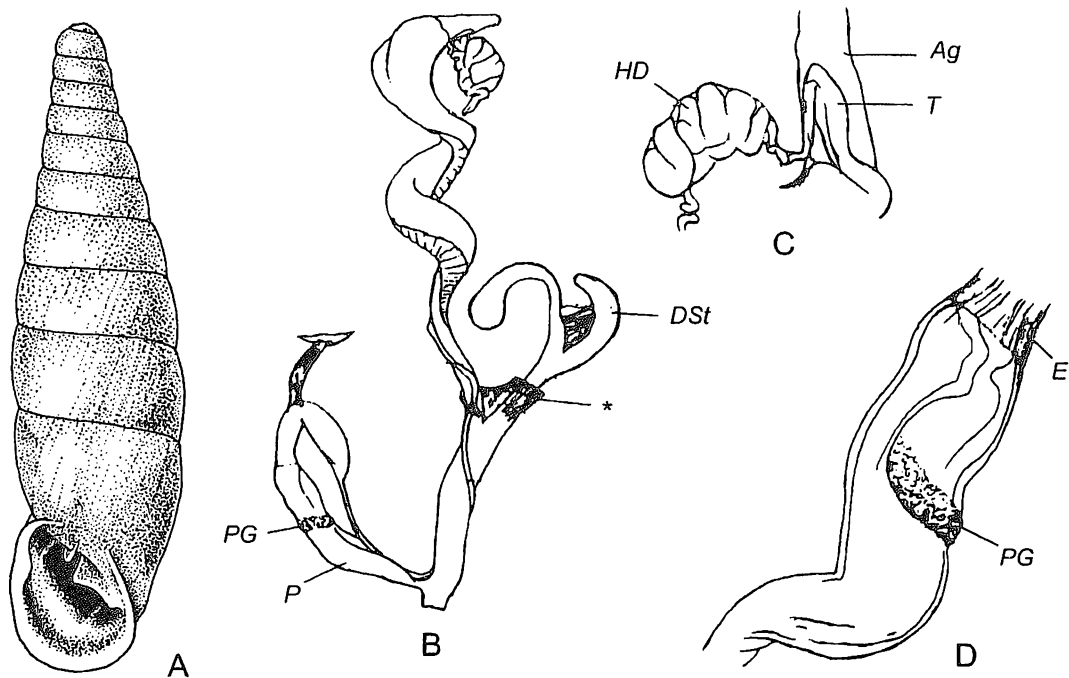


Fig. 864. *Cochlodina (Cochlodinastra) comensis* (L. Pfeiffer, 1850).

A — shell: Monte Verena NW of Asiago, Vicenza, Italy. Private coll. of A.G. Kuznetsov.
 B — reproductive tract. C — talon. D — interior of penis. After Nordsieck, 1963. Asterisk — retractor of spermathecal stalk.

Cochlodina (Procochlodina

Nordsieck, 1969)

Fig. 865

Nordsieck, 1969a: 21.

TYPE SPECIES — *Clausilia incisa* Küster, 1876; OD.

Shell fusiform, moderately glossy, of 10-11 slightly convex whorls. Basal keel slightly developed. Color corneous or brown. Post-embryonic sculpture of fine and silky striation to moderately strong, irregular, radial riblets. Aperture more or less pear-shaped, continuous, with somewhat thickened, shortly reflexed margins. Thickening behind peristome weak or wanting. Superior lamella situated nearer to columella than spiral lamella; inner end of former lies on one radius with external end of latter. Inferior lamella more or less lowered, slightly bent; subcolumellar lamella rather weak. Lower end of principal plica visible under inferior lamella. Lunella splitted into 3 short plicae; median of them lies subvertically. Plate of clausilium even or only slightly incised. Height 17-19, diam. 4.1-

4.5 mm (Camerata Nuova: 18.7 × 4.4 mm; Eremo di Gamogna: 17.8 × 4.3 mm).

Flagellum long, slender, tightly adhering to vas deferens. Penis divided into two portions; proximal portion contains a voluminous verge with lateral slit-like opening; distal one has glandular walls. Free oviduct 4-5 times shorter than vagina. Neck of spermathecal stalk equal to diverticle; duct of reservoir + reservoir itself longer.

DISTRIBUTION. W Mediterranean. 5-6 spp. & subsp.

Cochlodina (Cochlodina s. str.)

Fig. 866

Shell fusiform, rather thin, translucent, shining, of 10-11 slightly to moderately convex whorls. Color pale-yellow to reddish-brown. Regular sculpture absent. Aperture irregularly pyriform, with more or less reflexed, somewhat thickened margins. Superior lamella thin, attending parietal calus. Inner end of superior lamella situated on one radius with external end of spiral lamella. Inferior lamella large, starts above

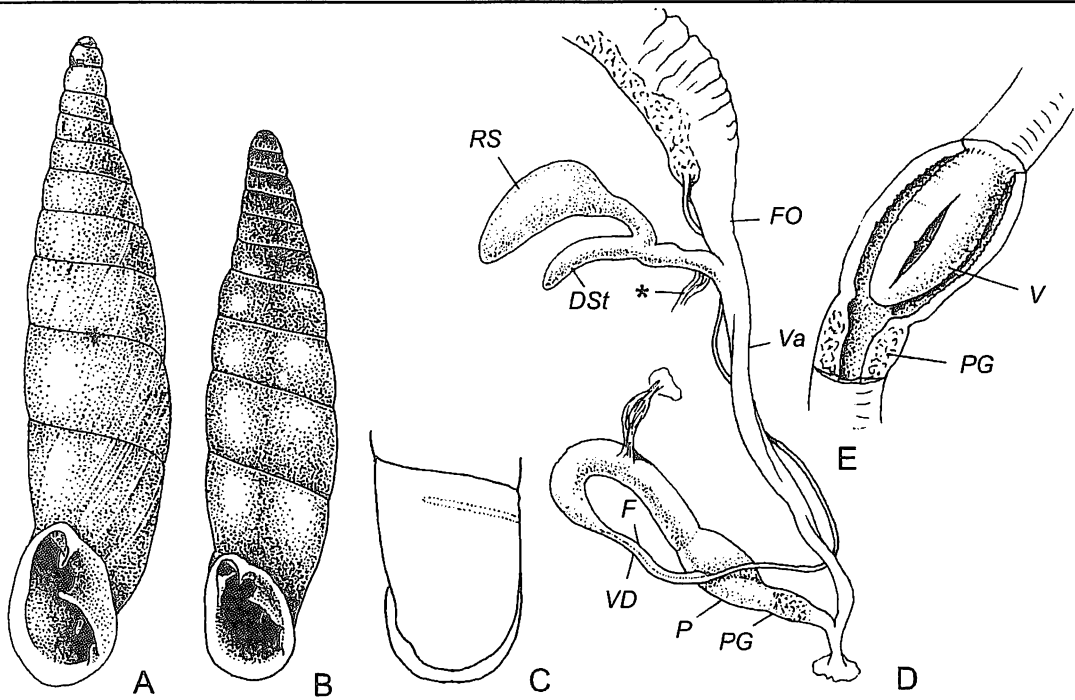


Fig. 865. *Cochlodina (Procochlodina) incisa* (Küster, 1876).
 A — shell: Camerata Nuova, 800-1000 m, Prov. Roma, Italy. Moscow No. Lc-24747 (Vienna No. 46092). B, C — Eremo di Gamogna, Alto Appennino, Firenze, Central Italy. B — shell. C — location of plicae within last whorl. Private coll. of A.G. Kuznetsov. D, E — Volterra ca. 50 km S of Pisa, Italy, April 26, 1996. D — reproductive tract. E — interior of penis. Moscow No. Lc-24644. Asterisk — retractor of spermathecal stalk.

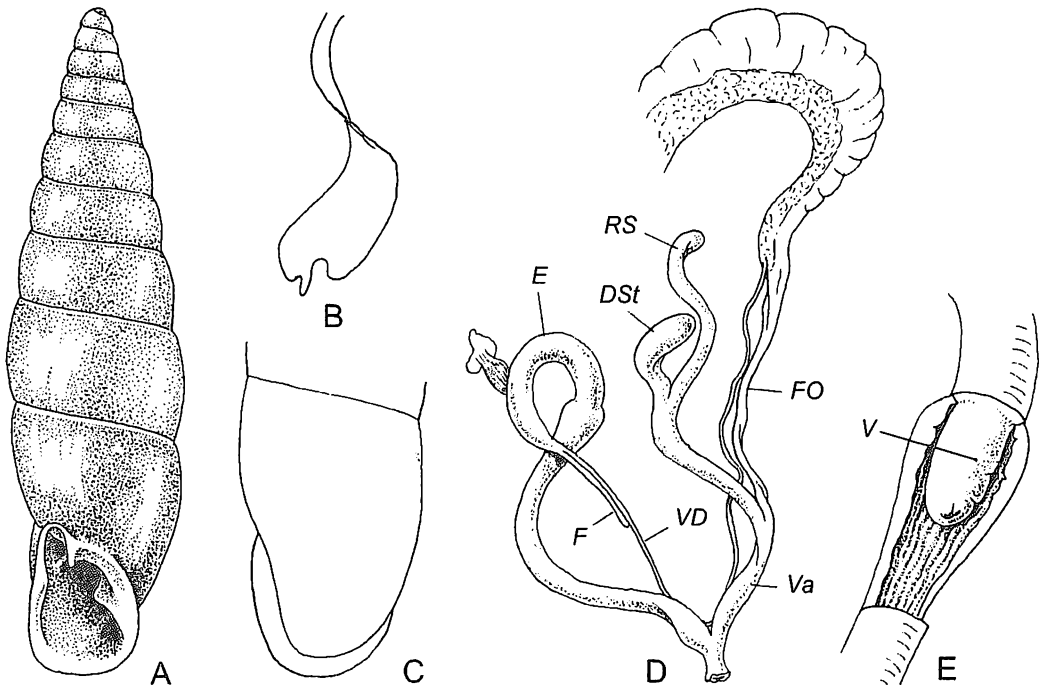


Fig. 866. *Cochlodina (Cochlodina) laminata* (Montagu, 1803).
 A, B, C — Environs of Bryansk, Russia. A — shell. B — clausilium. C — location of plicae within last whorl. Moscow No. Lc-24748. D, E — Leitha Mts., near Hof, Grosser Berg, Austria, October 5, 1989. D — reproductive tract. E — interior of penis. Moscow No. Lc-24633.

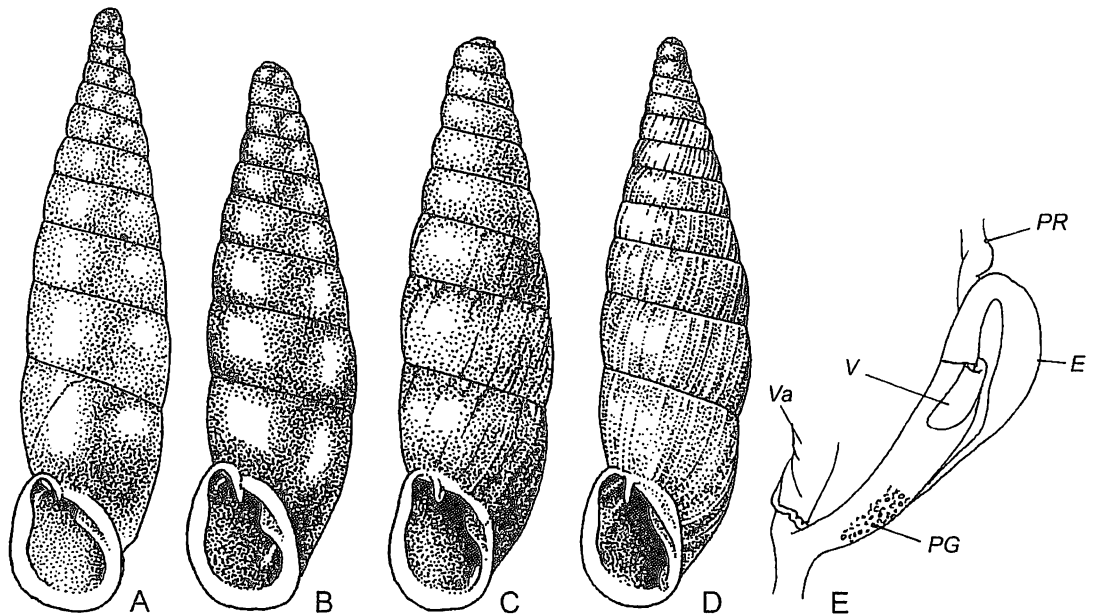


Fig. 867 A — *Delima (Delima) laevissima* (Rossmäessler, 1835). Dalmatia. Moscow No. Lc-1988. B — ! *Delima (Delima) conspurcata* (Rossmäessler, 1836). Dalmatia. Moscow No. Lc-2039. C — ! *Delima (Delima) semilabiata* (Walderdorff, 1864). "Lastua" [Dalmatia]. Moscow No. Lc-2005. D — ! *Delima (Delima) piceata* (Rossmäessler, 1836). Dalmatia. Moscow No. Lc-9454. E — ! *Delima (Delima) albocincta* (L. Pfeiffer, 1841). Distal part of male division. After Nordsieck, 1969b.

spiral lamella. Lower end of subcolumellar lamella not or scarcely visible in apertural view. Principal plica starts on dorsal or right-dorsal side and ends near palatal edge. Upper and lower palatal plicae start dorsally, latter much longer than former. Clausilium with two distal incisions, one of them deeper than the other. Height 14-18, diam. 3.6-4.2 mm (15.4 × 3.7 mm).

Flagellum comparatively long. Epiphallus shorter than penis. Penis internally with many narrow longitudinal folds and completed verge. Penial retractor attached to upper half of epiphallus. Free oviduct thin, much longer than vagina. Neck of spermathecal stalk markedly longer than diverticle; length of duct of reservoir + reservoir itself equal to length of neck.

DISTRIBUTION. E Europe, Alps. 6 spp.

Delimini Nordsieck, 1969

Nordsieck, 1969b: 259 ("Delimeae").

Penis with more or less developed verge.

Penial retractor simple. Vaginal retractor muscular.

DISTRIBUTION. E Sudetes and adjacent parts of Carpathians, S Alps, Yugoslavia, Greece, Albania, Italy, SE France to Pyrenean Mts., N Africa (Lybia, Tunis, Algeria).

Delima Hartmann, 1842

Hartmann, 1842 (1840-1844): 156 (*Clausilia* subg.). Nordsieck, 1969c.

TYPE SPECIES — *Clausilia laevissima* Rossmäessler, 1835; SD Martens, 1860.

Shell more or less fusiform, (rather) thin, shining, translucent to subtransparent, of 9-11 slightly convex whorls. Color pale to chestnut. Sculpture not sharp. Aperture broadly ovate or pear-shaped, subvertical, with thin, reflexed margins. Superior lamella rather short, not high. External end of spiral lamella lies at about same level as inner end of superior lamella. Inferior lamella well developed, steeply ascending. Columellar lamella short to absent.

Distal end of epiphallus not thickened.

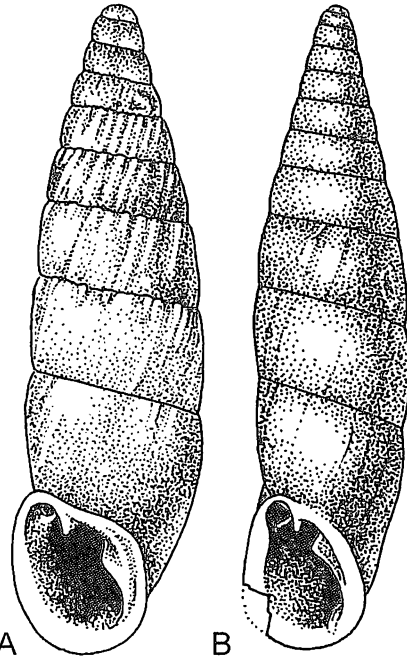


Fig. 868. A — *Delima (Semirugata) semirugata* (Rossmäessler, 1836). Morkass, Dalmatia [Yugoslavia]. Paris.
B — ! *Delima (Semirugata) robusta* (Küster, 1947). Narenta [Yugoslavia]. Moscow No. Lc-2063.

Walls of distal portion of penis contain penial gland. Verge mostly shorter than 1/2 of penis length, its pore opens near its base. Diverticle of spermathecal stalk longer than duct of reservoir + reservoir itself.

DISTRIBUTION. Dinar Mts. and adjacent maritime territory; Albania, middle Italy.

Delima (Delima s. str.)
Fig. 867

- *Piceata* O. Boettger, 1877: 35 (*Clausilia, Delima* sect.; "Gruppe"; t.-sp. *Clausilia piceata* Rossmäessler, 1836; OD).
- *Dalmatica* O. Boettger, 1877: 36 (*Clausilia, Delima* sect.; "Gruppe"; t.-sp. *Clausilia conspurcata* Rossmäessler, 1836; OD).
- *Laevissima* O. Boettger, 1877: 37 (*Clausilia, Delima* sect.; "Gruppe"; t.-sp. *Clausilia laevissima* Rossmäessler, 1835; OD).
- *Binodata* O. Boettger, 1877: 37 (*Clausilia, Delima* sect.; "Gruppe"; t.-sp. *Clausilia binodata* Rossmäessler, 1836; OD).

— *Substricta* O. Boettger, 1877: 37 (*Clausilia, Delima* sect.; "Gruppe"; t.-sp. *Clausilia substricta* L. Pfeiffer, 1866; OD).

— *Albanica* O. Boettger, 1878: 33 (*Clausilia, Delima* sect.; "Gruppe"; t.-sp. *Clausilia semilabiata* Walderdorff, 1864; OD).

— *Binodata* Römer, 1891: 135 (nom. err. pro *Binodata* O. Boettger, 1877).

Shell (obesely) fusiform. Color light-corneous to chestnut. Surface smooth to slightly irregularly wrinkled. Subcolumellar lamella short, in frontal view often covered up by inferior lamella. Principal plica starting on right or right-ventral wall. Lunella dorsal to right-dorsal. Sutural plica sometimes present. Height 8-28, diam. 2.5-5.2 mm (*laevissima*: 19.7 × 4.8 mm; *conspurcata*: 11.4 × 3.0 mm; *semilabiata*: 9.5 × 2.5 mm; *piceata*: 16.5 × 4.2 mm).

Vagina short. Neck of spermatheca 2 times longer than vagina.

DISTRIBUTION. As in genus. At least 40 spp. and subspp.

Delima (Semirugata)
O. Boettger, 1877)
Fig. 868

Boettger O., 1877: 38 (*Clausilia, Delima* sect.; "Gruppe").

— *Robusta* O. Boettger, 1877: 38 (*Clausilia, Delima* sect.; "Gruppe"; t.-sp. *Clausilia robusta* Küster, 1847; OD).

— *Adriaca* Westerlund, 1884 (1884-1890): 53 (t.-sp. *Clausilia biaolettiana* Charpentier, 1852; SD Lindholm, 1924).

— *Adriatica* Westerlund, 1901: 56 (nom. err. pro *Adriaca* Westerlund, 1884).

TYPE SPECIES — *Clausilia semirugata* Rossmäessler, 1836; OD.

Shell fusiform to fusiform-cylindrical. Color corneous. Postembryonic whorls nearly smooth to finely ribbed, below suture often with whitish nodules. Subcolumellar lamella absent or weak. Principal plica starting on right-dorsal side. Lunella dorsal. Height 10-21, diam. 3.5-5.0 mm (*semirugata*: 14.0 × 3.9 mm; *robusta*: 18.0 × 4.8 mm).

Vagina long. Length of neck of spermatheca as long as vagina to twice longer.

DISTRIBUTION. Yugoslavia. 6-7 spp.

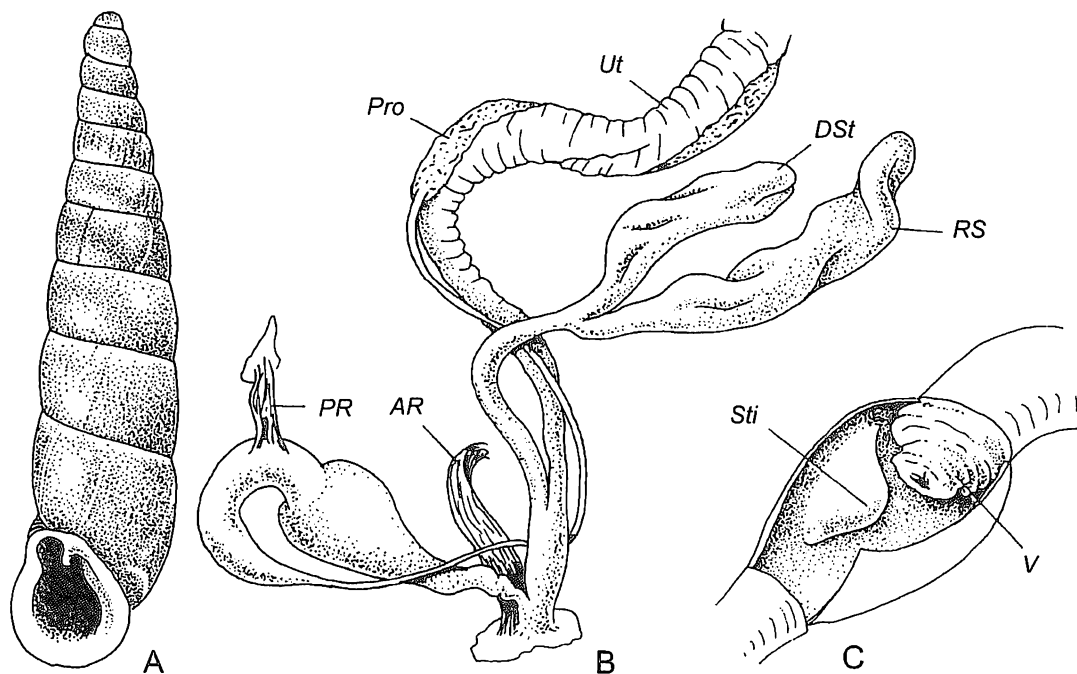


Fig. 869. *Dilataria succineata* (Rossmassler, 1836).

A — shell: Krain [Slovenia]. ? Syntype. Paris. B, C — Plitvice + Tezra in 15 km NW of Bihac, Yugoslavia, June 12, 1981. B — reproductive tract. C — interior of penis. Moscow No. Lc-24767 (Cardiff No. 1993.052.016).

Dilataria Vest, 1867

Fig. 869

Vest, 1867: 188.

TYPE SPECIES — *Clausilia succineata* Rossmassler, 1836; OD.

Shell slender, turritid-cylindrical, thin, translucent, shining, of 9-10 slightly convex whorls. Color light-corneous. Postnuclear whorls weakly radially striated, last whorl behind aperture thickened. Aperture ovate or pear-shaped, subvertical to slightly oblique, with strongly thickened, shortly reflexed margins. Superior lamella thin, short, separated from spiral lamella by a wide space. Inferior lamella not very strong. Subcolumellar lamella weak, deeply lying. Principal plica starting on right side. Upper palatal plica short, just below inner end of principal. Lunella stretched against middle of upper palatal, lower end of lunella fused with lower palatal plica. Lobe of clausilium widened below. Height 9-19, diam. 2.2-4.2 mm (12.4 × 2.8 mm).

Epiphallus not long, curved, tapering to-

ward proximal end. Penis strongly swollen, conic, internally with contractile verge and tubercular stimulator in swollen part. Penial retractor attached to epiphallus near its boundary with penis. Free oviduct 2-3 times longer than vagina. Atrial retractor strongly developed. Neck of spermathecal stalk comparatively long, reservoir sac-like, voluminous, nearly sessile; diverticle somewhat shorter, also sac-like.

DISTRIBUTION. Croatia, Macedonia, Slovenia. 2 spp.

Barcania Brandt, 1956

Brandt, 1956: 121.

TYPE SPECIES — *Clausilia bengasiana* Gambetta, 1925; OD.

Shell entire or decollated, fusiform, rather solid, dull, up to 14 whorls if not decollated. Last whorl with a weak basal keel. Postembryonic whorls nearly smooth to ribbed. Subcolumellar lamella visible in frontal view. Principal plica starting on right side.

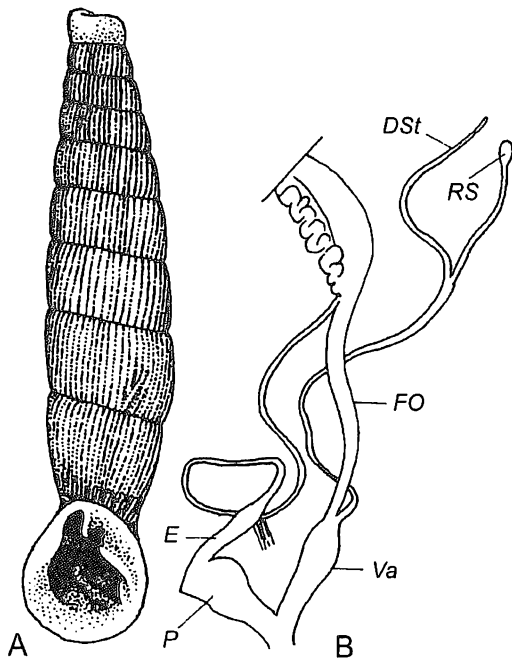


Fig. 870. *Barcania (Barcania) bengasiana* (Gambetta, 1925).

A — shell: Haura Magrun near Bengazi, Cyrenaica, Lybia (type locality). Moscow No. Lc-24735 (Vienna). B — reproductive tract. After Brandt, 1956.

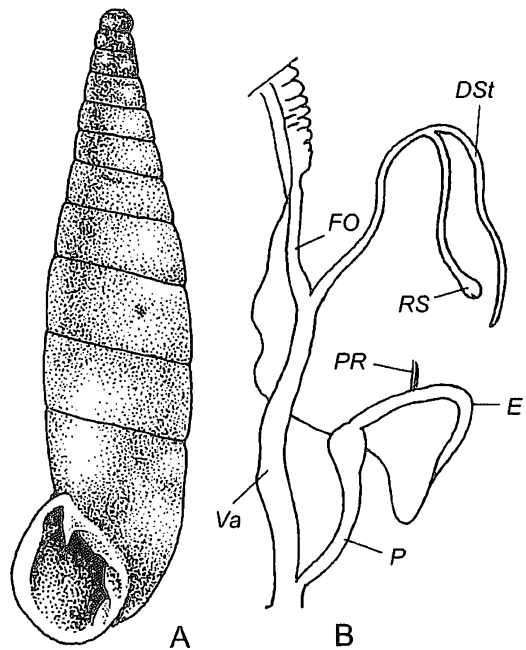


Fig. 871. *Barcania (Torbana) pabsti* Brandt, 1956.

A — shell: Rues Mlella Wadi, Cyrenaica [Lybia]. Paratype. Vienna No. E 60.328. B — reproductive tract. After Brandt, 1956.

Neck of spermatheca unusually long and slender, diverticle worm-shaped, long.

DISTRIBUTION. N Africa (Lybia: Cyrenaica, Djebel el Akhdar).

Barcania (Barcania s. str.)

Fig. 870

Shell mostly decollated, of about 9 (after decollation) much flattened whorls; last whorl somewhat flattened on neck, with 1 or 2 basal crests. Color corneous, aperture margins white. Surface finely regularly ribbed. Aperture ovate, somewhat oblique, with not thickened, flatly reflexed margins. Inner end of superior lamella lies farther than external end of spiral lamella. Inferior lamella strong, with more or less thickened ridge, steeply descending. Subcolumellar lamella subvertical, nearly reaching aperture edge. Lunella wide, callouse, dorsal to lateral. Palatal wall of aperture with a callus at external end of principal plica. Plate of clausilium simple, narrow. Height 12.2-23.0 diam. 2.5-4.5 mm (16.2 × 3.5 mm).

Epiphallus + penis (male loop) not long, boundary between these ducts marked by narrowing; penis swollen. Penial retractor attached to epiphallus. Free oviduct longer than vagina. Diverticle of spermathecal stalk a little longer than duct of reservoir + reservoir itself.

DISTRIBUTION. Lybia (Cyrenaica). 12 spp. & subspp.

Barcania (Torbana) Brandt, 1956

Fig. 871

Brandt, 1956: 140.

TYPE SPECIES — *Barcania (Torbana) pabsti* Brandt, 1956; OD.

Shell glossy, of about 11 nearly flat whorls. Last whorl with rather coarse basal keel shifted rightward. Color white, apex fulvous. Regular sculpture practically absent, but on last whorl behind aperture there are rather coarse radial wrinkles. Aperture more or less interrupted on parietal wall, with moderately reflexed margins. In-

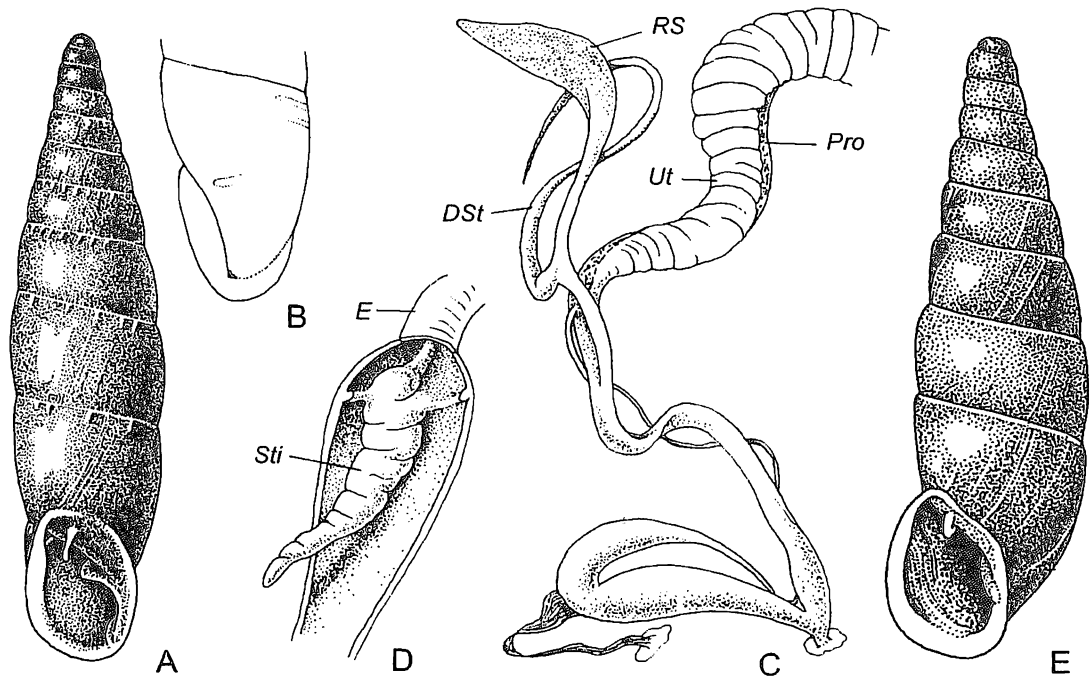


Fig. 872. A, B, C, D — *Charpentieria (Itala) itala* (G. Martens, 1824). Gangria, near Lugano, May 10, 2000. A — shell. B — location of plicae within last whorl. C — reproductive tract. D — interior of penis. Moscow No. Lc-24854. E — ! *Charpentieria (Itala) stenzii* (Rossmassler, 1836). Tirol [Austria]. Moscow No. Lc-1973.

ner end of superior lamella lies deeper than external end of spiral lamella. Inferior lamella comparatively low. Lunella ventral. Height 15.2-18.8, diam. 3.3-4.1 mm (17.3 × 3.9 mm).

Anatomically differs from *Barcania* s. str. by longer male loop, more distal attachment of penial retractor, inverse proportions of sections of distal female division (free oviduct shorter than vagina) and shorter neck of spermathecal stalk.

DISTRIBUTION. Lybia (Cyrenaica). 1 sp.

Charpentieria Stabile, 1864

Stabile, 1864: 80 (*Clausilia* sect.).

— *Pedemontiana* Pini, 1884: 242 (part; t.-sp. *Clausilia baudii* Pini, 1884; SD Lindholm, 1924).

TYPE SPECIES — *Clausilia diodon* Studer, 1820; SD O.Boettger, 1877

Shell fusiform. Postembryonic sculpture weak. Last whorl basally rounded or with vestigial keel. Aperture (sub)vertical. Inferior lamella variously developed, subhor-

zontal at lower end. Subcolumellar lamella mostly visible in frontal view. Principal plica starting on dorsal or right-dorsal side. Lunella callouse or wanting.

Epiphallus not long. Penis internally almost smooth, with long vermiform stimulator or incomplected verge. Penial retractor attached to epiphallus or to penis/epiphallus junction.

DISTRIBUTION. SE France to Pyrenean Mts., S Alps to Croatia, E Sudetes and adjacent parts of Carpathians, Italy.

Charpentieria (Itala)

O. Boettger, 1877)

Fig. 872

Boettger O., 1877: 35 (*Clausilia*, *Delima* sect.; "Gruppe").

— *Pollinia* Betta, 1870a: 76 [nom. praeocc., non Signoret, 1869 (Homoptera); t.-sp. *Clausilia baldensis* Charpentier, 1852 (= *Clausilia itala* G. Martens, 1824); monotypy].

— *Tirolica* O. Boettger, 1877: 35 (*Clausilia*, *De-*

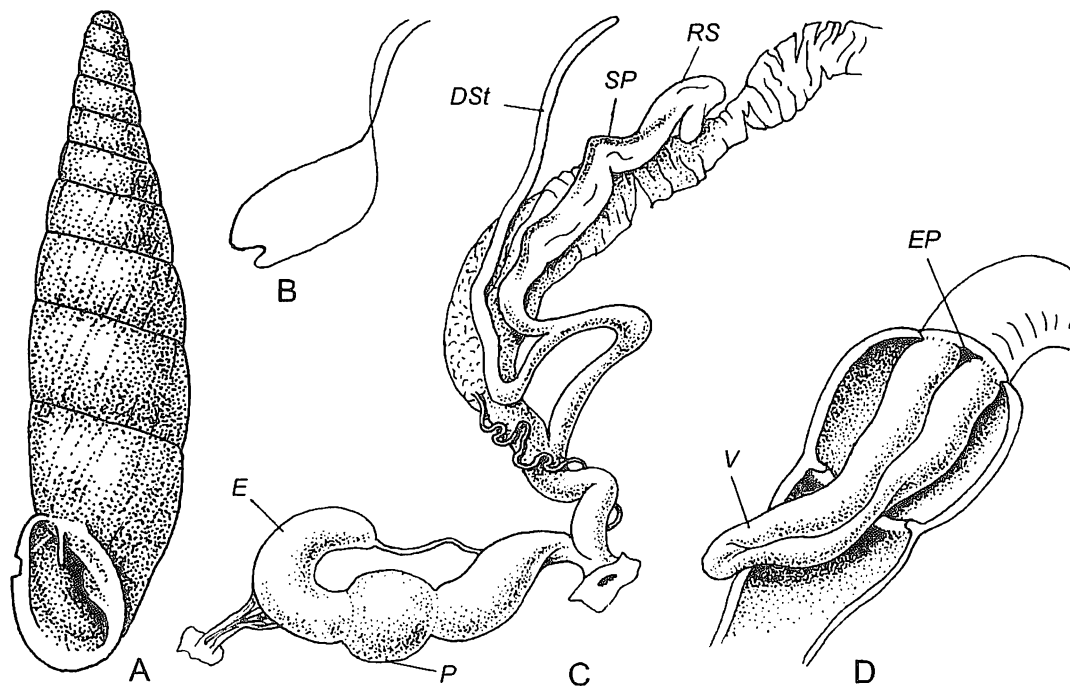


Fig. 873. *Charpentieria (Charpentieria) diodon* (Studer, 1920). A — shell: Simplon [S Switzerland]. Moscow No. L-1090. B, C, D — Gondo, Canton Valais, Switzerland, September 21, 1983. B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-24770 (Cardiff No. 1993.052.008).

lima sect.; "Gruppe"; t.-sp. *Clausilia stenizii* Rossmassler, 1836; OD).

— *Alpidelima* A. Wagner, 1924: 101 (*Delima* subg.; t.-sp. *Clausilia itala* G. Martens, 1824; designated here).

TYPE SPECIES — *Clausilia itala* G. Martens, 1824; OD.

Shell slender to obese, thin to comparatively solid, often somewhat translucent, of 8-9 slightly to moderately convex whorls. Color corneous to dark-brown and chestnut. Postembryonic whorls nearly smooth to finely, densely, radially ribbed; in dark-colored shells upper ends of ribs and suture white. Elements of spiral striation sometimes present. Aperture subcircular to pear-shaped, with thin, more or less reflexed margins. Superior lamella rather short, its inner end lies a little deeper than external end of spiral lamella or these lamellae separated. Lunella callous, dorsal. In populations living at high altitude closing apparatus often more or less reduced. Height 10-23, diam. 4-5 mm (*itala*: 17.1 × 4.0 mm; *stenizii*: 15.2 × 4.1 mm).

Epiphallus rather short, tapering, its boundary with penis marked with sharp bend. Penis clavate, internally with long,

vermiform, verge-like stimulator. Penial retractor attached to penis/epiphallus junction. Free oviduct short, vagina 4-5 times longer. Neck of spermathecal stalk rather short, duct of reservoir + reservoir itself somewhat shorter than thin diverticle.

DISTRIBUTION. Austria, Yugoslavia. Italy, SE Switzerland, 5-6 spp. with numerous subspp. & forms.

Charpentieria (Charpentieria s. str.) Fig. 873

Shell rather thin, translucent, shining, of about 9 slightly convex whorls. Last whorl evenly rounded, without basal keel. Color light-corneous to chestnut. Embryonic whorls smooth, subsequent with smoothed, irregular wrinkles which become sharper behind aperture. Aperture ovate, with shortly reflexed, a little thickened margins. Superior lamella thin, short, its posterior end located deeper than anterior end of spiral lamella. Lunella wanting. Upper palatal plica subvertical. Palatal callus weak or absent. Clausilium with a deep apical incision.

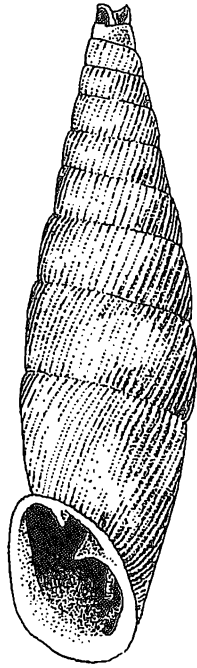


Fig. 874. *Siciliaria (Siciliaria) grohmanniana* (Rossmäessler, 1836).
Monte Pellegrino near Palermo, Sicily, Italy.
Private coll. of A.G. Kuznetsov.

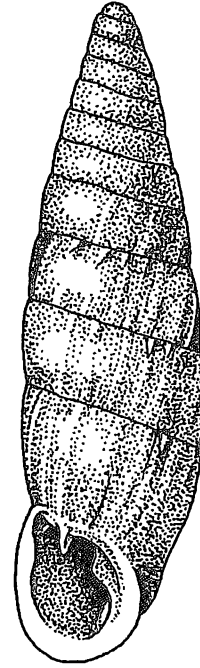


Fig. 875. *Siciliaria (Stigmatica) stigmatica* (Rossmäessler, 1836).
Velirod, Dalmatia [Yugoslavia]. Moscow
No. Lc-9446.

Height 10-14, diam. 2.8-3.2 mm (11.9 × 3.0 mm).

Epiphallus short, bulky, its boundary with penis marked with abrupt expanding. Penis consisting of swollen proximal and subcylindrical distal parts, internally with long verge; on surface of verge a deep groove runs. Penial retractor attached to epiphallus. Free oviduct approximately as long as vagina. Neck of spermathecal stalk comparatively long.

DISTRIBUTION. SW Alps. 2 spp. with a few forms.

Siciliaria Vest, 1867

Vest, 1867: 166.

TYPE SPECIES — *Clausilia grohmanniana* Rossmäessler, 1836; OD.

Shell fusiform, more or less obese, moderately solid, of 10-11 flattened whorls. Last whorl with variously developed basal keel. Surface more or less distinctly ribbed or silky striated. Aperture ovate, slightly oblique. Superior lamella short to moder-

ately long, extending inward farther than anterior end of spiral lamella. Lower part of inferior lamella subhorizontal, sometimes a little sinuous. Lunella dorsal.

DISTRIBUTION. Italy, Yugoslavia, Albania, Greece.

Siciliaria (Siciliaria s. str.)

Fig. 874

— *Trinacria* O. Boettger, 1877: 33 (nom. praecoc., non Mayer, 1868; *Clausilia*, *Siciliaria* sect.; "Gruppe"; t.-sp. *Clausilia crassicostata* L. Pfeiffer, 1856; OD).

— *Sicania* Tomlin, 1929: 256 (nom. nov. pro *Trinacria* O. Boettger, 1877).

Shell decollated, thin. Whorls up to 11 when non-decollated. Base of last whorl with a crest. Color whitish-corneous, ribs white. Postnuclear sculpture, a rather fine and dense regular ribbing. Aperture ovate, with basal groove; margins thin, reflexed and expanded. Superior lamella short. Sub-columellar lamella long, not protruded. Principal plica long. Lunella nearly straight.

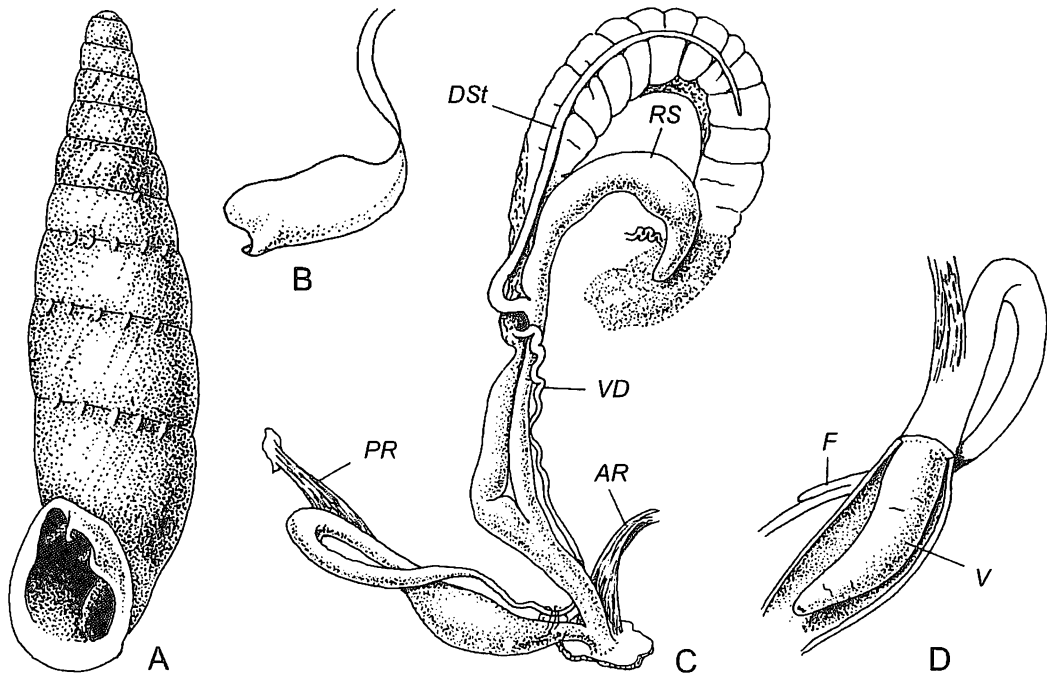


Fig. 876. *Siciliaria (Gibbularia) gibbula* (Rossmuessler, 1836).
 A — shell: Zadar, district Kotari, Dalmatia [Yugoslavia]. Private coll. of A.G. Kuznetsov. B, C, D — Pescitche, Basilicata, Italy, April 18, 1996. B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-24652.

Upper palatal plicae short, 2 in number. Lower palatal plica strong, mostly protruded. Height 15-24, diam. 4.0-5.5 mm (21.5 × 5.3 mm).

Vas deferens slightly enlarged proximally. Penis internally smooth, with a long, conic verge piercing throughout. Penial retractor attached to epiphallus. Free oviduct a little longer than vagina. Neck of spermathecal stalk long; diverticle thin, longer than neck.

DISTRIBUTION. Sicily and adjacent islets. 8 spp.

Siciliaria (Stigmatica)

O. Boettger, 1877)

Fig. 875

Boettger O., 1877: 34 (*Clausilia*, *Delima* sect.; "Gruppe").

— *Paestana* Westerlund, 1884 (1884-1890): 57, 61 (t.-sp. *Clausilia paestana* Rossmuessler, 1836; tautonymy).

TYPE SPECIES — *Clausilia stigmatica* Rossmuessler, 1836; tautonymy.

Shell fusiform, rather solid but translu-

cent, shining, of 10-11 a little convex whorls. Last whorl with blunt, rounded keel. Color yellowish, olive or corneous. Postembryonic sculpture of silky radial striation; some striae united below suture in small whitish nodules. Aperture ovate to pear-shaped, subvertical, with scarcely thickened, a little reflexed margins. Superior lamella moderately long. Subcolumellar lamella rather short, nearly vertical. Principal plica starting on dorsal or right-dorsal side. Upper palatal plica short or wanting. Lower palatal plica connected with lower end of lunella. Height 9-20, diam. 2.8-5.0 mm (14.2 × 4.0 mm).

DISTRIBUTION. Yugoslavia, Albania, Greece including Corfu (Kerkyra) Island, Calabrien.

Siciliaria (Gibbularia)

Monterosato in Cecconi, 1908)

Fig. 876

Monterosato in Cecconi, 1908: 8 (nom. emend. pro *Gibbula* O. Boettger, 1877).

— *Gibbula* O. Boettger, 1877: 34 [nom. praecoc.,

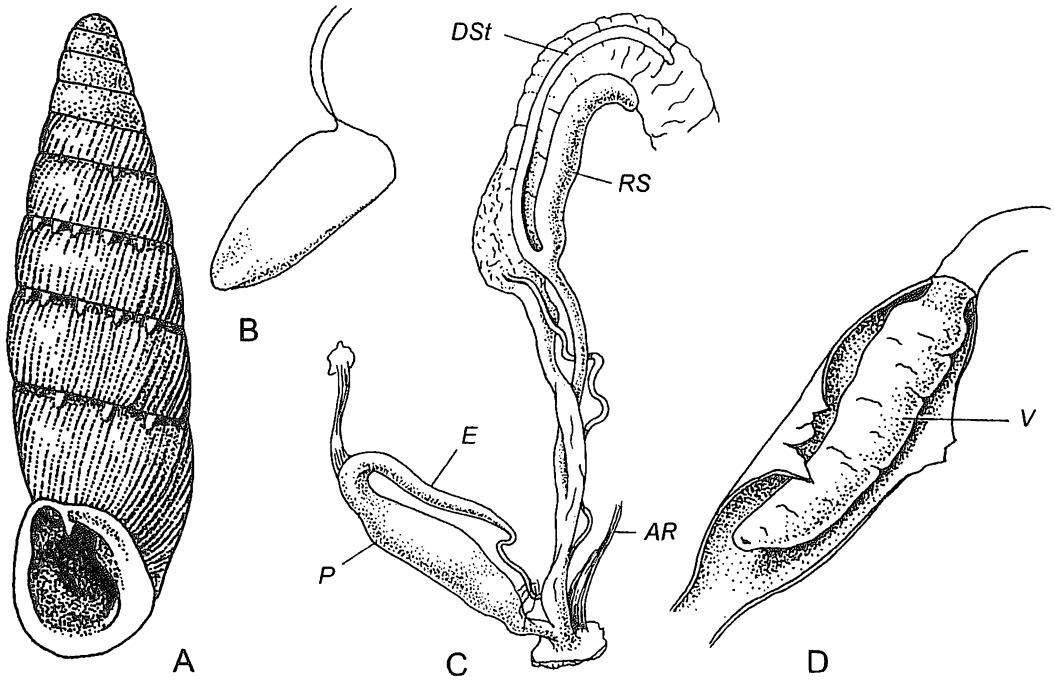


Fig. 877 A — *Papillifera solida* f. *cajetana* (Rossmuessler, 1842). Shell: "Ghiliat Scaci" [Italy]. Moscow No. Lc-1117 B, C, D — ! *Papillifera papillaris* (Müller, 1774). Coliseum, Roma, Italy, November 1, 1995. B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-24635.

non Risso, 1826; *Clausilia*, *Delima* sect.; "Gruppe"; t.-sp. *Clausilia gibbula* Rossmuessler, 1836; OD).

TYPE SPECIES — *Clausilia gibbula* Rossmuessler, 1836; OD.

Shell fusiform-turreted, thin but rather solid, translucent to subtransparent, of 9 moderately convex whorls. Basal crest rounded, quite distinct. Color light corneous, with subsutural white, widely spaced marks. Postnuclear sculpture of well spaced, smoothed, weak wrinkles or riblets. Aperture ovate, a little oblique, with slightly thickened, somewhat reflexed margins. Superior lamella short. Subcolumellar lamella remoted from inferior, not reaching aperture edge. Principal plica not long, dorsal; above it short sutural plica may be present. Lunella connected with lower palatal plica. Between upper end of lunella and principal plica upper palatal plica situated. Lower ends of principal and upper palatal plicae connected by whitish callus. Plate of clausilium strongly convex, with small thickening at distal end. Height 10-17, diam. 2.7-3.8 mm (13.0 × 3.2 mm).

Flagellum very short. Vas deferens a lit-

tle enlarged near prostate, bound to atrial part of penis by thin fibers. Epiphallus subcylindrical, moderately long. Penis obesely fusiform, with poorly defined penial gland; internally with long, conic verge having narrow lumen. Penial retractor inserted on distal part of epiphallus. Atrial retractor strongly developed. Free oviduct rather long, a little longer than vagina. Neck of spermathecal stalk long, reservoir poorly demarcated, capacious. Diverticle thin, long.

DISTRIBUTION. Yugoslavia (Dalmatia), Italy (Pelagosa, Abruzzo, Apulia, Basilicata, Sicily). 3-4 spp. & subspp.

Papillifera Hartmann, 1842

Fig. 877

Hartmann, 1842 (1840-1844): 156 (*Clausilia* subg.).

— *Papillina* Moquin-Tandon, 1855: 324 (*Clausilia* subg.; t.-sp. *Clausilia solida* Draparnaud, 1805; SD Lindholm, 1924).

TYPE SPECIES — *Clausilia solida* Draparnaud, 1805; SD Lindholm, 1924.

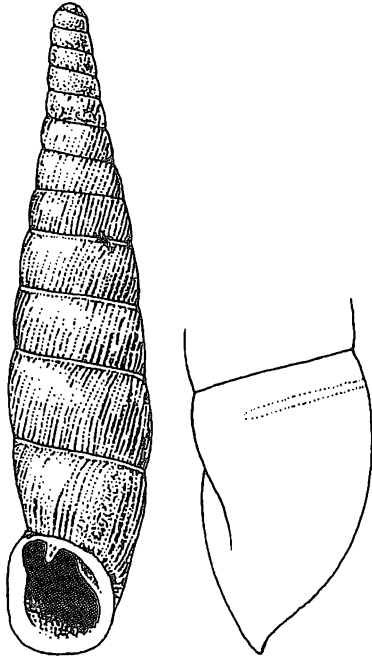


Fig. 878. *Mauritanica tristrami* (L. Pfeiffer, 1860).
A — shell. B — position of plicae within last whorl. Atlas Mts [N Africa]. Paris.

Shell (obesely) fusiform, rather thin to moderately solid, generally shining, of 8-10 slightly convex whorls. Last whorl with neck thickening. Color corneous, whitish or greenish; under suture a narrow brown band often present. This band interrupted by white nodules formed by upper ends of ribs. Postembryonic whorls with variously developed (but never very strong), crowded ribs. Aperture irregularly ovate, a little oblique, with shortly reflexed, thickened margins. Superior lamella short. Spiral lamella wanting. Inferior lamella well developed, with subhorizontal lower part. Subcolumellar lamella low, short. Principal plica wanting. Lunella low, callouse, dorsal or right-dorsal. Lobe of clausilium elongated-triangular, without incision. Height 10-18, diam. 3-5 mm (10.5 × 3.0 mm).

Epiphallus rather thin, not long. Penis longer, more or less swollen, internally smooth, with a long completed verge. Penial retractor attached to distal part of epiphallus. Free oviduct markedly longer than vagina. Neck of spermathecal stalk long, diverticle of equal length; reservoir sleeve-like, poorly demarcated from duct. Atrial retractor well developed.

DISTRIBUTION. SE France, Apennine peninsula, Corsica, Sardinia, Sicily. About 10 spp. & forms.

Mauritanica O. Boettger, 1879
Fig. 878

Boettger O. in Rossmassler, 1879 (1835-1910): 153 (*Clausilia* subg.).

— *Mauretania* Kennard & Woodward, 1923: 307 (nom. err. pro *Mauritanica* O. Boettger, 1879).

TYPE SPECIES — *Clausilia tristrami* L. Pfeiffer, 1860; OD.

Shell slender, fusiform, rather thin, of 13-15 nearly flat whorls. Basal keel weak, rounded. Color reddish, chestnut or corneous-bluish; ribs white. Postembryonic whorls finely, accurately ribbed. Aperture rounded-subquadrangular, with a little reflexed, somewhat thickened margins. Superior lamella short, its inner end located deeper than external end of spiral lamella. Inferior lamella not strong, deeply lying. Subcolumellar lamella absent. Principal plica starting on right side. Lunella right-dorsal, broad, callouse. Upper palatal plica rudimentary or wanting. Height 18-26, diam. 4.0-5.5 mm (20.1 × 4.3 mm).

DISTRIBUTION. Tunisia, Algeria. 3-4 spp.

MENTISSOIDEINAE
Lindholm, 1924

Lindholm, 1924: 67

— Fusulinae Lindholm, 1924: 67 (part.).

— Euxininae Likharev, 1962: 139.

Juvenile shell without spiral lamella. Periostracal layer present or absent. Last whorl with 1 or (rarely) 2 (rather) strong basal keels. Aperture non-apostrophic, entire, mostly protruded, its margins sometimes with knobs. Superior and spiral lamellae mostly separated, well remoted from columella and, if closing apparatus normally developed, their ends located at different distance from aperture. Inner end of subcolumellar lamella remains on columella. Lunella mostly entire.

Ocular retractor passes through peni-oviducal angle. Thin-walled caecum entering posterior end of penis at junction with

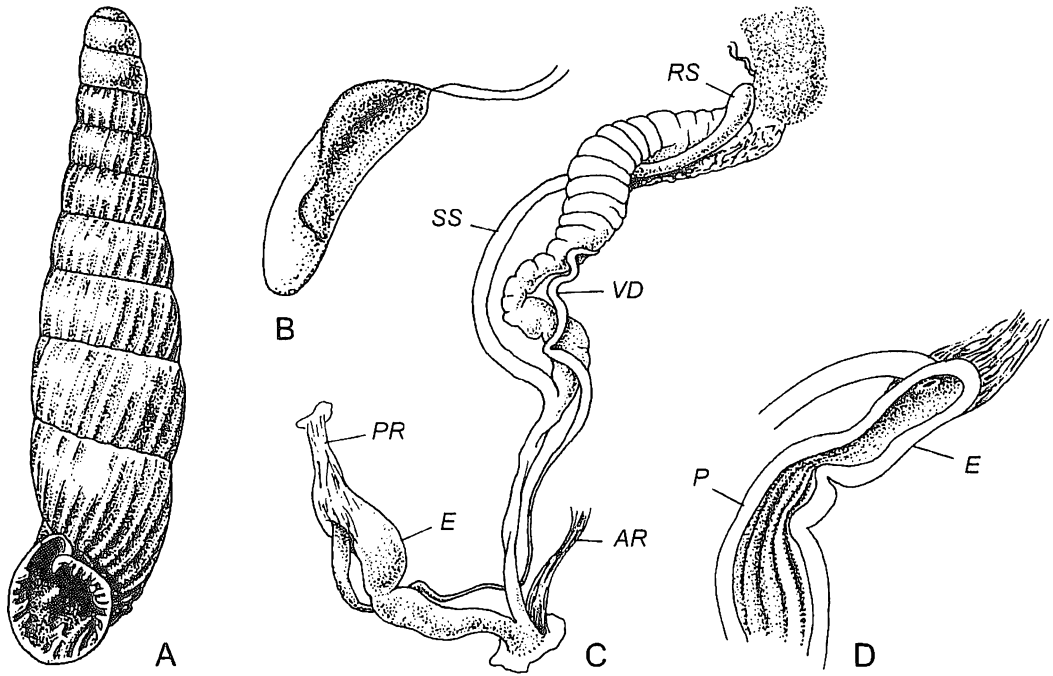


Fig. 879. *Filosa filosa* (Mousson, 1863). Botanical Garden, Batumi, Adzharia, April 7, 1971. A — shell. B — clausilium. C — reproductive tract. D — interior of epiphallus and penis. Moscow No. Lc-24632.

epiphallus sometimes present. Spermatheca with a retractor, entering vagina at significant distance from atrium. Diverticle inserting on lower part of spermathecal shaft and modified into glandular organ having appearance of thin-walled, frequently sinuated, slender tube.

DISTRIBUTION. Caucasus, W Asia, SE Balkans including Greece, E and S Africa, Madeira.

Filosini Nordsieck, 1979

Nordsieck, 1979: 262.

Aperture margins with numerous knobs. Superior lamella continuous with spiral lamella. Lunella entire.

Distal part of vas deferens a little thickened. Flagellum wanting. Epiphallus short, bulky. Penis long, without caecum or verge. Penial retractor uniramous, attached to epiphallus at entrance of vas deferens. Diverticle of spermathecal stalk wanting.

DISTRIBUTION. SW Transcaucasus.

Filosa O. Boettger, 1877 Fig. 879

Boettger O., 1877: 72 (*Clausilia*, *Serrulina* sect.; "Gruppe"). Likharev, 1962: 211.

TYPE SPECIES — *Clausilia filosa* Mousson, 1863; OD.

Shell fusiform with subcylindrical upper part, rather solid, slightly shining, of 9-11 weakly convex whorls. Last whorl with well developed basal keel. Color brown or chestnut. Postembryonic whorls with regular, rounded ribs. Aperture pear-shaped, with shortly reflexed white margins bearing a number of lamellar knobs. Superior lamella, gradually lowering, continuous with spiral. One of marginal folds on parietal wall of aperture fused with inferior lamella. Lower end of subcolumellar lamella well visible at oblique view. Lunella lies on right-dorsal side. Principal fold long. Tongue-like lobe of clausilium bears two large lamellar keels on external side, crossing lobe diagonally. Height 10.0-11.3, diam. 2.5-2.7 mm (11.1 × 2.6 mm).

Vas deferens at first enlarged, then narrowed, then, gradually expanding, opens to

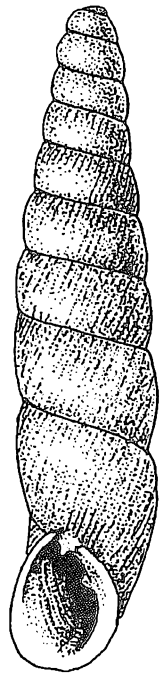


Fig. 880. *Macroptychia senaarensis* (L. Pfeiffer, 1855). Harar, northern Gallaland, Ethiopia. Vienna No. K 9662.

epiphallus through a simple pore. Internally epiphallus smooth, separated from penis by a circular narrowing. Penis internally with smoothed longitudinal folds. Penial retractor arises from diaphragm and attached to epiphallus apically, coating partially entrance of vas deferens. Well developed atrial retractor present. Free oviduct rather long, folded, vagina thin, a little longer. Reservoir of spermatheca reaching base of albumen gland.

DISTRIBUTION. Adzharia. 1 sp.

Boettgeriini Nordsieck, 1979

Nordsieck, 1979: 262.

Superior lamella continuous with spiral lamella.

Epiphallus and penis normally developed. Penis internally with a verge or velum. Penial retractor forked.

DISTRIBUTION. Greece, W Turkey, Arabian Peninsula, E and S Africa, Madeira.

Macroptychia O. Boettger, 1877

Fig. 880

Boettger O., 1877: 108 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia senaarensis* L. Pfeiffer, 1855; SD Kennard & Woodward, 1923.

Shell pillar-shaped or subfusiform, thin, dull, of 9-10 flattened whorls. Last whorl basally rounded. Color corneous to brown. Embryonic whorls smooth, later whorls delicately, regularly ribbed. Aperture ovate, with slightly thickened, expanded margins. Superior and spiral lamellae evenly fused. Inferior lamella rather strong, its external end somewhat forked. Subcolumellar lamella shifted backward. Principal plica long. Lunella nearly dorsal. Upper palatal plica vestigial. Plate of clausilium small, rounded, thickened below. Height 7-13, diam. 1.8-2.8 mm (12.8 × 2.7 mm).

DISTRIBUTION. Ethiopia. 2 spp.

Sabaeola Lindholm, 1925

Fig. 881

Lindholm, 1925c: 266 (*Macroptychia* subg.). Neubert, 1998: 413 (*Macroptychia* subg.).

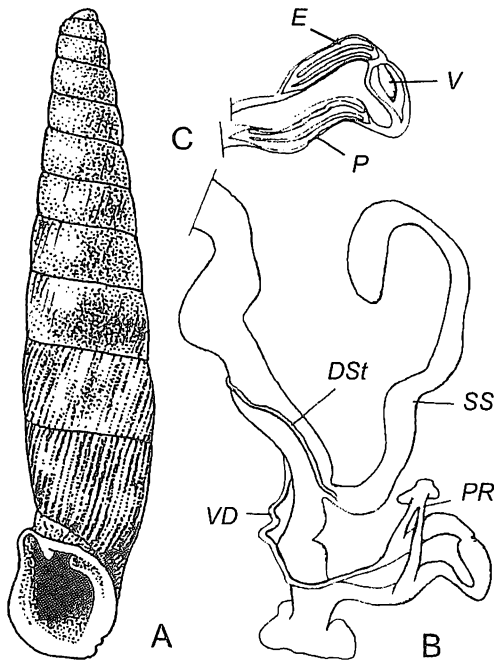


Fig. 881. *Sabaeola schweinfurthi* (Martens, 1889). A — shell: Yemen, S Arabia. Zürich No. 543798. B — reproductive tract. C — interior of penis and epiphallus. After Neubert, 1998.

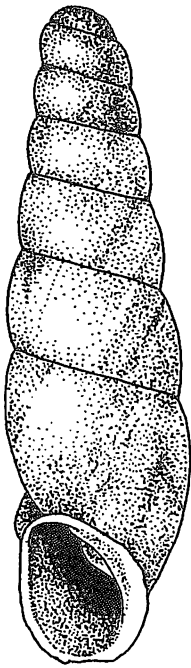


Fig. 882. *Aequinoctia degeneris* (Preston, 1911). Between Rumuruti and Mt. Kenya, Kenya. "Type" [syntype?]. Zürich No. 543799.

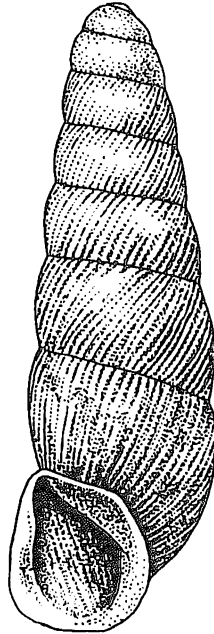


Fig. 883. *Abbadia aethiopica* Bourguignat, 1883. Mt. Zeboul, Ethiopia. Lectotype* Paris.

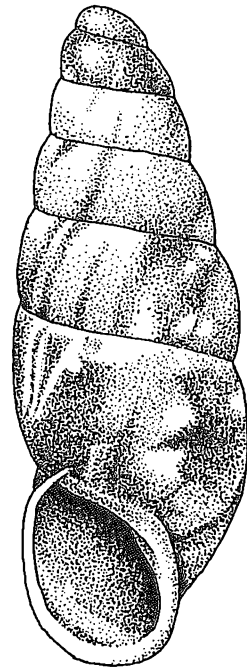


Fig. 884. *Astrobalea africana* (Melvill et Ponsonby, 1899). Karkloof, S Africa. Phil. No. 47247

TYPE SPECIES — *Clausilia schweinfurthi* Martens, 1889; OD.

Shell subfusiform (nearly cylindrical), thin, of 10-11 nearly flat whorls. Last whorl with rounded keel. Suture a little crenulated. Color corneous. Postembryonic whorls rib-striated to finely ribbed. Aperture subquadrangular, with thin, markedly reflexed margins. Visible boundary between superior and spiral lamellae absent. Inferior lamella occupies upper position. Subcolumellar lamella deeply lying. Principal plica starting on dorsal side, below it rather short upper palatal plica located; below palatal plica, also on dorsal wall, rather small lunella situated. Umbilicus absent. Height 14-17, diam. 3.0-3.3 mm (16.8 × 3.3 mm).

Penis without a caecum, consisting of more or less long, subcylindrical distal and shorter, swollen proximal portions; later containing a small, fusiform verge. One arm of penial retractor attached to distal portion of penis, the other arm — to epiphallus near its junction with vas deferens. Free oviduct much longer than vagina. Neck of spermathecal stalk extremely short; diverticle very narrow; reservoir poorly defined.

DISTRIBUTION. S Arabia. 2 spp.

Aequinoctia Lindholm, 1924
Fig. 882

Lindholm, 1925: 266 (*Macroptychia* subg.).

TYPE SPECIES — *Clausilia degeneris* Preston, 1911; OD.

Shell fusiform-cylindrical, fairly solid, with widely rounded, blunt apex, shining or mat, of 7-9 slightly convex whorls. Last whorl without basal keel. Color brown or golden-brown, with accidental, whitish radial streaks. Embryonic whorls microscopically granular, later whorls with variously developed, sometimes wavy, irregular, radial riblets. Aperture widely ovate, with thin, a little reflexed, continuous or shortly interrupted margins. Closing apparatus markedly reduced. Superior lamella short, spiral lamella vestigial or absent. Inferior lamella small. Subcolumellar lamella not present. Principal plica very thin, rudimentary. Lunella and clausilium wanting. Height 6.0-9.1, diam. 1.5-2.0 mm (6.2 × 1.8 mm).

DISTRIBUTION. E Africa. 2-3 spp.

*Lectotype is designated here to clarify the taxonomic nature of the type species of the genus.

Abbadia Bourguignat, 1883
Fig. 883

Bourguignat, 1883: 69.

TYPE SPECIES — *Abbadia aethiopica* Bourguignat, 1883; monotypy.

Shell pillar-shaped, thin, silky shining, somewhat translucent, of about 8 moderately convex whorls. Last whorl without basal keel. Color corneous. Embryonic whorls smooth, later very finely ribbed; on last whorl there are very weak spiral striae. Aperture generally rounded, subvertical, with thin, shortly reflexed margins. Closing apparatus reduced, only vestigial inferior lamella remains. In lectotype through wall of antepenultimate whorl one can see some light structures similar to shelled embryos. Dimension of lectotype: height 7.7, diam. 2.4 mm (paralectotype is immature shell).

DISTRIBUTION. Ethiopia. 1 sp.

Austrobalea Pilsbry, 1924
Fig. 884

Pilsbry, 1924: 6.

TYPE SPECIES — *Balea africana* Melvill et Ponsonby, 1899; OD.

Shell narrowly fusiform, thin, silky glossy, of 6.5-7 nearly flat whorls. Last whorl without basal keel. Apex narrowly rounded. Color corneous to dark corneous-brown, often with patches of short white lines or striae at irregular intervals; aperture margins white. Embryonic whorls smoothly malleate to nearly smooth, later with strong, crowded, regular, slightly wavy radial ribs and widely spaced, shallow spiral grooves. Aperture subrhombic, with slightly expanded margins. Closing apparatus much reduced, represented by only inferior lamella arising well within aperture. Umbilicus, a narrow, short crack. Height 6.0-7.8, diam. 2.2-2.5 mm (6.6 × 2.4 mm).

DISTRIBUTION. S Africa (Natal, Cape Prov.). 1 sp.

Boettgeria O. Boettger, 1863

Boettger O., 1863: 309 (*Clausilia* sect.). Neubert & Groh, 1998: 157

TYPE SPECIES — *Helix (Cochlodina) del-tostoma* Lowe, 1831; SD Kobelt, 1880.

Shell fusiform, rather thin to quite solid, of 9-12 flattened to rather convex whorls. Last whorl with variously developed basal keel. Color yellowish, brown or corneous. Embryonic whorls smooth or finely granulate, later with coarse to fine radial ribs. Aperture ovate to pear-shaped, with shortly reflexed, more or less thickened margins. Inferior lamella strong, oblique. Principal plica starting on dorsal side. Lunella rudimentary or missing. Palatal plicae 0-2 in number.

Penis internally with irregular, longitudinal, smoothed folds and a minute velum at epiphallial pore; one fold runs from epiphallus and ends on inner surface of velum.

DISTRIBUTION. Madeira.

Boettgeria (*Boettgeria* s. str.)
Fig. 885

Shell rather solid, coarsely ribbed. Embryonic whorls acutely mammilate. Whorls somewhat flattened. Suture moderately to quite deep. Peristome usually strongly thickened. Subcolumellar lamella short, but when elongated, it always has a thin thread running close to lower lamella; subcolumellar lamella not enters basal part of aperture. Height 7-15, diam. 1.6-3.2 mm (9.6 × 2.2 mm).

Epiphallial arm of penial retractor attached at entrance of vas deferens.

DISTRIBUTION. Madeira. 3 spp.

Boettgeria (*Loosjesiella*
Neubert et Groh, 1998)
Fig. 886

Neubert & Groh, 1998: 162.

TYPE SPECIES — *Clausilia crispa* Lowe, 1831; OD.

Shell thin, finely ribbed. Embryonic whorls short, dome-shaped. Whorls more or less convex. Suture shallow. Peristome rather thin. Subcolumellar lamella elongated, running parallel to basal groove, shifted in a basal direction and exhibits a considerable arch. Height 8-15, diam. 2-4 mm (15.9 × 3.9 mm).

Attachment of epiphallial arm of penial retractor mostly remote from entrance of vas deferens.

DISTRIBUTION. Madeira. 5 spp.

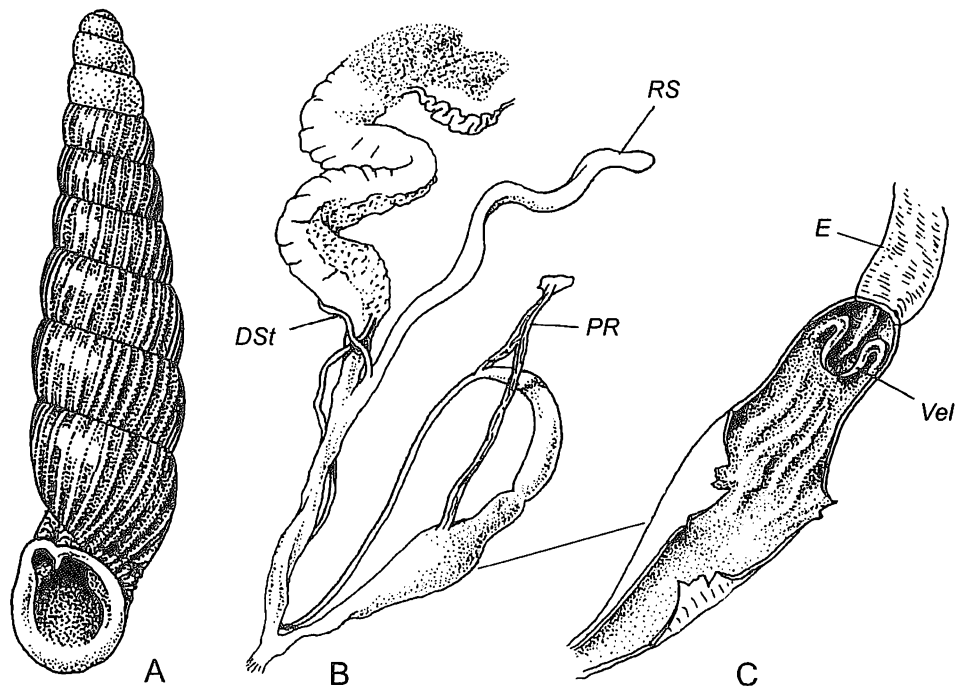


Fig. 885. *Boettgeria (Boettgeria) deltostoma* (Lowe, 1831).

A — shell: Madeira. Moscow No. Lc-608. B — Machico, Madeira, February 15, 1983. Reproductive tract and interior of penis. Moscow No. Lc-24777

Olympicola Hesse, 1916

Fig. 887

Hesse, 1916: 124 (nom. nov. pro *Olympia* Vest, 1867).

— *Olympia* Vest, 1867: 191 (nom. praeocc., non Risso, 1826; t.-sp. *Clausilia olympica* L. Pfeiffer, 1848; OD).

TYPE SPECIES — *Clausilia olympica* L. Pfeiffer, 1848; OD.

Shell high-conic, rather thin but firm, somewhat translucent, of 9-10 convex whorls. Last whorl with a strong basal keel and a shallow depression on right side. Color corneous or reddish-brown, aperture margins white. Postembryonic whorls with fine, irregular riblets which become strong behind aperture. Aperture rounded, solute, with thin, reflexed, expanded margins. Superior and spiral lamellae situated at different distance from columella (spiral farther) but united by a "bridge" (fracture). Inferior lamella scarcely visible in apertural view. Principal plica starting on dorsal side. Lunella weak. Plate of clausilium broad, rounded. Height 9.5-11.0, diam. 2.0-2.4 mm (10.0 × 2.3 mm).

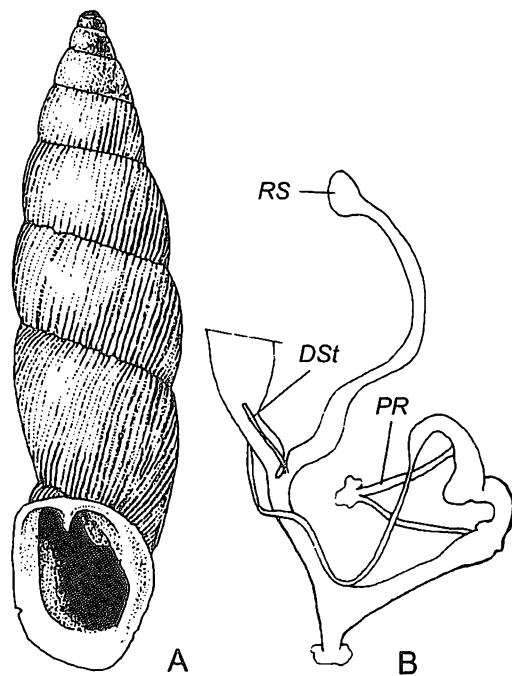


Fig. 886. *Boettgeria (Loosjesiella) crisa* (Lowe, 1831).

A — shell: St. Antonio da Serra, Madeira. Senck. No. 85664. B — reproductive tract. After Neubert & Groh, 1998.

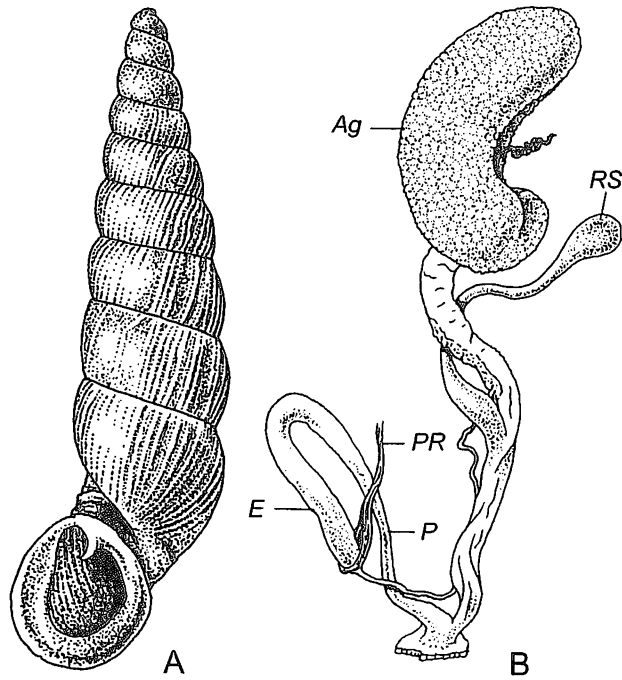


Fig. 887 *Olympicola olympica* (L. Pfeiffer, 1848).

A — shell: Greece. Vienna No. 83.000/1191. B — reproductive tract. Uludagh Ridge, vilayet Bursa, Turkey, June 6, 1997 Moscow No. Lc-24666.

Epiphallus somewhat swollen, poorly demarcated from penis. Penis thin, internally with a few sinuous longitudinal furrows; verge wanting. Penial retractor inserted on epiphallus at its junction with vas deferens. Free oviduct 3-4 times shorter than vagina. Diverticle of spermathecal stalk wanting, base of stalk a little expanded.

DISTRIBUTION. Greece, W Turkey. 1 sp.

Strumosini Nordsieck, 1994

Nordsieck, 1994: 4, 6.

Aperture margins lacking knobs. Superior lamella separated from spiral. Lunella represented by few short plicae or wanting.

Distal part of vas deferens not thickened. Flagellum developed. Epiphallus of moderate length. Penis lacks caecum, with very short, sphincter-like verge. One arm of penial retractor attached to distal portion of epiphallus, the other (smaller) — to penis. Spermathecal stalk with thin diverticle.

DISTRIBUTION. Turkey.

Strumosa O. Boettger, 1877

Fig. 888

Boettger O., 1877: 84 (*Clausilia*, sect. *Euxina*; "Gruppe").

TYPE SPECIES — *Clausilia strumosa* L. Pfeiffer, 1848; tautonymy.

Shell fusiform, rather thin, translucent, of 12-13 flattened whorls; last whorl with a strong basal keel and circular thickening behind aperture. Color brown to olive-corneus. Sculpture of fine regular riblets becoming gradually weaker, smoother and less regular toward aperture. Aperture adnate, acuminate-ovate, comparatively narrow, with a little reflexed margins. Inner end of superior lamella lies deeper than external end of spiral lamella. Inferior and sublumellar lamellae weak. Principal plica starting on right-dorsal side. Lunella absent. 3-4 palatal plicae dorsal in position; the lowest is strongest. Plate of clausilium simple. Height 10.5-17.5, diam. 2.5-3.8 mm (17.4 x 3.7 mm).

Vas deferens sinuous, adherent to vagina, entering epiphallus apically without de-

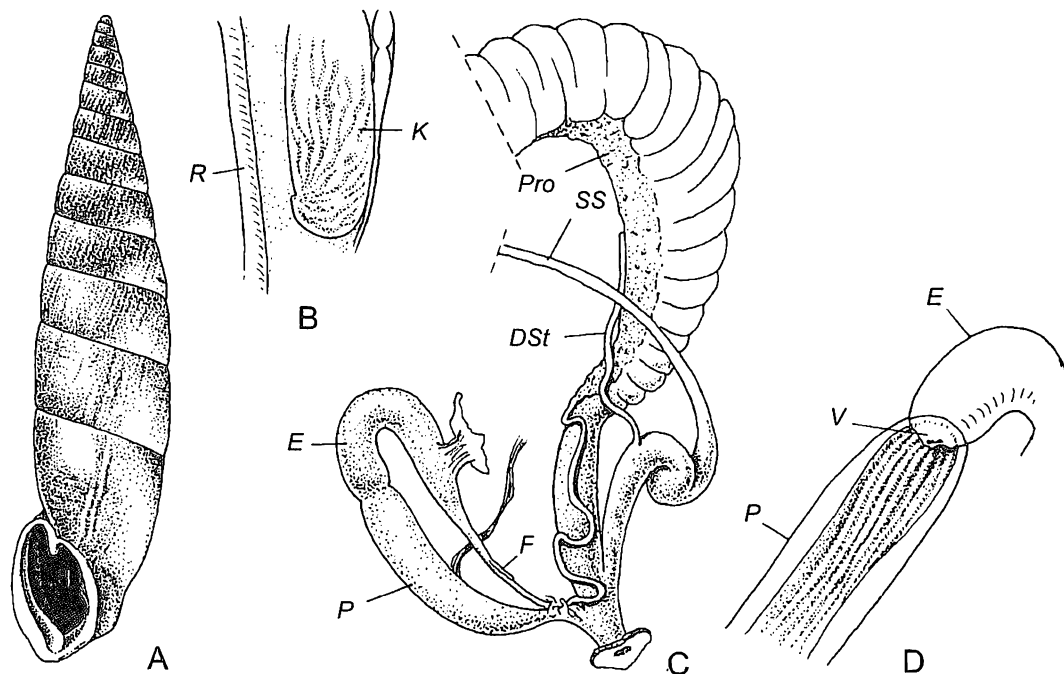


Fig. 888. *Strumosa strumosa* (L. Pfeiffer, 1848). A — shell: "Bursa, 11 km Richtung Uludag, Gebüsch" [Turkey]. Vienna No. 86231. B, C, D — Hisar, Bursa, Turkey, June 1, 1997. B — kidney. C — reproductive tract. D — interior of penis. Moscow No. Lc-24782.

finite boundary. Flagellum short, poorly visible. Epiphallus not long, separated from penis by circular narrowing, opens to penis on tip of very short verge. Inner surface of penis with numerous, simple, longitudinal folds. Main arm of penial retractor attached to epiphallus not far from base of vas deferens, the other (thinner) arm — to penis. Free oviduct rather long, vagina extremely short. Neck of spermathecal stalk rather long, diverticle slender, strengthened along spermoviduct, shorter than duct of reservoir.

DISTRIBUTION. Turkey. 5 spp. & subsp.

Strigileuxinini Nordsieck, 1994

Nordsieck, 1994: 4, 6.

Aperture margins without knobs. Superior lamella separated from spiral. Lunella entire.

Distal part of vas deferens not thickened. Flagellum present. Epiphallus shorter

than penis or of about same length. Penial caecum wanting. Penial retractor simple, attached to epiphallus. Diverticle of spermathecal stalk present.

DISTRIBUTION. SW Transcaucasus and W Turkey.

Strigileuxina Nordsieck, 1975

Fig. 889

Nordsieck, 1975: 87

TYPE SPECIES — *Clausilia (Euxina) reuleauxi* O. Boettger, 1887; OD.

Shell fusiform, rather obese, solid, glossy, of 11-12 convex whorls. Last whorl with a strong basal keel. Color brownish or dark-brown, with light streaks and markings. Sculpture of dense rib-striation. Aperture irregularly quadrangular, slightly oblique, with basal groove. Aperture margins widely reflexed, expanded, slightly thickened. Superior lamella large, deeply entering, sometimes protruding forward. Spiral lamella low. Inferior lamella visible at standard position, with saddle-like narrowing in

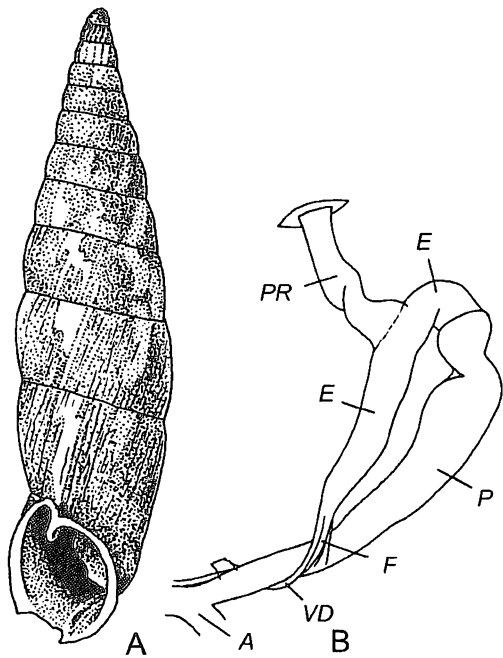


Fig. 889. *Strigileuxina reuleauxi* (O. Boettger, 1887).
A — shell: Machahlispiri town, Adzharia, SW Caucasus. Moscow No. Lc-24734. B — male loop. After Nordsieck, 1975.

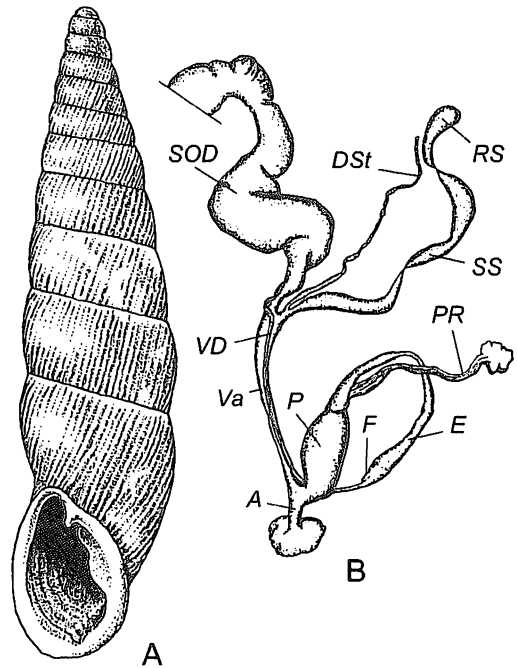


Fig. 890. *Sumelia rolli* (Nordsieck, 1975).
A — shell: Sumelas near Trabzon, Turkey. Paratype of *Acrotoma (Astrogena) amoena* Szekeres, 1970. Senck. No. 197492b. B — ! *Sumelia carinata* (Neubert, 1993). Reproductive tract. After Neubert, 1993.

middle; further it ascends steeply, its upper end lies on right side of shell beside with spiral lamella. Principal plica well developed, starting above lunella and ending on left side of shell. Lunella large, dorsal. Lobe of clausilium broad, its lower end rounded and thickened. Height 18-25, diam. 4.0-5.5 mm (24.2 x 5.9 mm).

Flagellum rudimentary. Epiphallus consisting of long proximal and very short distal parts. Penis longer than epiphallus. Penial retractor inserted on epiphallus a little below its middle.

DISTRIBUTION. E Georgia, Adzharia and adjacent territories of Turkey (Anatolia). 5-6 spp. & subspp.

Sumelia Neubert, 1995 Fig. 890

Neubert, 1995: 102.

TYPE SPECIES — *Euxina rolli* Nordsieck, 1975; OD.

Shell slender, fusiform, comparatively solid, slightly shining, of about 12 whorls.

Last whorl with a strong basal keel. Color dark-brown. Postapical whorls finely to coarsely ribbed. Aperture elongated-ovate, subvertical, with reflexed margins. Superior lamella not continuous with spiral. Inferior lamella low and calloused in lower part, then light saddle-shaped depression follows, farther spirally ascends upward. Subcolumellar lamella short, not visible through aperture. Principal plica short, starting on right-dorsal side, not attending margin of aperture; below its inner end a short palatal plica located. Lunella present or reduced in upper part. Umbilicus narrow, drop-like. Height 15.1-17.5, diam. 3.2-3.9 mm (16.2 x 3.8 mm).

Flagellum very short, vestigial, tightly bound to vas deferens. Epiphallus long, slender. Penis consists of 2 sections: short proximal and swollen distal. Penial retractor attached to epiphallus at its junction with penis. Free oviduct much shorter than vagina. Neck of spermathecal stalk extremely short, diverticle very thin, shorter than duct of reservoir.

DISTRIBUTION. NE Turkey, Vilayet Trabzon. 3 spp.

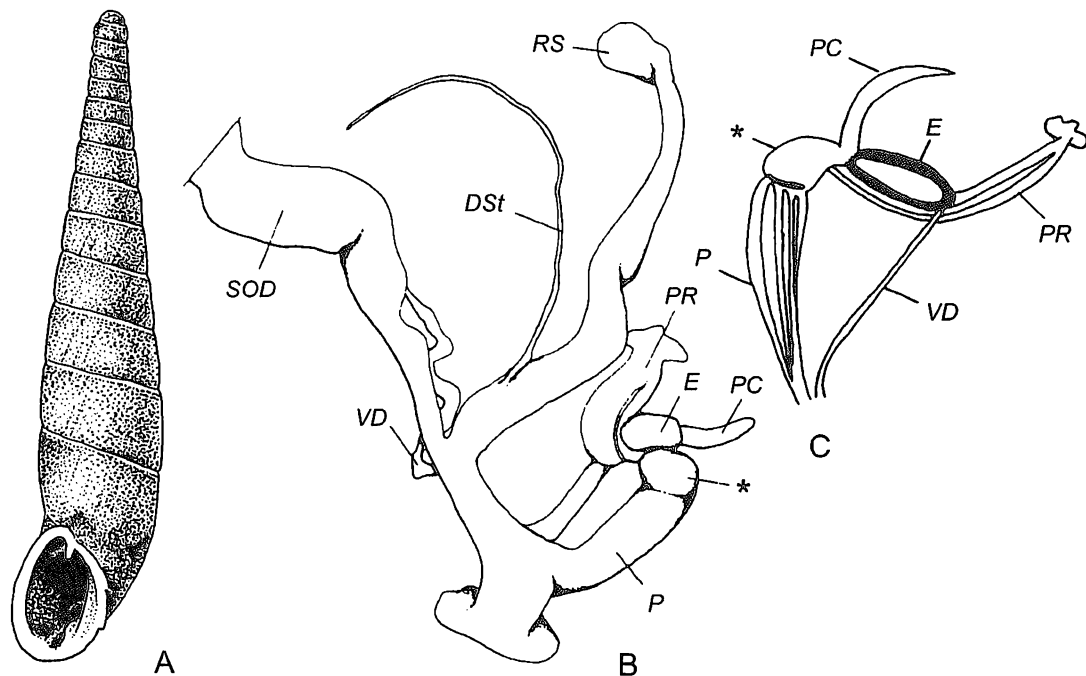


Fig. 891. *Roseniella (Roseniella) sobrievskii* (Lindholm, 1913).
 A — shell: NW of Ardanuch, vilayet Çoruh, N Turkey. Moscow No. Lc-24759 (gift of H. Menkhorst). B — reproductive tract. C — interior of penis and epiphallus. After Neubert, 1992. Asterisk — upper part of penis.

Acrotomini Nordsieck, 1979

Nordsieck, 1979: 260.

Aperture margins without knobs or 1-2 small knobs may be present. Superior lamella separated from spiral. Lunella entire.

Distal part of vas deferens more or less thickened. Flagellum not present. Epiphallus generally shorter than penis. Penial caecum more or less developed. Penial retractor simple or forked; in latter case penial arm attached to proximal penis end.

DISTRIBUTION. Caucasus, N Turkey, Syria.

Roseniella Thiele, 1931

Thiele, 1931: 536 (*Acrotoma* sect.; nom. nov. pro *Thalestris* Lindholm, 1913 et *Rosenia* Hesse, 1916).

— *Thalestris* Lindholm, 1913: 26 [nom. praeocc., non Claus, 1863 (Crustacea); *Clausilia* subg.; t.-sp. *Clausilia sobrievskii* Lindholm, 1913; OD].

— *Rosenia* Hesse, 1916: 124 (nom. praeocc., non

Schepman, 1913; nom. nov. pro *Thalestris* Lindholm, 1913).

TYPE SPECIES — *Clausilia sobrievskii* Lindholm, 1913; monotypy.

Shell entire, high-conic, moderately thin, of 14-17 whorls. Last whorl with a strong basal keel. Color chestnut to rich red-brown, below suture usually white zone situated. Surface almost smooth to ribbed. Principal lamella starting on dorsal side. Lunella dorsal, straight or nearly so, its lower end connected with short lower palatal plica.

DISTRIBUTION. N Turkey.

Roseniella (Roseniella) s. str.

Fig. 891

Shell slender, rather thin, translucent, shining, of 15-18 scarcely convex whorls. Color chestnut. Postembryonic whorls with feeble, irregular radial wrinklets (surface looking smooth) and well spaced, very shallow spiral lines. Aperture ovate, subvertical, with thin, reflexed margins. Ends of supe-

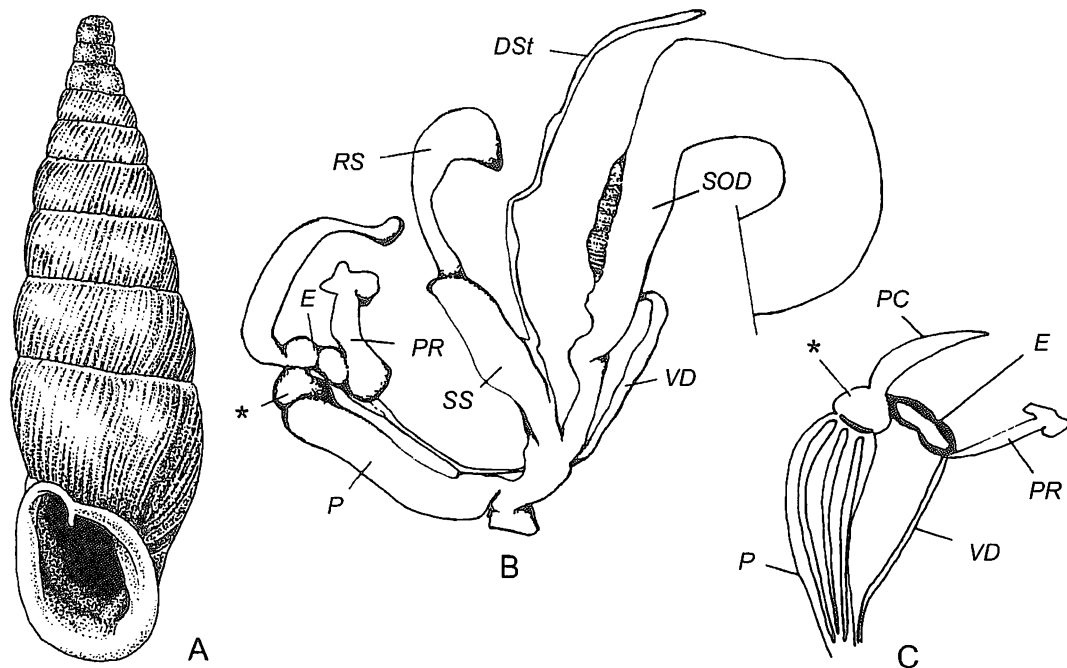


Fig. 892. *Roseniella (Chavchetia) rufina* Neubert, 1992.

A — shell: "NE Turkei: Safsat, 6 km oberhalb der Stadt. 41.15' N, 42.16' E" Holotype. Senck. No. 309819. B — reproductive tract. C — interior of penis and epiphallus. After Neubert, 1992. Asterisk — upper part of penis.

rior and spiral lamellae on one radius. Inferior lamella occupies back side of columella. Subcolumellar lamella absent. Height 22-31, diam. 3.6-6.0 mm (28.4 × 4.7 mm).

Vas deferens short. Epiphallus short, stout, ovate. Penis consists of cylindrical distal and short, globular proximal parts, which bears a long, tapering caecum. Internally distal part with longitudinal folds. Penial arm of penial retractor attached to penis apically, smaller arm inserted on boundary between penis and epiphallus. Free oviduct and vagina not long, of about equal length. Neck of spermathecal stalk short, diverticle very thin, somewhat longer than duct of reservoir + reservoir itself.

DISTRIBUTION. N Turkey (Ardanuch). 2 or 3 spp.

Roseniella (Chavchetia)
Neubert, 1992)
Fig. 892

Neubert, 1992: 73.

TYPE SPECIES — *Roseniella (Chavchetia) rufina* Neubert, 1992; OD.

Shell stout, moderately solid, somewhat

silky glossy, of 9 moderately convex whorls. Color rich red-brown. Postnuclear sculpture of coarse, more or less regular, dense radial ribs, that often whitish below suture. Aperture pyriform, somewhat oblique, margins slightly reflexed, with a palatal callosity. Superior lamella strong, not connected with spiral lamella and thus leaving gap between them. Inferior lamella straight, deeply entering, diverging from rim of columella. Subcolumellar lamella small. Lobe of clausilium slender, spoon-shaped, with thickened distal end; stalk cracked, unusually short. Height 13.4-15.2, diam. 4.5 mm (15.2 × 4.5 mm).

Anatomically differs from *Roseniella* s. str. by presence of circular narrowing of epiphallus dividing it into two parts.

DISTRIBUTION. Turkey (vilayet Artvin). 2 or 3 spp.

Acrotoma O. Boettger, 1881

Boettger O., 1881: 341 (*Clausilia* sect.).

— *Acrostoma* Westerlund, 1901: XVIII (nom. err. pro *Acrotoma* O. Boettger, 1881).

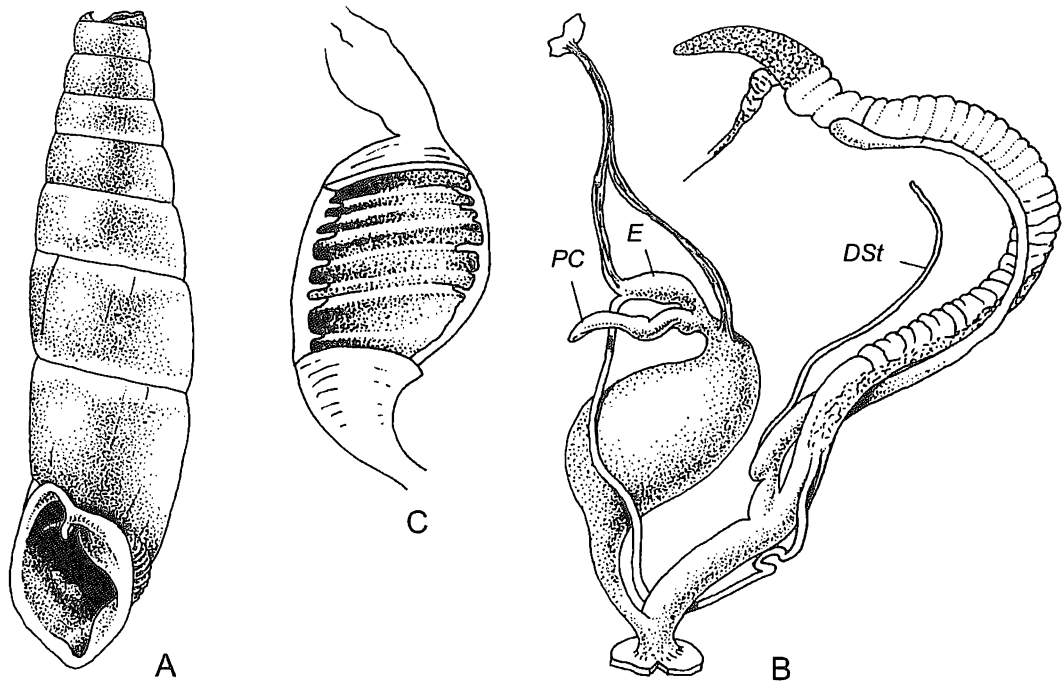


Fig. 893. *Acrotoma (Acrotoma) komarowi* (O. Boettger, 1881).

A — shell: Novyi Afon on Black Sea shore [Abkhazia]. Moscow No. Lc-24737 B, C — the same locality, October 2, 1956. Reproductive tract and interior of penis. SPb No. 3.

— *Acrotomella* Woodward in Lindholm, 1924: 68 [nom. nov. pro *Acrotoma* O. Boettger, 1881; non *Acrotomus* Holmgren, 1855 (Hymenoptera)].

TYPE SPECIES — *Clausilia (Acrotoma) komarowi* O. Boettger, 1881; OD.

Shell decollated, fusiform, moderately solid to thin, of 16-18 (7-9 after decollation) whorls. Last whorl with basal keel. Color generally corneous to reddish, often with light markings. Postembryonic sculpture of dense, delicate, wavy radial striation to ribbing. Superior lamella strong, its inner end located nearly on one radius with external end of spiral lamella. Inferior lamella strong, nearly vertical, with thickened ridge, located on back side of columella. Principal plica starting on dorsal side. Lunella strong, dorsal. Clausilium lancet-like, with thickened, acuminate end.

Talon hidden or exposed. Flagellum absent. Epiphallus shorter than penis. Penis with caecum, more or less swollen, internally with longitudinal or circular folds, lacking verge. Penial retractor biramous: one branch attached to proximal end of epiphallus, the other — to proximal end of penis. Free oviduct shorter than vagina. Di-

verticle of spermathecal stalk thin, more or less long.

DISTRIBUTION. W and N Caucasus.

Acrotoma (Acrotoma s. str.)

Fig. 893

Shell fusiform to pillar-shaped, solid but somewhat translucent, shining, of 17-18 (7-8 after decollation) slightly convex whorls. Color brownish-corneous, with numerous fine white touches. Postembryonic whorls with crowded, somewhat wavy, fine radial striae. Aperture angulated-ovate or pear-shaped, vertical, with widely reflexed margins. Superior lamella gradually descending backward. Palatal callus visible through aperture. Lower end of lunella separated from lower palatal plica. Upper palatal plica missing. There is lamella inserta. Height 22.0-37.5, diam. 5.5-8.0 mm [22.3 (estimated) × 5.6 mm].

Talon hidden. Epiphallus small, fusiform. Penis greatly swollen, with vermiform caecum, internally with sharp, high, thin, circular folds. Free oviduct in 2-3 times shorter than vagina. Neck of spermathecal

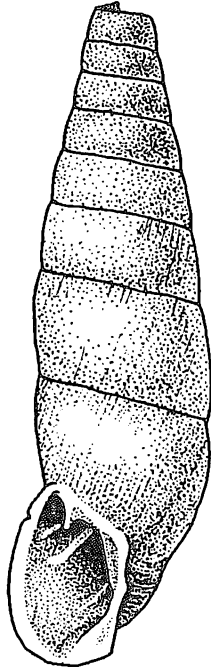


Fig. 894. *Acrotoma (Bzybia) claussi* Nordsieck, 1977
Valley of Bzyb River near Pitzunda at Blue Lake, Georgia. Moscow No. Lc-24741.

stalk very short. Diverticle shorter than duct of reservoir.

DISTRIBUTION. W Caucasus. 1 sp.

Acrotoma (Bzybia) claussi Nordsieck, 1977)
Fig. 894

Nordsieck, 1977b: 90.

TYPE SPECIES — *Acrotoma (Bzybia) claussi* Nordsieck, 1977; OD.

Shell differs from *Acrotoma* s. str. by presence of upper palatal plica; lower end of lunella fused with lower palatal plica. Height 23-28, diam. 7-8 mm (28.8 × 8.0 mm).

DISTRIBUTION. W Caucasus, valley of Bzyb River. 1 sp.

Acrotoma (Acrotomina)
Nordsieck, 1977)
Fig. 895

Nordsieck, 1977: 90.

TYPE SPECIES — *Clausilia (Acrotoma) semicineta* O. Boettger, 1881; OD.

Shell fusiform-cylindrical, moderately solid to thin, only slightly shining, of 14-15 (after decollation 6-8) flattened, sometimes shouldered whorls. Color dark- or light-corneous to brown, ribs lighter. Upper whorls densely rib-striated, further sculpture becomes coarser and more regular. Aperture uninterrupted, rounded-rhomboid or pear-shaped, protruded, margins variously reflexed, thin. Subcolumellar lamella low, deeply lying. Height 13.7-17.0, diam. 4.0-4.5 mm (16.2 × 4.5 mm).

Talon small, exposed. Epiphallus short, its boundary with penis marked with short caecum. Internally penis with vague longitudinal folds, lumen of penis separated from lumen of epiphallus by a sphincter. Inner surface of epiphallus covered with thin, corrugated folds. Free oviduct thin, much shorter than vagina. Neck of spermathecal stalk not long; thin diverticle somewhat longer than duct of reservoir + reservoir itself.

DISTRIBUTION. W Caucasus. 3 spp.

Kazancia Neubert, 1992

Neubert, 1992: 70.

TYPE SPECIES — *Kazancia monticola* Neubert, 1992; OD.

Shell entire, fusiform, moderately thin, shining, of 12-13 flattened whorls. Last whorl with well defined, rounded basal keel. Color deep red-brown, some ribs whitish. Embryonic whorls smooth, polished. Later whorls densely ribbed above, ribs become progressively weaker downward, last whorl nearly smooth; behind aperture ribbed again. Aperture irregularly ovate, somewhat oblique, with thin, moderately reflexed margins. Superior lamella separated from spiral lamella only by a shallow depression. Inferior lamella ascending at about 45 degrees; at its lower end a small tubercle may be present. Between superior and inferior lamellae there is a very low additional lamella. Subcolumellar lamella rather high. Principal plica starts on dorsal side. Lunella dorsal, shortly curved at upper end and slightly forked at lower end.

Vas deferens entering epiphallus subapically at sharp angle. Epiphallus (extremely) short. Penis long and cylindrical or short and stout. Penial retractor very strong, attached to epiphallus terminally. Free ovi-

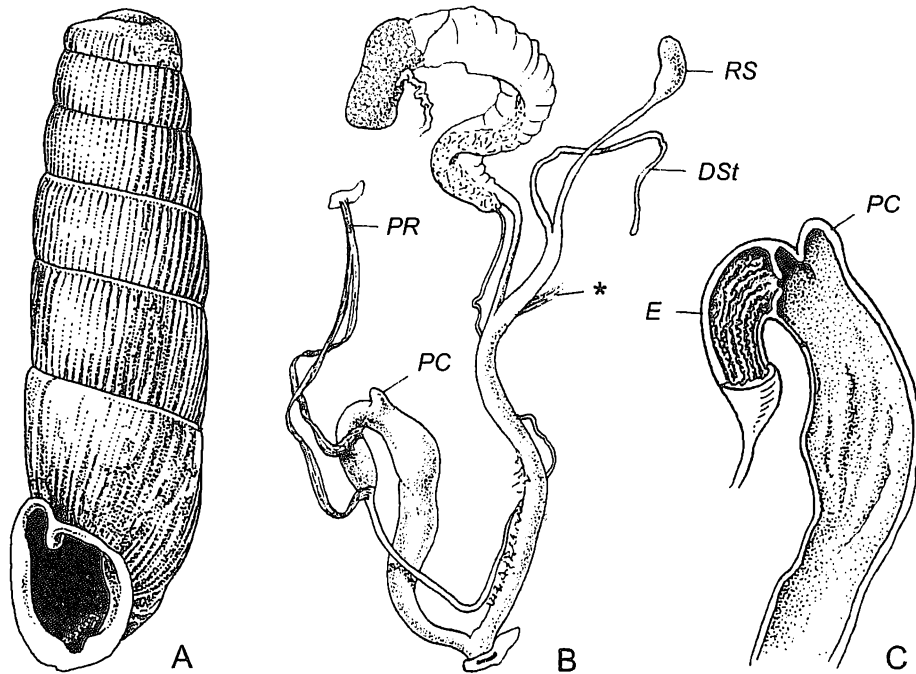


Fig. 895. A — *Acrotoma (Acrotomina) semicincta* (O. Boettger, 1881). Shell: "Kubangebiete, Teberda" [N Caucasus]. Paratype. Vienna No. 67450. B, C — ! *Acrotoma (Acrotomina) narzanensis* (Rosen, 1901). Cheghem Gorge near Nizhny Cheghem village, N Caucasus, May 15, 1970. B — reproductive tract. C — interior of penis. Moscow No. Lc-19441. Asterisk — retractor of spermathecal stalk.

duct somewhat longer or shorter than vagina. Neck of spermathecal stalk rather long but shorter than duct of reservoir + reservoir itself.

DISTRIBUTION. NE Turkey (vilayet Rize).

Kazancia (Kazancia s. str.)

Fig. 896

Shell as in genus. Height 21.3, diam. 4.8-4.9 mm (21.3 × 4.8 mm).

Penis comparatively long, lacking caecum.

DISTRIBUTION. NE Turkey (vilayet Rize). 2 spp.

Kazancia (Lasica Neubert, 1995)

Fig. 897

Neubert, 1995: 106.

TYPE SPECIES — *Strumosa galli* Nord-sieck, 1977; OD.

Differs from *Kazancia s. str.* in having very short and stout penis with strongly

swollen proximal part which is a modified caecum.

DISTRIBUTION. NE Turkey (vilayet Rize). 1 sp.

Armenica O. Boettger, 1877

Boettger O., 1877: 94 (*Clausilia*, *Oligoptychia* sect.; "Gruppe").

— *Oligoptychia* O. Boettger, 1877: 94 (nom. praecoc., non Meek, 1876; part.; *Clausilia* sect.; t.-sp. *Clausilia laevicollis* Charpentier, 1852; SD Kennard & Woodward, 1923. Sect. described as consisting of 3 "Gruppen", but no one species included in nominotypical "Gruppe").

— *Armeniaca* Westerlund, 1884 (1884-1890): 157 (nom. err. pro *Armenica* O. Boettger, 1877).

TYPE SPECIES — *Clausilia laevicollis* Charpentier, 1852; OD.

Shell fusiform or turritid-fusiform, last whorl with 1 or 2 basal keels. Superior lamella short, thin. Spiral lamella wanting or desintegrated into 2-3 short lamellae: spiral proper, parallel and inserta. Inferior lamella

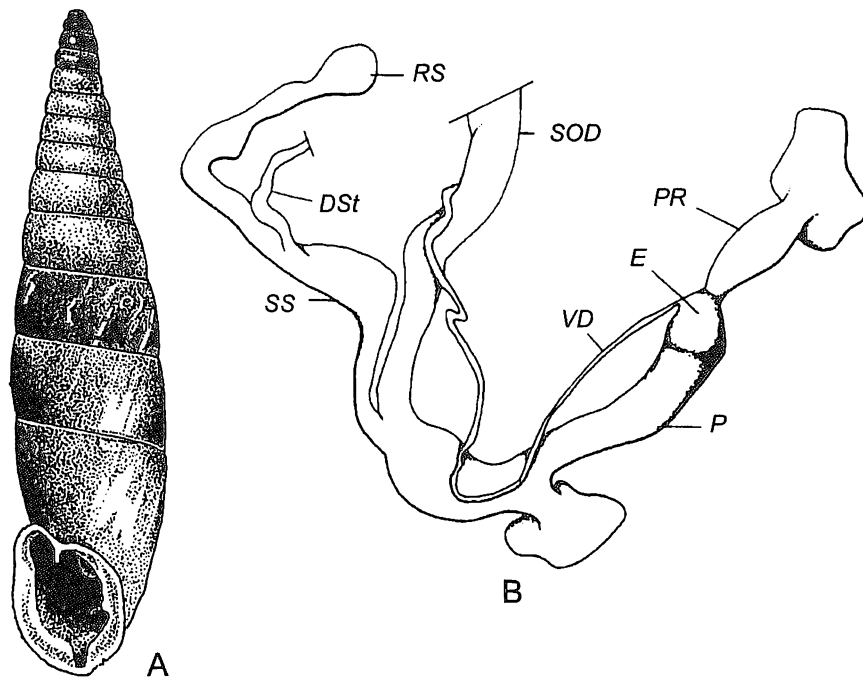


Fig. 896. *Kazancia (Kazancia) monticola* Neubert, 1992.

A — shell: "NE Turkey: Rize, Çamlıhemşin, Çat village" Holotype. Senck. No. 309818.

B — reproductive tract. After Neubert, 1992.

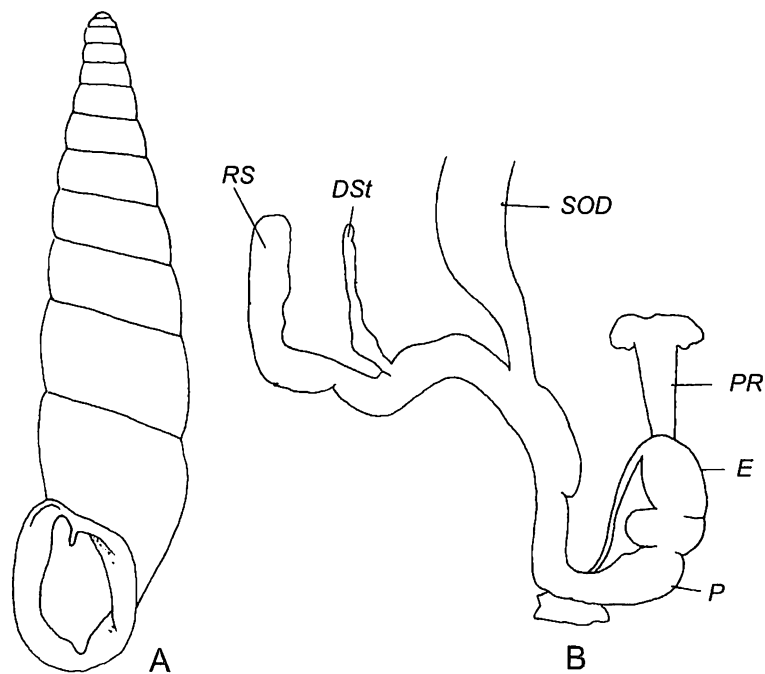


Fig. 897 *Kazancia (Lasica) galli* (Nordsieck, 1977).

A — shell. After Nordsieck, 1977 B — reproductive tract. After Neubert, 1995.

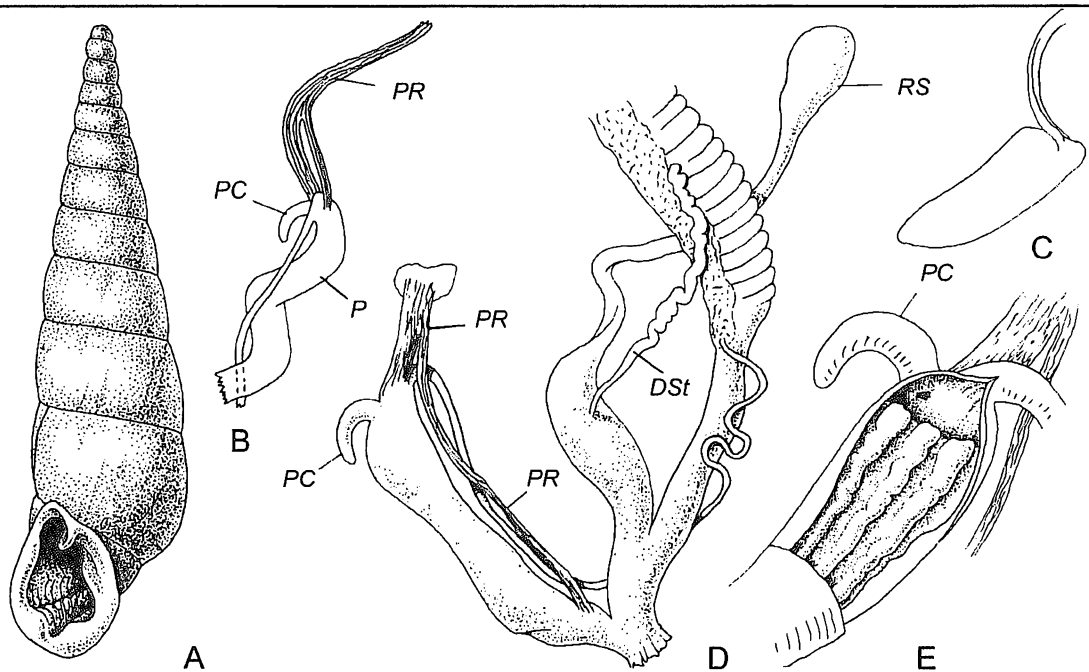


Fig. 898. A, B — *Armenica (Armenica) laevicollis* (Charpentier, 1852).

A — shell: Amasya, Turkey. SPb. B — male loop. After Likharev, 1962. C, D, E — ! *Armenica (Armenica) brunnea* (Rossmäessler, 1839). Samur River valley near Ikhrek town, Daghestan, July 15, 1967 C — clausilium. D — reproductive tract. E — interior of penis. Moscow No. Lc-24658.

comparatively short, deeply-lying, subvertical or slightly curved. Subcolumellar lamella short, mostly not visible through aperture. Principal plica rudimentary or long. Lunella dorsal, well developed, above it 2-3 short plicae (rudimentary principal plica and sutural) located. Plate of clausilium narrow, distally attenuated. Umbilicus slit-like.

Penis with a well developed caecum, internally with longitudinal folds; verge not present. Penial retractor arises on columellar muscle, often biramous.

DISTRIBUTION. Caucasus, Asia Minor, Syria.

Armenica (Armenica) s. str.)

Fig. 898

— *Creniclavus* Lindholm, 1924: 67, 74 (*Armenica* subg.; t.-sp. *Clausilia hueti* Mortillet, 1854; OD).

— *Astrogena* Szekeres, 1970: 268 [*Acrotoma* subg.; t.-sp. *Acrotoma (Astrogena) amoena* Szekeres, 1970; OD].

Nordsieck, 1975: 97; 1979: 261.

Shell fusiform-conic to turrated, rather

thin, glossy, slightly translucent, of 10-13.5 weakly convex to nearly flat whorls. Last whorl with 1 or 2 basal keels. Color brown to chestnut. Surface smooth, just with widely spaced indistinct radial wrinkles. Aperture pear-shaped; margins reflexed, expanded, and thickened. Superior lamella short and thin. Spiral lamella either absent or desintegrated into 2-3 short elements (spiral proper, parallel and intercalar lamellae). Above lunella 2-3 short plicae (rudiment of principal plica and 1-2 sutural) situated. Height 14-26, diam. 3.5-5.0 mm (15.4 × 4.2 mm).

Epiphallus extremely short, its boundary with penis marked by a conic, rather short caecum. Penis rather stout, subcylindrical, internally with a few strong, corrugated folds which abruptly truncated near orifice of caecum; verge absent. Epiphallic arm of penial retractor short, strong; penial arm thinner, attached to proximal or distal part of penis. Free oviduct about 2 times longer than vagina. Neck of spermathecal stalk rather long, expanded, diverticle thin, sinuated, much shorter than duct of reservoir.

DISTRIBUTION. Caucasus, Asia Minor, Syria. About 15 spp.

Armenica (Bitorquata)

O. Boettger, 1977)

Fig. 899

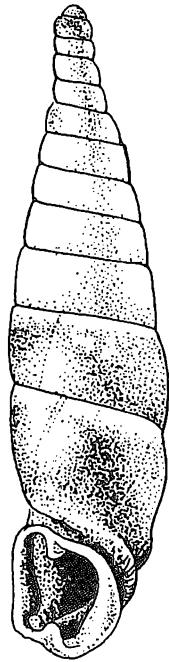


Fig. 899. *Armenica (Bitorquata) bitorquata* (Rossmassler, 1857).
"Beyrut, Syrien" Vienna No. 83.000/1190.

Boettger O., 1977: 93 (*Clausilia, Idyla* sect.; "Gruppe").

TYPE SPECIES — *Clausilia bitorquata* Rossmassler, 1857; OD.

Shell fusiform, rather solid, of about 12 slightly convex to nearly flat whorls. Last whorl with 2 sharp basal keels. Color corneous to brown. Postembryonic whorls silky radially striated, basal keels strongly ribbed; on 2-3 last whorls locally there are short, microscopic, spiral striae. Aperture ovate-subquadrate, with well reflexed margins. Superior lamella lies nearer to columella than spiral lamella which is poorly developed; posterior end of superior and anterior end of spiral lies on one radius. Subcolumellar lamella absent. Principal plica long, narrow. Height 25-28, diam. 5.7-6.2 mm (25.4 × 5.9 mm).

DISTRIBUTION. Syria, Lebanon. 1 or 2 spp.

Phrygica Nordsieck, 1994

Fig. 900

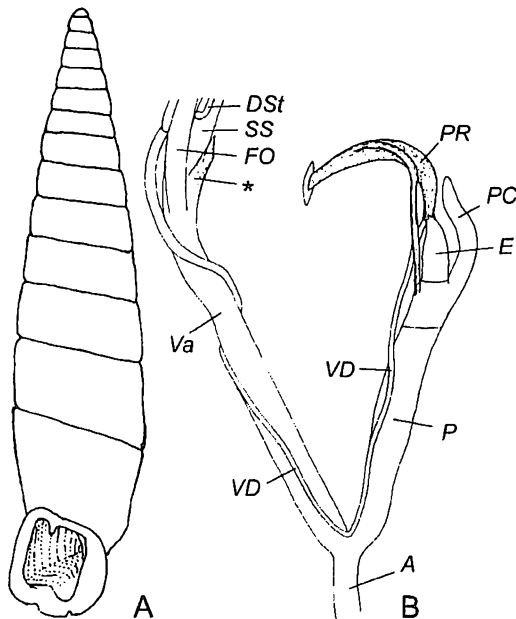


Fig. 900. *Phrygica riedeli* Nordsieck, 1994.
A — shell. B — distal parts of reproductive tract. After Nordsieck, 1994. Asterisk — retractor of spermathecal stalk.

Nordsieck, 1994: 4, 9.

TYPE SPECIES — *Phrygica riedeli* Nordsieck, 1994; OD.

Shell cylindro-conic, rather thin, slightly translucent to subtransparent, of 9-14 moderately convex to nearly flat whorls. Last whorl with a strong basal keel. Color corneous or brown. Postembryonic sculpture represented by variously developed, fine, crowded radial riblets, sometimes surface nearly smooth. Aperture subquadrangular to pear-shaped, only slightly oblique, with widely reflexed margins. Superior lamella separated from spiral. Inferior lamella deeply lying. Subcolumellar lamella not or scarcely visible through aperture. Lunella developed, palatal plicae absent. Plate of clausilium tongue-shaped. Height 11.2-26.8, diam. 2.7-5.4 mm.

Vas deferens at first a little expanded, then gradually diminished in diameter, entering epiphallus at sharp angle. Epiphallus very short. Penis rather long, cylindrical, with vermiform caecum entering just below penis/epiphallus junction. One arm of pe-

nial retractor attached to vas deference/epiphallus junction, the other — to upper part of penis. Free oviduct short, vagina, on the contrary, unusually long. Spermathecal stalk with diverticle, branching off from its lower part.

DISTRIBUTION. Turkey. 4 spp., one of them consists of 2 subspp.

Sprattia O. Boettger, 1883
Fig. 901

Boettger O., 1883: 341 (*Clausilia*, *Oligoptychia* sect.; "Gruppe").

TYPE SPECIES — *Clausilia sowerbyana* L. Pfeiffer, 1849; OD.

Shell entire or shortly decollated, turrited-fusiform, moderately thin, of 13-15 a little convex whorls. Last whorl with 2 strong keels. Color brown to brown-reddish or dark-chestnut, suture usually lighter. Embryonic whorls shining, polished, smooth, subsequent whorls with very weak, irregular radial wrinklets and, locally, with scattered very fine spiral striae. Aperture pear-shaped or irregularly quadrangular, slightly oblique, with somewhat reflexed, thin or a little thickened margins. Superior lamella very short, spiral lamella wanting. Inferior lamella deeply lying, with thickened ridge. Subcolumellar lamella absent. Palatal wall with a strong dorsal lunella and very short upper and lower palatal plicae at upper and lower ends of lunella. Height 16.0-26.5, diam. 4.5-6.0 mm (23.2 × 5.1 mm).

DISTRIBUTION. Turkey. 5 spp.

Akramowskia Nordsieck, 1975
Fig. 902

Nordsieck, 1975: 86 (*Armenica* subg.).

TYPE SPECIES — *Euxina akramowskii* Likharev, 1962; OD.

Shell mostly entire, turrited to subfusiform, slender, rather thin, slightly shining, of 11.5-13.5 moderately convex whorls. Last whorl with a large basal keel. Color corneous to dark-brown, upper whorls often lighter. Upper postnuclear whorls finely striated, lower nearly smooth, body whorl behind aperture coarsely striated. Aperture pear-shaped, with thickened, reflexed and expanded margins. Superior lamella short,

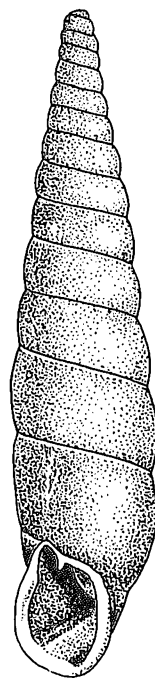


Fig. 901. ! *Sprattia blissi* (O. Boettger, 1899). Aksu near Zindon, Egridir, Turkey. Moscow No. Lc-24762.

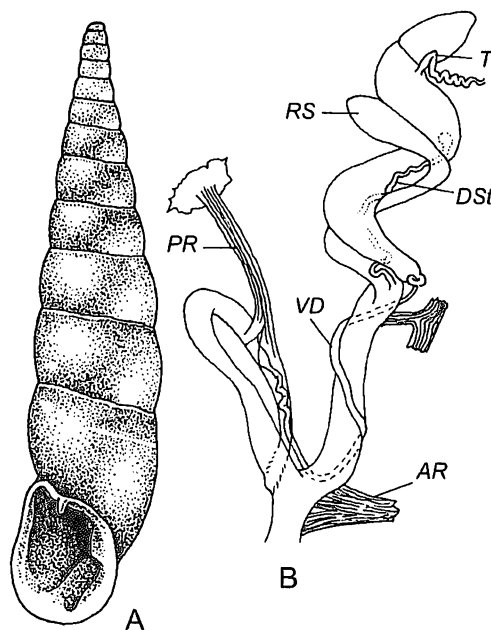


Fig. 902. *Akramowskia akramowskii* (Likharev, 1962).

A — shell: Khustup Mount, Zanghezur, Armenia. Zool. Inst. of Armenian Academy of Sciences, Erevan. B — reproductive tract. After Likharev, 1962.

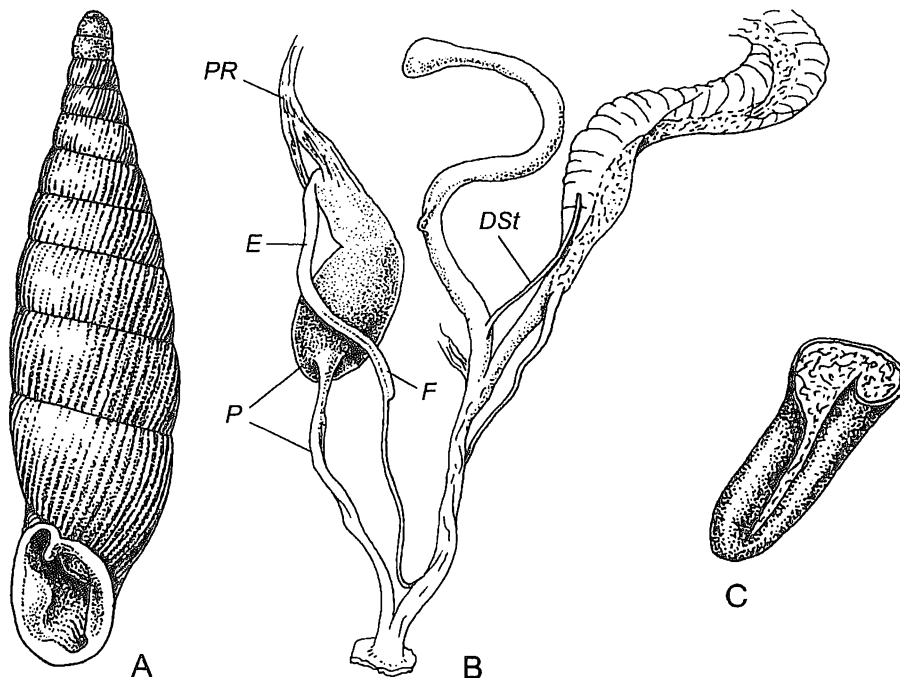


Fig. 903. *Scrobifera taurica* (L. Pfeiffer, 1848). Ubin River valley near Ubinskaya, NW Caucasus, September 17, 1970.
 A — shell. B — reproductive tract. C — stimulator taken from upper part of penis. Moscow No. Lc-24656.

low, separated from short, scarcely visible spiral lamella. Next to spiral 1-2 parallel lamellae situated. Inferior lamella large, nearly vertical, occupies back side of columella; short intermediate plica branched off from this lamella. Subcolumellar lamella deep-lying. Lunella dorsal; above it short principal and sutural plicae situated. Lower palatal plica short, located behind lunella, directed toward subcolumellar lamella. Clausilium plate narrow, tongue-like. Height 19.7-22.3, diam. 4.1-5.3 mm (21.8 × 5.0 mm).

Flagellum and penial caecum absent. Epiphallus poorly demarcated from vas deferens. Penis subcylindrical, a little expanded at both ends. Penial retractor arising from diaphragm and inserting onto penis terminally; besides, it sends off additional branch coating epiphallus and attaching to anterior end of penis. Vagina thicker and 3-5 times longer than oviduct. Neck of spermathecal stalk very short. Diverticle slender, sinuous, nearly equal to length of duct of reservoir + reservoir itself.

DISTRIBUTION. Minor Caucasus. 2 spp.

Scrobifera O. Boettger, 1877
 Fig. 903

Boettger O., 1877: 95 (*Clausilia*, *Oligoptychia* sect.; "Gruppe"). Likharev, 1962: 140. Nord-sieck, 1979: 260.

TYPE SPECIES — *Clausilia foveicollis* Charpentier, 1852 (= *Clausilia taurica* L. Pfeiffer, 1848); OD.

Shell fusiform, obese to rather slender, moderately thin, silky shining, of 11-12 slightly convex whorls. Apex subcylindrical, attenuated. Last whorl with 2 sharp basal keels and deep palatal depression behind aperture. Color reddish- or dark-corneous; aperture inside wine-reddish. Postapical whorls finely ribbed. Aperture rounded-rhombic, with thickened, slightly reflexed margins and palatal thickening which corresponds to mentioned depression. Superior lamella protruded, low, short; rightward from it 1-2 marginal knobs may be present. Spiral lamella vestigial or absent. Inferior lamella large, deeply lying. Subcolumellar lamella starts at the same level as inferior lamella and ends

a little in front of lunella. Lunella situated on dorsal side, above it short principal and sutural plicae located. Clausilium plate tongue-like, with nearly parallel sides, somewhat attenuated apically. Umbilicus slit-like, surrounded by parumbilical field. Height 13.5-16.0, diam. 3.3-4.0 mm (14.0 × 3.5 mm).

Flagellum moderately long, tightly adherent to vas deferens. Epiphallus short, narrow. Penis consists of two parts: strongly swollen proximal and thin distal. Proximal part contains a large stimulator with splitted free (basal) end, which anteriorly passes into 2 longitudinal folds; surface of stimulator looks like consisting of conchyoline. Distal part of penis internally with weak circular folds. Strong penial retractor originates on columellar trunk, one arm attached to distal part of epiphallus, the other — to apical section of penis. Free oviduct 2-3 two times shorter than vagina. Neck of spermathecal stalk short, diverticle narrow, much shorter than duct of reservoir; reservoir small. Fragments of spermatophore were found in duct of reservoir.

DISTRIBUTION. Caucasus. 1 sp.

?*Idyla* H. Adams et A. Adams, 1855

Adams H. & Adams A., 1855: 180 (*Clausilia* subg.).

— *Hellenica* O. Boettger, 1877: 95 (*Clausilia*, *Oligoptychia* sect.; "Gruppe"; t.-sp. *Clausilia pikermiana* Roth, 1855; OD).

— *Crucita* Westerlund, 1878: 110 (t.-sp. *Clausilia tetragonostoma* L. Pfeiffer, 1849; SD Lindholm, 1924).

— *Pleioptychia* Kennard et Woodward, 1923: 303 (non A. Wagner, 1913; t.-sp. *Clausilia bicristata* Rossmassler, 1839; OD).

TYPE SPECIES — *Clausilia bicristata* Rossmassler, 1839; SD Martens in Albers, 1860.

Shell turritid to (obesely) fusiform, moderately solid, slightly glossy, of 10-11 flattened whorls; last whorl with 2 crests on neck. Color corneous to reddish-brown, usually with lighter radial streaks; last whorl behind aperture often whitish. Embryonic whorls semitransparent, smooth, rest surface nearly glabrous to finely, regularly ribbed. Aperture ovate to rounded-quadrangular, with reflexed and expanded, thin or slightly thickened margins.

Vas deferens cylindrical throughout. Epiphallus extremely short. Penis variable in length. Penial retractor uniramous, at-

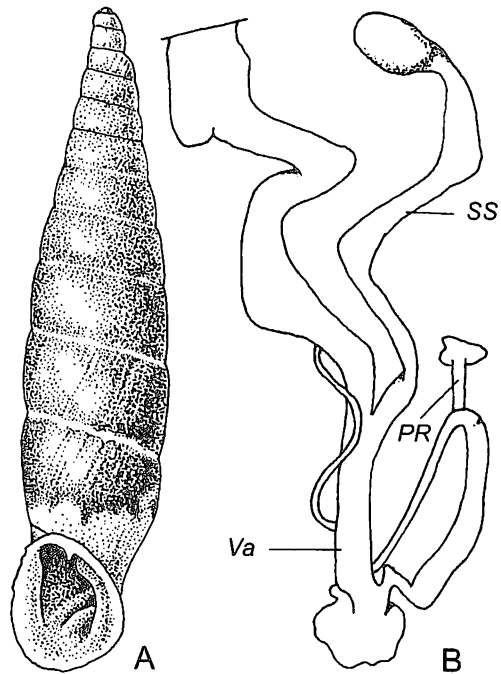


Fig. 904. *Idyla (Idyla) bicristata* (Rossmassler, 1839). A — shell: Parnassos Ori, 24 km N of Arachova, Greece. Private coll. of A.G. Kuznetsov. B — reproductive tract. After Neubert, 1995.

tached to vas deferens/epiphallus junction. Free oviduct markedly shorter than vagina. Diverticle of spermathecal stalk not present.

DISTRIBUTION. Bulgaria, Greece, Turkey.

REMARK. Neubert (1995: 103) states that anatomical characters of *Idyla* are very similar to that of *Filosa*, so *Idyla* should be placed in the tribe Filosini despite "the differences [between *Filosa* and *Idyla* — A. Sch.] in shell morphology are immense" At the same time Neubert writes that "the reduction or total loss of the diverticulum is a convergent evolutionary trend, since it appears in taxa, which are not closely related" and adds: "In the case of the Filosini, the value of the shell morphology is a feature of minor significance" (loc. cit.). I am not sure if this statement is correct.

Idyla (Idyla s. str.)

Fig. 904

Apical part of shell markedly attenuated. Aperture without marginal folds or these folds very weak. Inferior lamella not high in position. Clausilium plate comparatively

narrow. Height 12-20, diam. 2.8-4.5 mm (19.9 × 4.3 mm).

Penis rather short. Penial retractor weak. Oviviviparous.

DISTRIBUTION. Rhodope Mts. (Pirin), Greece. 2 spp.

Idyla (*Strigilidyla* Nordsieck, 1994)
Fig. 905

Nordsieck, 1994: 7

TYPE SPECIES — *Idyla* (*Strigilidyla*) *liebegottae* Nordsieck, 1994; OD.

Apical part of shell not attenuated. Aperture with marginal folds. Inferior lamella high in position. Clausilium plate rather wide. Height 16.6-19.6, diam. 4.5-5.0 mm.

Penis long. Penial retractor strong. Oviparous.

DISTRIBUTION. Turkey (Anatolia). 1 sp.

Mentissoideini Lindholm, 1924

Epiphallus more or less elongated. Penis comparatively short, lacking caecum. Penial retractor simple or splitted, without penial arm.

DISTRIBUTION. Caucasus, Turkey, N Iran, Bulgaria, Yugoslavia, maritime territories of Syria and Palestine.

Euxinella Nordsieck, 1973
Fig. 906

Nordsieck, 1973b: 182.

TYPE SPECIES — *Euxinella radikae* Nordsieck, 1973; OD.

Shell turritid, moderately solid, of about 10 rather convex whorls. Last whorl with rounded basal keel. Color brownish, ribs of same color or somewhat paler. Postnuclear sculpture of fine regular radial riblets. Aperture ovate, with a little reflexed margins. Superior lamella continuous with spiral lamella, boundary between them marked by a sinuosity. Inferior lamella reduced in size, occupying back surface of columella. Lamella inserta, intercalar, and subcolumellar lamellae absent. Principal plica not long, starting on left side. Lunella and palatal plicae missing. Plate of clausilium wide, with-

out incisions. Height 8.4-10.0, diam. 2.1-2.3 mm (9.5 × 2.3 mm).

Hermaphroditic duct pigmented. Talon hidden. Vas deferens evenly slender. Flagellum short, tapering, not adhering to vas deferens. Length of epiphallus and penis approximately equal, externally demarcated mainly by changing of diameter. Penis internally with a few longitudinal folds, contains a short fleshy verge with orifice shifted on side. Penial retractor inserted to penis below level of verge; thinner arm attaching to epiphallus may be present. Free oviduct shorter than vagina. Spermathecal stalk lacking diverticle, reservoir reaching lower edge of albumen gland.

DISTRIBUTION. Macedonia, Radika River valley. 1 sp.

REMARK. Nordsieck (1973b: 183, Abb. 4) pointed out the presence of spermathecal diverticle and absence of flagellum. I was unable to find the diverticle, but the only specimen I dissected had a distinct flagellum; besides, I did not find accessory arm of penial retractor, mentioned by Nordsieck. The material I examined came from the type locality.

Euxina O. Boettger, 1877
Fig. 907

Boettger O., 1877: 83 (*Clausilia* sect.).

— *Hetaera* O. Boettger, 1877: 84 (*Clausilia*, *Euxina* sect.; "Gruppe"; t-sp. *Clausilia hetaera* L. Pfeiffer, 1848; OD).

— *Peneptychia* Westerlund, 1884 (1884-1890): 28 (t.-sp. *Clausilia hetaera* L. Pfeiffer, 1848; SD Lindholm, 1924).

— *Wagneria* Hesse, 1912: 59 [nom. praeocc., non Robineau-Desvoidy, 1830 (Diptera); *Clausilia* "Gruppe": t.-sp. *Clausilia thracica* Hesse, 1912; OD].

— *Thraciella* Hesse, 1916: 124 (nom. nov. pro *Wagneria* Hesse, 1912).

— *Euxenia* A. Wagner, 1919: 59 (nom. err. pro *Euxina* Boettger, 1877).

— *Illunellaria* Lindholm, 1924: 66 [*Laciniaria* (*Euxina*); sect.; t-sp. *Clausilia lessonae* Issel, 1865; OD]. Likharev, 1962: 176.

TYPE SPECIES — *Clausilia hetaera* L. Pfeiffer, 1848; SD Westerlund, 1902.

Shell fusiform to turritid or cylindrical-fusiform, more or less solid, of 7-9 slightly convex whorls. Color corneous or brown. Sculpture various; radial riblets or striae mostly stronger and more spaced on upper

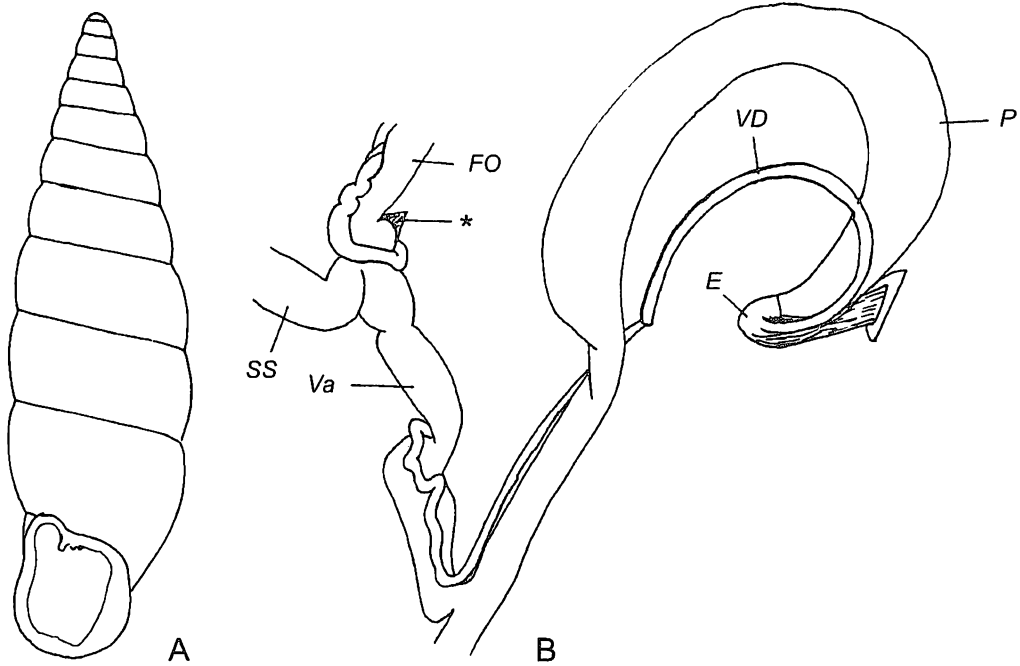


Fig. 905. *Idyla (Strigilidyla) liebegottae* Nordsieck, 1994.

A — shell. B — reproductive tract. After Nordsieck, 1994. *Asterisk* — retractor of spermathecal stalk.

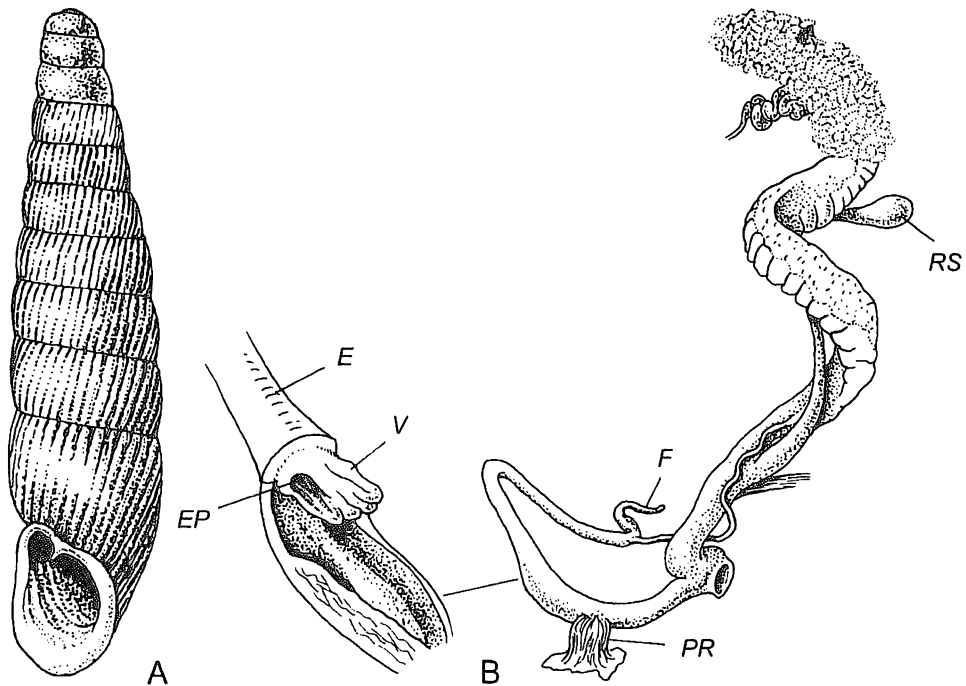


Fig. 906. *Euxinella radikae* Nordsieck, 1973. Mavtovi Hanovi, Macedonia, August 10, 1985.

A — shell. B — reproductive tract and interior of penis. Cardiff No. HS 1985.275.24.

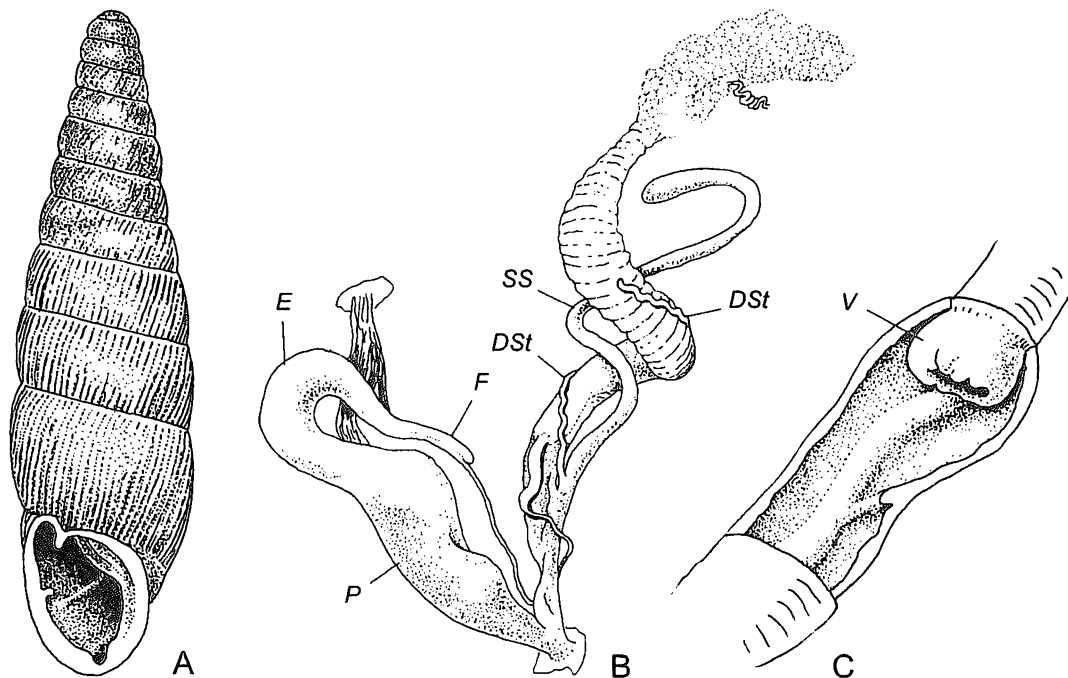


Fig. 907 *Euxina (Euxina) hetaera* (L. Pfeiffer, 1848). Kiziladalar Ids., Burgazade Id., Turkey, June 1997

A — shell. B — reproductive tract. C — interior of penis. Moscow No. Lc-24637

whorls, becoming finer and denser on lower. Aperture with basal keel and groove. Superior lamella not continuous with spiral, its posterior end entering deeper than anterior end of spiral. Upper ends of both usually located on right side. Many species have small intercalary lamella between superior and spiral. Inferior lamella deeply entering and running abruptly upward; its lower end evenly fused with columella and not connected with aperture margin. Lamella inserta present. Subcolumellar lamella weak. Lunella and inner ends of palatal plicae situated on dorsal side. Principal plica starts on right-dorsal and ends on left side. In majority of species there is palatal callus at some distance from aperture edge. Height 11-14, diam. 3-4 mm (12.9 x 3.5 mm).

Ommatophoran retractor passes through peni-oviducal angle. Talon, a simple curvature of hermaphroditic duct. Vas deferens at first a little expanded, then becomes very thin. Rudimentary flagellum often present. Epiphallus stout, rather short. Penis thin-walled, voluminous, of irregular shape, internally with 1-2 longitudinal fold(s) and short, fleshy verge having a broad pore. Penial retractor arising from diaphragm, its thinner arm attached to base of flagellum,

thicker arm — to penis/epiphallus junction. Free oviduct short, vagina 2-3 times longer. Neck of spermathecal stalk extremely short, diverticle thin, a little sinuous; duct of reservoir mostly longer than diverticle, reservoir poorly defined, reaching albumen gland.

DISTRIBUTION. Caucasus, forest regions of Asia Minor and N Iran, SE Bulgaria and NW Turkey. About 10 spp. and subspp.

Elia H. Adams et A. Adams, 1855

Adams H. & Adams A., 1855: 180 (*Clausilia* subg.).

Nordsieck, 1979: 261.

TYPE SPECIES — *Helix maesta* Férussac, 1821 (= *Clausilia moesta* Rossmäessler, 1839); SD Lindholm, 1924.

Shell entire, fusiform, more or less obese, rather thin, opaque to slightly translucent, of 9-12 moderately convex whorls. Last whorl with basal keel. Color yellowish to brown. Postembryonic whorls weakly sculptured to ribbed. Aperture free or slightly interrupted on parietal wall, sometimes with marginal knobs. Inner end of superior la-

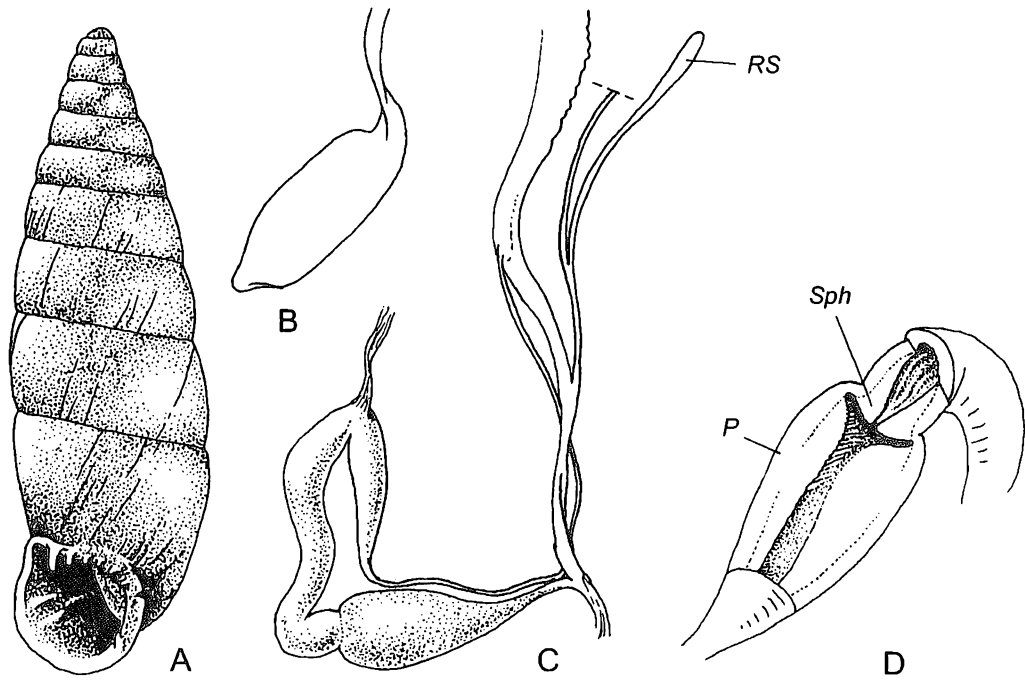


Fig. 908. *Elia (Elia) moesta* (Rossmäessler, 1839). Latakia, Syria.
 A — shell. B — clausilium. C — reproductive tract (subadult specimen). D — interior of penis. Moscow No. Lc-24660.

mella lies deeper than external end of spiral lamella. Inferior lamella well developed. Subcolumellar lamella usually small. Principal plica starting on dorsal side. Lunella well developed or, together with palatal callus, modified into 3-4 large and long palatal plicae.

Flagellum tightly adhering to vas deferens, sometimes reduced. Lumen of epiphallus separated from lumen of penis by a sphincter; verge and penial caecum not developed. Penial retractor simple, attached to epiphallus. Free oviduct shorter than vagina. Diverticle of spermathecal shaft thin, rather long but shorter than duct of reservoir.

DISTRIBUTION. Caucasus, Turkey (N Anatolia), maritime territories of Syria and Palestine.

Elia (Elia s. str.)

Fig. 908

— *Laciniaria* O. Boettger, 1877: 85 (nom. praeocc., non Hartmann, 1843; t-sp. *Clausilia moesta* Rossmäessler, 1839; OD).

— *Maesta* Kennard et Woodward, 1923: 305 (nom. nov. pro *Laciniaria* O. Boettger, 1877; t-sp. *Clausilia moesta* Rossmäessler, 1839).

Apical part of shell rounded, somewhat obtuse. Aperture with more or less developed marginal knobs. Lower end of inferior lamella not truncated. Lunella well developed. Palatal callus broken into 4-5 more or less long plicae. Plate of clausilium elongated, with bluntly pointed distal end and shallow incision at handle. Height 11-14, diam. 3.5-4.3 mm (12.6 × 3.7 mm).

Flagellum scarcely developed. Epiphallus rather long, sharply bent nearer to proximal end; penial retractor attached to this bend. Penis conic, tapering to distal end, internally with a pair of very strong, fleshy pilasters. Epiphallic pore located in centre of strongly developed sphincter looking like extremely short verge. Free oviduct and vagina rather long; free oviduct a little shorter. Neck of spermathecal stalk comparatively long.

DISTRIBUTION. Turkey, Syria. 3 spp.

Elia (Acroeuxina O. Boettger, 1877)

Fig. 909

Boettger O., 1877: 85 (*Clausilia*, *Euxina* sect.; "Gruppe"). Likharev, 1962: 191.

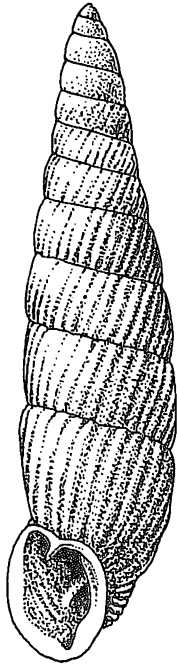


Fig. 909. *Elia (Acroeuxina) huebneri* (L. Pfeiffer, 1848).
"Natolia" [Turkey]. Vienna No. 83.000/1453.

TYPE SPECIES — *Clausilia huebneri* L. Pfeiffer, 1848; OD.

Apical part of shell pointed. Aperture lacks marginal knobs. Lower end of inferior lamella truncated. Lunella very large. Below principal plica there are long upper palatal plica, shorter lower palatal plica and tubercular middle palatal plica. Plate of clausilium narrowly elongated, with parallel margins. Height 11.7-15.5, diam. 3.1-3.8 mm (15.2 × 3.6 mm).

DISTRIBUTION. Caucasus, N Turkey (Zonguldak and Samsun vilayets). 3 spp.

Elia (Caucasica) O. Boettger, 1877
Fig. 910

Boettger O., 1877: 85 (*Clausilia, Euxina* sect.; "Gruppe").

TYPE SPECIES — *Clausilia somchetica* L. Pfeiffer, 1846; OD.

Apical part of shell rounded, obtuse. Lower end of inferior lamella not truncated. Lunella and palatal callus modified into 3-4 large and long palatal plicae, which ending more or less near aperture edge and their

ends visible in frontal view. Height 12.5-18.5, diam. 3.8-5.5 mm (13.6 × 4.2 mm).

Flagellum of medium length. Epiphallus short. Penis long, internally longitudinally folded at epiphallus; rest surface smooth. Penial retractor attached to penis/epiphallus junction. Uterus usually contains a number of eggs. Free oviduct short, vagina 5-6 times longer. Neck of spermathecal stalk short, diverticle somewhat reduced, slightly sinuous. Reservoir (almost) reaching albumen gland.

DISTRIBUTION. Caucasus and N Turkey. 3 spp.

Elia (Megaleuxina) O. Boettger, 1877
Fig. 911

Boettger O., 1877: 85 (*Clausilia, Euxina* sect.; "Gruppe").

TYPE SPECIES — *Clausilia sandbergeri* Mousson, 1873 (= *Clausilia derasa* Mousson, 1863); OD.

Apical part of shell narrowly rounded. Aperture without marginal knobs. Lower end of inferior lamella spirally bent. Lunella entire, variously developed, right-dorsal in position. Below principal plica 2-3 palatal plicae situated. Clausilium spoon-like, roundly pointed at distal end. Height 15-24, diam. 4.3-5.0 mm (15.0 × 4.4 mm).

Flagellum long, slender. Epiphallus rather long, penis markedly shorter, thin-walled, swollen. Internally penis with broad, low, irregular, longitudinal folds; there is a narrow circular slit at penis/epiphallus boundary. Penial retractor attached to epiphallus at short distance from flagellum. Uterus often filled with numerous eggs. Free oviduct short, vagina rather long. Neck of spermatheca very short, spermathecal stalk long, passes into reservoir without distinct boundary; diverticle thin, vermiform.

DISTRIBUTION. Central and W Caucasus. 3 spp.

Odonteuxina Nordsieck, 1975
Fig. 912

Nordsieck, 1975: 89; 1994: 5 (*Euxinastra* subg.).

TYPE SPECIES — *Clausilia iberica* Roth in M. Wagner, 1848; OD.

Shell fusiform, moderately solid, translucent, with silky surface, of 10.5-11 rather convex whorls. Last whorl with basal keel.

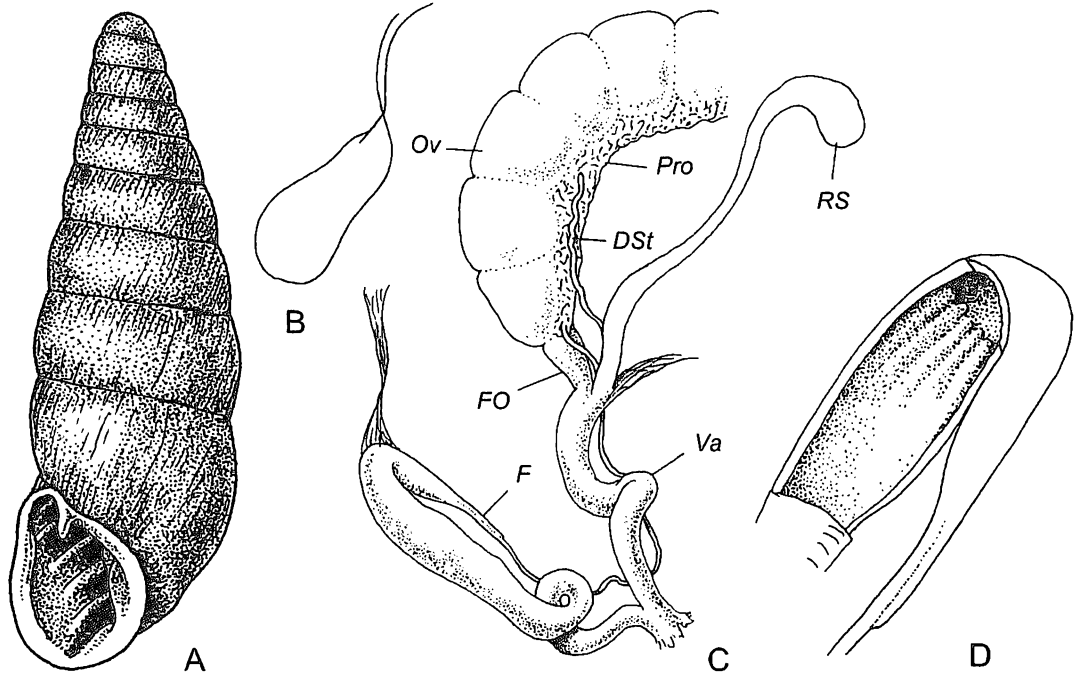


Fig. 910. *Elia (Caucasica) somchetica* (L. Pfeiffer, 1846).
 A, B — Chereck River valley near Blue Lakes, W Caucasus. A — shell. B — clausilium. Moscow N. Lc-24740. C, D — Vladikavkaz, Osetinskaya Gorka, May 5, 1970. C — reproductive tract. D — interior of penis. Moscow N. Lc-24631.

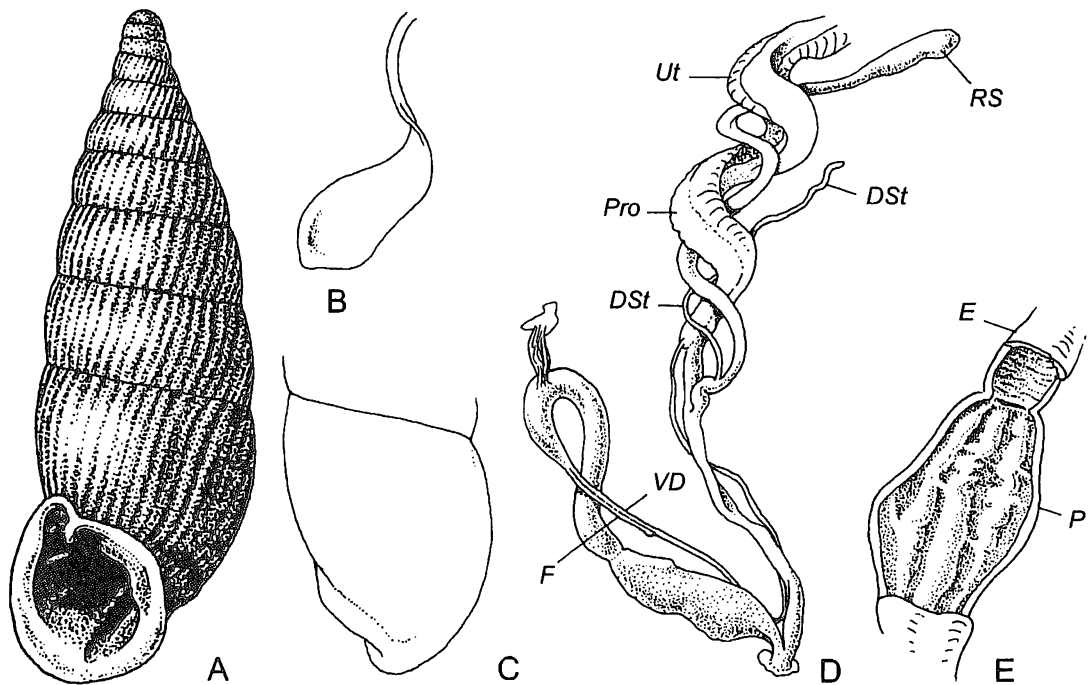


Fig. 911. *Elia (Megaleuxina) derasa* (Mousson, 1836).
 A — shell: Inghuri River valley, W Caucasus, 1750 m. SPb No. 18. B, C, D, E — Colchis Natural Reserve, W Caucasus, February 3, 1984. B — clausilium. C — location of plicae within last whorl. D — reproductive tract. E — interior of penis. Moscow No. Lc-20264.

Euxinastra O. Boettger, 1888
Fig. 913

Boettger O., 1888: 152 (*Clausilia* sect.). Likharev 1962: 202.

TYPE SPECIES — *Clausilia* (*Euxinastra*) *hamata* O. Boettger, 1888; OD.

Shell not decollated, fusiform, moderately thin, of 11-11.5 slightly convex whorls. Last whorl with basal keel. Color yellowish or greenish-corneous, with scattered whitish touches. Postnuclear whorls with blunt radial ribs. Aperture relatively small, rounded-rhomboid, without marginal knobs. Long superior lamella entering deeper than anterior end of spiral lamella. Large lancet-shaped inferior lamella subvertical, deeply lying. Lower end of subcolumellar lamella visible in oblique view. Principal plica starting on dorsal side. Lunella modified into short upper palatal plica; sometimes there are more 1-2 shorter plicae or knobs. Lobe of clausilium has a deep incision on palatal side. Height 18-21, diam. 4.1-5.2 mm (18.1 × 4.1 mm).

Flagellum not found. Epiphallus rather long. Penis markedly shorter, somewhat swollen, internally with large tubercles arranged in circular ridges. Penial retractor attached to epiphallus above its middle. Free oviduct and vagina rather long, of about equal length. Neck of spermathecal stalk very short, diverticle slightly longer, thin. Duct of reservoir long, sleeve-like, reservoir poorly defined.

DISTRIBUTION. Adzharia (Batumi) and adjacent territory of Turkey (vilayet Choroh). 3 sp.

Galeata O. Boettger, 1877
Fig. 914

Boettger O., 1877: 84 (*Clausilia*, *Euxina* sect.; "Gruppe").

— *Pleioptychia* A. Wagner, 1913: 7 [t.-sp. *Clausilia* (*Euxina*) *cilicica* Naegele, 1902; monotypy; non *Pleioptychia* O. Boettger, 1877).

— *Plistoptychia* Lindholm, 1924: 67 (nom. nov. pro *Pleioptychia* A. Wagner, 1913).

TYPE SPECIES — *Clausilia schwerzenbachi* Charpentier, 1852; OD.

Shell fusiform or turreted, rather solid, of 11-13 rather convex whorls. Last whorl with basal keel, behind aperture flat or even

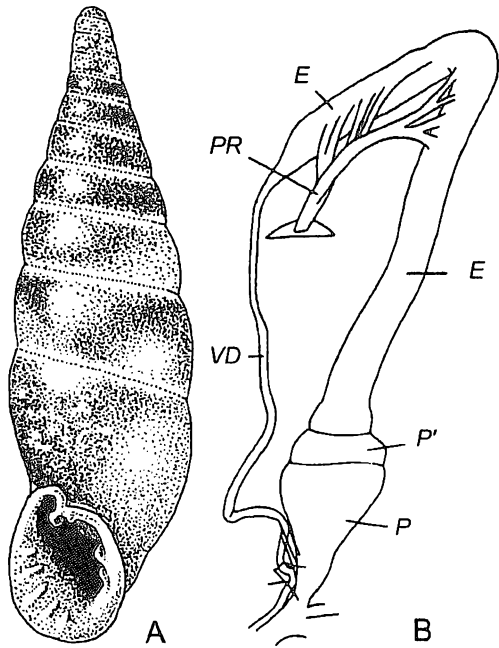


Fig. 912. *Odonteuxina iberica* (M. Wagner, 1848). A — shell: "Türkei, Kleinasien" Zürich No. 516732. B — male loop. After Nordsieck, 1975. P' — proximal part of penis.

Color reddish- or dark-corneous, with scattered groups of white markings. Embryonic whorls smooth, next 5-6 whorls with fine rather widely spaced riblets, which on lower whorls become weaker and denser, turning into fine striation. Aperture ovately pear-shaped, with shallow basal groove. Margins widely expanded, thin, with small knobs on columellar and palatal margins. Inferior lamella elevates upward and ends on dorsal side of shell. Upper end of spiral lamella and rudimentary lunella (sometimes absent) situated also on dorsal side. Above lunella there is a short upper palatal plica; above it — rather long principal plica. Lower end of spoon-like lobe of clausilium with a shallow incision. Height 17.0-19.5, diam. 4.5-5.4 mm (17.4 × 5.0 mm).

Flagellum not developed. Epiphallus rather long, sharply bent at upper part. Penis subglobular, swollen, consisting of two portions separated by a shallow groove: shorter proximal and conic distal. Penial retractor attached to epiphallus by several arms inserted above and below curvature.

DISTRIBUTION. N Turkey (Samsun). 1 sp.

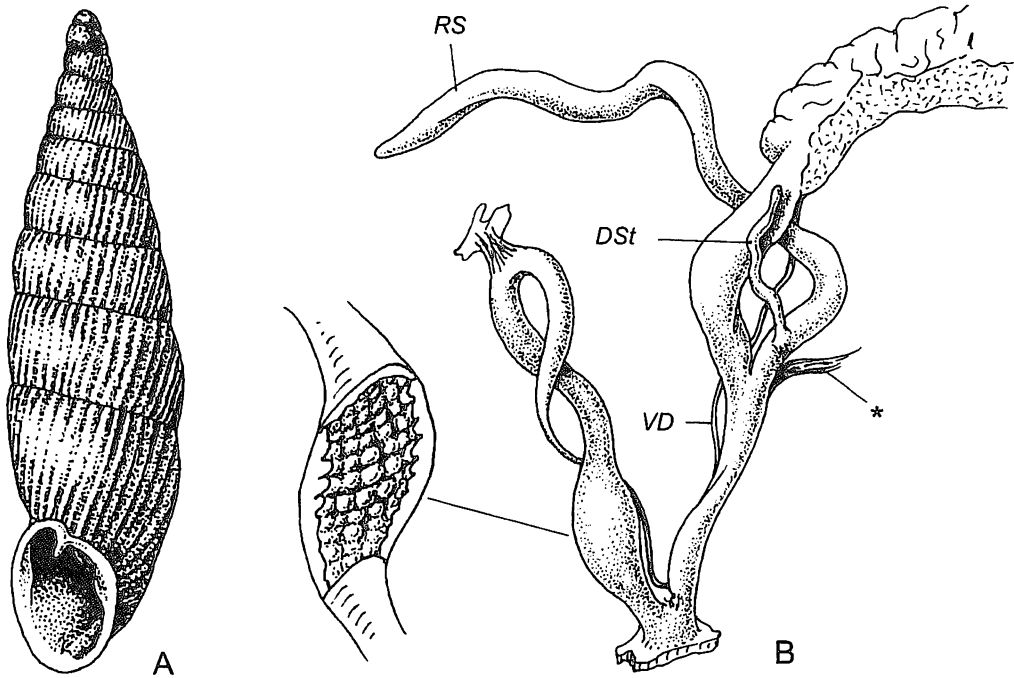


Fig. 913. *Euxinastra hamata* (O. Boettger, 1888). Botanical Garden, Batumi, Adzharia, April 20, 1957
 A — shell. B — reproductive tract and interior of penis. SPb No. 10. Asterisk — retractor of spermathecal stalk.

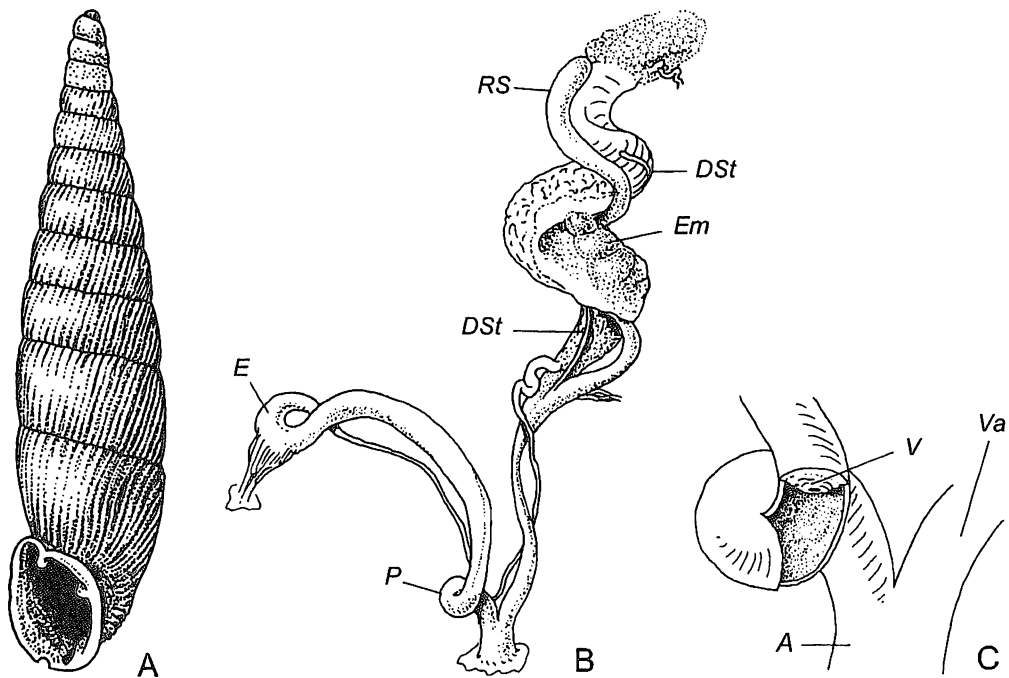


Fig. 914. *Galeata schwerzenbachi* (Charpentier, 1852).
 A — shell: Sinope, Turkey. Paris. B, C — Below Uftede Camii Ve Turbesi, Hisar, vilayet Bursa, Turkey [type locality], June 1, 1997 B — reproductive tract. C — interior of penis. Moscow No. Lc-24781.

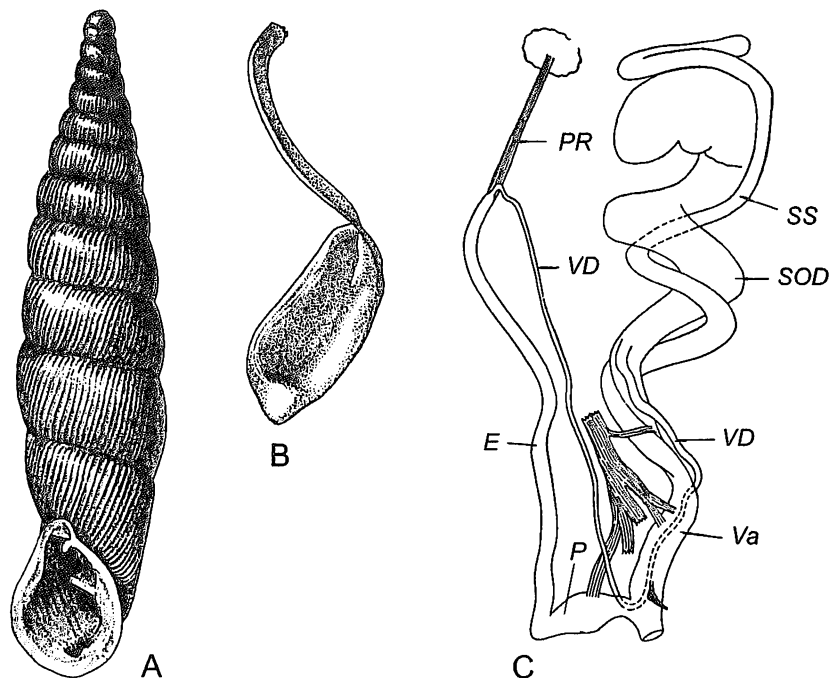


Fig. 915. *Mentissoidea rupicola litotes* (Mortillet, 1854).

A — shell: Psyrtskha, W Caucasus. Moscow No. Lc-1812. B — clausilium. C — reproductive tract. After Likharev, 1962.

concave. Color yellowish to brown. Postapical sculpture of more or less fine ribs. Aperture protruded, triangularly pear-shaped, with expanded, thin margins; palatal margin straight, vertical. Inner end of superior lamella enters deeper than external end of spiral. Inferior lamella located very deep and near to superior lamella. Subcolumellar lamella not visible. There are principal and rather long upper palatal plica; their anterior ends stretch against small palatal callosity. Height 13-20, diam. 3-5 mm (13.0 × 3.0 mm).

Talon minute, exposed. Flagellum not present. Vas deferens not adherent, somewhat expanded in proximal part, then markedly narrowed. Epiphallus subcylindrical, comparatively very long, without externally defined boundary with short penis. Inner surface of penis nearly smooth, at boundary with epiphallus there is a very short, conic, sphincter-like verge. Penial retractor inserts on proximal part of epiphallus. Free oviduct very short, vagina, on the contrary, long and thin. In specimen dissected by me, uterus contained a well-developed embryo with brown shell consisting of 3 whorls. Neck of

spermathecal stalk practically missing, diverticle thin, of various length. Reservoir of spermatheca poorly defined, reaching lower margin of albumen gland.

DISTRIBUTION. Asia Minor. 4 spp.

Mentissoidea O. Boettger, 1877

Fig. 915

Boettger O., 1877: 77 (*Clausilia* sect.).

— *Polinskia* A. Wagner, 1920: 151 (t.-sp. *Clausilia litotes* A. Schmidt, 1868; monotypy).

TYPE SPECIES — *Clausilia (Alinda) fusorium* Mousson, 1876 (= *Clausilia rupicola* Mortillet, 1854); SD Kennard & Woodward, 1923.

Shell spindle-shaped to fusiform-cylindrical, silky shining, of 10-12.5 whorls. Color corneous to reddish. Postembryonic whorls rib-striated. Aperture pear-shaped. Very high and strong inferior lamella subvertical above; below it forms broad horizontal bend, protruding to aperture lumen. Lower end of subcolumellar lamella well visible at oblique view. Principal plica very long. Lu-

nella absent, but there are two deep lying short palatal plicae which not visible through aperture. Umbilical rim relatively wide. Height 14.4-20.1, diam. 2.8-4.3 mm (15.5 × 3.6 mm).

Vas deferens slightly expanded proximally. Flagellum not present. Epiphallus unusually long, cylindrical. Penis short, fusiformly enlarged, internally with numerous longitudinal folds. Penial retractor arises on diaphragm, attached to epiphallus at entrance of vas deferens. Left arm of columellar muscle sends off branch to place of spermatheca fusion with oviduct; the second branch (often biramous) — to vagina, and the third — to basal portion of penis. Free oviduct much shorter than vagina. Spermathecal stalk extraordinary long, lacking diverticle, with scarcely defined reservoir.

DISTRIBUTION. Caucasus, Turkey (Anatolia). 1 sp. with 2 subspp. and 2 forms.

CLAUSILIINAE Mörch, 1864

Juvenile shell without columellar lamella. Periostracal layer present or partly reduced. Basal keel mostly present. Aperture non-apostrophic, entire, mostly protruding, with smooth margins. Upper and spiral lamellae, as a rule, situated at equal distance from columella and either fused by ends, or separated by more or less short interval. Inner end of subcolumellar lamella remained on columella.

Left ocular retractor free from peni-oviducal angle (except for genus *Ruthenica*). Vas deferens modified into pseudepiphallus (thickened proximal part of the duct) and/or parepiphallus (enlarged distal part of the duct + rudimentary epiphallus). Male loop (ascending arm of vas deferens + epiphallus + penis) more or less reduced. Flagellum often present. Epiphallus either shorter or longer than penis. Penis simple, with ligament. Penis shorter or longer than vagina. Vagina mostly shorter than free oviduct. Retractor of spermathecal stalk of mainly muscular tissue. Diverticle of spermatheca inserted to spermathecal stalk at its lower end; diverticle modified in a glandular organ, having an appearance of thin-walled sinuated tube.

DISTRIBUTION. Europe, Crimea, Caucasus, maritime area of northern Asia Minor.

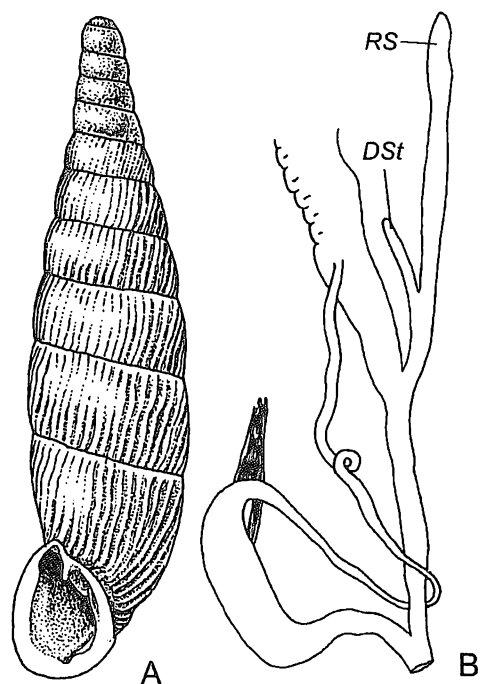


Fig. 916. *Graciliaria inserta* (A. Villa et G. Villa, 1841).

A — shell: "Szaszco Mt., Siebenbürgen" [Romania]. SPb. B — reproductive tract. After Grossu, 1981.

Graciliariini Nordsieck, 1979

Nordsieck, 1979: 263.

Male loop comparatively well developed. Flagellum absent. Penial retractor forked, both arms attached to penis.

DISTRIBUTION. S Carpathians.

Graciliaria Bielz, 1867

Fig. 916

Bielz, 1867: 150 (*Clausilia* subg.).

— *Rupicola* Hartmann, 1843 (1840-1844): 173 (nom. praeocc., non Brisson, 1760; t.-sp. *Clausilia saxatilis* L. Pfeiffer, 1846; monotypy).

TYPE SPECIES — *Clausilia concilians* A. Schmidt, 1857 (= *Clausilia inserta* A. Villa et G. Villa, 1841 fide Nordsieck, 1993: 36-37); SD Vest, 1876.

Shell fusiform, (rather) thin, slightly glossy, of 10-12 flattened whorls. Basal keel rounded. Color corneous or brown, often with whitish radial streaks. Postnuclear sculpture of closely spaced, narrow, slightly wavy, regular riblets. Aperture pear-shaped,

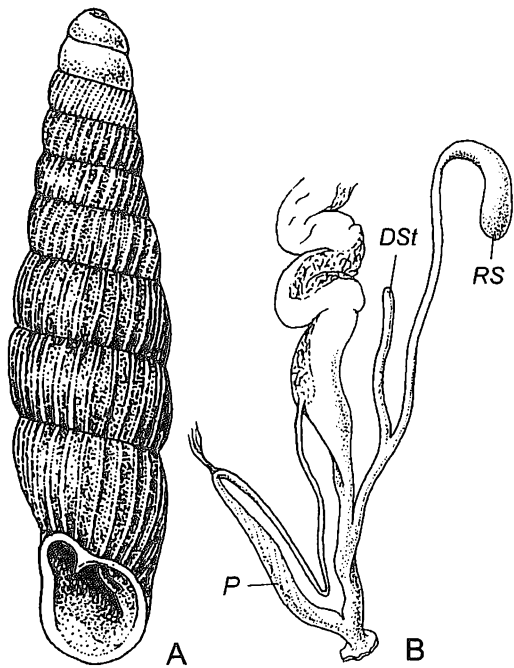


Fig. 917 *Ruthenica filograna* (Rossmassler, 1836). Nevitzki Castle near Uzhgorod, W Ukraine, September 6, 1969. A — shell. B — reproductive tract. Moscow No. Lc-24668.

with widely reflexed, expanded whorls. Superior lamella marginal. Spiral lamella represented by 2-3 small parallel folds. Inferior lamella short but strong, deeply lying. Subcolumellar lamella weak. Principal plica short, above it 1-3 small sutural plicae located. Lunella dorsal, low. Palatal plica absent or vestigial. Height 8-15, diam. 2.8-3.5 mm (13.2 × 3.2 mm).

Vas deferens slightly thickened in proximal half. Epiphallus short. Penis somewhat swollen. Penial retractor biramous, one branch attached to epiphallus/penis junction, the other — to upper part of penis. Free oviduct shorter than vagina by about 2 times. Neck of spermathecal stalk short, diverticle also short, somewhat reduced; reservoir poorly defined.

DISTRIBUTION. S Carpathians. 1 sp.

Clausiliini Mörch, 1864

Male loop more or less shortened or nearly absent. Flagellum absent. Penial retractor mostly simple, weak or wanting.

DISTRIBUTION. Europe.

Ruthenica Lindholm, 1924

Fig. 917

Lindholm, 1924: 68 (*Graciliaria* sect.).

TYPE SPECIES — *Clausilia filograna* Rossmassler, 1836; OD.

Shell fusiform, thin, with blunt apex, of 9-10 convex whorls. Last whorl without keel. Color corneous to reddish. Postnuclear sculpture of rather coarse, widely spaced riblets. Aperture pear-shaped, (sub)vertical, with shortly reflexed, thickened margins. Superior lamella not high, moderately long. Spiral lamella rudimentary; next to it a small parallel lamella present. Inferior lamella lies deeply; subcolumellar lamella visible under oblique view. Principal and palatal lamellae absent. Lunella weak, located on right side of shell. Lobe of clausilium broad and short, narrowed near handle. Height 7.5-12.0, diam. 2.0-2.2 mm (8.2 × 2.0 mm).

Right ommatophoral retractor passes through peni-oviducal angle. Descending arm of vas deferens sometimes a little enlarged, ascending narrowed. Epiphallus missing. Penis cylindrical, internally with

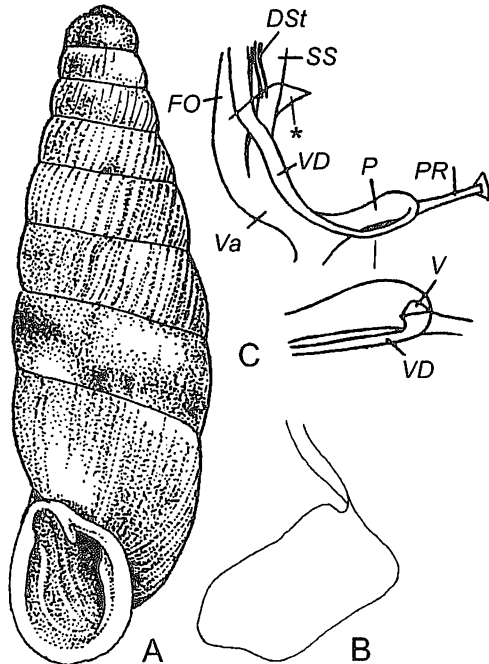


Fig. 918. *Micridyla pinteri* (Nordsieck, 1973). A — shell: Čudni Mostove, Rhodope Mts., Bulgaria (type locality). Vienna No. 81240. B — clausilium. C — distal parts of reproductive tract and interior of penis, schematic. After Nordsieck, 1973b. Asterisk — retractor of spermathecal stalk.

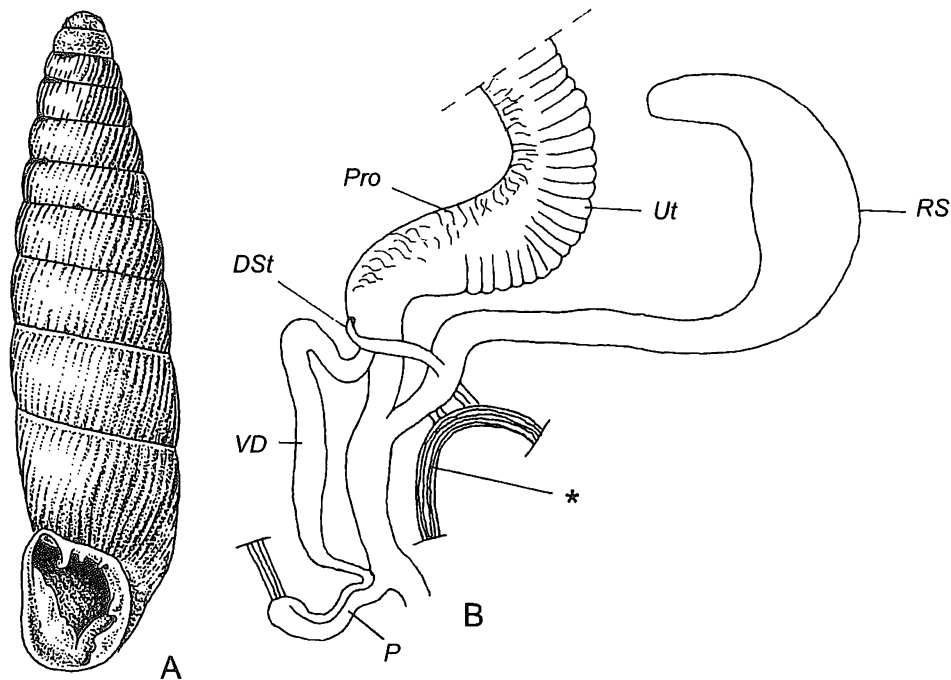


Fig. 919. *Pseudofusulus varians* (C. Pfeiffer, 1828).
 A — shell: "Glaserer bei Peggau" [Austria]. Vienna No. 30995. B — reproductive tract.
 After A. Wagner, 1913. Asterisk — fragment of columellar muscle and retractor of spermathecal stalk.

thin, spirally directed folds. Penial retractor arises from diaphragm and attached to upper end of penis. Free oviduct and vagina of about equal length. Neck of spermathecal shaft not long, diverticle markedly longer, slender; reservoir (nearly) attends lower margin of albumen gland.

DISTRIBUTION. Central and E Europe. 2 spp.

Micridyla Nordsieck, 1973
 Fig. 918

Nordsieck, 1973b: 181 (*Idyla* subg.).

TYPE SPECIES — *Idyla (Micridyla) pinteri* Nordsieck, 1973; OD.

Shell turrated-fusiform, thin, semitransparent, of 8-9 slightly convex whorls. Basal keel weak, rounded. Apical part of shell broadly rounded. Color corneous-brown. Upper postembryonic whorls rather coarsely ribbed, on lower whorls ribs finer; behind aperture ribs become large. Aperture pear-shaped, with a little reflexed, somewhat thickened margins. White lip lies at some distance from edge. Superior lamella short, rather strong. Spiral lamella wanting;

there is a small parallel lamella. Inferior lamella moderately high. Subcolumellar lamella not visible in frontal view. Lunella dorsolateral; above its upper end 2 very short plicae situated: rudiments of principal and sutural plicae. Clausilium plate broad, with wide, shallow depression on distal margin. Height 6.6-8.0, diam. 2.1-2.3 mm (7.2 × 2.2 mm).

Proximal portion of vas deferens much enlarged (pseudepiphallus). Epiphallus reduced. Penis short, containing a very small verge. Vagina rather short. Diverticle of spermathecal stalk slender. Retractor of spermatheca attached to spermathecal shaft and oviduct. Ovoviviparous.

DISTRIBUTION. Rhodope Mts. 1 sp.

Pseudofusulus Nordsieck, 1977
 Fig. 919

Nordsieck, 1977b: 96.

TYPE SPECIES — *Clausilia varians* C. Pfeiffer, 1828; OD.

Shell fusiform, rather thin, shining, translucent, of 9-10 slightly convex whorls. Last whorl with a strong, whitish circular

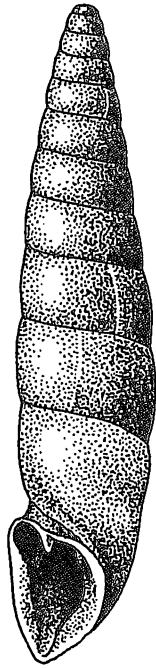


Fig. 920. *Erjavecica bergeri* (Rossmäessler, 1836).
Hallstatt, Upper Austria. SPb.

thickening behind aperture and with rounded basal crest. Apex narrowly rounded. Color yellowish- or greenish-corneous. Postembryonic sculpture of regular, rounded ribs. Aperture irregularly ovate, slightly oblique, with thickened, scarcely reflexed margins; parietal wall with 2-3 small, short, lamellar marginal knobs. Superior lamella thin, almost continuous with spiral lamella. Inferior lamella low, steeply ascending. Subcolumellar lamella well developed. Inner ends of basal plica and subcolumellar lamella connected by callus. Principal lamella starting on right side. Lunella and palatal plicae missing. Height 9-12, diam. 2.1-2.6 mm (11.4 × 2.5 mm).

Vas deferens strongly expanded below prostate (pseudepiphallus), then narrowing (parepiphallus) comes, running alongside vagina and tightly bound to small penis. Epiphallus wanting. Penis short. Penial retractor attached to boundary between vas deferens and penis. Free oviduct short, vagina markedly longer. Neck of spermathecal stalk short, diverticle a little longer, rather thin; duct of reservoir long, voluminous reservoir vaguely demarcated from duct.

DISTRIBUTION. E Alps to Croatia, W Carpathians, Sudetes to Erzgebirge. 1 sp.

Erjavecica Brusina, 1870

Fig. 920

Brusina, 1870: 24 (*Clausilia* subg.).

— *Trigonostoma* Vest, 1867: 193 (nom. praeocc., non Blainville, 1825; t.-sp. *Clausilia bergeri* Rossmäessler, 1836; OD).

TYPE SPECIES — *Clausilia bergeri* Rossmäessler, 1836; OD.

Shell fusiform-conic, lustrous, thin, translucent, of 10-11 weakly convex whorls. Last whorl with sharp basal keel. Color reddish-brown. Embryonic whorls vaguely microgranulate, surface of rest whorls practically smooth, only with delicate irregular radial wrinkles. Aperture subtriangular, pointed below, with thin, reflexed margins; palatal wall straight, vertical. Superior and spiral lamellae united. Inferior lamella not high, expanded; subcolumellar lamella rather small. Principal plica occupies about 0.3 whorl, not visible at standard position. Lunella rudimentary. Plate of clausilium without incisions. Umbilicus, a very short and narrow slit. Height 10-12, diam. 2.3-2.5 mm (10.8 × 2.4 mm).

Parepiphallus short. Penis cylindrical, without subdivision into sections. Penial retractor simple. Free oviduct longer than vagina.

DISTRIBUTION. E Alps. 1 sp.

Fusulus Fitzinger, 1833

Fitzinger, 1833: 105.

TYPE SPECIES — *Clausilia interrupta* C. Pfeiffer, 1828; SD Martens in Albers, 1860.

Shell fusiform, comparatively thin, of 10-11 moderately convex whorls; last whorl slightly ascending at the very aperture. Surface with rounded, regular, variously spaced, shining riblets; interspaces between riblets dull. Aperture ovate, margins slightly thickened and reflexed. Superior lamella continuous with spiral lamella. Inferior lamella strong, its lower portion visible on columellar margin as thin swelling. Subcolumellar lamella very much curved. Basal plica expanded, short; palatal plica of about same appearance. Principal plica lies deeply, occupies 0.25-0.3 whorl.

Parietal callus smooth or with 3-4 thin lamellar knobs that are lower ends of riblets. Palatal wall with more or less developed tubercle. Umbilicus closed.

Retractor of left ommatophore free of penioviducal angle. Male loop reduced. Parepiphallus short. Penis clavate, internally with small, ovate verge. Penial retractor missing.

DISTRIBUTION. E Alps to Croatia.

Fusulus (Fusulus s. str.)

Fig. 921

— *Dyodonta* Hartmann, 1842: 155 [t.-sp. *Clausilia fimbriata* Rossmassler, 1835 (= *Clausilia interrupta* C. Pfeiffer, 1828); SD Lindholm, 1924].

— *Diodonta* Hartmann, 1842: Taf. 51, Figs. 1-3 (nom. err. pro *Dyodonta* Hartmann, 1842).

Parietal margin of aperture between superior and inferior lamellae bears lamellar knobs. External end of subcolumellar lamella entire. Height 8-10, diam. 2.4-2.6 mm (9.2 × 2.5 mm).

Penis moderately long. Vagina and distal part of free oviduct strongly expanded.

DISTRIBUTION. French Jura, "Erzgebirge" E Alps, Tatra Mts. N Croatia. 1 sp.

Fusulus (Erjavecicella) Nord sieck, 1977

Fig. 922

Nord sieck, 1977b: 97

TYPE SPECIES — *Clausilia approximans* A. Schmidt, 1857; OD.

Parietal margin of aperture smooth. External end of subcolumellar lamella inclined to splitting. Height 8.0-9.2, diam. 2.0-2.4 mm (8.9 × 2.2 mm).

Penis shorter than in *Fusulus s. str.* Vagina and distal part of free oviduct not expanded.

DISTRIBUTION. Alps. 1 sp.

Macrogastera Hartmann, 1841

Hartmann, 1841 (1840-1844): 48. Likharev, 1962: 230.

TYPE SPECIES — *Pupa ventricosa* Draparnaud, 1801; monotypy.

Shell fusiform or fusiform-cylindrical, more or less obese, of 9-12 convex whorls. Aperture widely pear-shaped or rounded-

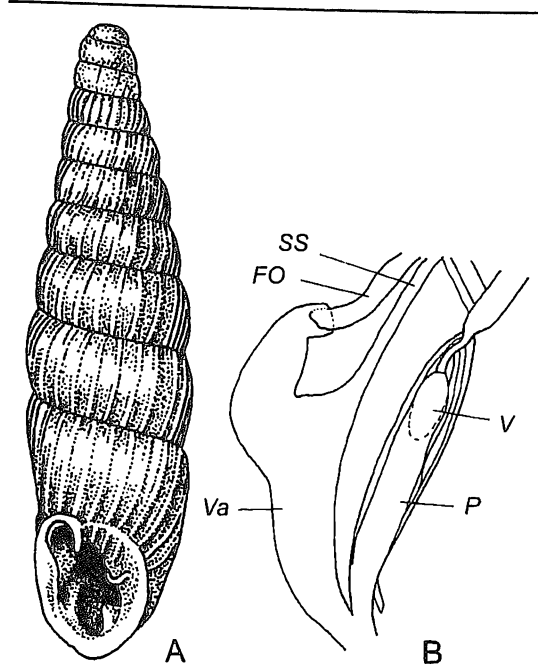


Fig. 921. *Fusulus (Fusulus) interruptus* (C. Pfeiffer, 1828).

A — shell: Malborgeth, Carintia, Austria. SPb. B — interior of distal parts of reproductive tract. After Nord sieck, 1977b.



Fig. 922. *Fusulus (Erjavecicella) approximans* (A. Schmidt, 1857).

Johannesruh in Barental near Freistritz, Austria. Private coll. of A.G. Kuznetsov.

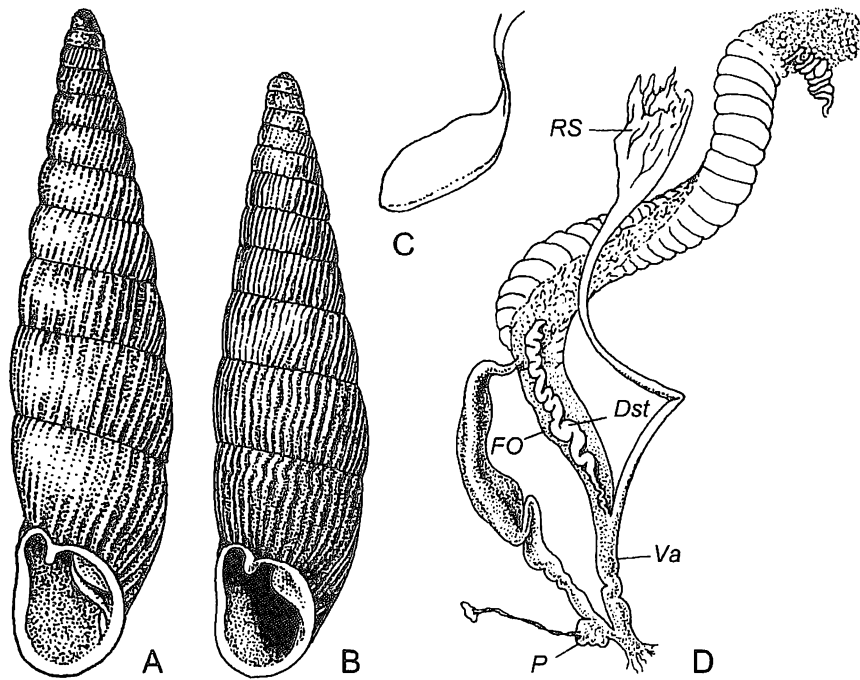


Fig. 923. A — ! *Macrogastra (Macrogastra) lineolata* (Held, 1836). Shell: near Rübeland, Harz, Germany. Moscow No. Lc-24756. B, C, D — *Macrogastra (Macrogastra) ventricosa* (Draparnaud, 1801). Romashkovo near Moscow, November 3, 1968. B — shell. C — clausilium. D — reproductive tract. Moscow No. Lc-24653.

rhomboid. Basal keel only slightly developed, so basal groove nearly absent. Superior lamella continuous with spiral lamella. Inferior lamella strongly protruded in lumen of aperture. To inferior lamella, near its lower end, 2 diverging lamellae (intermedian and marginal) adjust. Lunella well developed, situated on dorsal side and has same shape as in *Clausilia*, i.e. both its ends curved backward. Principal plica extending from right side to left, i.e. occupies about a half of whorl. Palatal callus developed weaker than in *Clausilia*. Lobe of clausilium evenly narrowed toward anterior end.

Pseudepiphallus and parepiphallus well developed. Oviduct of same length as vagina or somewhat longer. Neck of spermathecal stalk extraordinary short. Diverticle more or less sinuous, shorter than duct of reservoir.

DISTRIBUTION. Most part of Europe.

Macrogastra (Macrogastra s. str.)

Fig. 923

Shell obesely fusiform, moderately solid to rather thin, somewhat shining, of 10-12

slightly to moderately convex whorls. Color dark-corneous to reddish-chestnut. Post-embryonic whorls with distinct, somewhat wavy radial ribs. Aperture somewhat rounded, subvertical, with slightly reflexed, thickened margins. Parietal margin between superior and inferior lamellae sometimes denticulate. Superior lamella evenly continuous with spiral lamella. Inferior lamella well developed. Subcolumellar lamella short, not or scarcely visible in apertural view. Principal plica starting on right side. Lunella dorsal. Palatal plicae wanting. Clausilium plate simple, with broad, shallow depression at base of handle. Height 15-20, diam. 4-5 mm (*lineolata*: 17.3 × 4.1 mm; *ventricosa*: 18.0 × 4.3 mm).

Talon, a simple curvature of hermaphroditic duct on surface of albumen gland. Pseudepiphallus stout. Parepiphallus long, thick-walled, expanded, without regular internal relief. Penis small, sac-like, with thin, a little translucent walls; its lumen separated from lumen of parepiphallus by a sphincter. Penial retractor thin, attached to penis. Free oviduct and vagina rather long, of about equal length. Neck of spermathecal shaft practically absent, diverticle

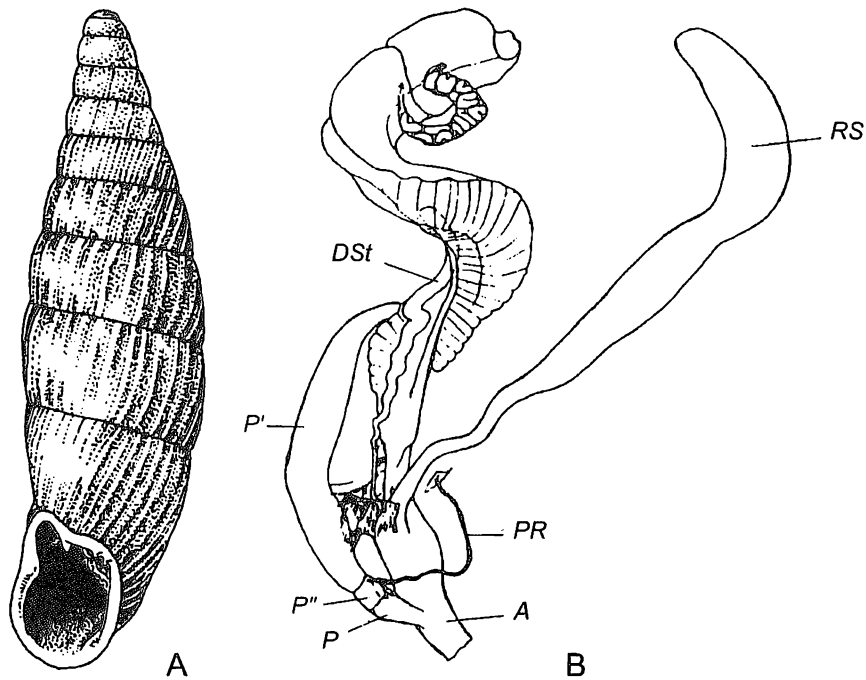


Fig. 924. *Macrogastra (Pseudovestia) rolphi* (Turton, 1826).

A — shell: Sauerland: Hönnetal between Klusenstein and Binolen, Nordrhein-Westfalen, Germany. Private coll. of A.G. Kuznetsov. B — reproductive tract. After Nordsieck, 1963. *P'* — pseudepiphallus; *P''* — parepiphallus.

strongly sinuous, adherent to free oviduct and lower part of spermoviduct. Duct of reservoir long, reservoir thin-walled, voluminous.

DISTRIBUTION. As in genus. 8 spp.

Macrogastra (Pseudovestia)
Nordsieck, 1977)
Fig. 924

Nordsieck, 1977b: 97

— *Iphigena* Gray, 1821: 239 (nom. nud.).

TYPE SPECIES — *Clausilia rolphii* Turton, 1826; OD.

Shell differs from *Macrogastra* s. str. by stronger development of basal keel. Whorls 9-10, slightly convex. Height 11.0-14.7, diam. 3.0-3.7 mm (11.8 × 3.3 mm).

Anatomically differs from *Macrogastra* mainly by much shorter, subglobular parepiphallus. Penial retractor weak or absent.

DISTRIBUTION. Central Europe, westward to Portugal. 2 spp.

Julica Nordsieck, 1963
Fig. 925

Nordsieck, 1963: 102 (*Iphigena* subg.).

TYPE SPECIES — *Clausilia schmidtii* L. Pfeiffer, 1841; OD.

Shell fusiform, moderately thin, slightly translucent, of about 12 whorls. Last whorl with weakly developed basal keel. Color brown to dark brown. Early postembryonic whorls with fine regular riblets, later the riblets become obsolete (especially on 2-3 last whorls). Aperture pear-shaped, subvertical, with thin, a little reflexed margins. Parietal wall with 2 or 3 additional somewhat lamellar marginal knobs. Boundary between superior and spiral lamellae indicated by a shallow incision. Inferior lamella deeply lying, its lower end slightly splitted. Subcolumellar lamella small. Palatal wall with a light, pad-like callus. Height 11.5-14.0, diam. 2.5-2.8 mm (11.7 × 2.6 mm).

Pseudepiphallus greatly swollen, narrowing distalward. Penis small, enlarged. Penial retractor attached to penis. Free oviduct markedly longer than vagina. Diver-

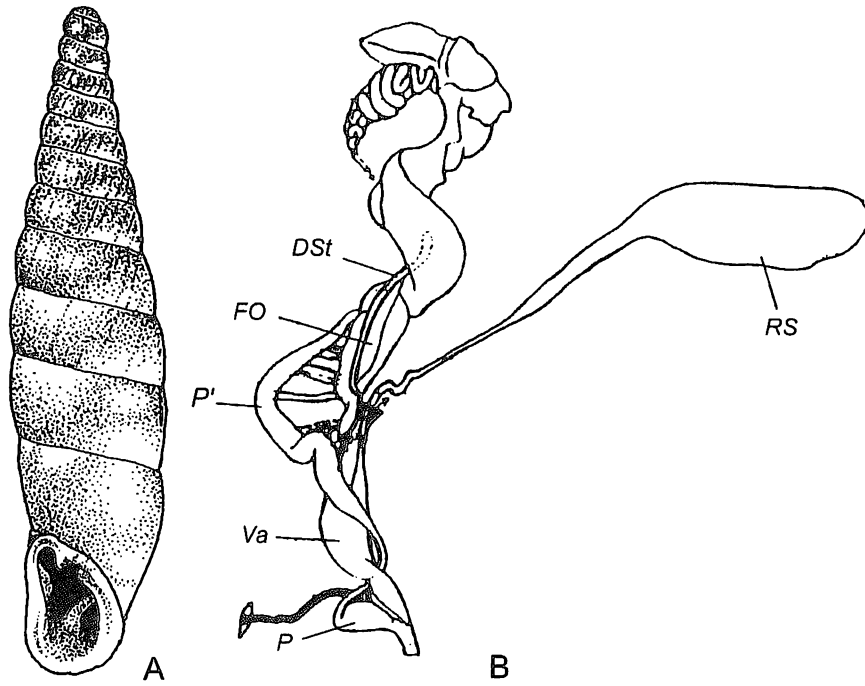


Fig. 925. *Julica schmidtii* (L. Pfeiffer, 1841).

A — shell: "Grivo-Thal, Prov. Uorarlberg, W Österreich" Vienna No. 83.000/1309. B — reproductive tract. After Nordsieck, 1963. P' — pseudepiphallus.

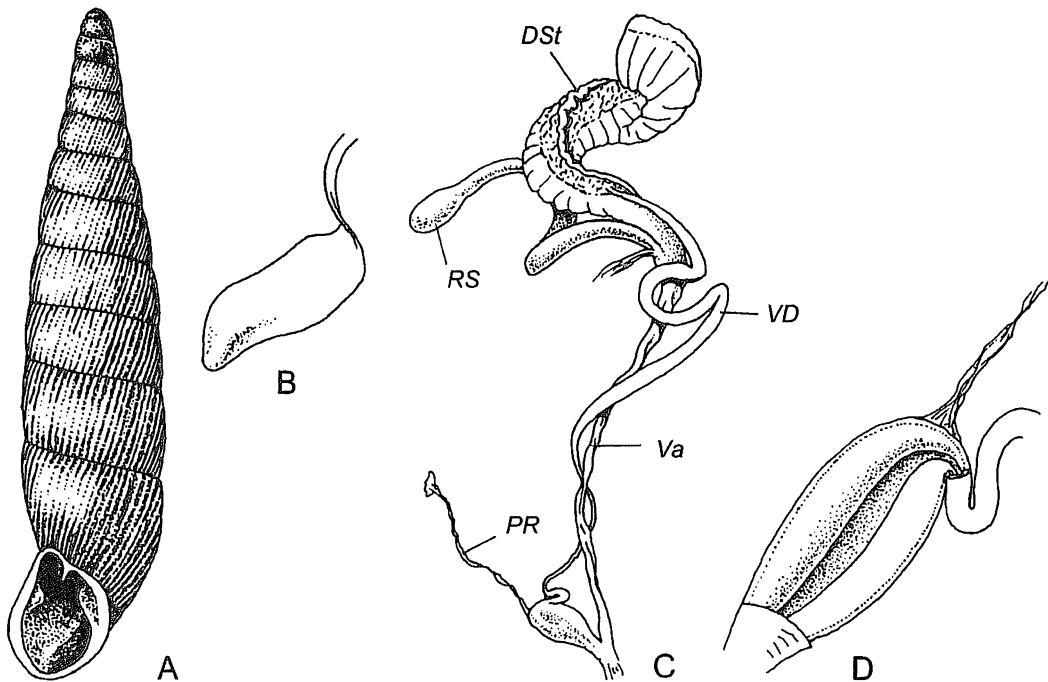


Fig. 926. A — *Clausilia (Clausilia) rugosa rugosa* (Draparnaud, 1801).

Shell: "Gallia" [France]. SPb. B, C, D — *Clausilia (Clausilia) rugosa parvula* Férussac, 1807 Raven de Couchefatte near Chancy, Geneva, August 6, 1997 B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-24664.

ticle of spermathecal stalk thin, shorter than duct of voluminous reservoir.

DISTRIBUTION. SE Alps. 1 sp.

Clausilia Draparnaud, 1805

Draparnaud, 1805: 24. Likharev, 1962: 218. Nordsieck, 1990: 133.

TYPE SPECIES — *Pupa rugosa* Draparnaud, 1801; SD Commission Zool. Nomencl.; Bull. Zool. Nomencl., 44 (3): 211 (1987), Opinion 1455.

Shell slender, fusiform, rather thin, shining or silky glossy, of 9-11 slightly convex whorls. Last whorl with basal keel margined with a groove. Color dark-brown to blackish. Postembryonic whorls with variously developed radial ribs; spiral striation may be present. Aperture irregularly elongated-ovate or pear-shaped, only slightly oblique, with shortly reflexed, often somewhat thickened margins. Superior lamella either continuous with spiral lamella, or they separated by a short space, but located on one line. Inferior lamella deeply lying. Lower end of subcolumellar lamella usually visible in frontal view. Lunella lies on dorsal side; its ends usually curved backward. Principal plica well developed, occupies about 1/3 of last whorl; its upper end located behind lunella. Palatal callus composed of upper and lower parts; from the latter a short, thick palatal fold branched off. Plate of clausilium a little narrowed, thickened apically, with shallow depression at handle.

Pseudepiphallus very stout, highly muscular. Parepiphallus as such not developed; distal portion of vas deferens quite slender and forms, along with minute, ovate penis, small loop, to which very thin diaphragmal retractor attached. Penis lacking verge, its inner surface nearly smooth to longitudinally folded. Free oviduct short, stout; in contrast, vagina very long, narrow, thin-walled and subtransparent. Neck of spermathecal stalk nearly absent. Diverticle thin, sinuous, shorter than duct of reservoir. Reservoir nearly reaching albumen gland.

DISTRIBUTION. Central Europe.

Clausilia (*Clausilia* s. str.)

Fig. 926

Inferior lamella comparatively low. Subcolumellar lamella thin, usually not or

poorly visible in apertural view. Height 7-15, diam. 1.8-3.0 mm (13.1 × 2.8 mm).

Parepiphallus narrower than distal part of pseudepiphallus. Penis internally with 2 strong, fleshy, longitudinal pilasters. Penial retractor simple or biramous, attached to parepiphallus or has an additional arm to upper part of penis. Vagina subcylindrical or fusiform.

DISTRIBUTION. Central Europe. 7 spp.

Clausilia (*Strobeliella*)

Nordsieck, 1977)

Fig. 927

Nordsieck, 1977b: 98.

TYPE SPECIES — *Clausilia whateliana* Strobel, 1850; OD.

Inferior lamella high. Subcolumellar lamella rather short, callus-like, usually visible in apertural view. Height 8.5-14.5, diam. 2.0-3.2 mm (11.8 × 2.7 mm).

Parepiphallus narrower than distal part of pseudepiphallus. Penial retractor simple, attached to distalmost part of parepiphallus. Vagina cylindrical.

DISTRIBUTION. Italian Alps. 1 sp. with 5 subspp.

Clausilia (*Andraea* L. Pfeiffer, 1848)

Fig. 928

Pfeiffer L., 1848: 476. Nordsieck, 1990: 142.

TYPE SPECIES — *Clausilia dubia* Draparnaud, 1805; monotypy ("*Andraea dubia* Hartm. in sched.>").

Inferior lamella low. Subcolumellar lamella in anterior part weakly curved, mostly not or poorly visible in apertural view. Height 7-16, diam. 2.0-3.5 mm (11.3 × 2.7 mm).

Parepiphallus only slightly differs in diameter from distal end of pseudepiphallus. Penial retractor simple, attached to lower part of parepiphallus. Vagina cylindrical.

DISTRIBUTION. Middle Europe including southern Scandinavia; central England. 1 sp. with numerous forms.

Neostyriaca A. Wagner, 1920

Fig. 929

Wagner A., 1920: 107

— *Neostyria* A. Wagner, 1920: 107 (nom. err. pro *Neostyriaca*).

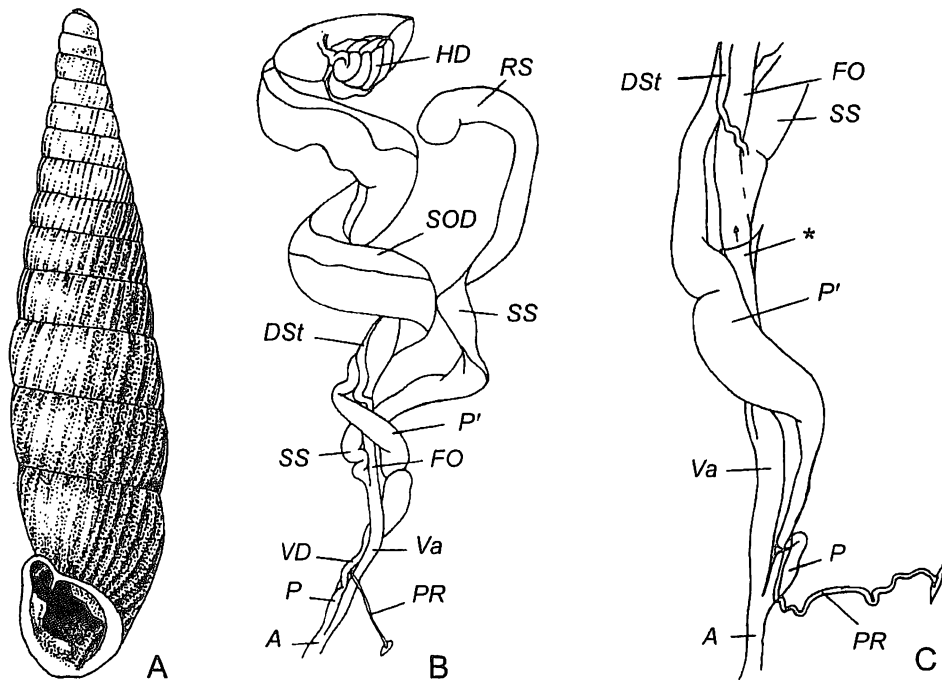


Fig. 927 A — *Clausilia (Strobeliella) whateliana klemmi* Nordsieck, 1966. Shell: Puente di Briolta N of Ardesio, Bergamo, Italy. Private coll. of A.G. Kuznetsov. B — *Clausilia (Strobeliella) whateliana exoptata* A. Schmidt, 1857 Reproductive tracts of two specimens. After Nordsieck, 1966. Asterisk — retractor of spermathecal stalk. P' — pseudepiphallus.

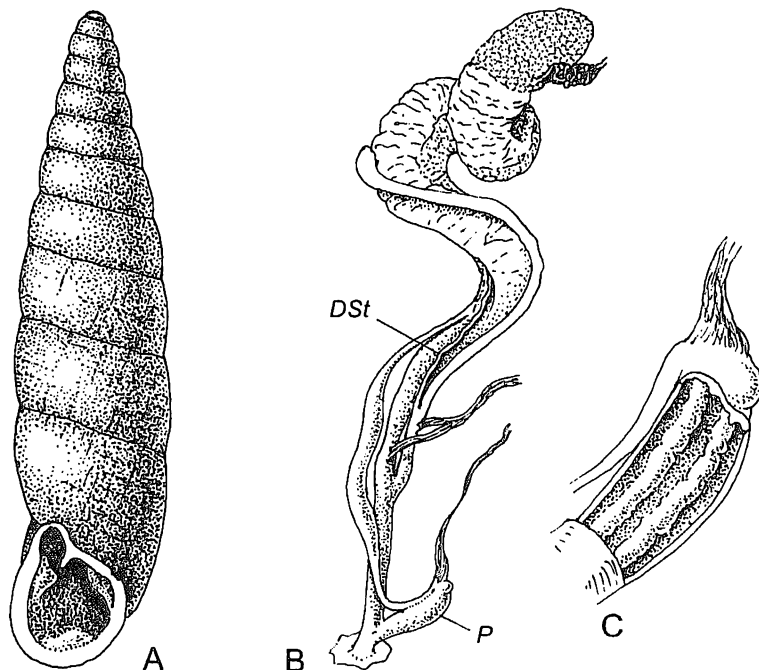


Fig. 928. *Clausilia (Andraca) dubia* Draparnaud, 1805. Schneeberg (1850-1870 m), Austria, October 1, 1996. A — shell. B — reproductive tract. C — interior of penis. Moscow No. Lc-24771.

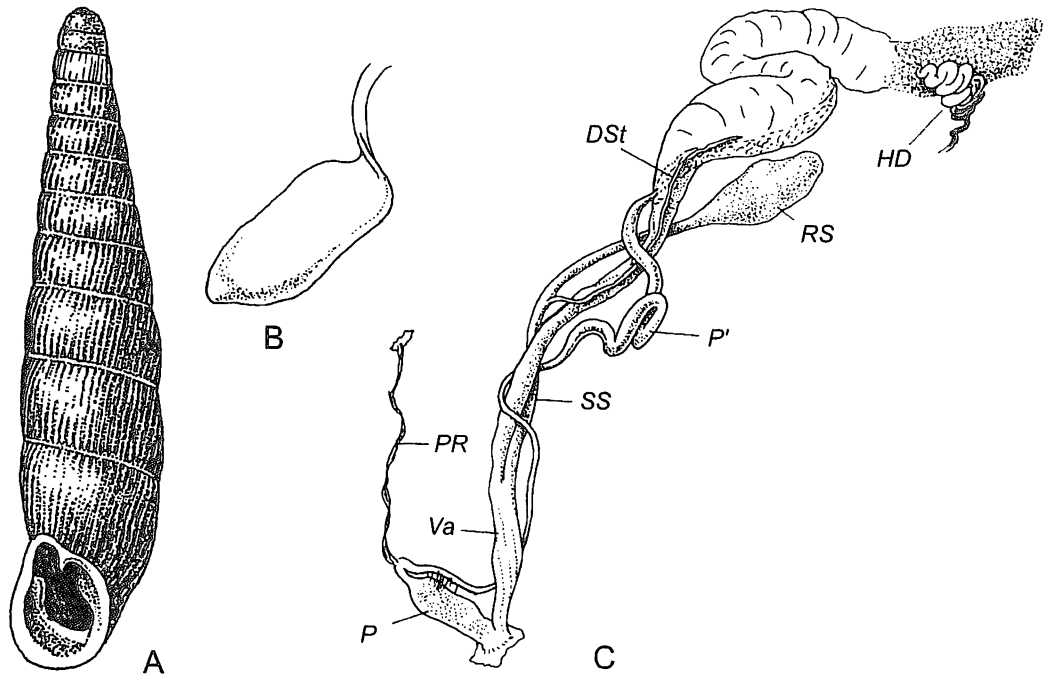


Fig. 929. *Neostyriaca corynodes* (Held, 1836).

Johnsbach, Admont district, Styria, Austria, September 17, 1996. A — shell. B — clausilium. C — reproductive tract. Moscow No. Lc-24651. P' — pseudepiphallus.

TYPE SPECIES — *Clausilia corynodes* Held, 1836; monotypy (“Formenkreis der — *corynodes* Held”).

Shell slender, fusiform, rather thin, silky glossy, of 10-12 slightly convex whorls. Last whorl with low, blunt basal keel. Color brown, reddish-brown or blackish. Post-embryonic sculpture of fine, regular, radial riblets. Aperture pyriform, a little oblique, with very shortly reflexed, scarcely thickened margins. On basal and palatal walls, at some distance from peristome, there is a variously developed callus-like thickening running parallel to plane of aperture. Superior lamella continuous with spiral lamella through a light curvature (“fracture”). Inferior lamella low. Subcolumellar lamella short, callus-like. Principal plica starting on right side. Lunella thick, convex, dorsal. Palatal plicae wanting. Plate of clausilium elongated, with a light incision at handle. Height 9-11, diam. 2.2-2.4 mm (10.2 × 2.3 mm).

Talon hidden. Pseudepiphallus thickened, more or less coiled. Parepiphallus thread-like, long. Penis small, thin-walled, lacking special inner structures. Penial retractor attached to parepiphallus a little

above penis. Free oviduct much longer than subcylindrical vagina. Internally vagina with thin folds directed somewhat spirally. Neck of spermathecal stalk long, diverticle very thin, about as long as duct of reservoir.

DISTRIBUTION. Alps. 3 spp.

BALEINAE A. Wagner, 1913

Wagner A., 1913: 9. Nordsieck, 1969b: 248.

Juvenile shell without columellar lamella. Periostracal layer present or partly wanting. Last whorl mostly with basal keel. Aperture non-apostrophic, free, with smooth margins. There are two variants of disposition of superior and spiral lamellae: 1. They stand at equal distance from columella and either fused by ends or separated; 2. They stand at different distance from columella and their ends usually not fused. Inner end of subcolumellar lamella lies on columella. Lunella entire. In many cases closing apparatus more or less reduced.

Vas deferens modified into pseudepiphallus and/or parapiphallus. Flagellum, penial caecum and penial retractor missing. Distal male ducts not form a loop, strengthened alongside female division and have an appearance of thick muscular cylindrical tube which fusiformly swollen before atrium.

DISTRIBUTION. SE Europe to Greece, some groups scattered throughout Europe, Crimea, Caucasus, East-Pontian Mts. and N Iran (Elburs Mts.); Madeira, Azores.

Mucronaria O. Boettger, 1877

Boettger O., 1877: 84 (*Clausilia*, *Euxina* sect.; "Gruppe").

TYPE SPECIES — *Clausilia acuminata* Mousson, 1876; OD.

Shell obesely fusiform, rather solid, shining, somewhat translucent, of 11-12 weakly convex whorls. Color light-brown or corneous. Surface covered with thin, irregular, radial wrinkles which become coarse on lower part of body whorl. Aperture subcircular to pear-shaped, margins widely reflexed, expanded, slightly thickened. Basal keel short. Superior and spiral lamellae situated at equal distance from columella and either fused or separated by more or less long interval. Inferior lamella lies rather deeply. Subcolumellar lamella not visible through aperture. Length of principal plica 1/3-1/2 whorl. Lunella either entire or broken up into few small folds; in any case the plica(e) lies on dorsal side; in two species it (they) shifted to ventral side. Broad and short lobe of clausilium saddle-shaped, with an incision at handle; anterior end of lobe thickened and slightly pointed.

Talon hidden. Penis internally with circular or longitudinal folds, without a verge. Free oviduct somewhat longer than vagina or nearly equal to it. Neck of spermathecal stalk very short; diverticle more or less strongly sinuous.

DISTRIBUTION. Caucasus and maritime Turkey eastward from Sinop.

Mucronaria (*Index* O. Boettger, 1877) Fig. 930

Boettger O., 1877: 87 (*Clausilia*, *Alinda* sect.; "Gruppe"). Likharev, 1962: 289.

TYPE SPECIES — *Clausilia index* Mousson, 1863; OD.

Shell fusiform, with concave outline of upper spire and narrowly blunt summit; composed of 12.5-14 slightly convex whorls. Basal keel strong, rounded. Color corneous. Embryonic whorls vaguely granulated, later whorls with fine, rounded riblets. Aperture pear-shaped, vertical, with shortly reflexed, thickened margins. Superior lamella rather short, somewhat curved. Spiral lamella lies very deep, not visible through aperture. Inferior lamella very high, subhorizontal, shifted toward superior lamella, strongly protruded to aperture lumen. Lunella absent. Principal and 3 palatal plicae right-ventral in position. Plate of clausilium short, wide, irregularly quadrangular, with deep incision at handle. Height 16-18, diam. 4.0-4.5 mm (16.0 × 4.0 mm).

Penis thin-walled, swollen, of irregular shape, internally with numerous circular folds. Free oviduct and vagina rather long, of about equal length. Reservoir of spermatheca poorly defined.

DISTRIBUTION. W Caucasus. 2 spp.

Mucronaria (*Multiplicaria* Lindholm, 1924) Fig. 931

Lindholm, 1924: 66 (nom. nov. pro *Polyptychia* O. Boettger, 1877).

— *Polyptychia* O. Boettger, 1877: 84 (non *Polyptychia* Feldegg, 1874; *Clausilia*, *Euxina* sect.; "Gruppe"; t.-sp. *Clausilia duboisi* Charpentier, 1852; OD).

TYPE SPECIES — *Clausilia duboisi* Charpentier, 1852; OD.

Shell fusiform or fusiform-cylindrical, rather solid, silky glossy, of 9-12 moderately convex whorls. Basal keel sharp. Color reddish-corneous, with numerous bundles of white touches. Postembryonic sculpture of fine, dense rib-striation. Aperture pear-shaped, with narrow, deep sinulus and reflexed, thin margins which often bear marginal knobs. Superior lamella somewhat oblique, either fused with spiral lamella or separated from it by a short space. Inferior lamella deeply lying, connected with aperture margin by a large fold; upper end of this lamella situated on right side of shell. Principal plica starting on right-ventral side

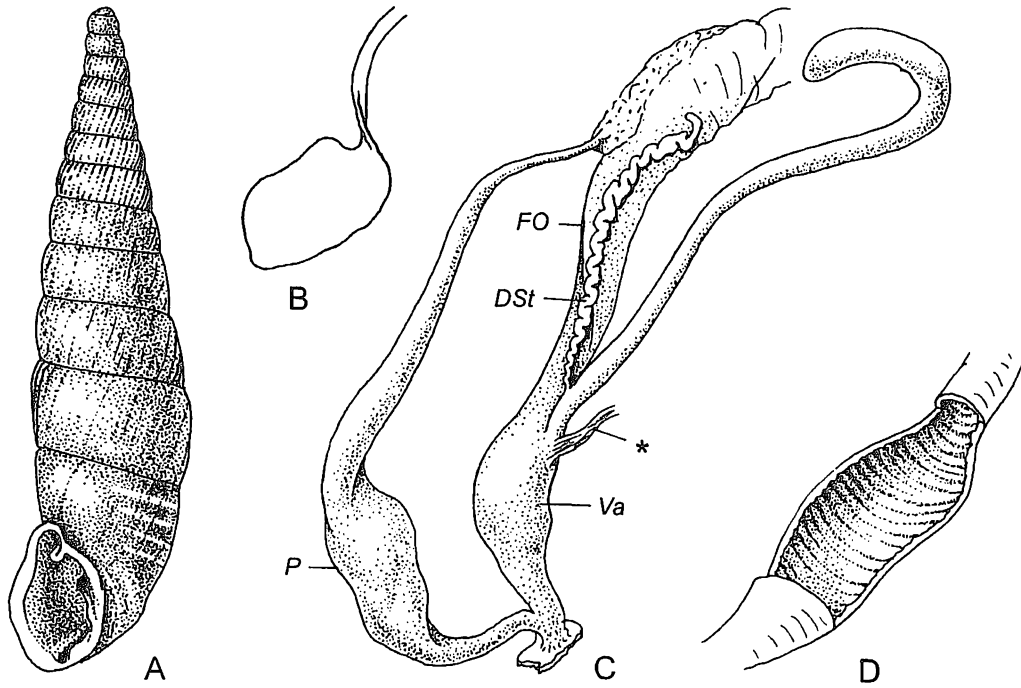


Fig. 930. *Mucronaria (Index) index* (Mousson, 1863).

A — shell: Ghumurushi village, Georgia, W Caucasus. Moscow No. Lc-24678. B, C, D — Adzhamet Natural Reserve, W Caucasus, January 30, 1984. B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-20258. Asterisk — retractor of spermathecal stalk.

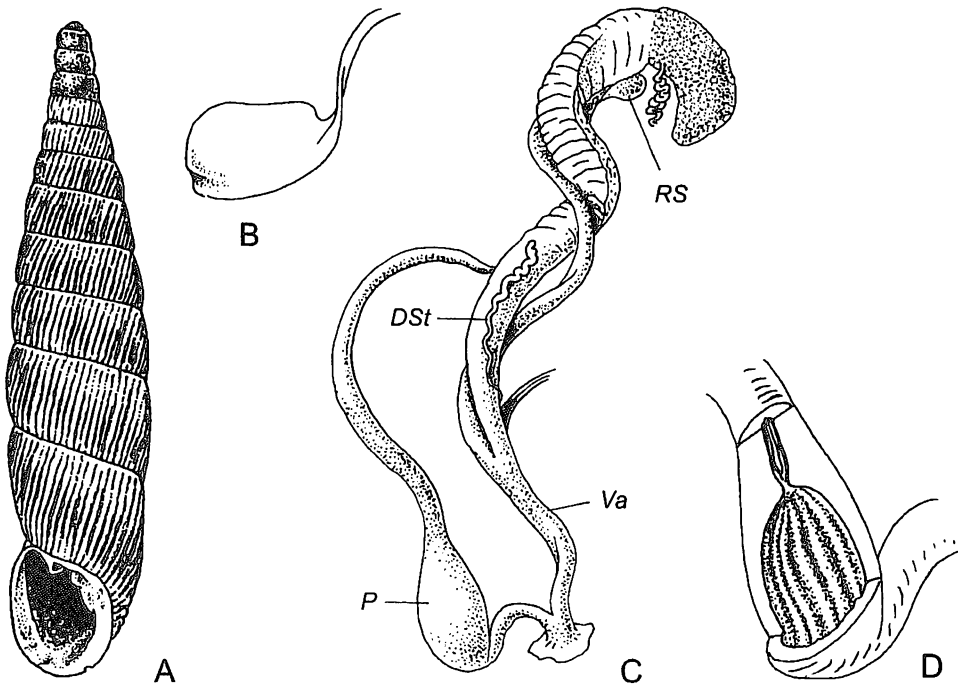


Fig. 931. *Mucronaria (Multiplicaria) duboisi* (Charpentier, 1852).

A — shell: Redutkaleh, Caucasus. Zürich No. 516694. B, C, D — Environs of Stepanakert, Nagorny Karabakh, Transcaucasus, August 1964. B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-24661.

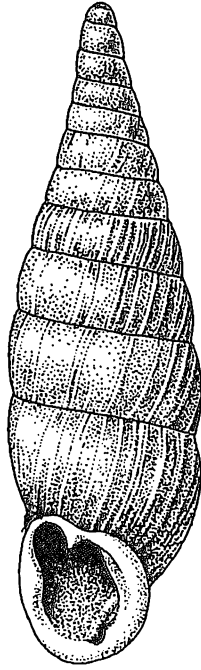


Fig. 932. *Mucronaria (Mucronaria) acuminata* (Mousson, 1876).
Shav-Nabad Mts., near Tabazkuri Lake, S Georgia. SPb.

and ending on dorsal side. Below this plica, at some angle to it, 3-4 parallel palatal plicae located; upper of them usually shortest. Height 8.5-14.0, diam. 2.2-3.0 mm (13.7 × 3.0 mm).

Penis short, fusiform, internally with many narrow longitudinal folds; lumen of penis separated from very narrow lumen of epiphallus by a sphincter. Free oviduct and vagina rather long, of about equal length. Reservoir of spermatheca reaching albumen gland.

DISTRIBUTION. Caucasus and Black Sea maritime territories of Turkey. 1 sp. with a few forms.

Mucronaria (Mucronaria s. str.)
Fig. 932

Shell fusiform, more or less swollen, slightly shining, of 11.5-13 rather convex whorls. Basal keel sharp. Color dark-corneous. Postembryonic whorls with irregular radial striation or rib-striation. Aperture pear-shaped, subvertical, with thin, broadly

reflexed margins. Superior lamella low, sometimes rudimentary, posteriorly lowered gradually. Spiral lamella starting on right-ventral side, gradually becomes higher to its middle, after that lowered toward aperture. Inferior lamella deep-lying. Principal plica starts on right side and extends forward for 1/3 whorl. Palatal plica short, right-dorsal; under it there is a rudiment of lunella; sometimes both plicae fused. Height 11.7-14.0, diam. 2.8-3.8 mm (11.8 × 3.5 mm).

DISTRIBUTION. W Caucasus (Georgia). 2 spp. with a few forms.

Likharevia Nordsieck, 1975
Fig. 933

Nordsieck, 1975: 93.

TYPE SPECIES — *Clausilia (Oligoptychia) gustavi* O. Boettger, 1880; OD.

Shell not decollated, slender, fusiform-turreted to turreted, rather thin, shining, of 11.5-12.5 slightly convex whorls. Basal keel strong. Color brown, often with violet tint. Upper postapical whorls finely and sharply radially striated, on later whorls this striation becomes weaker; 2-3 last whorls with extremely fine spiral striae. Aperture relatively small, with reflexed, thin margins. Superior lamella very thin, short, low. Inferior lamella lies very deeply. Spiral and parallel lamellae short, callous. On right-dorsal side of shell 7-9 short palatal plicae located; upper 2-3 (one of them probably is a rudiment of principal plica) somewhat longer. Plate of clausilium short, wide, with deep incision at handle. Height 15.0-18.5, diam. 3.3-3.8 mm (18.0 × 3.8 mm).

Talon, a simple curvature of hermaphroditic duct. Penis without visible boundary with parapiphallus, internally with thin, corrugated, longitudinal folds. A few very thin muscular penial ligaments present. Free oviduct a little shorter than vagina. Neck of spermathecal stalk very short; diverticle sinuous, tightly adherent to free oviduct and spermoviduct; duct of reservoir markedly longer, reservoir poorly defined, nearly reaching lower edge of albumen gland.

DISTRIBUTION. N Iran and SE Transcaucasus: Elburs and Talysh Mts. 1 sp.

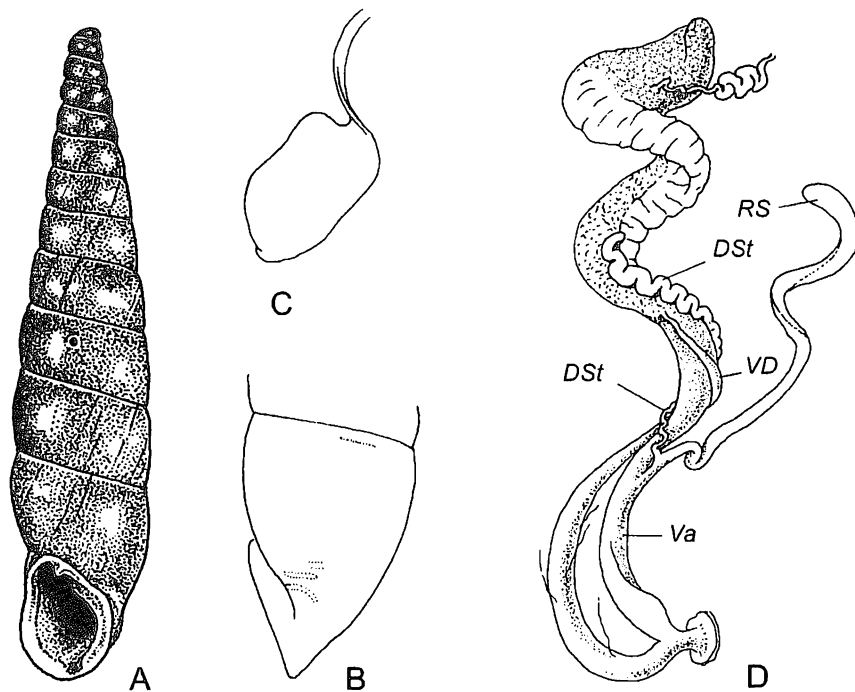


Fig. 933. *Likharevia gustavi* (O. Boettger, 1880).

Cliffs near Goveri, Talysh Mts., SE Transcaucasus, September 25, 1966. A — shell. B — location of plicae within last whorl. C — clausilium. D — reproductive tract. Moscow No. Lc-22285.

Quadriplicata O. Boettger, 1878

Fig. 934

Boettger O., 1878: 63 (*Clausilia*, *Euxina* sect.; "Gruppe").

TYPE SPECIES — *Clausilia quadriplicata* A. Schmidt, 1868; monotypy and tautonymy.

Shell fusiform, somewhat inflated, moderately solid, silky glossy, of 11-13 slightly convex whorls. Basal keel comparatively weak. Color brown or corneous, with groups of white touches. Postapical whorls densely rib-striated; sculpture behind aperture of coarse strong ribs. Aperture rounded-ovate, vertical or slightly oblique. Superior lamella deeply entering, continuous or not with spiral lamella. Tubercle or little fold often lies at base of inferior lamella; upper end of this lamella located on right side of shell; there it curved. Principal and 3 palatal plicae start on right side. Lobe of clausilium with incision next to base of handle; lower end of lobe strongly thickened. Height 14.0-17.5, diam. 4.0-4.5 mm (15.7 × 4.0 mm).

Pseudepiphallus + parepiphallus short, stout. Penis fusiformly swollen, internally with a few wide longitudinal folds and a circular pilaster above middle of penis. Length of free oviduct and vagina approximately equal. Neck of spermathecal stalk very short; diverticle stout, strongly, regularly convoluted. Duct of reservoir + reservoir itself a little longer than diverticle.

DISTRIBUTION. Caucasus and W Turkey. 6-7 spp. & subsp.

Micropontica O. Boettger, 1881

Boettger O., 1881: 344 (*Clausilia* sect.).

TYPE SPECIES — *Clausilia (Micropontica) closta* O. Boettger, 1881; OD.

Shell pillar-shaped, rather thin, opaque, mat, of 10-11 convex whorls. Last whorl with or without basal keel. Color yellowish or greenish-corneous or reddish-brown. Postnuclear whorls ribbed. Aperture rhombic-pear-shaped or irregularly ovate, with thin, a little reflexed margins. Superior lamella rather short, spiral lamella variously

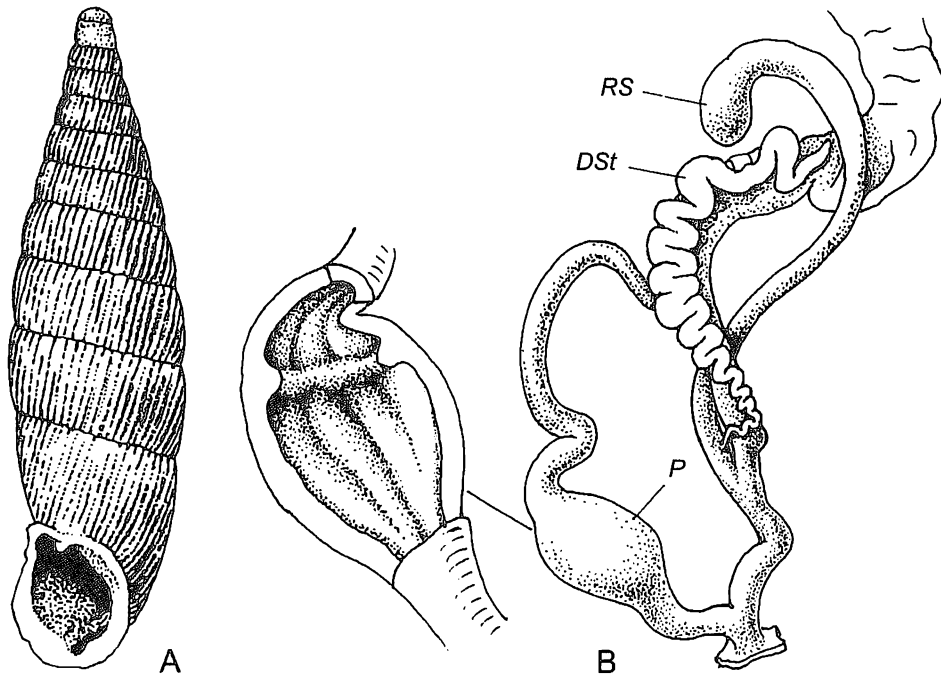


Fig. 934. *Quadriplicata quadriplicata* (A. Schmidt, 1868).
Zaristi-chai River valley, Nagorny Karabakh, Transcaucasus, September 2, 1954. A — shell.
B — reproductive tract and interior of penis. SPb No. 22.

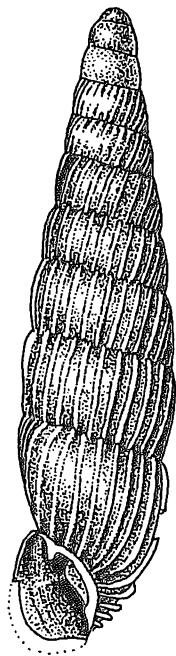


Fig. 935. *Micropontica (Micropontica) closta*
(O. Boettger, 1881).
Botanical Garden, Batumi, Adzharia. Mos-
cow No. Lc-24746.

developed, sometimes vestigial or absent. Inferior lamella very short, low, starting on left-dorsal side, extending downward at short distance, after that fusing with columella. Subcolumellar lamella well developed, starting on dorsal wall and ending not far from aperture margin. Principal and palatal plicae absent. Lunella dorsal or left-dorsal in position. On palatal wall below sinulus there is a small palatal callus. Lobe of clausilium rather broad, comparatively short, with thickened and slightly pointed distal end.

DISTRIBUTION. W part of Great Caucasus.

Micropontica (Micropontica) s. str.
Fig. 935

Shell fusiform, distinctly regularly ribbed. Last whorl lacking keel or keel scarcely developed, aperture without basal groove. Superior lamella well developed, continuous with spiral lamella. Lunella strong, located on right or dorsal side. Height 9.0-12.5, diam. 2.1-2.5 mm (9.0 × 2.1 mm).

DISTRIBUTION. W part of Great Caucasus. 2 spp.

Micropontica (Baleopsina)

Lindholm, 1924)

Fig. 936

Lindholm, 1924: 66 [*Euxina (Micropontica)*; sect.].

TYPE SPECIES — *Clausilia (Micropontica) retowskii* O. Boettger, 1888; OD.

Shell pillar-shaped, with not strong, irregular radial ribs. Last whorl with a rather large keel, aperture with basal groove. Superior lamella weak, spiral lamella missing. Lunella located on left-dorsal side. Height 9-13, diam. 2.1-3.3 mm (11.7 × 2.9 mm).

DISTRIBUTION. W part of Great Caucasus. 2 spp.

Mentissa H. Adams et A. Adams,

1855

Fig. 937

Adams H. & Adams A., 1855: 185 (*Clausilia* subg.).

TYPE SPECIES — *Clausilia canalifera* Rossmäessler, 1836; SD Martens in Albers, 1860.

Shell fusiform-cylindrical, rather solid, of 12-14 flattened whorls. Last whorl with a strong basal keel. Color light-corneous to dark-brown, sometimes with bluish tint. Surface from strongly ribbed to nearly smooth. Aperture ovate, a little oblique, with reflexed, slightly thickened margins. Superior lamella comparatively short, not reaching the level of lower end of spiral lamella. Inferior lamella starts on right-ventral side and closely approaches superior lamella; former connected with aperture margin by a short fold. Subcolumellar lamella not visible in frontal view. There is a rudiment of lunella — its lower end situated on right-dorsal side and fused with posterior end of lower palatal plica. Principal and median palatal plicae start on dorsal side; former running parallel to suture up to left-dorsal side, latter directed to principal plica at angle and much shorter than it. Lower palatal fold very thick, somewhat longer than middle fold; outside there is a furrow alongside keel, corresponding to it. Lower part of tongue-like lobe of clausilium twisted and bears more or less deep incision. Height 15.0-23.5, diam. 3.1-4.5 mm (16.0 × 4.0 mm).

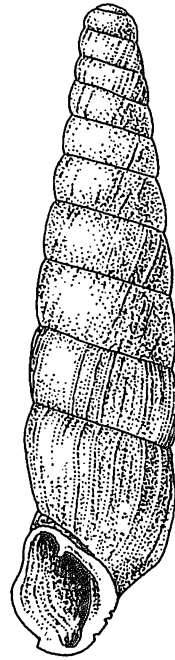


Fig. 936. *Micropontica (Baleopsina) retowskii* (O. Boettger, 1888). Guk Mt., W Caucasus. ? Syntype ("orig. Expl."). Vienna No. 83.000/1462.

Talon hidden. Penis consisting of proximal, fusiformly swollen, and distal, cylindrical parts. Proximal part internally with a strong, wide sphincter, distal part with a few corrugated longitudinal pilasters. Free oviduct about twice as long as vagina. Neck of spermathecal stalk extremely short, diverticle convoluted, much shorter than duct of reservoir. Reservoir reaching albumen gland.

DISTRIBUTION. Mountain Crimea. 3 spp.

Mentissella Nordsieck, 1973

Fig. 938

Nordsieck, 1973b: 190.

TYPE SPECIES — *Clausilia (Idyla) rebeli* Sturany, 1897; OD.

Shell slenderly fusiform, rather thin, of 10-11 moderately convex whorls. Basal keel doubled. Color corneous to light-corneous, some riblets with white ridges. Surface finely ribbed to rib-striated. Aperture rhomboid, a little oblique, with thin, reflexed and expanded margins. Ends of su-

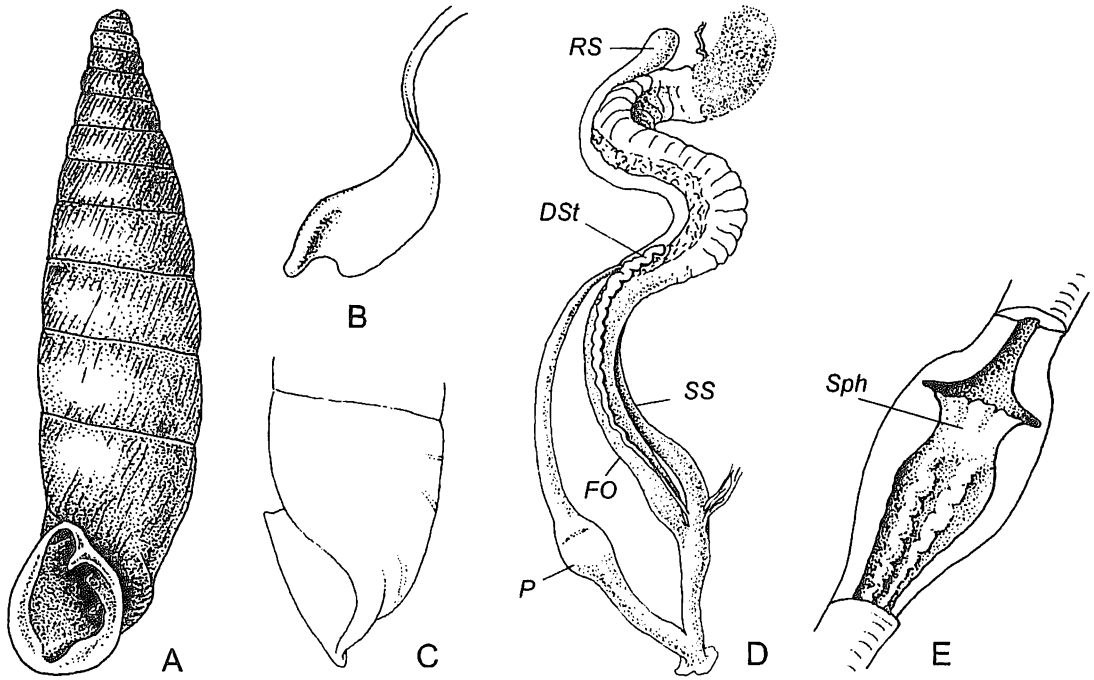


Fig. 937 *Mentissa canalifera* (Rossmuessler, 1836).
Mt. Kosh-Kaya near Krasnolesie, Crimea, July 24, 1962. A — shell. B — clausilium. C — location of plicae within last whorl. D — reproductive tract. E — interior of penis. Moscow No. Lc-20238.

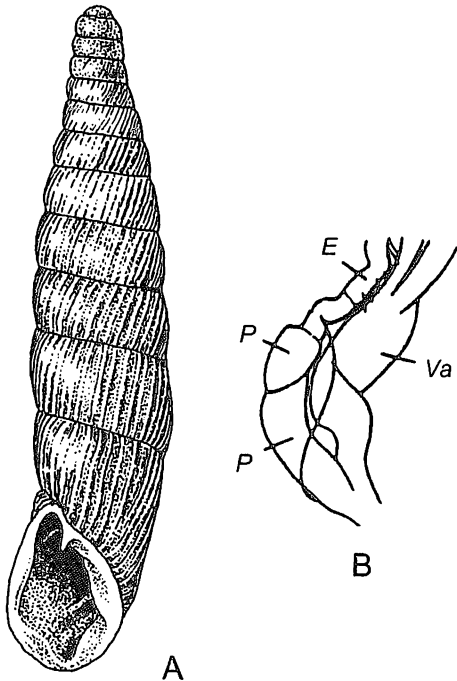


Fig. 938. *Mentissella rebeli* (Sturany, 1897).
A — shell: "Kushbunar (blauer Felsen b. Slivno), Ostrumelien" Syntype. Vienna No. 23886. B — distal parts of reproductive tract. After Nordsieck, 1973b.

terior and spiral lamellae on one radius. Principal plica starting on dorsal side. Lunella dorsal. Upper palatal plica inserted between lunella and end of principal plica. Plate of clausilium short, lancet-like, without incision. Height 11.5-12.5, diam. 2.7-2.9 mm (12.3 × 2.7 mm).

Anatomically similar to *Mentissa*, differs by more pronounced proximal part of penis and comparatively longer vagina.

DISTRIBUTION. Eastern part of Balkan Peninsula. 1 sp.

Vestia Hesse, 1916

Hesse, 1916: 124 (nom. nov. pro *Uncinaria* Vest, 1867).

— *Uncinaria* Vest, 1867: 190 [nom. praeocc., non Froelich, 1789 (Vermes); t.-sp. *Clausilia elata* Rossmuessler, 1836; OD].

— *Spoliata* Frankenberger, 1913: 5 [t.-sp. *Pseudalinda (Spoliata) rambouseki* Frankenberger, 1913; monotypy].

Likharev, 1962: 254. Nordsieck, 1973b: 188; 1974: 129, 159.

TYPE SPECIES — *Clausilia elata* Rossmuessler, 1836; OD.

Shell fusiform, swollen, solid, of 10-12 rather convex whorls. Color corneous to brown. Postembryonic whorls regularly ribbed or sculpture more or less reduced on lower spire. Aperture rounded pear-shaped, with short, poorly developed basal keel and weak groove. Superior and spiral lamellae located at different distance from columella and either not fused or form a bend at place of junction. Inferior lamella deep-lying, but always visible through aperture. Lower end of subcolumellar lamella usually visible in oblique view. Both subcolumellar and especially inferior lamellae connected with aperture margin by short folds; between, and sometimes above them additional 1-2 similar folds may be present. Lunella or its rudiments situated on dorsal side; above it a long principal plica lies. Palatal callus sometimes present. Clausilium lobe with shallow incision near handle; its anterior end usually pointed and curved.

Genitalia typical for subfamily.

DISTRIBUTION. Carpathians, Transylvania, Central Balkan Peninsula and Rhodope Mts.

Vestia (Vestia s. str.)

Fig. 939

Last whorl with blunt basal keel. Postembryonic whorls ribbed. Spiral sculpture absent. Subcolumellar lamella not strengthened along basal groove. Lunella occupies middle part of last whorl. Palatal callus absent or weak. Height 12-22, diam. 3.5-5.5 mm (16.4 × 4.2 mm).

Penial ligament weakly developed. Vagina widened in distal part. Ovoviviparous.

DISTRIBUTION. Balkan Peninsula and Carpathians. 5 spp.

Vestia (Brabenecia Nordsieck, 1974)

Fig. 940

Nordsieck, 1974: 159.

TYPE SPECIES — *Uncinaria turgida* var. *ranojevici* Pavlovic, 1912; OD.

Last whorl with weak basal keel. Postembryonic whorls finely radially striated. More or less developed spiral sculpture pre-

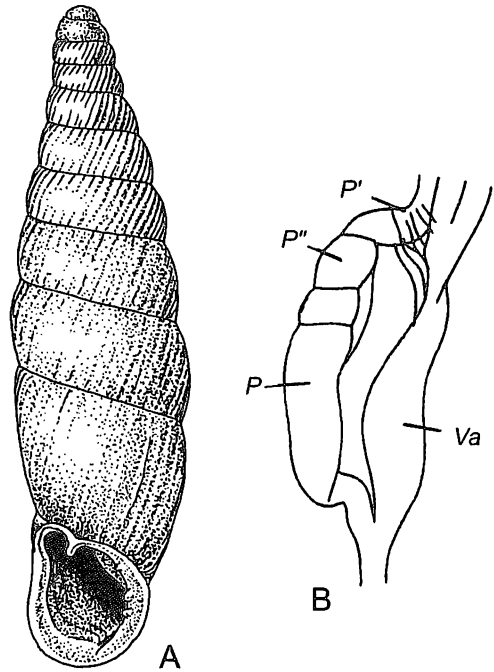


Fig. 939. *Vestia (Vestia) elata* (Rossmuessler, 1836).

A — shell: Romania. SPb. B — *Vestia (Vestia) turgida* (Rossmuessler, 1836). Male loop. After Nordsieck, 1973b. P' — pseudophallus. P'' — parapiphallus.

sent. Subcolumellar lamella not strengthened along basal groove. Lunella basal in position. Palatal callus absent or weak. Height 13.5-16.0, diam. 3.5-4.2 mm (14.6 × 3.9 mm).

Penial ligament well developed. Vagina widened in proximal part. Oviparous.

DISTRIBUTION. Balkan Peninsula. Probably 1 sp.

Vestia (Vestiella Nordsieck, 1977)

Fig. 941

Nordsieck, 1977b: 100.

TYPE SPECIES — *Clausilia roschitzi* Bracsik, 1889; OD.

Last whorl with blunt basal keel. Postembryonic whorls strongly ribbed. Spiral sculpture absent. Subcolumellar lamella strengthened along basal groove. Lunella occupies middle part of last whorl. Palatal callus strong, sometimes inclined to be folded. Height 10-12, diam. 2.8-3.2 mm (11.7 × 3.0 mm).

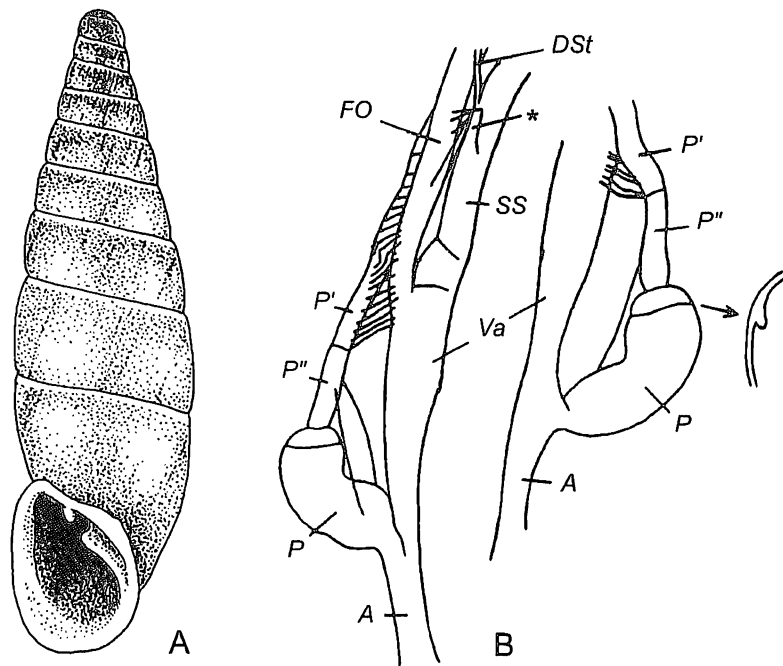


Fig. 940. *Vestia (Brabencia) ranojevici* (Pavlovic, 1912).
 A — shell: "Ostserbien, Suva Planina östl. von Nis bei 1300 m in Wald beim Anstieg vom Veta Manastir" Vienna No. E-21.090 B — distal parts of reproductive tract from two sides. After Nordsieck, 1974. P' — pseudopiphallus; P'' — parepiphallus. Asterisk — retractor of spermathecal stalk.

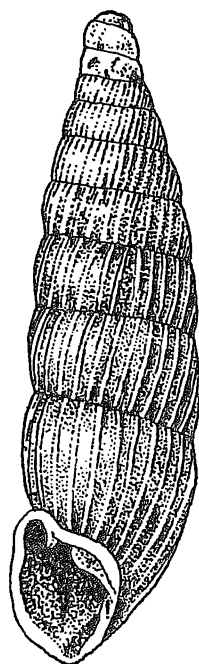


Fig. 941. *Vestia (Vestiella) roschitzi* (Bracsik, 1889).
 Durmitor Mt., east side of Crno Jesero, Montenegro, 1500 m. Private coll. of A.G. Kuznetsov.

Penial ligament well developed.

DISTRIBUTION. Balkan Peninsula, Serbia, Bosnia, Montenegro, N Albania. 1 sp. with several forms.

Bulgarica O. Boettger, 1877

Boettger O., 1877: 93 (*Clausilia*, *Idyla* sect.; "Gruppe").

TYPE SPECIES — *Clausilia varnensis* L. Pfeiffer, 1848; OD.

Shell turreted to fusiform, comparatively solid, slightly translucent, of 11-13 slightly convex whorls. Color corneous to chestnut, with or without light touches. Surface finely to moderately rib-striated. Aperture elongated-ovate, mostly with 1 or 2 basal keels. Posterior end of superior lamella located farther from aperture than anterior end of spiral lamella; in 1 subgenus (*Pavlovicia*) these lamellae fused. Inferior lamella forms horizontal bend which markedly obstructs aperture lumen. Lower end of subcolumellar lamella mostly visible in frontal view. Lunella occupies dorsal

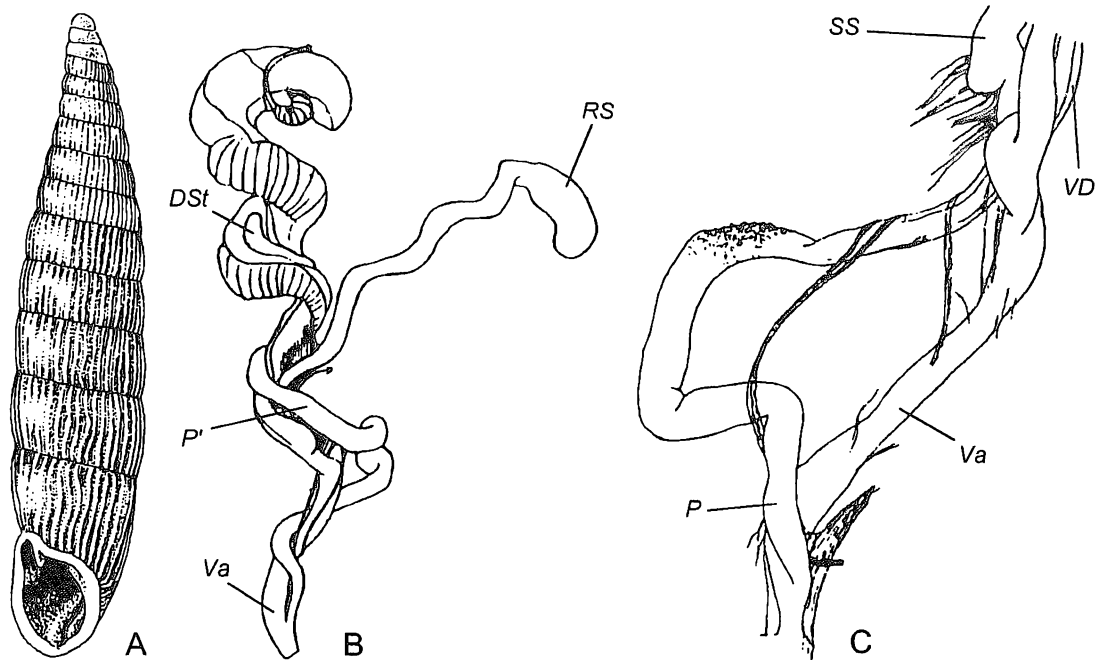


Fig. 942. *Bulgarica (Strigilecula) vetusta* (Rossmassler, 1836).

A — shell: W of Kran, Slovenia. Private coll. of A.G. Kuznetsov. B — reproductive tract. C — distal parts of reproductive tract. After Nordsieck, 1963. P' — pseudepiphallus.

side or somewhat shifted rightward, connected with or separated from basal lamella. Principal, middle and lower palatal pliae present.

Pseudepiphallus scarcely or not demarcated from parapiphallus. Penis relatively long, without externally visible posterior division, internally with smoothed, weak longitudinal folds. Penial ligament variously developed, sometimes wanting.

DISTRIBUTION. Central, E and SE Europe.

Bulgarica (Strigilecula) Kennard
et Woodward, 1923)
Fig. 942

Kennard & Woodward, 1923: 304 (*Laciniaria* sect.).

— *Strigillaria* Vest, 1867: 195 (nom. praecoc., non Rafinesque, 1815; *Clausilia* sect.; t.-sp. *Clausilia vetusta* Rossmassler, 1836; OD).

Likharev, 1962: 246.

TYPE SPECIES — *Clausilia vetusta* Rossmassler, 1836; OD.

Shell medium-sized, its height no less than 14 mm. Parietal margin of aperture not folded. Superior lamella not continuous with spiral lamella. Subcolumellar lamella strengthened along basal groove down to aperture margin. Lunella and basal lamella well developed. Distal end of clausilium plate attenuated but not forming finger-like process. Height 14-18, diam. 3.2-3.8 mm (16.0 × 3.2 mm).

Penis with long ligament. Vagina long.

DISTRIBUTION. Central Europe. 2 spp.

Bulgarica (Pavlovicia)
Nordsieck, 1973)
Fig. 943

Nordsieck, 1973b: 192.

TYPE SPECIES — *Bulgarica pavlovici* Nordsieck, 1972; OD.

Shell small, its height no more than 10 mm. Parietal margin of aperture not folded. Subcolumellar lamella not attending

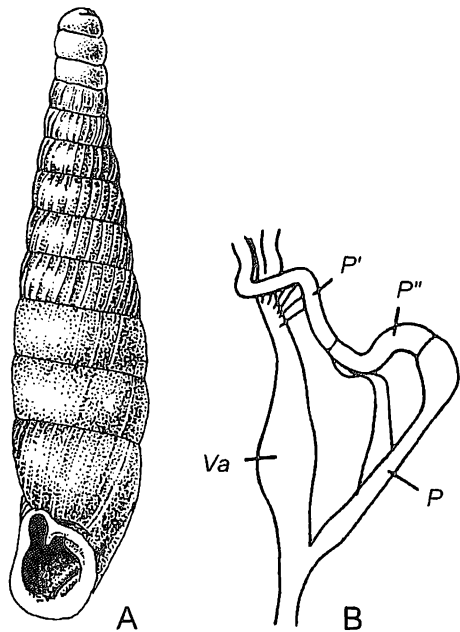


Fig. 943. *Bulgarica (Pavlovicia) pavlovici* Nordsieck, 1972.
A — shell: Cicevacka Klissura near Sicevo, Serbia. Private coll. of A.G. Kuznetsov. B — distal parts of reproductive tract. After Nordsieck, 1973. *P'* — pseudopiphallus; *P''* — parapiphallus.

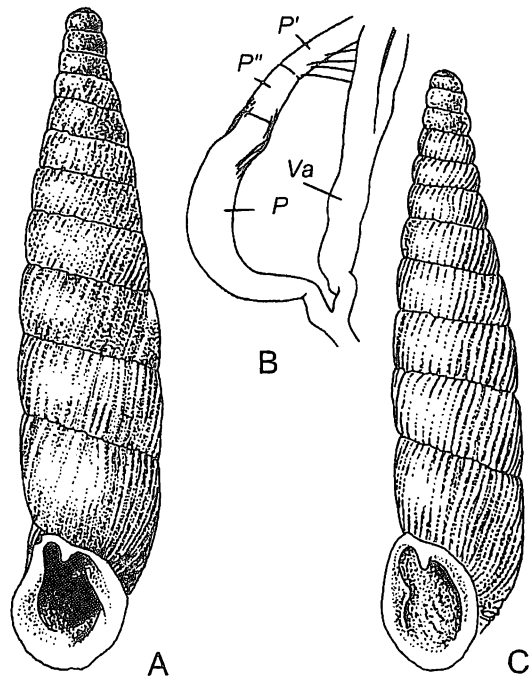


Fig. 944. A, B — *Bulgarica (Bulgarica) varnensis* (L. Pfeiffer, 1848).
A — shell: Galata near Varna, Bulgaria. Vienna No. 79247 B — distal parts of reproductive tract. After Nordsieck, 1973b. C — ! *Bulgarica (Bulgarica) pagana* (Rossmassler, 1842). Shell: Mehadia [SW Romania]. Vienna. *P'* — pseudopiphallus; *P''* — parapiphallus.

aperture edge. Superior lamella continuous with spiral. Lunella and basal lamella inclined to reduction. Distal end of clausilium plate finger-like, attenuated. Height 9-10, diam. 2.0-2.3 mm (9.7 × 2.1 mm).

Penial ligament weak. Vagina long.

DISTRIBUTION. SE Serbia. 1 sp. with a few forms.

Bulgarica (Bulgarica) s. str.

Fig. 944

— *Idylopsina* Lindholm, 1924: 65, 73 (nom. nov. pro *Idyla* sensu Vest, 1867, non H. Adams & A. Adams, 1855; t.-sp. *Clausilia pagana* Rossmassler, 1842; OD).

Shell medium to rather large (13.5-19.0 mm). Parietal margin of aperture not folded. Superior lamella not continuous with spiral lamella. Subcolumellar lamella truncated, not attending aperture edge. Palatal

callus missing. Lunella and basal lamella well developed. Plate of clausilium more or less attenuated. Height 13.5-19.0, diam. 3-4 mm (*varnensis*: 17.5 × 3.9 mm; *pagana*: 14.2 × 3.0 mm).

Penis with variously developed ligament. Vagina long to short.

DISTRIBUTION. SE Europe. About 15 spp. & subspp.

Bulgarica (Denticularia)

Lindholm, 1924)

Fig. 945

Lindholm, 1924: 65, 73 [*Laciniaria (Laciniaria)*; sect.].

TYPE SPECIES — *Bulimus denticulatus* Olivier, 1801; OD.

Shell small to rather large, its height 9-16 mm. Parietal margin of aperture with a few marginal folds. Superior lamella not

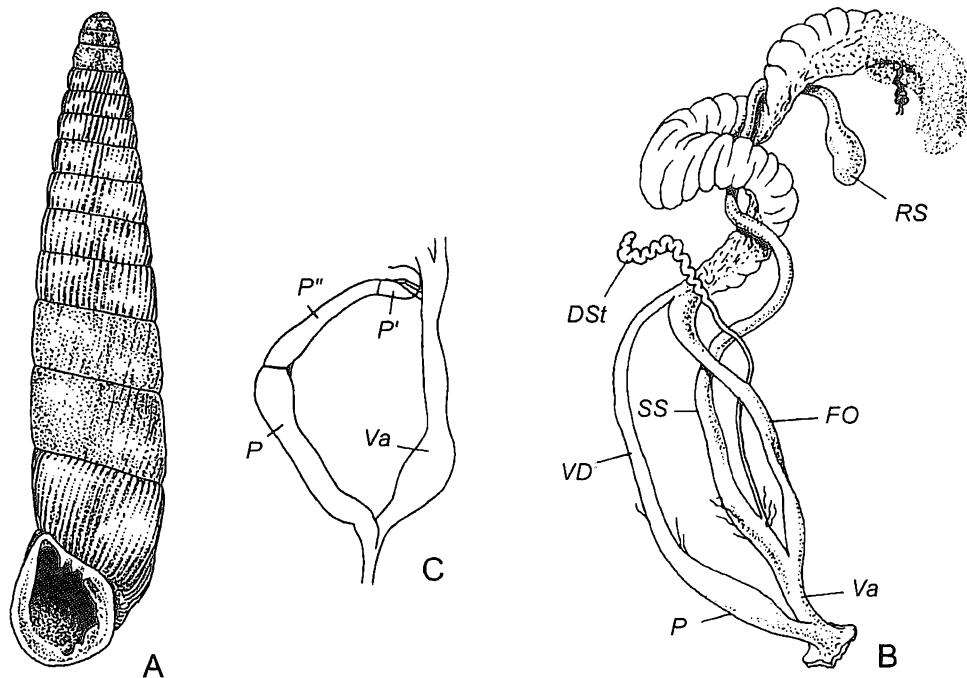


Fig. 945. A, B — *Bulgarica (Denticularia) denticulata* (Olivier, 1801).

A — shell: "Beyrout + Scio" [Lebanon]. ? Syntype. Paris. B — reproductive tract. 3 km SW of Selçuk, vilayet Aydin, Turkey, June 12, 1997 Moscow No. Lc-24779. C — ! *Bulgarica (Denticularia) thessalonica* (Rossmassler, 1839). Distal parts of reproductive tract. After Nordsieck, 1973b. P' — pseudopiphallus; P'' — parepiphallus.

continuous with spiral. Subcolumellar lamella long, reaching aperture edge. Palatal callus absent. Lunella and basal lamella normally developed. Height 9-16, diam. 2.0-3.5 mm (16.0 × 3.5 mm).

Penial ligament weak. Vagina long.

DISTRIBUTION. Balkan Peninsula, Greece, Turkey, Lebanon. 3 spp.

Laciniaria Hartmann, 1842

Fig. 946

Hartmann, 1842 (1840-1844): 173.

— *Rhodopiella* Nordsieck, 1973b: 188 (*Laciniaria* subg.; t.-sp. *Clausilia macilenta* Rossmassler, 1842; OD).

TYPE SPECIES — *Pupa plicata* Draparnaud, 1801; monotypy.

Shell fusiform to fusiform-cylindrical, moderately solid, of 12-13 weakly convex whorls. Basal keel strong. Color corneous

to brown, usually with bundles of white touches near suture. Aperture free, pear-shaped, a little oblique, with thin, more or less reflexed margins. Superior and spiral lamellae not fused; posterior end of superior often enters deeper than anterior end of spiral. Inferior lamella lies rather deeply, forms a broad crook at lower end, visible in frontal view; this lamella connected with aperture margin by 1 or 2 small folds. Subcolumellar lamella not visible through aperture. Lunella well developed, located on right side. Besides principal, there is a median palatal plica, directed to principal at some angle. Lower palatal plica absent. Palatal margin of aperture with several short, parallel, lamellar knobs standing at some distance from edge. Lobe of clausilium more or less twisted, pointed distally. Height 11.5-18, diam. 2.8-4.1 mm (*plicata*: 16.7 × 3.6 mm; *macilenta*: 11.8 × 2.9 mm).

Talon hidden. Pseudopiphallus poorly separated from parepiphallus. Penis not

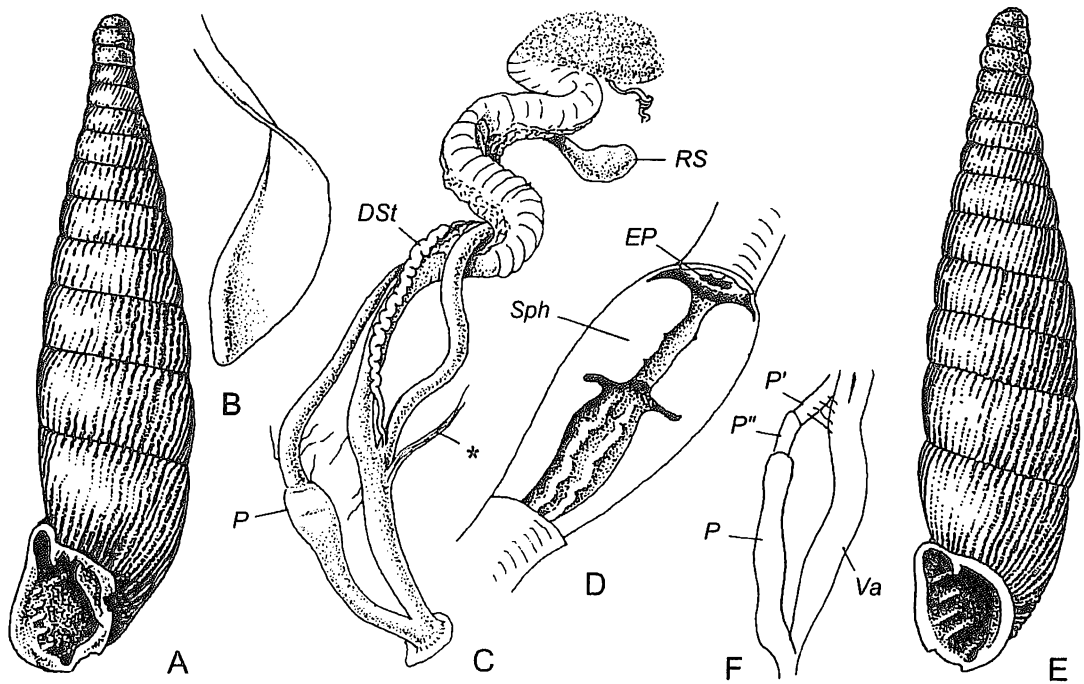


Fig. 946. A, B, C, D — *Laciniaria plicata* (Draparnaud, 1801).

Mikhailovskoye on Pakhra River, Moscow District, Russia, October 1, 1959. A — shell. B — clausilium. C — reproductive tract. D — interior of penis. Moscow No. Lc-24772. E, F — ! *Laciniaria macilentata* (Rossmäessler, 1842). E — shell: "Krepost bei Asenovgrad, SW Bulgar" Vienna No. K 67722. F — distal parts of reproductive tract. After Nordsieck, 1973b. P' — pseudephallus. P'' — parephallus.

long, thick-walled, its basal part internally with a few longitudinal somewhat corrugated folds, upper part with very strong sphincter. Free oviduct a little longer than vagina. Neck of spermathecal stalk very short (sometimes nearly absent), diverticle sinuous, shorter than duct of reservoir that reaching albumen gland.

DISTRIBUTION. Most part of Europe. 4 spp.

Alinda H. Adams
et A. Adams, 1855

Adams H. & Adams A., 1855: 182 (*Clausilia* subg.).

— *Iphigenia* Gray in Turton, 1840: 214 (t.-sp. *Turbo buplicata* Montagu, 1803; SD Gray, 1847).

TYPE SPECIES — *Clausilia buplicata* Montagu, 1803; SD Martens in Albers, 1860.

Shell (obesely) fusiform or fusiform-cylindrical, more or less translucent, of 11-13 rather convex whorls. Last whorl with basal keel. Color light-corneous to brown. Post-

apical whorls ribbed. Aperture rounded to elongated-ovate, with shortly reflexed, thickened margins. Superior and spiral lamellae fused or separated. Plate of clausilium attenuated distally.

Penis not large, somewhat swollen, its lumen divided into 2 chambers by a strong sphincter-like thickening piercing by rather narrow canal; upper chamber very narrow, slit-like, lower internally smooth or with weak irregular folds. Neck of spermathecal stalk extremely short, diverticle sinuous, tightly adherent to spermoviduct. Spermathecal reservoir reaching lower margin of albumen gland.

DISTRIBUTION. Central Europe and northern part of Balkan Peninsula.

Alinda (*Alinda* s. str.)
Fig. 947

Shell comparatively slender. Surface usually with white radial striae. Superior lamella thin, rather short, gradually lowered inward, separated from spiral lamella

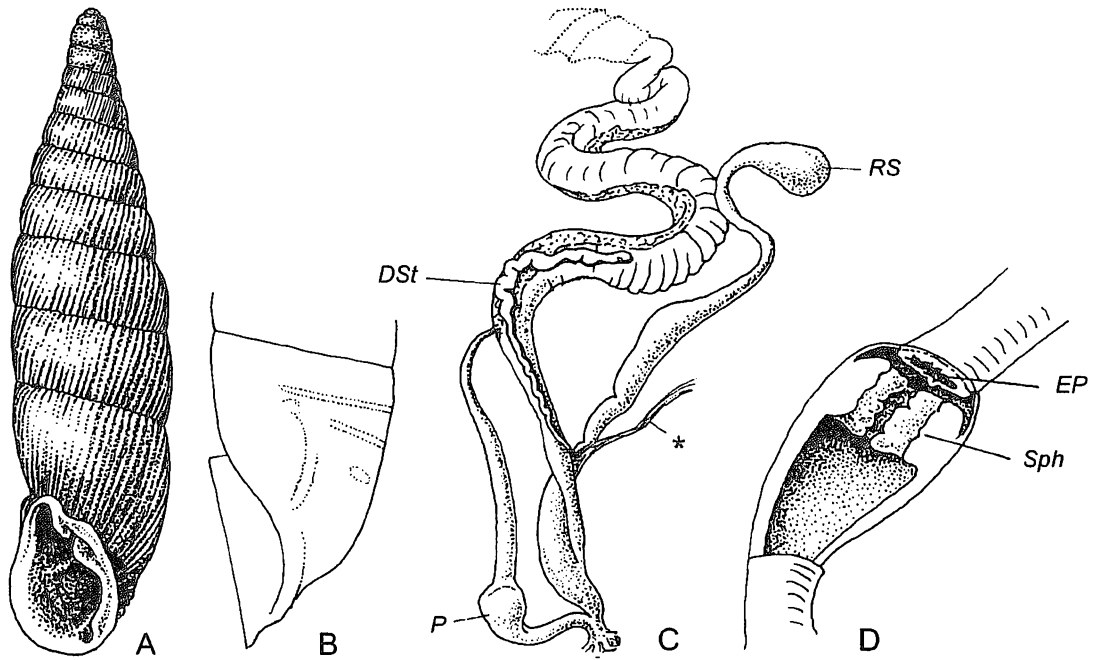


Fig. 947 *Alinda (Alinda) biplicata* (Montagu, 1803).

A — shell: Prater, Vienna. Moscow No. Lc-24694. B, C, D — Mikhailovskoye on Pakhra River, Moscow District, November 1, 1959. Moscow No. Lc-..... B — location of plicae within last whorl. C — reproductive tract. D — interior of penis. *Asterisk* — retractor of spermathecal stalk.

by rather wide space. Inferior lamella protruded in aperture and approaches superior lamella, after that runs upward as a wide plate. Subcolumellar lamella ends high. Principal plica starting on right or right-ventral side. Lunella right in position, strongly convex. Upper palatal plica starts near upper end of lunella. Tubercular, minute rudiment of lower palatal plica present. Parietal margin between superior and inferior lamellae usually with a few small marginal plicae. Height 15-22, diam. 3.6-4.4 mm (17.9 × 4.2 mm).

Free oviduct longer than vagina.

DISTRIBUTION. Central Europe and northern part of Balkan Peninsula. 5 spp. with numerous subspp. and forms.

Alinda (Pseudalinda

O. Boettger, 1877)

Fig. 948

Boettger O., 1877: 76 (*Clausilia* sect.). Likharev, 1962: 251. Nordsieck, 1977b: 93, 98 (*Balea* subg.).

TYPE SPECIES — *Clausilia fallax* Rossmäessler, 1836; OD.

Shell more or less obese. Surface without white radial striae. Superior and spiral lamellae located at equal distance from columella and either fused or their ends are very close to each other. Nearly vertical lancet-like inferior lamella deep-lying. Lunella or its rudiment (rarely absent at all) lies on right side or sometimes shifted to dorsal side; its upper end curved backward. Anterior end of clausilium lobe thickened, angled near palatal edge. Height 14-24, diam. 3.8-6.0 mm (20.3 × 4.6 mm).

Free oviduct a little shorter than vagina or equal to it.

DISTRIBUTION. Carpathians, Transylvania, Banat and Rhodope Mts. 2 spp. with many forms.

Balea J. Gray, 1824

Fig. 949

Gray J., 1824: 61 (*Clausilia* subg.).

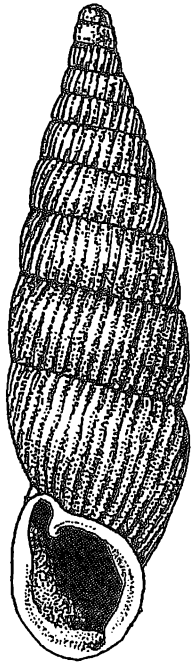


Fig. 948. *Alinda (Pseudalinda) fallax* (Rossmäessler, 1836).
Yaremcha town, E Carpathians, Ukraine.
SPb. No. 11.

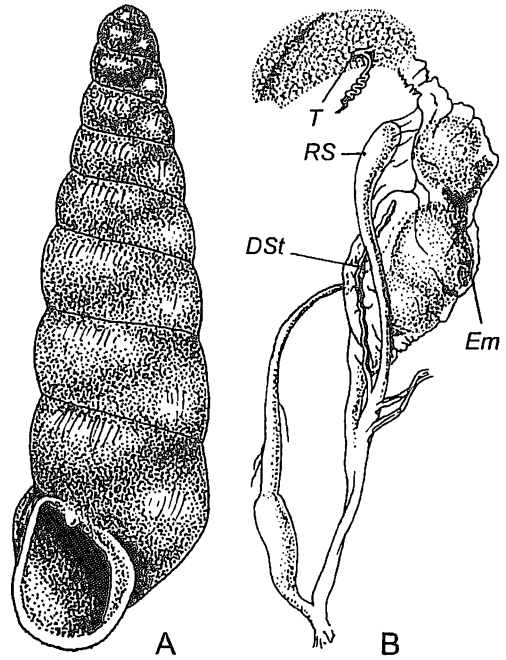


Fig. 949. *Balea perversa* (Linnaeus, 1758).
A — shell: "Österreich" Vienna. B — reproductive tract. Schnabelberg, Albis near Zürich, Switzerland, September 24, 1996.
Moscow No. Lc-24650.

— *Balia* Swainson, 1840: 334 (nom. err. pro *Balea*).

— *Bolaea* Dyson, 1850: 60 (nom. err. pro *Balea*).

— *Baleastra* L. Pfeiffer, 1856: 179 (*Balea* sect.; t.-sp. *Turbo perversa* Linnaeus, 1758; SD Lindholm, 1924).

Likharev, 1962: 261.

TYPE SPECIES — *Pupa fragilis* Draparnaud, 1801 (= *Turbo perversa* Linnaeus, 1758); SD Martens in Albers, 1860.

Shell pillar-shaped, thin, moderately fragile, glossy, translucent, of 6-10 convex whorls. Color yellowish or greenish to blackish. Postapical whorls finely and regularly radially striated. Aperture rounded-rhomboid or pear-shaped, not protruded, with thin, slightly expanded margins. Sometimes there is a small palatal thick-

ening. Basal keel absent. Closing apparatus reduced, only short vestigial superior lamella remained. Clausilium absent. Umbilicus, a minute rim. Height 8-10, diam. 2.2-2.8 mm (8.0 × 2.3 mm).

Talon, a simple curvature of hermaphroditic duct. Penis rather small, internally without conspicuous structures. Free oviduct and vagina of approximately equal length. Neck of spermathecal stalk short, diverticle moderately long, slender, reservoir weakly defined, nearly reaching albumen gland. Ovoviviparous animals, embryos in uterus comparatively very large.

DISTRIBUTION. Maritime parts of N, W and S Europe, locally in Central Europe; Madeira, Azores; 1 finding in Crimea. 1 sp. with several forms.

References

- Adams H. & Adams A. 1855. *The genera of recent Mollusca; arranged according to their organisation*. Vol. 2: 93-284.
- Albers J.C., 1860. *Die Heliceen nach natürlicher Verwandtschaft systematisch geordnet*. Zweite Ausgabe, nach dem hinterlassenen Manuskript besorgt von Eduard von Martens. Leipzig. 359 S.
- Ancey C.F., 1882. Coquilles nouvelles ou peu connues. *Le Naturaliste*, vol. 2, no. 8: 59-60.
- Annandale T.N., Prashad B., 1924. Report on a small collection of molluscs from the Chekiang Province of China. *Proc. Malac. Soc. London*, vol. 16: 27-49.
- Azuma M., 1982. *Colored illustrations of the land snails of Japan*. Osaka. 333 pp. (in Japanese).
- Baker H.B., 1956. Family names in Pulmonata. *Nautilus*, vol. 69, no. 4: 128-139.
- Betta E. de, 1870a. I molluschi terrestri e fluviatili della Provincia Veronese a complemento della malacologia di L. L. Menegazzi. *Atti Acad. agric. Verona*, vol. 47: 1-168.
- Betta E. de, 1870b. Malacologia veneta ossia catalogo sinottico ed analitico dei molluschi terrestri e fluviatili viventi nelle province venete. *Atti Ist. Venet.*, ser. III, 15: 1-141.
- Bielz E.A., 1863. *Fauna der Land- und Süßwasser-Mollusken Siebenbürgens*. Hermannstadt. 206 S.
- Bielz E.A., 1867 *Fauna der Land- und Süßwasser-Mollusken Siebenbürgens*. 2. Aufl. Hermannstadt. 216 S.
- Blanford W T., 1872. Monograph of Himalayan, Assamese, Burmese and Cingalese Clausiliidae. *J. Asiat. Soc. Bengal*, vol. 41, no. 2: 199-206.
- Boettger C.R., 1935. Exploration Biologique des Cavernes de la Belgique et du Limbourg Hollandais. *Mitt. Höhlen-u. Karstforsch.*, 1935: 49-63.
- Boettger O., 1863. Clausilien aus dem tertiären Landschnecken-Kalk von Hochheim. *Palaeontogr.*, Bd.10: 309-318.
- Boettger O., 1877 Clausilienstudien. *Palaeontogr.*, NF Suppl. 3: 1-122.
- Boettger O., 1878. Systematisches Verzeichniss der lebenden Arten der Landschnecken-Gattung *Clausilia* Drap. mit ausführlicher Angabe der geographischen Verbreitung der einzelnen Species. *Ber. offenbach. Ver. Naturk.* Bd. 17/18: 18-101.
- Boettger O., 1881. Sectiones speciesque Clausiliarum Caucasiarum. *Jahrb. dtsh. malak. Ges.*, Bd. 8: 341-346.
- Boettger O., 1883. On new Clausiliae from Levant, collected by Vice-Admiral T. Spratt. *Proc. Zool. Soc. London*, 1883: 324-343.
- Boettger O., 1885. Aufzählung der in Thessalien gesammelten Gastropoden. In: I. Stussiner & O. Boettger, Malakologische Ergebnisse auf Streifzügen in Thessalien. *Jahrb. dtsh. malak. Ges.*, Bd. 12: 128-200.
- Boettger O., 1888. Diagnosen neuer kaukasischer Arten. *Nachr.-Bl. dtsh. malak. Ges.*, Bd. 20: 149-155.
- Boettger O., 1890. Zwei neue syrische Clausilien. *Nachr.-Bl. dtsh. malak. Ges.*, Bd. 22: 137-140.
- Boettger O., 1892. Schnecken von der Insel Giura, N.-Sporaden, aus dem phokischen Parnass und aus anderen griechischen Gebieten. *Nachr.-Bl. dtsh. malak. Ges.*, Bd. 24: 59-66.
- Boettger O., 1899. Notiz über eine neue Gruppe von Clausilien (*Paraphaedusa*) aus Celebes. *Nachr.-Bl. dtsh. malak. Ges.*, Bd. 31: 56-59.
- Boettger O., Schmacker B., 1894. Descriptions of new Chinese Clausiliae. *Proc. Malac. Soc. London*, Vol. 1: 100-117
- Bourguignat J.-R., 1876. Histoire des Clausilies de France vivantes et fossiles. *Ann. Sci. Nat.*, 6e ser., t. 4 (10): 1-29.
- Bourguignat J.-R., 1877 Description de deux nouveaux genres algériens, suivis d'une classification des familles et des genres de mollusques terrestres et fluviatiles du système européen. *Bull. Soc. Sci. Toulouse*, vol. 3 (1875/1876): 44-101 (in reprint: 1-57).

- Bourguignat J.-R., 1883. Histoire Malacologique de l'Abyssinie. *Ann. Sci. Nat. Paris. Zool. Paleont.*, 6e ser., t. XV: 45-162.
- Brandt R.A., 1956. Zur Clausiliidenfauna der Cyrenaika. *Arch. Moll.*, Bd. 85 (4/6): 121-144.
- Brusina S., 1870. *Contribution à la malacologie de la Croatie*. Zagreb. 40 pp.
- Cecconi G., 1908. Contributo alla fauna delle Isole Tremiti. *Boll. Mus. Zool. Anat. comp. Univ. Torino*, vol. 23 (583): 1-53.
- Draparnaud J.-P.-R., 1805. *Histoire naturelle des mollusques terrestres et fluviatiles de la France*. Paris. 164 pp.
- Dyson D., 1850. *The land and fresh water shells of the districts around Manchester... to which are added instructions to collectors*. Manchester. XII+96 pp.
- Ehrmann P. 1927 Zur Systematik der Clausiliiden, besonders der ostasiatischen. *SB. naturf. Ges. Leipzig*, Bd. 49/52 (1922-25): 18-59.
- Ehrmann P., 1929. Über einige wenig bekannte und neue japanische Clausiliiden. *SB. naturf. Ges. Leipzig*, Bd. 53/55 (1926-28): 23-46.
- Ehrmann P., 1949. *Cylindronenia*, a new subgenus of *Nenia*. *Nautilus*, vol. 62, no. 3: 104.
- Férussac A.E.J.P.J.F., 1821. *Tableaux Systematiques des Animaux Mollusques, Deuxieme Partie, Tableaux Particuliers des Mollusques Terrestres et Fluviatiles, Classe des Gasteropodes. Ordre des Pulmones sans Opercules. II. Tableau Systematique de la Famille des Limaçons, Cochleae*. Paris. 90 pp.
- Fitzinger L.I., 1833. Systematisches Verzeichniss der im Erzherzogthume Oesterreich vorkommenden Weichthiere, als Prodrum einer Fauna desselben. *Beitr. Landesk. Oesterr. Enns (Ver. vaterl. Gesch. Wien)*, Bd. 3: 88-122.
- Forcart L., 1935. Die Mollusken der nordper-sischen Provinz Masenderan und ihre tier-geographische Bedeutung. *Arch. Naturg.*, (NF), Bd 4, N 3: 404-447
- Frankenberger Z., 1913. Prispěvky k znamos-tem o evropských Clausiliích. *Vestník Klubu přír. v Praze etc. za správní rok 1912* [12]; Praha: 1-10.
- Gittenberger E., 1998. The genus *Agathylla* in Greece (Gastropoda Pulmonata: Clausiliidae). *Basteria*, vol. 62: 187-190.
- Gray J.E., 1821. A natural arrangement of mol-lusca, according to the internal structure. *London Med. Repository*, vol. 15: 229-239.
- Gray J.E., 1824. On *Balea*. *Zool. J.*, vol. 1, no. 1: 61-62.
- Gray J.E., 1847a. The classification of British Mollusca. By W.E. Leach, M.D. *Ann. Mag. Nat. Hist.*, vol. 20, no. 1: 267-273.
- Gredler V., 1887 Zur Conchylien-Fauna von China, X. Stuck. — Übersicht der continen-talen chinesischen Binnenschnecken. *Malak. Bl.*, N. F., Bd. 9: 121-163.
- Grossu A.V., 1981. *Gastropoda Romaniae. Ordo Stylommatophora. 3. Suprafamiliile Clausilia-cea, Achatinacea*. Bucuresti. 269 pp.
- Habe T. 1958. Anatomical studies on the Ja-panese land snails (10). Taxonomy of Japa-nese Clausiliidae (2). *Venus*, vol. 20, no. 1: 60-66.
- Hartmann J.D.W. 1840-1844. *Erd- und Süßwasser-Gastropoden der Schweiz. Mit Zuga-be einiger merkwürdigen exotischen Arten*. St. Gallen. 1840: 1-60; 1841: 61-116; 1842: 117-156; 1843: 157-204; 1844: 205-227
- Hesse P., 1912. Beschreibungen neuer Arten. *Nachr.-Bl. dtsh. malak. Ges.*, Bd. 44: 56-62.
- Hesse P. 1916. Kritische Fragmente. XVI. Zur Nomenklatur. *Nachr.-Bl. dtsh. malak. Ges.*, Bd. 48: 122-124.
- Hesse P., 1925. On the anatomy of some Cla-usiliidae. *Proc. Malac. Soc. London*, vol. 16, pt. 4: 154-162.
- Heude R.P.M., 1890. Notes sur les mollusques terrestres de la Vallée du Fleuve Bleu. [III]. *Mem. Hist. nat. Emp. Chinois*, (4): 125-188.
- Inaba T., Oyama K. 1977 *Catalogue of molluscan taxa described by Tadashige Habe during 1939-1975, with illustrations of hitherto unfigured species*. Tokyo. 185 pp.
- Jousseume F., 1900. Mollusques terrestres. *Clausilia, Rhodaea et Bulimus Sud-Americanae*. *Bull. Soc. philomath. Paris*, ser. 9, t. 2: 5-44.
- Käufel F., 1930. Beitrag zur Kenntnis des zap-tychoiden Phaedusinen. *Arch. Moll.* Bd. 62: 51-55.
- Kennard A.S., Woodward B.B., 1923. Note on the nomenclature and systematic arrange-ment of the Clausiliidae. *Proc. Malac. Soc. London*, vol. 15: 298-308.
- Klemm W. 1962. Zoologische Studien in West-Griechenland von Max Beier. X. Theil. Die Gehäuse-Schnecken. *S.B. öst. Akad. Wiss.*, Abt. I, N. 171: 203-258.
- Kobelt W., 1876a. Conchologische Miscellen. *Jahrb. dtsh. malak. Ges.*, Bd. 3: 30-37

- Kobelt W., 1876b. *Illustriertes Conchylienbuch*. 2 Bande. Nürnberg. Lief.1: 1-40.
- Kobelt W. 1880. Mollusca. In: *Zool. Jber.* 1879 (Halfte 2): 802-897
- Kobelt W., 1906. Mollusca für 1901-1904. Geographische Verbreitung, Systematik und Biologie. *Arch. Naturg.*, Jg. 65, Bd. II, Heft 1: 79-264.
- Kobelt W., 1908. Mollusca für 1907 Geographische Verbreitung, Systematik und Biologie. *Arch. Naturg.*, Jg. 74, Bd. II, Heft 3: 1-50.
- Kuroda T 1963. *A catalogue of the non-marine mollusks of Japan, including the Okinawa and Ogasawara Islands*. Tokyo (Malac. Soc. Japan). V+71 pp.
- Kuroda T Minato H., 1975. Description of a new genus and two new species of Clausiliidae from lime-stone caves in Japan. *Venus*, vol. 34, no. 1: 1-10.
- Likharev I.M., 1962. Clausiliidae. *Fauna USSR*, vol. III, pt. 4, N.S., no. 83. 317 pp. (in Russian).
- Likharev I.M., Steklov A.A., 1965. New Clausiliidae from Miocene deposits of northern Caucasus. *Paleont. Journ.*, No. 2: 128-133. (in Russian).
- Lindholm W.A., 1913. Ueber ein neues Subgenus der Gattung *Clausilia* Drap. *Nachr.-Bl. dtsh. malak. Ges.*, Bd. 45: 24-26.
- Lindholm W.A., 1924. A revised systematic list of the genera of the Clausiliidae, recent and fossil, with their subdivisions, synonymy, and types. *Proc. Malac. Soc. London*, vol. 16: 53-80.
- Lindholm W.A., 1925. A supplement to the revised systematic list of the genera of the Clausiliidae. *Proc. Malac. Soc. London*, vol. 16: 261-266.
- Loosjes F.E., 1948. On the inner structure of the shells of *Hemiphaedusa cambojensis* Pfr. and *Phaedusa paviei* Morlet (Gastropoda, Pulmonata). *Bull. Mus. roy. d'Hist. nat. Belg.*, t. 24, No. 39: 1-8.
- Loosjes F.E., 1950. Some new gastropods of the family Clausiliidae from the Philippine Islands and Siam. *Proc. U.S. Nat. Mus.*, vol. 100 (3269): 539-545.
- Loosjes F.E., 1953. *Monograph of the Indo-Australian Clausiliidae (Gastropoda, Pulmonata, Clausiliidae, Phaedusinae)*. Wageningen. 226 pp.
- Loosjes F.E., 1963. Supplement to a monograph of the Indo-Australian Clausiliidae. *Zool. Meded.* Deel 38, No. 9: 153-169.
- Loosjes F.E., 1965. Some views on Indo-Australian Phaedusinae and the establishment of a new subgenus. *Basteria*, vol. 29, no. 1-4: 30-36.
- Loosjes F.E., Altimira Aleu C., 1970. Notes concernant *Laminifera (Bofilliella) subarcuata* (Bofill). *Basteria*, vol. 34, No. 3-4: 55-57
- Loosjes F.E., Loosjes-van Bemmelen A.C.W., 1966. Some anatomical, systematical and geographical data on Neniinae (Gastropoda, Clausiliidae). *Zool. Verhandl.*, no. 77: 1-60.
- Loosjes F.E., Loosjes-van Bemmelen A.C.W. 1973. Some anatomical and systematic data on Asiatic Clausiliidae (Gastropoda, Pulmonata). *Ann. zool. Warszawa*, t. 30, nr. 8: 287-317
- Loosjes F.E., Loosjes-van Bemmelen A.C.W. 1984. On a collection of Peruvian Neniinae (Mollusca: Gastropoda: Clausiliidae), with a check-list and a provisional key to all the Peruvian species known. *Zool. Verhandl.*, no. 212: 3-38.
- Majoros G., Nemeth L., Szili-Kovacs T., 1994. *Truncatophaedusa evae* n. gen. n. sp.: A new representative of Serrulininae from the west Caucasus (Pulmonata: Clausiliidae). *Arch. Moll.* Bd. 123 (1/6): 123-126.
- Minato H., 1975. Genitalia of *Formosana swinhoei* (Pfeiffer, 1865) from Formosa (Clausiliidae). *Venus*, vol. 34, No. 1-2: 52-53.
- Minato H., 1979. Genital studies of the Japanese land snails (XIII). Clausiliidae (2): The genus *Mundiphaedusa* (Part 1). *Venus*, vol. 38, No. 2: 141-147
- Minato H., 1981a. Genital studies of the Japanese land snails - XVII. Clausiliidae (4): five species from Ryukyu Islands. *Venus*, vol. 39, no. 4: 236-242.
- Minato H., 1981b. Notes on a peculiar hook on the clausilium of Clausiliidae (Pulmonata, Gastropoda). *Chiribotan (Newslett. Malac. Soc. Japan)*, vol. 12 (3): 62-64. (in Japanese).
- Minato H., 1988. *A systematic and bibliographic list of the Japanese land snails*. Shirahama. 294 pp.
- Minato H., 1994. Taxonomy and distribution of the land snails family Clausiliidae (Gastropoda: Pulmonata) of Japan. *Venus* [Supplement 2]: 1-212.
- Minato H., Chen D., 1984. A new clausiliid genus *Grandinenia* for *Steatonenia mirifica*

- Chen & Gao, 1982 (Gastropoda: Pulmonata). *Venus*, vol. 43, no. 4: 301-304.
- Minato H., Habe T. 1983. [*Pauciphaedusa*]. *Venus*, vol. 41, no. 4: 240-246. (in Japanese).
- Moellendorff O.F. von, 1873. Zur Molluskenfauna von Serbien. *Malak. Bl.*, Bd. 21: 129-149.
- Moellendorff O.F. von, 1883. Materialien zur Fauna von China. *Clausilia. Jahrb. dtsh. malak. Ges.*, Bd. 10: 228-269.
- Monterosato T.A. di, 1892. Molluschi terrestri delle isole adiacenti alla Sicilia. *Atti r. Accad. Sci. Lett. e Belle Arti*, ser. 3, vol. II: 1-33.
- Moquin-Tandon A., 1855. *Histoire naturelle des mollusques terrestres et fluviatiles de France*. Paris. Vol. 1: 646 pp.
- Mörch O.A.L., 1864. *Synopsis Molluscorum terrestrium et fluviatilium Daniae*. Kjobenhavn. [terrestria: 1-35].
- Mousson A., 1873. Coquilles recueillies par M. le Dr. Sievers dans la Russie méridionale et asiatique. *J. de Conch.*, T. 21: 193-230.
- Nemeth L., Szekeres M., 1995. New and little known species of the *Serrulina* group from northern Turkey (Gastropoda: Pulmonata: Clausiliidae). *Arch. Moll.*, Bd. 124 (1/2): 93-96.
- Neubert E., 1992. Descriptions of new taxa of the Clausiliidae from Turkey (Mollusca: Stylommatophora). *Zoology in the Middle East*, vol. 7: 65-86.
- Neubert E., 1993. Zur Kenntnis der Mentissoideinae des ostpontischen Gebirges (Gastropoda: Clausiliidae). *Arch. Moll.*, Bd. 122: 25-47
- Neubert E., 1995. Note on some genera of Clausiliidae from Turkey (Mollusca, Stylommatophora). *Zoology in the Middle East*, No. 11: 101-108.
- Neubert E., 1998. Annotated checklist of the terrestrial and freshwater molluscs of the Arabian Peninsula with descriptions of new species. *Fauna of Arabia*, vol. 17: 333-461.
- Neubert E., Groh K., 1998. Contributions to the nomenclature and phylogeny of *Boettgeria* O. Boettger, 1863, with description of *Loosjesiella* n. subgen. (Gastropoda: Pulmonata: Clausiliidae). *Basteria*, vol. 62: 157-168.
- Nordsieck H., 1963. Zur Anatomie und Systematik der Clausilien, I. *Arch. Moll.*, Bd. 92: 81-115.
- Nordsieck H., 1966. Zur Anatomie und Systematik der Clausilien, III. *Clausilia whateliana* und ihre Beziehungen zu den übrigen *Clausilia*-Arten, besonders zum Subgenus *Neostyriaca*. *Arch. Moll.*, Bd. 95 (1/2): 19-47
- Nordsieck H., 1969a. Die *Cochlodina*-Arten des westlichen Mittelmeerraumes. *Arch. Moll.*, Bd. 99 (1/2): 21-25.
- Nordsieck H., 1969b. Zur Anatomie und Systematik der Clausilien, VI. Genitalsystem und Systematik der Clausiliidae, besonders der Unterfamilie Alopiinae. *Arch. Moll.* Bd. 99 (5/6): 247-265.
- Nordsieck H., 1969c. Zur Anatomie und Systematik der Clausilien, VII. Dinarische Clausiliidae, I: Das Genus *Delima*. *Arch. Moll.*, Bd. 99 (5/6): 267-284.
- Nordsieck H., 1970. Zur Anatomie und Systematik der Clausilien, VIII. Dinarische Clausiliidae, II: Das Genus *Medora*. *Arch. Moll.*, Bd. 100 (1/2): 23-75.
- Nordsieck H. 1971. Zur Anatomie und Systematik der Clausilien, X. Zur Kenntnis des Genus *Cristataria* Vest 1867, I. *Arch. Moll.*, Bd. 101 (5/6): 237-261.
- Nordsieck H., 1972. Zur Anatomie und Systematik der Clausilien, XI. Neue Formen und taxonomische Revision einiger Gruppen der Alopiinae. *Arch. Moll.* Bd. 102 (1/3): 1-51.
- Nordsieck H., 1973a. Zur Anatomie und Systematik der Clausilien, XII. Phaedusinae, I: Phaedusen aus Nepal und ihre systematische Stellung innerhalb der Unterfamilie. *Arch. Moll.*, Bd. 103 (1/3): 63-85.
- Nordsieck H., 1973b. Zur Anatomie und Systematik der Clausilien, XIII. Neue Balkan-Formen der Mentissoideinae und Baleinae (mit taxonomischer Revision der zugehörigen Gruppen). - *Arch. Moll.*, Bd. 103 (4/6): 179-208.
- Nordsieck H., 1974. Zur Anatomie und Systematik der Clausilien, XV Neue Clausilien der Balkan-Halbinsel (mit taxonomischer Revision einiger Gruppen der Alopiinae und Baleinae). *Arch. Moll.* Bd. 104 (4/6): 123-170.
- Nordsieck H., 1975. Zur Anatomie und Systematik der Clausilien, XVI. Zur Kenntnis der Mentissoideinae und kaukasischen Baleinae. *Arch. Moll.*, Bd. 106 (1/3): 81-107
- Nordsieck H., 1977a. Zur Anatomie und Systematik der Clausilien, XVII. Taxonomische Revision des Genus *Albinaria* Vest. *Arch. Moll.*, Bd. 107 (1976) (4/6): 285-307

- Nordsieck H., 1977b. Zur Anatomie und Systematik der Clausilien, XVIII. Neue Taxa rezenter Clausilien. *Arch. Moll.*, Bd. 108 (1/3): 73-107
- Nordsieck H., 1978a. Zur Anatomie und Systematik der Clausilien, XIX. Das System der Clausilien, I: Taxonomische Merkmale und Gliederung in Unterfamilien. *Arch. Moll.*, Bd. 109 (1/3): 67-89.
- Nordsieck H., 1978b. Zur Anatomie und Systematik der Clausilien, XX. Die rezenten Arten der Serrulininae und der Gattung *Caspiophaedusa*. *Arch. Moll.*, Bd. 109 (1/3): 91-101.
- Nordsieck H., 1979. Zur Anatomie und Systematik der Clausilien, XXI. Das System der Clausilien, II: Die rezenten europäischen Clausilien. *Arch. Moll.* Bd. 109 (1978) (4/6): 249-275.
- Nordsieck H., 1984. Ergänzungen zum System der rezenten europäischen Clausilien, I (Gastropoda: Clausiliidae). *Arch. Moll.*, Bd. 114 (1983) (4/6): 213-216.
- Nordsieck H., 1990. Revision der Gattung *Clausilia* Draparnaud, besonders der Arten in SW-Europa (Das *Clausilia rugosa*-Problem) (Gastropoda: Stylommatophora: Clausiliidae). *Arch. Moll.*, Bd. 119 (1988) (4/6): 133-179.
- Nordsieck H., 1993. Beiträge zur Nomenklatur der europäischen Binnenmollusken, I. Kritische Anmerkungen und Berichtigungen zur Nomenklatur von Arttaxa der Clausiliidae. *Heldia*, Bd. 2, Heft 1/2: 33-42.
- Nordsieck H. 1994. Türkische Clausiliidae, II: Neue Taxa der Unterfamilien Serrulininae und Mentissoideinae in Anatolien (Gastropoda: Stylommatophora). *Stuttgarter Beitr. Naturk.*, Ser. A, Nr. 513: 1-36.
- Nordsieck H., 1997. Nomenclatural critique of Minato's (1988, 1994) papers. *Venus*, vol. 56, No. 1: 62.
- Nordsieck H., 1998a. Critical revision of the system of the Japanese Phaesusinae, proposed by Minato (1994) (Gastropoda: Stylommatophora: Clausiliidae). *Arch. Moll.*, Bd. 127 (1/2): 21-32.
- Nordsieck H., 1998b. Notes on the nomenclature of Phaesusinae (Gastropoda, Stylommatophora: Clausiliidae). *Heldia*, vol. 2, pt. 5/6: 127-131.
- Nordsieck H., 1999a. *Symptychiella annae* n. sp., an extraordinary clausiliid from northern Peru (Gastropoda Pulmonata: Clausiliidae). *Basteria*, vol. 63: 165-170.
- Nordsieck H., 1999b. Critical revision of some Peruvian Neniinae treated by Loosjes & Loosjes-van Bommel (1966, 1984, 1989), with the description of new taxa (Gastropoda Pulmonata: Clausiliidae). *Basteria*, vol. 63: 171-183.
- Oken L. von, 1815-1816. *Lehrbuch der Naturgeschichte*. Dritter Theil Zoologie. Erste Abtheilung. Jena.
- Paetel F., 1889. *Catalog der Conchylien-Sammlung von Fr. Paetel*. Ed. 4. Zweite Abtheilung: Die Land- und Süßwasser-Gastropoden. Berlin. 505 S.
- Pallary P., 1939. Deuxieme addition à la faune malacologique de la Syrie. *Mém. Inst. Egypte*, vol. 39: 1-141.
- Pfeiffer L., 1848. *Monographia Heliceorum viventium sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitarum*. Bd. 2: 1-594. Lipsiae (Brochhaus).
- Pfeiffer L., 1856. Versuch einer Anordnung der Heliceen nach natürlichen Gruppen. *Malak. Bl.*, Bd. 2: 145-185.
- Pilsbry H.A., 1901a. Additions to the Japanese land snail fauna, III. *Proc. Acad. Nat. Sci. Philad.*, vol. 52 (1900): 672-683.
- Pilsbry H.A., 1901b. The land mollusks of the Loo Choo Islands: Clausiliidae. *Proc. Acad. Nat. Sci. Philad.*, vol. 53: 409-424.
- Pilsbry H.A., 1905. New Clausiliidae of the Japanese Empire, X. *Proc. Acad. Nat. Sci. Philad.*, vol. 56 (1904): 809-838.
- Pilsbry H.A., 1908. New Clausiliidae of the Japanese Empire, XI. *Proc. Acad. Nat. Sci. Philad.*, vol. 59 (1907): 499-513.
- Pilsbry H.A., 1909. Clausiliidae of the Japanese Empire, XII. *Proc. Acad. Nat. Sci. Philad.*, vol. 60 (1908): 561-585.
- Pilsbry H.A., 1922. Types of Férussac's subgenera of *Helix*. *Nautilus*, vol. 36: 31-32.
- Pilsbry H.A., 1924. The affinities of *Balea africana* Melvill and Ponsoby. *Nautilus*, vol. 38: 6.
- Pilsbry H.A., 1926. South American land and freshwater mollusks: Notes and descriptions, VI. *Proc. Acad. Nat. Sci.*, vol. 78: 1-15.
- Pilsbry H.A., 1949. Peruvian land mollusks of the genus *Nenia* (Clausiliidae). *Proc. Acad. Nat. Sci. Philad.* vol. 101: 215-232.
- Pilsbry H.A., Hirase Y., 1906. Catalogue of land and freshwater mollusca of Taiwan (Formo-

- sa). *Proc. Acad. Nat. Sci. Philad.* vol. 57 (1905): 720-752.
- Pini N., 1884. Novità malacologiche. *Atti Soc. ital. Sci. nat.*, 27: 230-256.
- Polinski W 1922. Neue Clausiliiden aus Peru. *Bull. Acad. polon. Sci. Lett. Cracovie*, 1921B: 121-142.
- Polinski W 1924. Sur un nouveau sous-genre et deux nouvelles espèces de Clausiliidés sudaméricaines. *Bull. Acad. polon. Sci. Lett. Cracovie*, 1924B: 739-744.
- Rähle W 1982. *Graecophaedusa sperrlei* n. gen., n. sp.: ein bemerkenswertes Tertiärrelikt aus Griechisch-Mazedonien (Pulmonata: Clausiliidae: Serrulininae). *Arch. Moll.*, Bd. 112 (1981) (1/6): 45-48.
- Rehder H.A., 1939. A new "Nenia" from Haiti and some notes on this genus. *J. Wash. Acad. Sci.*, vol. 29, no. 4: 171-173.
- Römer A., 1891. Catalog der Conchylien-Sammlung des naturhistorischen Museums zu Wiesbaden. *Jahrb. Nassau. Ver. Naturk. Wiesbaden*, Bd. 44: 17-207
- Rossmässler E.A., 1879. *Iconographie der Land- und Süßwasser-Mollusken, mit vorzüglicher Berücksichtigung der europäischen noch nicht abgebildeten Arten*. Dresden, Leipzig und Wiesbaden. Bd. 6 (1878-1879); 7 (1879-1880).
- Sajó I.E., 1968. Drei neue Clausiliiden aus Griechenland. *Arch. Moll.*, Bd. 98 (1/2): 57-60.
- Stabile J., 1864. Mollusques terrestres vivants du Piémont. *Atti Soc. ital. Sci. nat. Milano*, vol. 7: 1-142.
- Subai P Szekeres M., 1999. *Sciocochlea cryptica* n. sp., a new representative of the *Serrulina* group (Gastropoda: Clausiliidae) from Epirus. *Schr. Malakozool.*, Bd. 13: 9-12.
- Swainson W., 1840. *A treatise on Malacology; or the natural classification of shells and shell fish*. VIII+419 pp.
- Szekeres M.I., 1969. Neue Angaben zur Kenntnis der Aloprien (Clausiliidae). *Arch. Moll.* Bd. 99 (1/2): 27-33.
- Szekeres M.I., 1970. Zur Clausilienfauna von Iran und der Türkei. *Arch. Moll.*, Bd. 100 (5/6): 267-269.
- Szekeres M.I., 1976. New aspects of an *Alopiasystem* (Mollusca: Gastropoda). *Acta zool. Acad. Sci. Hungaricae*, XXII, no. 3-4: 389-396.
- Szekeres M., 1998a. New and little-known Clausiliidae (Gastropoda Pulmonata) from eastern Turkey. *Basteria*, vol. 62, No. 3-4: 169-173.
- Szekeres M., 1998b. The systematic position of the *Garnieria* and *Triptychia* groups, two ambiguous phylogenetic branches of Clausiliidae (Gastropoda Pulmonata). *Basteria*, vol. 62, No. 3-4: 175-179.
- Thiele J., 1931. *Handbuch der systematischen Weichtierkunde*. Jena. Bd. I, Teil 2: 377-778.
- Thompson F.G., 1985. *Columbinia vasquezzi*, a new clausiliid land snail from Bolivia. *Proc. Biol. Soc. Wash.*, 98 (4): 768-773.
- Thompson F.G., 1998. Clausiliid land snails from Hispaniola and their relationships to other New World genera (Gastropoda: Pulmonata: Clausiliidae). *Arch. Moll.*, 127 (1/2): 33-41.
- Tomiyama K., 1984. Land snail fauna of Mukojima, Ujigunto, northern Ryukyu Islands, Japan, with descriptions of a new subgenus, a new species and a new subspecies. *Venus*, vol. 43, no. 3: 199-210.
- Tomlin J.R. le B., 1929. Some preoccupied generic names. *Proc. Malac. Soc. London*, vol. 18: 255-256, 258.
- Turton W., 1840. *A manual of the land and freshwater shells of the British Islands*. London. Ed. 2 by J. E. Gray. 324 pp.
- Vest W., 1867 Über den Schliessapparat der Clausilien. *Verh. Mitt. siebenb. Ver. Naturw.*, Bd. 18: 5-18, 161-174, 188-196.
- Wagner A.J. 1913. *Die Familie der Clausiliidae*. In: Rossmässler E. A., *Iconographie...* NF, 21: 1-65.
- Wagner A.J., 1914. Höhlenschnecken aus Süddalmatien und der Hercegovina. *SB. Akad. Wiss. Wien, math.-nat. Klasse*, Bd. 123, Abt. 1: 33-48.
- Wagner A.J., 1919. Zur Anatomie und Systematik der Clausiliiden. *Nachr.-Bl. dtsh. malak. Ges.*, Bd. 51: 87-104, 129-147
- Wagner A.J., 1920. Zur Anatomie und Systematik der Clausiliiden. *Arch. Moll.* Bd. 52: 1-13, 67-78, 97-108, 145-158.
- Wagner A.J., 1921. Die Molluskensammlung des Polnischen Naturhistorischen Staatsmuseum in Warschau. I. Neue Gruppen und Formen der Subfamilie Alopiinae. *Ann. Zool. Mus. Polon. Hist. Nat.*, t. I, fasc. 1: 41-56.
- Wagner A.J., 1922. Ergänzungen und Erläuterungen zur Systematik der Clausiliiden. *Ann. Zool. Mus. Polon. Hist. Nat.*, t. I, fasc. 2-3: 96-111.

- Wagner A.J., 1923. Ergänzungen und Erläuterungen zur Systematik der Clausiliiden. II. Neue Formen und Arten des Genus *Albinaria* ex rect. mea. *Ann. Zool. Mus. Polon. Hist. Nat.*, t. 2, fasc. 1: 1-8.
- Wagner A.J., 1924. Systematisches Verzeichnis der mir heute bekannten Arten und Formen der Clausiliiden. III. *Ann. Zool. Mus. Polon. Hist. Nat.*, t. 3, fasc. 3-4: 99-126.
- Wagner A.J., 1925. Studien über die Systematik, Stammesgeschichte und geographische Verbreitung des Genus *Delima* (Hartmann) A. J. Wagner. *Ann. Zool. Mus. Polon. Hist. Nat.*, t. 4: 1-73.
- Wenz W., 1923-1930. *Gastropoda extramarina tertiaria*. - *Fossilium Catalogus I*. 4 Bde. Berlin. 3387 pp.
- Westerlund C.A., 1878. *Monographia Clausiliarum in Regione Palaeoartica viventium*. Lundae. XXVII+184 pp.
- Westerlund C.A., 1884-1890. *Fauna der in der Paläarktischen Region (Europa, Kaukasien, Sibirien, Turan, Persien, Kurdistan, Armenien, Mesopotamien, Kleinasien, Syrien, Arabien, Ägypten, Tripolis, Tunesien, Algerien und Marocco) lebenden Binnenconchylien*. I. Fam. Testacellidae, Glandinidae, Vitrinidae & Leucochroidae. 1886a. Lund. 88+7 pp. II. Genus *Helix*. Berlin. 1889. 473+31 pp. III. Gen. *Buliminus*, *Sesteria*, *Pupa*, *Stenogyra* & *Cionella*. 1887. Lund. 183+15 pp. IV. Gen. *Balea* Prid. & *Clausilia* Dr. 1884. Karlskrona. VII, 212+18 pp. V. Fam. Succinidae, Auriculidae, Limnaeidae, Cyclostomidae & Hydrocenidae. 1885. Lund. 135+14 pp.... I. Supplement. Berlin. 1890. 179 pp.
- Westerlund C.A., 1901. Synopsis molluscorum in regione palaeartica viventium ex typo *Clausilia* Drap. *Mem. l'Acad. Imp. Sci. St. Petersburg.*, ser. 8, vol. 11, N. 11: I-XXXVII, 1-203.
- Westerlund C.A., 1902. Methodus dispositionis conchyliorum extramarinorum in regione palaeartica viventium, familias, genera, subgenera et stirpes sistens. *Rad Jugosl. Akad. znanosti i umjetnosti*. Knjiga 151: 82-139.
- Weyrauch W.K., 1957. Sieben neue Clausiliiden aus Peru. *Arch. Moll.*, Bd. 86 (1/3): 1-28.
- Weyrauch W.K., 1958. Neue Landschnecken und neue Synonyme aus Südamerika, I. *Arch. Moll.*, Bd. 87 (4/6): 91-139.
- Weyrauch W.K., 1964. Aporte al conocimiento de *Temesa*, II. *Acta zool. Lilloana*, t. 20: 145-162.
- Zilch A., 1949. Studien Paul Ehrmann's über asiatische und südamerikanische Clausiliiden. *Arch. Moll.* Bd. 78 (1/3): 69-98.
- Zilch A., 1954a. Die Typen und Typoide des Natur-Museums Senckenberg, 12: Mollusca, Clausiliidae (1): Phaesusinae, Neniinae. *Arch. Moll.*, Bd. 83 (1/3): 1-63.
- Zilch A., 1954b. Landschnecken aus Peru, 2. *Arch. Moll.*, Bd. 83 (1/3): 65-78.
- Zilch A., 1959. Gastropoda Teil 2. Euthyneura. *Handbuch der Paläozoologie*, Bd. 6. Lfg. 1: 1-200; Lfg. 2: 201-400.