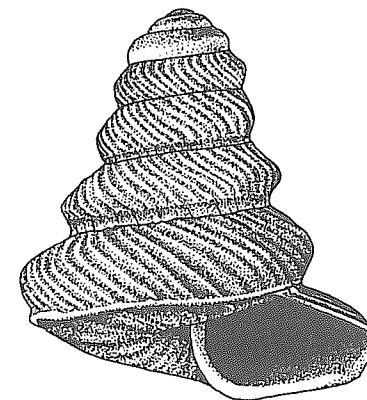


A. A. Schileyko

TREATISE ON RECENT TERRESTRIAL
PULMONATE MOLLUSCS

Part 8

Punctidae, Helicodiscidae, Discidae, Cystopeltidae,
Euconulidae, Trochomorphidae



Ruthenica, Supplement 2
Moscow ♦ January, 2002

CONTENTS

PUNCTIDAE Morse, 1864	1035
LAOMINAE Suter, 1913	1035
PUNCTINAE Morse, 1864	1049
HELICODISCIDAE Pilsbry, 1927	1051
STENOPYLINAE Thiele, 1931	1052
HELICODISCINAE Pilsbry, 1927	1054
DISCIDAE Thiele, 1931	1058
CYSTOPELTIDAE Cockerell, 1891	1063
Infraorder LIMACOINEI Ferussac, 1801	1064
HELICARIONOIDEA Godwin-Austen, 1882	1065
EUCONULIDAE Baker, 1928	1065
MICROCYSTINAE Thiele, 1931	1065
Microcystini Thiele, 1931	1066
Philonesiini Baker, 1940	1076
Liardetiini Baker, 1938	1098
EUCONULINAE Baker, 1928	1110
TROCHOMORPHIDAE Moellendorff, 1890	1138
References	1163

Editors of the volume: A. V. Sysoev, D. L. Ivanov,
Zoological museum of Moscow State University
 Camera-ready copy: Yu. I. Kantor,
A.N. Severtzov Institute of Problems of Evolution, Russian Ac. Sci.
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PUNCTIDAE Morse, 1864

Morse, 1864: 27.

— Polyplacognatha Pilsbry, 1893: 403.

Shell small to minute, never reduced. Embryonic sculpture primarily of spiral threadlets. Postembryonic whorls with a combination of major and minor radial riblets that are periostracal in origin. Aperture initially simple, but a few taxa develop barriers in aperture. Umbilicus widely open to nearly closed.

Eyes well developed.

Pedal and suprapedal grooves unite above tail without forming a caudal horn or foss.

Jaw polyplacognathous, of numerous separate rhomboidal or squarish plates, more or less imbricating.

Kidney bilobed, lobes subequal in length. Secondary ureter completed.

Hermaphroditic gland of 1 or 2 clumps of closely appressed, variously subdivided, drop-shaped acini. Hermaphroditic duct uncoiled. Talon with globular head on a short stalk. Prostate and uterus partly to completely fused. Vas deferens entering epiphallus (if present) or penis. Epiphallus missing or vestigial. Penis internally with longitudinal pilasters; verge absent. Penial retractor arising from diaphragm, inserting on head of penis or epiphallus. Base of spermathecal stalk more or less expanded; reservoir embedded in base of albumen gland.

DISTRIBUTION. Holarctic, NE and S Africa, Australia, Tasmania, New Zealand and adjacent islands, Mexico, ?New Guinea, ?Hawaii.

LAOMINAE Suter, 1913

Suter, 1913: 732.

Shell (rather) high, with conic or dome-shaped spire. Postapical whorls initially nearly smooth, sometimes secondarily radially ribbed. Aperture simple or (rarely) with barriers.

Penis initially with 2 longitudinal internal pilasters, which in proximal section of penis sometimes form short, fleshy ridges.

DISTRIBUTION. SE Australia, Lord Howe, Norfolk and Kermadec Islands, Tasmania, New Zealand, ? New Guinea.

Iotula Iredale, 1941

Fig. 1347

Iredale, 1941a: 264. B. Smith, 1992: 281.

TYPE SPECIES — *Helix microcosmos* Cox, 1868; OD.

Shell depressed-globose, thin, transparent, not shining above, more glossy below, of 4 convex whorls. Last whorl convexly rounded. Color reddish-corneous. Postapical sculpture of fine radial riblets and finer riblets in interstices; sculpture more prominent on upper surface than on base. Aperture somewhat squarely-lunate, oblique; columellar margin nearly straight, slightly thickened and reflexed above, palatal margin slightly curved, basal margin more so. Umbilicus minutely open. Height 1.0-1.2, diam. 1.2-1.4 mm.

DISTRIBUTION. SE Australia (New South Wales). 2 spp.

Gratilaoma Iredale, 1939

Fig. 1348

Iredale, 1939: 38. B. Smith, 1992: 280.

TYPE SPECIES — *Gratilaoma cara* Iredale, 1939; OD.

Shell subglobose-conic, thin, of 5-5.5 rather convex whorls. Last whorl rounded. Color pale-brownish. Embryonic whorls very finely spirally striated. Postnuclear whorls with delicate radial wrinkles crossed by very obscure spiral striae. Aperture ovate, with simple margins; columellar margin markedly reflexed, expanded. Umbilicus narrowly open. Height 0.8, diam. 1.0 mm.

DISTRIBUTION. W Australia (Bow River, South Coast). 1 sp.

Trocholaoma Iredale, 1937

Fig. 1349

Iredale, 1937a: 316. B. Smith, 1992: 285.

TYPE SPECIES — *Helix spiceri* Petterd, 1879 (= *Helix parvissima* Legrand, 1871); OD.

Shell shortly conic, thin, shining, of 5-6 convex whorls. Last whorl with rounded periphery. Color yellow-corneous. Embryonic whorls with faint spiral lines. Postapical sculpture of very fine radial striation. Aperture comparatively small, roundly lunate.

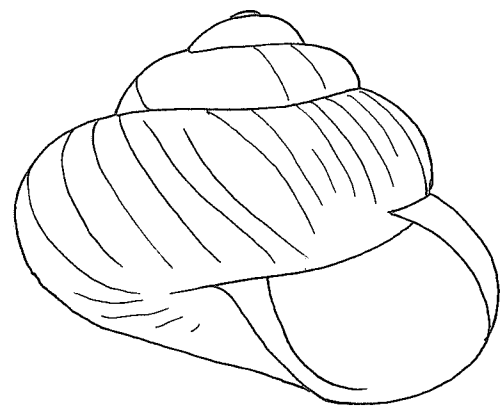


Fig. 1347. *Iotula microcosmos* (Cox, 1868).
After Cox, 1868.

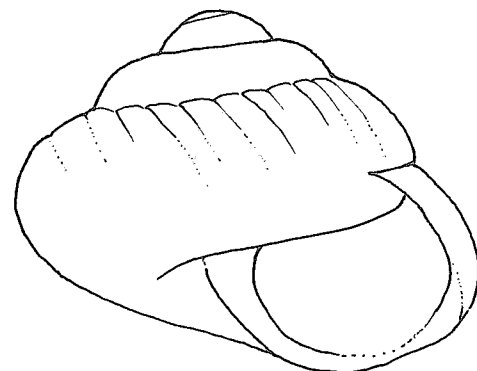


Fig. 1348. *Gratilaoma cara* Iredale, 1939.
After Iredale, 1939.

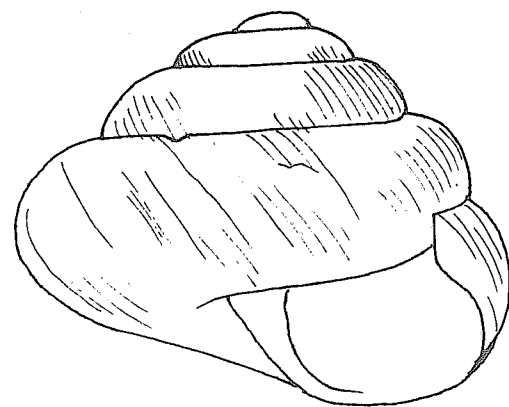


Fig. 1349. *Trocholaoma ninguiicola* Iredale, 1937.
After Iredale, 1941a.

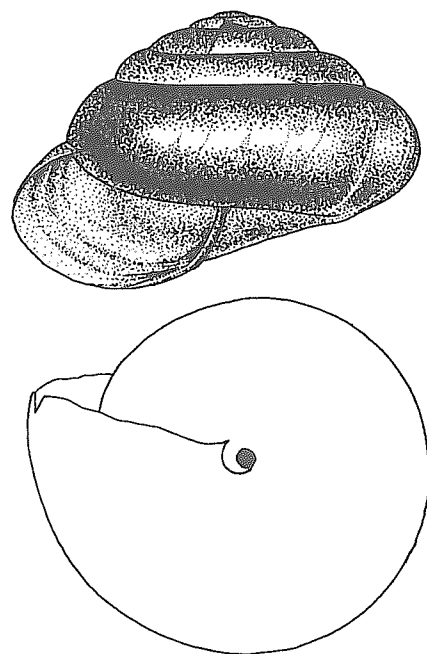


Fig. 1350. *Miselaoma weldi* (Tenison-Woods, 1877).
Tasmania. Vienna No. 11797.

Umbilicus deep, narrow. Height 0.8-1.5, diam. 1-2 mm.

DISTRIBUTION. SE Australia, Tasmania. 2 spp.

Miselaoma Iredale, 1933
Fig. 1350

Iredale, 1933: 53. B. Smith, 1992: 282.

TYPE SPECIES — *Helix weldii* Tenison-Woods, 1877; OD.

Shell sinistral, depressed-turbinate, thin, shining, semitransparent, of 5-7 convex whorls. Last whorl rounded at periphery. Color light-corneous. Embryonic whorls smooth. Postnuclear whorls with very weak radial wrinkles and extremely fine, wavy, dense spiral striation which visible mainly on basal surface. Aperture roundly lunate, subvertical; columellar margin very shortly reflexed. Umbilicus narrowly open to semi-covered, somewhat excentric. Height 0.7-1.0, diam. 1-2 mm (0.84 × 1.44 mm).

DISTRIBUTION. SE Australia, Tasmania. 2 spp.

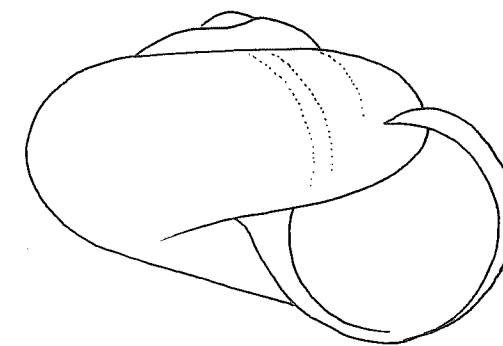


Fig. 1351. *Westralaoma experta* Iredale, 1939.
After Iredale, 1939.

Westralaoma Iredale, 1939
Fig. 1351

Iredale, 1939: 36. B. Smith, 1992: 285.

TYPE SPECIES — *Westralaoma experta* Iredale, 1939; OD.

Shell depressed-conic, thin, of about 5 convex whorls. Color brown. Last whorl widely rounded at periphery. Embryonic whorls spirally striated. Subsequent whorls with major riblets and minor radial threads in interstices; sometimes there is also microscopic spiral striation. Aperture comparatively large, subcircular; columellar margin dilated. Umbilicus rather broad. Height 0.5-1.5, diam. 1.25-2.00 mm.

DISTRIBUTION. SW and W Australia. 4 spp.

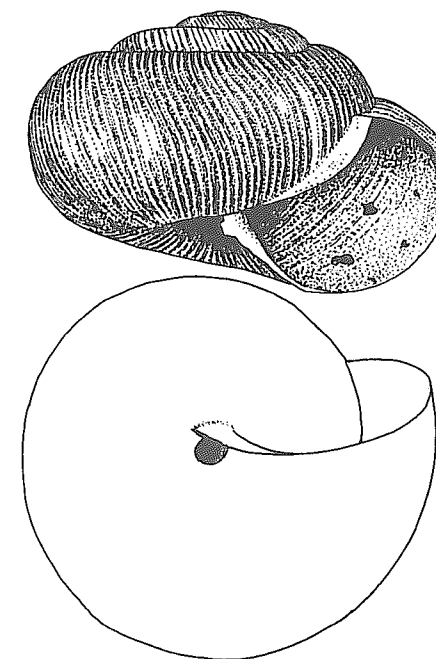


Fig. 1352. *Excellaoma retipora* (Cox, 1867).
Queensland, Australia. Vienna No. 50734 (4).

Excellaoma Iredale, 1937
Fig. 1352

Iredale, 1937a: 315. B. Smith, 1992: 280.

TYPE SPECIES — *Helix retipora* Cox, 1867; OD.

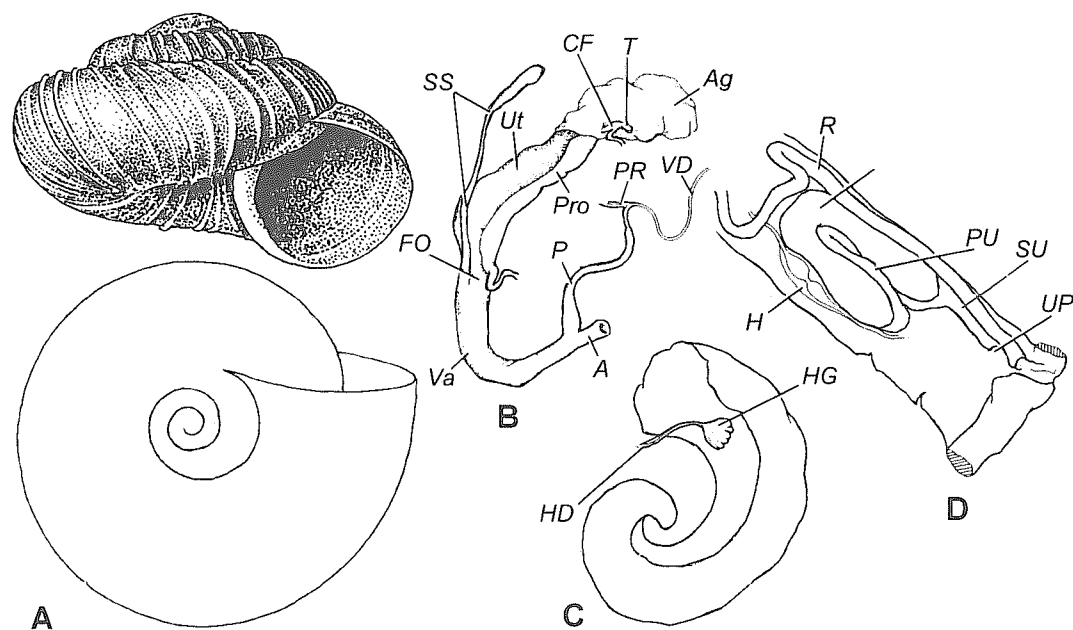


Fig. 1353. A — *Paralaoma raoulensis* Iredale, 1913. Shell: Sunday Island, Kermadec Islands. Syntype. Vienna No. 48153/2. B, C, D — ! *Paralaoma aprica* Iredale, 1939. B — reproductive tract. C — hermaphroditic gland. D — roof of lung cavity. After Solem, 1982. *H* — heart. *R* — rectum. *UP* — ureteric pore.

Shell depressed-turbinoid, thin, fragile, a little shining, of 4-5 convex whorls. Last whorl widely rounded at periphery. Color corneous. Embryonic whorls with very delicate spiral threadlets. Postnuclear sculpture of regular major ribs with minor riblets and fine, crowded spiral striae in interstices. Aperture rounded, slightly oblique, with simple margins; columellar margin reflexed. Umbilicus narrowly open. Height 3-4, diam. 5-6 mm (3.5 × 5.6 mm).

DISTRIBUTION. E Australia (Queensland, Victoria, South Australia). 1 variable sp.

Paralaoma Iredale, 1913
Fig. 1353

Iredale, 1913: 380.

— ? *Laomopa* Iredale, 1945: 55 (t.-sp. *Laomopa flavida* Iredale, 1945; OD)

Powell, 1979: 333. B. Smith, 1992: 282.

TYPE SPECIES — *Paralaoma raoulensis* Iredale, 1913; SD Iredale, 1937b.

Shell depressed-turbinoid, thin, translu-

cent, of about 4 quite convex whorls. Last whorl evenly rounded at periphery. Color uniformly white or pale-brown. Embryonic whorls spirally striated. Postapical sculpture of regular major radial ribs having low periostracal blades, and numerous, crowded, sharp minor riblets in interstices. Aperture subcircular, only slightly oblique, with simple margins; columellar margin markedly reflexed. Umbilicus narrowly to widely open. Height 0.6-1.4, diam. 1.00-2.15 mm (1.23 × 2.02 mm).

Pericardial and rectal arms of kidney of about equal length.

Ovotestis of 1 compact clump consisting of elongated acini. Talon small, with rounded head. Vas deferens thin, cylindrical, entering penis apically. Penis slender, subcylindrical, with slightly expanded basal portion. Penial retractor attached to vas deferens a little above penis. Free oviduct very short. Vagina long, rather stout. Spermathecal stalk slender, reservoir scarcely demarcated.

DISTRIBUTION. E Australia, Lord Howe, Norfolk and Kermadec Islands, Tasmania, New Zealand. About 20 spp.

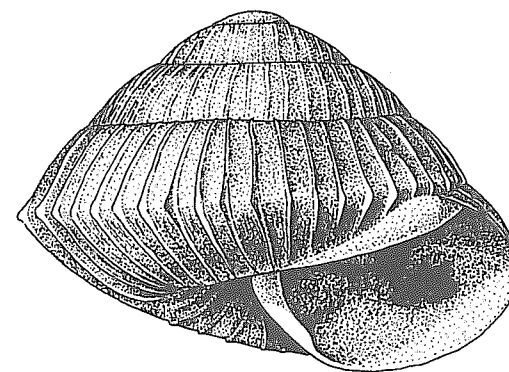


Fig. 1354. *Magilaoma penolensis* (Cox, 1868). Meredith, Victoria, Australia. Phil. No. 133150.

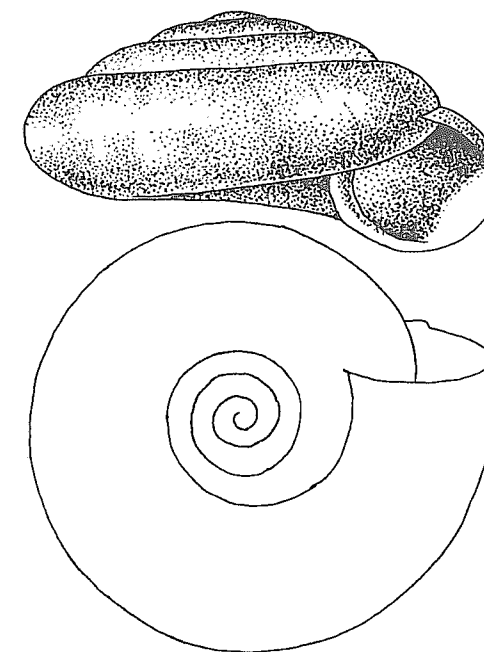


Fig. 1355. *Laomavix collisi* (Brazier, 1877). Tasmania. Vienna.

Magilaoma Iredale, 1937
Fig. 1354

Iredale, 1937a: 317. B. Smith, 1992: 281.

TYPE SPECIES — *Magilaoma parpictilis* Iredale, 1945 (= *Helix penolensis* Cox, 1868); OD.

Shell turbinoid, thin, fragile, of 4.5-5 flattened whorls. Last whorl with blunt angle at periphery. Color pale-yellow to dark-corneous. Embryonic whorls nearly smooth to spirally striated. Postapical sculpture of irregular, sharp periostracal radial riblets which form triangular processes (easily lost) at periphery; in interstices there are spiral striae. Aperture ovate-lunate, a little oblique, with thin, fragile margins; columellar margin well reflexed. Umbilicus minutely open, semicovered. Height 2.4-2.6, diam. 3-4 mm (2.51 × 3.52 mm).

DISTRIBUTION. SE Australia, coastal dunes of Tasmania. 1 variable sp.

Laomavix Iredale, 1933
Fig. 1355

Iredale, 1933: 53.

TYPE SPECIES — *Helix minima* Cox, 1868

[non *Helix minima* Schlotheim, 1818 = *Helix (Pityis) collisi* Brazier, 1877]; OD.

Shell depressed dome-shaped, thin, shining, subtransparent, of 4-5 rather convex whorls. Last whorl with a very light angle at periphery. Color whitish to yellowish-corneous. Embryonic whorls smooth, polished, later whorls nearly so, with only very fine, irregular radial striae. Aperture comparatively small, rounded, subvertical, with simple margins. Umbilicus wide, shallow. Height 0.8-1.0, diam. 1.5-2.0 mm (0.91 × 1.80 mm).

DISTRIBUTION. SE Australia, Tasmania. 1 variable sp.

Pasmaditta Kershaw et Smith, 1986
Fig. 1356

Kershaw & Smith, 1986: 16. Iredale, 1933: 53 (nom. nud.). B. Smith, 1992: 284.

TYPE SPECIES — *Helix jungermanniae* Peterd, 1879; OD.

Shell flattened, thin, translucent, shining, of 3.5-5 moderately convex whorls. Last whorl evenly rounded at periphery.

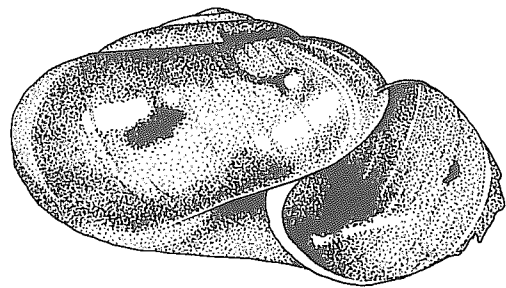


Fig. 1356. *Pasmaditta jungermanniae* (Petterd, 1877).
Tasmania. Phil. No. 227979.

tionally fine. Aperture widely ovate, slightly oblique, with simple margins; columellar margin somewhat reflexed. Umbilicus rather narrow, subcylindrical. Height 2.6-3.0, diam. 3-5 mm (2.92 × 4.75 mm).

Ovotestis of 2 clusters of elongated acini. Talon not visible. Vas deferens cylindrical, entering penis at boundary between upper and middle thirds of its length. Penis subcylindrical, internally with several axial pilasters; pore of vas deferens situated on one of them. Penial retractor attached to penis terminally. Free oviduct subequal to vagina in length, internally with numerous, strong folds. Atrium rather long. Base of spermathecal stalk enlarged, internally with a branched fold; reservoir subglobular, attending albumen gland.

DISTRIBUTION. Tasmania. 1 sp.

Turbolaoma Iredale, 1937
Fig. 1358

Iredale, 1937a: 317. Smith B., 1992: 285.

TYPE SPECIES — *Laoma turbinuloidea* Gabriel, 1930; OD.

Shell high-turbinate, thin, of 4-5 quite convex, rounded whorls. Last whorl widely rounded at periphery. Color chocolate-brown. Embryonic whorls with fine radial lines. Later whorls very finely radially striated; spiral elements missing. Aperture rounded, well oblique; columellar margin broadly reflexed. Umbilicus open, narrow, profound. Height 2.3, diam. 2.0 mm.

DISTRIBUTION. SE Australia (E Victoria). 1 sp.

Pedicamista Kershaw et Smith, 1986
Fig. 1357

Kershaw & Smith, 1986: 16. Iredale, 1933: 53 (nom. nud.). B. Smith, 1992: 284.

TYPE SPECIES — *Helix (Charopa) coesus* Legrand, 1871; OD.

Shell depressed-turbinoid, thin, glossy, translucent, of 4-5 rather convex whorls. Last whorl evenly rounded. Color corneous. Embryonic whorls smooth. Subsequent whorls with weakened charopid sculpture: "major" ribs only slightly differ (if differ) from "minor" riblets which may be excep-

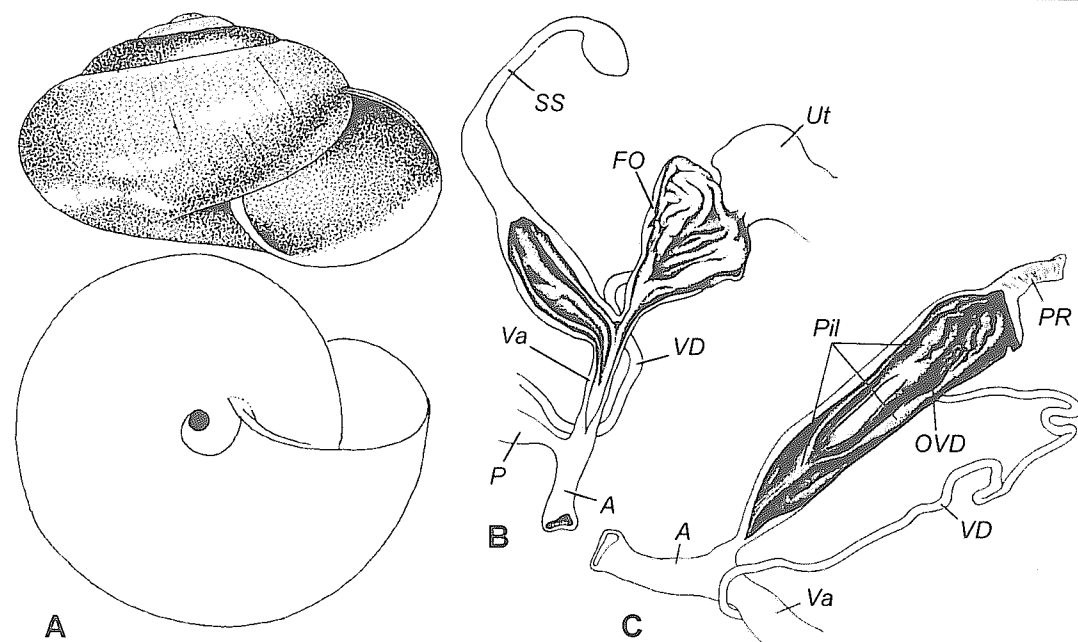


Fig. 1357. *Pedicamista coesus* (Legrand, 1871).
A — shell: Tasmania. Phil. No. 65054. B — interior of free oviduct and spermathecal stalk. C — interior of penis. After Solem, 1982.

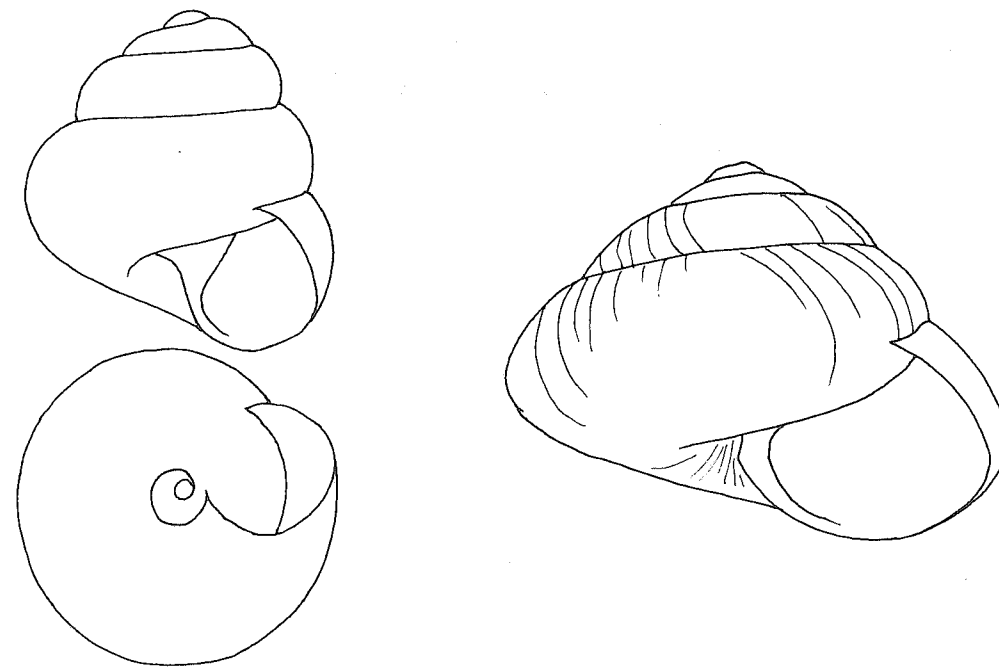


Fig. 1358. *Turbolaoma turbinuloidea* (Gabriel, 1930).
After Smith & Kershaw, 1979.

Allenella Iredale, 1944
Fig. 1359

Iredale, 1944: 311.

TYPE SPECIES — *Allenella formalis* Iredale, 1944; OD.

Shell turbinate, conic, with elevated, subconic spire, of about 5 moderately convex whorls. Last whorl straight, with rounded peripheral angle. Color rich brown. Embryonic sculpture of spiral striae. Later whorls with microscopic radial striation faintly decussated by very fine spiral striae; on basal surface they more prominent, and

Fig. 1359. *Allenella formalis* Iredale, 1944.
After Iredale, 1944.

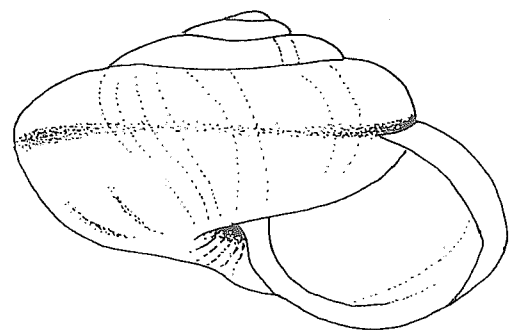


Fig. 1360. *Semilaoma abjecta* (Iredale, 1944).
After Iredale, 1944.

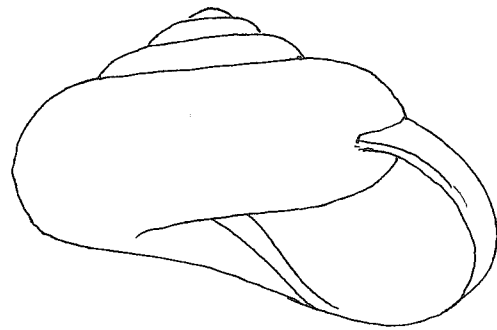


Fig. 1361. *Insullaoma riddlei* (Iredale, 1937).
After Iredale, 1937b.

radial elements obsolete. Aperture semicircular, with simple margins; columellar margin markedly reflexed. Umbilicus narrow, deep. Height 1.50-2.75, diam. 3.25-3.50 mm.
DISTRIBUTION. Lord Howe Island. 5 spp. & subspp.

Semilaoma Iredale, 1944
Fig. 1360

Iredale, 1944: 311 (*Paralaoma* subg.). B. Smith, 1992: 284.

TYPE SPECIES — *Paralaoma (Semilaoma) abjecta* Iredale, 1944; OD.

Shell depressed-turbinate, thin, of about 4 rather convex whorls. Last whorl with blunt to rather sharp angle at periphery. Color pale-greenish. Embryonic whorls smooth. Postnuclear sculpture of very fine radial striation; spiral sculpture very fine or missing. Aperture widely semilunate. Umbilicus narrow. Height 0.75, diam. 1.50-1.75 mm.

DISTRIBUTION. Lord Howe Island. 2 spp.

Insullaoma Iredale, 1937
Fig. 1361

Iredale, 1937b: 19 (*Paralaoma* subg.). Kershaw, 1976: 51.

TYPE SPECIES — *Paralaoma (Insullaoma) riddlei* Iredale, 1937; OD.

Shell depressed-conic, thin, translucent, shining, of about 4 convex whorls. Last whorl near aperture flatly depressed, almost furrowed, abruptly curving at periphery so as to appear "sub-keeled". Color pale brown-corneous. Embryonic sculpture of variously developed spiral, somewhat irregular lirae. Postapical whorls clearly reticulate, with radial lirae at intervals slightly bolder, by 2nd postapical whorl lirae appear to dominate due to much greater regularity in appearance. Last whorl with radial elements clearly dominating, even though slightly irregular, distinctly beaded by spiral lirae, slightly diagonal. Aperture roundly lunate, columellar margin slightly reflexed; palatal margin slightly curved inward. Umbilicus open, funnel-like. Height 0.60-1.25, diam. 1.25-2.00 mm.

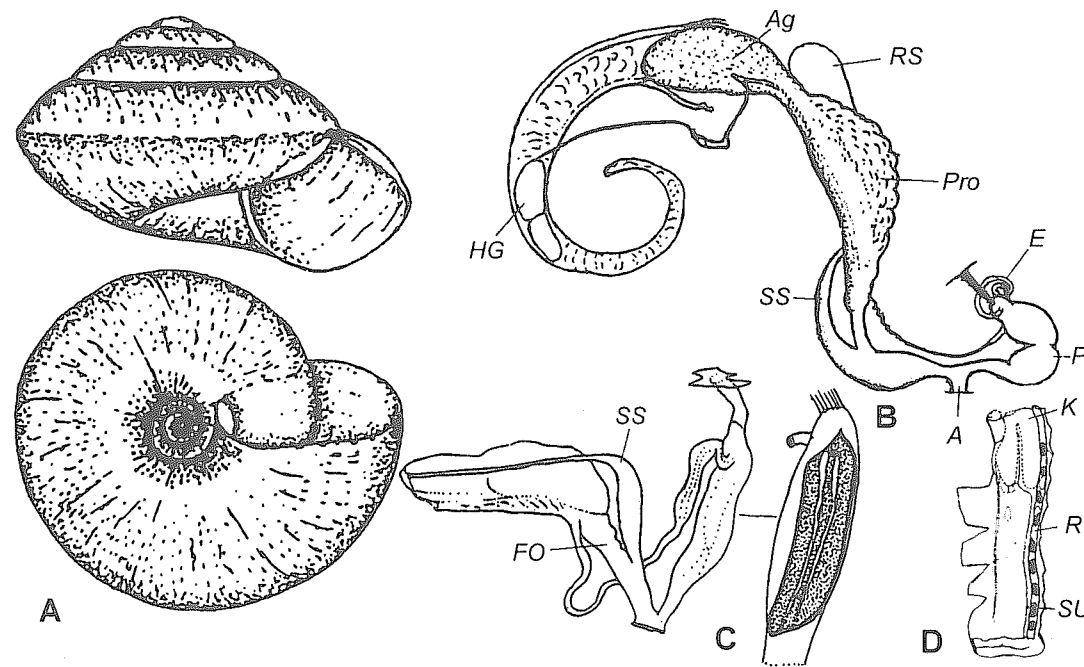


Fig. 1362. *Kokikora angulata* Climo et Goulstone, 1994.
A — shell. B — reproductive tract. C — distal part of reproductive tract and interior of penis. D — roof of lung cavity. After Climo & Goulstone, 1994. R — rectum.

DISTRIBUTION. S Australia, New Zealand (South Island). 3 spp.

Kokikora Climo et Goulstone, 1994
Fig. 1362

Climo & Goulstone, 1994: 205.

TYPE SPECIES — *Kokikora angulata* Climo et Goulstone, 1994; OD.

Shell (depressed) turbinate, thin, sub-transparent, of 4.5 moderately convex whorls. Last whorl with light or distinct, but not sharp peripheral angle. Color brownish or greenish-brown (juvenile shells often white). Embryonic whorls (1.25) mostly smooth or with faint spiral striae. Later whorls either smooth or having some radial wrinkles; very delicate spiral striae also may be present. Aperture ovate-angulated, slightly oblique. Umbilicus moderately wide. Diam. 1.4-2.4 mm.

Kidney bilobed, pericardial and rectal arms nearly equal in length.

Ovotestis of 2 oblong clumps of acini. Hermaphroditic duct long. Talon, an extre-

mely fine tube with a short swollen section near albumen gland. Vas deferens entering epiphallus apically. Epiphallus joins penis laterally through a simple pore. Penis internally with 2 longitudinal pilasters. Free oviduct rather short, vagina of about same length. Base of spermathecal stalk notably enlarged, reservoir pear-shaped, attending base of albumen gland.

DISTRIBUTION. New Zealand. 2 spp.

Laomarex Powell, 1948
Fig. 1363

Powell, 1948: 279.

TYPE SPECIES — *Laomarex sericea* Powell, 1948; OD.

Shell depressed, somewhat lenticular, thin, of 4-5 moderately convex whorls. Color (light) corneous. Embryonic whorls with distinct spiral threadlets. On later whorls these threadlets retained, and dense radial leathery riblets added; there are delicate short bristles at points of intersection of elements of radial and spiral sculpture

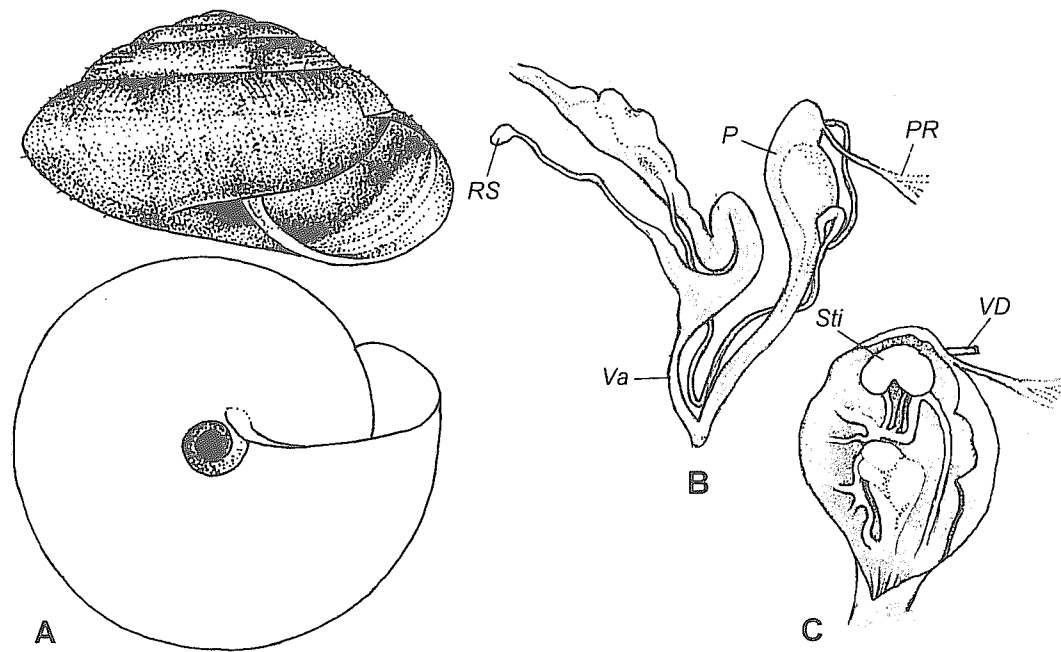


Fig. 1363. A — *Laomarex sericea* Powell, 1948. Shell: South West Id., Three Kings Ids., New Zealand. Phil. No. 232246. B, C — ! *Laomarex regia* (Gardner, 1968). B — reproductive tract. C — interior of penis. After Climo, 1973.

elements. Aperture broadly semilunate, a little oblique, with simple margins; columellar margin oblique, slightly reflexed. Umbilicus deep, (rather) narrow. Height 1.0-2.2, diam. 2.5-5.5 mm (1.5 × 2.6 mm).

Vas deferens long, slender, entering penis subapically. Penis long, subcylindrical or clavate, internally with branched folds and rounded stimulator at pore of vas deferens. Penial retractor attached to penis apically or at entrance of vas deferens. Free oviduct very long. Distal female section with pronounced thickening at bifurcation of oviduct and spermathecal stalk. Reservoir of spermatheca small.

DISTRIBUTION. New Zealand (Three Kings Islands and Cape Maria van Diemen - Spirits Bay area). 3 spp.

Hydrophrea Climo, 1974
Fig. 1364

Climo, 1974: 270. Powell, 1979: 331.

TYPE SPECIES — *Laoma* (*Phrixgnathus*) *academia* Climo, 1970; OD.

Shell subdiscoidal, thin, glass-like, glossy, of 3.25-3.5 tightly coiled, convex whorls. Last whorl rounded. Shell colorless; animal

nonpigmented. Embryonic whorls smooth. Regular sculpture on postapical whorls practically absent, there are only faint, arcuate radial wrinklets. Aperture lunate subcircular, with simple margins. Umbilicus rather widely open. Diam. 1.5-2.0 mm.

Pigmented eyes absent, though organs without pigment present in position of normally pigmented eyes.

Vas deferens very tightly bound to vagina, free from penis, convoluted before entering penis at some distance from apex. Epiphallus absent. Penis subcylindrical, long. Penial retractor attached to penis apically. Spermatheca missing.

DISTRIBUTION. New Zealand (South Island). 1 sp. This is the only known aquatic member of Stylommatophora: found in subterranean water, in wells in and around Nelson City.

Taguahelix Powell, 1955
Fig. 1365

Powell, 1955: 125 (*Phrixgnathus* subg.).

TYPE SPECIES — *Thermia expeditionis* Su-

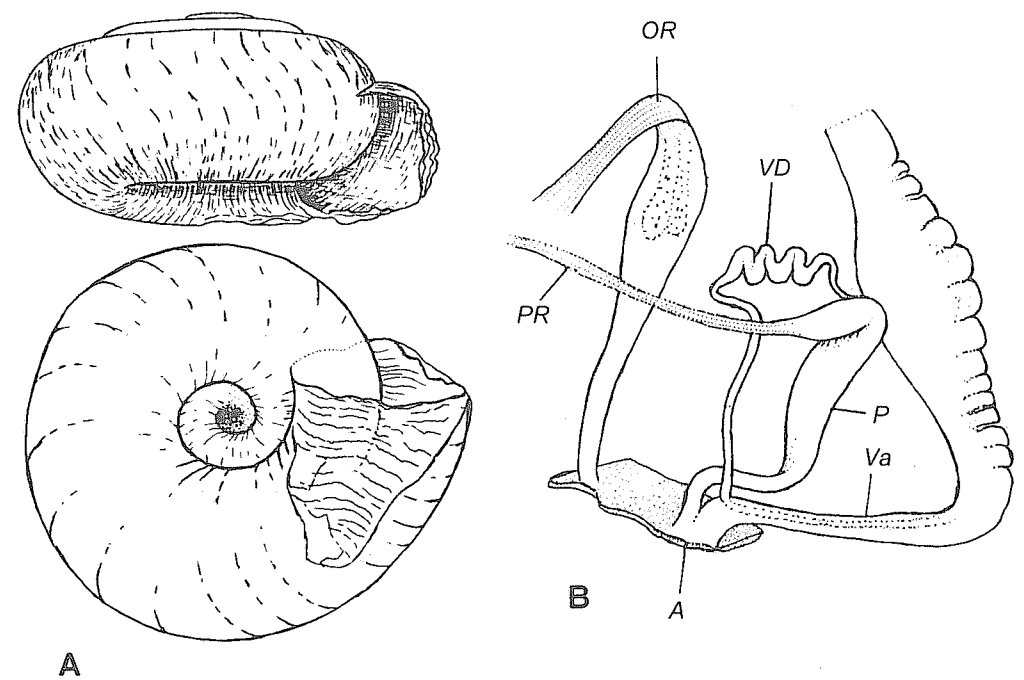


Fig. 1364. *Hydrophrea academia* (Climo, 1970). A — shell. After Climo, 1970. B — reproductive tract. After Climo, 1974.

ter, 1909 (= *Helix campbellica* Filhol, 1880); OD.

Shell depressed-helicoid or depressed-turbinate, thin, very fragile, translucent, of 4.5-5 convex whorls. Last whorl widely rounded at periphery. Color uniformly corneous or olive-brown [exception: *T. subantarctica* (Suter, 1909) has radial colored streaks]. Embryonic whorls spirally lirate, next whorls with numerous, sharp but thin radial riblets and distinct subsidiary spiral threadlets. Aperture rounded, only slightly oblique, with simple, fragile margins. Umbilicus narrowly open. Height 1.25-2.90, diam. 2.1-4.0 mm (2.12 × 2.84 mm).

DISTRIBUTION. New Zealand (Antipodes, Auckland Islands, Campbell Island). 5 spp.

Obanella Dell, 1952
Fig. 1366

Dell, 1952: 88. Powell, 1979: 332.

TYPE SPECIES — *Egestula spectabilis* Powell, 1928; OD.

Shell lenticular, flattened or almost flat on top, thin, of 4-5 quite convex whorls.

Last whorl more or less sharply angled at periphery. Color uniformly golden-brown. Embryonic whorls spirally striated. Later whorls with lamellose radial ribs, produced into broad periostracal blades at periphery. Aperture broad, lunate, palatal margin angulated. Umbilicus moderately wide. Height 0.7-1.2, diam. 1.50-1.77 mm.

DISTRIBUTION. New Zealand. 3 spp.

Laoma J. Gray, 1850
Fig. 1367

Gray J., 1850: 167 (? *Bulimus* subg.). Powell, 1979: 324.

TYPE SPECIES — *Bulimus* ? (*Laoma*) *leimonias* Gray, 1850; monotypy.

Shell turbinate to high dome-shaped, thin, very shining, subtransparent, of 4-8 much flattened whorls. Last whorl more or less angulated at periphery. Color pale-corneous, with reddish, diffuse, zigzag flammulations. Embryonic whorls smooth, polished. Postnuclear whorls nearly so, only with incidental, very delicate, irregular radial wrinklets. Aperture rather narrow, rounded-rectangular, subvertical, with sim-

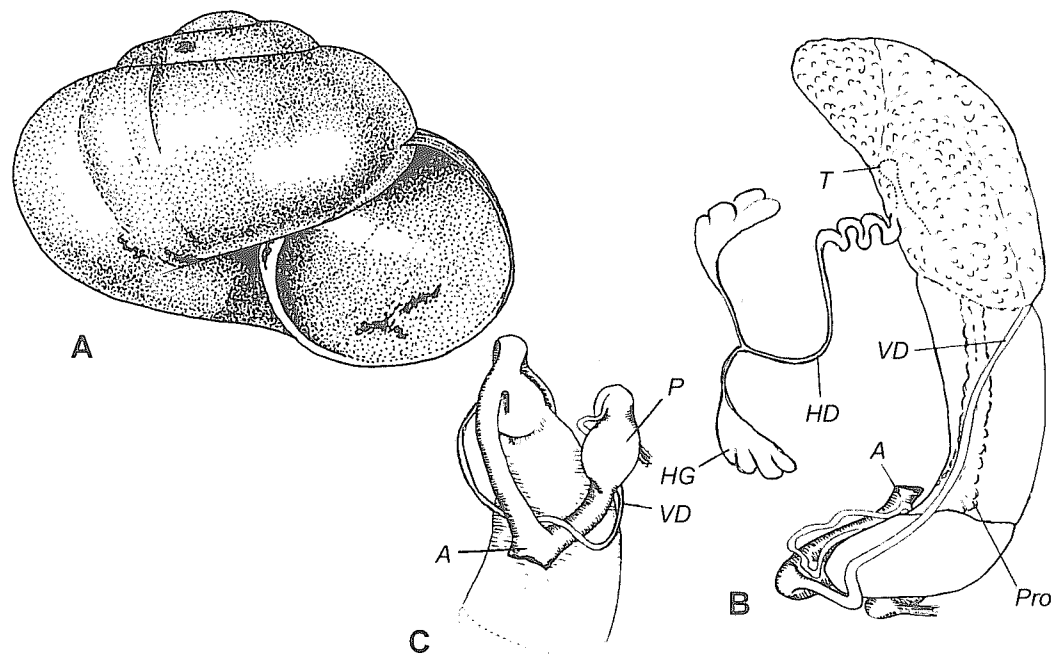


Fig. 1365. A — *Taguahelix campbellica* (Filhol, 1880). Shell: Musgrave Peninsula, Carmley Harbor, Auckland Island. Phil. No. 232227. B, C — ! *Taguahelix subantarctica* (Suter, 1909). B — reproductive tract. C — distal part of genitalia from other side. After Climo, 1969.

ple margins. Parietal wall smooth or with long, deeply entering lamella. Columellar margin toothless or with 1 nodulose tooth. Basal side with several lamellar plicae, distalmost (from columella) being longest and strongest; rest plicae filiform. Palatal wall with 1 plica entering for 1.5-2 whorls. Umbilicus dot-like. Height 1.50-3.25, diam. 1.5-4.0 mm (2.2 x 1.6 mm).

Hermaphroditic gland of 1 clump of a few elongated acini. Talon burrowed in albumen gland. Vas deferens long, with variously developed fusiform swelling in distal section, entering very short epiphallus through a simple pore. Internally epiphallus with 2 axial folds. Penis long, internally with a pair of smoothed pilasters that fused distally; besides, there is a short ridge-like stimulator, posterior end of which located between anterior ends of epiphallic folds; distal portion with weak, irregular axial folds. Penial retractor inserts on epiphallus apically. Free oviduct much longer than vagina. Spermathecal stalk more or less expanded basally, reservoir (nearly) reaching albumen gland.

DISTRIBUTION. New Zealand. 8 spp.

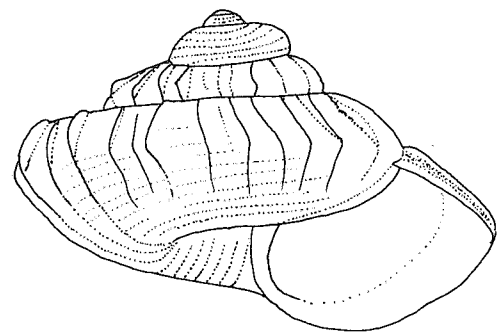


Fig. 1366. ! *Obanella rimutaka* Dell, 1952. After Dell, 1952.

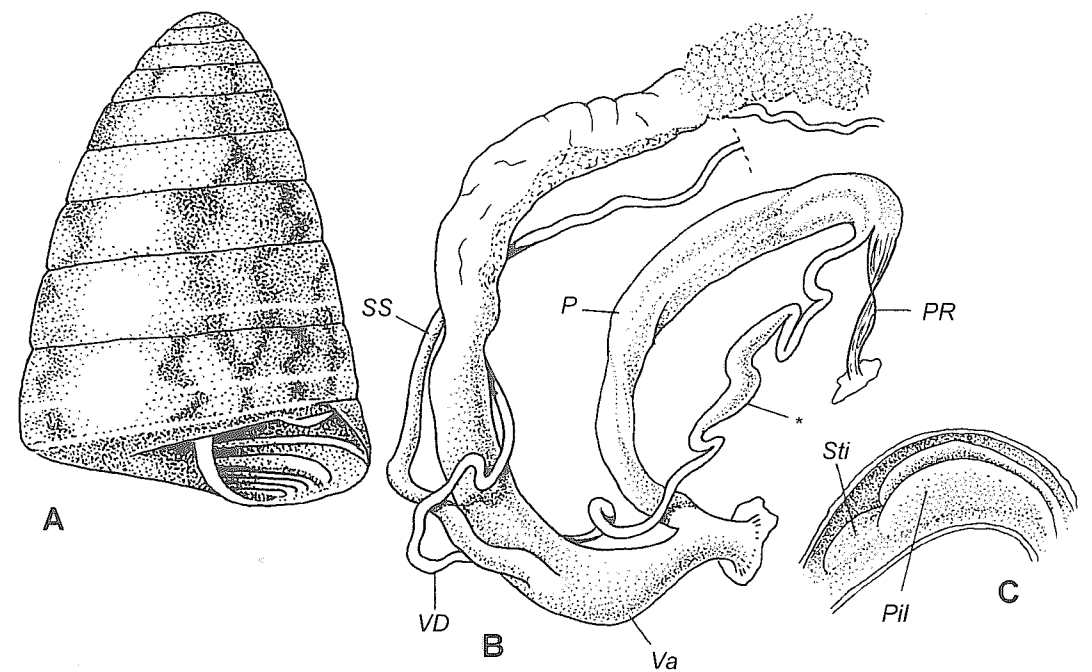


Fig. 1367. *Laoma leimonias* (Gray, 1850). A — shell: Port Fitzroy, New Zealand. Paris. B, C — Herekino Gorge, Kaitaia, Northland, New Zealand, November 1962. B — reproductive tract. C — interior of proximal end of penis. Chicago No. 135401. Asterisk — fusiform swelling of vas deferens.

? *Lutilodix* Iredale, 1945
Fig. 1368

Iredale, 1945: 63. B. Smith, 1992: 236.

TYPE SPECIES — *Medyla imitatrix* Sykes, 1900; OD.

Shell high dome-shaped, thin, of 4-5 flattened whorls. Last whorl sharply angulated at periphery. Base flat, almost concave. Color corneous, with darker radial flammulations. Embryonic whorls radially striated. Postnuclear whorls with strong, slanting ribs. When living, shell covered with soil particles; when gently cleaned mud seen to be held by bristles which grow on ribs. Aperture subquadrangular, with simple margins; columellar margin smooth, sloping. Umbilicus closed. Height 5.5, diam. 5.0 mm.

DISTRIBUTION. Norfolk Island. 1 sp.

REMARK. Systematic position of this strange monotypical genus is unclear. Iredale (1945) placed it in his Fanulidae (i. e. in Euconulidae) despite its endodontoid sculpture, coloration and shell shape not characteristic for Euconulidae. I tentatively

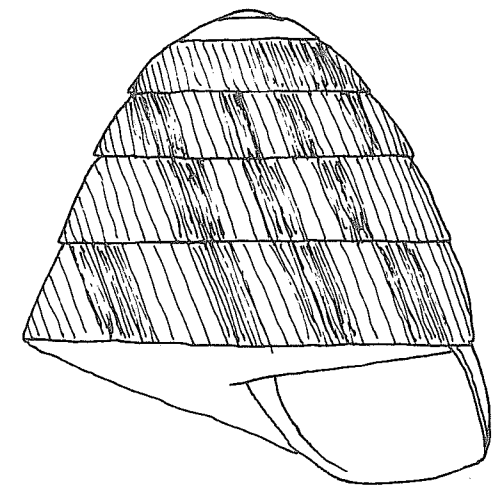


Fig. 1368. *Lutilodix imitatrix* (Sykes, 1900). After Sykes, 1900.

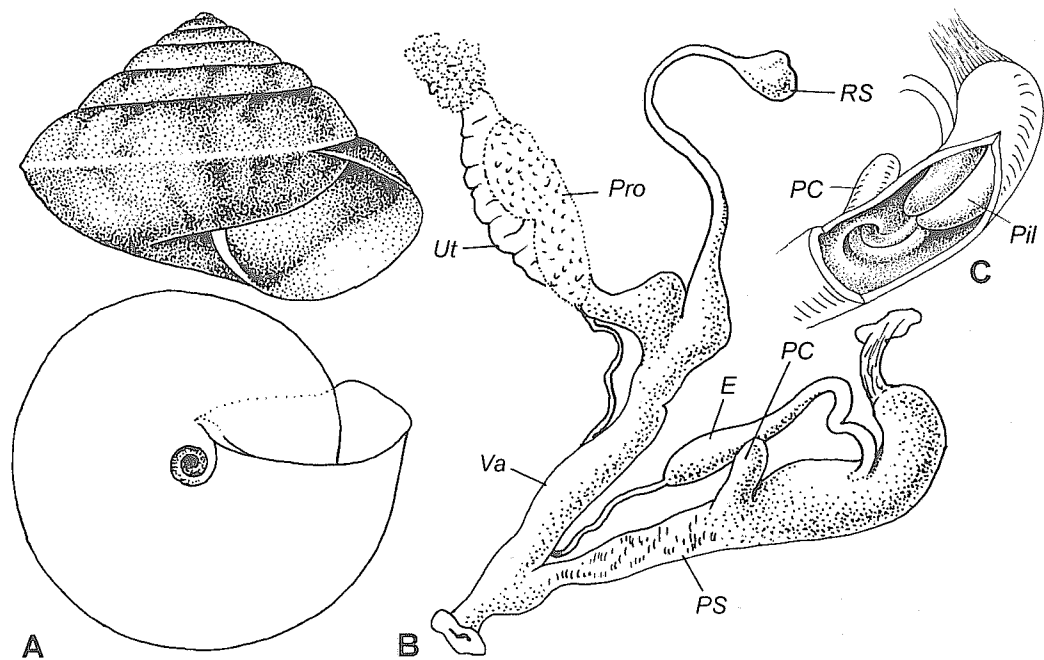


Fig. 1369. A — *Phryxgnathus celia* Hutton, 1883. Shell: Stewart Island, New Zealand. Phil. No. 227947. B, C — ! *Phryxgnathus erigone* (Gray, 1850). B — reproductive tract. C — interior of penis. Waitakere Range, Auckland, North Island, New Zealand, April 19, 1963. Chicago No. 135477.

refer *Lutilodix* to Punctidae, next to *Laoma*, although it is quite possible that this genus is related to New Zealand genera *Aeschrodomus* and *Pulchridomus* (Charopidae) (see pp. 987-989).

Phryxgnathus Hutton, 1883 Fig. 1369

Hutton, 1883: 136. Powell, 1979: 325.

TYPE SPECIES — *Helix fatua* Hutton, 1882 (non *Helix fatua* Pfeiffer, 1857 = *Phryxgnathus celia* Hutton, 1883); SD Pilsbry, 1893.

Shell turbinate or conic, thin, translucent, shining, of 4.5-6 moderately convex whorls; last whorl with more or less prominent angle or keel. Color brown- to light-corneous, often with darker streaks or flammulations. Embryonic whorls smooth. Later whorls with fine but distinct sculpture of regular equal radial and spiral engraved lines. Aperture moderately oblique, ovate, angulated, lacking armature, with thin, simple margins; columellar margin shortly reflexed. Umbilicus narrowly open, deep.

Height 0.8-2.3, diam. 1.5-3.5 mm (2.2 × 3.5 mm).

Jaw papillate, imbricately vertically folded.

Talon not located. Spermooviduct short, prostate elongated, compact. Vas deferens entering epiphallus apically. Epiphallus clavate, muscular, entering penis laterally well below its end, leaving stout, blunt flagellum. Penis large, furnished with a conic-cylindrical caecum situated on middle of the organ. Basal part of penis covered with thin, tightly bound muscular sheath. Proximal section of penis internally with 2 parallel folds between which epiphallic pore opens and which run into lumen of caecum; 2 short, fleshy pilasters with free ends, forming a sort of valve, hang over mentioned folds. Penial retractor attached to flagellum apically. Free oviduct rather short, vagina considerably longer. Basal part of spermathecal shaft swollen, reservoir reaching albumen gland.

DISTRIBUTION. New Zealand, SE Australia, Tasmania, ? New Guinea. About 50 spp. & suspp.

? *Christianoconcha* Iredale, 1945

Iredale, 1945: 55.

TYPE SPECIES — *Christianoconcha quintali* Iredale, 1945; OD.

Shell turbinate, of 4.5 convex whorls. Last whorl with subperipheral keel. Color pale-fawn. Embryonic whorls (1.5) smooth. Postapical sculpture of close-set radial riblets, interstices striated. Aperture a little quadrangular, parietal wall with 2 lamellae. Columellar margin straight. Umbilicus moderately wide. Height 1, diam. 1.75 mm.

DISTRIBUTION. Norfolk Island. 1 sp.

REMARK. I have not seen the shell of *Christianoconcha quintali* but, judging by original description, it may be distantly related to "toothed" Charopidae of Norfolk Island like *Norfolciococoncha* which also has 2 parietal lamellae.

a small thickening. Umbilicus widely to moderately open.

Foot with distinct pedal grooves, obtuse posteriorly.

Jaw arcuate or crescentic, of 13-19 rhombic, more or less overlapping plates, which loosely connected by a thin transparent membrane.

Kidney sigmurethral, U-shaped, rectal and pericardial arms of about equal length.

Hermaphroditic duct with swelling at short distance from carrefour. Talon minute, with globular head.

DISTRIBUTION. Holarctic, Mexico, S Africa, ? Hawaiian Islands.

Punctum (*Toltecia* Pilsbry, 1926) Fig. 1370

Pilsbry, 1926a: 78 (*Thysanophora* subg.).

TYPE SPECIES — *Thysanophora* (*Toltecia*) *jaliscoensis* Pilsbry, 1926; OD.

Shell turbinate, thin, glossy, of 4-4.25 convex, a little shouldered whorls. Color light-brown. Most of embryonic whorls smooth, rather widely spaced spiral cordlets appearing on last fourth of 1st whorl. Cordlets continuing on following whorl. Later whorls with rather coarse and finer radial wrinkles and indistinct riblets, and over all very fine engraved spiral lines. Aperture subcircular, moderately oblique, with simple margins; columellar margin reflexed. Umbilicus rather wide, somewhat excentric. Height 0.8-1.5, diam. 1.5-2.4 mm (1.52 × 2.25 mm).

Jaw polyplacognathous, of several (15 in figured jaw) loosely-attached squarish plates, which overlap from center out.

Kidney bilobed; pericardial and rectal arms of about same length. Secondary ureter incomplete only at distal end.

Ovotestis of 2 clumps of small acini. Distal swelling of hermaphroditic duct well expressed. Talon small, exposed, comma-shaped, with globular head. Prostate alveolar, band-like, extending full length of spermooviduct. Vas deferens free, entering penis apically at sharp angle. No distinct epiphallus (unless chamber of penis into which it opens be regarded as such). Penis subcylindrical, slightly swollen and shortly bifid apically, its inner surface with longitudinal folds, one of which increases separation of 2 apical chambers; entire structure sur-

PUNCTINAE Morse, 1864

Shell depressed to nearly flat; rarely turbinate. Postapical whorls initially radially ribbed, sometimes sculpture secondarily reduced. Aperture lacking prominent barriers.

Penis internally without special pilasters.

DISTRIBUTION. Holarctic, Mexico, S Africa, ? Hawaiian Islands.

Punctum Morse, 1864

Morse, 1864: 27.

— *Patulastra* L. Pfeiffer, 1878 (1878-1881): 87 (t.-sp. *Helix pygmaem* Draparnaud, 1801; SD Kobelt, 1880).

— "*Pullastra* Pfr." Westerlund, 1889: 6 (nom. err. pro *Patulastra* L. Pfeiffer, 1878).

TYPE SPECIES — *Helix minutissima* Lea, 1841; OD.

Shell depressed, with convex spire, thin, of about 4 convex whorls. Last whorl rounded at periphery. Color generally brown. Embryonic whorls rather distinctly demarcated from subsequent whorls, smooth or spirally striated. Postnuclear sculpture of obliquely radial striae with or without spaced riblets, and excessively minute spiral striae. Aperture lunate-rounded, with simple margins; columellar margin rarely with

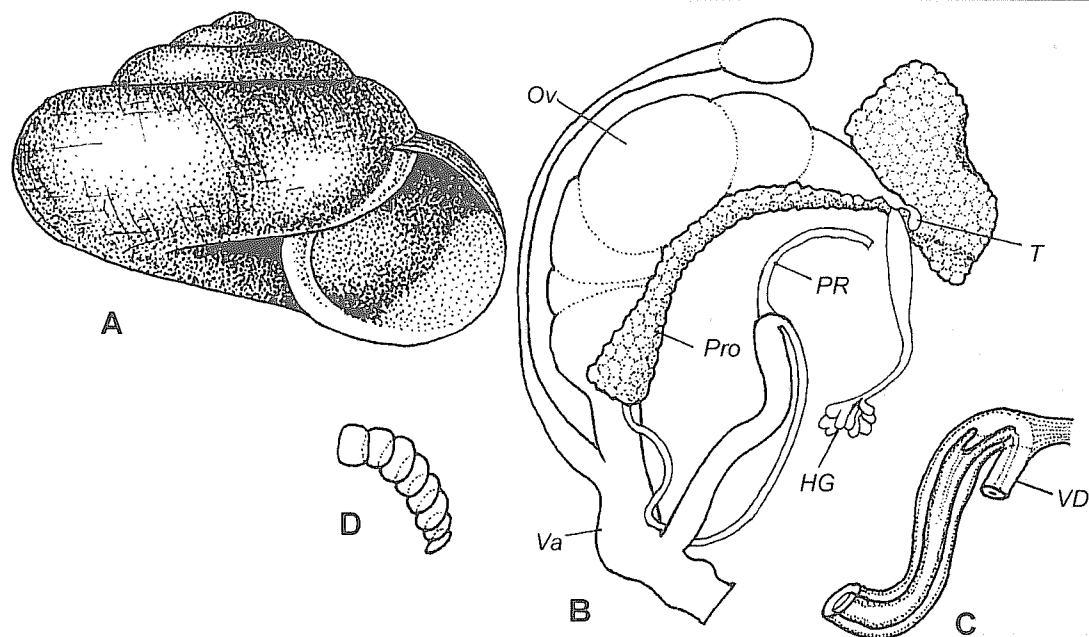


Fig. 1370. *Punctum (Toltecia) jaliscoensis* (Pilsbry, 1926).
A — shell: Jalisco, Guadalajara, Mexico. Holotype. Phil. No. 44927a. B — reproductive tract. C — interior of penis. D — fragment of jaw. After Baker, 1927.

rounded by a very thin sheath which also encloses end of vas deferens and entrance into longer of apical pockets of penis. Penial retractor arising from diaphragm, attached to apex of penial sheath and base of vas deferens. Uterus contains several relatively large eggs. Free oviduct and thick-walled vagina short, subequal in length. Spermathecal stalk rather long, slightly expanded basally; reservoir a little not attending albumen gland.

DISTRIBUTION. N America: Mexico to Alaska. 6-7 spp.

Punctum (Pseudopunctum)
Morrison, 1935)
Fig. 1371

Morrison, 1935: 545 (pro sect.).

TYPE SPECIES — *Punctum (Pseudopunctum) smithi* Morrison, 1935; OD.

Shell much depressed, translucent, silky glossy, of 4-4.25 convex whorls. Color yellowish. Embryonic whorls with fine spiral cordlets. Postapical whorls with reticulate sculpture arising because of crossing of spiral and crowded radial threadlets. Aperture

subcircular, only slightly oblique, with basal plica just within aperture; this plica about 1/4 height of aperture, sloping gradually both toward and away from peristome. Height of holotype 0.62, diam. of holotype 1.15 mm (0.33 × 1.10 mm).

DISTRIBUTION. N America (Ohio, Tennessee, Alabama). 1 sp.

Punctum (Pleuropunctum)
Germain, 1929)
Fig. 1372

Germain, 1929: 47.

TYPE SPECIES — *Helix micropleuros* Paget, 1853 (= *Punctum pusillum* Lowe, 1831); OD.

Shell somewhat flattened, thin, silky glossy, of 3.5-4 rather convex whorls. Last whorl with extremely light, scarcely expressed, rounded angle at periphery. Color golden-brown or dark-corneous. Embryonic whorls vaguely microgranulated (almost smooth). Postnuclear whorls with very thin, widely spaced periostracal riblets and close-set, wavy spiral lines in interstices. Aperture generally ovate, slightly oblique, with roundly angulated palatal margin. Umbilicus mode-

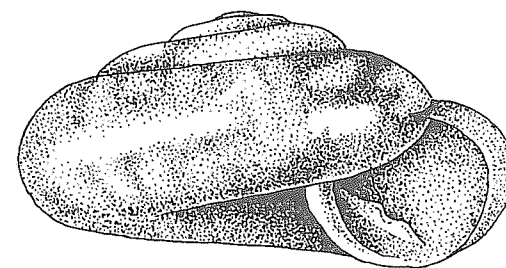


Fig. 1371. *Punctum (Pseudopunctum) smithi* Morrison, 1935.
8 miles E of Cleveland, Bradley Co., Tennessee. Phil. No. 356623.

rately wide, deep. Height 0.9-1.2, diam. 1.8-2.3 mm (1.11 × 2.21 mm).

DISTRIBUTION. Mediterranean countries, Caucasus, southern part of Russian Far East. 2-3 spp.

Punctum (Punctum s. str.)
Fig. 1373

Shell depressed-conic, thin, silky glossy, translucent, of 3.5-4.5 (rather) convex whorls. Last whorl widely, evenly rounded at periphery. Embryonic sculpture of microscopic spiral striation. Postapical whorls with close-set to moderately spaced, fine radial riblets and spiral striation in intervals. Aperture roundly lunate, slightly to moderately oblique; columellar margin shortly reflexed, rarely with a small thickening. Umbilicus wide. Height 0.60-1.25, diam. 1-2 mm (0.68 × 1.15 mm).

Pericardial and rectal lobes of kidney nearly equal in length.

Distal swelling of hermaphroditic duct well developed. Talon with a short, slender stalk and tiny globular head. Carrefour swollen.

DISTRIBUTION. Holarctic, NE and S Africa, ? Hawaiian Island. At least 15 spp.

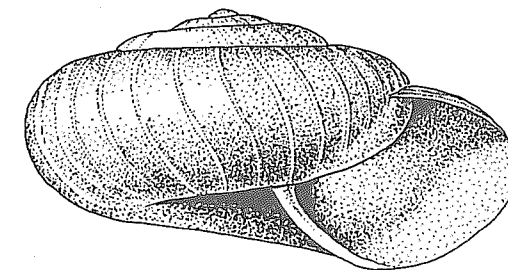


Fig. 1372. *Punctum (Pleuropunctum) pusillum* Lowe, 1831.
Lenkoran River Valley, at 20th km of Lenkoran-Lerik road, Talysh Mts., SE Transcaucasus. Moscow No. Lc-12773.

HELICODISCIDAE Pilsbry, 1927

Pilsbry in Baker, 1927: 226, 230.

Shell small, much depressed to flat. Embryonic whorls primarily with spiral threadlets or spirally arranged dots; rarely (secondarily) smooth. Postnuclear whorls with distinct spiral cords that rarely reduced. Aperture often with pairs of deep-set teeth or lamellae, sometimes toothless. Umbilicus very wide, shallow.

Eyes not developed.

Pedal and suprapedal grooves unite above tail, without forming a caudal horn or mucus foss.

Jaw of numerous, very narrow vertical plates.

Kidney rectangular or triangular, rectal lobe weak or missing. Secondary ureter open to completed.

Hermaphroditic gland of single clump, subcylindrical. Hermaphroditic duct not convoluted. Talon very long, vermiform. Prostate and uterus fused. Vas deferens entering distal part of male section apically or laterally. Epiphallus (very) short or absent. Inner surface of penis smooth or with a pair of stimulators. Verge small or absent. Penial

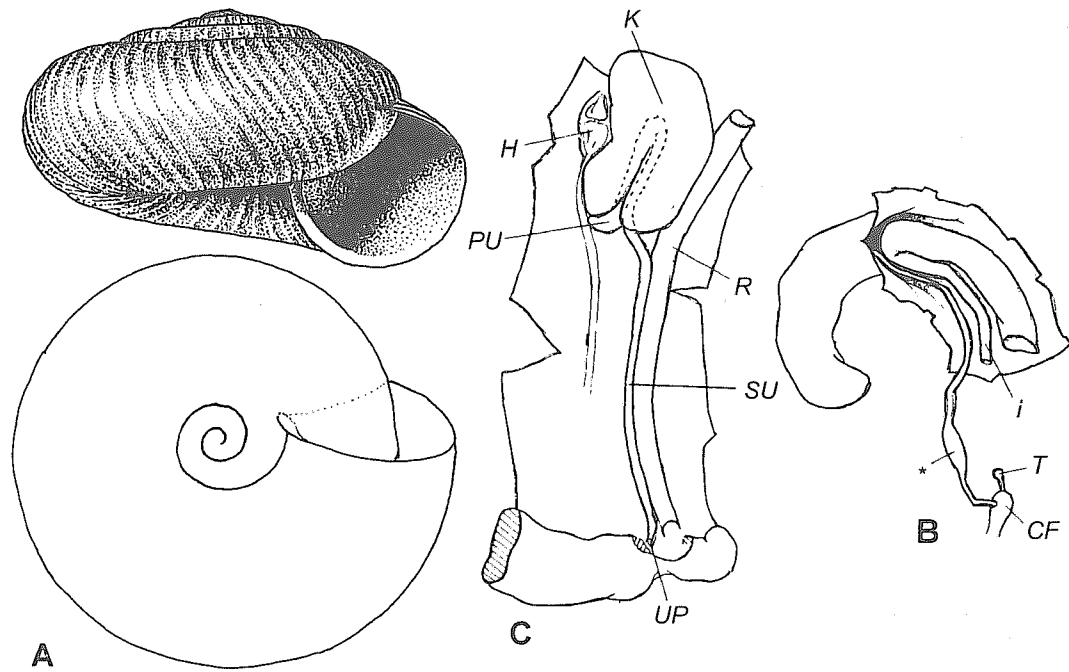


Fig. 1373. *Punctum (Punctum) minutissimum* (Lea, 1841).
A — shell: Beaver Co., Pennsylvania. Phil. No. 46182. B — part of apical part of reproductive tract. C — roof of lung cavity. After Solem, 1982. H — heart. I — intestine. R — rectum. UP — ureteric pore. Asterisk — swelling of hermaphroditic duct.

caecum may be present. Penial retractor arising from diaphragm, inserting on epiphallus or upper section of penis. Base of spermathecal stalk not enlarged.

DISTRIBUTION. West Indies, northern S America, Central America, N America to Canada; W Europe; Philippines, Indonesia, New Guinea, Solomon Islands, New Caledonia, N Australia.

STENOPYLINAЕ Thiele, 1931

Thiele, 1931b: 569 (Endodontidae subf.).

Aperture with a large parietal transverse (radial) lamella; behind it sometimes there is another lamella lying on the same line; on palatal wall similarly directed plica may be present.

Vas deferens entering penis laterally. There is a large penial caecum.

DISTRIBUTION. Philippines, Indonesia, New Guinea, Solomon Islands, New Caledonia, N Australia.

Stenopylis Fulton, 1914 Fig. 1374

Fulton, 1914: 163.

— *Coarctatio* Haas, 1945: 10 (t.-sp. *Plectopylis coarctata* Moellendorff, 1894; OD).

TYPE SPECIES — *Planispira hemiclausa* Tate, 1896 (= *Plectopylis coarctata* Moellendorff, 1894); OD.

Shell subdiscoidal, thin, glossy, of 3.5-4 convex whorls. Last whorl straight, evenly rounded at periphery. Colorless or pale-corneous. Embryonic whorls smooth. Later whorl with distinct, well spaced, spiral incised lines. Aperture semilunate, subvertical. Peristome expanded, thickened, rolled. Parietal margin free from penultimate whorl, extends outwards at nearly right angle to provide a large transverse lamella. Umbilicus very wide, shallow. Height 0.5-0.6, diam. 1.4-1.8 mm (0.5 x 1.6 mm).

Jaw of separate rectangular lamellae.

Kidney with curved lower end. Secondary ureter incomplete along all its length.

Ovotestis small, compact. Hermaphroditic duct slender. Vas deferens very long, en-

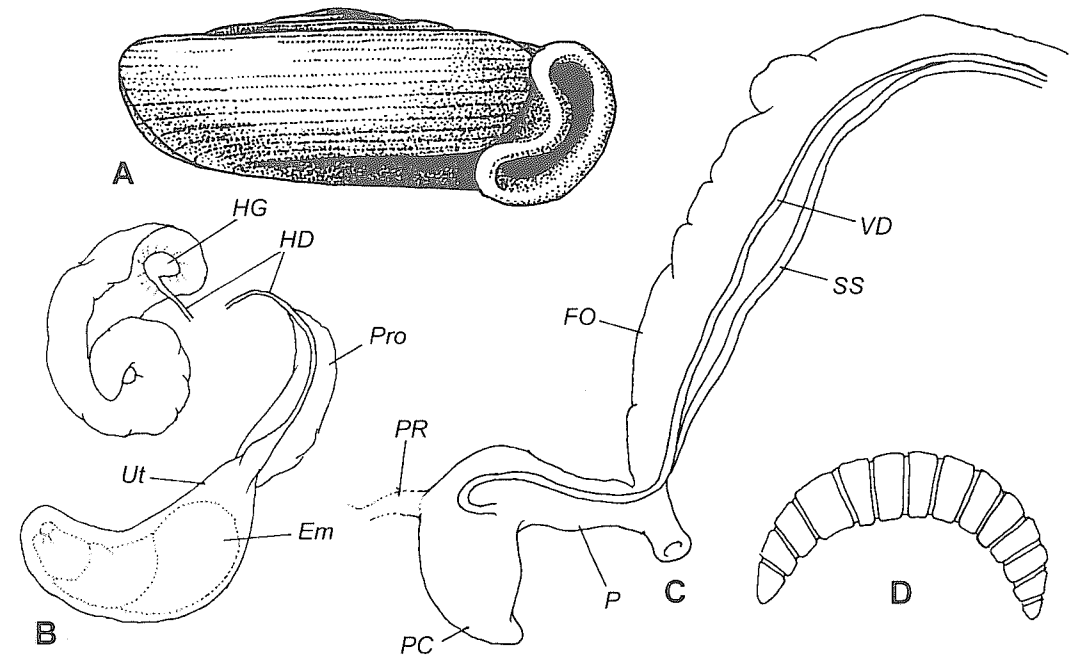


Fig. 1374. *Stenopylis coarctata* (Moellendorff, 1894).
A — shell: Panglao, near Bohol, Philippines. SPb. B — proximal parts of reproductive tract. C — distal parts of reproductive tract. After Solem, 1984. D — jaw. After Tate, 1896.

tering short penis laterally. Epiphallus missing. Penis with a large, capacious apical caecum. Penial retractor attached to penis not far from base of caecum. Uterus may contain a large embryo. Free oviduct very long. Vagina extremely short. Spermathecal stalk long, cylindrical.

DISTRIBUTION. Philippines, Indonesia, New Guinea, Solomon Islands, N Australia. 1 sp.

? *Microphyura* Ancey, 1882 Fig. 1375

Ancey, 1882: 87.

— *Microphiura* Moellendorff in Moellendorff & Kobelt, 1903 (1902-1905): 87 (nom. err. pro *Microphyura* Ancey, 1882).

TYPE SPECIES — *Helix microphis* Crosse, 1868; OD.

Shell flat, comparatively solid, glass-like, of 4-5 moderately convex whorls. Last whorl gently descending toward aperture. Colorless. Embryonic whorls smooth, later whorls with thin, smoothed, regular riblets

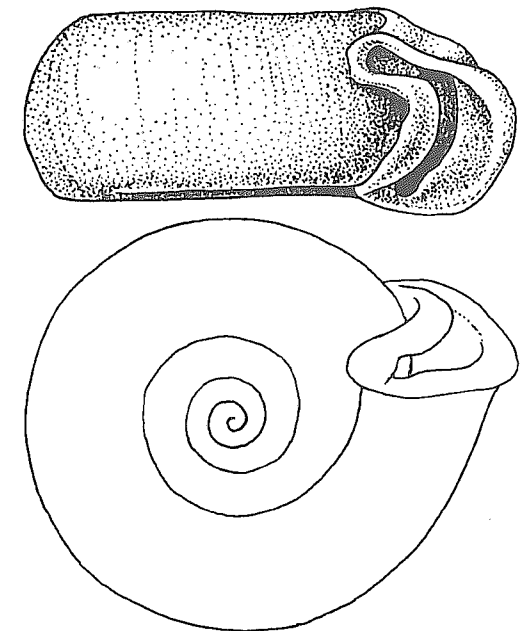


Fig. 1375. *Microphyura microphis* (Crosse, 1868).
New Caledonia. Chicago No. 73941.

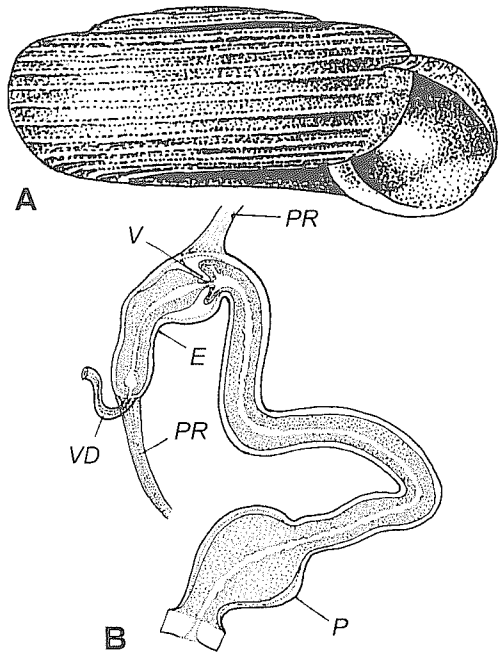


Fig. 1376. *Helicodiscus (Helicodiscus) parallelus* (Say, 1821).
A — shell: Northern Mexico. Vienna No. 1519. B — interior of penis and epiphallus. After Baker, 1927.

and exceptionally fine, well spaced spiral lines in intervals. Aperture semilunate, rather oblique, with reflexed margins. Parietal wall with radial lamella, behind it sometimes there is another lamella lying on the same line. Umbilicus wide. Height 0.5-1.1, diam. 1.75-3.30 mm (0.6 × 1.8 mm).

DISTRIBUTION. New Caledonia. 4-5 spp.

REMARK. I have not been able to find any data on the anatomy of *Microphyura* which is traditionally assigned to Rhytididae. At the same time the shell of *Microphyura* is quite similar to that of *Stenopylis*, including the presence of spiral striation. Therefore, I tentatively place *Microphyura* to Helicodiscidae, next to *Stenopylis*.

HELICODISCINAE Pilsbry, 1927

Aperture with paired deep-lying tubercular teeth that develop periodically during shell growth (except for toothless *Troglodiscus*); parietal lamella(e) absent.

Vas deferens entering epiphallus apically. Penis without caecum.

DISTRIBUTION. West Indies, northern S America, Central America, N America from E Mexico, Chihuahua and Arizona to Canada; W Europe.

Helicodiscus Morse, 1864

Morse, 1864: 25.

TYPE SPECIES — *Helix lineatus* Say, 1817 (non *Helix lineata* Olivi, 1792; = *Planorbis parallelus* Say, 1821); monotypy.

Shell depressed to flat, often glass-like. Last whorl straight. Color corneous, greenish, yellowish, whitish, or shell colorless. Embryonic whorls spirally striated or with spirally arranged dots, rarely smooth. Postapical sculpture with spiral striae. Aperture lunate, slightly oblique.

DISTRIBUTION. West Indies, northern S America, Central and N America; Europe.

Helicodiscus (Helicodiscus) s. str.

Fig. 1376

Shell much flattened, thin, translucent, of 5-6 very convex whorls. Last whorl evenly rounded at periphery. Color pale-brown to corneous. Embryonic and postem-

bryonic whorls with distinct spiral threads. Aperture rounded, subvertical, with simple, sharp margins. Umbilicus wide. Height 1.4-2.0, diam. 3.4-5.3 mm (1.7 × 4.2 mm).

Kidney small, subtriangular. Secondary ureter completed only in very short uppermost part.

Vas deferens entering epiphallus apically. Epiphallus short, with a slight knob at apex, markedly swollen near base. Penis elongated, slender, thick-walled; its distal end abruptly swollen. Internally penis with axial folds and low, rounded conic verge. Penial retractor arising from diaphragm, inserted on apex of intimate sheath which closely invests penis and epiphallus; another band of retractor attaches laterally near apex of penis.

DISTRIBUTION. West Indies, northern part of S America, Central and N America. 5-6 spp. & subspp.

Helicodiscus (Troglodiscus)

Hubricht, 1962)

Fig. 1377

Hubricht, 1962: 105.

TYPE SPECIES — *Helicodiscus barri* Hubricht, 1962; OD.

Shell depressed, thin, subtranslucent, of 4-4.5 rather convex whorls. Color greenish-yellow, or shell colorless. Embryonic whorls with delicate spiral threadlets. Later whorls with numerous, periostreal, fine spiral fringes. Aperture lunate, scarcely oblique, with simple margins. There are no internal teeth at any stage of growth. Umbilicus wide, shallow. Height 1.2-1.8, diam. 2.7-3.9 mm (1.8 × 3.2 mm).

DISTRIBUTION. N America (Tennessee, Kentucky, Alabama). 2 spp.

Helicodiscus (Pseudiscus)

Morrison, 1942)

Fig. 1378

Morrison, 1942: 379.

TYPE SPECIES — *Helicodiscus (Pseudiscus) punctatellus* Morrison, 1942; OD.

Shell much depressed, thin, of 4.5 convex whorls. Last whorl rounded at periphery. Color whitish. Embryonic whorls with dots arranged in spiral rows which continue,

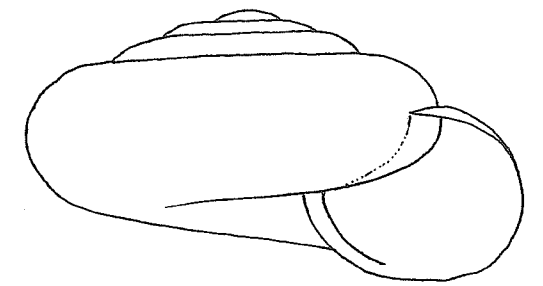


Fig. 1378. *Helicodiscus (Pseudiscus) punctatellus* Morrison, 1942. After Morrison, 1942.

slightly but gradually decreasing, over later whorls. Aperture lunate, oblique, somewhat sinuous. Umbilicus wide. Height 1.8, diam. 3.4 mm (holotype).

DISTRIBUTION. N America (Kentucky). 1 sp.

Helicodiscus (Hebetodiscus)

Baker, 1929)

Fig. 1379

Baker, 1929: 86.

TYPE SPECIES — *Helicodiscus (Hebetodiscus) singleyanus inermis* Baker, 1929; OD.

Shell depressed, thin, translucent, with a dull sheen, of about 4.5 convex whorls. Color yellowish-corneous to whitish. Embryonic whorls smooth. Later whorls with weak radial lines and weakly, microscopically punctate but without trace of spiral sculpture. Aperture rounded, a little oblique. Umbilicus moderately wide, quite perspective. Height 0.5-1.3, diam. 1.4-2.5 mm (1.24 × 2.21 mm).

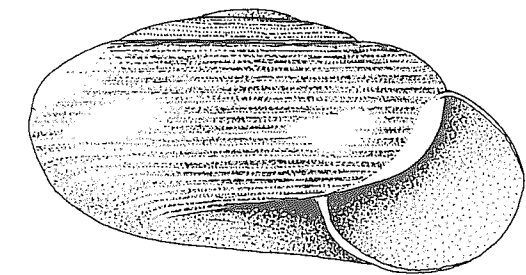


Fig. 1377. *Helicodiscus (Troglodiscus) barri* Hubricht, 1962. Columbia Caverns, 2 mi SW of Van Leer, Dickson Co., Tennessee. Paratype. Phil. No. 263017.

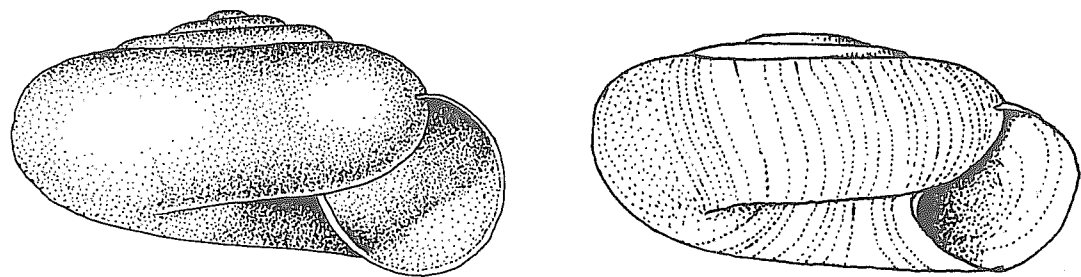


Fig. 1379. *Helicodiscus (Hebetodiscus) singleyanus inermis* Baker, 1929. Near base of limestone ledges, at Dove (Martin Spring), Marion Co., Tennessee. Holotype. Phil. No. 147186.

Fig. 1380. *Chanomphalus pilsbryi* (Baker, 1922). Tampico, Mexico. Phil. No. 93797.

Jaw quite heavy, of 15 oblong plates which slightly overlap from center out. DISTRIBUTION. N America, Europe (? introduced). 4 spp. & subspp.

Chanomphalus Strebel et Pfeffer, 1880
Fig. 1380

Strebel & Pfeffer, 1880: 19.

TYPE SPECIES — *Helix elegantula* L. Pfeiffer, 1867 (non Cristofori et Jan, 1832; = *Thysanophora pilsbryi* Baker, 1922); SD Baker, 1927.

Shell strongly flattened, translucent, of 3.25-4 convex whorls. Color pale-corneous. Embryonic whorls with extremely weak spiral striae (looking smooth). Later whorls with rather delicate, more or less regular radial riblets and microscopical oblique striae in interstices. Aperture subcircular, quite oblique, with thin margins. Umbilicus wide. Height 0.6-1.4, diam. 1.2-3.0 mm (0.73 × 1.42 mm).

Kidney irregularly triangular, with very

short rectal arm. Secondary ureter incomplete for 1/2 of its length.

Prostate long. Penis externally very similar to that of *Helicodiscus*, but relatively much larger. Penial retractor attached terminally.

DISTRIBUTION. Central America. 2-3 spp.

Polygyriscus Pilsbry, 1948
Fig. 1381

Pilsbry, 1948: 1097 (*Polygyra* subg.). Solem, 1975: 80.

TYPE SPECIES — *Polygyra virginiana* Burch, 1947; OD.

Shell discoidal, thin, translucent, of about 4 rather convex whorls. Last whorl descending in front. Color light-corneous. Embryonic whorls smooth. Subsequent whorls with few very distinct spiral threads, some of them have leathery fringes; surface between threads finely spirally striated. Aperture free, strongly deflected downward, entire, of irregular shape, with simple margins. Parietal wall with a small tubercle. There is a long palatal plica, to which a depression corresponds. Umbilicus very

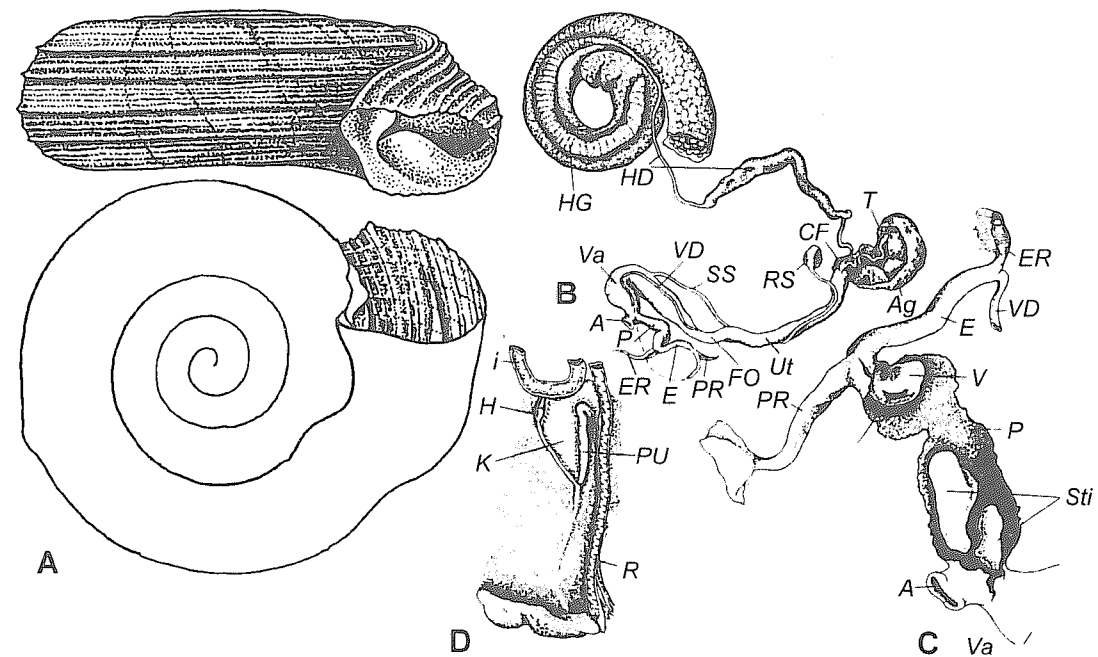


Fig. 1381. *Polygyriscus virginianus* (Burch, 1947). A — shell: Near quarry, opposite Radford, Pulaski Co., Virginia. Chicago No. 173234. B — reproductive tract. C — interior of penis. D — roof of lung cavity. After Solem, 1975. ER — epiphallallic retractor. H — heart. I — intestine.

broad, shallow. Height 1.2-1.5, diam. 3.6-4.4 mm (1.3 × 3.6 mm).

Kidney comprising rather massive pericardial and a weak rectal arms. Secondary ureter open.

Ovotestis long, unbranched, of many compact acini. Hermaphroditic duct not convoluted, swollen in middle. Talon very long, with only a slightly enlarged head. Vas deferens thin, entering short, narrow epiphallus terminally. Penis short, internally has an apical verge with subterminal pore and 2 high, irregular stimulators in lower two-thirds. Penial retractor originates from diaphragm, inserts on penis/epiphallus junction. There is an epiphallallic retractor. Free oviduct subequal in length to vagina which is markedly swollen. Spermathecal stalk slender, cylindrical; reservoir reaching albumen gland.

DISTRIBUTION. N America (Virginia). 1 sp.

Speleodiscoides A. Smith, 1957
Fig. 1382

Smith A., 1957: 33. Miller, 1972: 1.

TYPE SPECIES — *Speleodiscoides spirellum* A. Smith, 1957; OD.

Shell disk-shaped, thin, fragile, shining, translucent, of 6.25-7 convex whorls. Last whorl straight, with blunt, rounded angle below mid-line. Color of periostracum very pale corneous. Embryonic whorls (1.5) smooth, polished. Postapical sculpture of fine, closely spaced, radial riblets. Aperture subcircular, scarcely oblique, with simple margins; fresh shells with 2 pairs of internal palatal conic teeth, 1st pair located about 1/3 to 1/4 whorl behind aperture, 2nd about 1/2 whorl behind 1st; older shells often show no trace of any teeth, which apparently resorbed. Umbilicus very wide, shallow. Height 1.4-1.6, diam. 5.3-7.4 mm (1.6 × 5.3 mm).

Animal apparently blind.

Jaw closely plaited; plates appearing in some places as mere striae.

Kidney sigmurethrous, rectangular. Secondary ureter completed.

Hermaphroditic gland elongated, unbranched, of approximately 10-15 thin, cylindrical tubules. Hermaphroditic gland thin, only slightly convoluted in distal part. Talon enormously long, with tiny globular

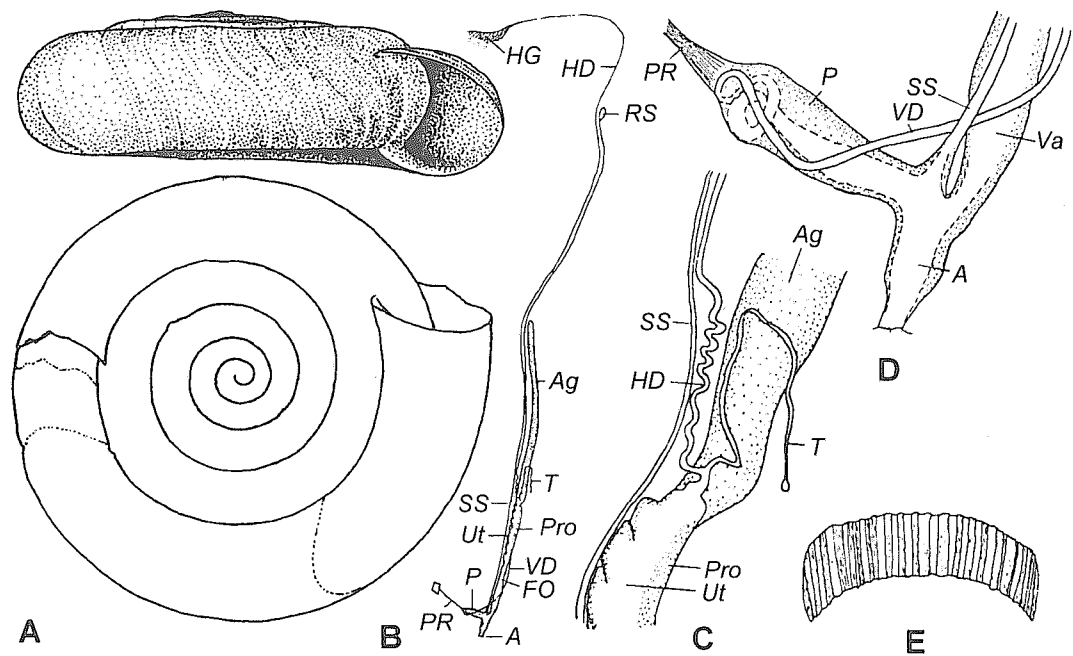


Fig. 1382. *Speleodiscoides spirellum* A. Smith, 1957.

A — shell: S of Coloma, El Dorado Co., California. Moscow No. Lc-25353 (StB No. 75130). B — reproductive tract. C — talon-carrefour complex. D — interior of distal genitalia. E — jaw. After Miller, 1972.

head. Vas deferens cylindrical, entering penis apically, coiled in 1-2 loops and surrounded by thin sheath. Epiphallus absent. Penis very small. Penial retractor arising from diaphragm very close behind mantle collar, attaching penis apically. Free oviduct rather long. Vagina absent as stalk of spermatheca opens into atrium. Spermathecal stalk unusually long, reservoir located well posterior of albumen gland.

DISTRIBUTION. N America (N California, in caves). 1 sp.

DISCIDAE Thiele, 1931

Thiele, 1931b: 578 (Endodontidae subf.).

— Patulinae Tryon, 1866: 243 (based on *Patula* Held, 1837, which is a junior synonym of *Discus* Fitzinger, 1833).

— Goniodyscinae Wagner, 1927: 305 [nom. nud.; based on *Goniodiscus* (= *Gonyodiscus*), a synonym of *Discus* Fitzinger, 1833].

— Anguispiridae MacMillan, 1955: 397 (nom. nud.).

Shell medium sized to rather large, never reduced. Embryonic sculpture of radial riblets. Postnuclear whorls radially ribbed; ribs composed of non-periostracal elements. Aperture without armature or (rarely) with 2-3 pairs of small palatal plicae. Umbilicus moderately to widely open.

Eyes well developed.

Pedal and suprapedal grooves unite above tail, without forming a caudal horn or distinct mucus foss.

Jaw entire, vertically striated.

Kidney subtriangular, lacking rectal lobe. Secondary ureter completed.

Hermaphroditic gland of several clumps of tightly packed acini. Hermaphroditic duct convoluted, entering laterally into carrefour. Talon exposed, sometimes heavily pigmented. Prostate and uterus fused. Vas deferens slender, entering a variously developed epiphallus through a simple pore; at epiphallic pore a small stimulator may be present. Penial retractor arising from diaphragm, usually rather long, inserting on penis/epiphallus junction. Interior of lower female tract with axial folds. Base of spermathecal stalk thin or somewhat swollen, reservoir reaching albumen gland.

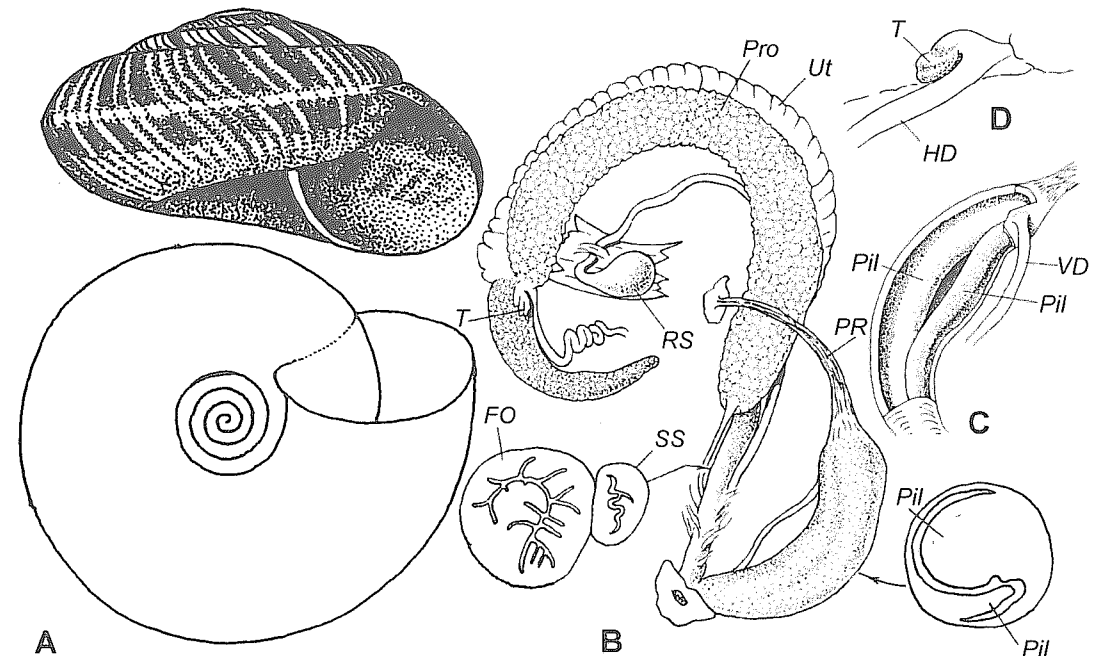


Fig. 1383. *Anguispira (Anguispira) alternata* (Say, 1816).

Wet forest near Parker Mill, Washtenaw Co., Michigan, August 20, 1970. A — shell. B — reproductive tract. C — interior of penis. D — talon. Moscow No. Lc-25343 (dry shell and alcohol material).

DISTRIBUTION. Most of Northern Hemisphere.

Anguispira Morse, 1864

Morse, 1864: 11.

TYPE SPECIES — *Helix alternata* Say, 1816; monotypy.

Shell moderately to strongly depressed, rather thin, of 4.5-6 convex to flattened whorls. Last whorl straight, at periphery rounded to keeled. Coloration of yellow to corneous background and often reddish-brown flames above and often with radial streaks on base; rarely monochromatic. Embryonic whorls smooth. Later whorls with variously developed curved rib-like radial striae; on base striae usually weaker. Aperture rounded to lunate. Umbilicus more or less wide.

Ovotestis of numerous groups of acini. Talon exposed, its head globular or consisting of 3 lobes. Vas deferens enters upper part of penis laterally. Epiphallus absent. Penis rather large, bulky, internally with 2 unequal axial pilasters occupying most of lu-

men; one pilaster very strong, fleshy, the other — high, somewhat laminar. Sometimes 3rd additional pilaster may be present. Penial retractor arising from columellar muscle, attached to vas deferens/penis junction. Free oviduct and vagina usually not long, subequal in length. Base of spermathecal stalk narrow or swollen; reservoir oblong to subglobular, attending albumen gland, fastened to bottom of lung cavity by thin, transparent band.

DISTRIBUTION. N America.

Anguispira (Anguispira s. str.)

Fig. 1383

Shell generally much depressed. Last whorl more or less distinctly peripherally angled. Angle light, above and below it there are 2 variously developed, corneous to reddish bands that frequently broken into spots. Height 5.3-14.5, diam. 9.8-25.0 mm (8.9 × 15.0 mm).

Talon consists of 3 lobes. Vas deferens evenly slender. Upper section of penis lacking caecum or stimulator. Inner surface of

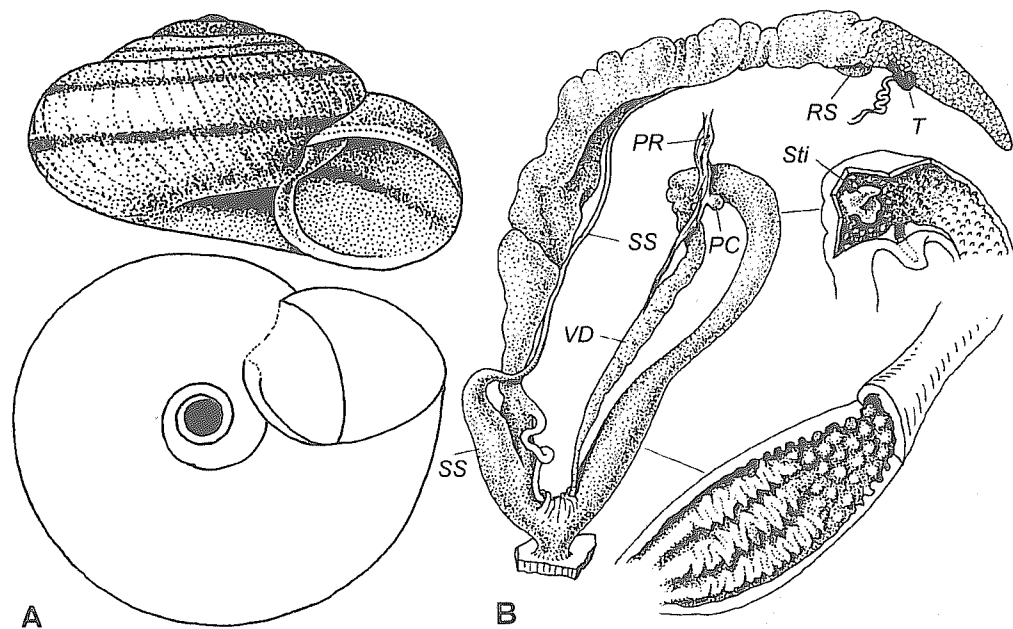


Fig. 1384. *Anguispira (Zonodiscus) kochi kochi* (L. Pfeiffer, 1845). Weeping Point, Zion Canyon [Utah]. A — shell. B — reproductive tract and interior of penis. Moscow No. Lc-20459 (dry shell), Lc-20442 (alcohol) (gift of C. Frank).

penis without tubercles. Base of spermathecal stalk not swollen.

DISTRIBUTION. N America. 17 spp. & subspp.

Anguispira (Zonodiscus) Pilsbry, 1948
Fig. 1384

Pilsbry, 1948: 591.

TYPE SPECIES — *Helix kochi* L. Pfeiffer, 1845; OD.

Shell subglobular. Last whorl evenly rounded at periphery. There are 2 bands: one at periphery, the other in middle of upper surface; bands sometimes missing, or they may be not visible in general darkening of whole surface. Height 10-22, diam. 19-31 mm (11.3 × 19.6 mm).

Talon globular. Distal part of vas deferens more or less expanded. Upper section of penis with a minute, subglobular caecum. Opposite to caecum internally there is a small stimulator of 2 lobes. Inner surface of penis with numerous minute papillae which became larger toward atrium. Distal part of penis internally with a few corrugated pilasters. Base of spermathecal stalk markedly swollen.

DISTRIBUTION. N America. 1 sp. with 4 subspp.

Discus Fitzinger, 1833

Fitzinger, 1833: 99.

— *Gonyodiscus* Fitzinger, 1833: 98 (t.-sp. *Helix perspectiva* Mühlfeld, 1818; monotypy).

— *Patula* Held, 1837: 918 (t.-sp. *Helix rotundata* Müller, 1774; SD Herrmannsen, 1847).

— *Delomphalus* Charpentier, 1837: 12 (*Helix* subg.; t.-sp. *Helix rotundata* Müller, 1774; SD Lindholm, 1927).

— *Eryyomphala* Beck, 1837: 8 (*Helix* subg.; t.-sp. *Helix rotundata* Müller, 1774; SD Herrmannsen, 1846).

— *Euryomphala* Herrmannsen, 1846: 436 (nom. nov. pro *Eryyomphala* Beck, 1837).

— *Patularia* Clessin, 1876: 86 [nom. praeocc., non Swainson, 1840 (*Bivalvia*); "*Patula* Untergruppe"; t.-sp. not designated].

— *Allerya* Bourguignat, 1878: 1 (nom. praeocc., non Mörch, 1877; embryonic shells of *Helix rotundata* Müller, 1774).

— ? *Iulus* Wollaston, 1878: 80 [nom. praeocc., non Linnaeus, 1758 (*Diplopoda*); in syn. of *Patula* Held, 1837; t.-sp. *Patula garachicoensis* Wollaston, 1878; OD].

— *Gonyodiscus* "Beck" Kobelt, 1880: 231 (t.-sp. *Patula solaria* Menke, 1830; OD).

— *Keraea* Gude, 1911: 271 (nom. nov. pro *Iulus* Wollaston, 1878).

TYPE SPECIES — *Helix ruderata* Férussac, 1821; SD J. Gray, 1847.

Shell flattened to almost flat, moderately thin, not shining, of 3.5-6 slightly to rather convex whorls. Last whorl rounded to keeled at periphery. Color generally dark, sometimes with reddish flammulations. Embryonic whorls smooth, rarely with exceptionally fine, vestigial spiral striae. Later whorls radially ribbed. Aperture subcircular, sometimes with 1-2 angles, simple or with a weak columellar tubercle; margins simple. Umbilicus wide, shallow, open.

Jaw vertically striate.

Talon ovate. Epiphallus short. Vas deferens enters epiphallus apically. Penis long, subcylindrical, internally with several strong pilasters. Penial retractor arising from diaphragm, attached to penis/epiphallus junction. Free oviduct rather short, vagina longer. Base of spermathecal stalk not swollen.

DISTRIBUTION. Holarctic.

Discus (Mexicodiscus) Pilsbry, 1926

Fig. 1385

Pilsbry, 1926b: 133 (*Gonyodiscus* subg.).

TYPE SPECIES — *Pyramidula victoriana* Pilsbry, 1904; OD.

Shell flat, thin, of 3.5-3.75 rather convex whorls. Color greenish-corneous. Embryonic whorls (3/4 to 1) almost smooth, only with excessively minute, faint spiral lines. Postembryonic sculpture of not strong, regular radial riblets, which initially low and short, later strongly retractive. Aperture subcircular, oblique, with thin margins; peristome insertions somewhat converging. Umbilicus moderately wide, perspective. Height 1.4-1.5, diam. 3.4-4.0 mm (1.4 × 3.4 mm).

DISTRIBUTION. NE Mexico (Tamaulipas State). 1 sp.

Discus (Nematodiscus) Pilsbry, 1948

Fig. 1386

Pilsbry, 1948: 620.

TYPE SPECIES — *Zonites selenitoides* Pilsbry, 1890; OD.

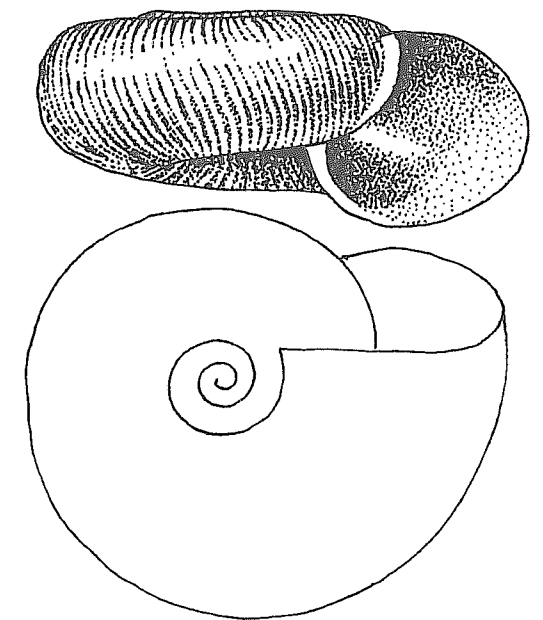


Fig. 1385. *Discus (Mexicodiscus) victoriana* (Pilsbry, 1904). 4 mi. W of Victoria, Tamaulipas, Mexico. Lectotype. Phil. No. 85907a.

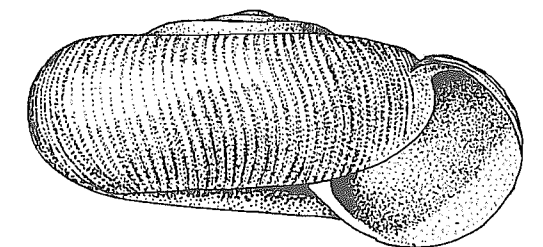


Fig. 1386. *Discus (Nematodiscus) selenitoides* (Pilsbry, 1890). Mariposa Big Trees, at the southern end of Yosemite National Park [California]. Holotype. Phil. No. 60010.

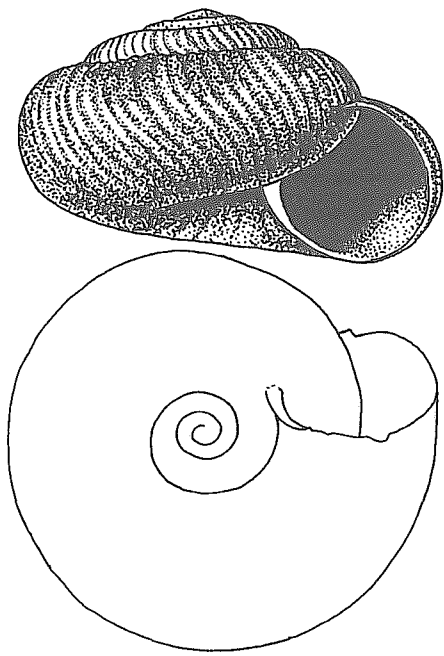


Fig. 1387. *Discus (Antediscus) shimeki* (Pilsbry, 1890).
S Henderson Creek, S Baldbluff, Illinois; Pleistocene. Senck. No. 139052.

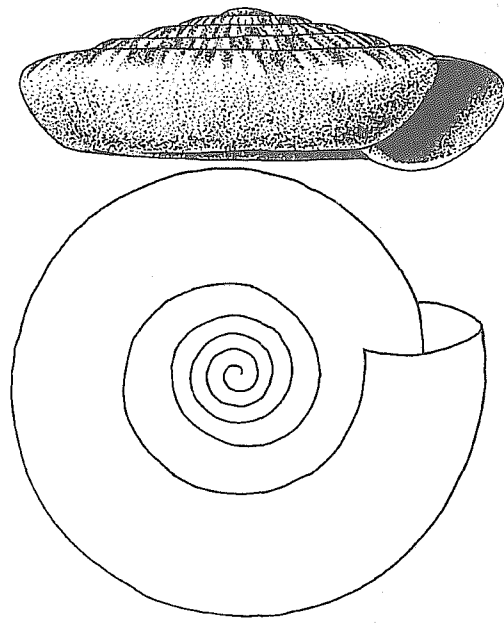


Fig. 1388. *Discus (Atlantica) guerinianus* (Lowe, 1852).
Madeira. Paris.

Shell subdiscoidal, rather thin, of 3.75 convex whorls. Last whorl straight, evenly rounded at periphery. Spire only slightly convex. Color pale-buff. Embryonic whorls glabrous. Postapical sculpture of fine, regular, crowded rib-striation. Aperture subcircular-lunate, slightly oblique; columellar margin oblique, reflexed. Umbilicus wide, quite perspective. Height 1.75, diam. 3.0 mm (holotype).

DISTRIBUTION. NW America (California). 1 sp.

Discus (Antediscus) Baker, 1948
Fig. 1387

Baker in Pilsbry, 1948: 617.

TYPE SPECIES — *Zonites shimekii* Pilsbry, 1890; monotypy.

Shell depressed-conic, moderately solid, of 4.5 rather convex whorls. Last whorl rounded at periphery. Color brownish, with reddish spots. Embryonic whorls smooth. Postnuclear whorls regularly, rather strongly ribbed to rib-striated. Aperture subcircular, moderately oblique. Umbilicus

comparatively narrow. Height 3.7-4.0, diam. 6.0-6.5 mm (3.7 x 6.1 mm).

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

Discus (Atlantica) Ancey, 1887
Fig. 1388

Ancey, 1887: 54.

— *Euromphala* Lowe, 1852: 115 (as "*Euromphala*, Beck"; *Helix* subg.; t.-sp. *Helix gueriniana* Lowe, 1852; monotypy).

TYPE SPECIES — *Helix simplicata* L. Pfeiffer, 1852 (= *Helix gueriniana* Lowe, 1852); OD.

Shell much flattened, rather thin, of about 6.5 convex whorls. Last whorl straight, distinctly angled at periphery. Coloration consists of alternating pale-corneous and reddish rays and streaks above; basal surface uniformly light-corneous. Embryonic whorls smooth. Upper surface of postnuclear whorls with wide, rounded, low radial ribs; basal wall translucent, finely ribbed. Aperture rather narrow, slightly oblique; 2-3 pairs of palatal plicae visible in basal view.

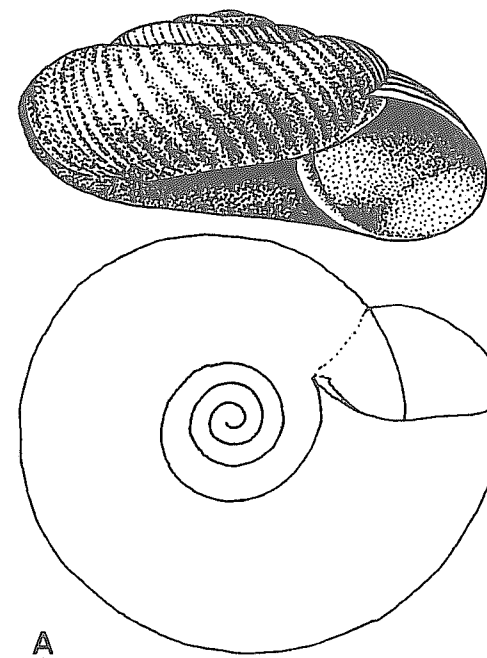
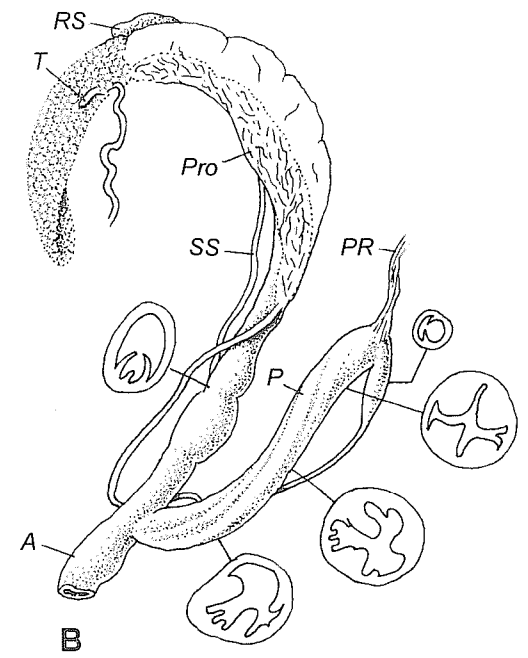


Fig. 1389. *Discus (Discus) ruderatus* (Férussac, 1821).
Pyrengha River valley, Kola Peninsula [NW Russia], August 4, 1991. A — shell. B — reproductive tract and interior of penis. Moscow No. Lc-4872.



Height 2.0-2.5, diam. 6.0-6.5 mm (2.0 x 6.1 mm).

DISTRIBUTION. Madeira. 1 sp.

Discus (Discus s. str.)
Fig. 1389

Shell flattened, (moderately) thin, of 3.5-6 convex whorls. Last whorl straight, with rounded, angled or carinated periphery (rarely with 2 keels). Color generally brown, monochromatic or marbled with reddish. Embryonic whorls smooth. Postnuclear sculpture of strong obliquely-radial ribs, at least above periphery. Aperture rounded or angulated, moderately oblique, with simple margins; columellar margin expanded. Umbilicus wide, shallow. Height 2.2-4.6, diam. 5.0-8.9 mm (3.2 x 6.2 mm).

Hermaphroditic duct not or only slightly convoluted. Talon exposed, small, simple or bilobed. Vas deferens thin, free, entering very short, often scarcely expressed epiphallus. Internally epiphallus with 2 thin axial folds. Penis internally with 3-4 main pilasters and small additional folds between them. Free oviduct internally with 2 main

axial folds and 1-2 small plicae between them. Spermathecal stalk long, cylindrical; reservoir reaching base of albumen gland.

DISTRIBUTION. Holarctic; Canary Islands, Azores and Cabo Verde. 16-18 spp. & subspp.

CYSTOPELTIDAE Cockerell, 1891

Cockerell, 1891: 216, 225 (pro subf.).

Slugs. Shell may be absent but usually reduced to a thin, horny membrane. Visceral hump large, overhanging above cephalopodium.

Eyes well developed.

Pedal and suprapedal grooves not unite above tail. Caudal foss poorly developed but caudal horn present.

Jaw entire, composed of numerous very narrow plates.

Kidney compact, ovate.

Ovotestis globular, of many tightly packed acini. Hermaphroditic duct only

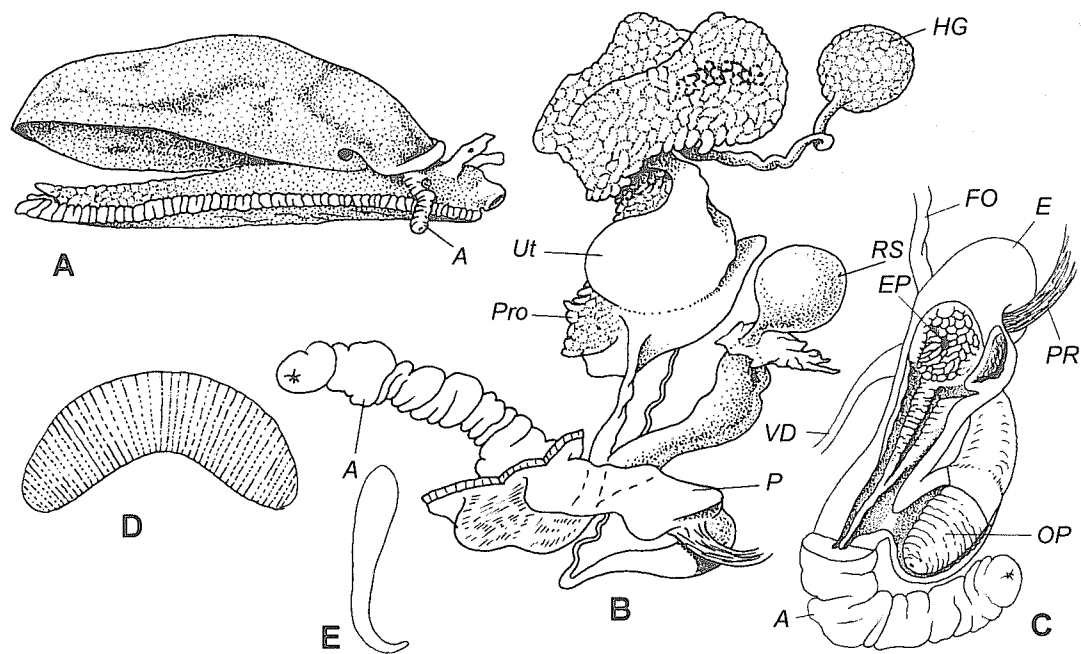


Fig. 1390. A, B, C, D — *Cystopelta purpurea* Davies, 1912. 6 mi SE Eldon Weir, Gippsland, Victoria, Australia, November 1-2, 1968. A — external view of preserved animal. B — reproductive tract. C — interior of penis and vagina. D — jaw. Chicago. E — *Cystopelta petterdi* Tate, 1881. Spermatophore. After Kershaw, 1987. OP — oviducal papilla.

slightly convoluted. Talon more or less burrowed into albumen gland, short to long. Prostate and uterus fused, at least superficially. Vas deferens slender, joining epiphallus apically. Epiphallus short, internally with 3-4 longitudinal pilasters, entering penis through a pore situated in centre of sphincter-like corrugated pad. Penis with or without small process, internally with a few axial pilasters. Penial retractor attached to penis/epiphallus junction. Free oviduct long, entering short vagina through a large papilla (ovipositor) with minute apical pore. Atrium in all known preserved specimens everted, very long. Spermathecal stalk stout, reservoir large, globose, not attending albumen gland.

Distribution. Australia, Tasmania.

Cystopelta Tate, 1881
Fig. 1390

Tate, 1881: 17. Kershaw, 1987: 52.

TYPE SPECIES — *Cystopelta petterdi* Tate, 1881; monotypy.

Spermatophore, a yellowish or white, transparent capsule obtusely truncated anteriorly, more or less curving to a fine point posteriorly. Otherwise characters of family. Length when crawling up to 37 mm (24 mm).

DISTRIBUTION. SE Australia, New South Wales, S Queensland, Tasmania. 4 spp.

Infraorder LIMACOINEI
Ferussac, 1801

— *Zonitina* Schileyko, 1979: 57.

Shell mostly dextral, frequently more or less reduced, flat to globular or (rarely) pyramidal. Spiral striation on embryonic whorls quite characteristic. Postembryonic whorls mostly without strong sculpture, often with spiral striae. Aperture generally toothless, rarely with not deeply entering teeth of superficial type. Umbilicus closed to very broad.

Penis simple to very complex, with

flagellum, epiphallus, and straight or coiled caecum. Distal part of female division usually with variously developed perivaginal gland (sometimes absent) and often with sarcobelum which may be secondarily lost. Spermathecal stalk without diverticle.

HELICARIONOIDEA
Godwin-Austen, 1882

Godwin-Austen, 1882: 253 (pro fam.).

Shell variously developed, often reduced down to a simple plate.

Sole undivided or (more often) tripartite. Posterior end of cephalopodium usually with caudal pore (foss) and frequently with caudal horn.

Jaw oxygnatous, smooth, with variously developed median projection (only exception — *Myotesta* which has plated jaw).

Presence of perivaginal gland characteristic for reproductive tract. Male division of reproductive tract simple to very complex, with epiphallus, conic or coiled penial caecum, and flagellum which often modified in lime-sac. In some groups there is sarcobelum, sitting on vagina, atrium or basal part of penis.

DISTRIBUTION. Circumglobally; main diversity in tropical regions.

EUCONULIDAE Baker, 1928

Baker, 1928: 4; 1941: 208.

— *Stenopidae* H. Adams et A. Adams, 1855: 220 [based on praeocc. name *Stenopus* Guilding, 1828 (1927-1928)].

— *Conulinae* Strebel et Pfeffer, 1880: 23 (based on praeocc. name *Conulus* Fitzinger, 1833).

Shell mostly turbinata, small to medium-sized, flattened to dome-shaped, thin to very thin, fragile, of 3-7 whorls; last rounded to keeled. Color not bright, rarely with dark bands. Delicate spiral striation is very characteristic; radial sculpture generally weak. Aperture toothless (there are a few exceptions). Umbilicus minute or absent.

Posterior end of cephalopodium with more or less prominent, dorsomedian groove, which extends back to tail horn. Caudal foss present. Sole distinctly tripartite. Pedal grooves of aulacopod type.

Ovotestis of a variable number of groups of acini. Hermaphroditic duct usually con-

voluted. Talon commonly small, clavate, sometimes bipartite. Carrefour may be swollen into a large, thin-walled sac.

Kidney elongate triangular, secondary ureter complete.

Vas deferens usually slender. Epiphallus without lime-sac, flagellum or much calc. Penis without verge, separated from epiphallus by simple constriction, internally with longitudinal fold. Vagina lacking accessory organs. Spermatheca often weak, sometimes absent. Reservoir of spermatheca frequently with apical ligament, connected by the other end to body wall, to free oviduct or to both. Stimulators or darts, when rarely present, penial. Spermatophore simple and rarely with conchyolious walls.

DISTRIBUTION. Circumglobally.

REMARK. The remark to Punctoidea (p. 881) is also true for Euconulidae.

MICROCYSTINAE Thiele, 1931

Thiele, 1931b: 612 (*Ariophantidae* subf.). Iredale, 1945: 59 (pro fam.).

— *Fanulidae* Iredale, 1945: 62.

— *Advenidae* Iredale, 1945: 65.

Shell more or less depressed, of 4-5 (rarely more) whorls. Last whorl often with peripheral angle or keel. Radial sculpture almost absent to rather strong, spiral sculpture variously developed.

Prostate relatively small, consists of clavate acini, more or less separated from uterus. Epiphallus variously developed, usually connected with penis by a thin membrane. Sometimes penis has subapical (1 or 2 in number) or basal caecum and supplied with a stimulator or deciduous thorn. Penial retractor usually inserts on both epiphallus and penial apex. A thin, but often opaque, sheath attached around base of penis proper and usually surrounds epiphallus as well, so that penial retractor and vas deferens appear to emerge from a small opening, surrounded by muscular ring. Free oviduct without perivaginal gland. Atrium sometimes with lateral diverticle. Spermatheca usually sessile or short-stalked, opens into penial prepuce, just below attachment of penis sheath.

Ovoviviparous animals.

DISTRIBUTION. Mainly islands in the Pacific Ocean; some species in Indonesia and SE Asia.

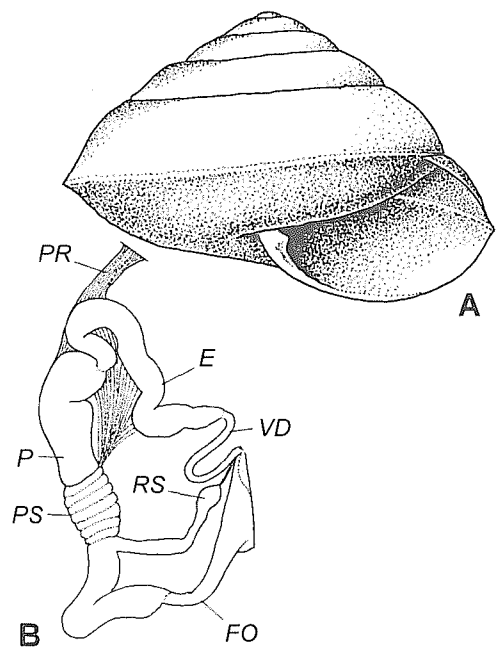


Fig. 1391. *Diastole (Laua) bryani* Baker, 1938. A — shell: Avea, Fiji (Lau) Islands. Paratype. Phil. No. 178312. B — penis and distal part of female part. After Baker, 1938b.

REMARK. It should be mentioned that Baker in illustrations (which I reproduce here) of reproductive tract of many species often omitted penis sheath, retaining only place of its attachment.

Microcystini Thiele, 1931

Epiphallus distinctly demarcated from vas deferens; basal part of epiphallus not modified. Penis lacking caeca, internally without stimulator.

DISTRIBUTION. As in subfamily.

Diastole Gude, 1913

Gude, 1913b: 391. Baker, 1938b: 45.

TYPE SPECIES — *Helix conula* Pease, 1861; OD.

Shell more or less lentiform, with variously developed spiral sculpture, without hairs. Columella with tooth or subhorizontal lamella. Umbilicus closed.

Mantle without definite shell-lobes.

Basal part of epiphallus not modified.

Penis without terminal or subapical caecum (although sometimes prolonged beyond entrance of vas deferens).

DISTRIBUTION. Society, Cook, Samoa, Futuna, Fiji (Lau), Tonga, Tuamotu, Norfolk and Austral Islands.

Diastole (Laua) bryani Baker, 1938

Fig. 1391

Baker, 1938b: 45, 46, 55.

TYPE SPECIES — *Diastole bryani* Baker, 1938; OD.

Shell obesely lentiform, thin, translucent, of 5-5.5 slightly convex whorls. Last whorl with cord-like peripheral keel. Color white with light-yellowish tint. Embryonic whorls with 25 or more extremely fine spiral threadlets. Radial wrinkles on postnuclear whorls quite prominent. Columellar lamella compressed or in form of nodular swelling. Height 2.6-6.3, diam. 4.6-9.6 mm (6.3 × 9.0 mm).

Penis without diverticulum or basal swelling, considerably longer than prepuce.

DISTRIBUTION. Fiji (Lau Archipelago). 2 spp.

Diastole (Euanana) bryani Baker, 1938

Fig. 1392

Baker, 1938b: 45, 46, 54.

TYPE SPECIES — *Trochonanina fornicata* Ancey, 1889; OD.

Shell obesely lentiform, moderately thin, of 5-5.5 whorls. Color gray. Embryonic whorls with 25 or more extremely fine spiral threads. Postnuclear whorls without very prominent radial sculpture. Aperture lunate, angled, subvertical; columellar tooth sinuous. Height 4.7-6.0, diam. 6.7-9.5 mm (6.0 × 9.3 mm).

Penis without diverticulum or basal swelling, about as long as prepuce.

DISTRIBUTION. Tonga (Eua Island). 1 sp.

Diastole (Diastole) conula (Pease, 1861)

Fig. 1393

Shell somewhat depressed, trochiform, of 4.5-6.25 whorls. Last whorl angulate. Embryonic whorls with less than 15 coarse spiral threads. Height 4.0-6.9, diam. 6.5-9.4 mm (5.6 × 7.0 mm).

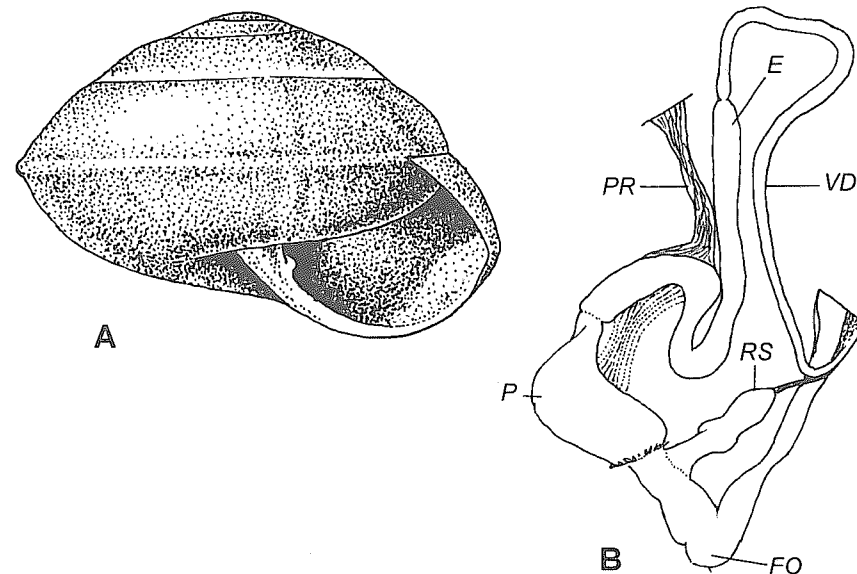


Fig. 1392. *Diastole (Euanana) fornicata* (Ancey, 1889).

A — shell: Eua, Tonga. Senck. No. 5932. B — penis and distal part of female part. After Baker, 1938b.

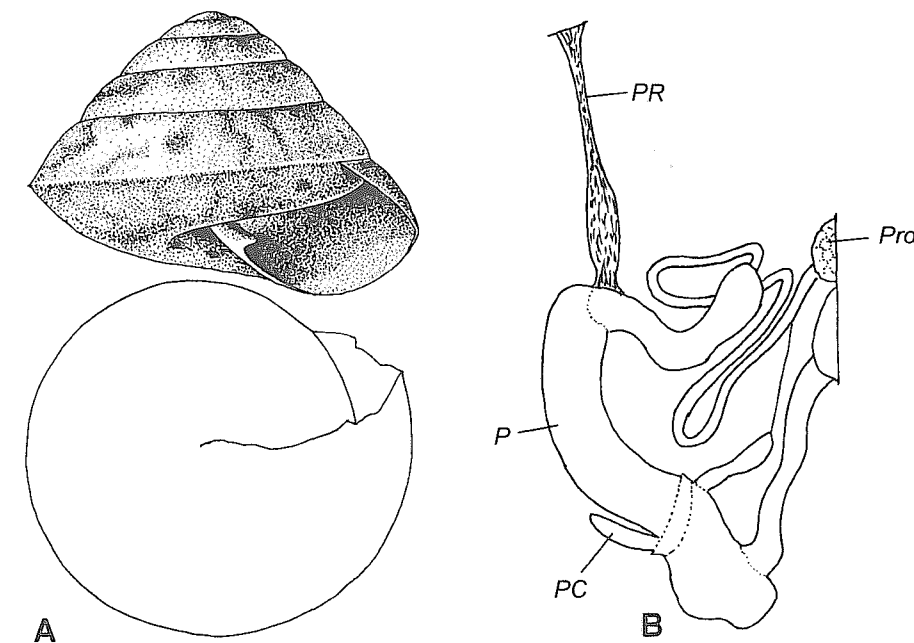


Fig. 1393. *Diastole (Diastole) conula* (Pease, 1861).

A — shell: Moorea Island [Society Islands]. Zürich No. 500937. B — penis and distal part of female part. After Baker, 1938b.

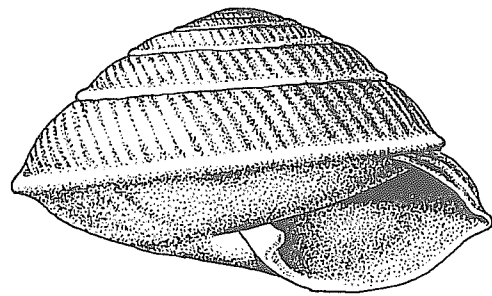


Fig. 1394. *Fanulena insculpta* (Reeve, 1845).
Norfolk Island. Zürich. No. 501940.

Penis with a small basal caecum or well developed swelling at base.

DISTRIBUTION. Tuamotu, Society, Austral (Raivavae and Rurutu), Cook, Samoa, Futuna and Tonga Islands. 8 spp.

Fanulena Iredale, 1945
Fig. 1394

Iredale, 1945: 62.

— *Parcolena* Iredale, 1945: 63 [*Fanulena* subg.; t.-sp. *Fanulena* (*Parcolena*) *perrugosa* Iredale, 1945; OD].

— ? *Dolapex* Iredale, 1945: 64 (t.-sp. *Dolapex amicus* Iredale, 1945; OD).

TYPE SPECIES — *Helix insculpta* Reeve, 1845; OD.

Shell obesely lentiform, thin, semitransparent, shining, of 4.5-6 flattened whorls. Last whorl with sharp, slightly crenulated peripheral keel which can be traced above suture on earlier whorls. Spire dome-shaped. Color corneous to brown, sometimes obscurely flamed with paler, almost white, radial stripes. Embryonic whorls polished, smooth or with microscopical spiral striae. Postapical whorls finely radially ribbed above and glabrous, silky glossy on basal side. Aperture semilunate, angled on palatal margin; columella with snow-white, ve-

ry strong tooth. Height 4-5, diam. 5.0-7.5 mm (4.0 × 7.3 mm).

DISTRIBUTION. Norfolk Island. 5 spp.

Microcystis Beck, 1837

Beck, 1837: 2 (*Nanina* subg.).

— *Helicopsis* Beck, 1837: 2 (nom. praecoc., non Fitzinger, 1833; t.-sp. not designated).

— ? *Platycloster* Beck, 1837: 2 [in synonymy of *Helicopsis major* Beck: "an *Platycloster corneus*. van Hasselt?"].

Baker, 1938b: 57.

TYPE SPECIES — *Nanina ornatella* Beck, 1837; SD Martens in Albers, 1860.

Shell depressed turbanate, dull or polished, of 4-6 rather convex whorls. Last whorl rounded or angled at periphery. Postapical sculpture of variously developed microscopic spiral striation, without hairs. Aperture widely lunate, a little oblique, with thin margins; columellar margin sometimes thickened but lacks fold at any stage of post-embryogenesis. Umbilicus closed or tiny.

Mantle without shell-lobes.

Basal part of epiphallus not modified. Penis without terminal or subapical caecum (although sometimes prolonged beyond entrance of vas deferens).

DISTRIBUTION. Austral (Rapa to Tubuai), Tuamotu and Cook (Mangaia) Islands.

Microcystis (*Microcystis* s. str.)
Fig. 1395

Shell glossy to almost polished, more so below, often with 1-2 narrow dark bands. Whorls 3.5-4.5. Last whorl rounded at periphery. Embryonic sculpture of weak to fairly prominent spiral threads. Postnuclear whorls with weak to very weak spiral threads. Height 5.5-7.3, diam. 8.4-13.3 mm (6.0 × 9.5 mm).

Penis long, strongly convoluted and twisted, internally with many axial folds.

DISTRIBUTION. Austral Islands (Rapa, Raivavae, Tubuai) and Tuamotu Islands. 6 spp. & subspp.

Microcystis (*Cnesticystis* Baker, 1938)
Fig. 1396

Baker, 1938b: 57, 65, 67.

TYPE SPECIES — *Microcystis kondoi* Baker, 1938; OD.

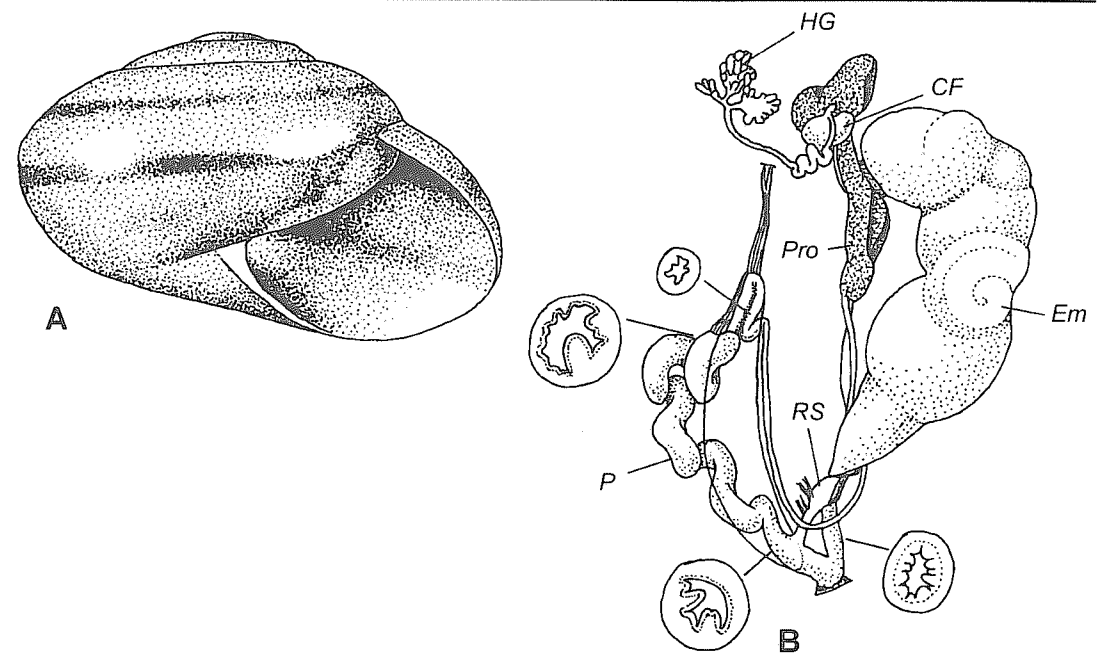


Fig. 1395. *Microcystis* (*Microcystis*) *ornatella* (Beck, 1837).
A — shell: Pitcairn Island (Tuamotu). Geneva. B — reproductive tract. After Baker, 1938b.

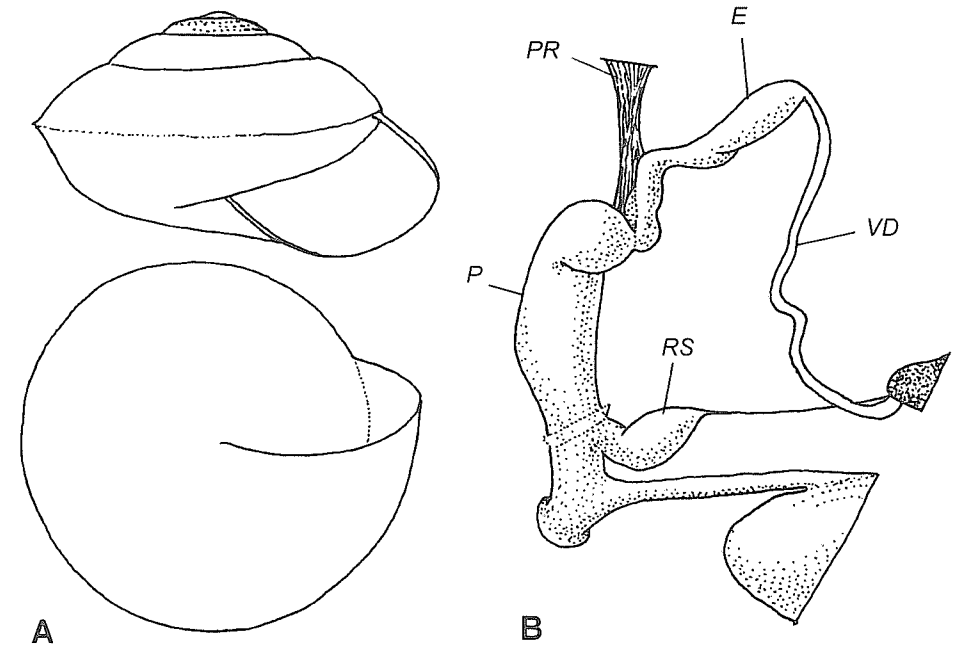


Fig. 1396. *Microcystis* (*Cnesticystis*) *kondoi* Baker, 1938.
A — shell. B — penis and distal part of female part. After Baker, 1938b.

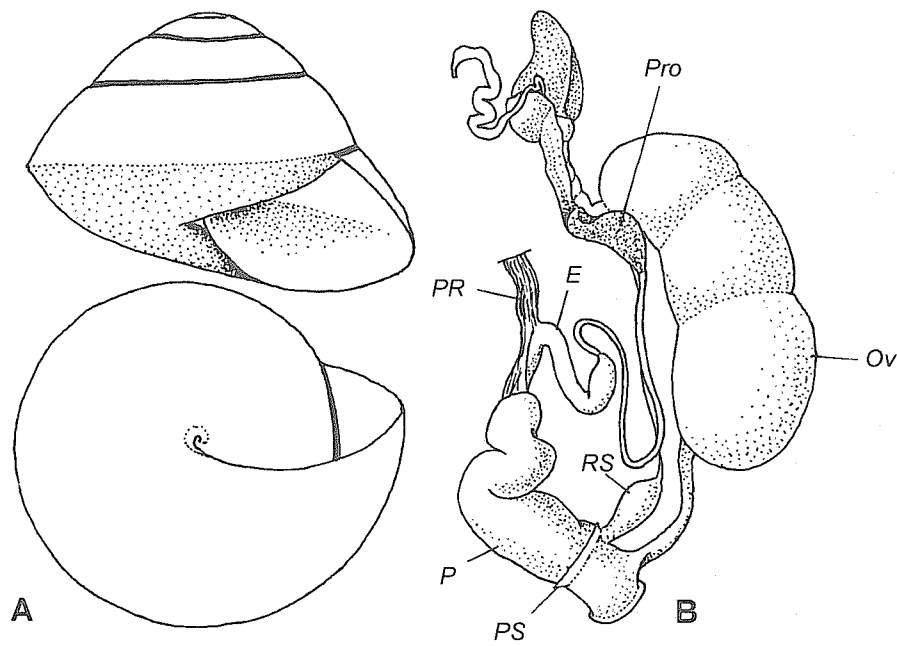


Fig. 1397. *Microcystis (Leurocystis) saintjohni* Baker, 1938.
A — shell. B — reproductive tract. After Baker, 1938b.

Shell lentiform, of 4.5 whorls. Last whorl with sharp peripheral keel. Embryonic sculpture of 28-45 major spiral threads. Later whorls with radial wrinklets which more closely spaced above, decussating spiral elements. Height 7.1-7.3, diam. 12.0-12.3 mm.

Penis and epiphallus moderately long.

DISTRIBUTION. Austral Islands (Raivavae and Tubuai). 2 spp.

Microcystis (Leurocystis) Baker, 1938
Fig. 1397

Baker, 1938b: 57, 59, 63.

TYPE SPECIES — *Microcystis saintjohni* Baker, 1938; OD.

Shell turbanate, of 4.3 whorls, polished, with a subsutural band and white peripheral band (rarely bordered above by dark line). Last whorl with acute peripheral angle. Embryonic sculpture of about 100 extremely fine spiral threadlets. Later whorls with almost no radial lines but with undiminished spirals. Height 8.66, diam. 12.12 mm.

Epiphallus rather long, penis short, stout.

DISTRIBUTION. Austral Islands. 1 sp.

Microcystis (Facorhina) Baker, 1938
Fig. 1398

Baker, 1938b: 57, 64.

TYPE SPECIES — *Microcystis andersoni* Baker, 1938; OD.

Shell lenticular, dull, at least above, of 4.5-5.5 flattened whorls. Last whorl with a sharp peripheral keel. Color brownish, rarely with prominent bands. Embryonic sculpture of strong spiral threads. Postnuclear whorls with fairly strong spiral cords; radial wrinkles rather prominent. Aperture rather narrow, oblique. Height 2.2-5.4, diam. 4.6-10.5 mm.

Epiphallus short, penis moderately long.

DISTRIBUTION. Austral and Cook Islands (Raivavae, Tubuai, Mangaia). 3 or 4 spp.

Lamprocystis Pfeffer, 1883

Pfeffer, 1883: 20. Baker, 1938b: 68.

TYPE SPECIES — *Nanina excrescens* Mousson, 1870; SD Pilsbry, 1928.

Shell more or less globular to depressed, shining, without hairs, of about 4 whorls. Color (light) corneous. Regular sculpture practically absent. Aperture subvertical,

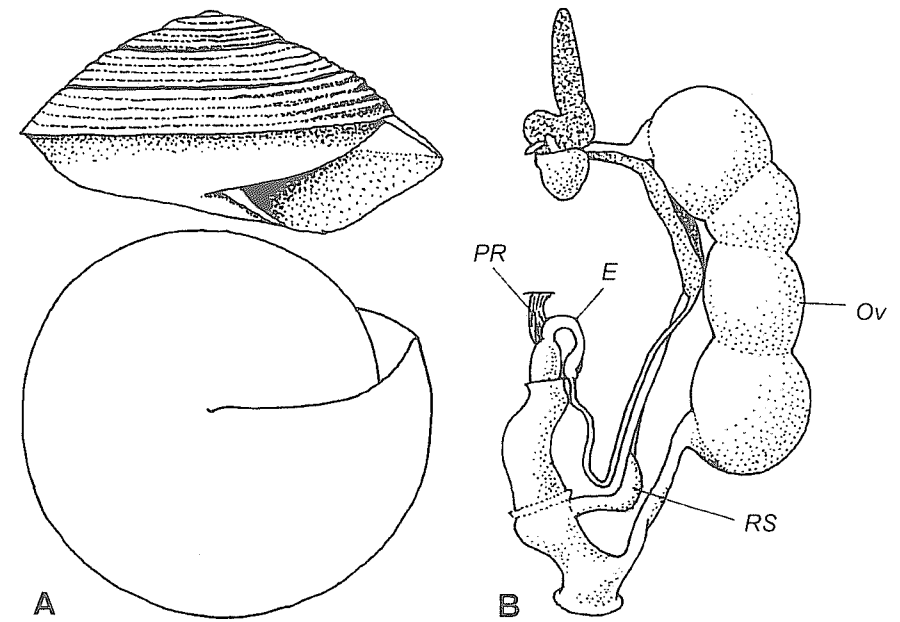


Fig. 1398. *Microcystis (Facorhina) andersoni* Baker, 1938.
A — shell. B — reproductive tract. After Baker, 1938b.

with simple margins. Columellar margin with or without fold; sometimes fold present at juvenile stages but absent in adults. Small basal tubercle may be present.

Right shell-lobe well developed.

Basal part of epiphallus not modified. Penis without terminal or subapical caecum (although sometimes prolonged beyond entrance of vas deferens).

DISTRIBUTION. Philippines; Mariana, Society (Raiatea), Cook, Fiji, Tonga, Samoa, Austral Islands, Rarotonga to New Hebrides.

Lamprocystis (Lamprocystis) s. str.
Fig. 1399

Shell quite depressed to more or less dome-shaped, polished, of about 4 whorls. Last whorl evenly rounded to obtusely angulated. Color corneous to fulvous. Embryonic whorls with fine spiral striation; similar sculpture retained on postnuclear whorls. Aperture rather narrow to subcircular. Columellar lamella always present, cord-like to well developed. Height 1.5-5.0, diam. 3.8-6.5 mm (2.2 × 3.7 mm).

Epiphallus large, entering subapically, internally with strong longitudinal pilasters. Penis sheath heavily pigmented, covers only

about half of very small penis proper but connected to epiphallus. Penial prepuce about as long as penis. Penial retractor arising from diaphragm near base of uterus, inserting between middle and basal thirds of epiphallus. Atrium rather short.

DISTRIBUTION. Philippines, Fiji, Samoa, Tonga, Cook Islands, Marianas, Rarotonga to New Hebrides. At least 40 spp.

Lamprocystis (Moala) Baker, 1938
Fig. 1400

Baker, 1938b: 69, 70, 88.

TYPE SPECIES — *Lamprocystis moalana* Baker, 1938; OD.

Shell depressed-subglobose, very thin, fragile, almost transparent, of about 4 whorls. Last whorl scarcely angulated at beginning and evenly rounded at aperture. Color pale-corneous. Embryonic whorls with very fine, weak spiral striae. Following whorls with obsolete spiral lines and with radial wrinkles very weak and irregular above; basal surface still more polished, with extremely weak spiral sculpture. Aperture subcircular-lunate; columella thin, almost vertical, with very small, horizontal, nar-

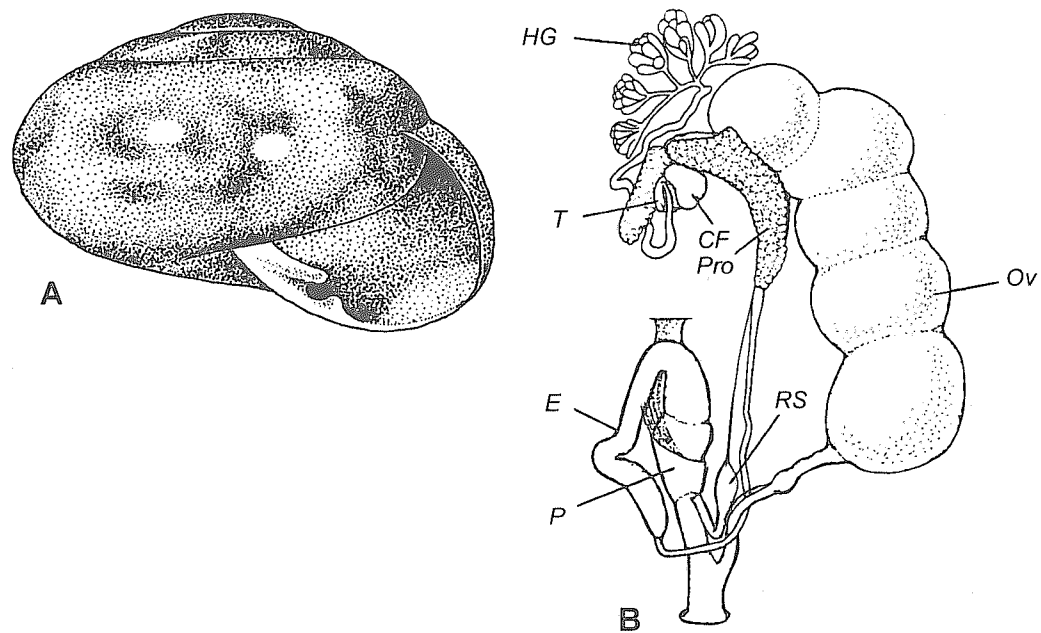


Fig. 1399. A — *Lamprocystis (Lamprocystis) excrescens* (Mousson, 1870). Shell: Fiji. Senck. No. 157858. B — ! *Lamprocystis (Lamprocystis) ensifera* (Mousson, 1869). Reproductive tract. After Baker, 1938b.

row, spiral cord-like lamella. Height 4.31, diam. 6.49 mm.

Penial sheath coats basal 0.2 of epiphallus but inserted near its tip. Penis short, pear-shaped. Penial prepuce shorter than atrium. Penial retractor attached near base of epiphallus but continuing to side of penis.

DISTRIBUTION. Fiji (Moala). 1 sp.

Lamprocystis (Raiatea) Baker, 1938
Fig. 1401

Baker, 1938b: 69, 71.

TYPE SPECIES — *Helix simillima* Pease, 1864; OD.

Shell depressed-subglobular, thin, polished, almost transparent, of 4 flattened whorls. Last whorl with rounded angle at periphery. Color darkish to light corneous, sometimes with faint darker band just above periphery. Embryonic whorls with extremely fine and vague spiral threads. Postapical sculpture with similar spirals and with weak, fairly regular radial wrinkles above; basal surface with spiral striae. Aperture broad, subvertical, with rounded pala-

tal side. Columella with spiral swelling in immature shells. Height 4.0-5.7, diam. 9.0-10.4 mm (5.7 x 10.4 mm).

Epiphallus about as long as penis. Penial prepuce swollen, with an internal boss.

DISTRIBUTION. Society Islands (Raiatea). 1 sp.

Lamprocystis (Kerakystis) Baker, 1938
Fig. 1402

Baker, 1938b: 69, 70, 76.

TYPE SPECIES — *Nanina perpolita* Mousson, 1869; OD.

Shell depressed to subglobular, shining, translucent, polished, of 4-5 a little convex whorls. Last whorl evenly rounded at adult stage. Color light- to dark-corneous. Embryonic whorls with extremely fine spiral threads. Rest whorls with very weak spiral striae and still more obscure striae on basal surface. Aperture quite broad, evenly rounded. Columella concave, lightly thickened and reflexed, without trace of spiral lamella. Height 2.5-5.8, diam. 4.3-8.0 mm (5.7 x 8.0 mm).

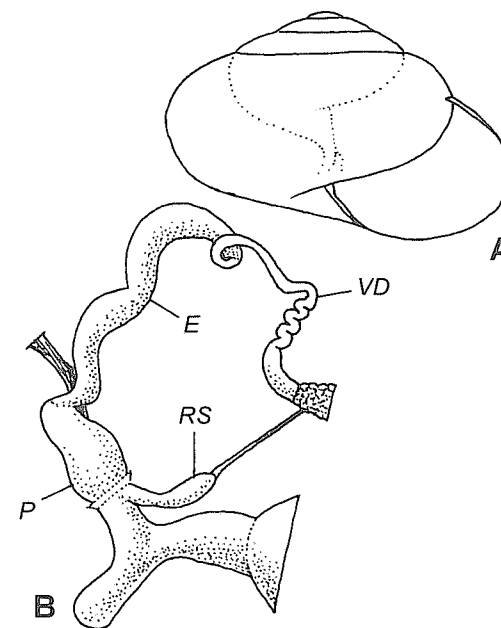


Fig. 1400. *Lamprocystis (Moala) moalana* Baker, 1938. A — shell. B — distal part of reproductive tract. After Baker, 1938b.

Penial sheath includes all except apical 0.25 of epiphallus, which enters side of penis. Penis longer than epiphallus, with short apical caecum. Penial prepuce relatively short. Penial retractor inserting near base of epiphallus and on adjacent side of penis.

DISTRIBUTION. Samoa and Austral Islands. 2-4 spp. & subspp.

Lamprocystis (Avarua) Baker, 1938
Fig. 1403

Baker, 1938b: 68, 69, 72.

TYPE SPECIES — *Lamprocystis globosa* Baker, 1938; OD.

Shell turbinate to globose-turbinate, very thin, translucent, of 4-5 slightly convex whorls. Last whorl weakly angulated to almost rounded. Color dark-corneous. Embryonic whorls with microscopic but fairly distinct spiral striae. Postapical whorls with spiral lines becoming less distinct above and with obscure, low, rounded, closely spaced radial wrinklets. Aperture widely lunate, with thin, simple columellar margin. Height 5.4-6.7, diam. 7.5-9.4 mm.

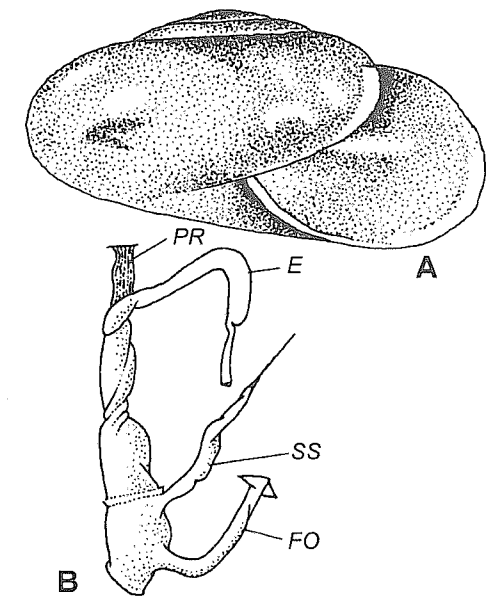


Fig. 1401. *Lamprocystis (Raiatea) simillima* (Pease, 1864). A — shell: Society Islands. Phil. No. 49288. B — penis. After Baker, 1938b.

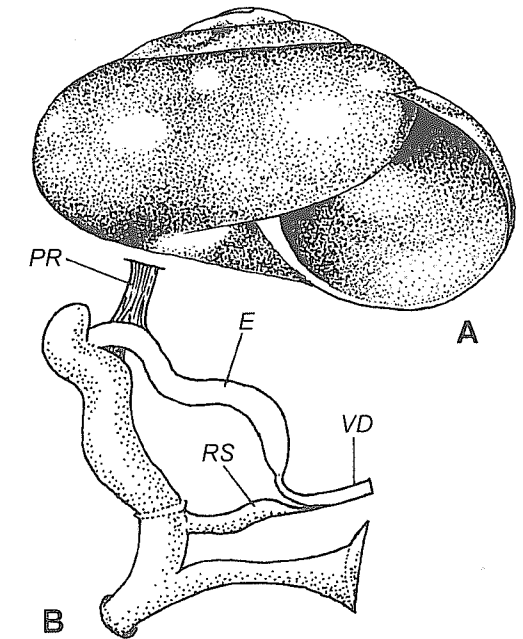


Fig. 1402. *Lamprocystis (Kerakystis) perpolita* (Mousson, 1869). A — shell: Upolu Island (Samoa). Syntype. Zürich No. 500952. B — distal portion of reproductive tract. After Baker, 1938b.

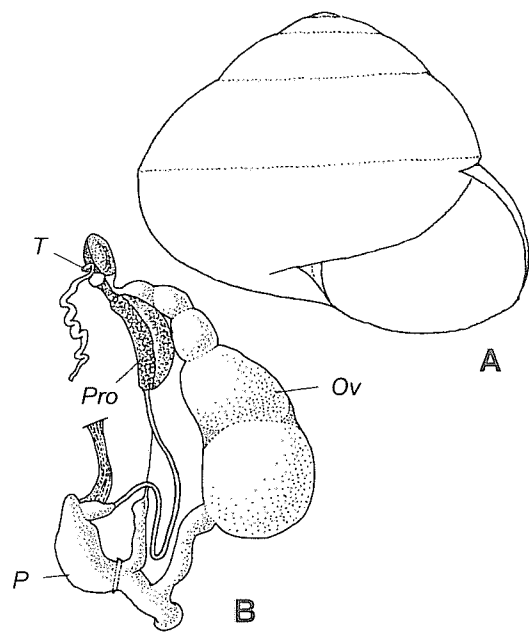


Fig. 1403. *Lamprocystis (Avarua) globosa* Baker, 1938.
A — shell. B — reproductive tract. After Baker, 1938b.

Epiphallus extremely small, partially covered by penial sheath. Penis short, swollen, with weak apical caecum (which is a mere prolongation of penis beyond entrance of vas deferens); internally with a longitudinal fold in apical half and a heavy fold with a knob-like free upper end; basal half with 2 pilasters. Preputial section of penis fairly long.

DISTRIBUTION. Cook Islands (Rarotonga). 2-3 spp.

Lamprocystis (Guamia) Baker, 1938
Fig. 1404

Baker, 1938b: 69, 70, 89.

TYPE SPECIES — *Helix misella* Férussac, 1821; OD.

Shell depressed-turbinata, smooth, translucent, of 4.5-5.5 whorls. Last whorl scarcely angulated. Color corneous. Embryonic sculpture of crowded, extremely fine, but quite distinct spiral striae. Rest whorls with same but much weaker striation plus quite weak radial wrinkles. Aperture lunate, columellar margin rather oblique, with steeply inclined, rounded, cord-like lamella

in embryos, but soon columella becoming straight or even concave. Height 3.5-4.8, diam. 5.5-7.8 mm (4.6 × 7.0 mm).

Penial sheath including all epiphallus. Penial prepuce relatively stout [in prepuce Baker (1938b) has found a short, horny spermatophore having stout hook at its lower end and short winged tail opposite to opening of spermatheca]. Atrium short. Penial retractor inserted between base of epiphallus and apex of penis.

DISTRIBUTION. Marianas (Guam, Tinian, Rota Islands). 3 spp.

Lamprocystis (Tongacystis) Baker, 1938
Fig. 1405

Baker, 1938b: 69, 70, 87.

TYPE SPECIES — *Nanina perpolita solida* Mousson, 1871; OD.

Shell subglobose or slightly depressed, polished, of 4-4.5 whorls. Body whorl evenly rounded or indistinctly angulated. Color pale-corneous. Embryonic whorls with fairly sharp, fine, spiral striae; later whorls have same sculpture. Aperture sub-circular-lunate. Columellar margin bears heavy, very oblique, spiral cord in juveniles; in adults the cord somewhat obscured because of extensive thickening of columella. Height 4.1-5.0, diam. 6.4-8.0 mm.

Epiphallus enters below apex of penis. Penial sheath including most of epiphallus. Penial prepuce shorter than atrium.

DISTRIBUTION. Tonga Islands (Tongatabu, Vavau, and Eua). 2 spp.

Lamprocystis (Naiiua) Baker, 1938
Fig. 1406

Baker, 1938b: 68, 70, 75.

TYPE SPECIES — *Lamprocystis laddi* Baker, 1938; OD.

Shell depressed-turbinata, glossy, almost opaque above but more polished and weakly translucent below, of about 4.5 whorls. Last whorl sharply angulated when young but weakly so at later stages. Color typically rather intense, corneous, with vague, darker varices; sometimes very light or with light chestnut peripheral band. Embryonic whorls with numerous, fairly sharp, but very fine, closely spaced, impressed, spiral lines which cross very low radial

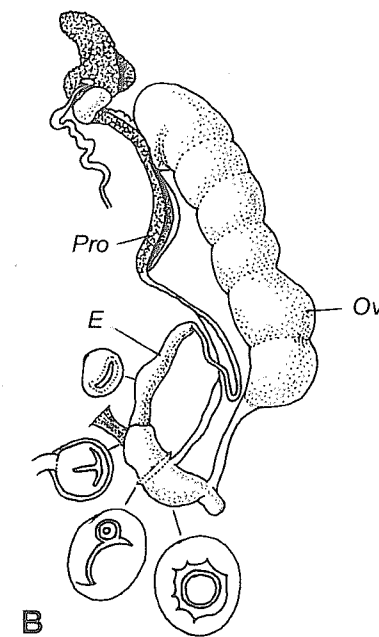
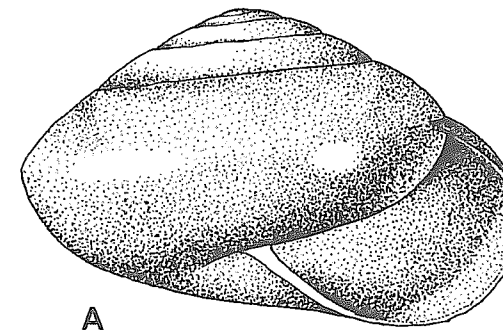


Fig. 1404. *Lamprocystis (Guamia) misella* (Férussac, 1821).
A — shell: Guam Island. Basel No. 2183-a. B — reproductive tract. After Baker, 1938b.

wrinklets. Postnuclear whorls with similar sculpture but radial wrinkles above somewhat stronger, although very weak and irregular; basal surface with minor wavy spirals. Aperture barely angulated, columellar margin bears a spiral thread-like lamella. Height 5.30, diam. 8.64 mm.

Penial sheath coats very long epiphallus, which receives penial retractor near its middle. Penis not much longer than wide. Spermatheca swollen, fusiform.

DISTRIBUTION. Fiji Islands (Lau Archipelago: Naiiau). 1 sp.

Lamprocystis (Manureva) Baker, 1938
Fig. 1407

Baker, 1938b: 68, 69, 72.

TYPE SPECIES — *Lamprocystis rurutuana* Baker, 1938; OD.

Shell sublenticular, thin, glossy and subtranslucent above, more polished and translucent below. Whorls about 4. Last whorl sharply angulated. Color corneous, apex reddish-amber, sometimes broad, subsutural, light-chestnut band present. Embryonic

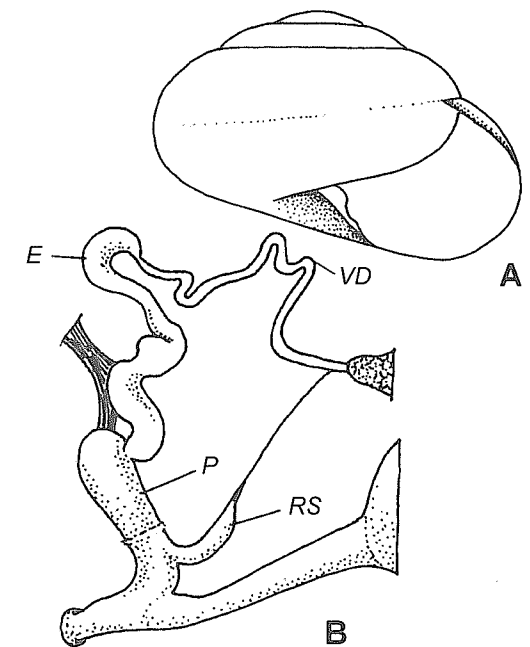


Fig. 1405. *Lamprocystis (Tongacystis) solida* (Mousson, 1871).
A — shell. B — distal part of reproductive tract. After Baker, 1938b.

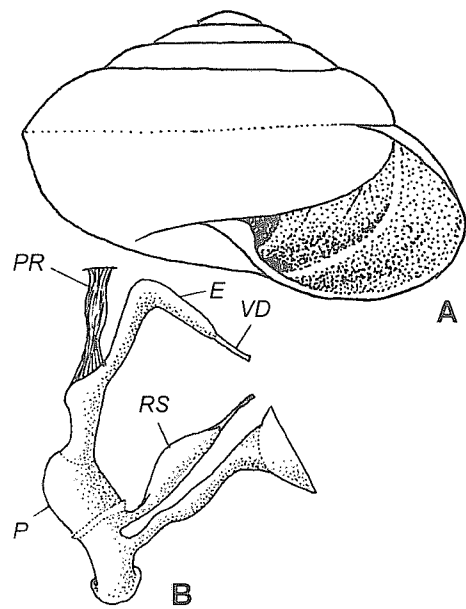


Fig. 1406. *Lamprocystis (Naiaua) laddi* Baker, 1938.
A — shell. B — reproductive tract. After Baker, 1938b.

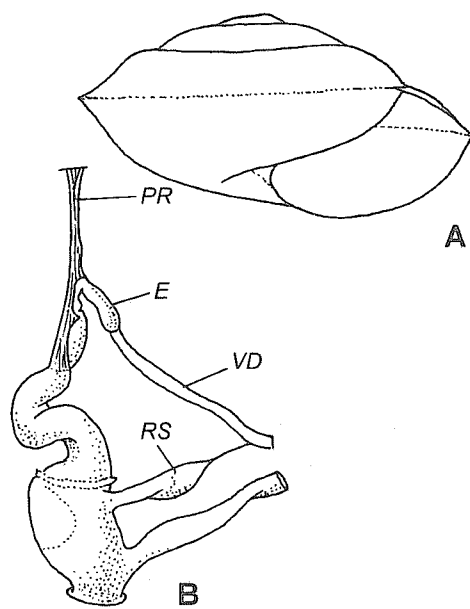


Fig. 1407. *Lamprocystis (Manureva) rurutuana* Baker, 1938.
A — shell. B — distal part of reproductive tract. After Baker, 1938b.

sculpture of spiral incised lines and interstitial wrinkles. Following whorls with spiral lines becoming weaker and separating wider and flatter interspaces and with weak but quite regular radial wrinkles above; basal surface with much weaker spiral striae. Aperture markedly angulated, slightly oblique. Columellar margin with steeply inclined spiral cord, strong in juveniles but much weaker and indistinctly truncated at 4 whorls. Height 4.86, diam. 9.29 mm.

Anatomy as in *Raiatea*.

DISTRIBUTION. Austral Islands (Rurutu). 1 sp.

Tengchiena Baker, 1942
Fig. 1408

Baker, 1942: 41.

TYPE SPECIES — *Hyalina rathouisii* Heude, 1882; OD.

Shell depressed-conic, comparatively solid, shining, semitransparent, of about 7.5 convex, shouldered whorls. Last whorl with peripheral, not strongly prominent keel. Color corneous. Embryonic whorls smooth. Postapical whorls with low, rounded, well spaced radial riblets and delicate spiral

striae above, nearly glabrous below. Aperture narrow, lunate, slightly oblique; columellar margin a little reflexed. Umbilicus dot-like, covered by thin film. Height 3.7-4.2, diam. 5.9-6.0 mm (3.7 × 5.9 mm).

Hermaphroditic gland consists of 5 triangular lobes of few clavate acini. Talon exposed, small, recurved. Vas deferens thin, convoluted in middle section, joining epiphallus apically. Epiphallus short, entering near penial apex. Penis rather long; internally, in basal half with 2 pilasters, one of which continuous with large, high, transversely convoluted fold (stimulator) in apical half. Penial retractor inserted on penis/epiphallus border. Spermathecal stalk very short; reservoir thin-walled, elongated-fusiform, with apical ligament.

DISTRIBUTION. E China. 1 sp.

Philonesiini Baker, 1940

Baker, 1940: 106 (as *Philonesiae*).

Epiphallus usually poorly demarcated from vas deferens; basal part of epiphallus modified into a short, swollen, internally

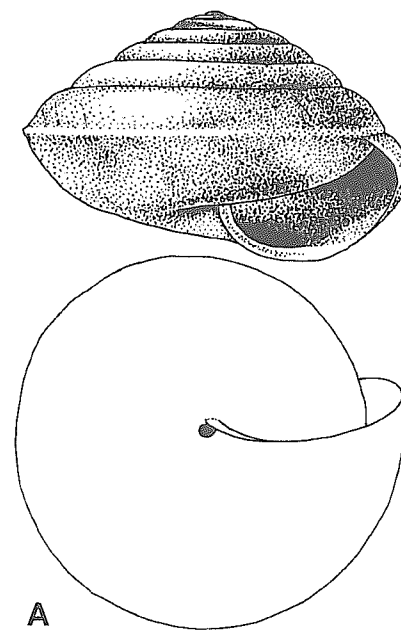


Fig. 1408. *Tengchiena rathouisii* (Heude, 1882).
A — shell: Shanghai, China. Senck. No. 42626. B — reproductive tract. After Baker, 1942.

plicate "corona". Penis lacking caeca, internally without stimulator.

DISTRIBUTION. Hawaiian, Marquesas, Tuamotu (Pitcairn, Mangareva, and ? Makatea), Norfolk and Austral Ids. (Rapa).

Mendana Baker, 1938

Baker, 1938b: 32 (as *Mendaña*).

TYPE SPECIES — *Mendaña rectangula altior* Baker, 1938; OD.

Shell with not sharp spiral sculpture, without hairs. Columella simple or somewhat thickened. Umbilicus closed.

Mantle without shell-lobes.

Penis without terminal or subapical caecum (although sometimes prolonged beyond entrance of vas deferens). Atrium without diverticle.

DISTRIBUTION. Marquesas, Society Islands, Norfolk.

Mendana (Mendana s. str.)
Fig. 1409

Shell rather high, turbinato-trochiform, moderately thin, of 6-7 flattened whorls.

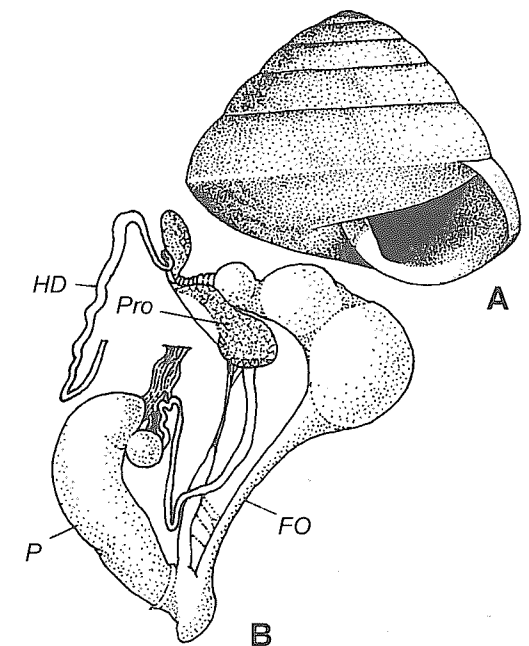


Fig. 1409. A — *Mendana (Mendana) rectangula rectangula* (L. Pfeiffer, 1846). Shell: Tahiti Island. StB. No. 22700. B — *Mendana (Mendana) rectangula altior* Baker, 1938. Reproductive tract. After Baker, 1938b.

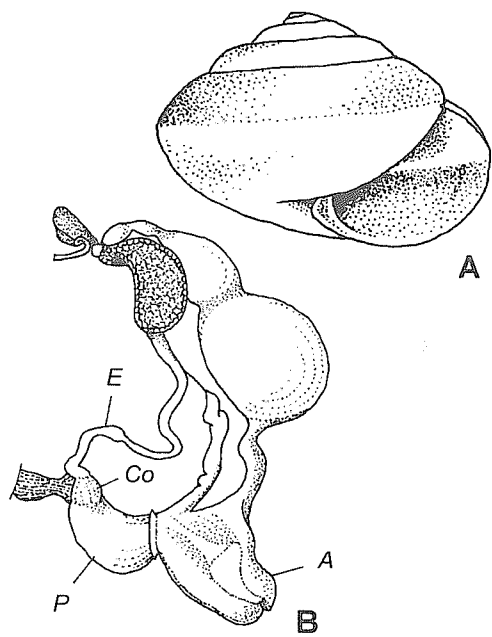


Fig. 1410. *Mendana (Uanuka) pisum* Baker, 1938. A — shell. B — reproductive tract. After Baker, 1938b. Co — epiphallic corona.

Last whorl with weakly margined thread-like keel. Color pale-straw to orange-buff; dark band and basal spot may be present. Embryonic sculpture of low but sharp spiral threads; rest whorls with weak but distinct radial wrinkles and finer irregular, wavy, spiral striae. Aperture semioval, slightly oblique, markedly angulated. In juvenile shells columella with spiral lamella until subadult stage; in adults it becomes obsolete. Height 7.9-12.9, diam. 10.0-15.0 mm.

Mantle without shell-lobes.

Epiphallic corona globular. Penis enormous but relatively short and stout. Penial prepuce and atrium very short. Penis sheath embraces about 2/3 of epiphallus, of which slender portion relatively small. Penial retractor arising near posterior border of diaphragm, inserting by branches on epiphallus but mainly near apex of penis. Free oviduct long, slender. Spermatheca long, fusi-form, with apical ligament.

DISTRIBUTION. Marquesas (Nukuhiva, Hivaoa, Tahuata Islands), Society Islands (Tahiti). 2 sp., one of them with 2 subsp.

Mendana (Uanuka) Baker, 1938

Fig. 1410

Baker, 1938b: 32, 40.

TYPE SPECIES — *Mendana pisum* Baker, 1938; OD.

Shell depressed to globose-trochiform, thin, of 4.5-5 moderately convex whorls. Last whorl slightly angulated or rounded, with weak thread-like keel or angle. Color of heavy periostracum golden to chestnut, lighter at base; sometimes banded. Embryonic sculpture of fine, wavy spiral threads, weakly beaded by radial wrinkles. Later whorls above with very weak radial wrinkles crossed by fine spiral threads; base polished. Aperture slightly oblique, palatal margin rounded or scarcely angulated. Columella rather heavy, more or less convex, without lamella at any stage. Height 3.4-7.3, diam. 5.5-9.5 mm.

Epiphallic corona sphaeroid. Penis stout, short. Penial prepuce and atrium considerably larger than penis, with thin-walled, sacculate lobe almost full length of right side, with strong internal pilaster and large, crescentic fold, with flocculent surface, passing obliquely across inside of outer wall. Penis sheath including over half of short epiphal-

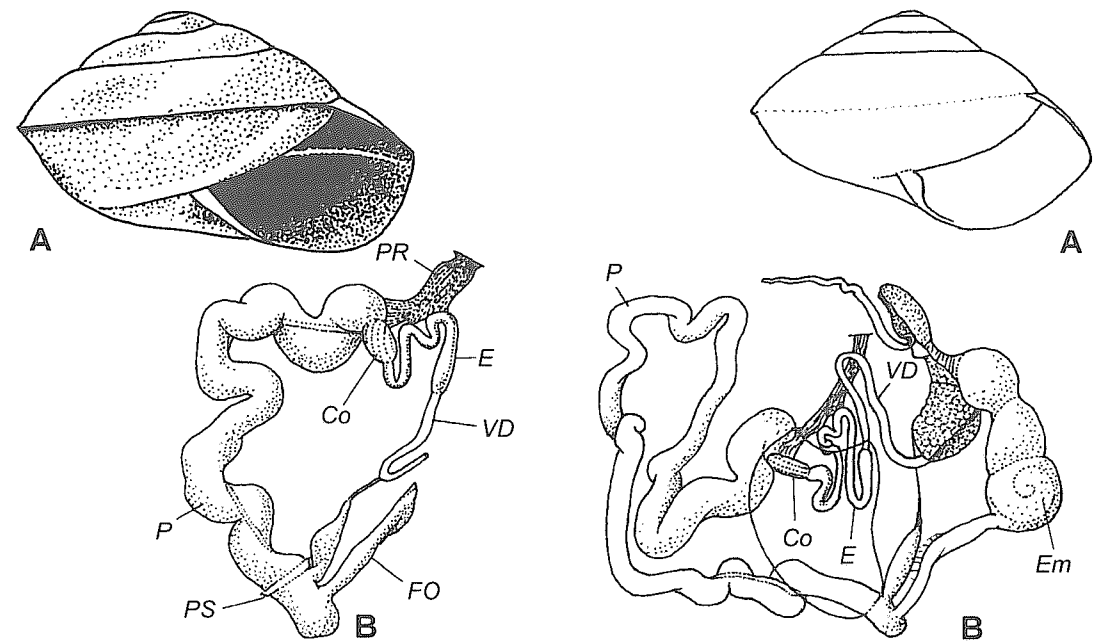


Fig. 1412. *Mendana (Macrorbis) mumfordi* Baker, 1938. A — shell. B — reproductive tract. After Baker, 1938b. Co — epiphallic corona.

Fig. 1413. *Mendana (Fatuoia) longicaulis* Baker, 1938. A — shell. B — reproductive tract. After Baker, 1938b. Co — epiphallic corona.

lus. Penial retractor inserted on corona and for some distance above and below. Atrium swollen or with distinct diverticulum. Spermatheca slender.

DISTRIBUTION. Marquesas (Nukuhiva, Uapou and Uahuka Islands). 5 spp.

Mendana (Tahuatoa) Baker, 1938

Fig. 1411

Baker, 1938b: 32.

TYPE SPECIES — *Trochonanina angulifera* Garrett, 1887; OD.

Shell almost lenticular, of 5-6 slightly convex whorls. Last whorl sharply angulated or keeled. Color pale- to russet-corneous, dull above and burnished below. Embryonic whorls with fine spiral threads. Postapical sculpture of low but sharp, closely spaced radial wrinkles crossed by spiral striae above peripheral angle; basal surface with weaker spiral sculpture. Aperture narrow, angulate. Height 4.3-5.2, diam. 5.9-9.3 mm.

Epiphallic corona subglobular, with ten

folks. Penis stout, sharply curved at proximal end. Preputial part of penis very short. Penial retractor attached to corona.

DISTRIBUTION. Marquesas (Hivaoa and Tahuata Islands). 2 or 3 spp.

Mendana (Macrorbis) Baker, 1938

Fig. 1412

Baker, 1938b: 32.

TYPE SPECIES — *Mendana (Macrorbis) mumfordi* Baker, 1938; OD.

Shell depressedly trochiform, thin, dull above and polished below, of 4.5-6 flattened whorls. Last whorl sharply angulated. Color corneous to chestnut, base lighter. Embryonic whorls with fine spiral threads. Sculpture of rest whorls of weak radial wrinkles at first, becoming excessively weak on body whorl, crossed by fine spirals on upper surface; base with almost obsolete spiral elements. Aperture fairly broad, slightly oblique. Columella thickened and abruptly tapered but without distinct fold at any stage. Height 7.0-9.6, diam. 13.0-15.2 mm.

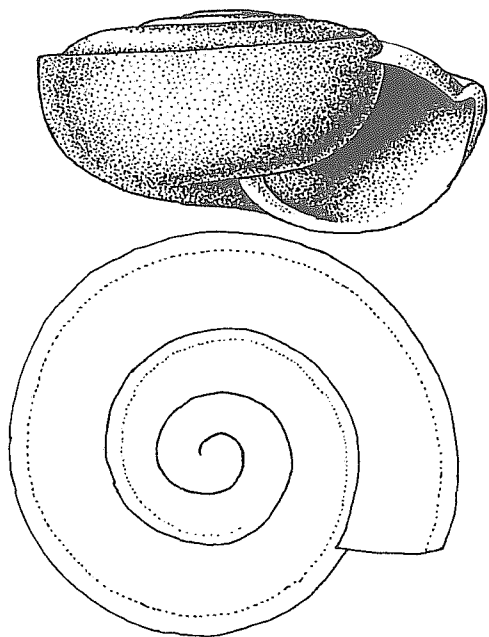


Fig. 1414. *Iredaleoconcha inopina* Preston, 1913. Limestone quarry, Norfolk Island. Holotype. London No. 1915.1.4.1320.

Epiphallic corona somewhat elongated. Penis very long. Penial retractor attached by larger arm to apex of penis and corona, by 2 smaller arms to epiphallus.

DISTRIBUTION. Marquesas (Nukuhiva Island). 1 or 2 spp.

Mendana (Fatua) Baker, 1938
Fig. 1413

Baker, 1938b: 32, 42.

TYPE SPECIES — *Mendana longicaulis* Baker, 1938; OD.

Shell depressed-turbinate, thin, of 4.25-5 flattened to moderately convex whorls. Last whorl slightly but distinctly angulated. Color corneous or yellowish-corneous. Embryonic whorls with extremely fine spiral threads becoming slightly stronger on later whorls; radial sculpture obsolete. Aperture weakly angulated, subvertical. Columellar margin with weak to rather strong fold. Height 4.8-6.9, diam. 7.8-10.7 mm.

Epiphallus long, with corona about twice as long as wide. Penis very long, irregularly convoluted, much enlarged apically and slightly so toward base. Penial prepuce

very short. Penis sheath including all epiphallus except two loops attached to penial retractor. Penial retractor inserting on base of corona and apex of penis. Spermatheca fusiform, moderate in length.

DISTRIBUTION. Marquesas (Hivaoa, Ta-huata, and Fatuhiva Islands). 5 spp. and subsp.

? *Iredaleoconcha* Preston, 1913
Fig. 1414

Preston, 1913b: 530.

TYPE SPECIES — *Iredaleoconcha inopina* Preston, 1913; OD.

Shell suborbicular to depressed-turbinate, thin, polished, shining, semitransparent, of 3.5-5 flattened whorls. Last whorl straight, with keel above mid-line. Base of shell inflated. Suture narrowly callously margined above, deeply channeled below; sutural channel continuing as supraperipheral channel on body whorl down to aperture. Color yellowish to brown. Embryonic whorls smooth. Postnuclear whorls with irregular radial wrinklets and distinct, close-set, spiral striae. Aperture lunate, subvertical. Umbilicus absent. Height 0.75-2.00, diam. 1.90-4.25 mm (0.75 × 1.91 mm).

DISTRIBUTION. Norfolk Island. 2 spp.

REMARK. This genus occupies, judging by its shell, a somewhat isolated position and reminds Moluccan *Diepenheimia* (see p. 1135) in its peculiar keel.

Philonesia Sykes, 1900

Sykes, 1900: 280. Baker, 1940: 106.

TYPE SPECIES — *Microcystis baldwini* Ancey, 1889; OD.

Shell with variously developed spiral sculpture, without hairs. Columella simple. Umbilicus closed.

Mantle with shell-lobes.

Epiphallus more or less clearly demarcated from vas deferens. Epiphallic corona well developed. Penis without terminal or subapical caecum, internally usually with a stimulator. Atrium without diverticle.

DISTRIBUTION. Hawaiian, Marquesas, Tuamotu (Pitcairn, Mangareva, ? Makatea) and Austral Islands (Rapa).

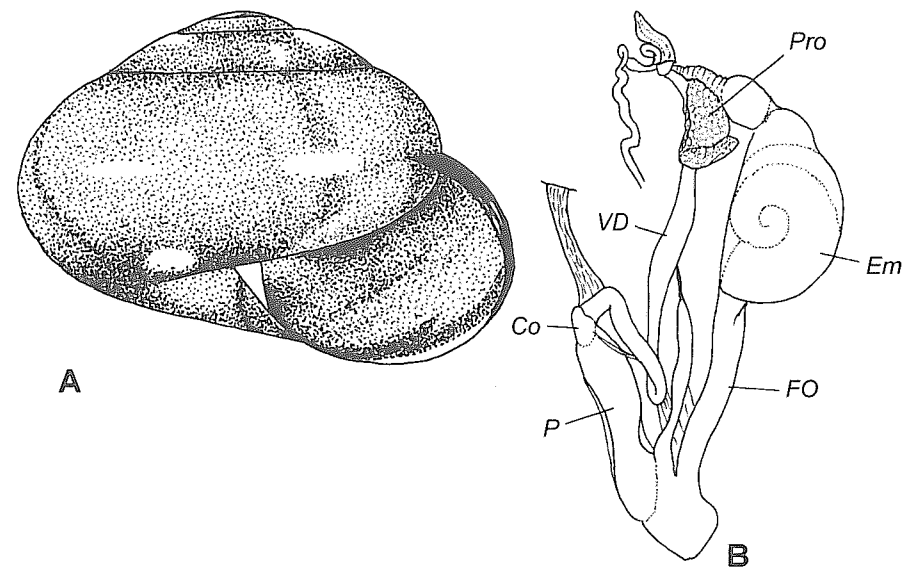


Fig. 1415. *Philonesia (Pitcairnia) pitcairnensis* Baker, 1940. A — shell: Pitcairn Island. Syntype. Phil. No. 78272. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

Philonesia (Pitcairnia) Baker, 1940
Fig. 1415

Baker, 1940: 106, 109.

TYPE SPECIES — *Philonesia (Pitcairnia) pitcairnensis* Baker, 1940; OD.

Shell subglobose, thin, covered with heavy periostracum, more or less translucent, shining, of 3.5-4 flattened whorls; penultimate whorl bluntly angulated, body whorl quite evenly rounded. Color dark brownish-corneous to yellowish-olive, sometimes more olive below; uniform or with 3 whitish bands. Embryonic whorls smoothish, later whorls with weak, low, irregular radial wrinkles and variously expressed spiral striae above and below. Aperture narrowly lunate, oblique, margins thin, simple; columellar margin nearly vertical, dilated above. Umbilicus closed by reflection of columellar margin, but umbilical foveola present. Height 5.0-6.9, diam. 7.5-11.4 mm (5.6 × 7.5 mm).

Talon ovoid, carrefour small. Vas deferens stout, not becoming much larger until very short epiphallus. Penis large, slightly swollen apically. Penial prepuce very short and wide. Penial retractor attached to

penial apex, corona and about an equal distance above corona. Uterus contains a few eggs and/or embryos. Free oviduct long. Spermatheca without distinct subdivision into stalk and reservoir, inserting on male side of atrium.

DISTRIBUTION. Tuamotu (Pitcairn and Mangareva Islands). 3 spp.

Philonesia (Philonesia s. str.)
Fig. 1416

Shell depressed to subglobose, thin, translucent to semitransparent, shining, of 4-5 weakly convex whorls; last whorl slightly angled to evenly rounded. Color corneous to yellowish. Embryonic whorls at very beginning smooth and polished, but usually soon assuming very fine, crowded, spiral striae; similar sculpture retained on later whorls. Aperture broadly semilunate, not very oblique, with simple, sharp margins. Umbilical foveola shallow. Height 3.1-5.8, diam. 5.1-8.7 mm.

Talon bipartite. Vas deferens short, stout, about same diameter as epiphallus. Epiphallic corona subglobose, internally with 5 longitudinal glandular folds. Penis

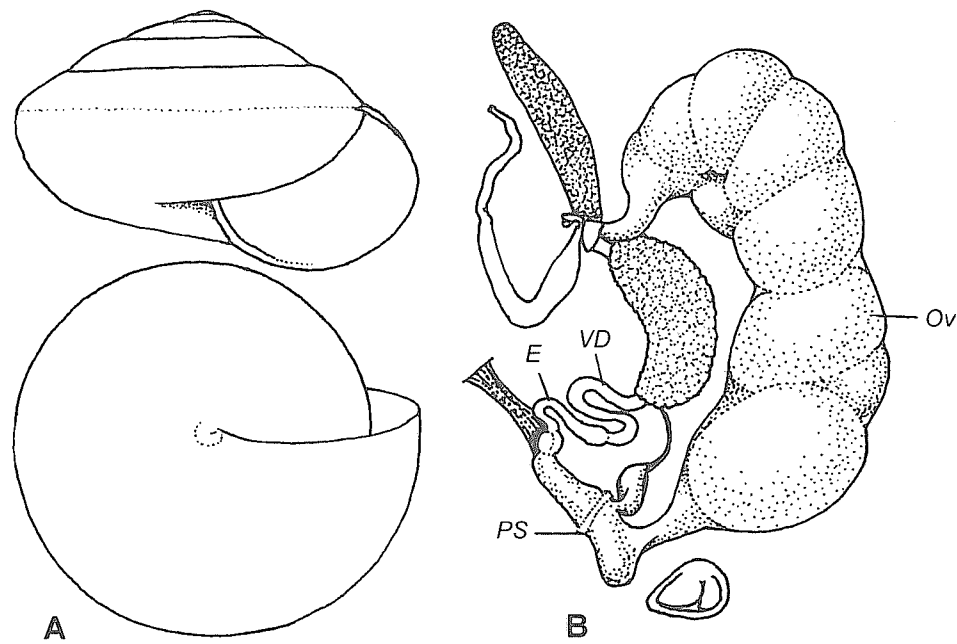


Fig. 1416. *Philonesia (Philonesia) baldwini* (Ancey, 1889).
A — shell. B — reproductive tract. After Baker, 1940.

rather short, containing 2 pilasters. Penial prepuce lacking lobe or diverticle. Penial sheath covering penis, epiphallus and a loop of vas deferens. Penial retractor diaphragmal, attached to epiphallic corona. Uterus contains a few eggs and/or embryos. Spermatheca small, almost sessile.

DISTRIBUTION. Hawaii Islands (Oahu, Maui, Kauai, Hawaii, Lanai). About 25 spp. & subspp. with numerous forms.

Philonesia (Kipua) Baker, 1940
Fig. 1417

Baker, 1940: 107, 112.

TYPE SPECIES — *Helix chamissoi* L. Pfeiffer, 1855; OD.

Shell depressed, thin, somewhat shining (especially below), translucent, of 4-5.5 flattened whorls. Last whorl obtusely angulated. Color light-corneous to yellowish, uniform or with whitish radial streaks. Embryonic whorls smooth, polished. Later whorls silky radially striatulate; delicate spiral striation visible on upper side. Aperture broadly lunate, weakly to barely angulated, slightly oblique, with simple margins; columella lightly thickened, gradually

reflexed. Height 4.5-9.2, diam. 9.2-10.7 mm (5.2 × 9.2 mm).

Talon short, clavate, bipartite; carrefour ovoid. Vas deferens moderately stout. Epiphallus short, corona elongated, internally with 6 axial folds. Penis large, internally with very high, heavy pilaster and numerous transverse plicae throughout its length. Penial prepuce and atrium short but broad, almost filled by large, triangular, glandular stimulator. Penis sheath including epiphallus. Uterus containing a few eggs and/or embryos. Spermatheca sausage-shaped, with very short stalk.

DISTRIBUTION. Hawaiian Islands (Kauai). 1 or 2 spp.

Philonesia (Rapafila) Baker, 1940
Fig. 1418

Baker, 1940: 107, 158.

TYPE SPECIES — *Philonesia (Rapafila) zimmermani* Baker, 1940; OD.

Shell depressed, more or less lens-shaped, thin, semitransparent, of 3.5-4 nearly flat whorls; last whorl obtusely angulated to subcarinate. Color light-olive, yellowish- or greenish-corneous; sometimes there is a

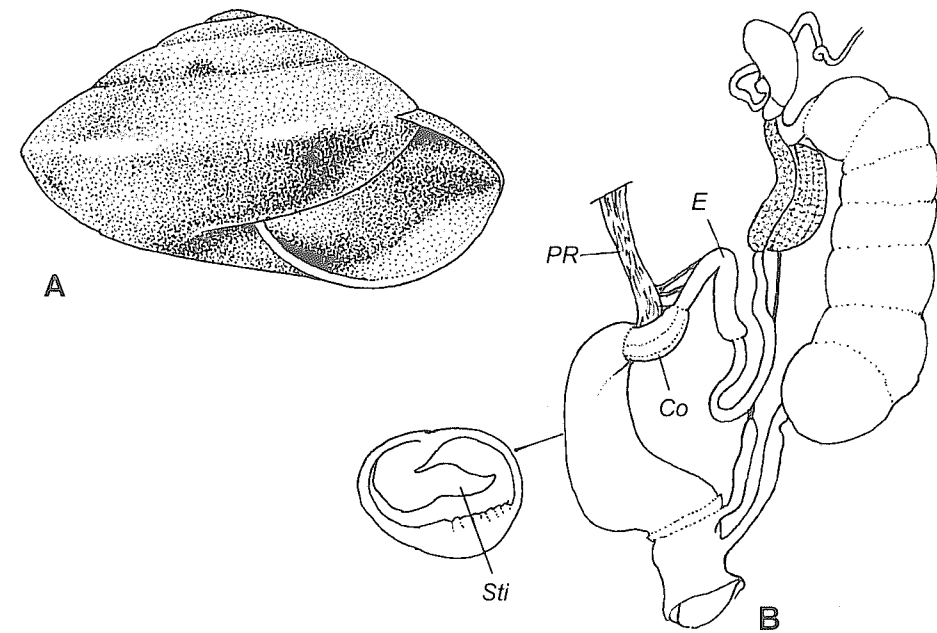


Fig. 1417. *Philonesia (Kipua) chamissoi* (L. Pfeiffer, 1855).
A — shell: Hawaii (Kauai Island). Senck. No. 157860. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

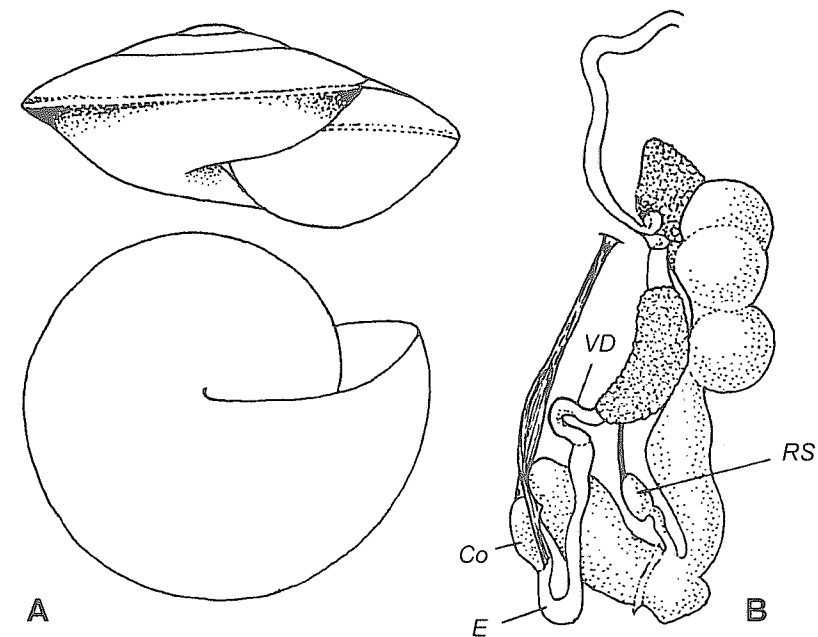


Fig. 1418. *Philonesia (Rapafila) zimmermani* Baker, 1940.
A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

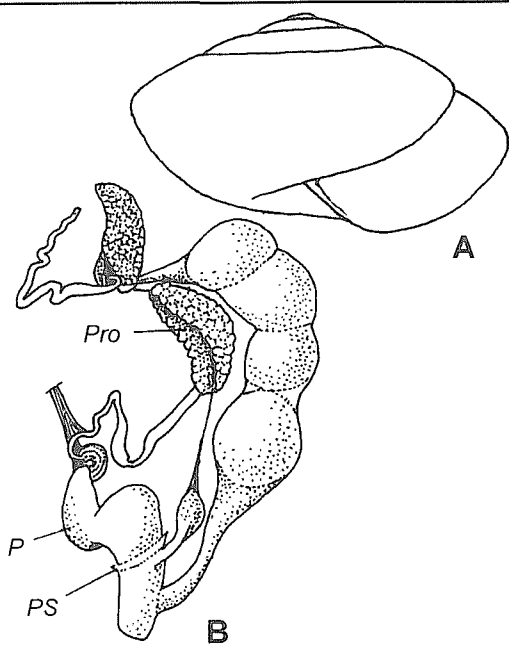


Fig. 1419. *Philonesia (Aa) waiheensis* Baker, 1940.
A — shell. After Baker, 1941. B — reproductive tract. After Baker, 1940.

narrow subsutural chestnut band. Embryonic sculpture of coarse rounded radial wrinkles and very fine but quite sharply impressed spiral lines. Postnuclear whorls with fairly regular, low, sharply cut, major radial wrinkles, decussated by spiral lines; basal surface more polished, with spiral striae blurred. Aperture rather broad, well oblique; columellar margin short, steeply inclined, weakly thickened. Height 3.8-4.6, diam. 7.4-10.2 mm.

Vas deferens moderately to very short, rather stout. Epiphallic corona internally with very few folds. Penis large, bulky. Penial sheath including epiphallic corona. Penial retractor attached to base of corona or to its tip. Uterus containing 3-5 eggs and/or embryos. Spermatheca small, with short stalk and ovate reservoir.

DISTRIBUTION. Austral Islands (Rapa). 4 spp. and subsp.

Philonesia (Aa) Baker, 1940

Fig. 1419

Baker, 1940: 107, 145.

TYPE SPECIES — *Philonesia (Aa) waiheensis* Baker, 1940; OD.

Shell depressed, with low, conoid spire, thin, translucent, glossy, of 4-5 slightly convex whorls; body whorl in adult shells obtusely but distinctly angled. Color corneous. Embryonic whorls with fine, fairly sharp, spiral striae. Postnuclear sculpture of fine, wavy, rather sharp but shallow, spiral striae, crossing weak, irregular radial wrinkles above; base with spiral striation and more evident radial wrinkles. Aperture broad but depressed, weakly and very obtusely angulated, moderately oblique; columellar margin short, with broadly reflexed callus. Height 3.7-4.5, diam. 6.8-7.7 mm.

Talon comma-shaped, bipartite. Vas deferens very short, epiphallus somewhat longer, with rather small corona. Penis tapering apically, penial prepuce quite short. Sheath of penis very heavy, covering short epiphallus. Penial retractor arising near base of uterus and mainly inserting on penial apex, but with branch to epiphallus above corona. Uterus with a few eggs and/or embryos. Spermatheca short, fusiform with subequal shaft and thin ligament.

DISTRIBUTION. Molokai, Maui and Hawaii Islands. 5 spp.

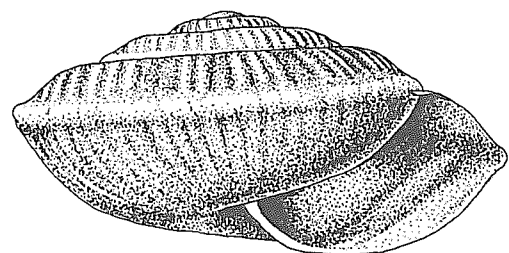


Fig. 1420. *Philonesia (Waihoua) kaliella* Baker, 1940.
Puuwaawaa, Hawaii Island. Paratype. Phil. No. 127982.

Philonesia (Waihoua) Baker, 1940

Fig. 1420

Baker, 1940: 107, 114.

TYPE SPECIES — *Philonesia ? (Waihoua) kaliella* Baker, 1940; OD.

Shell sublenticular, thin, probably dull above and below, of 4-4.5 flattened whorls. Last whorl with heavy, rounded peripheral keel. Surface bleached and chalky, with reddish deposit and variously expressed narrow dark band under keel. Embryonic sculpture of very fine, crowded, spiral striae. Postnuclear whorls with heavy, angular riblets surmounted by vestiges of spiral striae. Aperture roughly trapezoidal, oblique, with strong carinal sulcus and simple margins; columellar margin short, concave, gradually reflexed and weakly thickened. Umbilicus closed, but there is a moderately deep, quite narrow foveola. Height of holotype 2.61, diam. 5.37 mm (3.33 × 5.83 mm).

DISTRIBUTION. Hawaii Island. 1 sp. (subfossil).

Philonesia (Mauka) Baker, 1940

Fig. 1421

Baker, 1940: 107, 133.

TYPE SPECIES — *Philonesia (Mauka) welchi* Baker, 1940; OD.

Shell depressed, thin, fragile, glossy, of about 4.5 slightly convex whorls. Last whorl with very light peripheral angle. Color light to dark amber-corneous. Embryonic whorls soon assuming very fine, fairly sharp, closely spaced, spiral striae. Subsequent whorls with quite sharply cut, crowded, wavy, spiral striae and with shallow but quite distinct, irregularly spaced radial wrinkles; base with spiral striae much blurred. Aperture broadly lunate, somewhat oblique, practically evenly rounded; columellar margin short and slender. Height 4.4-5.0, diam. 8.2-8.7 mm.

Vas deferens short, rather stout. Epiphallus very long, with small corona, of about same diameter as vas deferens. Penis long, sinuous, with rather short prepuce. Penial sheath covering approximately 3/4 of penis or over epiphallus as well. Insertion of penial retractor extending for about 0.4 length of epiphallus. Uterus with more

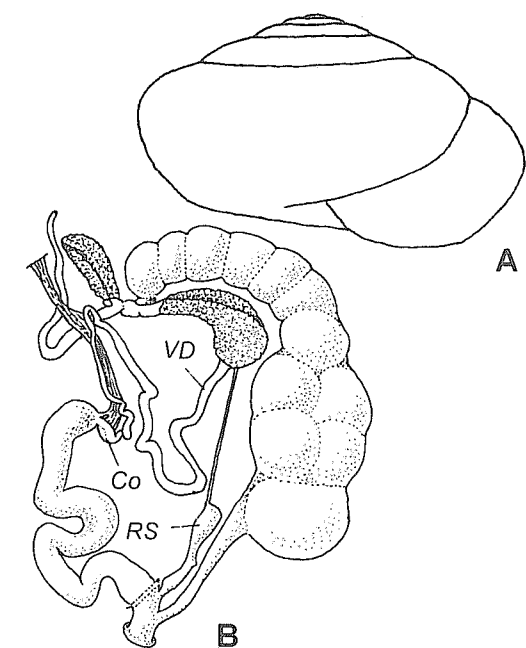


Fig. 1421. *Philonesia (Mauka) welchi* Baker, 1940.
A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

than 10 eggs and/or embryos. Spermatheca small, thin apical ligament attached to basal part of prostate.

DISTRIBUTION. Hawaiian Islands (Oahu). 3 spp.

Philonesia (Uafatua) Baker, 1940

Fig. 1422

Baker, 1940: 107, 154.

TYPE SPECIES — *Philonesia (Uafatua) hellicarion* Baker, 1940; OD.

Shell inflated, somewhat vitrinoid, largely periostracal, very thin, transparent, shining, of 3-4 barely convex whorls; last whorl evenly rounded. Color dark-olive or light-greenish-corneous, often darker above than below and sometimes with vague, supraproperipheral and subsutural bands of deeper color. Embryonic whorls with weakly impressed fine spiral striae. Postnuclear whorls with very superficial, weak radial wrinkles and obsolete spiral striae. Aperture ample, subcircularly lunate, a little oblique; columellar margin thin, sharp. Height 4.9-7.4, diam. 7.4-10.8 mm.

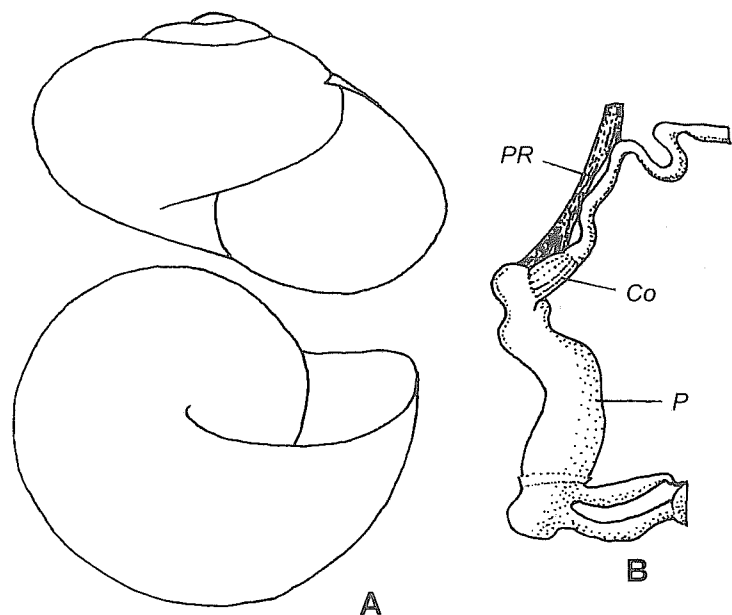


Fig. 1422. *Philonesia (Uafatua) helicarion* Baker, 1940.
A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

Vas deferens comparatively long. Epiphallic corona short and broad, internally with nodulate folds. Penis stout, bulky. Penial prepuce and atrium short. Penis sheath including about half of epiphallus. Penial retractor inserting widely near penial apex (also attached to epiphallus). Uterus containing 4-6 eggs and/or embryos. Spermatheca sausage-shaped, practically without stalk.

DISTRIBUTION. Marquesas (Uahuka, Uapou, and Fatuhiva Islands). 3 spp.

Philonesia (Nesarion) tenuissima Baker, 1940
Fig. 1423

Baker, 1940: 107, 157.

TYPE SPECIES — *Philonesia (Nesarion) tenuissima* Baker, 1940; OD.

Shell similar to *Uafatua* but thinner, more fragile, and more transparent, of 3-3.3 whorls. Color greenish- or yellowish-corneous, sometimes tinged with amber. Embryonic whorls with very weak, fine spiral striae. Later whorls with extremely shallow radial lines and with slightly more obsolete spiral striation above; on basal sur-

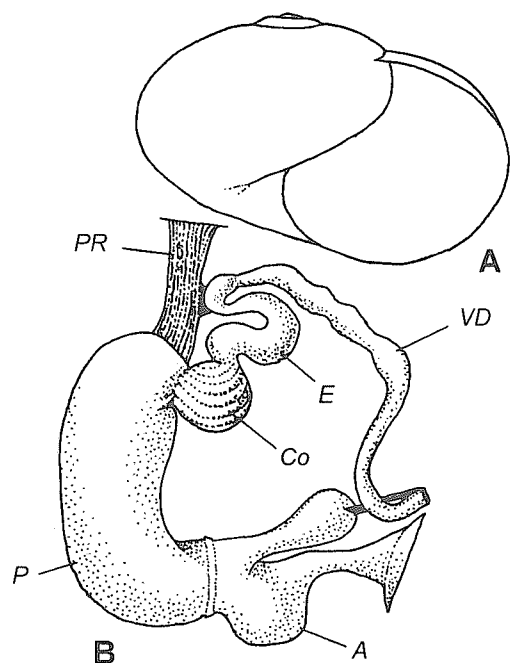


Fig. 1423. *Philonesia (Nesarion) tenuissima* Baker, 1940.
A — shell. B — distal part of reproductive tract. After Baker, 1940. Co — epiphallic corona.

face this sculpture weaker, diffuse. Aperture subcircular, columellar margin thin. Height 3.8-5.4, diam. 5.6-7.5 mm.

Vas deferens moderately short and stout. Epiphallic corona globular, with numerous internal folds. Penis large, bulky. Penial sheath including epiphallic corona. Penial retractor attaching to penis subapically. Spermatheca with very short stalk and ovoid reservoir, with short apical ligament.

DISTRIBUTION. Marquesas (Hivaoa and Tahuata Islands). 1 sp. with 3 subspp.

Philonesia (Oafatua) uapouae Baker, 1940
Fig. 1424

Baker, 1940: 107, 148.

TYPE SPECIES — *Philonesia (Oafatua) uapouae* Baker, 1940; OD.

Shell more or less lens-shaped, thin, silky glossy, of 4-4.5 slightly convex whorls. Last whorl scarcely to sharply angled or keeled. Color light-amber to corneous. Embryonic whorls distinctly spirally striated, later whorls with weak, irregular, radial wrinkles and wavy, deeply engraved spiral lines above; on basal surface this sculpture becomes somewhat weaker. Aperture relatively narrow, slightly oblique, palatal margin more or less angulated; columellar margin shortly thickened and reflexed. Height 2.2-4.0, diam. 3.7-6.2 mm (3.2 × 6.0 mm).

Vas deferens moderately long. Epiphallic corona very short and broad, with numerous internal folds. Penis long, sometimes swollen proximally. Penial sheath covering 2/3 of penis, attached to epiphallus, or covering all epiphallus or only corona. Penial prepuce short. Uterus with 4-6 eggs and/or embryos. Spermatheca long, slender, with very short shaft.

DISTRIBUTION. Marquesas (Fatuhiva, Hivaoa, Uapou, Uahuka). 7 spp.

Piema Cooke in Baker, 1940

Baker, 1940: 106, 136 (*Philonesia* subg.)

TYPE SPECIES — *Philonesia (Piema) grandis* Baker, 1940; OD.

Shell with well developed spiral striae, without hairs. Columellar margin simple. Umbilicus closed or tiny but covered by reflection of columellar margin.

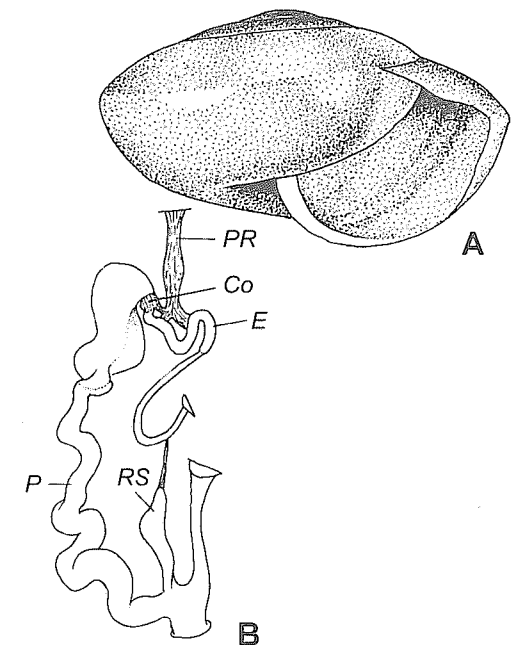


Fig. 1424. A — *Philonesia (Oafatua) uapouae* Baker, 1940. Shell: Marquesas. Basel No. 8433-a.
B — ! *Philonesia (Oafatua) contigua* (Garrett, 1887). Reproductive tract. After Baker, 1940. Co — epiphallic corona.

Mantle with shell-lobes.

Epiphallus somewhat (not sharply) demarcated from vas deferens. Epiphallic corona subglobular to slightly elongated. Penis lacking terminal or subapical caecum. Atrium with an appendix which may be shifted to preputial part of penis.

DISTRIBUTION. Hawaiian and Marquesas Islands.

Piema (Haleakala) turgida diducta Baker, 1940
Fig. 1425

Baker, 1940: 107, 138 (*Philonesia* subg.).

TYPE SPECIES — *Philonesia (Haleakala) turgida diducta* Baker, 1940; OD.

Shell turbinate, with more or less conoid spire, thin, glossy above and more so below, translucent, with thick periostracum, of 4-5 flattened whorls. Last whorl somewhat angled in subadult shells and nearly evenly rounded in full-sized ones. Color brownish or corneous. Embryonic whorls with sharp, fine, spiral striae and

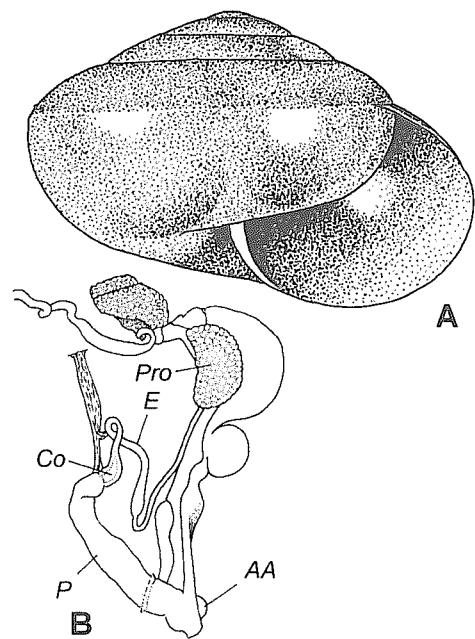


Fig. 1425. *Piena (Haleakala) turgida diducta* (Baker, 1940).
A — shell: Polipoli, East Maui, Hawaiian Islands. Paratype. Phil. No. 178255. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

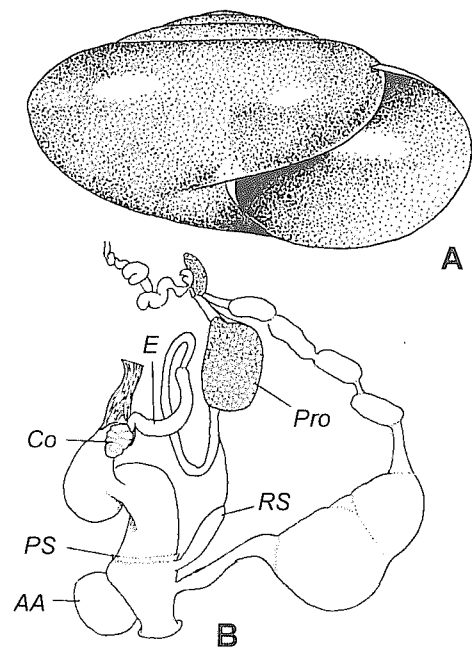


Fig. 1426. *Piena (Nukupiena) ordinaria* Baker, 1940.
A — shell: Toovii, Nuku Hiva, Marquesas Islands. Phil. No. 178284. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

low but distinct, rounded radial wrinkles. Sculpture of subsequent whorls of sharply engraved, fine, rather widely but irregularly spaced, spiral striae, which separate spiral wrinkles that crossed by very fine, sharp, minor and weak major radial wrinkles above and with sharp, wavy spiral striae and much weaker minor radial lines below. Aperture subcircular, moderately oblique, with simple margins; columellar margin narrowly, gradually reflexed and thickened. Height 3.0-4.3, diam. 4.7-6.6 mm (3.5 × 4.8 mm).

Vas deferens moderately short, rather stout. Epiphallus of about same length, with short corona, poorly demarcated apically. Penis moderately long, with quite short prepuce. Penial sheath including most of epiphallus. Atrial appendix small, flattened, sac-like. Uterus with a few eggs and/or embryos. Spermatheca large, sausage-shaped, practically sessile.

DISTRIBUTION. Hawaiian Islands (Maui, Lanai, Oahu, Kauai, Molokai, Hawaii). 9 spp. & subspp.

Piena (Nukupiena) Baker, 1940
Fig. 1426

Baker, 1940: 107, 153 (*Philonesia* subg.).

TYPE SPECIES — *Philonesia (Nukupiena) ordinaria* Baker, 1940; OD.

Shell moderately depressed, thin, brilliant, subtransparent, of 4-4.5 slightly convex whorls. Last whorl in adult shells barely angled. Color greenish-corneous. Embryonic whorls smooth, polished. Later whorls with weak, rather closely spaced radial lines and obsolete spiral striae above and with spiral striation just visible on base. Aperture semilunate, moderately oblique to subvertical, quite evenly rounded; columellar margin rather abruptly thickened, covers tiny umbilicus. Height 5.3-6.1, diam. 8.2-9.5 mm (5.3 × 9.5 mm).

Vas deferens moderately long. Epiphallic corona short and broad. Penis large. Penial sheath including all epiphallus. Atrial appendix large, lenticular, externally flocculate, thin-walled, opening broadly into dorsal side of atrium and prepuce. Uterus with a few eggs and/or embryos. Spermatheca almost sedentary, sausage-shaped, with attenuated apex and very weak ligament.

DISTRIBUTION. Marquesas (Nuku Hiva Island). 2 spp.

Piena (Hionella) Baker, 1940
Fig. 1427

Baker, 1940: 163, 179 (*Hiona* subg.).

TYPE SPECIES — *Microcystis rufobrunnea* Ancey, 1904; OD.

Shell suborbicular to depressed-turbinate, thin, translucent, of 4.5-5.25 somewhat flattened to slightly convex whorls. Last whorl in full-sized shells with weak angle (in young distinctly angulated). Color brownish-, reddish- or rufous-corneous. Embryonic whorls with weak spiral striae, later whorls with weak radial lines above and spiral striation just visible above and below. Aperture slightly oblique, more or less broadly lunate, evenly rounded; basal margin scarcely arcuate below. Columellar margin more or less thickened. Height 3.2-4.8, diam. 5.9-7.2 mm.

Hermaphroditic duct strongly swollen in distal half. Vas deferens stout, at least in proximal part. Epiphallic corona slightly longer than broad. Penis moderately long, with sheath including 1/2-2/3 of penis proper. Penial retractor attached to corona. Atrial appendix small to medium, with more or less truncated apex, shifted to prepuce. Spermatheca short, nearly sessile.

DISTRIBUTION. Hawaiian Islands (Lanai, Maui and Molokai). 6 spp. & subspp.

Piena (Piena) s. str.
Fig. 1428

Baker, 1940: 106, 136.

Shell depressed, thin to moderately solid, glossy, of about 4.5 weakly convex whorls. Last whorl almost evenly rounded in adults, angulated in young shells. Color darkish- or light-amber-corneous. Embryonic whorls, except for initial 0.5 whorl, with very fine, sharp, closely spaced, spiral striae. Later whorls with spiral striation and weak radial wrinkles. Aperture rather broad, semioval, evenly rounded, slightly convex; columellar margin shortly thickened and reflexed. Umbilical foveola broad and deep. Height 3.3-5.5, diam. 6.0-9.7 mm.

Hermaphroditic duct more or less swol-

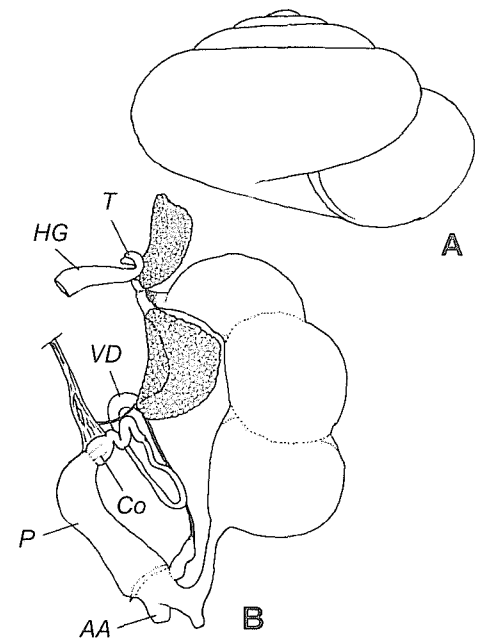


Fig. 1427. *Piena (Hionella) rufobrunnea* (Ancey, 1904).
A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

len in distal part. Vas deferens long, stout. Epiphallic corona subglobular. Penis quite elongated, with sheath including epiphallus. Penial retractor attached by 2 arms to corona and epiphallus. Atrial appendix shifted to penial prepuce, has shape of flattened sac which is thick-walled on its adjacent side and thin-walled on opposite one. Spermathecal stalk very short.

DISTRIBUTION. Oahu Island. 3 spp.

Piena (Hilooa) Baker, 1940
Fig. 1429

Baker, 1940: 107, 143 (*Philonesia* subg.).

TYPE SPECIES — *Philonesia (Hilooa) hiloi* Baker, 1940; OD.

Shell depressed-suborbicular, thin, glass-like, strongly shining, of 4-4.5 slightly convex whorls; last whorl more or less angled in the beginning, becoming almost evenly rounded near aperture. Color light-amber-corneous. Embryonic whorls with weak but fairly distinct, fine, spiral striae.

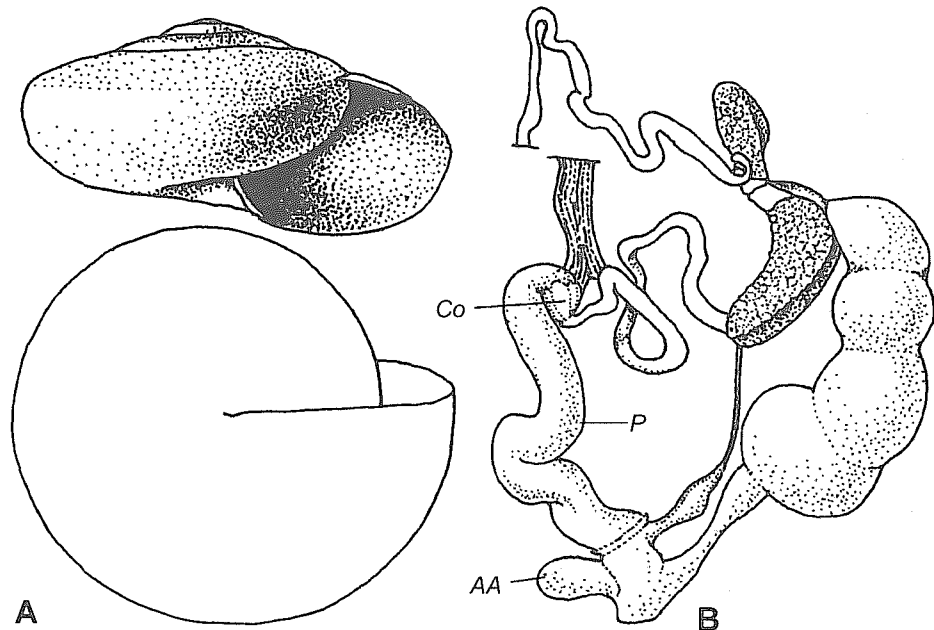


Fig. 1428. *Piena (Piena) grandis* Baker, 1940.
A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

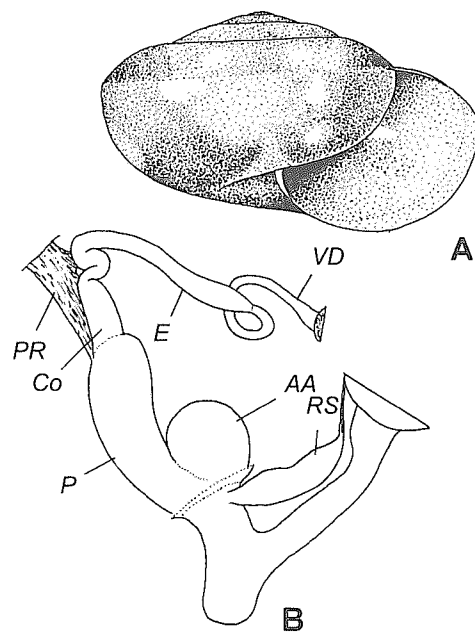


Fig. 1429. *Piena (Hiloaa) hiloa* Baker, 1940.
A — shell: Hilo, Hawaii, Hawaiian Islands. Paratype. Phil. No. 178257. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

Rest surface with weak, wavy, spiral striae and indistinct radial wrinkles above and still weaker sculpture below. Aperture depressed but rounded, moderately oblique; columellar margin scarcely reflexed. Height 2.7-3.7, diam. 4.5-5.9 (3.3 × 5.4 mm).

Vas deferens short. Epiphallus long. Epiphallic corona relatively large, elongated. Penis short, stout, internally with heavy pilaster. Atrial appendix large, glandular, subspherical, shifted to penis and situated just above attachment of penis sheath. Penis sheath including half of epiphallus. Penial retractor attached to apical portion of penis. Uterus containing 2-3 eggs and/or embryos. Spermatheca without definite stalk, with short apical ligament.

DISTRIBUTION. Hawaii Island. 2 spp.

Kaala Cooke in Baker, 1940
Fig. 1430

Baker, 1940: 161.

TYPE SPECIES — *Helix subrutula* Mighels, 1845; OD.

Shell depressedly dome-shaped, compa-

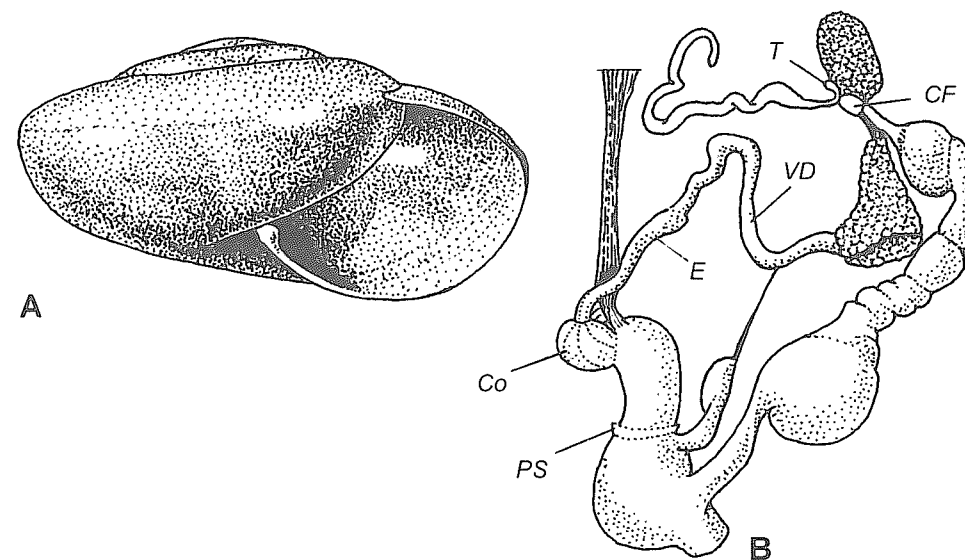


Fig. 1430. *Kaala subrutula* (Mighels, 1845).
A — shell: "Hawaii-Ins.: Kauai". Senck. No. 157861. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

ratively solid, without hairs, shining, of 4-5 slightly convex whorls. Last whorl with blunt angle. Color amber-corneous or olive. Embryonic sculpture of extremely fine spiral striae. Postnuclear sculpture of very delicate radial lines and weak spiral striation. Aperture ovate, moderately oblique; columellar margin truncated by entering spiral lamella. Umbilicus absent. Height 5.5-6.3, diam. 10.1-11.0 mm (5.6 × 11.0 mm).

Mantle with shell-lobes.

Vas deferens stout, moderately long. Epiphallus somewhat (not sharply) demarcated from vas deferens. Epiphallic corona well developed, subglobular, with a number of inner folds. Penis comparatively short, stout, internally with irregular folds; prepuce enormously large, greatly swollen. Penial sheath including half of epiphallus. Penial retractor inserting just below middle of epiphallus and on penial summit. Uterus containing several eggs and/or embryos. Spermathecal shaft very short, reservoir small, ovate, with apical ligament which inserts on upper section of vas deferens.

DISTRIBUTION. Oahu (Waianae Mts.) and Kauai Islands. 1 sp.

Hiona Cooke in Baker, 1940

Baker, 1940: 163.

TYPE SPECIES — *Microcystis platyla* Ancey, 1889; OD.

Shell flattened to nearly flat, without hairs. Last whorl with variously developed peripheral angle. Columellar margin simple or with steeply inclined spiral cord; parietal and basal plicae may be present. Umbilicus absent.

Mantle with shell-lobes or left lobe may be absent.

Epiphallus scarcely demarcated from vas deferens. Epiphallic corona well developed. Penis without caeca. Atrial appendix missing.

DISTRIBUTION. Hawaiian, Marquesas, Tuamotu (Mangareva and ? Pitcairn), Society and Austral Islands (Rapa).

Hiona (Minororbis) Baker, 1940
Fig. 1431

Baker, 1940: 163, 172.

TYPE SPECIES — *Helix cultrata* Gould, 1846; OD.

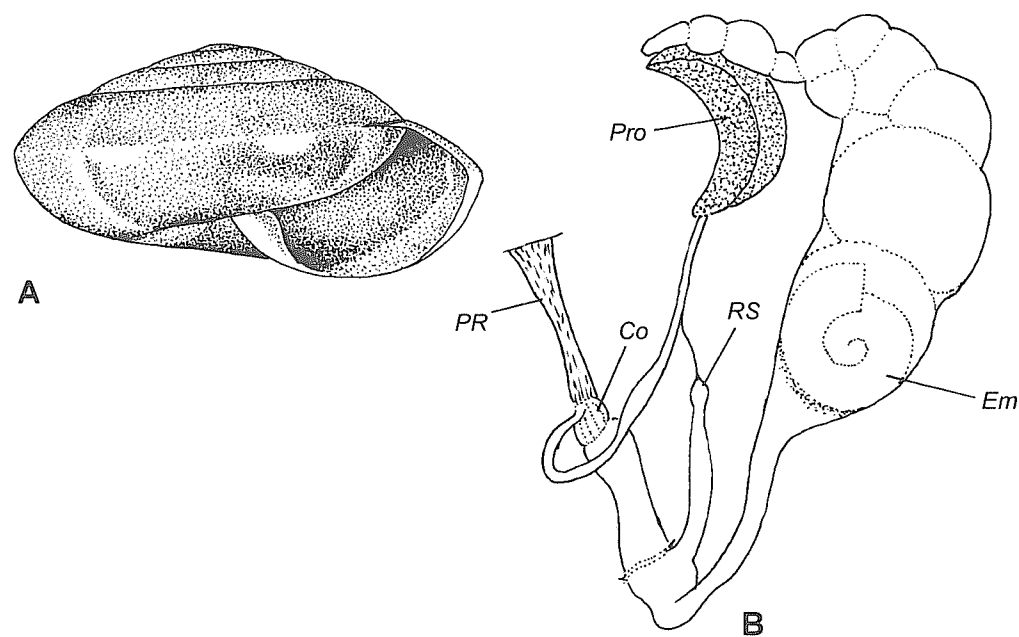


Fig. 1431. *Hiona (Minororbis) cultrata* (Gould, 1846).
A — shell: Marquesas. Bern, coll. Shuttleworth, No. 255. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

Shell depressed, thin, translucent, polished, glossy, of 4-6 somewhat flattened whorls. Last whorl fairly angulated. Color amber-corneous or fulvous. Embryonic whorls with superficial, very fine, but fairly distinct, spiral threadlets and rather distinct but low radial wrinkles. Subsequent whorls similarly sculptured, with major radial lines quite sharply cut; basal surface with radial lines weakened but with spiral striae fairly distinct. Aperture moderately narrow, quite oblique. Columellar margin short, heavy; in embryos with strong, quite steeply inclined, spiral lamella. Height 2.3-6.0, diam. 4.5-10.0 mm (3.6 × 6.8 mm).

Vas deferens moderately long, indistinctly demarcated from epiphallus. Epiphallic corona subglobose. Penis slightly swollen, internally with three longitudinal pilasters. Penial prepuce short. Penial sheath highly pigmented, including corona. Penial retractor inserting on apex of corona, which receives slender part of epiphallus laterally. Uterus containing a few eggs and embryos. Spermathecal stalk comparatively long, with small but distinctly demarcated reservoir.

DISTRIBUTION. Society Islands (Tahaa,

Moorea, Tahiti); Marquesas; ? Pitcairn (Tuamotu Islands). 3-7 spp.

Hiona (Insulorbis s. str.)
Fig. 1432

Shell depressed, thin, very shining, polished, of 3.5-4.5 only slightly convex whorls. Last whorl with very light peripheral angle. Color amber-corneous or greenish-corneous. Embryonic whorls with extremely fine, almost obsolete, spiral striae and very weak radial lines. Later whorls with similar spiral striation and radial lines superficial but quite sharp above; basal surface with a little weaker wavy spiral striae. Aperture ovate, somewhat oblique, with scarcely arcuate basal margin; columellar margin rounded concave. Height 3.7-5.5, diam. 6.3-9.3 mm (4.3 × 7.9 mm).

Anatomically differs from *Minororbis* mainly by shorter spermatheca which has poorly defined reservoir and by attachment of spermathecal ligament to prostata instead of vas deferens; uterus contains less eggs or embryos.

DISTRIBUTION. Society Islands (Tahiti and Huahine). 5 spp. & subsp.

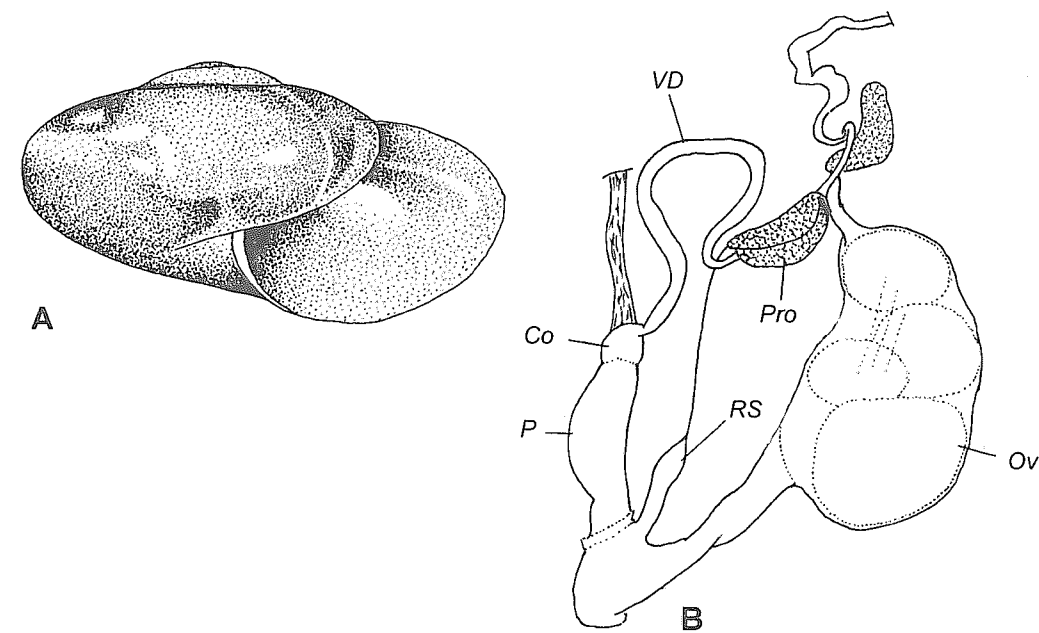


Fig. 1432. *Hiona (Insulorbis) monticola* Baker, 1940.
A — shell: Aorai trail, Tahiti. Phil. No. 178207. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

Hiona (Hionarion) Baker, 1940
Fig. 1433

Baker, 1940: 163, 178.

TYPE SPECIES — *Hiona (Hionarion) pilsbryi* Baker, 1940; OD.

Shell depressed to subglobose, thin, polished, translucent, of 4-5 whorls. Last whorl in adult shells weakly to fairly angulated. Color light- or brownish-corneous, sometimes with reddish-corneous band just above periphery. Embryonic whorls with fine but rather sharp spiral striae; postnuclear sculpture of very weak and irregular radial lines and obsolete spiral striation above. Aperture either narrow, almost transverse, barely angulated, or large, subcircular. Columellar margin with steeply inclined spiral thread at 3.5 whorls (at least in type species). Height 5.7-6.0, diam. 8.3-10.9 mm.

Vas deferens moderately long and thin, more or less distinctly demarcated from rather short epiphallus. Epiphallic corona subspherical. Penis subcylindrical, rather short. Penial sheath including all epiphallus, which receives small branches from penial retractor. Uterus contains 5 eggs and

embryos. Spermatheca short, almost sessile.

DISTRIBUTION. Hawaiian Islands (Kauai). 2 spp.

Hiona (Hiona s. str.)
Fig. 1434

Baker, 1940: 183.

Shell nearly flat, very thin, shining, semitransparent, of 4.5 flattened whorls. Last whorl with blunt to sharp angle above midline. Color pale-corneous. Embryonic whorls microscopically spirally striated. Later whorls with fine radial wrinkles and finer spiral striae; base lacking spiral sculpture and radial sculpture weaker. Aperture rather narrow, semilunate, quite oblique; columellar margin with a thickening or subhorizontal lamella. Umbilicus absent. Height 2.2-3.5, diam. 6.0-8.5 mm (3.0 × 8.1 mm).

Hermaphroditic duct moderately expanded. Talon bilobed, minute, exposed. Vas deferens stout, rather short. Epiphallic corona broader than long, with 6 internal folds. Penis enlarged, subfusiform, with

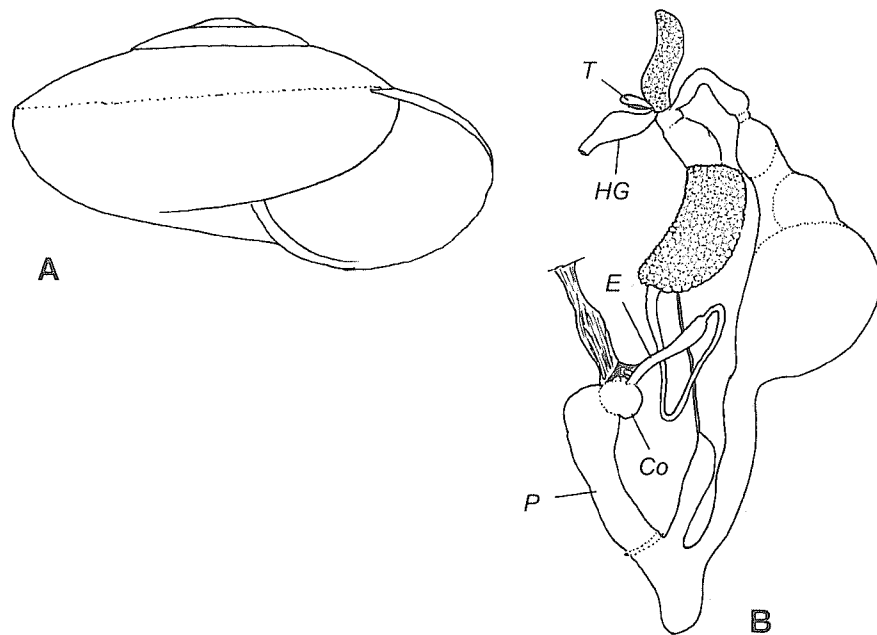


Fig. 1433. *Hiona (Hionarion) pilsbryi* Baker, 1940.

A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

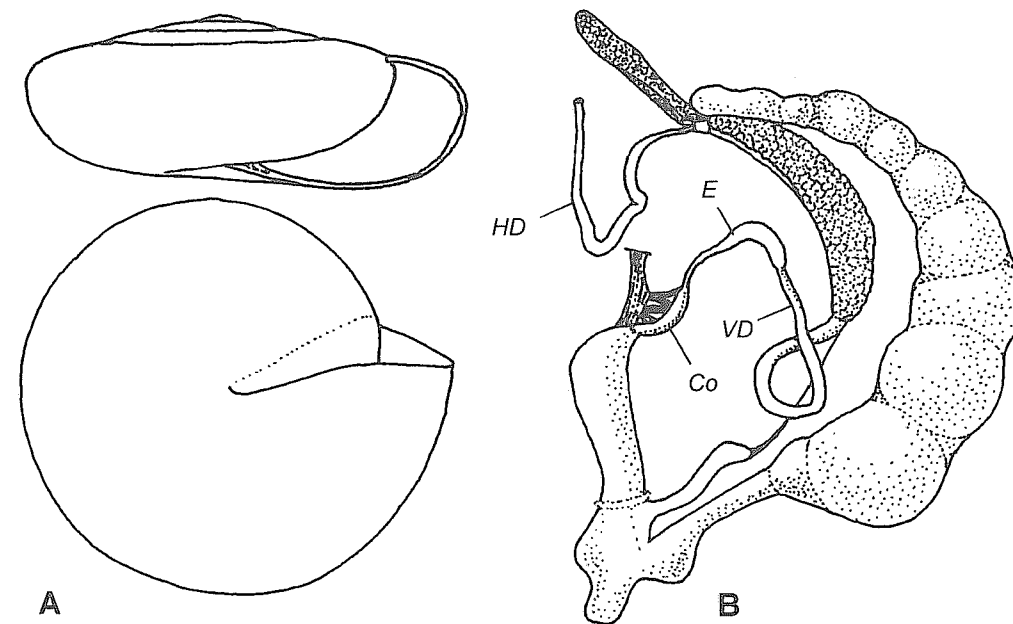


Fig. 1435. *Hiona (Nesocyclus) exaequata* (Gould, 1846).

A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

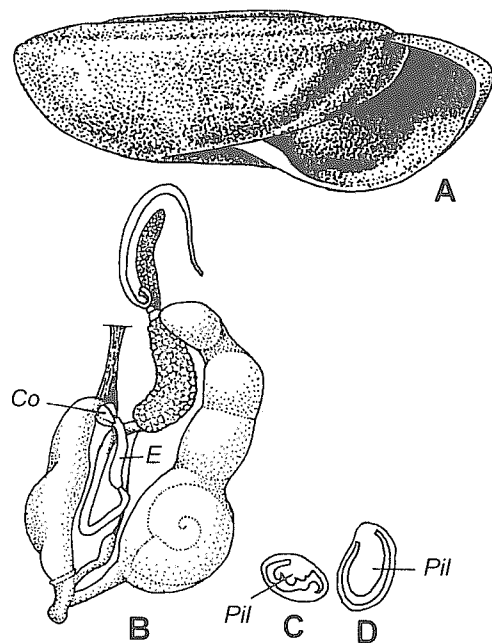


Fig. 1434. *Hiona (Hiona) platyla* (Ancey, 1889).

A — shell: Waianae Mts., Mokuleia, Oahu, Hawaii. Senck. No. 7365. B — reproductive tract. C — cross section of penis 1/3 its length below apex. D — cross section of penis 1/3 its length above base. After Baker, 1940. Co — epiphallic corona.

small prepuce, internally with a large longitudinal pilaster. Penis sheath including penis and over half of epiphallus. Penial retractor inserting above and below epiphallic corona. Free oviduct short. Spermatheca with slightly swollen reservoir and subequal stalk.

DISTRIBUTION. Hawaiian Islands (Oahu). 2 or 3 spp.

Hiona (Nesocyclus) Baker, 1940

Fig. 1435

Baker, 1940: 163, 186.

TYPE SPECIES — *Helix exaequata* Gould, 1846; OD.

Shell almost flat, thin, of about 4 scarcely convex whorls. Last whorl barely angulated at periphery. Color light- to dark-corneous. Embryonic whorls spirally striated. Postapical whorls with fairly distinct radial wrinkles above and below and with spiral lines which somewhat better expressed on base. Aperture rather narrow, lunate, subvertical. Umbilicus absent. Height 2.8-4.3, diam. 7.0-8.9 mm.

Hermaphroditic duct rather short. Vas deferens thickened, comparatively short. Epiphallus slender, with very slender, elongated corona which contains 4 axial folds. Penis somewhat enlarged, internally with 2 unequal longitudinal pilasters and glandular pocket between forks of larger pilaster in prepuce. Penis sheath including penis and epiphallic corona. Penial retractor attached by several short arms to corona and apex of penis. Oviduct moderately long, subsacculate near base. Spermatheca sleeve-like, only slightly enlarged in apical half.

DISTRIBUTION. Hawaiian Islands (Kauai). 6 spp. & subspp.

Hiona (Uapuneutra) Baker, 1940

Fig. 1436

Baker, 1940: 163, 166.

TYPE SPECIES — *Hiona (Uapuneutra) cookeana* Baker, 1940; OD.

Shell sublenticular, fairly polished and translucent above, well so below, of 3.5-4 flattened whorls. Last whorl with gentle

rounded angle. Color corneous (sometimes slightly greenish). Embryonic whorls with extremely fine, but quite sharp and distinct, spiral striae. Remaining whorls with spiral sculpture similar to embryonic ones and weak but fairly distinct radial wrinkles above; basal surface more polished, with fainter spiral lines. Aperture broadly trapezoidal, almost transverse, obtusely angulated, moderately oblique; basal margin straight. Columellar margin straight or slightly convex in embryos; sharp and concave in adults. Height 6.7-7.3, diam. 13.1-14.4 mm.

Vas deferens moderately long, vaguely demarcated from epiphallus. Epiphallic corona rather small, shorter than broad. Penis rather short. Penial prepuce very short. Penial retractor attaching to epiphallic corona and penial apex; another extremely short branch inserting to epiphallus at some distance from corona. Uterus contains 3-4 eggs and embryos. Spermathecal stalk short, reservoir elongated.

DISTRIBUTION. Marquesas (Uapou Island). 1 sp.

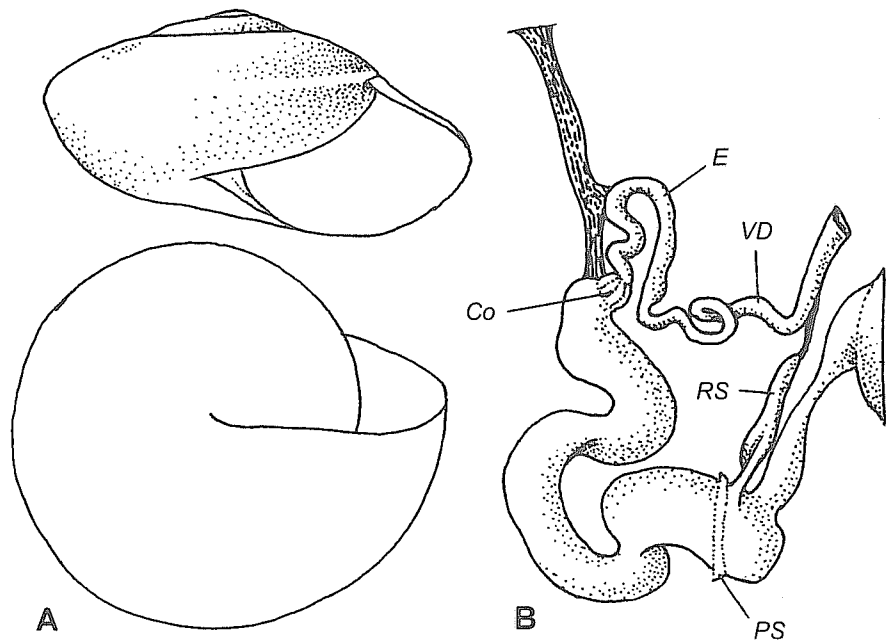


Fig. 1436. *Hiona (Uapuneutra) cookeana* Baker, 1940.
A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

Hiona (Opara) Baker, 1940
Fig. 1437

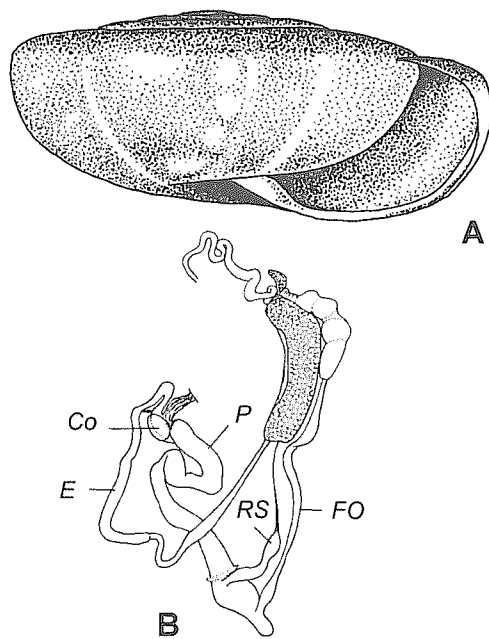


Fig. 1437. *Hiona (Opara) orbis* (Beck, 1837).
A — shell: "Pitcairn Id." [error?]. Zürich No. 500925. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

Baker, 1940: 163, 164, 175.

TYPE SPECIES — *Helicopsis orbis* Beck, 1837; OD.

Shell nearly flat, thin, highly shining, semitransparent, of 5-6 much flattened whorls. Last whorl with a weak, smoothed angle above midline. Color yellowish, with whitish radial streaks. Embryonic sculpture of microscopic radial wrinklets. Postnuclear whorls with similar irregular wrinklets (looking smooth). Aperture narrow, lunate, only slightly oblique. Columellar margin with a spiral callus-like thickening that visible from outside as a whitish zone around umbilical area. Umbilicus absent. Height 2.8-4.8, diam. 7-10 mm (3.2 × 8.0 mm).

Ovotestis consists of 7-8 conic groups of few, long clavate, often bifid acini. Hermaphroditic duct quite long, widened distally. Vas deferens comparatively short. Epiphallus long, looped, with subglobular corona which has 2 or 3 internal folds. Penis long, somewhat convoluted; prepuce comparatively long. Penis sheath including penis and 1/3 of epiphallus. Penial retrac-

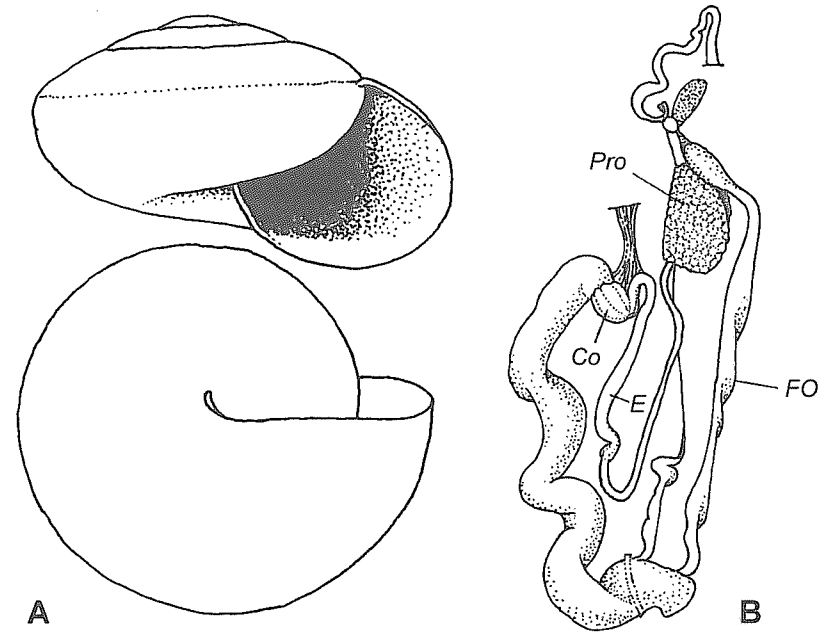


Fig. 1438. *Hiona (Neutra) lymaniana* (Ancey, 1893).
A — shell. B — reproductive tract. After Baker, 1940. Co — epiphallic corona.

tor attached to distal loop of epiphallus. Free oviduct quite long, slender. Spermatheca with poorly defined reservoir.

DISTRIBUTION. Rapa Island (Austral Islands), ? Pitcairn Island. 1 sp.

Hiona (Neutra) Baker, 1940
Fig. 1438

Baker, 1940: 163, 165.

TYPE SPECIES — *Microcystis lymaniana* (sic!) Ancey, 1893; OD.

Shell depressed-conic, thin, quite polished and translucent above, well polished and transparent below, of 4.5-5 flattened whorls. Last whorl in full-sized shells weakly angled. Color darkish-brown to brownish-olive. Embryonic sculpture of fine, weak spiral striae. Postnuclear whorls with weak, close-set but quite regular and distinct radial lines and spiral striation just visible above and obsolete below. Aperture fairly broad, slightly oblique, almost evenly rounded; basal margin nearly straight. Columellar margin with a low, steeply inclined, spiral cord-like lamella in embryos; heavy, rounded and weakly truncated be-

low in (sub)adult shells. Height 6.5-7.0, diam. 11.1-13.0 mm.

Vas deferens rather long, thin, well demarcated from epiphallus. Epiphallic corona with distinct internal folds. Penis long, sinuous and somewhat twisted. Penial prepuce moderate in length, with 2 internal pilasters. Penial sheath including all epiphallus or folded around base of penis. Penial retractor attached to epiphallic corona and adjacent portion of epiphallus. Uterus with 3-4 eggs and embryos. Spermatheca consisting of relatively short stalk and small reservoir with pointed tip.

DISTRIBUTION. Hawaiian Islands (Oahu). 1 sp.

Aukena Baker, 1940
Fig. 1439

Baker, 1940: 163, 177 (*Hiona* subg.).

TYPE SPECIES — *Hiona (Aukena) tridentata* Baker, 1940; OD.

Shell conoid-orbicular, thin, polished, of about 5 moderately convex whorls. Last whorl weakly angulated in adult shells. Color white (subfossil). Embryonic whorls



Fig. 1439. *Aukena tridentata* (Baker, 1940).
After Baker, 1940.

with fairly distinct, fine spiral striae. Later whorls with similar spiral striation and rather distinct radial lines above; basal surface with weaker spiral sculpture and widely spaced radial lines. Aperture rather narrowly lunate, moderately oblique, basal margin weakly arcuate. Columella very heavy, quite oblique, with steeply inclined, spiral cord in basal angle. Subadult shell also with parietal lamella, that starts at least 1/2 whorl back, highest about 1/8 whorl back and extends almost to level of peristome; basal margin with a short lamella opposite highest part of parietal one. Umbilicus absent. Height 3.1-3.4, diam. 4.6-5.2 mm.

DISTRIBUTION. Tuamotu (Aukena Islet near Mangareva Island). 1 subfossil sp.

Liardetiini Baker, 1938

Baker, 1938b: 8, 11 (as Liardetiae).

Epiphallus more or less distinctly demarcated from vas deferens. Basal part of epiphallus not modified.

Penis with 1 or 2 terminal or subapical

caeca, internally with a complex stimulator (sometimes reduced or absent).

DISTRIBUTION. SE Asia, China, Japan; Philippine, Caroline, Marshall, Mariana, Marquesas to Tubuai, Cook, Society, Samoa, Fiji, Norfolk, Kermadec Islands; Indonesia (Java); Australia.

Liardetia Gude, 1913

Gude, 1913a: 326. Baker, 1938b: 12.

TYPE SPECIES — *Helix clayi* Liardet, 1876 (= *Helix striolata* Pease, 1860 non C. Pfeiffer, 1828); OD.

Shell sharply spirally striated, without hairs. Embryonic whorls small. Columella without teeth or spiral lamella. Umbilicus closed or is a superficial perforation closed by internal callus.

Mantle without distinct shell-lobes.

Epiphallus distinctly demarcated from vas deferens. Basal part of epiphallus not modified. Penis with terminal or subapical 1 or 2 caeca, internally with stimulator or deciduous thorn.

DISTRIBUTION. Tropical SE Asia, China, Japan; Philippine, Caroline, Marshall, Mariana, Marquesas to Tubuai, Cook, Society, Samoa, Fiji, Norfolk, Kermadec Islands; Java.

Liardetia (*Oceanesia* Baker, 1938)

Fig. 1440

Baker, 1938b: 12, 13.

TYPE SPECIES — *Microcystis discordice* [sic!] Garrett, 1881; OD.

Shell thin, more or less angulated, quite polished, of 4-5 flattened whorls. Color light- to darkish-corneous. Embryonic whorls smooth, postnuclear sculpture of fine, shallow radial lines separating almost flat interspaces and almost obsolete, fine, spiral striae above. Basal surface with very faint, blurred spiral striae. Aperture almost transverse, obtusely angulated. Height 2.5-2.8, diam. 4.0-4.6 mm (2.66 × 4.16 mm).

Epiphallus short. Penial caecum small, ovate. Enlarged base of penis contains thick, short, recurved, apparently persistent stimulator. Atrium and preputial section of penis very short. Spermatheca nearly sessile, with swollen reservoir.

DISTRIBUTION. Marquesas to Tubuai (Rurutu) and Cook Islands. 3 spp.

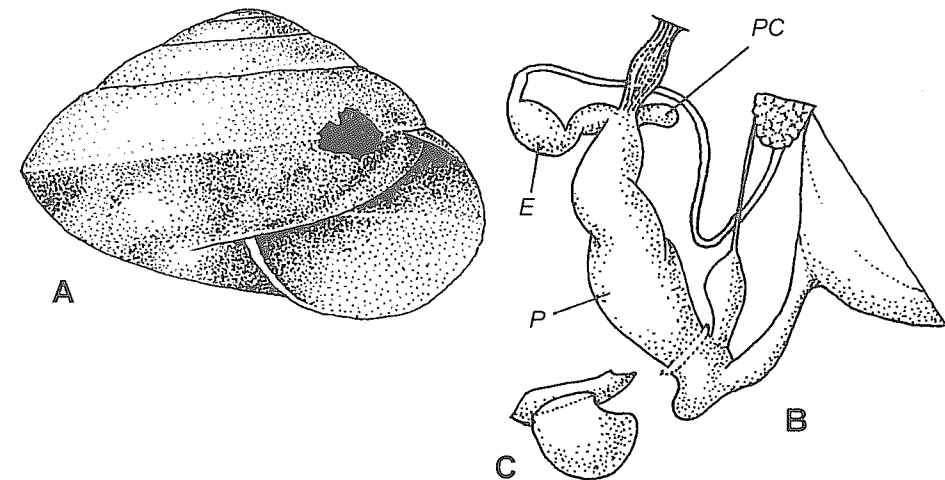


Fig. 1440. *Liardetia* (*Oceanesia*) *discordiae* (Garrett, 1881).
A — shell: Society Islands. Holotype. Phil. No. 49175a. B — reproductive tract. C — stimulator. After Baker, 1938a.

Liardetia (*Nesoreus* Baker, 1938)

Fig. 1441

Baker, 1938b: 12, 13, 22.

TYPE SPECIES — *Liardetia grandis* Baker, 1938; OD.

Shell depressed, sublenticular, with very sharp, weakly undulate keel. Color brownish-corneous. Embryonic whorls spirally striated. Postapical sculpture of low radial wrinkles wider than their interspaces, crossed but not beaded by rather strong spiral striae; base with sharp, more widely spaced, spiral grooves. Aperture narrowly subtrapezoidal, sharply carinate. Height 3.21, diam. 5.86 mm.

Epiphallus moderately short. Penial caecum elongated. Penial stimulator situated in large pouch, with pointed tip. Prepuce very short. Atrium elongated. Spermatheca with short stalk and fusiform reservoir.

DISTRIBUTION. Society Islands (Tahiti). 1 sp.

Liardetia (*Dasyconus* Baker, 1938)

Fig. 1442

Baker, 1938b: 12, 13.

TYPE SPECIES — *Liardetia* (*Dasyconus*) *decussata* Baker, 1938; OD.

Shell sublenticular, carinate, dull above, glossy below. Color light-russet-corneous, variable in intensity. Embryonic whorls smooth at very beginning, then with very sharp, fine, spiral striae. Postnuclear sculpture of very fine radial lines, beaded by fine, spiral striae above; basal surface with obsolete radial lines and sharp spiral striae. Aperture almost transverse, sharply angulated. Height 2.00-3.55, diam. 2.5-5.0 mm.

Epiphallus rather long, more or less swollen. Penial caecum elongated. Penial stimulator longer than broad, without terminal spine. Prepuce and atrium short. Spermatheca sleeve-like.

DISTRIBUTION. Society Islands. 8 spp. & subspp.

Liardetia (*Pittoconcha* Preston, 1913)

Fig. 1443

Preston, 1913b: 531 (pro gen.). B. Smith, 1992: 240 (pro gen.).

TYPE SPECIES — *Pittoconcha concinna* Preston, 1913; OD.

Shell dome-shaped, thin, of 4 moderately convex whorls. Last whorl with cord-

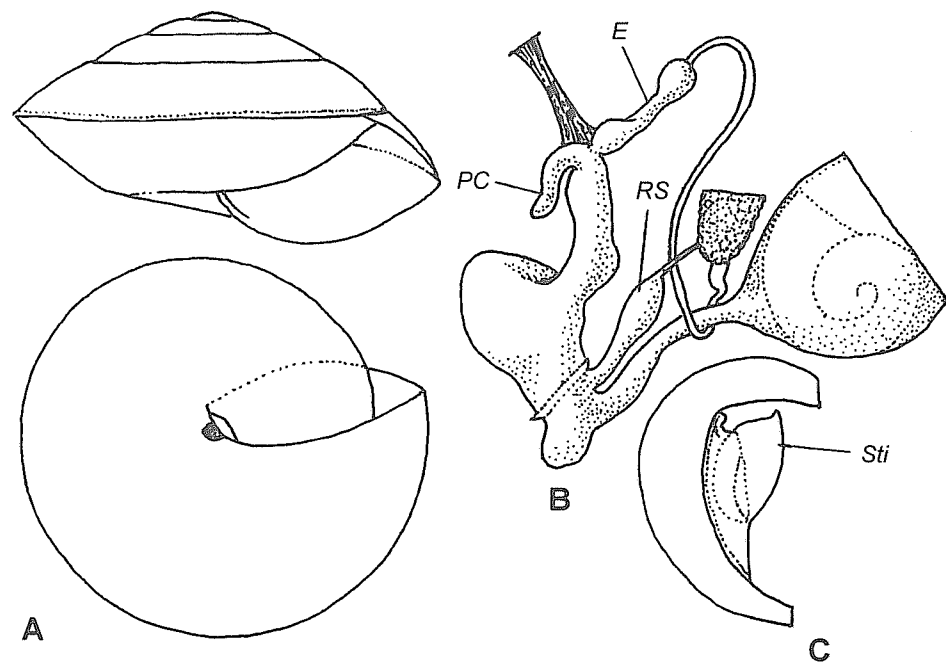


Fig. 1441. *Liardetia (Nesoreus) grandis* Baker, 1938.
A — shell. B — reproductive tract. C — penial stimulator. After Baker, 1938a.

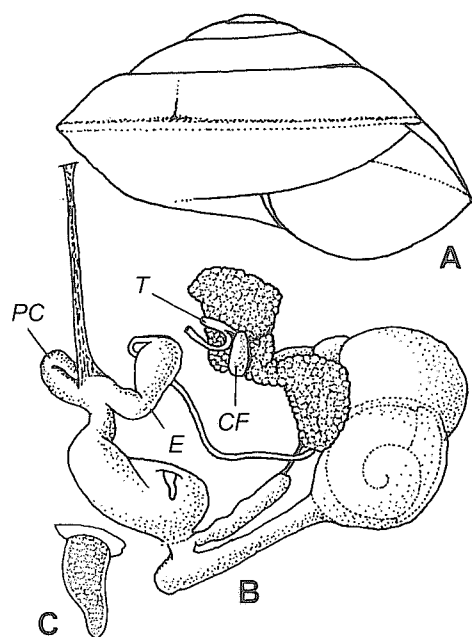


Fig. 1442. *Liardetia (Dasyconus) decussata* Baker, 1938.
A — shell. B — reproductive tract. C — penial stimulator. After Baker, 1938a.

like peripheral keel. Color dark-blackish-brown, columellar margin of aperture white. Embryonic whorls spirally striated. Postnuclear whorls with coarse, close-set, oblique radial plicae crossed by indistinct spiral striae which more noticeable on basal surface. Aperture ovate, with simple margins; columellar margin thickened, subvertical, bulging inwardly in middle part. Umbilicus absent. Height 1.75, diam. 3.00 mm.

DISTRIBUTION. Norfolk Island. 1 sp.

REMARK. Baker (1938b: 14, 18, pl. 8, fig. 4) gives the description and drawing of shell of *Liardetia (Dasyconus) subrugosa* (Garrett, 1884) which is very similar to *Pittoconcha concinna*. Since the anatomy of the latter is unknown I am placing it tentatively as a subgenus to *Liardetia*, next to *Dasyconus*.

Liardetia (Kieconcha) Iredale, 1913
Fig. 1444

Iredale, 1913: 373 (pro gen.).

TYPE SPECIES — *Helix kermadeci* L. Pfeiffer, 1856; OD.

Shell turbinate, thin, semitransparent,

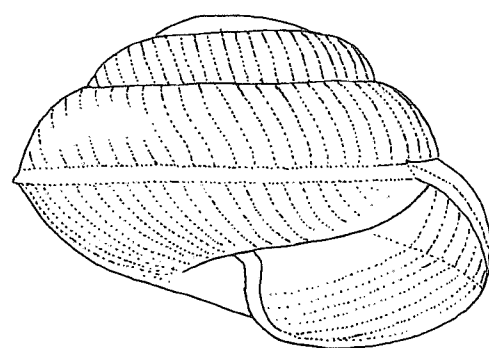


Fig. 1443. *Liardetia (Pittoconcha) concinna* (Preston, 1913).
After Iredale, 1944.

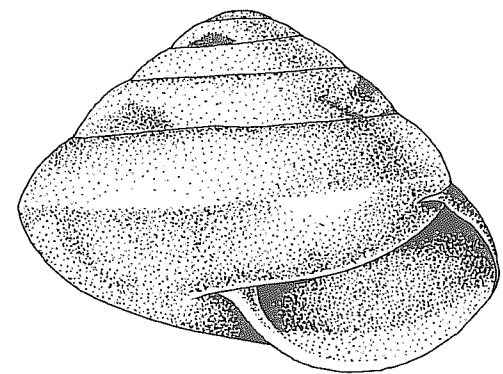


Fig. 1444. *Liardetia (Kieconcha) kermadeci* (L. Pfeiffer, 1856).
Kermadec Islands. Geneva.

nearly glass-like, shining, of about 5-6 strongly flattened whorls. Last whorl with poorly accented peripheral angle. Colorless or pale-yellowish. Embryonic whorls smooth, polished. Postapical whorls nearly smooth above; basal surface with microscopic, dense spiral striae. Aperture broadly lunate, subvertical, columellar margin markedly reflexed, with scarcely visible thickening on inner side. Umbilicus closed or tiny, covered with a transparent film. Height 2.5-2.8, diam. 3.4-3.6 mm (2.7 × 3.5 mm).

DISTRIBUTION. Kermadec Islands.

Liardetia (Fanulum) Iredale, 1913
Fig. 1445

Iredale, 1913: 372 (pro gen.).

TYPE SPECIES — *Trocho-Nanina exposita* Mousson, 1873; OD.

Shell depressed-turbinate, rather thin, dull, of about 5 strongly flattened whorls. Last whorl with cord-like peripheral keel. Color corneous. Embryonic whorls smooth, subsequent whorls with weak radial wrinkles and extremely fine, dense spiral striation. Aperture lunate, subvertical. Umbili-

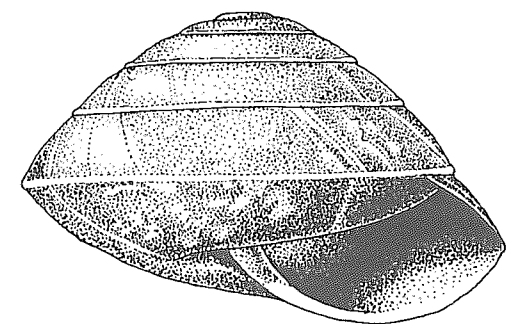


Fig. 1445. *Liardetia (Fanulum) exposita* (Mousson, 1873).
Kermadec. Cardiff.

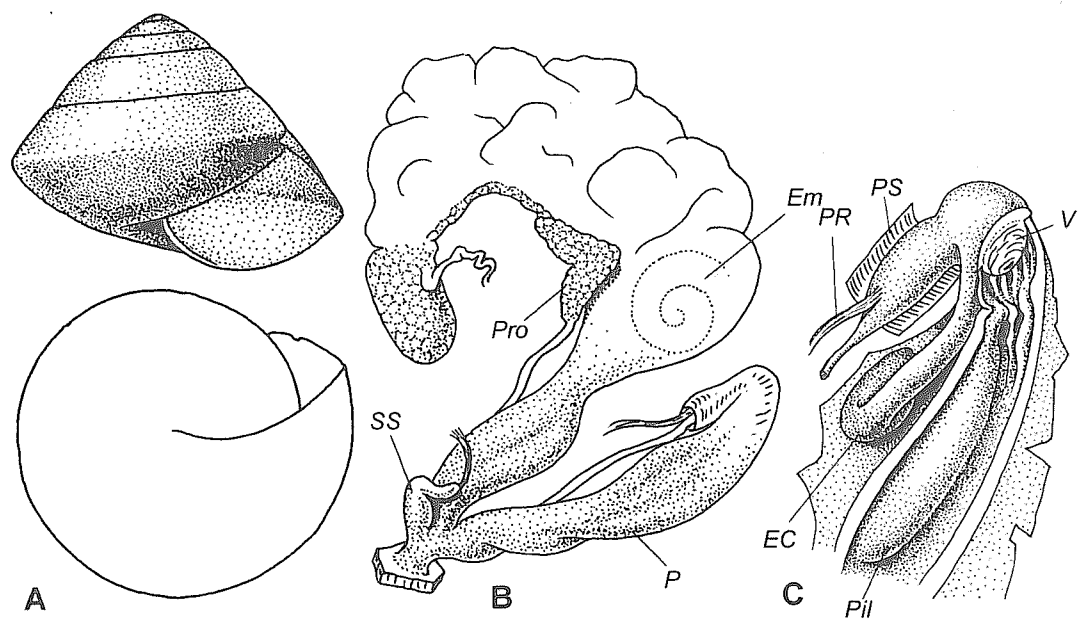


Fig. 1446. *Liardetia (Trochonanita) schmeltziana* (Mousson, 1865). Savaii Island, Samoa. A — shell. B — reproductive tract. C — interior of penis. Vienna No. 74.043.

cus absent. Height 4.5-5.0, diam. 7-8 mm (4.9 × 7.8 mm).

DISTRIBUTION. Kermadec Islands. 1 sp.

Liardetia (Trochonanita) Baker, 1938
Fig. 1446

Baker, 1938b: 45, 52 (*Diastole* subg.).

TYPE SPECIES — *Nanina schmeltziana* Mousson, 1865; OD.

Shell turbinata, thin, translucent, more or less shining, of about 5 strongly flattened whorls. Last whorl distinctly angulated at periphery. Color (light) corneous to brown. Embryonic whorls with 11-13 rather low, subequal, spiral threads beaded by fine radial wrinkles. Postapical sculpture of irregular, weak radial wrinklets and somewhat obsolete spiral lines. Aperture sharply to distinctly angulate, slightly oblique; columellar margin with very low, spiral cord when young, frequently thickened into a swelling in adults. Umbilicus tiny to closed. Height 4.3-7.7, diam. 7.0-11.0 mm (5.6 × 8.6 mm).

Talon seems to be a simple curvature of hermaphroditic duct. Vas deferens thin, long, joining epiphallus apically. Epiphallus

rather short, swollen, entering penis through a short verge having apical pore. Long, clavate caecum entering distalmost part of epiphallus and surrounded, along with penis and epiphallus, by thin sheath. Penis long, internally with large axial pilaster and a series of short, narrow folds in upper section. Uterus containing some embryos. Free oviduct long, expanded. Spermatheca vestigial, entering atrium, with apical ligament.

DISTRIBUTION. Samoa Islands. 3-4 spp.

REMARK. Baker (1938b) included *Trochonanita* as a subgenus in the genus *Diastole* and wrote that anatomy of *Trochonanita* is as in *Diastole*. However, *Diastole* has no apical caecum, therefore I place this taxon in the genus *Liardetia*. Perhaps, strong penial pilaster found in *T. schmeltziana* is a homology of stimulator of the rest *Liardetia*.

Liardetia (Belopygmaeus) Baker, 1938
Fig. 1447

Baker, 1938b: 12, 27.

TYPE SPECIES — *Helix doliolum* L. Pfeiffer, 1846; OD.

Shell turbinata, fragile, of about 5 mo-

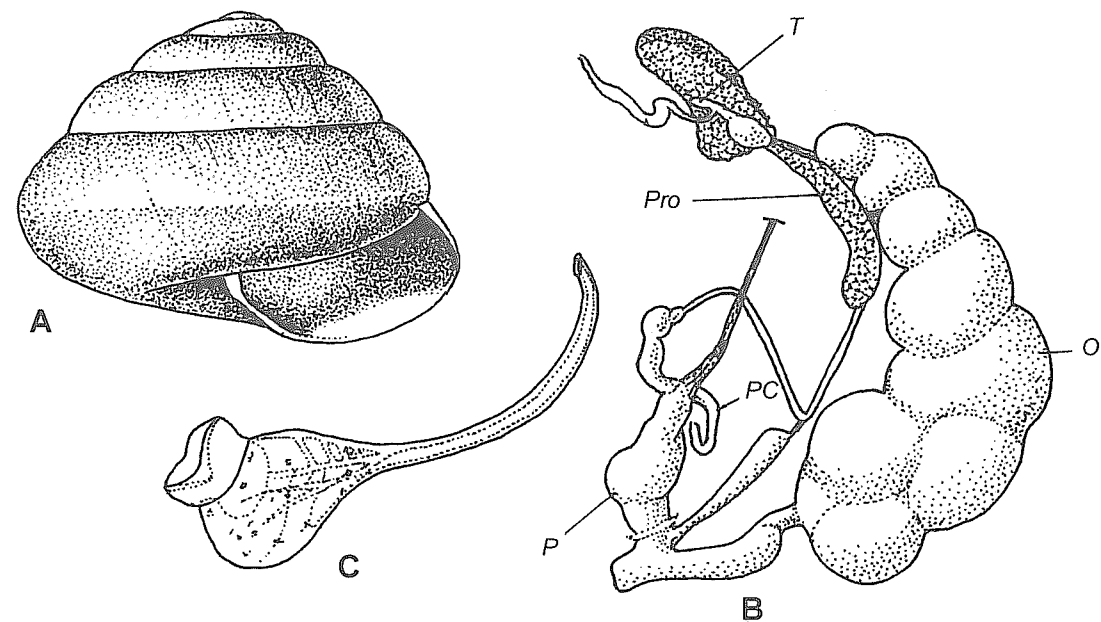


Fig. 1447. *Liardetia (Belopygmaeus) doliolum* (L. Pfeiffer, 1846). A — shell: Cagayan, Luzon, Philippines. Basel No. 2196a. B — reproductive tract. C — stimulator, by transmitted light. After Baker, 1938b.

derately convex whorls. Last whorl somewhat bluntly angulated. Color (light) fulvous or yellowish. Embryonic whorls smooth at first, soon assuming rather sharp spiral striae and more or less coarse and prominent radial wrinkles. Postapical whorls with subequal radial threads, beaded by spiral striae above; base with much more closely spaced, finer, spiral striae. Aperture rounded angulated, columellar margin suddenly and shortly reflexed so as to appear weakly emarginate, closing more than 3/4 of minute umbilicus. Height 2.1-2.3, diam. 2.8-3.5 mm (2.2 × 2.9 mm).

Vas deferens narrow. Epiphallus not long, somewhat swollen apically. Penis with thin, quite long, vermiform apical caecum; in younger specimens penis sometimes contains a very large thorn, which consists of an irregular base, a flat thin body, decorated with copper-colored spots and a long, slender, cylindrical, hollow spine. Penis sheath covers epiphallus and caecum. Penial retractor attached to penis at base of caecum and epiphallus. Spermatheca long, clavate.

DISTRIBUTION. Philippines, Marianas, Carolines. 1 sp.

Liardetia (Belonesia) Baker, 1938
Fig. 1448

Baker, 1938b: 12, 21.

TYPE SPECIES — *Liardetia undulata* Baker, 1938; OD.

Shell depressed-turbinata, thin, transparent, polished, iridescent, of 4 moderately convex whorls. Last whorl obtusely angulated at beginning and almost evenly rounded at end of 4th whorl. Color light-corneous. 1st half whorl of embryonic shell almost smooth although with traces of fine spiral striae; rest surface with broad, low, rounded radial wrinkles which become obsolete shortly below periphery and with very shallow, spiral striae above and below. Aperture broadly lunate, evenly rounded. Height 3.21, diam. 4.71 mm.

Vas deferens thin, long. Epiphallus with circular narrowing in middle. Penis greatly swollen, with 2 apical caeca: one (C-1) long, vermiform, the other (C-2) much smaller, subglobular. Penial stimulator with very long, terminal thorn. Spermatheca comparatively large, with fusiform reservoir.

DISTRIBUTION. Society Islands (Raiatea). 1 sp.

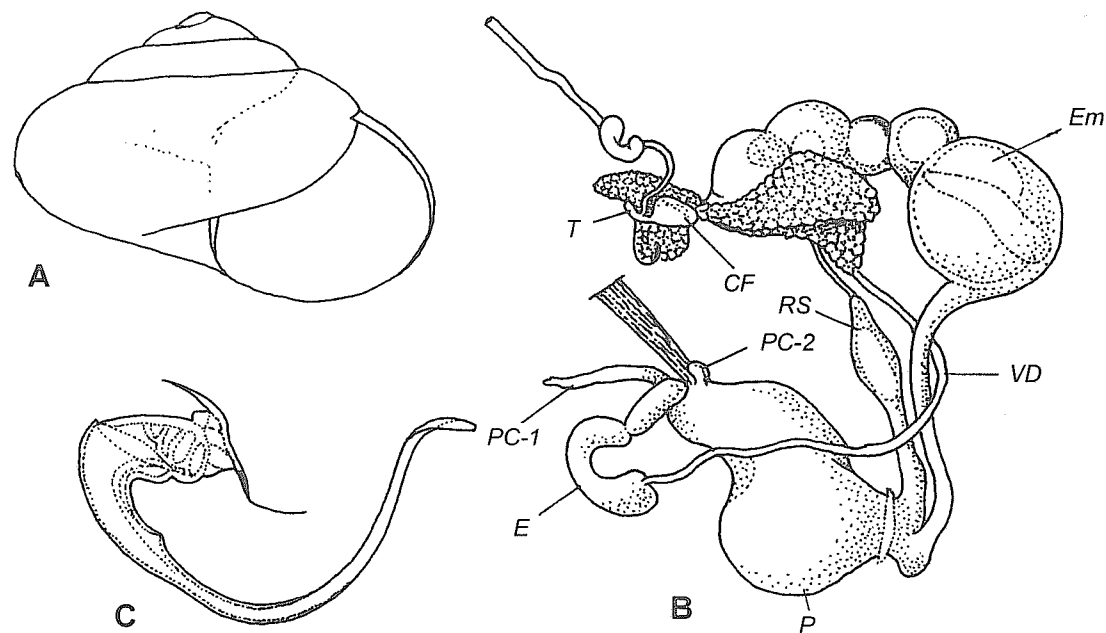


Fig. 1448. *Liardetia (Belonesia) undulata* Baker, 1938.
A — shell. B — reproductive tract. C — penial stimulator. After Baker, 1938a.

Liardetia (Liardetia s. str.)
Fig. 1449

Shell more or less turbinoid, fragile, silky glossy, of 4.25-6 slightly convex whorls. Last whorl sharply angulated to almost rounded at periphery. Color corneous (variable in intensity). Embryonic whorls with weak spiral striae at beginning, then fine radial wrinkles added. Later whorls with delicate, crowded radial threads beaded by fine spiral striae; base spirally striated. Aperture narrowly subtrapezoidal to subovate, slightly oblique. Height 1.5-2.8, diam. 2.50-3.75 mm.

Vas deferens thin. Epiphallus short. Penis with 2 subequal apical caeca, internally with or without thin, apparently deciduous stimulatory dart or darts. Penis sheath often covering only basal 3/4 of penis but attached to epiphallus. Penial retractor inserted on penis at base of caeca. Spermatheca fusiform.

DISTRIBUTION. Japan, Philippine, Marshall, Samoa, Mariana, Caroline, Fiji, Kermadec, Cook, Society, Marquesas Islands; Java, tropical Asia, China. At least 10 spp. with many forms.

Liardetia (Advena) Gude, 1913
Fig. 1450

Gude, 1913b: 391 (pro gen.).

TYPE SPECIES — *Helix campbelli* Gray, 1834; OD.

Shell depressed-conic, thin, of 4.5-5 flattened whorls. Whorls flat above, tumid below. Last whorl with peripheral keel. Color (dark) brown. Embryonic whorls smooth. Later whorls roughly ribbed and wrinkled above; early whorls with ribs decussated by about 6 spiral sulci that become gradually vague on later whorls; decussation descending below periphery and ending rather abruptly, base smooth and polished. Aperture lunate, columellar margin only slightly reflexed. Umbilicus closed. Height 8.5-11.5 diam. 12-17 mm (11.4 × 16.8 mm).

DISTRIBUTION. Norfolk and Philip Island. 2 spp.

Alloconcha Preston, 1913
Fig. 1451

Preston, 1913b: 523.

TYPE SPECIES — *Alloconcha basispiralis* Preston, 1913; OD.

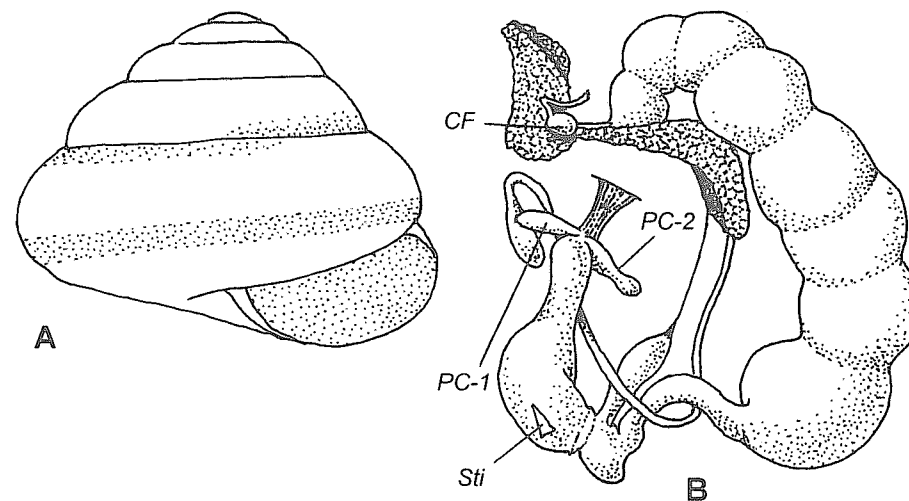


Fig. 1449. ! *Liardetia (Liardetia) sculpta* (Moellendorff, 1883).
A — shell. B — reproductive tract. After Baker, 1938b.

Shell depressed-turbinoid to nearly flat, thin, polished, shining, transparent, of 4-5 slightly convex whorls. Last whorl rounded or with very weak, blunt peripheral angle. Color pale-corneous to brown. Surface throughout with very fine spiral striae. Aperture lunate, slightly oblique. Umbilical foveola deep but umbilicus closed. Height 1.25-3.25, diam. 3.50-4.75 mm (2.3 × 4.7).

DISTRIBUTION. Norfolk Island. 7 spp.

Buffetia Iredale, 1945
Fig. 1452

Iredale, 1945: 60 (*Alloconcha* subg.).

TYPE SPECIES — *Nitor retinaculum* Preston, 1913; OD.

Shell depressed-conic, thin, transparent, somewhat shining, of 4 moderately convex whorls. Last whorl subangled at periphery. Color yellowish-brown. Embryonic and later whorls with rather closely set, oblique, arcuate plicae, which more noticeable on lower whorls. Aperture obliquely and compressedly sublunate, with sharp margins; columellar margin curved above, very obliquely descending and thickened in-

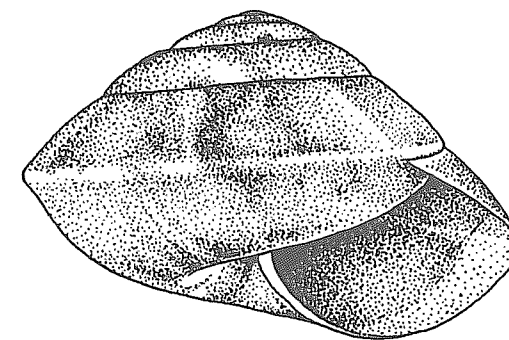


Fig. 1450. *Liardetia (Advena) campbelli* (Gray, 1834).
Norfolk Island. Phil. No. 4890.

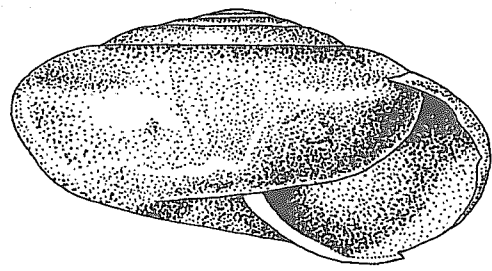


Fig. 1451. ! *Alloconcha mathewsi* Preston, 1913.
Balls Bay, Norfolk Island. "Type". London No. 1915.1.4.1300.

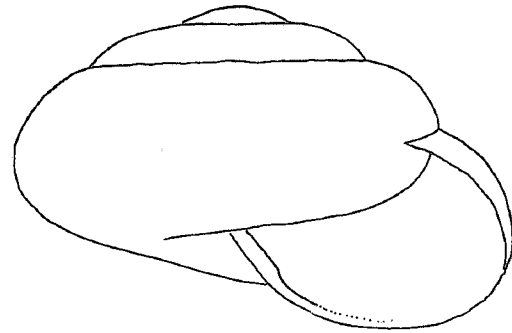


Fig. 1452. *Buffetia retinaculum* (Preston, 1913).
After Iredale, 1945.

wardly into a whitish loop-like lamella, visible through shell wall. Height nearly 1.5, diam. 3 mm.

DISTRIBUTION. Norfolk Island. 1 sp.

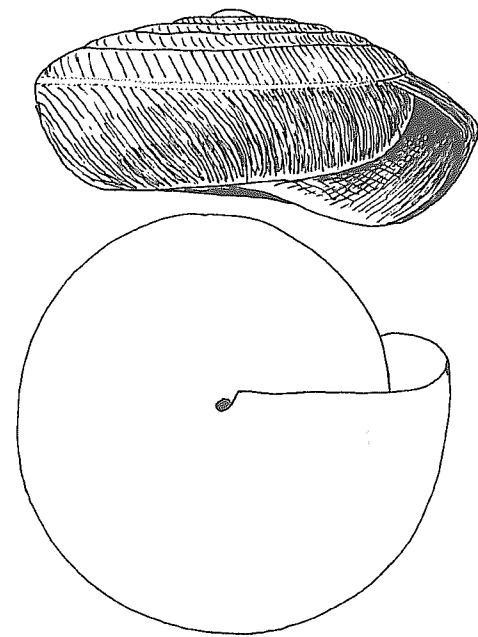


Fig. 1453. *Nancibella quintalae* (Cox, 1870).
After Sykes, 1900.

Nancibella Iredale, 1945
Fig. 1453

Iredale, 1945: 62. B. Smith, 1992: 238.

TYPE SPECIES — *Helix quintalae* Cox, 1870; OD.

Shell depressed, thin, glass-like, with wide, dome-shaped spire, of 8 moderately convex whorls. Last whorl with cord-like keel located somewhat above midline of whorl. Colorless. Surface striated above keel, smooth below. Aperture rather narrow, lunate, with simple margins; columellar margin inclined at very sharp angle. Umbilicus (nearly) closed. Height 2.0, diam. 3.5 mm.

DISTRIBUTION. Norfolk Island. 1 sp.

Periclocystis Iredale, 1937
Fig. 1454

Iredale, 1937b: 28. B. Smith, 1992: 240.

TYPE SPECIES — *Periclocystis ardeni* Iredale, 1937; OD.

Shell flattened, thin, dull, with a little elevated spire, of 4-5 a little convex whorls. Last whorl somewhat subangulated at periphery. Color greyish. Embryonic sculpture of faint spiral lines which soon disappear. Aperture ovate, somewhat oblique, with thickened margins; columellar margin very short, thick, not reflexed. Umbilicus narrowly open. Height 3.5, diam. 8.0 mm.

DISTRIBUTION. S Australia. 1 sp.

Pukalooa Baker, 1938
Fig. 1455

Baker, 1938b: 27.

TYPE SPECIES — *Helix obconica* Pease, 1864; OD.

Shell lenticular, thin, translucent, polished, of 5-6 nearly flat whorls. Last whorl with sharp keel margined above and below by shallow concavities. Color yellowish or light greenish-corneous. 1st half of 1st embryonic whorl weakly granulate; rest assuming adult sculpture of low, quite closely-spaced radial wrinkles, between which interspaces granulate, with no spiral striation. Basal surface smoother, but with fine, low radial lines and very minute granulation. Aperture narrow, carinate, slightly oblique; columellar margin very little dilated. Umbilicus dot-like but perspective. Height 3.0-4.5, diam. 5.4-7.7 mm (3.0 × 5.4 mm).

Ovoviviparous animals.

DISTRIBUTION. Society (Raiatea) and Hawaiian (= Sandwich) Islands. 1 sp.

Cookeana Baker, 1938
Fig. 1456

Baker, 1938b: 28.

TYPE SPECIES — *Cookeana vindex* Baker, 1938; OD.

Shell turbinate, thin, dull, fragile, of 3-4 convex whorls. Last whorl hardly angulated below periphery. Color light-brown to chestnut above, basal surface markedly darker, with light-brown or reddish band just below peripheral angle. Embryonic whorls smoothish at beginning; next whorls gradually developing strong spiral furrows and threads and thin, high, periostracal radial riblets, which form long, pointed, de-

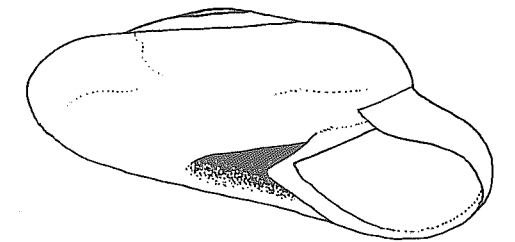


Fig. 1454. *Periclocystis ardeni* Iredale, 1937.
After Iredale, 1937b.

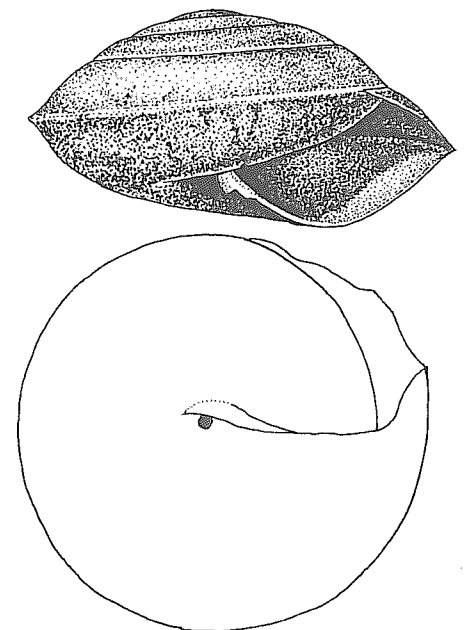


Fig. 1455. *Pukalooa obconica* (Pease, 1864).
"Sandwichinseln" [Hawaii]. Basel No. 8440a.

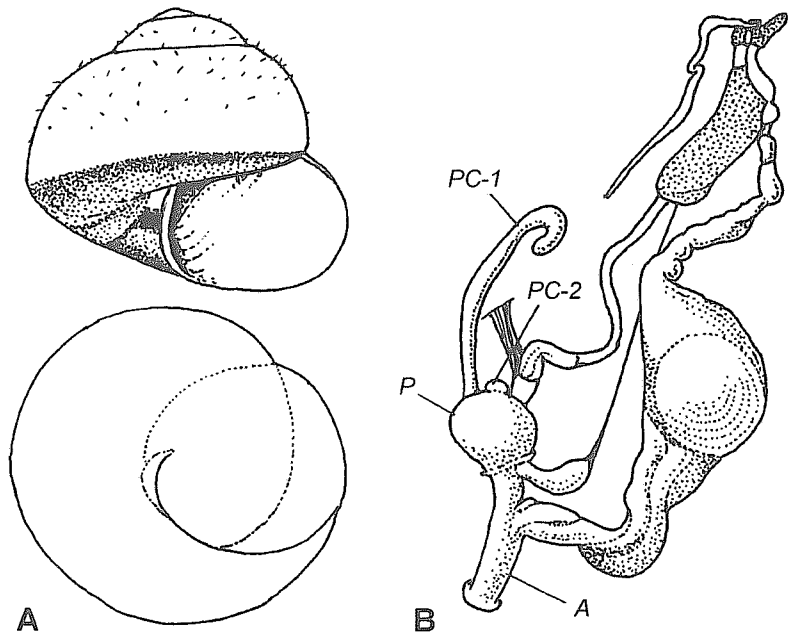


Fig. 1456. *Cookeana vindex* Baker, 1938.
A — shell. B — reproductive tract. After Baker, 1938b.

ciduous and easily broken, bristles over each spiral thread. Postembryonic whorls with spiral threads less prominent but with periostracal riblets and hairs well developed above; basal surface polished, with indistinct radial lines and vague, fine, irregular, spiral striae. Aperture subcircular, oblique; columellar margin simple; parietal callus well developed. Umbilicus absent. Height 5.3-7.3, diam. 9.0-10.0 mm.

Mantle without distinct shell-lobes.

Vas deferens rather thin, not long. Epiphallus gradually expanding, short, distinctly demarcated from vas deferens; internally with longitudinal folds. This organ passes into short apical portion of penis through simple pore, without external demarcation. Penis nearly globular, with 2 caeca: one long, vermiform, the other in form of small lobe or gland between arms of internal, Y-shaped fold that lies between long caecum and epiphallus. Stimulator or thorn absent. Penial prepuce slightly shorter, atrium about as long as penis. Penis sheath coats epiphallus, penis and appendix. Spermatheca short, clavate.

DISTRIBUTION. Austral (= Tubuai) Islands. 2 spp.

Kusaiea Baker, 1938
Fig. 1457

Baker, 1938b: 30.

TYPE SPECIES — *Helix frivola* Pease, 1866; OD.

Shell subglobose, thin, somewhat transparent, burnished above and glossy below, of 4-4.5 flattened whorls. Last whorl scarcely angulated at periphery. Color greenish-yellow. Embryonic whorls with shallow but sharply incised, quite widely spaced, spiral lines, which cross weak radial striae. Postnuclear sculpture of crowded spiral striae, separating flattened interspaces and crossing weak, low major and obsolete minor radial wrinkles above; basal surface more glossy but with sharp, closely spaced spiral lines and weak radial striae. Aperture ovate, scarcely angulated to evenly rounded; columellar margin becomes thickened with age, markedly and often abruptly reflexed to form crescentic expansion which is not adnate to penultimate whorl. Umbilicus minute, nearly or quite hidden by abruptly reflexed columellar margin.

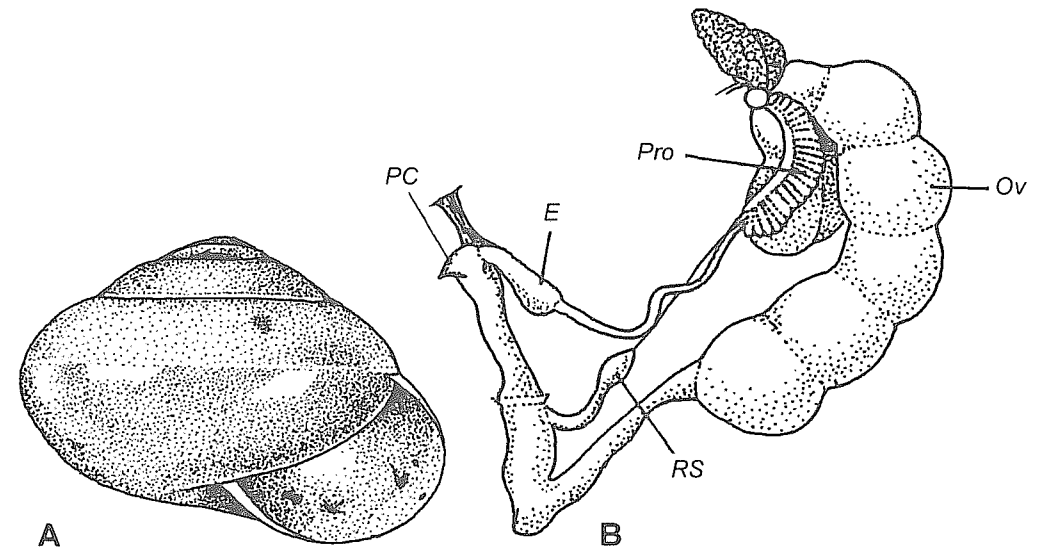


Fig. 1457. *Kusaiea frivola* (Pease, 1866).
A — shell: Oualau Island [Carolines]. Lectotype. Phil. No. 49296. B — reproductive tract. After Baker, 1938a.

Height 3.3-4.1, diam. 4.8-5.5 mm (4.1 × 5.4 mm).

Mantle with prominent shell-lobes.

Epiphallus swollen, distinctly demarcated from vas deferens, internally with longitudinal folds. Basal part of epiphallus not modified. Penis elongated, with very short, conic caecum, internally with heavy pilaster and 2 smaller, parallel folds. Penial prepuce 2/3 as long as penis, containing much swollen continuation of principal penial pilaster. Penis sheath not covers epiphallus. Penial retractor arising from diaphragm and inserting between epiphallus and caecum. Atrium short. Spermathecal stalk elongated, reservoir small, well defined.

DISTRIBUTION. Carolines (Kusaie, Oualau and Truk Islands). 1 sp.

Greenwoodoconcha Preston, 1913
Fig. 1458

Preston, 1913b: 525.

TYPE SPECIES — *Microcystis nux* Sykes, 1900; OD.

Shell depressed-trochiform, thin to

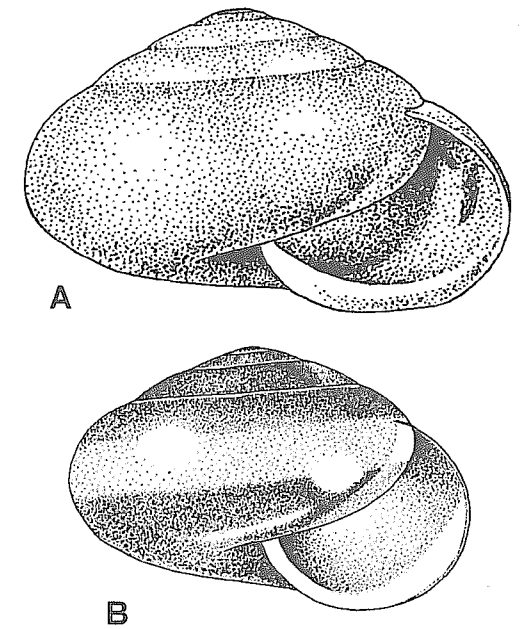


Fig. 1458. A — *Greenwoodoconcha nux* (Sykes, 1900). Norfolk Island. Cardiff. B — ! *Greenwoodoconcha castaneocincta* (Sykes, 1900). Norfolk Island. Moscow No. Lc-20464.

moderately solid, polished, shining, semi-transparent, of 4-4.5 flattened whorls. Last whorl more or less roundly angled at periphery. Base somewhat convex. Color reddish-brown, monochromatic or with variously developed pale-yellow band. Embryonic whorls with fine, wavy spiral striae. Postnuclear sculpture of similar striation plus fine, irregular radial wrinkles. Aperture lunate, only slightly oblique. Columellar margin reflexed, obliquely curved below, diffused above into a well-defined, whitish parietal callus. Umbilicus absent. Height 3.0-4.4, diam. 5.2-6.8 mm (*nux*: 4.1 × 6.6 mm; *castaneocincta*: 4.3 × 6.4 mm).

DISTRIBUTION. Norfolk Island. 3 spp.

EUCONULINAE Baker, 1928

— Durgellinidae Iredale, 1941b: 66.

— Coneuplectinae Habe, 1957: 174.

Shell turbinate, more or less depressed-conic, of 3-7 whorls (one exception: *Sabalimax* has much reduced shell). Last whorl rounded or with very weak peripheral angle. Radial sculpture very light, spiral striation fine, delicate, especially on basal surface. Umbilicus minute to closed.

Prostate long, band-like, adnates to uterus. Epiphallus small, not connected with penis by a membrane. Penial caecum, when present, basal in position. Penial retractor inserts on epiphallus or penis/epiphallus junction. Penis sheath present or absent. Free oviduct with perivaginal gland. Atrium without diverticle. Spermatheca mostly small, situated on atrium, on female side, or absent.

Oviparous, sometimes ovoviviparous.

DISTRIBUTION. Circumglobally.

REMARK. Euconulinae, as they are interpreted here, are characterised, in contrast with Microcystinae, mainly by initial presence of 3 features: band-like, adnate prostate; position of spermatheca on female side; caecum on basal portion of penis. However, a tendency to secondary reduction of accessory organs is widely spread in many groups of Stylommatophora, especially among Helicarionoidea. Therefore, every time, when we see a taxon, members of which lack mentioned organs, a question arises — whether this simplicity is ancestral or is a result of secondary loss? Again,

when spermatheca is absent, we can only suppose where its position was. So, inclusion some taxa without penial caecum and/or spermatheca in Euconulinae, is arbitrary in many cases.

Kororia Baker, 1941

Fig. 1459

Baker, 1941: 220.

TYPE SPECIES — *Microcystis palaensis* Semper, 1870; OD.

Shell depressed-subglobose, thin, polished, shining, translucent, of 4.5-5 moderately convex whorls. Last whorl evenly rounded at periphery. Color light-corneous to brown, basal surface somewhat paler. Embryonic and later whorls with microscopic spiral striae crossing weak radial wrinkles; postapical whorls with delicate, variable in prominence radial threadlets. Aperture widely lunate, a little oblique. Umbilicus superficial, minutely open. Height 3.4-3.7, diam. 5.4-6.1 mm (3.6 × 5.8 mm).

Tail of cephalopodium with prominent dorsal groove and well developed, curved caudal horn overhanging vertical fusiform foss.

Ovotestis of 7 circular groups of short acini. Hermaphroditic duct fairly long. Talon rather long. Carrefour laterally expanded. Vas deferens long, entering long, slender epiphallus apically. Penis not greatly swollen, internally with axial folds, supplied with a caecum which longer and stouter than remainder of penis but with thinner and simpler walls. Penis sheath heavy, muscular, surrounding apical half of penis proper and basal parts of epiphallus and caecum. Penial retractor arising from diaphragm, inserting laterally below penial apex. Free oviduct long, generally with well developed perivaginal gland. Spermatheca comparatively large, swollen near base, with apical ligament.

DISTRIBUTION. Indonesia (Sulawesi) and Carolines. 3-4 spp.

REMARK. *Kororia* occupies a somewhat intermediate position between Microcystinae and Euconulinae: it has long apical penial caecum as in some Microcystinae, but prostate is band-like, spermatheca is situated on female side, and free oviduct is furnished with perivaginal gland, as in Euconulinae.

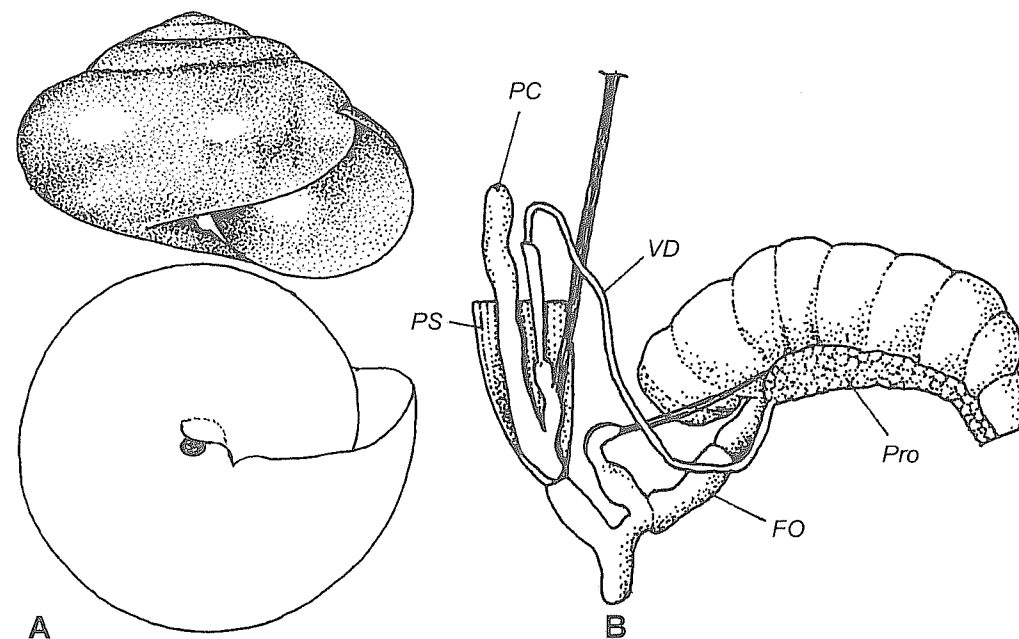


Fig. 1459. A — ! *Kororia cursor* (P. Sarasin et F. Sarasin, 1899). "Keme, N-Celebes" [Sulawesi]. Lectotype. Basel No. 2220a. B — *Kororia palaensis* (Semper, 1870). Reproductive tract. After Baker, 1941.

Euconulus Reinhardt, 1883

Reinhardt, 1883: 86.

— *Conulus* Fitzinger, 1833: 94 (nom. praeocc., non Leske, 1778; t.-sp. *Helix fulva* Müller, 1774; SD Pilsbry, 1899).

— *Petasia* Beck, 1837: 21 (part.; nom. praeocc., non Stephens, 1828; t.-sp. *Helix fulva* Müller, 1774; SD Herrmannsen, 1847).

— *Trochulus* Westerlund, 1886: 26 (nom. praeocc., non Gray, 1847; t.-sp. "*Conulus fulvus*"; SD Pilsbry, 1946).

— *Arnouldia* Bourguignat, 1890: 328 (nom. nov. pro *Conulus* Fitzinger, 1833; t.-sp. *Helix fulva* Müller, 1774; OD).

— ? *Turrisitala* Iredale, 1933: 55, 59 [t.-sp. *Turrisitala normalis* Iredale, 1933 (? = *Helix fulva* Müller, 1774); OD]. Solem, 1988: 543.

— *Petasina* Gude et Woodward, 1921: 177 (nom. praeocc., non Beck, 1847; t.-sp. *Helix fulva* Müller, 1774; OD).

Baker, 1941: 213.

TYPE SPECIES — *Helix fulva* Müller, 1774; SD Pilsbry in Pilsbry & Ferriss, 1910.

Shell turbinate to dome-shaped, thin, semitransparent, silky glossy, of 4-6.5 whorls. Last whorl rounded to slightly an-

gular. Embryonic sculpture of variously developed microscopic spiral striae. Later whorls with similar sculpture plus indistinct, irregular radial wrinklets. Aperture lunate, slightly oblique; columellar margin more or less dilated. Umbilicus minutely open.

Hermaphroditic gland composed of 2-3 clusters of few clavate acini. Carrefour hidden or exposed, without pronounced lateral process. Vas deferens evenly slender or somewhat corrugated, entering epiphallus through a tiny verge. Epiphallus rather short, separated from penis by a variously developed sphincter. Penis internally without special relief. Penial caecum large, coated, along with penis and epiphallus, by very thin, transparent sheath (exception: in *Afropunctum* there are 2 apical caeca). Penial retractor attached to penis sheath below level of verge. Free oviduct and vagina with well developed perivaginal gland (in *Dryachloa* gland not evident). Spermatheca vestigial or absent, reservoir (sub)globular or absent.

DISTRIBUTION. Holarctic, tropical and subtropical America; ? New Guinea; ? Society Islands, Hawaii, Australia.

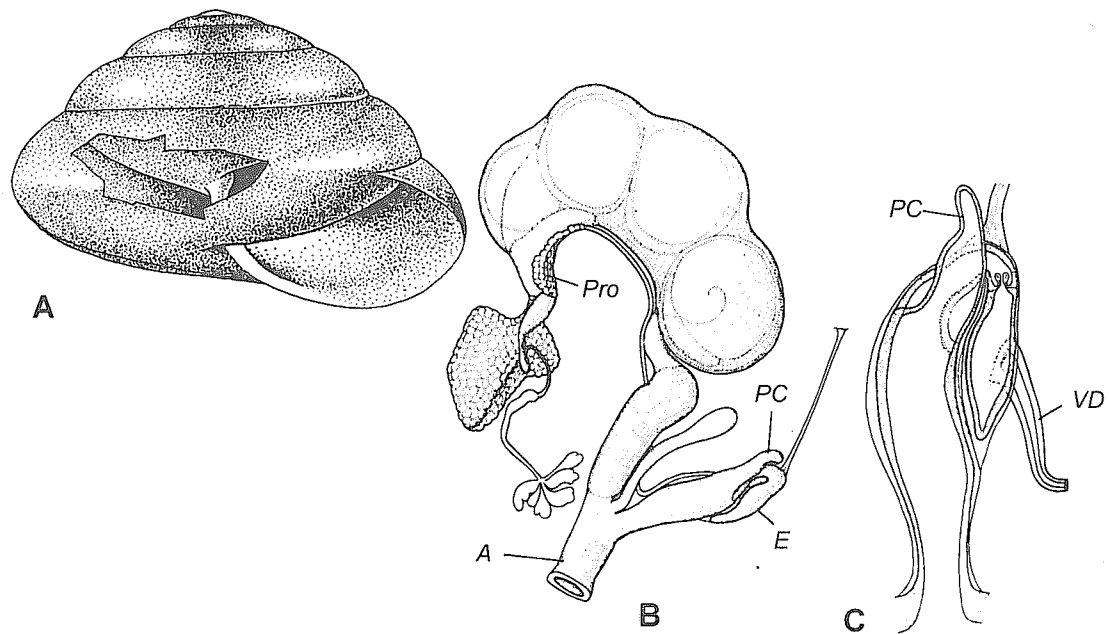


Fig. 1460. *Euconulus (Guppya) gundlachi* (L. Pfeiffer, 1840).
A — shell: Fikahatcher Key, Lee Co., Florida. Moscow No. Lc-25346 (Phil. No. 105452).
B, C — ! *Euconulus (Guppya) biolleyi* Martens, 1892. B — reproductive tract. C — interior of penis. After Baker, 1928.

Euconulus (Guppya) Mörch, 1867
Fig. 1460

Mörch, 1867: 256.

— ? *Pelia* Martens in Albers, 1860: 91 (nom. praeocc., non Bell, 1836; t.-sp. *Helix spirulata* L. Pfeiffer, 1855; monotypy).

— *Spiroconulus* E. Martens, 1892: 122 (t.-sp. *Helix gundlachi* L. Pfeiffer, 1840; SD Baker, 1922).

TYPE SPECIES — *Guppya vacuus* Mörch, 1867 (nom. err. pro *Comulus vacans* Guppy, 1866; = *Helix gundlachi* L. Pfeiffer, 1840); OD.

Shell turbanate, very thin, much translucent, shining, of 5-6 moderately to slightly convex whorls. Last whorl with blunt, rounded peripheral angle. Color light-corneous. Embryonic whorls finely but distinctly spirally striated. Postapical sculpture of quite distinct spiral lines and obsolete radial wrinklets; same sculpture on base. Aperture lunate, moderately oblique; columellar margin shortly reflexed. Umbilicus dot-like. Height 1.4-6.0, diam. 2.5-9.0 mm (2.0 × 3.0 mm).

Cephalopodium with a large caudal foss which partially hidden by a broad, wedge-shaped horn.

Hermaphroditic gland of 5-6 radiating,

clavate lobes. Talon small, clavate. Carrefour exposed, elongated, without lateral process. Prostate short, extending for about halfway down uterus. Vas deferens long, entering near middle of epiphallus. Epiphallus lanceolate, recurved parallel to and about half as long as penis, with tapered flagellar portion. Penis large, fusiform, with large caecum occupying upper position; internally with a small verge. Penis sheath surrounds penis, epiphallus and base of caecum. Penial retractor attached to uppermost section of penis. Free oviduct quite long, divided into short upper, thin-walled region and large one covered by perivaginal gland. Spermatheca short, with poorly defined reservoir, entering female side just above atrium.

DISTRIBUTION. Tropical and subtropical America; New Guinea (? introduced). 4-6 spp.

Euconulus (Pseudoguppya) Baker, 1925
Fig. 1461

Baker, 1925: 10, 12. 1941: 223.

TYPE SPECIES — *Helix cassiquiensis* L. Pfeiffer, 1853; OD.

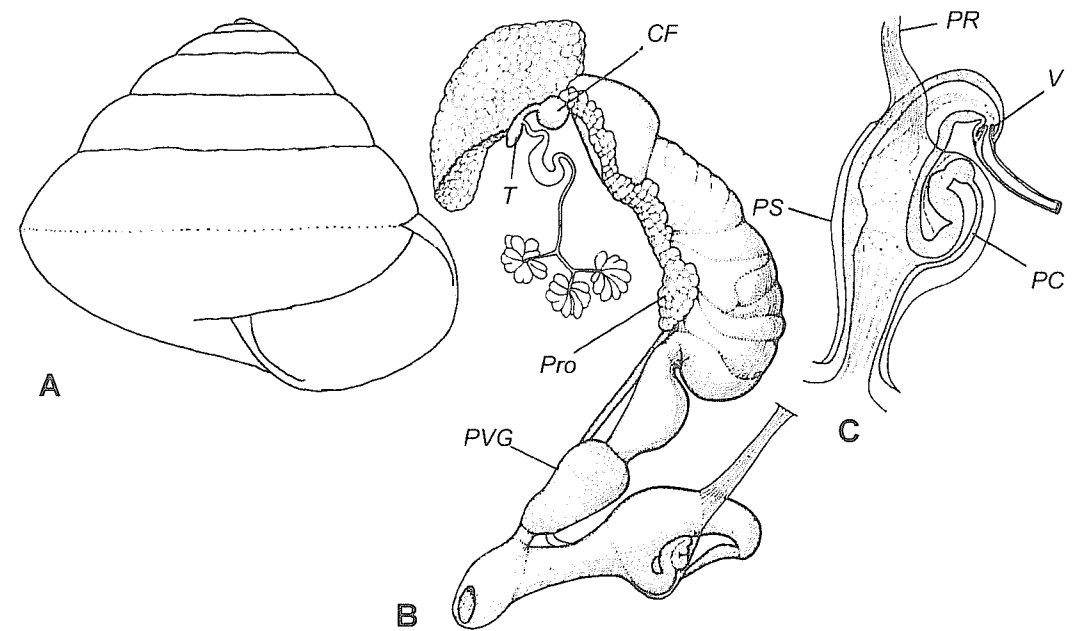


Fig. 1461. *Euconulus (Pseudoguppya) cassiquiensis* (L. Pfeiffer, 1853).
A — shell. After Baker, 1925. B — reproductive tract. C — interior of penis. After Baker, 1928.

Shell turbanate, thin, subtransparent, shining, of 5-6.5 only slightly convex whorls. Last whorl bluntly angulated. Color light- to brownish-corneous, unicolor or with brownish varices. Embryonic whorls with variously developed microscopic reticulate sculpture. Postnuclear whorls with more or less prominent spiral threadlets and irregular radial wrinkles; on base sculpture weaker. Aperture lunate, not strongly oblique, with shortly reflexed columellar margin. Umbilicus superficial, minutely open. Height 3-4, diam. 4-6 mm.

Hermaphroditic gland of 3 clumps, each of a few clavate acini. Talon ovate. Carrefour subglobular, exposed. Vas deferens thin, long, entering short epiphallus through a minute verge. Penis rather stout, furnished with an apically convoluted caecum sitting on middle of penis. Penis sheath surrounds penis and caecum. Penial retractor attached to upper margin of sheath. Free oviduct long, its lower section bears perivaginal gland. Spermatheca absent.

DISTRIBUTION. Northern S America and Central America, West Indies, Cocos Island. 3-5 spp.

Euconulus (Dryachloa) Thompson et Lee, 1980
Fig. 1462

Thompson & Lee, 1980: 37 (pro gen.).

TYPE SPECIES — *Dryachloa dauca* Thomson et Lee, 1980; OD.

Shell depressed, thin, shining, transparent, of about 4 slightly convex whorls. Last whorl evenly rounded at periphery. Color light-amber to grayish-orange. Embryonic whorls with very fine pits arranged in spiral rows. On later whorls spiral sculpture coalescing to form spiral striation that may become obsolete or absent on last whorl; superimposed on this are relatively coarse radial wrinkles. Aperture semilunate, slightly oblique; columellar margin dilated, with a small tongue-like projection extending partially over umbilicus. Umbilicus minute, closed internally by plug. Height 1.13-1.29, diam. 1.85-2.17 mm (1.24 × 1.96 mm).

Sole distinctly tripartite. Caudal horn present, extending over triangular, vertical caudal foss.

Hermaphroditic gland of 2 clusters of 4-5 claviform acini each. Talon small, el-

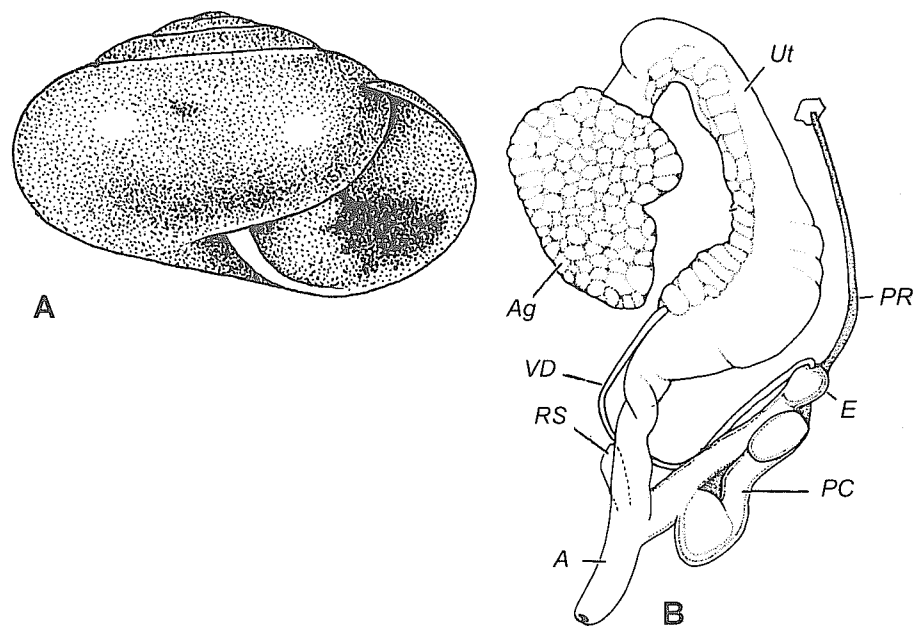


Fig. 1462. *Euconulus (Dryachloa) dauca* (Thompson et Lee, 1980).
A — shell: Right bank Ortego River, residential zone, Jacksonville, Duval County, Florida. Paratype. Phil. No. 350466. B — reproductive tract. After Thompson & Lee, 1980.

liptical. Prostate extending for nearly full length of uterus. Vas deferens thin, free. Epiphallus simple, very short, subglobular. Penis slender, internally with low axial folds, with large caecum; lumen of caecum with large bulbous pilaster just above opening to penis, and low anastomosing ridges in upper portion. Caecum tightly bound to penis with sheath which is longer than penis, but folded back upon itself so that it terminates at epiphallus. Penial retractor arising on diaphragm, attaching to epiphallus at base of vas deferens. Free oviduct rather long, without evident perivaginal gland. Vagina practically absent. Spermatheca small, nearly sessile, clavate. Atrium rather long.

DISTRIBUTION. Florida. 1 sp.

Euconulus (Euconulops) Baker, 1928
Fig. 1463

Baker, 1928: 11.

TYPE SPECIES — *Conulus chersinus polygyratus* Pilsbry, 1899; OD.

Shell subglobose-conic, thin, translucent, silky glossy, with more or less dome-shaped spire, of 6-8 narrow, slowly increasing

whorls. Color yellowish-white. Embryonic and later whorls spirally striated. Aperture narrowly semilunate, a little oblique; columellar margin more or less reflexed. Umbilicus minute. Height 2.25-3.45, diam. 2.40-3.35 mm (2.80 × 3.35 mm).

Hermaphroditic duct strongly swollen for middle half of length. Talon clavate, slightly curved. Epiphallus well-developed, sausage-shaped, thick-walled, internally with axial plicae. Penis with ovoid apical chamber containing a small verge; downwards with longitudinal folds. Penial caecum relatively short, with heaviest walls on side towards penis. Penial retractor bifid terminally so as to invest epiphallus and insert to either side or apex of penis. Spermatheca very short, clavate; reservoir elongated, not clearly differentiated.

DISTRIBUTION. Nearctic with Mexico; ? Society Islands (Tahiti). 4-5 spp. & subspp.

Euconulus (Euconulus) s. str.
Fig. 1464

Shell turbanate, thin, semitransparent, silky glossy, of 5-6 moderately convex whorls. Last whorl rounded or weakly an-

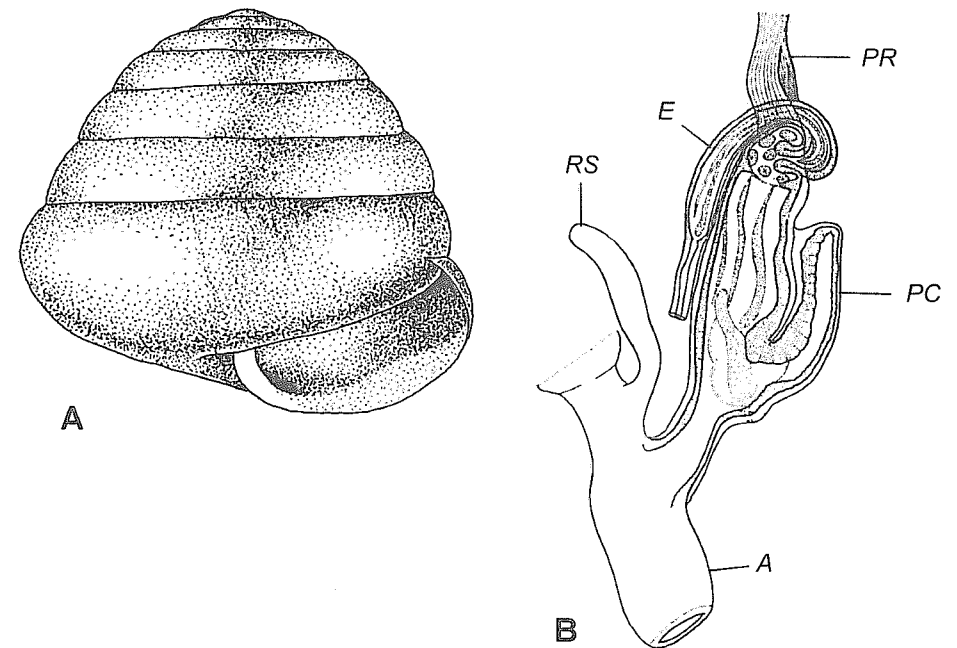


Fig. 1463. *Euconulus (Euconulops) chersinus polygyratus* (Pilsbry, 1899).
A — shell: Grand Rapids, Michigan. Holotype. Phil. No. 90a. B — penis and accessories, with outlines of vagina and spermatheca. After Baker, 1928.

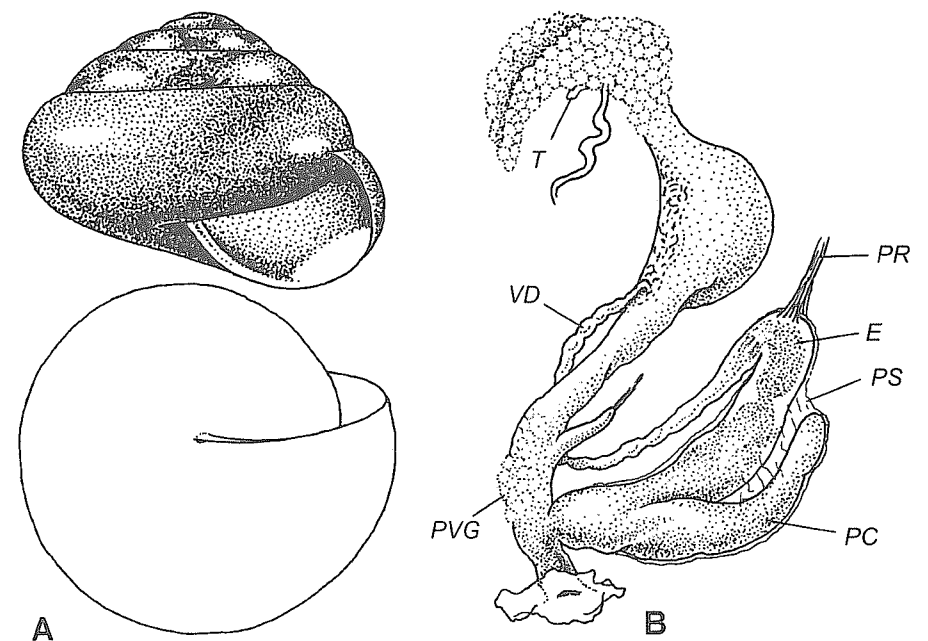


Fig. 1464. *Euconulus (Euconulus) fulvus* (Müller, 1774).
Ayan, Khabarovsk District, Russian Far East, August 5-7, 1971. A — shell. B — reproductive tract. Moscow No. Lc-20866.

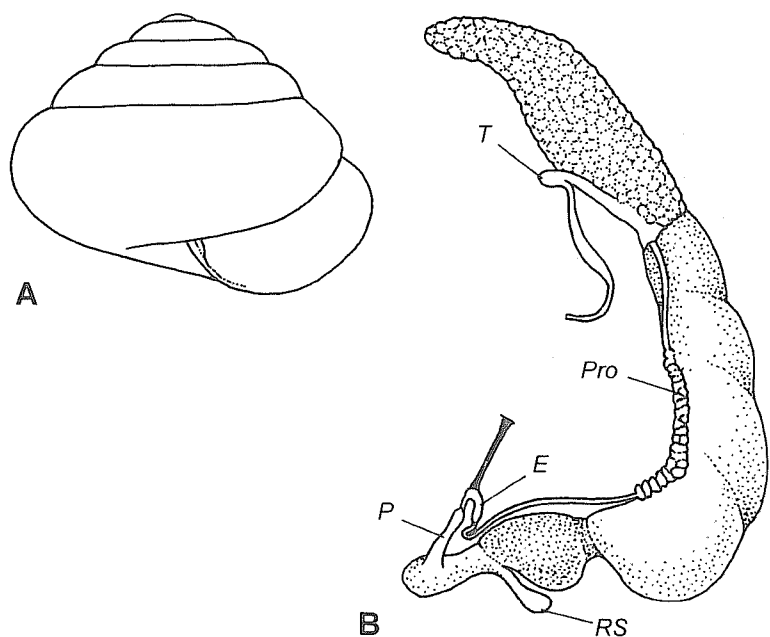


Fig. 1465. *Euconulus (Pellucidomus) lubricella* (Ancy, 1904).
A — shell. B — reproductive tract. After Baker, 1941.

gular. Color yellowish to rich-brown. Embryonic sculpture of variously developed microscopic spiral striae. Later whorls with similar sculpture plus indistinct, irregular radial wrinklets. Aperture lunate, slightly oblique; columellar margin more or less dilated. Umbilicus minutely open. Height 1.8-4.5, diam. 2-5 mm (2.5 × 3.4 mm).

Hermaphroditic gland composed of 2 clusters of few clavate acini. Carrefour hidden or exposed. Vas deferens evenly slender or somewhat corrugated, entering epiphallus through a tiny verge. Epiphallus rather short, separated from penis by a variously developed sphincter. Penis internally without special relief. Penial caecum large, coated, along with penis and epiphallus, by very thin, transparent sheath. Penial retractor attached to penis sheath just below level of verge. Free oviduct and vagina with well developed perivaginal gland. Spermatheca vestigial, reservoir (sub)globular or absent.

DISTRIBUTION. Holarctic; Australia. Probably 1 variable sp.

Euconulus (Pellucidomus) Baker, 1941
Fig. 1465

Baker, 1941: 213, 220.

TYPE SPECIES — *Kaliella lubricella* Ancy, 1904; OD.

Shell turbinate, thin, polished above and quite transparent, of 5 moderately convex whorls. Last whorl almost evenly rounded at periphery. Color corneous. 1st half of embryonic whorls smooth, later with exceptionally weak radial wrinklets. Subsequent whorls with impressed major radial striae, without marked threads in interstices; spiral lines rather vague above but prominent below periphery. Aperture narrowly crescentic, quite evenly rounded, oblique; columellar margin hiding about half of superficial perforation. Height 2.5, diam. 3.2 mm.

Talon exposed, short. Carrefour elongated. Prostate poorly developed. Vas deferens thin, entering very small epiphallus. Penis small, somewhat rudimentary. Penial retractor attached to epiphallus. Free ovi-

duct with well-developed perivaginal gland. Spermatheca vestigial.

DISTRIBUTION. Hawaiian Islands. 1 sp.

Euconulus (Chetosyna) Baker, 1941
Fig. 1466

Baker, 1941: 213, 219.

TYPE SPECIES — *Euconulus thurstoni* Baker, 1941; OD.

Shell depressed-turbinate, thin, dull above and more glossy below, of 4 rather convex whorls. Last whorl weakly subangulated. Color pale-greenish-corneous. Embryonic sculpture of distinct spiral grooves. Postapical whorls with rather sharp radial threads and spiral striae above and with very sharp spiral grooves below periphery. Aperture widely lunate, moderately oblique. Umbilicus tiny. Height 2.38, diam. 3.56 mm.

DISTRIBUTION. Hawaii Island. 1 sp.



Fig. 1466. *Euconulus (Chetosyna) thurstoni* Baker, 1941.
After Baker, 1941.

Euconulus (Monoconulus) Baker, 1941
Fig. 1467

Baker, 1941: 213, 214.

TYPE SPECIES — *Euconulus conoides* Baker, 1941; OD.

Shell trochiform, subcarinate, dullish above and slightly more glossy below, of about 5 flattened whorls. Color light-brown. Embryonic whorls with fine, subequal radial lines and spiral striae. Postnuclear whorls at first with decussating radial lines and spiral striation, but then latter becoming weaker and considerably less evident than former; basal surface with lower radial threads, decussating by subequal spiral lines. Aperture rather narrow, almost transverse, sharply angulated; columellar margin shortly but distinctly dilated, covering about half of superficial perforation. Height 3.08, diam. 3.62 mm (holotype).

Talon rather small, ovate. Epiphallus short, internally without prominent verge, lying between two forks of penial retractor. Penis proper relatively large, with apex swollen into ellipsoid chamber, which internally vaguely papillate and below which branches of penial retractor insert. Penial caecum small, subcylindrical. Free oviduct moderately long, with well developed peri-

vaginal gland. Vagina very short. Spermatheca small, fusiform.

DISTRIBUTION. Society Islands (Tahiti). 1 sp.

Euconulus (Nesoconulus) Baker, 1941
Fig. 1468

Baker, 1941: 213, 215.

TYPE SPECIES — *Helix subtilissima* Gould, 1847; OD.

Shell depressed-conic, variable in height, thin, of 4-6.5 flattened whorls. Last whorl angulated to keeled. Color light-brownish. Initial half of 1st embryonic whorl with very low, but rather coarse radial wrinkles; next part of apical shell with same wrinkles and weak but fairly sharp spiral grooves. Postnuclear whorls with extremely fine, sharp, minor radial lines, obscure spiral grooves and weak traces of coarser wrinkles above periphery; on base sculpture weakened. Aperture narrow, subvertical, margins sharp, weakly arcuate on base. Co-

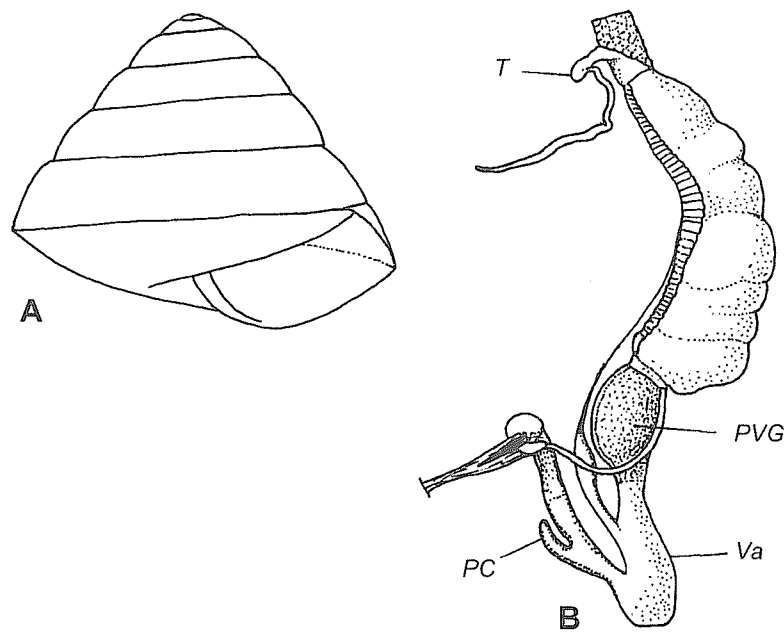


Fig. 1467. *Euconulus (Monoconulus) conoides* Baker, 1941.
A — shell. B — reproductive tract. After Baker, 1941.

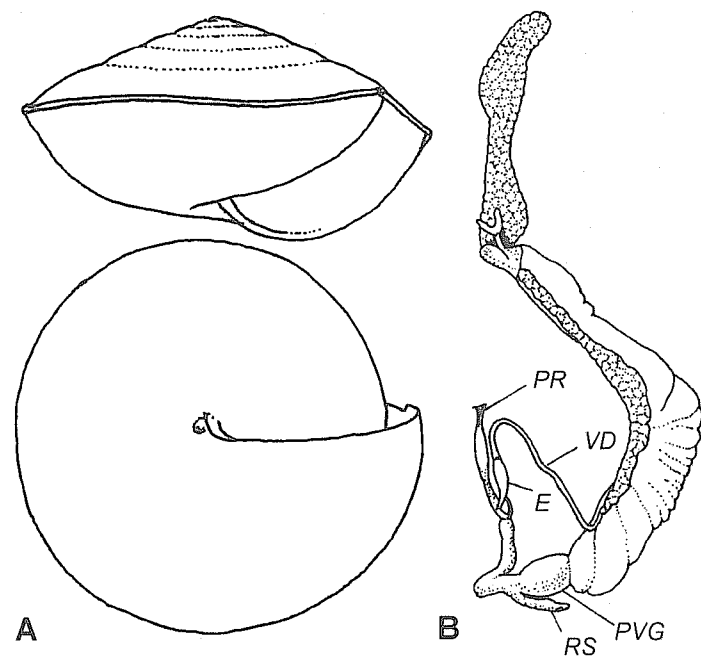


Fig. 1468. *Euconulus (Nesoconulus) subtilissimus* (Gould, 1847).
A — shell. B — reproductive tract. After Baker, 1941.

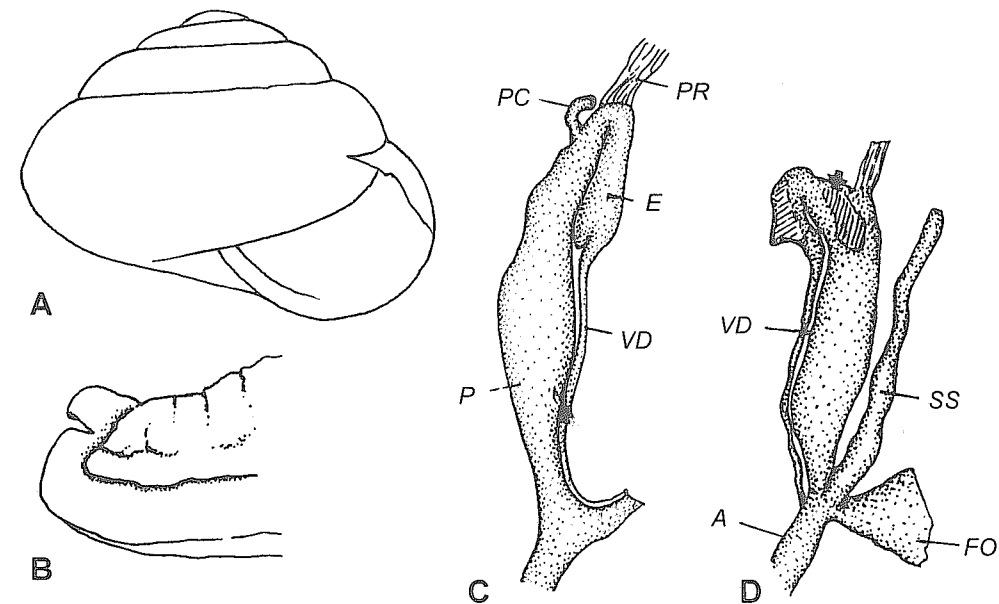


Fig. 1469. *Afroguppya rumrutiensis* (Preston, 1911).
A — shell. B — posterior end of cephalopodium. C — penis. D — penis and spermatheca of another specimen. After de Winter & van Bruggen, 1992.

lumellar margin lightly reflexed, hiding about 1/4 of superficial perforation. Height 1.6-2.5, diam. 3.1-4.9 mm.

Vas deferens emptying into epiphallus through pronounced papilla. Epiphallus slender, almost as long as penis proper. Penis small, simple, largely surrounded by a thin sheath, which is attached to epiphallus. Penial retractor arising from diaphragm, inserting around base of epiphallus. Free oviduct with yellow perivaginal gland. Spermatheca minute, sausage-shaped.

DISTRIBUTION. Hawaiian islands (Maui, Molokai, Lanai, Hawaii). 8 spp. & subspp.

Afroguppya de Winter
et van Bruggen, 1992
Fig. 1469

Winter de & van Bruggen, 1992: 529.

TYPE SPECIES — *Thapsia rumrutiensis* Preston, 1911; OD.

Shell depressed-turbinate, thin, of 3.25-4.25 rather convex whorls. Last whorl rounded or subangulated at periphery. Base somewhat inflated. Sculpture of em-

bryonic and later whorls of delicate, wavy, engraved lines which slightly more crowded near suture; spiral sculpture continued beyond periphery and well marked on basal surface. Spiral lines crossed by weak radial wrinklets which become more noticeable around umbilicus and behind aperture. Aperture broadly sublunate, columellar margin short, curved. Umbilicus narrow, slightly overhung by columellar margin. Height 0.8-2.1, diam. 1.3-2.7 mm.

Sole tripartite. Caudal foss overhung by a horn.

Vas deferens bound to penis, entering epiphallus subapically, leaving a very short flagellum. Epiphallus short. Penis elongated, straight, with small digitiform caecum at upper end [in 1 specimen de Winter & van Bruggen (1992) have not found caecum but observed denser tissue at place of caecum in 2 other specimens (fig. 1469 D, arrow)]. Penial retractor attached to penis/epiphallus junction. Uterus contains up to 8 embryos at different stages of development. Vagina absent. Spermatheca sleeve-like, without clear division into shaft and reservoir.

DISTRIBUTION. W and E Tropical Africa (eastern South Africa, Zimbabwe, Malawi,

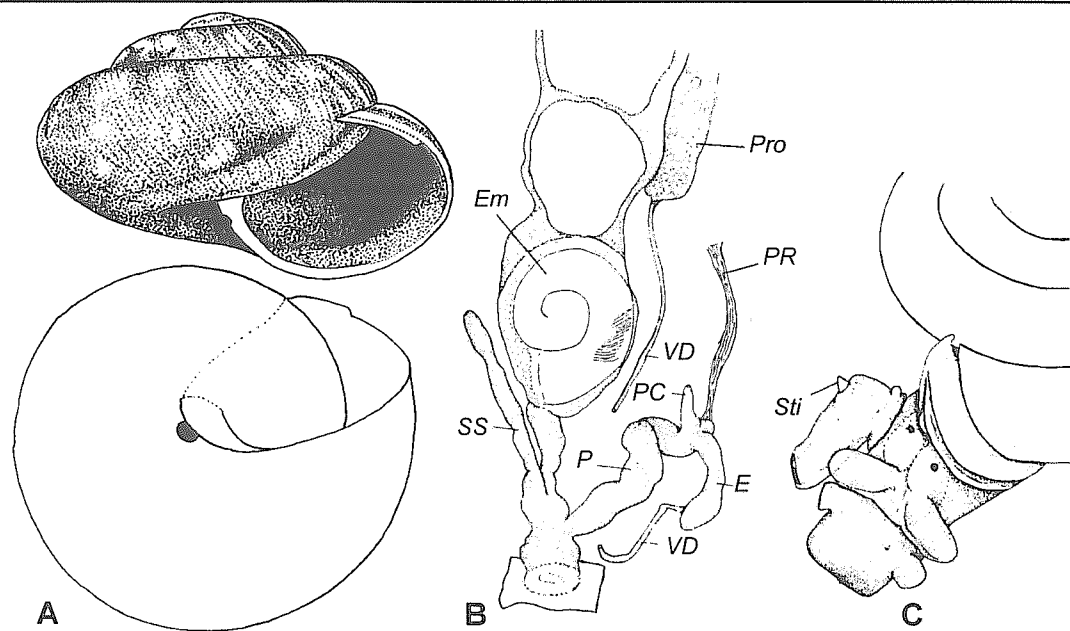


Fig. 1470. *Afropunctum seminium* (Morelet, 1873).

A — shell: "Luluabourg, Belg. Kongo" [= Kananga, Zaïre] (paratype of *Afropunctum mermodi* Haas, 1934). Senck. No. 9450. B — reproductive tract. C — anterior end of body with everted penis. After Winter & van Bruggen, 1992.

Zambia, Tanzania, Kenya, Togo, Côte d'Ivoire). 2 spp.

? *Afropunctum* Haas, 1934
Fig. 1470

Haas, 1934: 221. Winter de & van Bruggen, 1992: 518.

TYPE SPECIES — *Afropunctum mermodi* Haas, 1934 (= *Helix seminium* Morelet, 1873); OD.

Shell depressed-conic to depressed-trochoid, thin, translucent, somewhat shining, of 3.75-4.25 quite convex whorls. Last whorl scarcely angulate at periphery. Color light-corneous. Embryonic whorls looking smooth, with very fine radial riblets crossed by microscopic spiral lines. On postapical whorls spiral lines become less conspicuous and confined to area below suture; on base there are wavy, spiral, engraved spiral lines. Aperture widely semi-lunate, more or less oblique; columellar margin slightly reflexed. Umbilicus narrowly open. Height 1.4-2.3, diam. 2.2-3.1 mm (1.9 × 2.7 mm).

Caudal foss partly overhung by a wedge-shaped horn.

Kidney triangularly elongated. Primary ureter recurves at base of kidney; secondary ureter completed.

Prostate rather short, extending to about halfway of uterus. Vas deferens enters epiphallus subapically and laterally. Epiphallus rather short. Penis rather long, with 1-2 convolutions; basal part of penis contains triangular-conic stimulator. Penial apex with 2 caeca, one relatively long, finger-shaped, the other markedly shorter. Penial retractor attached between caeca. Uterus mostly contains 2 or 3 embryos. Free oviduct of variable length and width. Vagina nearly absent. Spermatheca not long, without distinct subdivision into stalk and reservoir.

DISTRIBUTION. Tropical Africa (northern South Africa, Botswana, Zimbabwe, Malawi, Tanzania, Kenya, Uganda, Zaïre, Congo, Gabon, Nigeria, Togo, Ghana, Côte d'Ivoire, Mali, Senegal, Chad). 1 sp.

REMARK. I am not sure that *Afropunctum* does belong to Euconulidae because of absence of evident perivaginal gland, presence of 2 apical penial caeca and stimulator in penis. Perhaps, it is an aberrant representative of Urocyclidae.

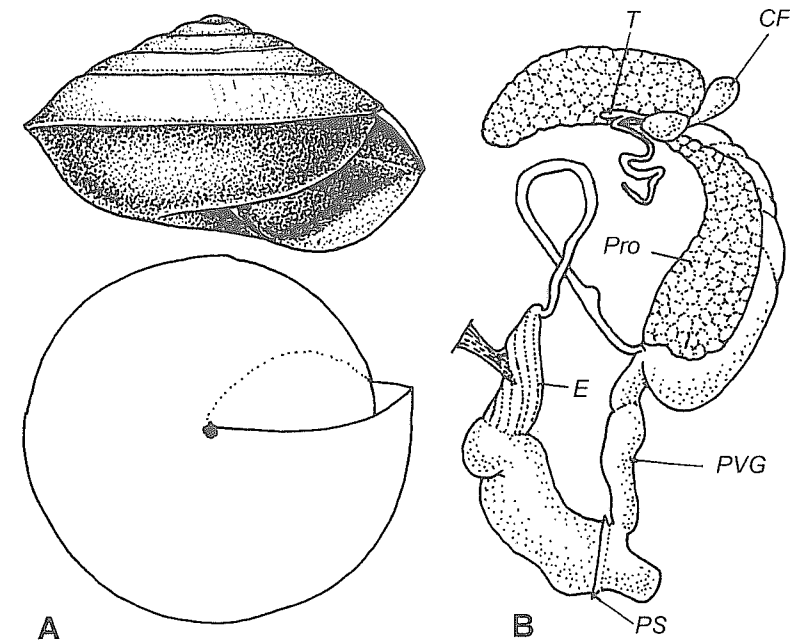


Fig. 1471. *Habroconus (Cocoslens) pallidus* Baker, 1941.

A — shell: Wafer Bay, Cocos Island. Holotype. Phil. No. 174401a. B — reproductive tract. After Baker, 1941.

Habroconus Fischer et Crosse, 1872

Fischer & Crosse, 1872 (1870-1902): 154. Baker, 1941: 223.

TYPE SPECIES — *Helix selenkai* L. Pfeiffer, 1866 (= *Helix trochulina* Morelet, 1851: Baker, 1922); OD.

Shell turbinata to lentiform, thin, semi-transparent, dull or silky glossy, of 4.5-5.5 whorls. Last whorl rounded to keeled. Embryonic whorls smooth, spirally striated or with sculpture of delicate radial wrinklets crossed by spiral striae. Postapical sculpture weak, with variously developed radial and spiral elements. Aperture lunate, more or less oblique; columellar margin somewhat expanded. Umbilicus minute to closed.

Hermaphroditic gland composed of 3-4 clusters of several subglobular or shortly clavate acini. Carrefour exposed, with lateral process. Vas deferens slender, entering epiphallus through a simple pore. Epiphallus not long. Penis internally without special relief. Penis without caecum. Penial retractor attached to epiphallus or to upper edge of penis sheath. Perivaginal gland developed. Spermatheca missing.

DISTRIBUTION. Northern part of S

America, Central America with Cocos Island, West Indies; ? Galapagos Islands.

Habroconus (Cocoslens) Baker, 1941
Fig. 1471

Baker, 1941: 223.

TYPE SPECIES — *Habroconus (Cocoslens) pallidus* Baker, 1941; OD.

Shell obesely lentiform, biconcave, thin but only a little translucent, dull above and glossy below, of 5-5.5 flattened whorls. Last whorl with thread-like peripheral keel which can be traced on preceding whorls just above suture. Color pale-corneous. Embryonic sculpture of delicate radial wrinklets crossed by spiral striae. Upper surface of postapical whorls with similar sculpture; radial elements become weaker below peripheral keel. Aperture lunate, angled, slightly oblique. Umbilicus minutely open. Height 2.61, diam. 4.45 mm (holotype).

Talon small, exposed. Carrefour with large lateral process. Vas deferens thin. Epiphallus large, conic, entering penis through very low verge. Internally epiphallus with axial folds. Penis voluminous, containing a

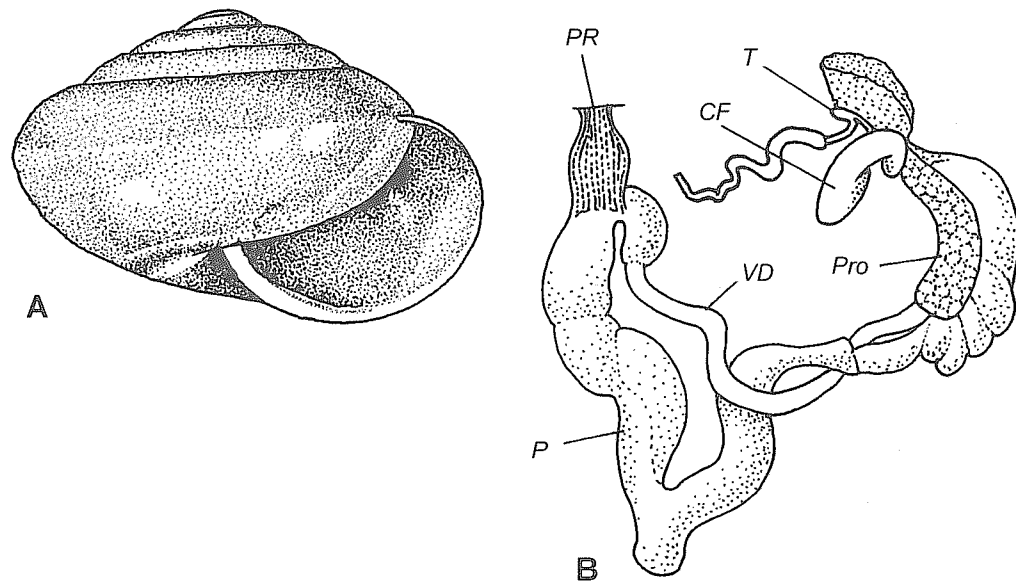


Fig. 1472. *Habroconus (Cocosconus) hopkinsi* (Dall, 1900).

A — shell: Wafer Bay, Cocos Island. Phil. No. 174398. B — reproductive tract. After Baker, 1941.

large, transversely folded pilaster. Penis sheath including basal 1/3 of epiphallus. Penial retractor inserted near middle of epiphallus. Vagina with well developed perivaginal gland.

DISTRIBUTION. Cocos Island (Costa Rica). 1 sp.

Habroconus (Cocosconus) Baker, 1941
Fig. 1472

Baker, 1941: 223.

TYPE SPECIES — *Guppya hopkinsi* Dall, 1900; OD.

Shell trochiform, thin, shining, much translucent, of 4.5-5 moderately convex whorls. Last whorl in full-sized shells weakly obtusely angulated. Color light-corneous. Embryonic and later whorls with dense, microscopic spiral striation; on base striae somewhat weaker. Radial sculpture poorly developed. Aperture widely lunate, slightly oblique. Umbilicus dot-like, usually covered by transparent film. Umbilicus absent. Height 3-4, diam. 4.50-5.77 mm (3.00 × 4.75 mm).

Talon small, exposed. Carrefour with

very large lateral process. Vas deferens relatively stout. Epiphallus short, slightly tapering. Penis large, of irregular shape. Penial retractor arising on right side of uterus, loosely connected to tail-fan, attached to middle of epiphallus. Perivaginal gland well developed.

DISTRIBUTION. Cocos Island (Costa Rica). 1 sp.

Habroconus (Habroconus) s. str.)
Fig. 1473

Shell subglobose, thin, very fragile, silky glossy, hyaline, of about 5.5 moderately convex whorls. Last whorl rounded at periphery. Color greyish-corneous or fulvous. Embryonic whorls microscopically spirally striated. Later whorls with very delicate radial striation above, basal surface finely striated. Aperture ovate, slightly oblique; columellar margin dilated above. Umbilicus absent. Height 2.8-5.0, diam. 3-8 mm (3.3 × 3.8 mm).

Ovotestis of 4 clusters consisting of irregularly clavate acini. Talon small, clavate. Carrefour exposed, slender; lateral process not large. Prostate apparently restricted to

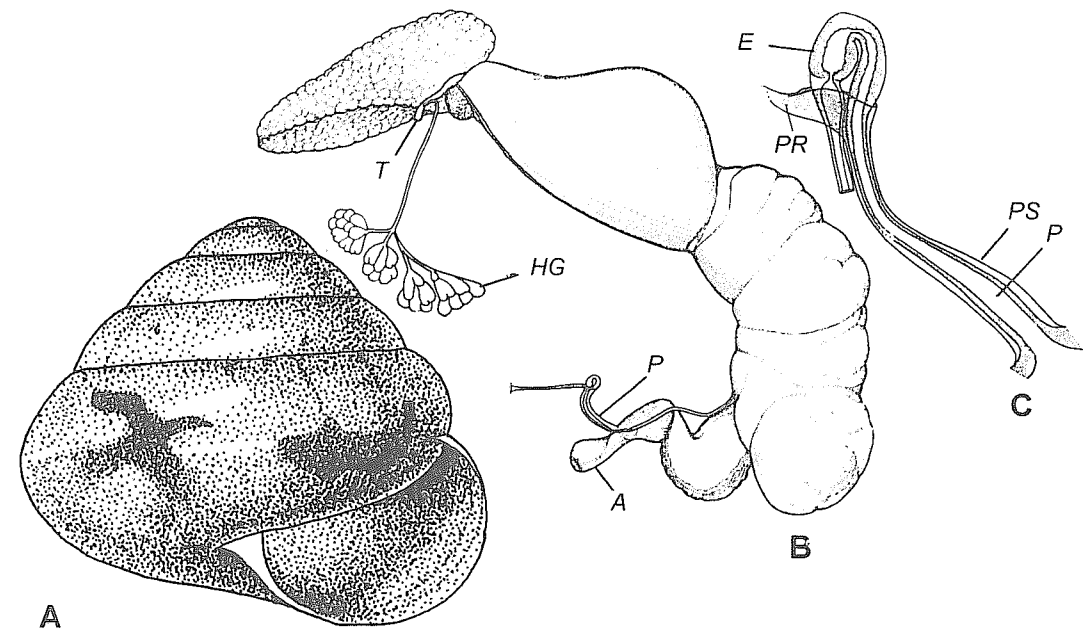


Fig. 1473. *Habroconus (Habroconus) trochulina* (Morelet, 1851).

A — shell: "Mexique, Mirador, prov. Vera-Cruz." Paris (as *selenkai*). B — reproductive tract. C — interior of penis. After Baker, 1928.

a small tongue of tissue near carrefour, although a few acini may occur along uterus. Vas deferens slender. Epiphallus scarcely differentiated, entering penis through a simple pore. Penis extraordinary small, slightly swollen, recurved apically. Penis sheath coats most of penis. Penial retractor inserted on upper edge of sheath. Free oviduct flattened, expanded above; lower 2/5 surrounded by perivaginal gland.

DISTRIBUTION. Northern part of S America, Central America with Mexico, West Indies, ? Galapagos Islands. 3-5 spp.

Habroconus (Ernstia) Jousseume, 1889
Fig. 1474

Jousseume, 1889: 250 (pro gen.).

TYPE SPECIES — *Ernstia ernsti* Jousseume, 1889; OD.

Shell trochiform, very thin, of about 5 slightly convex whorls. Last whorl rounded in profile. Color (light) corneous. Embryonic whorls smooth. Postapical whorls with microscopic, very regular, dense radial striation crossed by finer spiral striae above; basal surface lacking radial elements but with

distinct, wavy spiral striae. Aperture widely lunate, only slightly oblique. Umbilicus tiny, semicovered. Height 2.5-3.5, diam. 3-4 mm (2.9 × 3.4 mm).

Talon large, curved, clavate. Prostate, a narrow strip of acini along apical chamber of uterus. Vas deferens slender, entering short epiphallus terminally. Penis very slender, thin-walled, somewhat swollen near apex, internally without verge. Penis sheath complete. Penial retractor attached to apex of penis. Free oviduct ovoid, with perivaginal gland.

DISTRIBUTION. Northern S America and Central America. 3-4 spp.

Velifera Binney, 1879
Fig. 1475

Binney, 1879: 257 (*Guppya* subg.).

TYPE SPECIES — *Velifera gabbi* Binney, 1879; OD.

Shell subglobose, thin, very fragile, of 3-3.5 slightly convex whorls. Last whorl inflated, evenly rounded at periphery. Color grey to pale-corneous. Embryonic whorls smooth. Later whorls with very weak, ir-

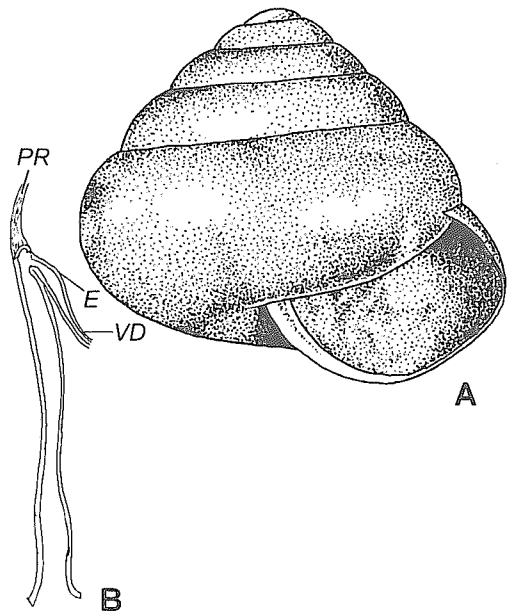


Fig. 1474. A — *Habroconus (Ernstia) ernsti* (Joussseaume, 1889). Shell: Est. Falcon, District Acosta, Venezuela. Basel No. 4899-b. B — ! *Habroconus (Ernstia) elegantula* (Pilsbry, 1919). Penis. After Baker, 1928.

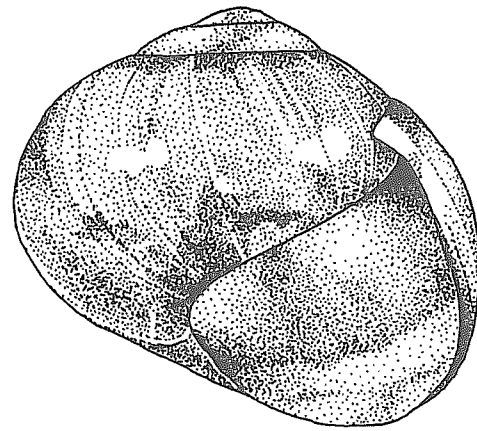


Fig. 1475. *Velifera gabbi* Binney, 1879. Costa Rica. Syntype. Phil. No. 48765.

regular radial wrinklets. Aperture ample, slightly oblique. Umbilicus absent. Height 3.8-4.2, diam. 4.5-6.0 mm (3.8 × 4.5 mm). DISTRIBUTION. Costa Rica. 1 sp.

Sodaleta Iredale, 1937
Fig. 1476

Iredale, 1937c: 12. B. Smith, 1992: 242.

TYPE SPECIES — *Helix (Conulus) russelli* Brazier, 1875; OD.

Shell broadly and depressedly conic, thin, fragile, silky shining, of 4-5 slightly convex whorls. Last whorl scarcely descending in front, roundly angled at periphery. Apex obtuse, suture more or less channelled. Color corneous or corneous-brown. Embryonic whorls smooth. Postapical sculpture of very fine, close radial striae and microscopical, spiral, periostracal threadlets. Aperture squarish to roundly lunate, moderately oblique, with thin, simple margins; columellar margin sloping, somewhat thickened, reflexed. Umbilicus minutely open, often covered with semitransparent film.

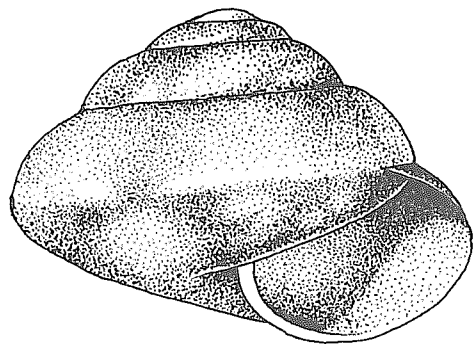


Fig. 1476. *Sodaleta russelli* (Brazier, 1875). Caldwell, North Kennedy, Australia. Zürich No. 501068.

Height 1.8-2.6, diam. 2.5-3.7 mm (1.9 × 2.7 mm).

Ovoviviparous animals (I observed a few juvenile shells inside shell).

DISTRIBUTION. N and E Australia including islands in Torres Straits. 4 spp.

Conibycus Thiele, 1928
Fig. 1477

Thiele, 1928: 136, 137.

TYPE SPECIES — *Conibycus dahli* Thiele, 1928; OD.

Shell turritate, thin, of about 5.5 moderately convex whorls. Last whorl evenly rounded at periphery. Color yellowish. Embryonic whorls with fine spiral striae. Later whorls with delicate, obliquely-radial threadlets. Aperture irregularly ovate, oblique; columellar margin subvertical. Umbilicus minute, semicovered. Height 4.0-6.2, diam. 4.0-6.2 mm (diam. about 5.5 mm).

Vas deferens entering epiphallus terminally. Epiphallus rather long, poorly demarcated from penis. Penial retractor not located. Free oviduct somewhat swollen, not long. Vagina very short. Spermathecal stalk quite long, reservoir lies on albumen gland.

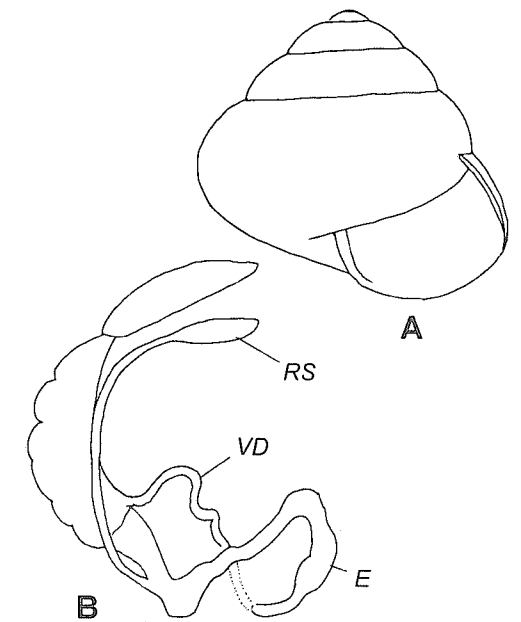


Fig. 1477. *Conibycus dahli* Thiele, 1928. A — shell. After Thiele, 1928. B — reproductive tract. After I. Rensch, 1937.

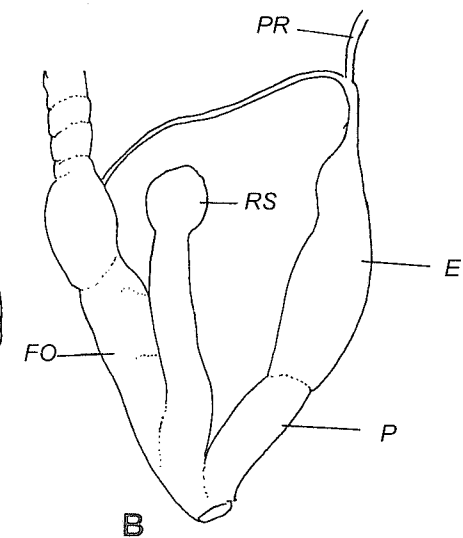
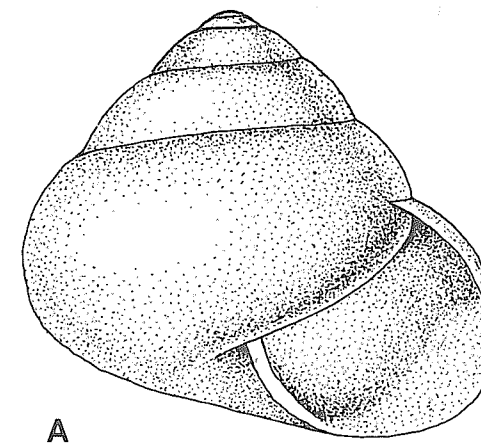


Fig. 1478. *Parasitala osumiensis* Thiele, 1931.

A — shell: Yakushima, Japan. "Type". Berlin No. 58285. B — reproductive tract. After Azuma, 1995.

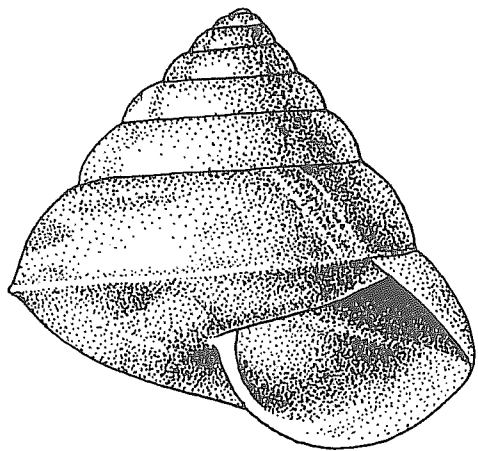


Fig. 1479. *Coneuplecta scalarina* (L. Pfeiffer, 1851). Maasin, Island Leyte, Philippines. Senck. No. 157851a.

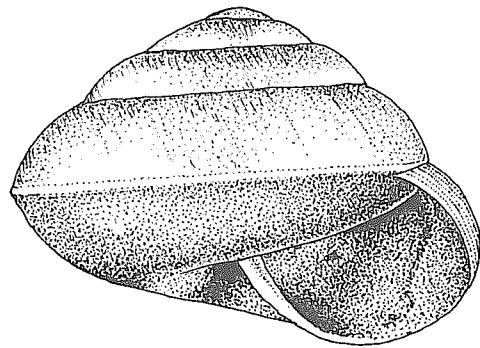


Fig. 1480. *Serostena starkei* (Brazier, 1876). "Mita, Milne Bay, British New Guinea". Phil. No. 63061.

DISTRIBUTION. New Guinea (Aru Islands, Bismarck Archipelago). 2-3 spp.

REMARK. Through kindness of Dr. E. Neubert I have examined the holotype of this species ("New Britain, Raluana", Berlin No. 102555), but it was in too poor condition (Bayn's disease) to be illustrated.

Parasitala Thiele, 1931
Fig. 1478

Thiele, 1931a: 397, 398.

TYPE SPECIES — *Parasitala osumiensis* Thiele, 1931; OD.

Shell turbinoid, thin, translucent, of 5-6 slightly to moderately convex whorls. Color yellowish-grey or greenish-olive. Embryonic sculpture of microscopical radial striae. Postapical whorls with similar but slightly coarser striae and delicate but quite distinct spiral striation. Aperture rounded, moderately oblique, with fragile margins. Umbilicus tiny. Height 3.5-4.5, diam. 4.5-5.5 mm (4.5 × 4.8 mm).

Vas deferens rather short, entering epiphallus terminally. Epiphallus comparatively large, separated from penis by shallow

neck. Penis shorter than epiphallus. Penial retractor inserting on distal part of vas deferens. Free oviduct stout, long. Vagina almost absent. Spermatheca subequal to free oviduct in length; its stalk rather stout, reservoir subglobose, not large.

DISTRIBUTION. Japan. 3 spp.

Coneuplecta Moellendorff, 1893
Fig. 1479

Moellendorff, 1893: 64 (*Otesia* subg.).

TYPE SPECIES — *Helix scalarina* L. Pfeiffer, 1851; SD Moellendorff, 1898.

Shell conic, thin, fragile, translucent, of 5-7 moderately convex to nearly flat whorls. Last whorl carinated at periphery. Color light-corneous. Embryonic whorls smooth. Postnuclear whorls silky microscopically radially striated; basal surface below keel with delicate spiral striae. Aperture ovate-angulated, well oblique, with simple margins. Umbilicus minutely open. Height, diam. 5 mm (6.4 × 6.8 mm).

DISTRIBUTION. Philippines, New Guinea. About 20 spp. & subsp.

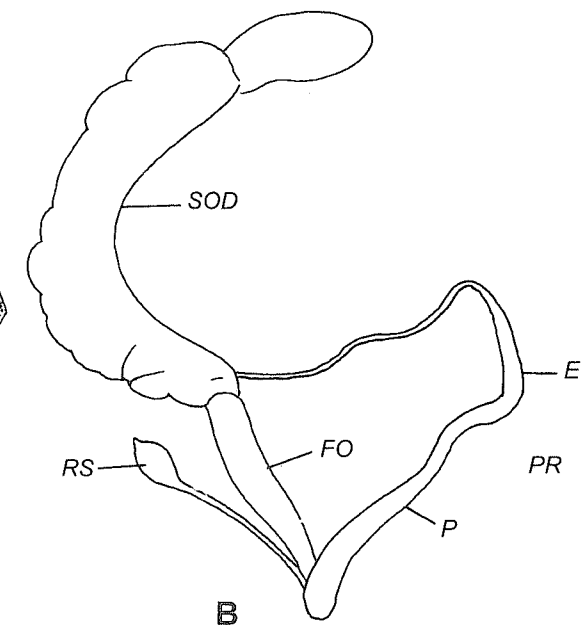
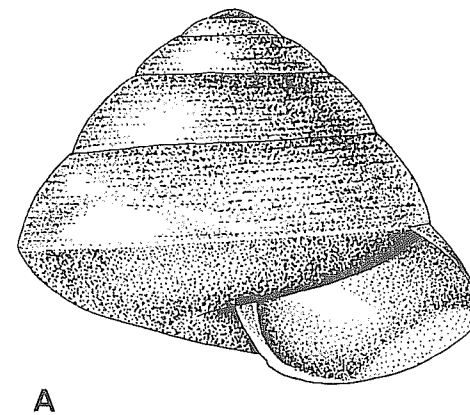


Fig. 1481. *Canelloconus amoenus* I. Rensch, 1932.

A — shell: "Malkong-Bach, Neu-Pommern" [Bismarck Archipelago]. Paratype. Senck. No. 157850. B — reproductive tract. After I. Rensch, 1932.

Serostena Iredale, 1941
Fig. 1480

Iredale, 1941b: 66.

TYPE SPECIES — *Helix (Conulus) starkei* Brazier, 1876; OD.

Shell trochiform, thin, glistening, of about 5 rather convex whorls. Last whorl with low but quite clear, cord-like keel on periphery. Color light-corneous. Embryonic whorls with weak, close-set spiral cordlets. Postapical sculpture of thin, low, membranaceous, strongly oblique, radial riblets and traces of spiral striae in interstices; below peripheral angle riblets become weaker but spiral wavy striae more distinct. Aperture widely lunate, subvertical, with simple margins. Umbilicus narrow, cylindrical. Height 2.0-2.3, diam. 2.7-3.2 mm (2.1 × 2.9 mm).

DISTRIBUTION. Papua-New Guinea. 1 sp.

Canelloconus I. Rensch, 1932
Fig. 1481

Rensch I., 1932: 27.

TYPE SPECIES — *Canelloconus amoenus* I. Rensch, 1932; OD.

Shell rather high, conic-turbinate, thin,

translucent, shining, of 5.5 slightly convex whorls. Last whorl with blunt peripheral angle. Color dark-corneous. Embryonic whorls smooth. Postapical whorls with very weak, irregular radial wrinklets and close-set spiral lines. Aperture angulated, semilunate, slightly oblique; margins thin, columellar margin shortly reflexed. Umbilicus dot-like. Height 3.5-5.5, diam. 4.1-5.5 mm (3.7 × 4.3 mm).

Vas deferens passes gradually into rather short epiphallus. Penis subcylindrical, markedly longer than epiphallus. Penial retractor attached to penis/epiphallus junction. Free oviduct rather long. Vagina absent. Spermathecal stalk slender, rather short, entering atrium; reservoir ovate, attending base of spermoviduct.

DISTRIBUTION. Bismarck Archipelago. 1 sp.

Sitalina Thiele, 1931
Fig. 1482

Thiele, 1931b: 635.

—? *Eclipsena* Iredale, 1937: 14 [t.-sp. *Helix (Conulus) elleryi* Brazier, 1875]; OD; Solem, 1988: 546.

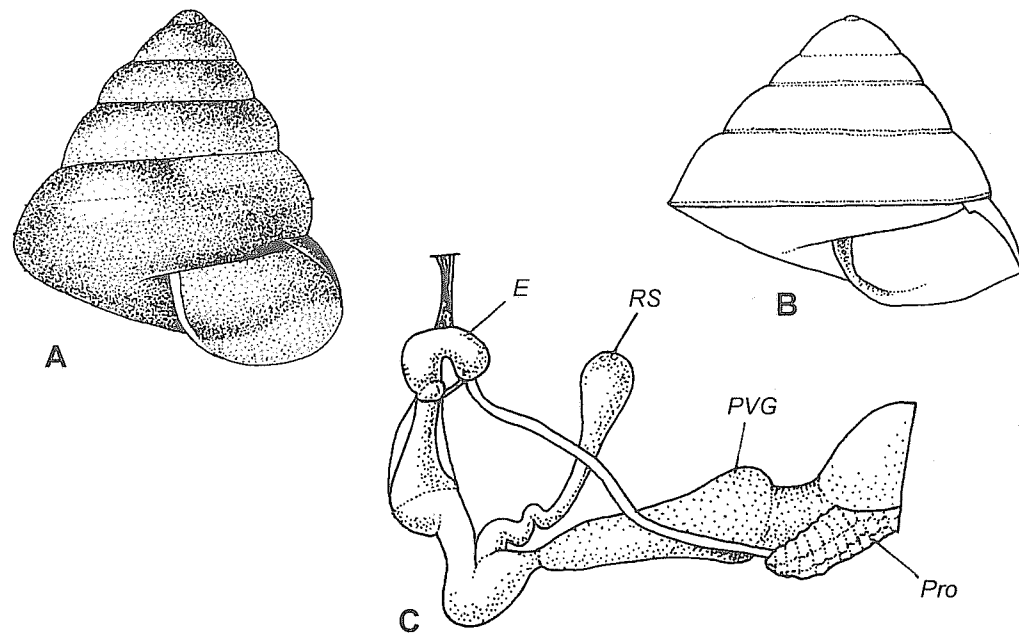


Fig. 1482. A — *Sitalina circumcincta* (Reinhardt, 1883). Shell: Yokohama, Japan. Holotype. Senck. No. 157852. B, C — ! *Sitalina microconus* (Mousson, 1865). B — shell. C — reproductive tract. After Baker, 1941.

TYPE SPECIES — *Conulus circumcinctus* Reinhardt, 1883; monotypy.

Shell moderately to high trochiform, relatively solid, shining (at least above), translucent, of about 5 moderately convex whorls. Last whorl bluntly angular to sharply carinate at periphery. Color pale-corneous to reddish. Embryonic whorls with fine, more or less smoothed radial wrinklets and well spaced spiral lines. Later whorls with comparatively coarse, irregular radial wrinkles and thin, distant spiral cordlets. Aperture widely lunate to trapezoidal, quite oblique. Umbilicus minute, superficial, semicovered. Height 1.0-3.5 mm, diam. 1.0-3.5 mm (1.70 × 1.14 mm).

Carrefour with rather small lateral process. Vas deferens not long, enters epiphallus apically. Epiphallus rather stout. Preputial part of penis internally with a subglobular stimulator occupying lateral position at apex of prepuce. Penial retractor attached near middle of epiphallus. Free oviduct with well developed perivaginal gland. Spermatheca clavate, with rather long stalk which enters atrium.

DISTRIBUTION. China; from Japan (Ryukyu Islands) to Java; Australia (Fitzroy Island, Queensland), Fiji. At least 10 spp.

Durgellina Thiele, 1928

Fig. 1483

Thiele, 1928: 135. Baker, 1941: 232 (*Coneuplecta* subg.)

TYPE SPECIES — *Durgellina vitrina* Thiele, 1928 (= *Helix calculosa* Gould, 1852); OD.

Shell conoid-turbinated, very thin, dullish above, more glossy below, of 5-6 slightly convex whorls. Last whorl with thread-like peripheral keel. Color corneous to very pallid, almost white, with fulvous apex. Embryonic whorls with close-set, rounded radial threads, beaded by subequally spaced spiral lines. Later whorls with weaker radial threads and more widely spaced spiral striae separating broader wrinkles above; base with radial threads obsolete shortly below periphery but with spiral striae usually distinct and sharply cut. Aperture broadly lunate, well oblique, peristome evenly rounded except for peripheral thread; columellar margin sharply and broadly reflexed above, hiding more than half of minute, superficial umbilicus, which closed internally by a thin whitish callus. Height 3.72-5.50, diam. 4-5 mm.

Tail of cephalopodium with prominent dorsal groove and poorly developed horn.

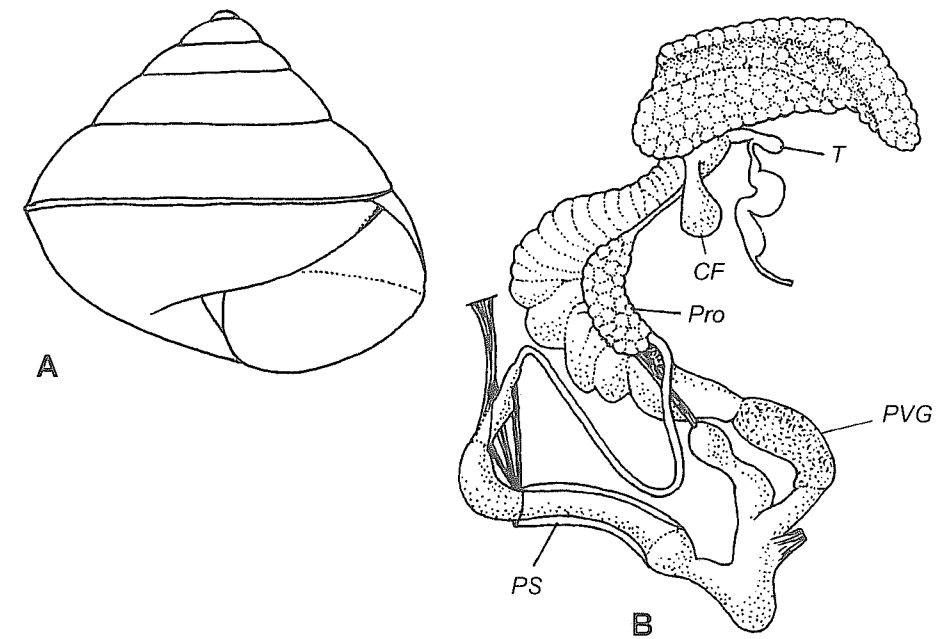


Fig. 1483. *Durgellina calculosa* (Gould, 1852). A — shell. B — reproductive tract. After Baker, 1941.

Hermaphroditic duct rather short. Talon well exposed, with a short, ovate head. Carrefour with a large lateral process. Vas deferens entering epiphallus apically through a small papilla. Epiphallus small, internally with boss-like thickenings. Penis thick-walled, internally lined by minute, closely packed papillae. Preputial section of penis thin-walled, developing a low thickening or boss at apical end. Penis sheath heavy, muscular, surrounding basal 0.7 of penis. Penial retractor investing base of epiphallus. Free oviduct long, with perivaginal gland in middle half. Vagina short. Spermatheca stout, enlarged basally and apically, with very short stalk.

DISTRIBUTION. SE Asia, New Guinea, Bismarck Archipelago, Marquesas, Society Islands (Tahiti), Cook Islands, New Caledonia. About 10 spp.

Kionghutania Tillier et Bouchet, 1988

Fig. 1484

Tillier & Bouchet, 1988: 269.

TYPE SPECIES — *Kionghutania kinabaluensis* Tillier et Bouchet, 1988; OD.

Shell conic, thin, fragile, shining, of 6.5 flattened whorls. Last whorl with blunt angle at periphery. Color corneous, with whitish, irregular radial streaks. Embryonic whorls smooth. Rest whorls with silky, delicate spiral striation. Aperture angulated-lunate, slightly oblique. Umbilicus dot-like. Height 2.8-5.6, diam. 3.3-6.2 mm (5.6 × 6.2 mm).

Talon very small, exposed. Vas deferens thin, long, entering epiphallus apically. Epiphallus bent on itself at distal portion and coated by thin, transparent sheath. Penis clavate, thick-walled, internally with a very short, sphincter-like verge, short, elongated stimulatory pad and semicircular fold. Free oviduct rather long, abruptly narrowed distally. Vagina short, greatly swollen, fused with broad, expanded atrium. Basal portion of spermathecal stalk unusually long, strongly expanded, upper part slender, reservoir elongated.

DISTRIBUTION. Kalimantan (Borneo). 3 spp.

Gunongia Tillier et Bouchet, 1988

Fig. 1485

Tillier & Bouchet, 1988: 261.

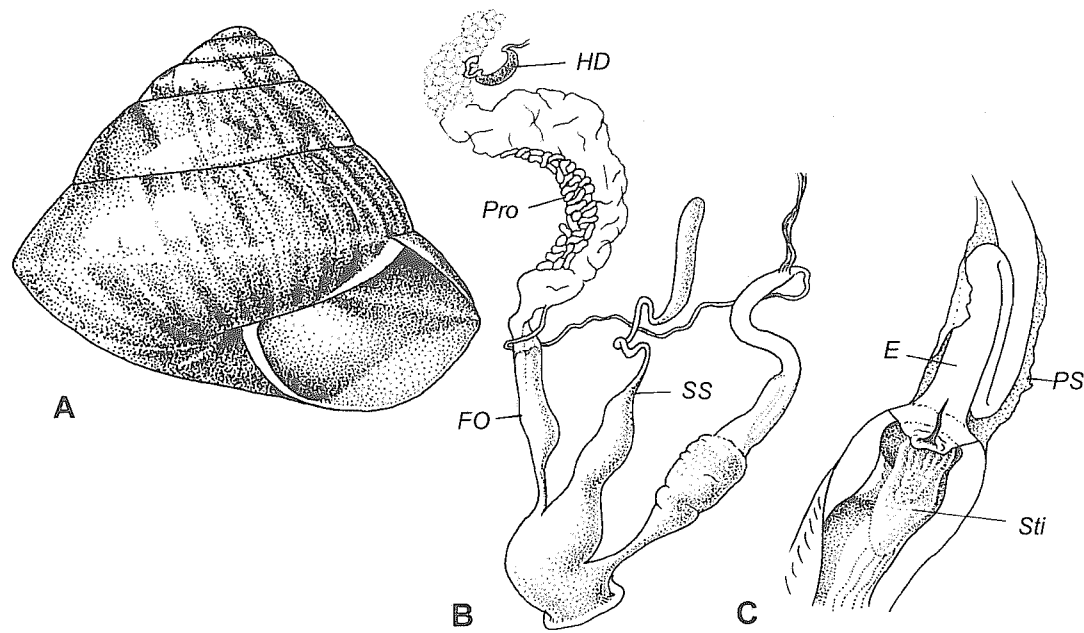


Fig. 1484. *Kionghutania kinabaluensis* Tillier et Bouchet, 1988. Mt. Kinabalu (Sabah), Borneo, 3000-3300 m, 13-20.1.1981. A — shell of holotype. B, C — paratype. B — reproductive tract. C — interior of penis. Paris.

TYPE SPECIES — *Gunongia gregaria* Tillier et Bouchet, 1988; OD.

Shell conic, thin, very fragile, of about 4 slightly convex whorls. Last whorl with peripheral angle. Color pale-corneous. Embryonic whorls smooth. Postapical sculpture of dense spiral striation and fine, irregular radial wrinkles. Aperture widely lunate, angulated, slightly oblique. Umbilicus closed. Height 3.2-5.2, diam. 3.9-6.8 mm (5.2 × 6.8 mm).

Talon not located. Hermaphroditic duct convoluted. Spermatheca very short. Vas deferens comparatively short, rather stout, entering epiphallus subapically at sharp angle. Epiphallus short, ovate, entering penis through a well-developed conic verge. Penis thin-walled, transparent, with a large, conic caecum; below orifice of caecum there is a thin, semicircular fold. Penial retractor attached to epiphallus apically at entrance of vas deferens. Free oviduct short. Vagina long, its distal part surrounded by distinct perivaginal gland. Spermatheca missing. Atrium long, expanded.

DISTRIBUTION. Kalimantan (Borneo). 2 spp.

Sabalimax Tillier et Bouchet, 1988
Fig. 1486

Tillier & Bouchet, 1988: 277.

TYPE SPECIES — *Sabalimax pantherina* Tillier et Bouchet, 1988; OD.

Semislugs. Visceral mass reduced; tail very long, flattened dorso-ventrally, with caudal horn.

Talon exposed, small, club-shaped. Vas deferens rather long, slender, entering epiphallus apically. Epiphallus bulky, with thin, semitransparent walls, internally with a few axial folds, furnished with a long, coiled caecum which joins epiphallus laterally at its border with penis. Penis very short, with a small verge, surrounded by strong, muscular sheath, furnished with a short caecum (may be absent). Penial retractor attached laterally to epiphallus. Free oviduct moderately long, swollen above. Spermatheca short, stout, enters atrium between penis and free oviduct; reservoir rather small, with thin apical ligament.

DISTRIBUTION. Kalimantan (Borneo). 2 spp.

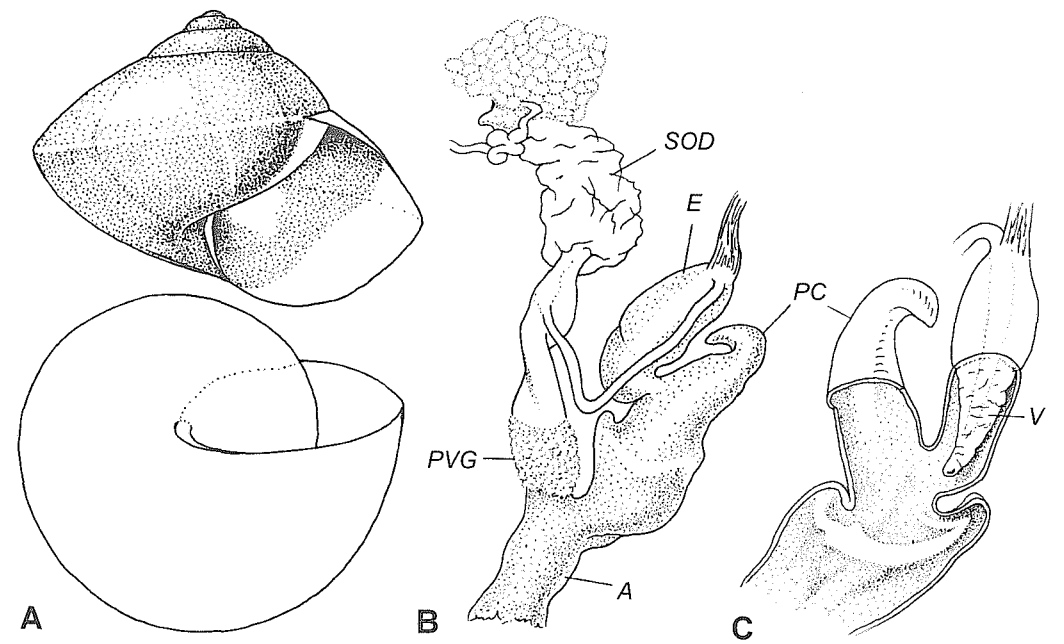


Fig. 1485. *Gunongia gregaria* Tillier et Bouchet, 1988. Mt. Kinabalu (Sabah), Borneo, 3000-3300 m, 13-20.1.1981. A — shell of holotype. B, C — paratype. B — reproductive tract. C — interior of penis. Paris.

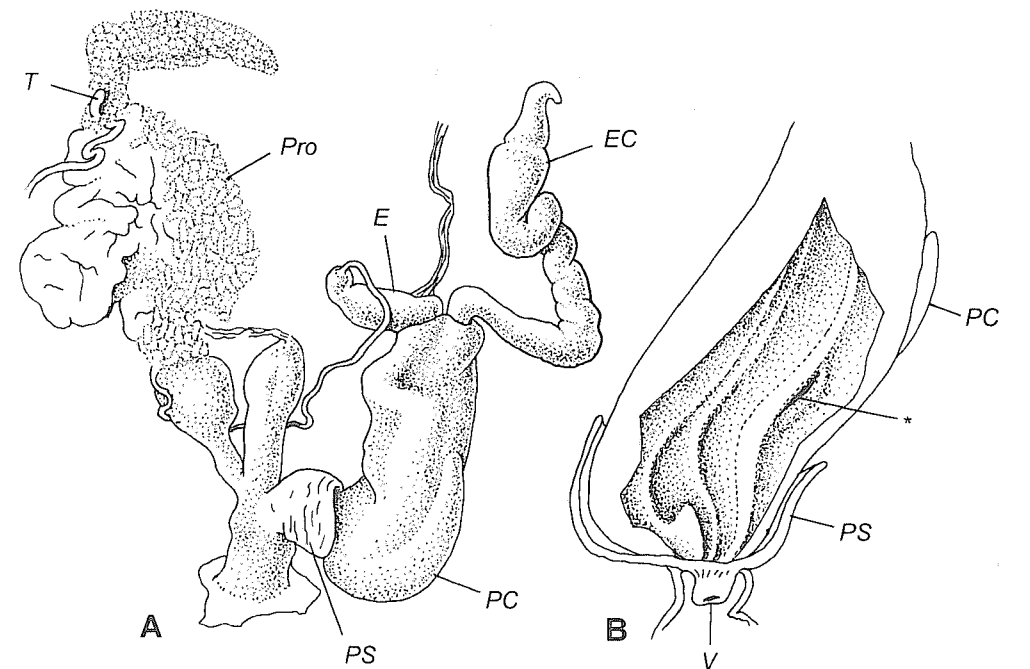


Fig. 1486. *Sabalimax pantherina* Tillier et Bouchet, 1988. Borneo, Mt. Kinabalu, Sabah, 3400 m, 01.1981. Holotype. A — reproductive tract; B — interior of penis and epiphallus. Paris.

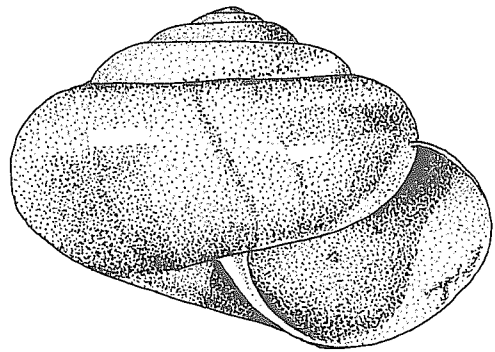


Fig. 1487. *Luchuconulus okinawanus* Pilsbry, 1928. Nagodake, Okinawa, Ryukyu Islands. Holotype. Phil. No. 145579a.

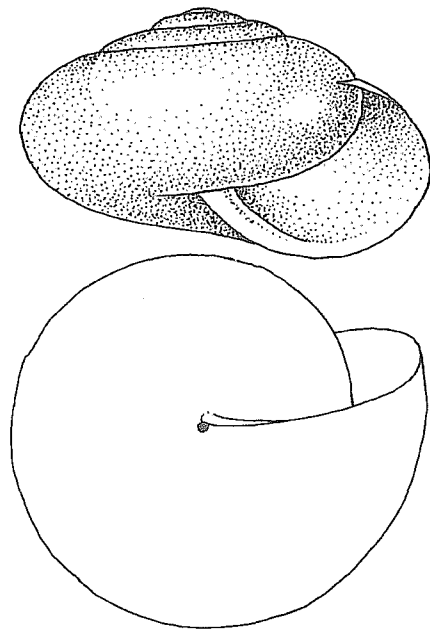


Fig. 1488. *Discoconulus sinapidium* (Reinhardt, 1877). Awaji, Japan. Basel No. 6177-a.

REMARK. The presence of long epiphallid caecum and absence of external shell put this genus in isolated position. At the moment I do not see any taxon to which *Sabalimax* might be related.

Luchuconulus Pilsbry, 1928
Fig. 1487

Pilsbry, 1928: 209.

TYPE SPECIES — *Luchuconulus okinawanus* Pilsbry, 1928; OD.

Shell depressed trochoid, thin, translucent, shining, of 5.5-6 rather convex whorls. Color pale-yellow or reddish. Embryonic whorls glabrous, later whorls with strongly smoothed, irregular radial wrinklets. Aperture widely lunate, slightly oblique, columellar margin somewhat dilated. Umbilicus narrow, semicovered. Height 4.0-5.7, diam. 6.5-7.8 mm (5.7 x 7.8 mm).

DISTRIBUTION. Japan. 2 spp.

Discoconulus Reinhardt, 1883
Fig. 1488

Reinhardt, 1883: 85.

TYPE SPECIES — *Hyalina (Conulus) sinapidium* Reinhardt, 1877; SD Pilsbry, 1928.

Shell depressed-conic, thin, shining, (semi)transparent, of 3.5-4 slightly convex whorls. Last whorl evenly rounded at periphery. Color pale-yellow to bronze, or shell colorless. Embryonic whorls at first smooth, then assuming microscopical but sharp beads, marked off by subequally wide spiral and radial striae. Later whorls with fine, well spaced spiral lines and weak, irregular radial wrinklets. Aperture broadly lunate, a little oblique; columellar margin variously reflexed. Umbilicus dot-like, covered by a transparent film. Height 0.60-1.17, diam. 1.0-1.9 mm (0.92 x 1.72 mm).

DISTRIBUTION. Southern part of Russian Far East, Korean Peninsula, Taiwan, Japan, ? Philippines, ? Carolines. 4-6 spp.

Expocystis Iredale, 1937
Fig. 1489

Iredale, 1937c: 4.

TYPE SPECIES — *Helix rustica* L. Pfeiffer, 1852; OD.

Shell depressed, thin, subtransparent,

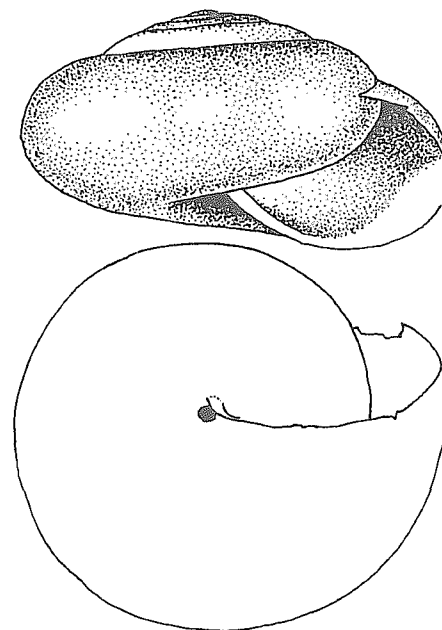


Fig. 1489. *Expocystis rusticus* (L. Pfeiffer, 1852). Tolga, Queensland, Australia. Basel No. 8444-b.

shining, of about 5.5 a little convex whorls. Last whorl evenly rounded at periphery. Spire dome-shaped. Color pale-corneous. Embryonic whorls smooth. Later whorls microscopically, densely, regularly spirally striated; on base striae become wavy. Aperture widely lunate, a little oblique. Umbilicus minute, often covered by transparent film. Height 5.0-5.5, diam. 9-10 mm (5.3 x 9.4 mm).

DISTRIBUTION. Australia (Queensland, NE Australia). 1 variable sp.

Tarocystis Iredale, 1937
Fig. 1490

Iredale, 1937c: 4.

TYPE SPECIES — *Microcystis responsivus* Hedley, 1912; OD.

Shell flattened, thin, shining, of 4-5 scarcely convex whorls. Last whorl evenly rounded at periphery. Color corneous or yellowish. Embryonic whorls smooth. Later whorls microscopically spirally striated. Aperture rather narrowly lunate, subvertical, with simple margins; columellar margin oblique, evenly convex, a little reflexed. Um-

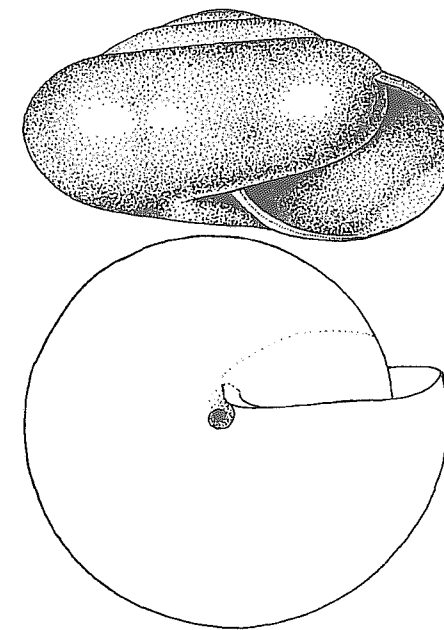


Fig. 1490. *Tarocystis* cf. *responsivus* (Hedley, 1912). Niki-Niki, Timor. Basel No. 4164-a (as "*Tarocystis* Iredale, spec.?").

bilicus dot-like. Height 1.5-2.3, diam. 3.0-4.2 mm (2.0 x 3.9 mm).

DISTRIBUTION. N Australia, ? Timor Island. 3-4 spp.

Melocystis Iredale, 1937
Fig. 1491

Iredale, 1937c: 5.

TYPE SPECIES — *Helix circumcincta* Cox, 1868; OD.

Shell depressed, thin, translucent, shining, of 4-4.5 flattened whorls. Last whorl with much smoothed, rounded peripheral angle. Color yellow to yellowish-corneous. Embryonic and postembryonic whorls microscopically, densely, regularly spirally striated; no regular radial sculpture. Aperture broadly lunate or subovate, slightly to moderately oblique. Umbilicus narrow, usually covered by transparent film. Height 5.0-5.8, diam. 8.0-9.5 mm (*circumcincta*: 5.0 x 8.3 mm; *jacksoniensis*: 5.6 x 9.2 mm).

DISTRIBUTION. Australia (New South Wales, South Australia). 2 spp.

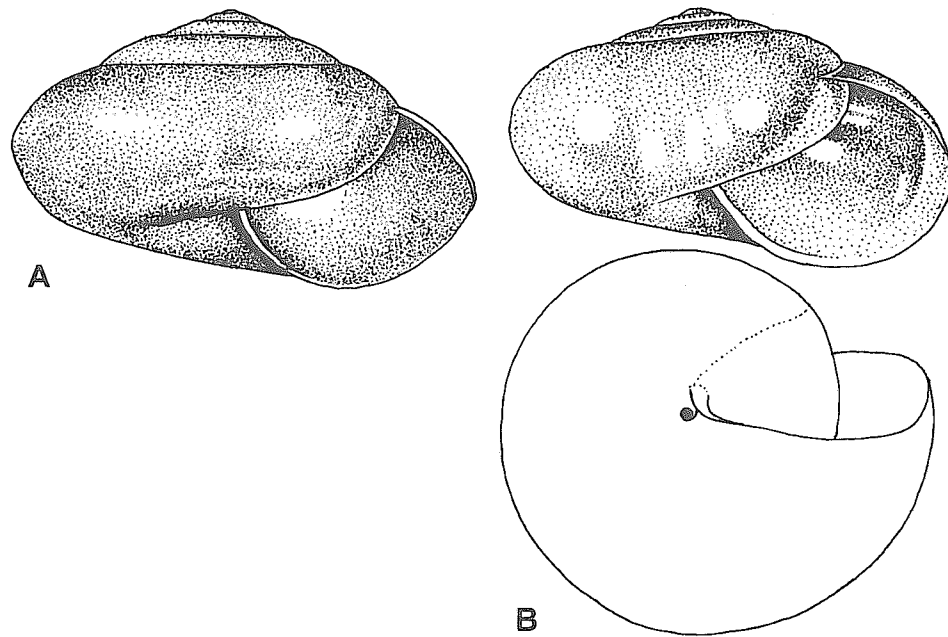


Fig. 1491. A — *Melocystis circumcincta* (Cox, 1868). Sydney, New South Wales, Australia. Phil. No. 63280. B — ! *Melocystis jacksoniensis* (Gray, 1834). Manley, New South Wales. Basel No. 8453-a.

Wilhelminaia Preston, 1913
Fig. 1492

Preston, 1913a: 434. Solem, 1988: 547. B. Smith, 1992: 244.

TYPE SPECIES — *Wilhelminaia mathildae* Preston, 1913; OD.

Shell depressed-turbinate or dome-shaped, thin, polished, shining, transparent, of 4 moderately convex whorls. Last whorl evenly rounded at periphery. Suture margined above or below. Color pale- or reddish-brown. Surface throughout with fine, punctate spiral striae crossed by fine, regular, radial lines. Aperture lunate, oblique, with simple margins; columellar margin with umbilical protrusion. Umbilicus extremely narrow. Height 0.5-1.0, diam. 1.0-1.9 mm (1.00 × 1.76 mm).

Cephalopodium with a short caudal horn and shallow foss.

Talon very small. Vas deferens joining epiphallus terminally. Epiphallus comparatively large, entering penis laterally through a small pore. Penis rather long, surrounded by sheath except for apical section. Penial retractor arising near base of uterus and in-

serting around penial apex. Free oviduct long, without evident perivaginal gland. Spermatheca absent.

DISTRIBUTION. Carolines (Ponape Island), Moluccas [Beilan-Beilan (= Belang Belang) Island], Papua-New Guinea, Solomons (Florida Island), New Hebrides, W and N Australia. 1 or 2 spp.

Diepenheimia Preston, 1913
Fig. 1493

Preston, 1913a: 433.

TYPE SPECIES — *Diepenheimia iridescens* Preston, 1913; OD.

Shell depressed-conoid, thin, shining, transparent, of 4 moderately convex whorls. Base of shell somewhat inflated. Last whorl gradually and slightly descending in front, with peripheral keel that directed upward and bordered above by a deep groove. Color corneous. Embryonic whorls smooth. Postapical whorls with fine, irregular, radial wrinkles and indistinct, rather closely set spiral striae. Aperture broadly lunate, mo-

derately oblique, with simple margins. Umbilicus narrow, deep. Height 1.25-1.70, diam. 2.75-3.10 mm (1.70 × 3.10 mm).

DISTRIBUTION. Moluccas (Beilan-Beilan Island). 1 sp.

Afroconulus
Van Mol et van Bruggen, 1971
Fig. 1494

Van Mol & Bruggen van, 1971: 286.

TYPE SPECIES — *Sitala diaphana* Connolly, 1922; OD.

Shell globose-conic, very thin, translucent, of 5-6.25 more or less convex whorls. Last whorl with very slight peripheral angle. Color pale-corneous-yellow, or shell colorless. Embryonic whorls with very faint radial striae and crowded, microscopic spiral lines; later whorls with similar sculpture. Aperture widely lunate to subcircular, slightly oblique, columellar margin somewhat dilated. Umbilicus tiny, covered. Height 3.8-6.1, diam. 3.9-6.2 mm (4.2 × 4.0 mm).

Vas deferens thin, long, entering epiphallus apically. Epiphallus swollen proximally, slender distally, with very narrow lumen, its slender portion coated by muscular sheath; there is a sphincter at border with penis. Penis shorter than epiphallus, internally with vague, irregular, axial folds; verge absent. Free oviduct stout, rather long, surrounded by well developed perivaginal gland. Vagina not long, swollen. Spermathecal stalk markedly enlarged basally, rather short; reservoir small, with apical ligament.

DISTRIBUTION. SE Africa. 2 spp.

Louisia Godwin-Austen, 1908
Fig. 1495

Godwin-Austen, 1908: 433.

— *Pseudocaldwellia* Germain, 1918: 518 (t.-sp. *Helix barclayi* Benson, 1850; SD Germain, 1921).

TYPE SPECIES — *Helix barclayi* Benson, 1850; SD Zilch, 1959.

Shell subglobular to depressed-turbinate, very fragile, shining, semitransparent, of 5-6 slightly convex whorls. Last whorl with weak to rather strong peripheral angle.

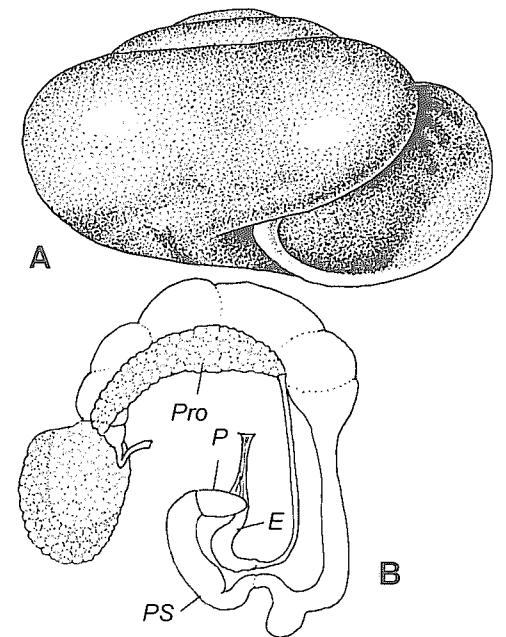


Fig. 1492. *Wilhelminaia mathildae* Preston, 1913. A — shell: Sarakata River Valley, Espiritu Santo, New Hebrides. Phil. No. 200660. B — reproductive tract. After Baker, 1941 (as "*Discoconulus* species near *sinapidium*").

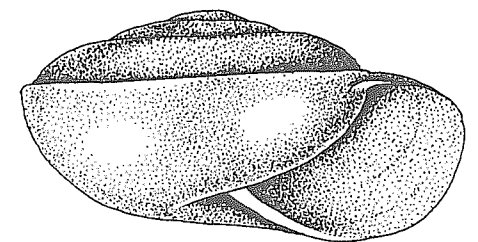


Fig. 1493. *Diepenheimia iridescens* Preston, 1913. Island of Beilan-Beilan. Cardiff.

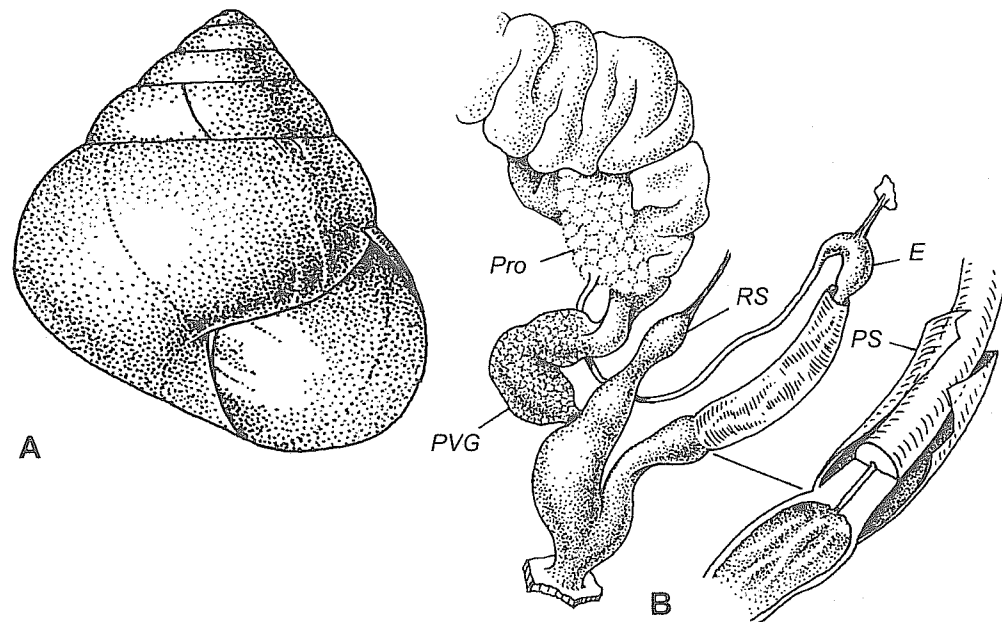


Fig. 1494. *Afroconulus diaphanus* (Connolly, 1922).
"Rhodesia [= Zimbabwe], Mount Selinda, Chirinda Forest, 3600 ft., 7-13.II.1963". A — shell. B — reproductive tract and interior of penis. Leiden.

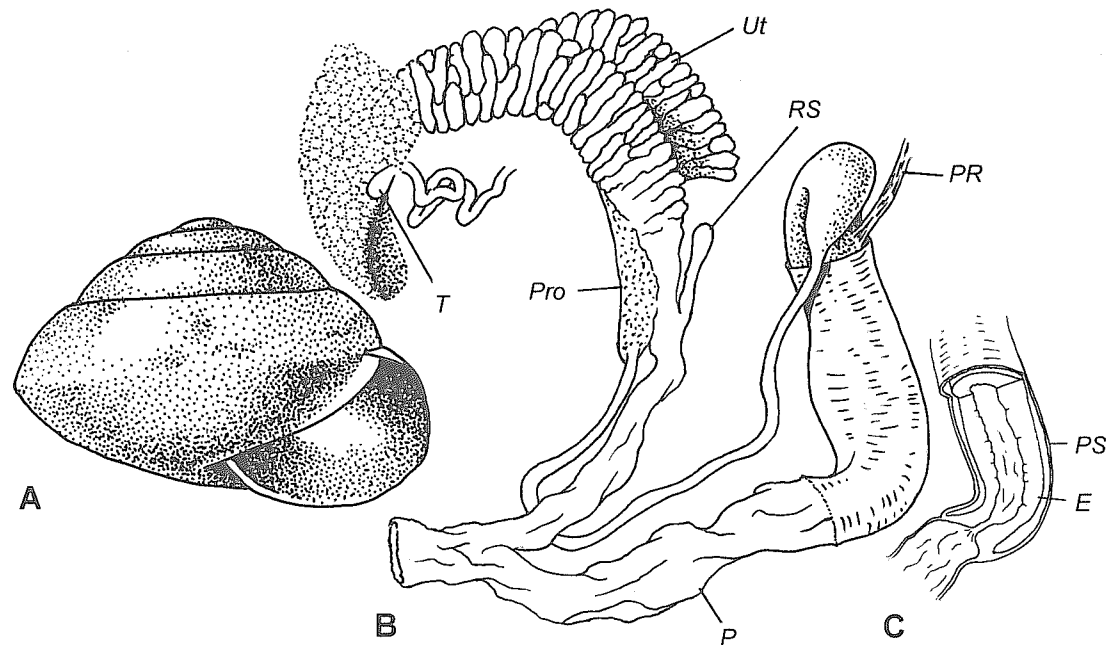


Fig. 1495. *Louisia barclayi* (Benson, 1850).
Cascade River Valley, Mauritius, April 22, 1983. A — shell. B — reproductive tract. C — interior of penis. Moscow No. Lc-20438.

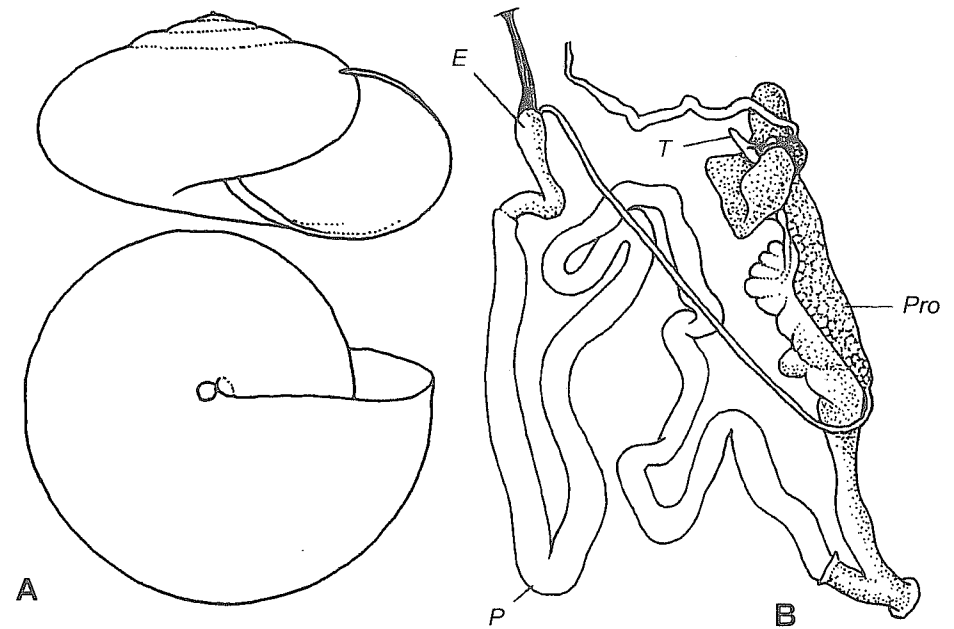


Fig. 1496. *Palaua straminea* (Semper, 1870).
A — shell. B — reproductive tract. After Baker, 1941.

Color light-corneous. Embryonic whorls with delicate radial wrinklets crossed by finer spiral striae. Later whorls with very fine radial riblets. Aperture semioval, oblique, with simple, fragile margins. Umbilicus minutely open. Height 2.5-5.0, diam. 3.5-11.0 mm (2.5 × 3.8 mm).

Talon comparatively large, drop-shaped. Vas deferens long, entering epiphallus apically. Epiphallus well developed, surrounded by thin sheath, opens into penis through a simple, narrow pore. Penis long, with very thin, transparent walls, internally with weak, irregular folds. Penial retractor inserts on epiphallus just above upper edge of sheath. Free oviduct practically absent. Vagina long, with thin, semitransparent walls. Spermatheca small, rudimentary.

DISTRIBUTION. Mascarene Islands, Madagascar. 2-4 spp.

Palaua Baker, 1941

Fig. 1496

Baker, 1941: 228.

TYPE SPECIES — *Microcystis straminea* Semper, 1870; OD.

Shell depressed-conic, thin, shining, of 4.5-6.5 slightly convex whorls. Last whorl evenly rounded. Color pale-corneous. Embryonic whorls with radial wrinklets crossed by spiral striae. Later whorls with similar sculpture; radial elements represented by irregularly spaced major and minor wrinklets. Aperture widely semilunate, only slightly oblique. Umbilicus open, dot-like. Height 2.50-6.29, diam. 3.94-12.5 mm.

Hermaphroditic gland composed of few (about 7) conoid groups of clavate acini. Talon clavate, quite exposed. Vas deferens becoming free shortly below prostate, entering apex of short epiphallus. Preputial section of penis short, penis proper slender, extraordinarily long, lacking caecum. Penis and epiphallus included in thin, transparent sheath. Penial retractor attached to epiphallus at insertion of vas deferens. Free oviduct quite long, with perivaginal gland poorly demarcated. Spermatheca absent.

DISTRIBUTION. Caroline Islands; 1 sp. in Philippines. 6 spp.

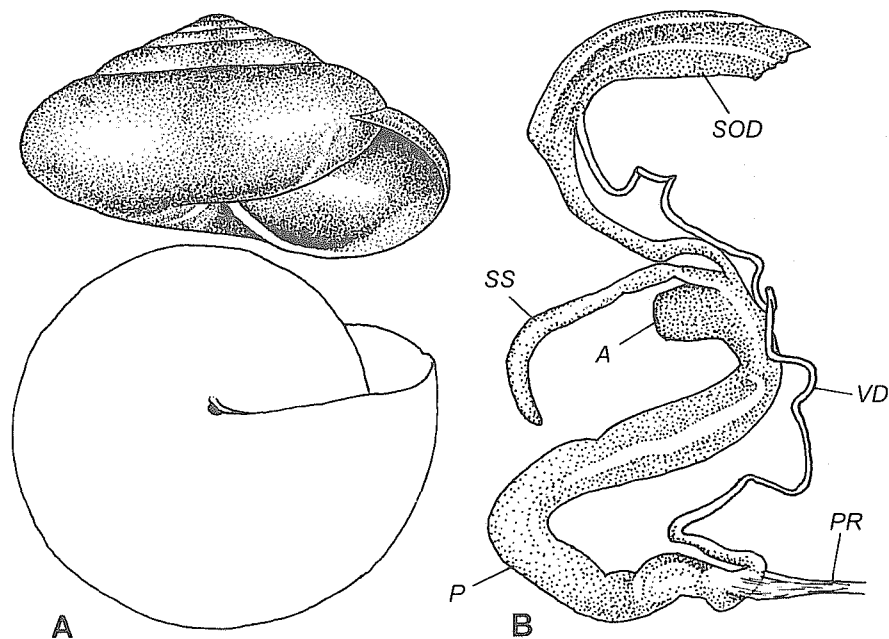


Fig. 1497. *Benthemia rubiginosa* (Benthem-Jutting, 1958). Waimangura, Sumba Island [Indonesia]. A — shell of holotype. Basel No. 6102-a. B — reproductive tract. Basel No. VI-98 (Forcart's slide).

TROCHOMORPHIDAE Moellendorff, 1890

Moellendorff, 1890: 210.

Shell always well-developed, generally trochiform to lenticular, mostly medium-sized, more or less solid, of 4.5-8 whorls; last whorl generally angulated or carinated. Color pale to blackish, sometimes with darker band. Spiral sculpture variously developed; radial sculpture weak to (rarely) very strong. Aperture mostly toothless, rarely with transversal parietal or entering basal and/or palatal lamellae. Umbilicus open, minute to very broad (exception: in *Eurybasis* umbilicus closed).

Sole entire, not divided (only exception: *Vitrinoconus* has tripartite sole).

Posterior end of cephalopodium mostly with caudal foss and overhanging horn. Pedal grooves of aulacopod type.

Kidney subovate or triangular, secondary ureter completed.

Ovotestis of a variable number of clusters. Hermaphroditic duct nearly straight to convoluted. Talon usually exposed, small, ovate, sometimes bilobed. Carrefour sometimes with lateral process. Vas deferens en-

ters epiphallus apically or at short distance from apex. Epiphallus without lime-sac or much calc; short flagellum may be present. Penis internally often with verge or stimulatory pilaster. Free oviduct usually with perivaginal gland. Vagina lacking accessory organs. Spermatheca on female side or on basal part of penis, reservoir variously developed, usually with apical ligament. Spermatophore simple.

DISTRIBUTION. S and E Asia, Andaman and Nicobar Islands, Japan, Indonesia, Philippines, New Guinea, N Australia, islands of tropical Pacific (absent in Hawaiian Islands).

? *Benthemia* Forcart, 1964 Fig. 1497

Forcart, 1964: 219 (*Trochomorpha* subg.).

TYPE SPECIES — *Microcystina rubiginosa* Benthem-Jutting, 1958; OD.

Shell depressed conic, thin, fragile, a little shining, translucent, of 5-5.5 moderately convex whorls. Last whorl narrowly rounded at perihery. Color pale-corneous. Embryonic whorls smooth. Postapical sculpture lacking regular sculpture, only with

strongly smoothed radial wrinklets. Aperture widely lunate, a little oblique, with thin margins. Umbilicus minute, semicovered, but umbilical depression deep. Height 3.5-3.8, diam. 6.5-7.0 mm (3.7 × 6.9 mm).

Posterior end of cephalopodium with caudal foss and small, flattened lappet above it.

Vas deferens long, entering epiphallus apically at sharp angle. Penis long, internally without visible (in transparent slide) regular structures. Penial retractor attached to epiphallus. Free oviduct long, without evident perivaginal gland. Vagina absent. Spermatheca entering atrium between vagina and penis, without distinct reservoir.

DISTRIBUTION. Indonesia (Sumba and Flores Islands). 2 spp.

REMARK. It is possible that *Benthemia* is a representative of Euconulidae (Euconulinae), because it has a depressed-conic (not trochiform or lenticular) shell and minute, dot-like umbilicus. Otherwise, it might be estimated as the most primitive member of Trochomorphidae. Anatomical characters do not give the reliable ground for definite decision. To establish its taxonomic position it should be known if the sole of *B. rubiginosa* is entire or tripartite.

? *Eurybasis* Gude, 1913 Fig. 1498

Gude, 1913b: 390.

TYPE SPECIES — *Helix conicoides* Metcalfe, 1851; OD.

Shell low-conic, thin, fragile, semitransparent, of 7-8 slightly convex whorls. Last whorl with sharp peripheral angle, not descending in front. Color yellowish to brown. Embryonic whorls smooth, postnuclear with very fine, well spaced, spiral periostracal threadlets above and glabrous at base. Aperture angled, moderately oblique, with thin, sharp margins. Umbilical depression present, but umbilicus absent. Height 7-11, diam. 15-20 mm (10.0 × 18.7 mm).

Vas deferens rather short, entering long, slender epiphallus. Penis consisting of small, swollen basal and long, cylindrical upper parts. Penial retractor marks boundary between penis and epiphallus. Free oviduct long, with more or less developed perivaginal gland. Vagina very short. Sperma-

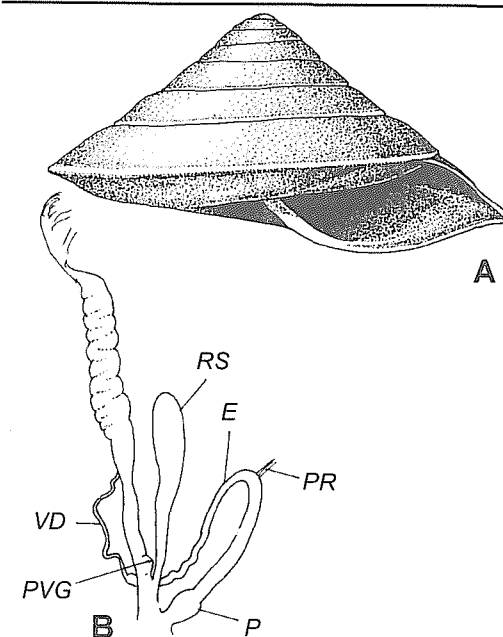


Fig. 1498. A — *Eurybasis conicoides* (Metcalf, 1851). Shell: Borneo. Bern, coll. Shuttleworth No. 593. B — *Eurybasis lychnia* (Benson, 1852). Reproductive tract. After Laidlaw, 1932.

theca clavate, reservoir attending middle part of spermoviduct.

DISTRIBUTION. Malay Peninsula, Borneo, ? Sulawesi. 13-15 spp.

REMARK. Zilch (1959) attributed this taxon to Helicarionidae (Sesarinae) as a subgenus of *Geotrochus*. Perhaps, he was right, but, judging by schematical drawing of genitalia of *Eurybasis lychnia* by Laidlaw (Fig. 1498B) it would be better to place *Eurybasis* tentatively in Trochomorphidae.

Trochositala Schileyko, gen. nov. Fig. 1499

TYPE SPECIES — *Trochositala marmorata* Schileyko, sp. nov.

Trochositala marmorata Schileyko, gen. et sp. nov.

Derivatio nominis: generic name is a combination of "trocho-" and "sitala". Species name refers to specific coloration of the shell.

Gender: feminine.

Shell pyramidal, nearly pagodiform,

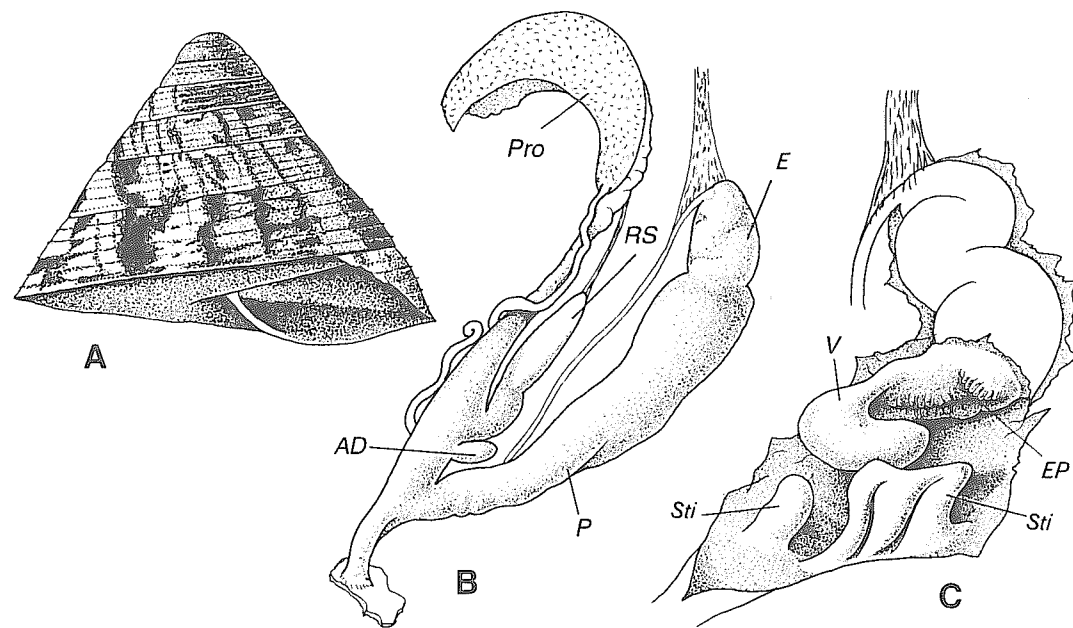


Fig. 1499. *Trochositala marmorata* Schileyko, sp. nov.
Ba Vi, 45-50 km WNW of Hanoi, mountain moggy forest, August 3-19, 1993, Vietnam.
Holotype. A — shell. B — reproductive tract. C — interior of penis. Moscow No. Lc-25366.
AD — additional diverticle on vagina.

rather thin, dull above and shining below, of 7.5 much flattened whorls. Last whorl not descending in front, with very sharp peripheral keel. Coloration corneous, with irregular whitish spots and streaks. Embryonic whorls brilliant, with 3 distinct, well spaced spiral cordlets. Rest whorls with 4-5 spiral cords above having very fine periostacal fringes; basal surface below keel strongly shining, with smoothed, low spiral threads. Aperture ovate-triangular, rostrate, quite oblique, with simple margins. Umbilicus tiny, dot-like. Height 10.5, diam. 13.1 mm (holotype).

Jaw typically oxygnathous, with median projection.

Sole entire, not divided into longitudinal zones. Caudal foss with a short overhanging horn.

Vas deferens rather thin, somewhat looped in proximal part, straight in penial section, entering epiphallus subapically. Epiphallus short, stout, convoluted within thin sheath, entering penis through a large slit-like pore. Penis consists of 2 chambers. Proximal (upper) chamber contains a long, bent on itself stimulatory verge bearing a deep groove on its inner (concave) surface.

Bend of verge covered up by high, lamellar, transversal fold or stimulator; besides, there is a smaller tubercular stimulator. Distal chamber subcylindrical, internally without special relief. Penis and epiphallus coated by a thin sheath. Penial retractor attached to apex of epiphallus and adjacent part of vas deferens. Free oviduct long, slender; vagina shorter, somewhat swollen. Sarcobellum absent. Spermatheca fusiform, rather short, without distinct division into stalk and reservoir which furnished with apical ligament. At base of spermatheca there is a small ovoid additional (seemingly glandular) diverticle which perhaps is a derivative of perivaginal gland.

DISTRIBUTION. N Vietnam. 1 sp.

REMARK. Superficially the shell of *Trochositala* is somewhat similar to *Eurybasis* in having spiral cording on postembryonic whorls and flat base; however species of *Eurybasis* have no spiral sculpture on embryonic whorls and marbled coloration. Anatomically *Trochositala* differs from all known taxa of Trochomorphae by well developed, stout, sinuous epiphallus, unusual structure of penis and presence of ad-

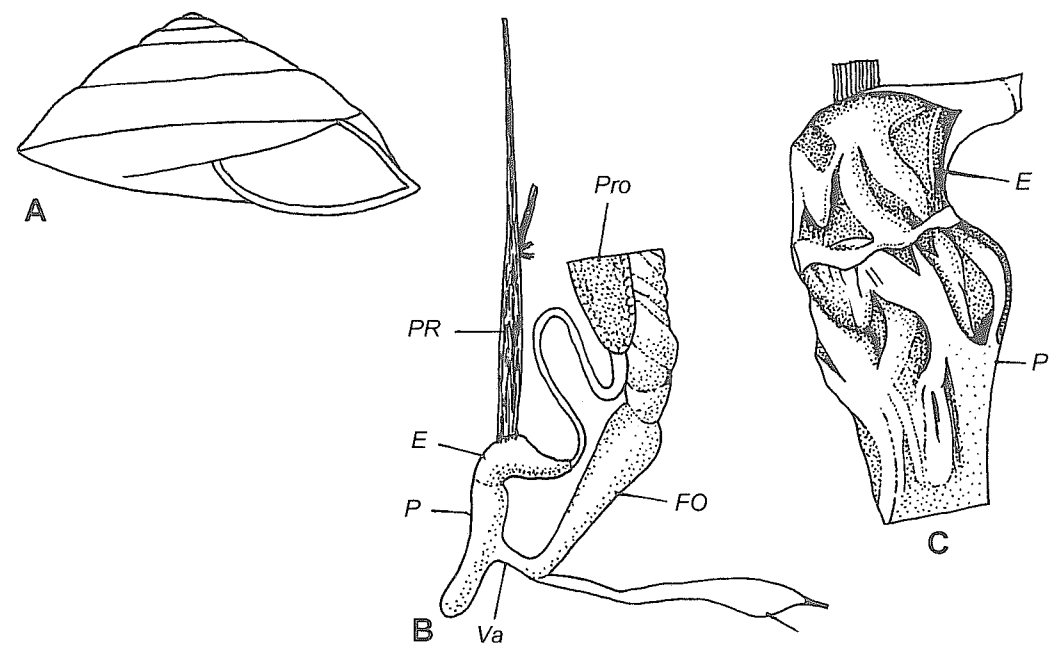


Fig. 1500. *Trochomorpha (Ludificator) apia* (Hombron et Jaquinot, 1852).
A — shell. B — reproductive tract. C — interior of penis. After Baker, 1941. D — shell.
E — reproductive tract. F — interior of penis. Left side of Pago-Pago — Fagasa Pass,
Tutuila, Samoa, March 13, 1975. Moscow No. Lc-25358 (Chicago No. 181060).

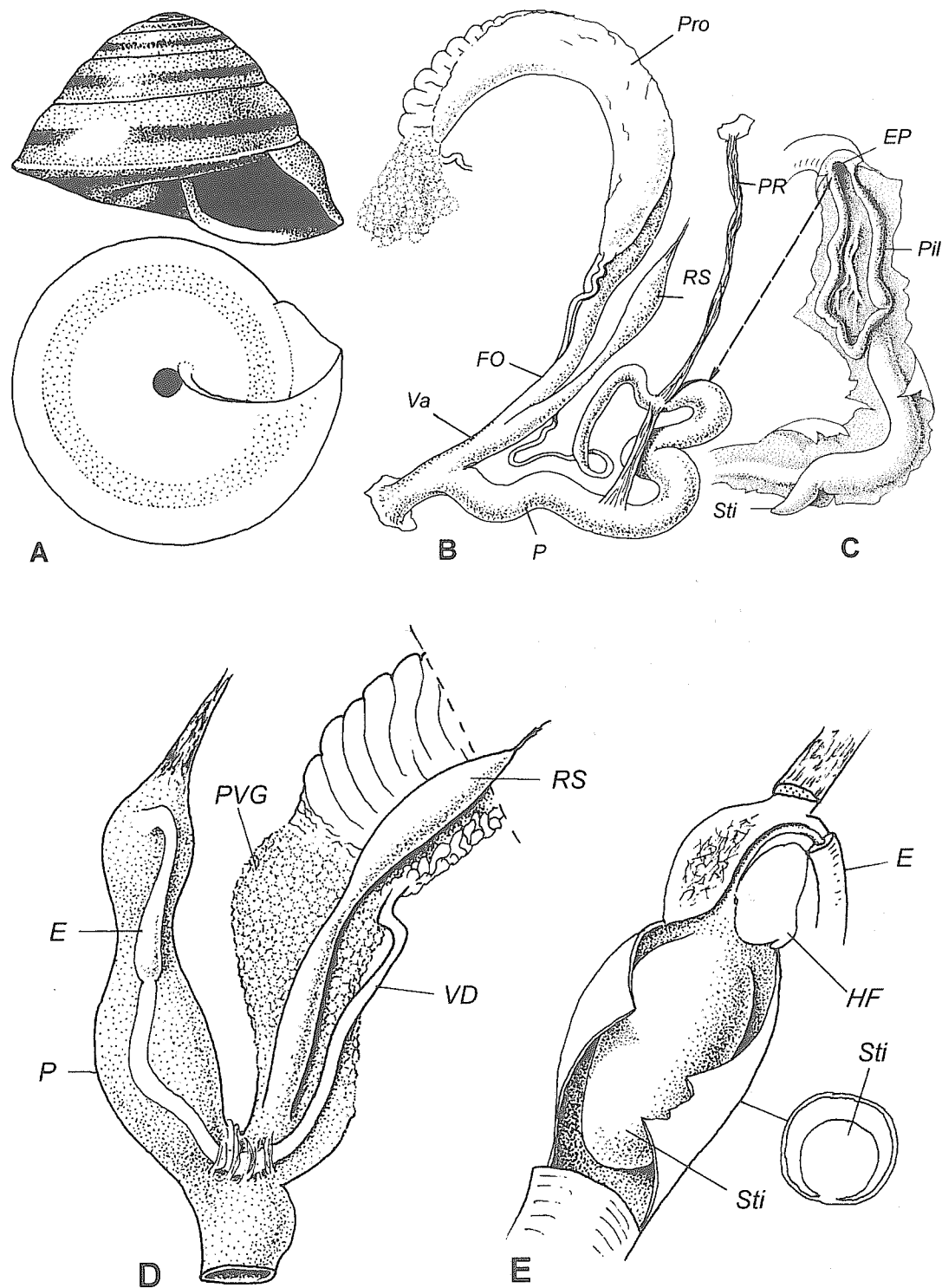


Fig. 1501. A — *Trochomorpha (Trochomorpha) typus* Baker, 1941. Shell: Otaheiti, Society Islands. Leiden (as *trochiformis*). B, C — ! *Trochomorpha (Trochomorpha) pallens* (Pease, 1870). W side Papenoo Valley, N side Tahiti, Society Islands, June 21, 1977. B — reproductive tract. C — interior of penis. Chicago No. 201318. D, E — ! *Trochomorpha (Trochomorpha) swainsoni* (L. Pfeiffer, 1846). Munda, New Georgia, Solomon Islands, November, 1980. D — distal part of reproductive tract. E — interior and cross-section of penis. Phil. No. A 9137 B. HF — hood-like fold.

ditional organ (diverticle) at the base of spermathecal stalk.

Trochomorpha Albers, 1850

Albers, 1850: 116 (*Helix* subg.).

TYPE SPECIES — *Helix trochiformis* Férussac, 1821 (non Montagu, 1803; = *Trochomorpha typus* Baker, 1941); SD Martens in Albers, 1860.

Shell trochiform, depressed to dome-shaped, moderately thin to rather solid, of 5-6.5 flattened whorls. Last whorl sharply carinated. Color corneous to dark-brown, often with supraperipheral and basal darker bands. Embryonic whorls nearly smooth to spirally striated. Postembryonic sculpture not sharp. Aperture (rather) narrow, angulated, oblique. Umbilicus cylindrical, moderately narrow.

Vas deferens entering variously demarcated epiphallus. Flagellum, when present, short, conic. Penis internally with pilasters and stimulator of various shape. Verge, when rarely present, tiny. Free oviduct normally with perivaginal gland. Spermathecal stalk entering female duct.

DISTRIBUTION. Malay Peninsula, Indonesia, New Guinea, N Australia, Polynesia as far as Society Islands.

REMARK. The large taxonomic complex which is traditionally designated as *Trochomorpha* s. lat. requires a thorough revision at the level of species to estimate taxonomic weight of certain characters, especially those concerning external and inner structure of penis, because variety of these features is very wide. Some examples one can find below (see *Trochomorpha* s. str., *Ludificator*, *Lentitrochus*); another example is *Trochomorpha melvillensis* Solem, 1988 from Melville Island, having penis sheath, which is absent in other species. Above all, the anatomy of Asiatic species is poorly studied. Until revision I retain a number of taxa as subgenera of *Trochomorpha*.

Trochomorpha (Ludificator) Baker, 1941 Fig. 1500

Baker, 1941: 285, 286, 309.

TYPE SPECIES — *Helix apia* Hombron et Jaquinot, 1852; OD.

Shell conic, rather solid but translucent,

dullish above, of about 6 nearly flat whorls. Peripheral keel on last whorl very sharp. Color corneous to chestnut, with white keel; suture margined by paler zones. Embryonic whorls vaguely granulated. Later whorls with fine but sharp, irregular, radial striae. Aperture sharply angulated, quite oblique; upper margin of palatal margin protruded forward. Umbilicus rather narrow, subcylindrical. Height 7.6-12.0, diam. 9.7-20.0 mm (11.0 × 18.0 mm).

After Baker, 1941, p. 312: Talon short, recurved. Epiphallus short, swollen, internally with anastomosing rugae, marked off from penis by a sphincter. Penis very short, internally with 3 large pilasters; stimulator absent. Penial retractor arising near base of uterus, inserting on middle of epiphallus. Free oviduct with evident perivaginal gland. Spermatheca clavate, with poorly demarcated reservoir.

Specimen housed in Moscow (from Chicago) I dissected differs from the above description mainly by inner structure of penis: epiphallus opens through a simple pore which surrounded by a sort of thin velum or collar; inner surface of penis bears 2 low, broad pilasters. Walls of penis include a zone filled with loose, somewhat alveolar tissue (? penial gland). Besides, perivaginal gland is poorly developed.

DISTRIBUTION. Samoa Islands. 2 or 3 spp.

Trochomorpha (Trochomorpha s. str.) Fig. 1501

Shell trochiform to dome-shaped, rather solid, of 5.5-6.5 weakly convex whorls. Last whorl with sharp peripheral keel. Color pale-corneous to chestnut, usually with 2 darker bands — above and below keel. Embryonic whorls with somewhat irregularly pebbled surface. Later whorls with radial striae above and variously expressed spiral lines below. Aperture angulated, irregularly rounded, oblique, with simple or a little thickened margins. Umbilicus profound, subcylindrical, rather narrow. Height 5.0-11.8, diam. 13-18 mm (10.2 × 15.0 mm).

T. pallens: Talon hidden. Vas deferens slender, free. Epiphallus moderately long, enters penis apically through a simple pore. Penis in upper part internally with 2 pilasters which connected to each other above and below; lower part with a large stimula-

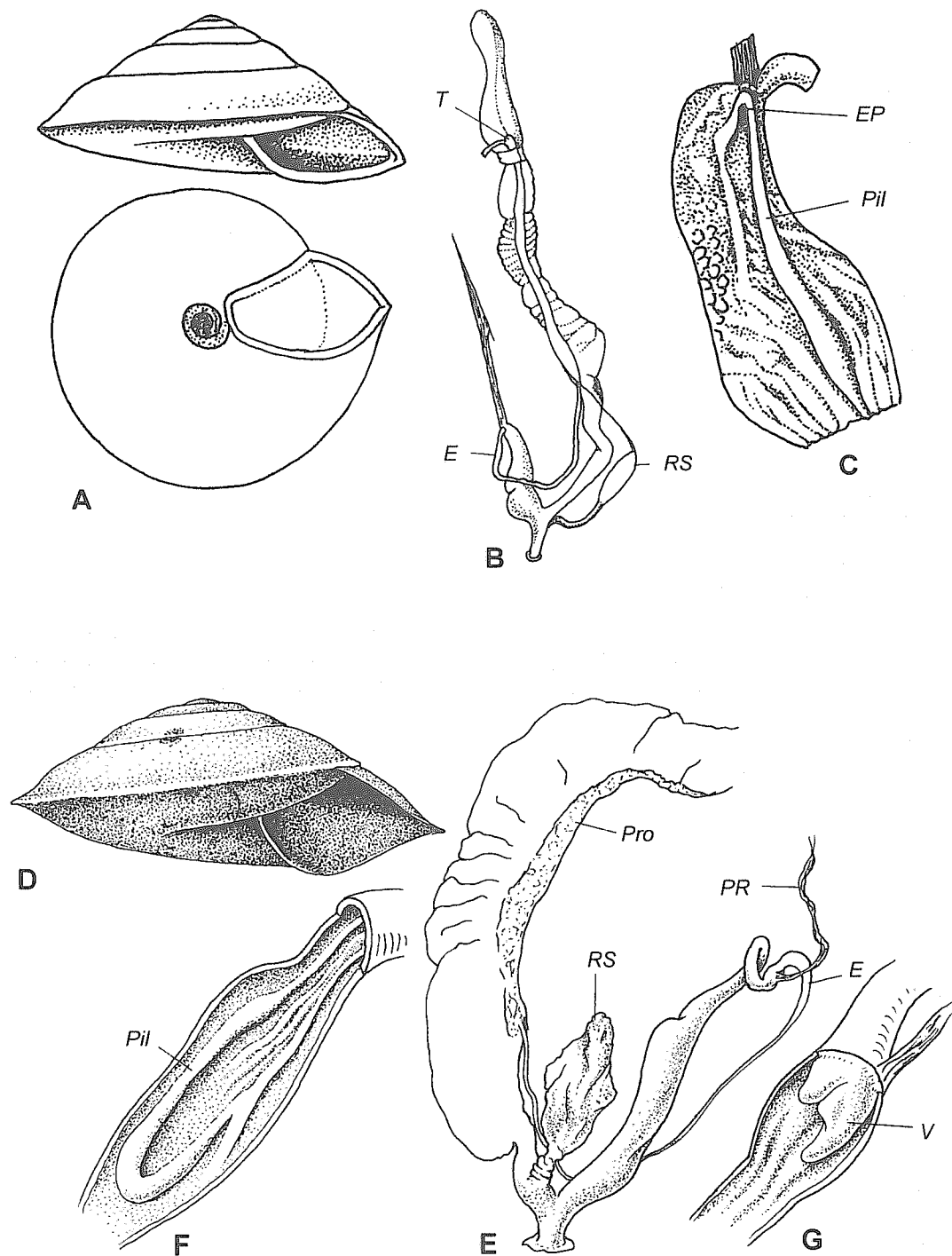


Fig. 1502. *Trochomorpha (Lentitrochus) sanctaeannae* E. Smith, 1885.
 A — shell. B — reproductive tract. C — interior of penis. After Baker, 1941. D — shell.
 E — reproductive tract. F — interior of distal portion of penis. G — interior of apical
 section of penis. Bio Island, Solomon Islands, December 22, 1976. Moscow No. Lc-25338.

tory pilaster having free anterior end. Penial retractor inserting on penis/epiphallus junction. Free oviduct without evident perivaginal gland. Spermathecal stalk slightly swollen, somewhat narrowed at fusiform reservoir.

T. swainsoni: Vas deferens bound to atrium by fibers. Epiphallus not long, slender (its diameter subequal to that of vas deferens), enters penis subapically through a simple pore which covered by a hood-like fold; adjacent wall of penis thickened, filled with loose tissue. Main volume of penis lumen occupied by a very large ovoid stimulator. Free oviduct short, stout, with well developed perivaginal gland. Vagina extremely short. Spermatheca as in *T. pallens*.

DISTRIBUTION. S and E Asia, Andaman and Nicobar Islands, New Guinea, Solomon, Society and Tonga Islands. At least 20 spp.

REMARK. Two species, dissected by me, markedly differ from each other in the details of anatomy. That is why I give descriptions of both; perhaps, comprehensive research of all species of *Trochomorpha* s. str. will show the presence of intermediate forms. As concerns the anatomy of type species (Baker, 1941, pl. 51, figs. 10-12), its penis is internally with ovoid stimulator, as in *T. swainsoni*, but without hood-like fold.

Trochomorpha (Lentitrochus)
 Baker, 1941)
 Fig. 1502

Baker, 1941: 285, 286.

TYPE SPECIES — *Trochomorpha sanctaeannae* E. Smith, 1885; OD.

Shell depressed-trochiform, solid, dullish, of 5-5.5 nearly flat whorls. Last whorl with acute keel and broad sulcus above keel considerably deeper than sulcus below. Color yellowish to light tan, uniform or with darker zones above and below keel. Embryonic whorls with quite sharp but shallow spiral striae which cross weak, quite widely spaced radial wrinklets. Postapical sculpture of radial striae fairly evident on early whorls and vaguer on later whorls; base granulate, with indistinct radial wrinklets. Aperture carinate, quite oblique, internally thickened and very slightly expanded near keel above. Umbilicus moderately wide. Height 7-10, diam. 17-20 mm (10.0 × 20.0 mm).

Left mantle-lobes quite close together.

After Baker, 1941: Talon bifurcate. Carrefour somewhat sacculate. Vas deferens rather short, free. Epiphallus short, scarcely defined. Penis short, internally with a heavy pilaster running for entire length, a smaller one, and vague tubercles in apical half, and several short folds near base. Penial retractor attached to penis/epiphallus junction. Free oviduct long, without evident perivaginal gland. Spermathecal stalk not long, reservoir ovate.

From specimen housed in Moscow (Bio Island): Vas deferens quite long. Penis long, its upper (proximal) section internally with minute bilobed verge; rest section with 2 large and a few small and irregular longitudinal folds; large folds united not far from atrium. Penial retractor attached to apical swelling of penis containing verge. Free oviduct long. Vagina extremely short. Spermathecal stalk very short (but folded; perhaps, in stretched condition somewhat longer).

DISTRIBUTION. Solomon Islands. 1 sp.

REMARK. I have not found substantial conchological differences between specimen described by Baker (1941: 320) and specimen I examined, but anatomical data presented by Baker markedly differ from those obtained by me. That is why I give the descriptions of both.

Trochomorpha (Cotitrochus)
 Baker, 1941)
 Fig. 1503

Baker, 1941: 285.

TYPE SPECIES — *Helix eurydice* Gould, 1847; OD.

Shell lenticular, rather thin, of 5.5-6 slightly convex whorls. Color corneous, with variously developed band above peripheral keel. Embryonic sculpture of fine spiral striae crossing vaguer retractive wrinkles. Postapical whorls with weak radial wrinkles and quite evident, wavy, spiral striae on basal surface. Aperture narrow, rostrate, oblique. Umbilicus comparatively wide, without trace of circumumbilical cord. Height 5.0-8.9, diam. 12.0-16.5 mm (5.2 × 12.7 mm).

Vas deferens entering epiphallus laterally, remaining a short, conic flagellum. Epiphallus swollen, sharply demarcated from

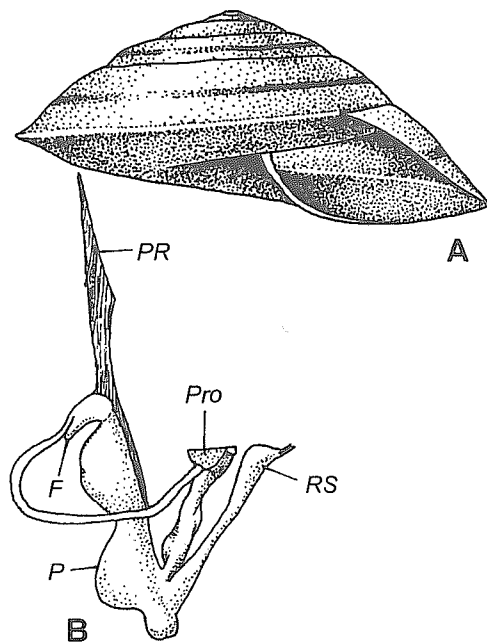


Fig. 1503. *Trochomorpha (Cotitrochus) eurydice* (Gould, 1847).

A — shell: Forest on 2nd terrace, Eua Island, Tonga. Moscow No. Lc-12047. B — reproductive tract. After Baker, 1941.

vas deferens. Penis internally with stimulatory papilla having comparatively short free tip.

DISTRIBUTION. Society (Tahiti), Tonga Islands. 1 sp.

Trochomorpha (Hartmanitrochus) Solem, 1959)
Fig. 1504

Solem, 1959b: 108 (pro sect.).

TYPE SPECIES — *Trochomorpha rubens* Hartman, 1888; OD.

Shell lenticular to trochiform, rather solid, dull, of 5-6 nearly flat whorls. Color uniformly corneous or with 2 reddish bands above and below keel. Embryonic sculpture of weak radial striation. Postapical whorls with fine, irregular radial wrinkles above and below; spiral sculpture absent or extremely vague. Aperture narrow, markedly oblique. Umbilicus rather narrow, subcylindrical. Height 5.0-8.9, diam. 10.6-17.1 mm (7.2 × 15.5 mm).

Vas deferens thin, joining epiphallus apically. Epiphallus fusiform, internally with thin, spirally directed folds, entering penis subapically and laterally through a simple

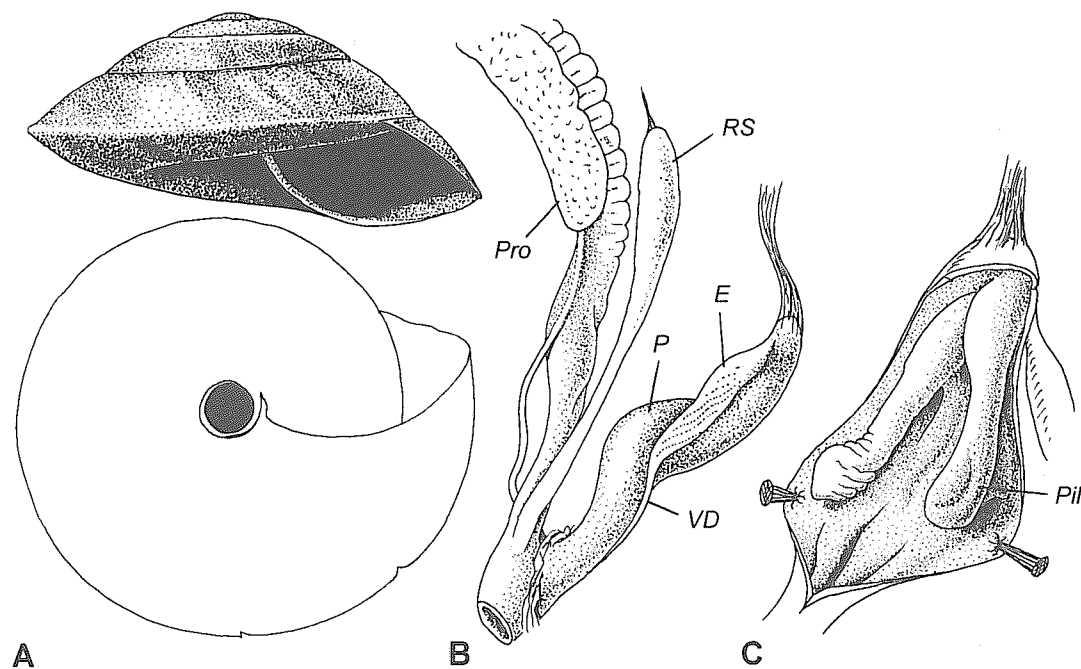


Fig. 1504. *Trochomorpha (Hartmanitrochus) rubens* Hartman, 1888. 1 mile inland, 5 miles S of Lenakel, SW Tauna, New Hebrides, December 1, 1972. A — shell. B — reproductive tract. C — interior of penis. Moscow No. Lc-25356 (Chicago).

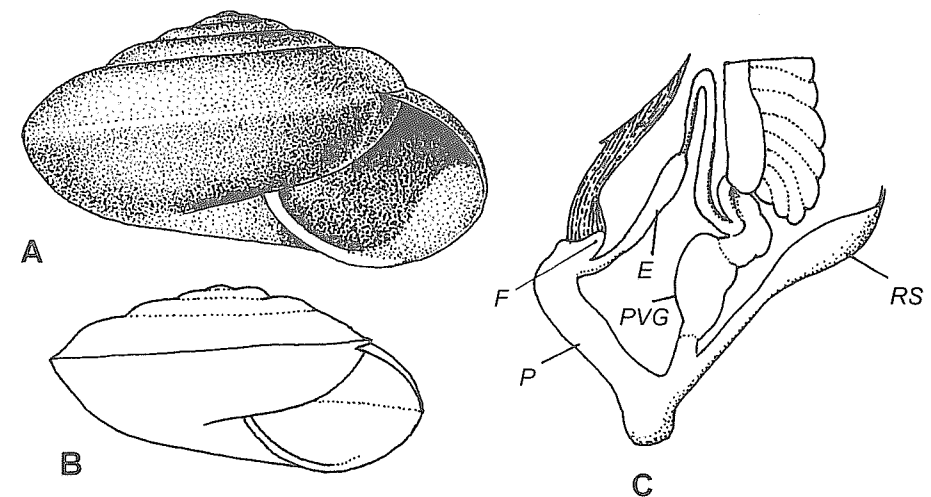


Fig. 1505. A — *Trochomorpha (Lauhala) troilus troilus* (Gould, 1846). Shell: Samoa. Vienna No. 1532. B, C — *Trochomorpha (Lauhala) troilus savaii* Baker, 1941. B — shell. C — reproductive tract. After Baker, 1941.

pore. Penis long, internally with strong V-shaped pilasters; tips of both arms of "V" somewhat free; epiphallic pore between arms of pilasters. Penial retractor attached to penis terminally. Free oviduct long. Vagina very short. Spermathecal stalk slender, reservoir elongated, indistinctly demarcated from stalk.

DISTRIBUTION. New Hebrides, Moluccas. 2 or 3 spp.

Trochomorpha (Lauhala) Baker, 1941
Fig. 1505

Baker, 1941: 285, 286.

TYPE SPECIES — *Trochomorpha (Lauhala) troilus savaii* Baker, 1941; OD.

Shell lentiform, moderately solid, shining, of 5-6 moderately convex, more or less shouldered whorls. Peripheral keel moderate to sharp. Color corneous or yellowish-corneous, carina somewhat lighter, sometimes margined by darker diffuse bands. Embryonic whorls with variously developed spiral striae and weak, low radial wrinkles. On later whorls spiral sculpture becoming

weaker; radial sculpture represented by weak radial wrinkles; basal surface with more widely spaced spiral lines. Aperture weakly angulated, well oblique. Umbilicus rather narrow, cylindrical. Height 6.7-15.2, diam. 12.5-20.3 mm (9.5 × 17.3 mm).

Left mantle lobes quite close together.

Talon rather large. Carrefour with lateral process. Vas deferens short, thickened, entering epiphallus laterally at some distance from apex, leaving short, conic, almost solid flagellum. Epiphallus rather long, clavate. Penis short, internally with strong axial pilaster. Free oviduct long, with quite evident perivaginal gland. Vagina short. Spermathecal stalk not long, slender; reservoir fusiform.

DISTRIBUTION. Fiji, Futuna and Samoa Islands. About 10 spp., subspp. & forms.

Trochomorpha (Nigritella) E. Martens, 1860
Fig. 1506

Martens in Albers, 1860: 63 (*Nanina* subg.).

TYPE SPECIES — *Helix nigritella* L. Pfeiffer, 1847; OD.

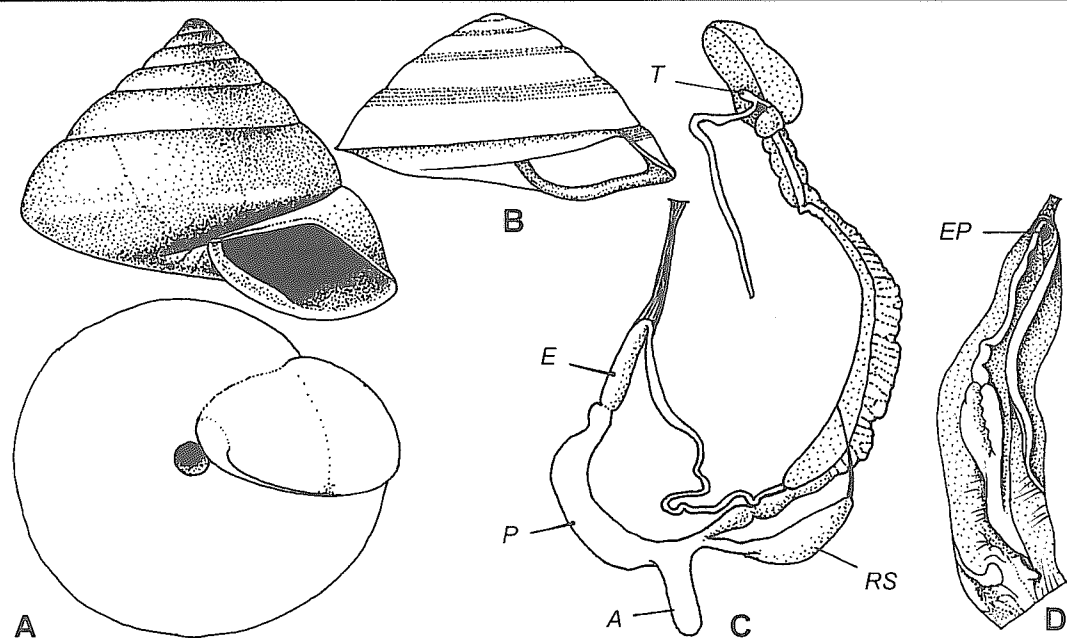


Fig. 1506. *Trochomorpha (Nigritella) nigritella* (L. Pfeiffer, 1847).
A — shell: Sekroe, New Guinea. Leiden. B — shell. C — reproductive tract. D — interior of penis. After Baker, 1941.

Shell trochiform, with more or less elevated spire, (moderately) solid, of 5-7 weakly convex whorls. Last whorl angulated to sharply carinate. Color greenish-yellow to olive-brown, commonly with bright chestnut carinal and often with narrower subsutural band. Embryonic whorls with fine, shallow spiral wrinklets which cross still weaker, closely spaced minor and very vague major radial wrinklets. Subsequent whorls with very low, moderate to sharp radial wrinkles. Aperture irregularly lunate, subrostrate, quite oblique, with thickened margins. Umbilicus rather narrow. Height 6.71-9.93, diam. 10.0-14.5 mm (6.8 × 11.3 mm).

Hermaphroditic duct slender, weakly convoluted. Talon drop-shaped. Carrefour with lateral process. Epiphallus poorly differentiated, opening through a large, almost apical pore between pilasters. Penis large, internally with 2 axial pilasters, one of which sometimes develops a broad, flat stimulatory thickening. Penial retractor inserting on penial apex. Free oviduct not long, with evident perivaginal gland. Spermathecal stalk short.

DISTRIBUTION. New Guinea, Carolines

(Ponape and Truk Islands). 12-15 spp., subspp. & forms.

Trochomorpha (Rosselidena)
Iredale, 1941
Fig. 1507

Iredale, 1941b: 72 (pro gen.).

TYPE SPECIES — *Trochomorpha nigrans* E. Smith, 1889; OD.

Shell depressed to conic lenticular, moderately thin, dull, of 5-5.5 much flattened whorls. Last whorl with acutely carinate periphery. Color whitish or light-corneous with 2 chestnut bands — under suture and on base. Embryonic whorls smoothish. Postapical whorls above and below with obscure radial wrinklets and variously developed, microscopic chagreen. Aperture irregularly ovate, angulated, moderately oblique. Umbilicus (moderately) broad. Height 6.5-8.0, diam. 13-16 mm (7.8 × 14.8 mm).

DISTRIBUTION. Papua-New Guinea. 1 or 2 spp.

REMARK. It is possible that *Rosselidena* is a junior synonym of *Trochomorpha* s. str. or *Nigritella*. Iredale did not give differential

diagnosis of *Rosselidena* but wrote: "None of the Trochomorpha generic names used by Burrington Baker are available, so that new names become necessary" (Iredale, 1941b: 72).

Geodiscus Iredale, 1941
Fig. 1508

Iredale, 1941b: 72. B. Smith, 1992: 319.

TYPE SPECIES — *Helix (Discus) lomonti* Brazier, 1876; OD.

Shell much flattened, lenticular, biconcave, thin, translucent, shining, of about 4.5 flattened whorls. Last whorl with sharp peripheral carina. Color corneous. Embryonic whorls smooth. Sculpture of later whorls of irregular, smoothed radial wrinklets; spiral striation wanting. Aperture narrow, sharply rostrate, much oblique. Umbilicus broad, shallow, quite perspective. Height 3-4, diam. 12-13 mm (3.7 × 12.9 mm).

DISTRIBUTION. W Papua-New Guinea (Yule, Misool, Salawati, Biak, Aru Islands), N Australia. 1 variable sp.

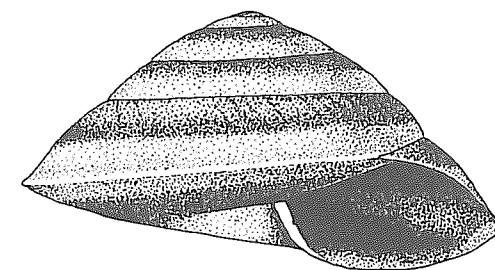


Fig. 1507. *Trochomorpha (Rosselidena) nigrans* E. Smith, 1889.
No data. Phil. No. 362884.

Videna H. Adams et A. Adams, 1855
Fig. 1509

Adams H. & Adams A. 1855: 115 (*Trochomorpha* subg.).

— *Discus* Albers, 1850: 117 (nom. praeocc., non Fitzinger, 1833; *Helix* subg.; t.-sp. *Helix metcalfei* L. Pfeiffer, 1845; SD Martens in Albers, 1860).

— *Disculus* Schaufuss in Paetel & Schaufuss, 1869: 13 (nom. nov. pro *Discus* Albers, 1850; t.-sp. *Helix metcalfei* L. Pfeiffer, 1845; OD).

TYPE SPECIES — *Helix metcalfei* L. Pfeiffer, 1845; SD Martens in Albers, 1860.

Shell discoidal, flat or slightly elevated, convex at base, thin. Last whorl carinate, slightly deflected at aperture. Embryonic whorls smoothish (with weak radial wrinkles and spiral striae. Aperture without parietal lamella or marked excision of peristome; margins simple, arcuate, acute or slightly marginate. Umbilicus broad, shallow.

Penis internally with verge and large stimulatory thickening. Spermathecal shaft opening into base of penis (as in *Microcystinae*).

In ? *V. metcalfei* I dissected, base of well-

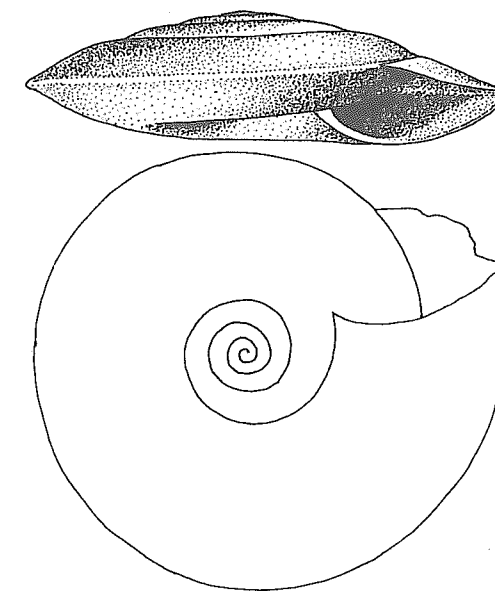


Fig. 1508. *Geodiscus lomonti* (Brazier, 1876).
"Brit. New Guinea." Vienna.

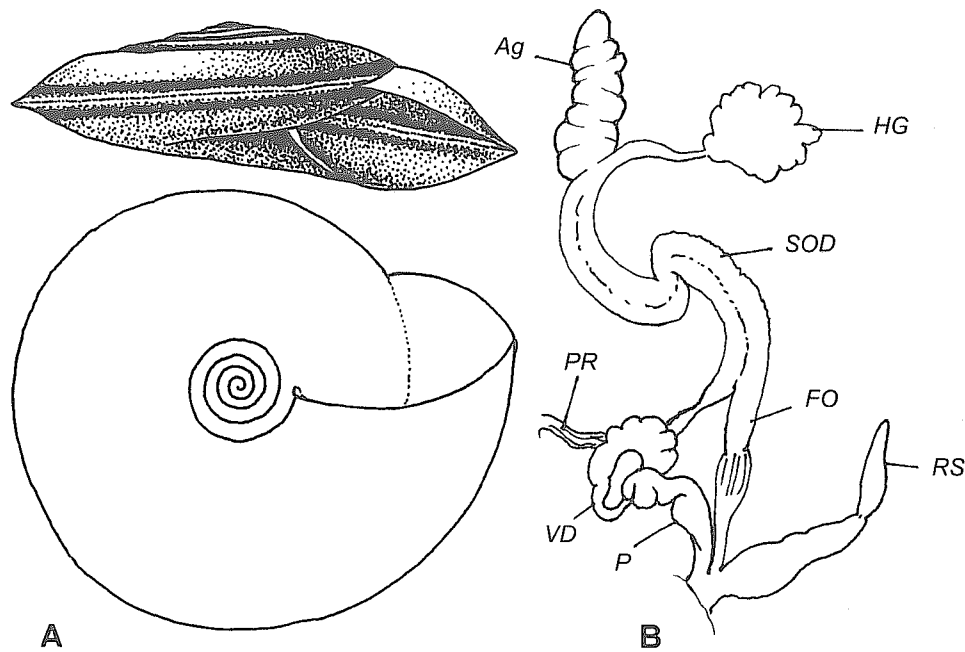


Fig. 1509. *Videna metcalfei* (L. Pfeiffer, 1845).

A — shell: Philippines. SPb. B — reproductive tract. After Semper, 1870. C, D, E — ? *Videna metcalfei* (L. Pfeiffer, 1845). Ng Singut, Ulu Baleh, Kapit Dist., Third Div., Sarawak, Malaysia. C — shell. D — reproductive tract. E — interior of penis. Moscow No. Lc-25348 (shell and body in alcohol) (Chicago No. 173903). Asterisk — double collar of verge.

developed verge surrounded by double collar.

DISTRIBUTION. Japan, Philippines, Malay Peninsula, Borneo, Bali, ? Sulawesi. At least 10 spp.

REMARK. It is generally accepted that the main difference between *Videna* and *Trochomorpha* is the position of spermathecal stalk — on penis (*Videna*) or on female side (*Trochomorpha*). I have some doubt about taxonomical value of this character in the given case, because there are some taxa among Trochomorphidae (*Probrazeria*, *Foxidonta*) where the stalk enters atrium between female and male ducts. Besides, from the Semper's drawing of *Videna metcalfei* (here — Fig. 1509B) it is not quite evident that spermathecal stalk enters base of penis; rather, it enters female side of atrium. Thus I do not see reasons to place any trochomorphid taxon with penial entrance of spermatheca to *Videna* as Baker does and remain in *Videna* only *Helix metcalfei* and closely related species. Moreover, it is possible that *Videna* is one of subgenera of *Trochomorpha*. It should be added that reproductive tract of *Videna electra* (Semper, 1873) illustrated by Baker (1941, pl. 49, figs. 4, 6) considerably differs from that of *Videna metcalfei* sensu Semper. I dissected the specimen (Fig. 1508 B, C) which in the Chicago collection had been determined as *Videna metcalfei*; it differs from both illustrated by Semper and from *Videna electra* figured by Baker.

Videnoida Habe, 1955

Fig. 1510

Habe, 1955: 231 (*Videna* subg.).

TYPE SPECIES — *Trochomorpha gouldiana* Pilsbry, 1901; OD.

Shell subtrochiform to lentiform, spire moderately elevated to much depressed, rather thin, of 6-7 flattened to flat, sometimes slightly shouldered whorls. Color yellowish to reddish; narrow whitish streaks may be present. Embryonic whorls microscopically spirally striated. Later whorls with fine, dense spiral striae and delicate, not very regular radial wrinkles. Aperture narrow, angulated, moderately oblique, with simple margins. Umbilicus wide, (rather) shallow, quite perspective. Height 5.0-7.5, diam. 12-28 mm (5.2 × 12.8 mm). Vas deferens very long, free. Epiphallus

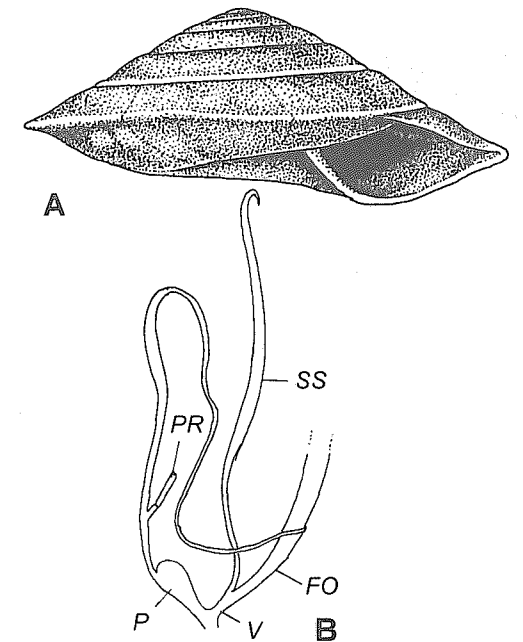


Fig. 1510. *Videnoida gouldiana* (Pilsbry, 1901). A — shell: Osumi, Oshima [Japan]. Holotype. Phil. No. 81222. B — reproductive tract. After Habe, 1955.

of same diameter, its boundary with vas deferens marked by attachment of penial retractor. Penis short, greatly swollen. Free oviduct moderately long, vagina 2-3 times shorter. Spermathecal stalk unusually long, attenuated at upper end, without defined reservoir.

DISTRIBUTION. Japan. 3 spp.

Peleliua Baker, 1941

Baker, 1941: 280, 281 (*Videna* subg.).

TYPE SPECIES — *Trochomorpha pagodula* Semper, 1873; OD.

Shell lenticular or pagodiform to dome-shaped. Last whorl angulated or with sharp carina. Embryonic sculpture of radial wrinkles; no spiral striation. Aperture simple or with basal and palatal lamellae.

Vas deferens expanded, at least in proximal part. Epiphallus not distinctly demarcated, opens into penis through variously developed verge. Penis internally with large, flat, roughly O-shaped or ovoid, centrally depressed stimulatory thickening. Spermathecal stalk entering near base of penis.

DISTRIBUTION. Palau Island.

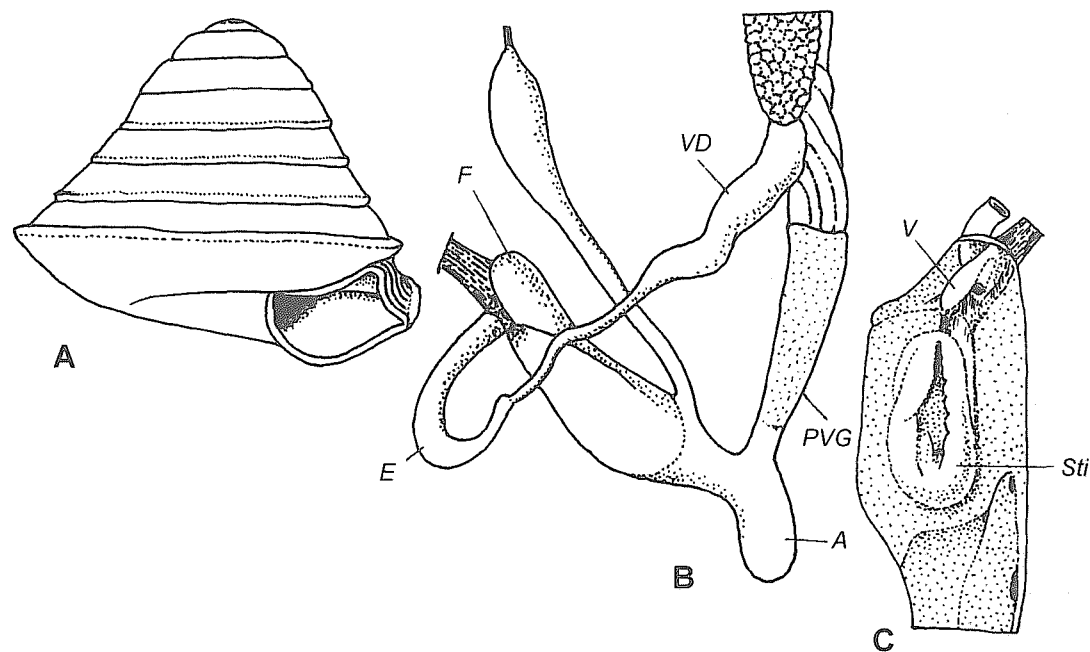


Fig. 1511. *Peleliua (Peleliua) pagodula* (Semper, 1873).
A — shell. B — reproductive tract. C — interior of penis. After Baker, 1941.

Peleliua (Peleliua s. str.)
Fig. 1511

Shell lenticular or pagodiform, with more or less elevated dome-shaped spire, opaque, dullish above, dullish or glossy below, of 4.75-7 weakly convex to nearly flat whorls. Last whorl with sharp carina. Colorless. Embryonic whorls polished but with shallow, radial striae and wrinkles. Subsequent whorls with coarser radial wrinkles; base with delicate spiral striae. Aperture rostrate, lunate or irregularly rectangular, moderately oblique, with well developed parietal callus. Umbilicus moderately broad, perspective. Height 4.46-5.75, diam. 6.37-9.08 mm.

Ovotestis consists of 11-12 subglobular clumps of acini. Hermaphroditic duct rather long, more or less convoluted. Vas deferens as wide as prostate for some distance after leaving latter. Epiphallus small, more or less distinctly demarcated, entering laterally, apically, or slightly laterally through variously developed verge. Penis not large, elliptic, internally with large, roughly O-shaped or ovoid stimulatory

thickening. Penial retractor inserting down side of penial apex or around epiphallus on penial apex. Free oviduct with well expressed perivaginal gland. Spermathecal stalk short to rather long.

DISTRIBUTION. Palau Island. 2 spp.

Peleliua (Periryua Baker, 1941)
Fig. 1512

Baker, 1941: 280, 281 (*Videna* sect. or subg.).

TYPE SPECIES — *Trochomorpha oleacina* Semper, 1873; OD.

Shell dome-shaped, waxy glossy above and quite polished below, of 5.5-6 much flattened whorls. Last whorl sharply angulated. Color corneous. Embryonic whorls with radial striae. Postnuclear whorls with weak major and weaker minor radial wrinklets above and with obsolete minor ones below. Aperture with a low but broad, rounded, spiral thickening, extending in about 1/8 whorl and dying out toward peristome, above rostral groove, and a distinct but rounded, narrower lamella, about 1/4

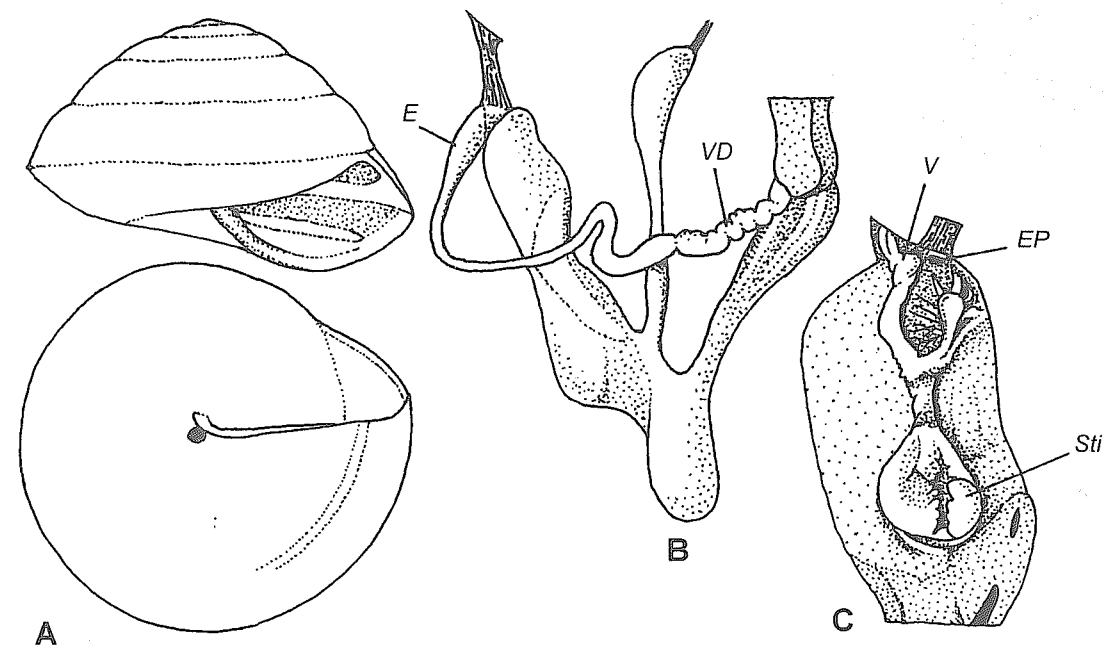


Fig. 1512. *Peleliua (Periryua) oleacina* (Semper, 1873).
A — shell. B — reproductive tract. C — interior of penis. After Baker, 1941.

whorl in length, below, both of which become obsolete with age; columellar margin heavily thickened internally. Umbilicus dot-like. Height 9.5-11.0, diam. 15-18 mm.

Vas deferens expanded and convoluted proximally, more slender and straight distally. Epiphallus represented by only short gradual enlargement of vas deferens, connected to penis by muscular fibers and opening almost apically through a large verge. Penis rather stout, internally with low pilaster, that extends from verge to flat, subcircular, centrally depressed stimulatory pad. Penial retractor inserting almost apically. Free oviduct with poorly marked perivaginal gland. Vagina absent. Spermathecal stalk moderately long. Spermatophore, found in penis, showing externally as a ridge, with smaller end touching verge and larger end at spermathecal entrance.

DISTRIBUTION. Palau Island. 1 sp.

Liravidena Solem, 1959
Fig. 1513

Solem, 1959a: 153 (*Videna* subg.).

TYPE SPECIES — *Endodonta lacerata* Semper, 1874; OD.

Shell depressed, moderately solid, not shining, of 5-5.5 slightly convex whorls. Last whorl with a sharp peripheral keel. Apex more or less sunken. Color corneous. Embryonic sculpture of rounded, smoothed, dense radial wrinkles and distinct spiral cords. Postapical whorls with clear spiral cords crossed by sharp radial striae, that is why cords roughly serrated. Aperture rhomboid, oblique, with a little thickened margins. Spiral cords run inward on parietal wall. Baso-palatal wall with a large, lamellar, white plica oriented along whorl. Umbilicus widely open. Height 4.1-5.4, diam. 8.8-10.1 mm (4.6 × 9.6 mm).

Vas deferens passes gradually into vaguely defined epiphallus which enters penis laterally at some distance from apex through simple pore. Penis sac-like, internally with a very large ovoid stimulator (as in *Trochomorpha swainsoni*). Free oviduct long. Spermathecal stalk slender, moderately long, entering basal part of penis at lower end of stimulator.

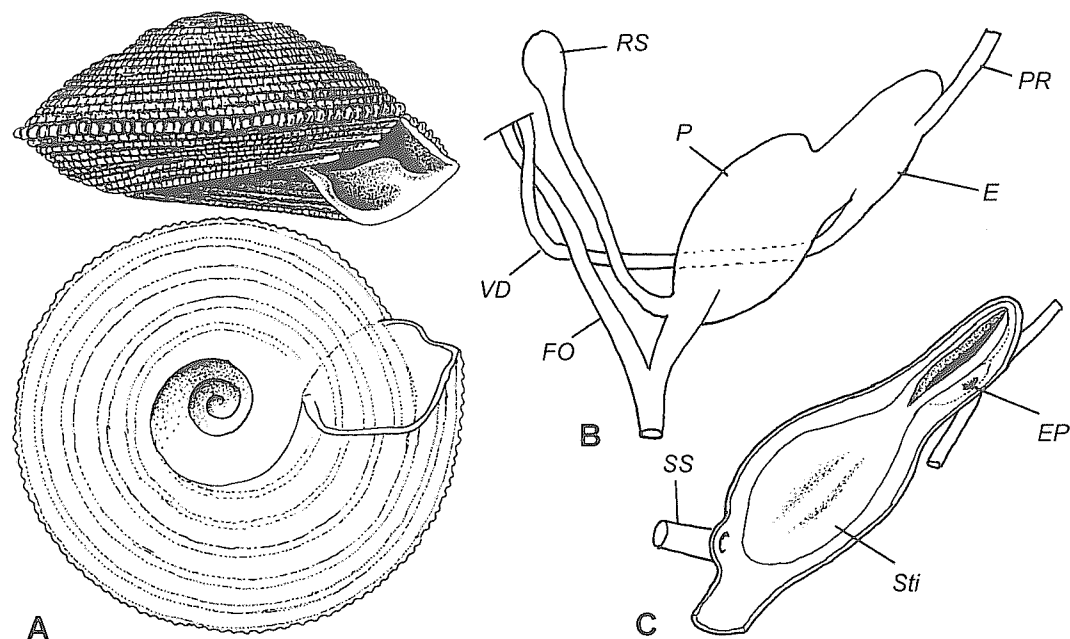
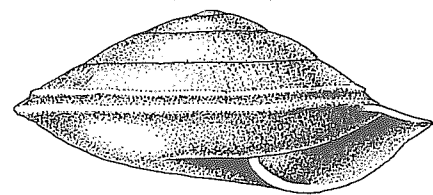


Fig. 1513. *Liravidena lacerata* (Semper, 1874).
A — shell: Auluptagel Islet, Palau, Carolines. Phil. No. 192129. B — reproductive tract.
C — interior of penis. After Solem, 1959a.

DISTRIBUTION. Palau Islands (Peleliu and Koror). 1 sp.



Theskelomensor Iredale, 1933
Fig. 1514

Iredale, 1933: 54.

TYPE SPECIES — *Helix lizardensis* L. Pfeiffer, 1862; OD.

Shell lentiform, moderately thin, silky glossy, somewhat translucent, of 7-7.5 much flattened whorls. Last whorl straight, with 2 sharp keels: one on periphery and another, somewhat weaker, just above it. Color pale corneous or yellowish-gray. Embryonic whorls smooth. Later whorls with fine, rounded radial riblets and distinct spiral lines which become vague or absent on base. Aperture narrow, angulated, subvertical, with simple margins. Umbilicus moderately wide, profound, subcylindrical. Height 0.13 inch [3.28 mm], diam. 0.28 inch [7.06 mm] (3.2 × 6.8 mm).

DISTRIBUTION. NE Australia. 2 spp.

Fig. 1514. *Theskelomensor lizardensis* (L. Pfeiffer, 1862).
Lizard Island, Australia. Berlin No. 73734.

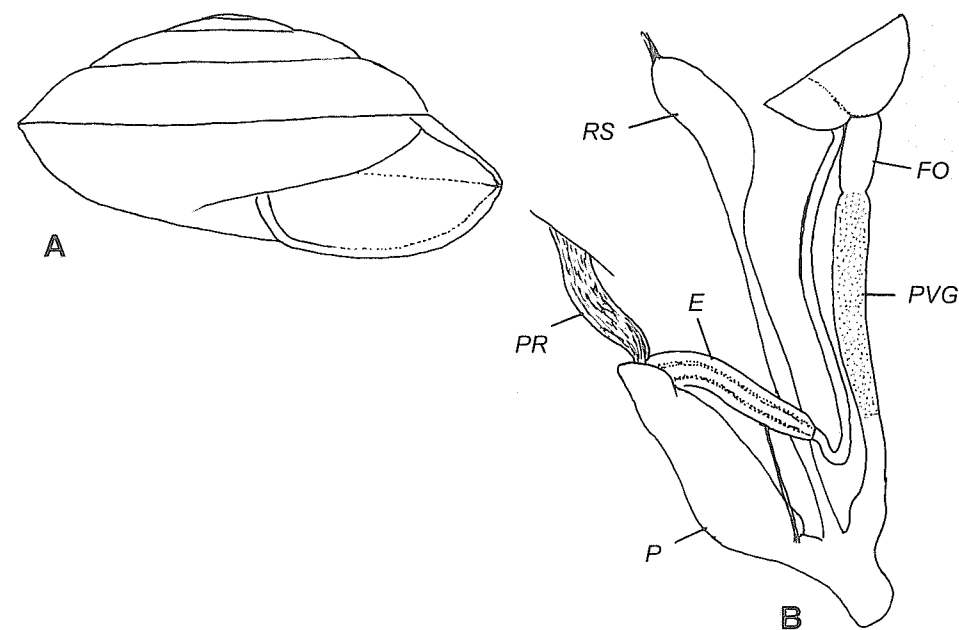


Fig. 1515. *Probrazieria lutaria* (Baker, 1941).
A — shell. B — reproductive tract. After Baker, 1941.

Probrazieria Baker, 1941
Fig. 1515

Baker, 1941: 274, 277 (*Brazieria* subg.).

TYPE SPECIES — *Brazieria* (*Probrazieria*) *lutaria* Baker, 1941; OD.

Shell lenticular, almost equally convex above and below periphery, moderately thin, dull, of 4.25 slightly convex whorls. Last whorl with peripheral angle lacking superior sulcus. Color pale brownish. Embryonic whorls with low but distinct radial wrinkles and traces of spiral striae, gradually assuming much weaker criss-cross striae. Postapical whorls with radial wrinkles becoming weaker (often evident only near suture) but with criss-cross striae becoming stronger above and below. Aperture lunate, angulated, oblique, without evident parietal lamella (lamella represented by a very slight, scarcely noticeable thickening). Peristome somewhat thickened internally. Umbilicus open, subcylindrical, perspective, not wide. Height 4.59-4.72, diam. 9.37-9.78.

Mantle collar with left lappets narrowly separated.

Ovotestis consists of 5 clumps of acini.

Talon relatively large. Epiphallus moderately long, entering slightly below conic apex of penis. Penis internally with high, thin axial pilaster and a more ruffled stimulator. Penial retractor arising from diaphragm, inserting at subapical entrance of epiphallus into penis. Free oviduct long. Vagina absent. Spermathecal stalk rather long, reservoir bean-shaped, with a weak apical ligament.

DISTRIBUTION. Carolines. 1 sp.

Entomostoma Baker, 1941
Fig. 1516

Baker, 1941: 274 (*Brazieria* subg.).

TYPE SPECIES — *Helix entomostoma* Hombron et Jaquinot, 1841; OD.

Shell obesely lentiform, rather thin, somewhat dull above, more glossy below, of 6-6.5 flattened whorls. Last whorl with thin peripheral keel. Color bright-chestnut. Embryonic whorls with indistinct radial wrinkles and very weak traces of spiral striae (looking smooth). Postnuclear sculpture of fine granulation above, smooth below. Aperture subquadrangular, quite oblique, mar-

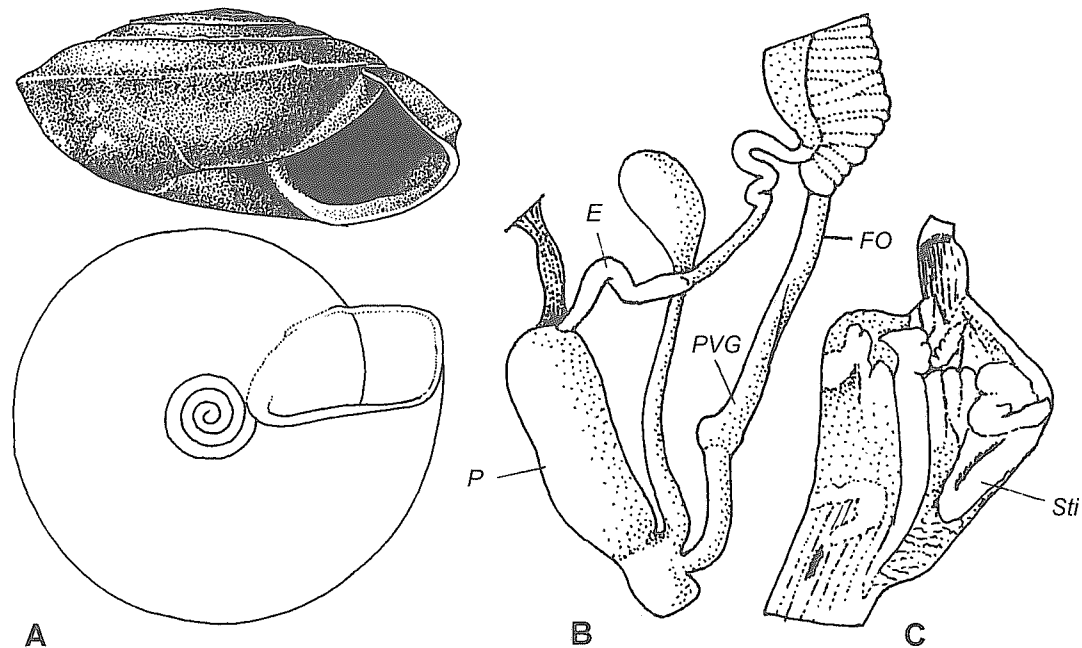


Fig. 1516. *Entomostoma entomostoma* (Hombron et Jaquinot, 1841).
A — shell: Dublon Islet, Truk, Carolines. Phil. No. 78465. B — reproductive tract. C — interior of penis. After Baker, 1941.

gins somewhat thickened within. Umbilicus rather narrow, deep but quite perspective, encircled by a blunt angulation which marked off internally by a sulcus. Height 9.9-11.5, diam. 22.9-23.0 mm (11.5 × 23.0 mm).

Left mantle-lappets almost touching each other.

Carrefour with hard, white process extending above talon. Vas deferens moderately convoluted. Epiphallus slender, not long, attached by ligament to side of penis, entering near penial apex through a thickened area, internally with numerous, wavy axial folds; no distinct verge. Penis bulky, long, ellipsoid, internally with a heavy but low pilaster and a big, bipartite stimulator-thickening. Penial retractor arising from diaphragm on left side and near base of uterus, inserting around entrance of epiphallus. Free oviduct long. Spermathecal stalk rather long, reservoir ovoid, well defined.

DISTRIBUTION. Carolines (Truk Island). 1 sp.

Brazieria Ancey, 1887

Ancey, 1887: 22. Baker, 1941: 274.

TYPE SPECIES — *Helix velata* Hombron et Jaquinot, 1841; OD.

Shell lenticular or dome-shaped, thin, of 5 whorls. Last whorl angulated or with cord-like peripheral keel. Postembryonic whorls with radial ribs above and finely radially striated below; spiral striae on base sometimes present. Aperture narrow lunate, rostrate, slightly oblique, with strong, transversal parietal lamella. Umbilicus profound, narrow to moderately wide, subcylindrical.

Vas deferens not long, free. Various developed epiphallus entering penis laterally or subapically through hook-like verge. Penis internally with 2 large pilasters. Perivaginal gland evident. Spermathecal stalk enters atrium at male side or basal section of penis.

DISTRIBUTION. Carolines.

Brazieria (*Brazieria* s. str.)

Fig. 1517

Shell lenticular, rather thin, dull and opaque above, shining and translucent below, of about 5 flattened whorls. Last whorl subcarinate (with sharp sulcus above but not below). Color yellowish to light chestnut-brown; umbilicus usually encircled by darker band. Embryonic whorls with some-

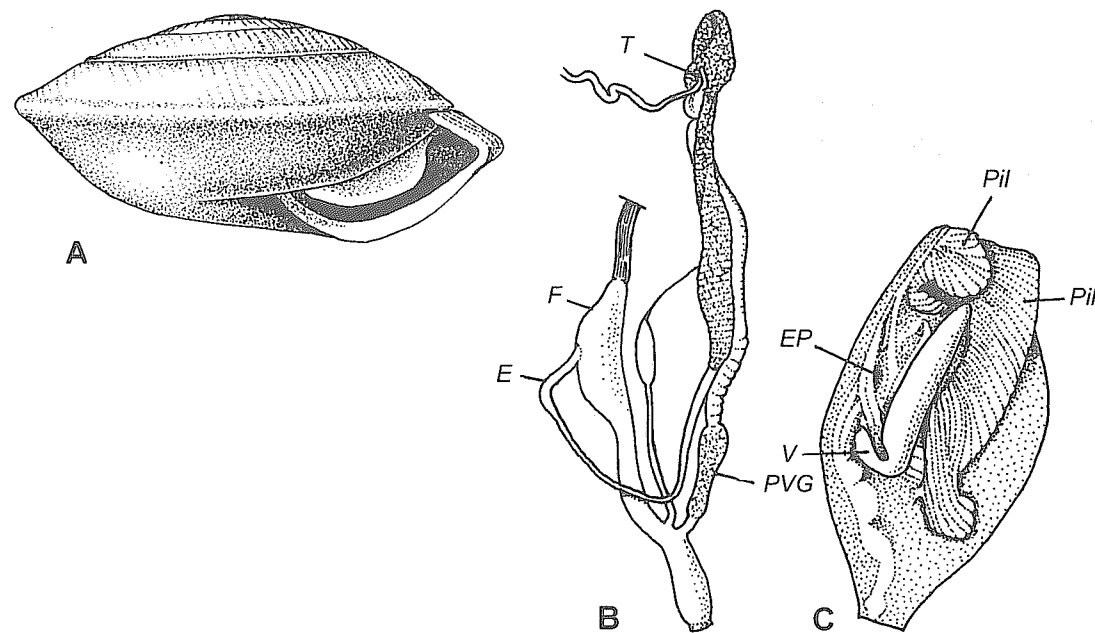


Fig. 1517. *Brazieria* (*Brazieria*) *velata* (Hombron et Jaquinot, 1841).
A — shell: Param Islet, Truk, Carolines. Phil. No. 178461. B — reproductive tract. C — interior of penis. After Baker, 1941.

what irregular, angular or rounded, closely spaced, radial wrinklets which extend only to keel sulcus; base with extremely weak radial and faint, irregular, spiral sculpture. Aperture narrow, angulated, moderately oblique, with variously developed internal thickening above angle; parietal callus built up into high, subvertical, almost rectangular to crescentic lamella. Umbilicus narrow. Height 3.1-4.9, diam. 7.0-9.2 mm (3.7 × 8.0 mm).

Ovotestis composed of 11 flattened, conoid clusters of clavate acini. Hermaphroditic duct long. Talon exposed, ovoid. Vas deferens gradually enlarged into poorly developed epiphallus, which enters between apical and middle thirds of penis, through a fork in longest pilaster. Penis with enlarged apical half containing 2 broad, thin, axial folds, of which one nearest entrance of epiphallus attaches to a much higher, heavy, hood-shaped fold that is thickened by another one on side toward epiphallic pore and curves below latter to join a heavy, but much lower pilaster; basal half slender, containing only a continuation of longest pilaster. Penial retractor arising from columellar muscle, inserting on penial apex. Free oviduct long, with poorly demarcated perivaginal gland. Spermathecal stalk slen-

der, entering atrium on male side of penioviducal angle; reservoir long-ellipsoid.

DISTRIBUTION. Carolines. 3 spp. & 1 subspp.

Brazieria (*Brazierella* Baker, 1941)

Fig. 1518

Baker, 1941: 275 (*Brazieria* subg.).

TYPE SPECIES — *Brazieria* (*Brasierella*) *minuscula* Baker, 1941; OD.

Shell dome-shaped, thin, dullish, somewhat translucent, of 5 rather convex whorls. Last whorl with cord-like keel. Color corneous. Embryonic whorls with very fine network of striae. Later whorls accurately radially ribbed above and finely radially striated below. Aperture lunate, rostrate, slightly oblique, with strong, transversal parietal lamella. Umbilicus moderately wide, perspective. Height 2.13, diam. 3.64 mm (holotype) (2.15 × 3.66 mm).

Mantle collar with left lappets almost touching each other.

Talon comparatively large. Carrefour without lateral process. Prostate with a single row of clavate acini. Epiphallus distinctly demarcated from vas deferens, entering

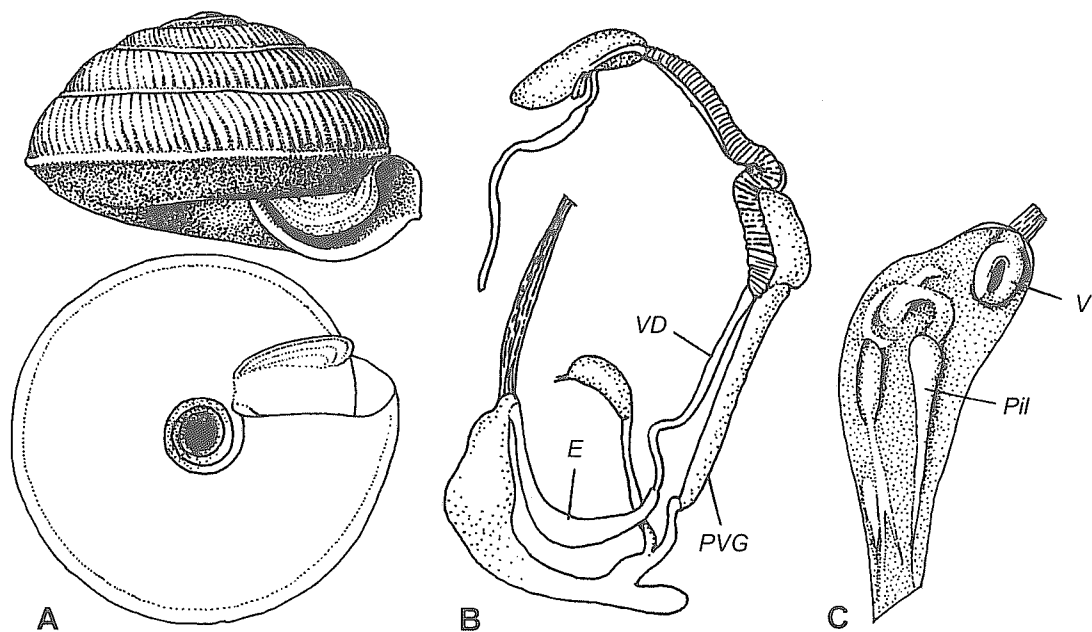


Fig. 1518. *Brazieria (Brazierella) minuscula* Baker, 1941.

A — shell: Tol Islet, Truk, Carolines. Phil. No. 178462. B — reproductive tract. C — interior of penis. After Baker, 1941.

very near penial apex through a large, hook-like verge. Penis fusiform, internally with 2 long, heavy but low pilasters that connect below verge, and with a shorter pilaster near base. Penial retractor attached to penis/epiphallus junction. Free oviduct quite long, with perivaginal gland divided into 2 subequal parts. Vagina short but distinct. Spermathecal stalk slender, reservoir bean-shaped.

DISTRIBUTION. Carolines. 1 sp.

Hogolua Baker, 1941

Fig. 1519

Baker, 1941: 273.

TYPE SPECIES — *Hogolua kondorum* Baker, 1941; OD.

Shell elevated, dome-shaped, rather solid, glossy, of about 6 a little convex whorls. Last whorl straight, somewhat angled at periphery; angle marked off below by obscure sulcus. Color corneous-olivaceous. Embryonic whorls smooth. Later whorls with very obscure radial striae and very superficial, irregular, microscopic granulation. Aperture subquadrangular, obtusely and bluntly angulated, broadly thickened internally, well oblique; columellar

margin reflexed. Umbilicus moderately wide, deep, almost cylindrical, narrowed by encircling cord which becomes obsolete toward peristome. Height 8.0-8.2, diam. 10.8-11.0 mm (8.2 × 11.0 mm).

Ovotestis consists of 5 lenticular clusters. Epiphallus comparatively small, entering penial apex laterally through a thickened area, internally with weak folds. Penis elongated, internally with a complex pilaster, of which apical half enlarged into a big, bilobed stimulator that looks like honeycomb of which basal half develops, in its middle third, a high subpyramidal wedge-shaped smoothish stimulatory papilla. Penial retractor attached to apex of penis. Free oviduct moderately long, vagina markedly shorter. Spermathecal stalk rather long, reservoir not large, fusiform.

DISTRIBUTION. Carolines. 1 sp.

Kondoa Baker, 1941

Fig. 1520

Baker, 1941: 272.

TYPE SPECIES — *Kondoa asteriscus* Baker, 1941; OD.

Shell roughly lenticular, thin but almost opaque, dull above, glossy below, of about

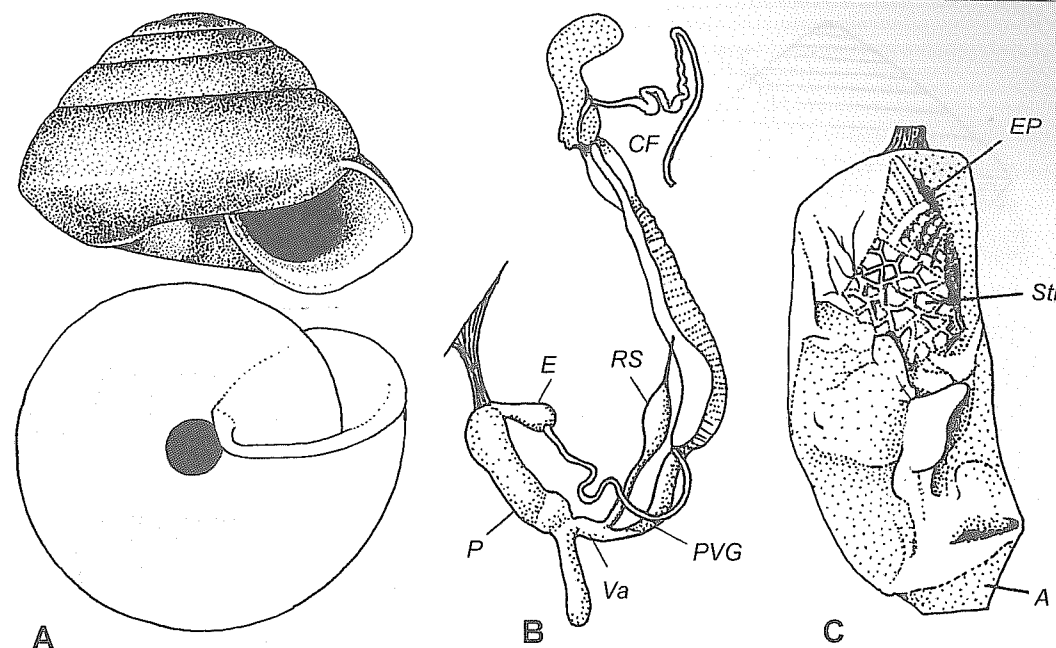


Fig. 1519. *Hogolua kondorum* Baker, 1941.

A — shell: Moen Islet, Truk, Carolines. Paratype. Phil. No. 178470. B — reproductive tract. C — interior of penis. After Baker, 1941.

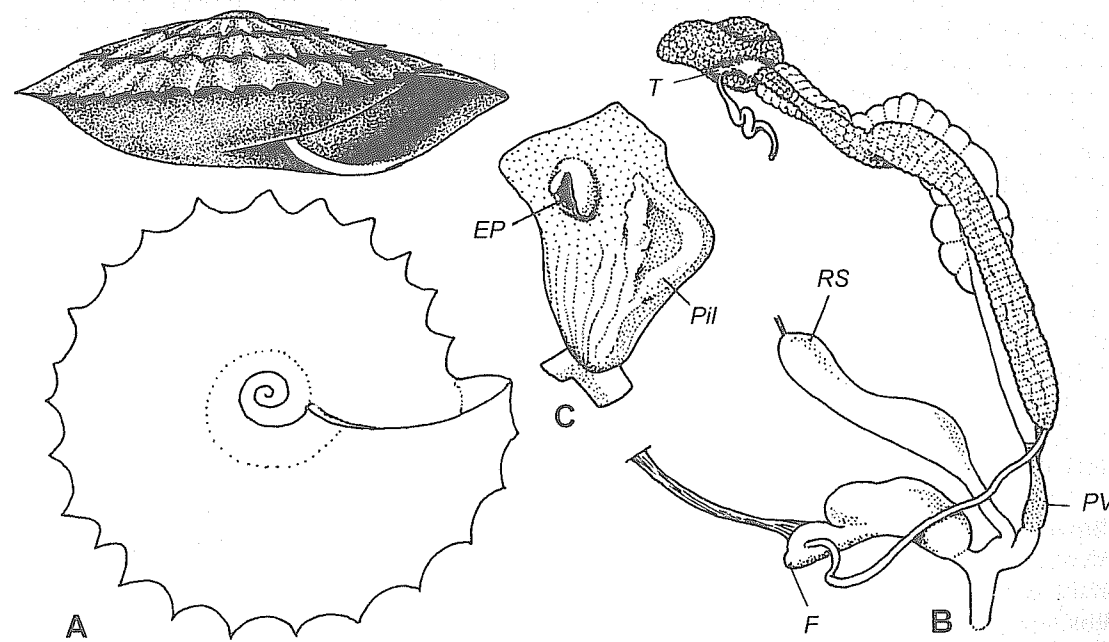


Fig. 1520. *Kondoa asteriscus* Baker, 1941.

A — shell: Dublon Islet, Truk, Carolines. Paratype. Phil. No. 178466. B — reproductive tract. C — interior of penis. After Baker, 1941.

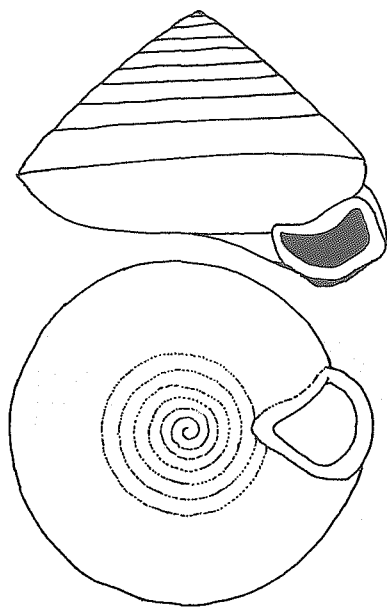


Fig. 1521. *Calostropha raffrayi* (Tapparone-Canefri, 1883).
After Tapparone-Canefri, 1883.

along side opposite verge and about 9 low, longitudinal folds near base. Penial retractor arising high on left side of uterus, inserting near middle of epiphallus. Free oviduct with vague perivaginal gland. Vagina short. Spermathecal stalk also short, reservoir much longer, with weak apical ligament.

DISTRIBUTION. Carolines (Dublon Islet at Truk Island). 1 sp.

? *Calostropha* Ancey, 1887
Fig. 1521

Ancey, 1887: 38.

TYPE SPECIES — *Helix raffrayi* Tapparone-Canefri, 1883; OD.

Shell conic, trochiform, thin, diaphanous, of about 10 flattened whorls. Last whorl deflected, subconstricted at aperture, with distinct peripheral keel. Color ashy-corneous, carina fulvous. Postapical whorls radially striated. Aperture subquadrangular, well oblique, with thickened margins and intensively developed parietal callus. Umbilicus wide, profound, quite perspective. Height (estimated) 7.5, diam. 10 mm.

DISTRIBUTION. New Guinea. 1 sp.

REMARK. I tentatively place *Calostropha* in Trochomorphidae because of superficial conchological similarity with *Peleliua* inhabiting Palau Islands.

Foxidonta Clench, 1950
Fig. 1522

Clench, 1950: 59 (in Endodontidae). Solem, 1964: 120.

TYPE SPECIES — *Foxidonta stevensoni* Clench, 1950; OD.

Shell high, turrated, rather solid, of 6.5-7.5 carinate whorls. Last whorl with a sharp, elevated ridge below peripheral angle. Color deep mahogany-brown, somewhat lighter on earlier whorls. Embryonic whorls smooth. Postapical whorls with obliquely radial irregular ribs. Aperture subquadrate, with thin, very slightly reflexed margins. Umbilicus narrowly open. Height 13-17, diam. 13.1-15.0 mm (16.0 × 14.1 mm).

Suprapedal grooves uniting across tail. No caudal foss or horn.

Jaw with low median process, weakly transversely striated.

Kidney narrow, sausage-shaped, secondary ureter completed.

Ovotestis of groups of clavate acini. Her-

5 nearly flat whorls. Last whorl with very coarsely serrated, sharp keel. Color of heavy periostracum chestnut-brown. Embryonic whorls with distinct radial riblets crossed by inconspicuous, shallow, spiral striae. Subsequent whorls with similar riblets and sharper, more widely spaced, thin ribs, which extent to hollow, triangular serrations of keel; there are also spiral striae soon disappearing; above all, surface minutely granulate above. Aperture narrow, rostrate, oblique; columellar margin weakly reflexed, somewhat thickened. Umbilicus with steep wall, quite open. Height 3.05-3.30, diam. 8.88-9.50 mm (3.3 × 9.5 mm).

Left mantle-lappets slightly overlapping.

Ovotestis consisting of 5-6 conoid clusters of clavate acini. Hermaphroditic duct swollen near base. Talon ovoid, obscurely bipartite. Carrefour conoid. Vas deferens slender, free. Epiphallus sacculate, internally with a low pilaster opposite vas deferens, entering apex of penis through a large, hood-like verge. Epiphallus loosely covered with black connective tissue that continuous with outer layer of penial wall; lateral entrance of vas deferens almost surrounded by a high fold (sphincter), end of which resembles a minuscule letter omega. Penis ovoid, internally with a double pilaster

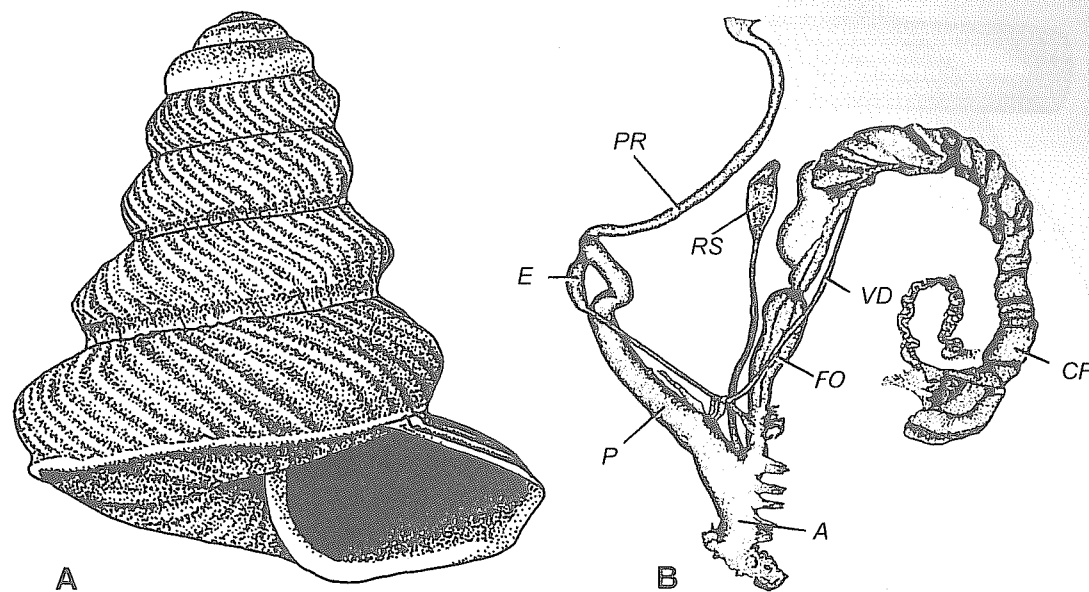


Fig. 1522. *Foxidonta stevensoni* Clench, 1950.

A — shell: Fiu Mala, Solomon Islands. Leiden. B — reproductive tract. After Solem, 1964.

maphroditic duct highly convoluted. Carrefour sacculate, distended. Vas deferens rather long, slender, moderately connected by tissue to free oviduct and penis, tightly bound to peni-oviducal angle. Epiphallus small, abruptly enlarged, entering penis apically without sharp differentiation. Penis long, internally with a narrow, crenulated pilaster in proximal part; distal part with several small pilasters radiating in a fan shape from base of a groove. Penial retractor arising on diaphragm, attaching to penis/epiphallus junction. Free oviduct with upper portion as swollen, glandular sac (perivaginal gland) with internal groove, lying next to vas deferens. Spermathecal stalk short, inserting on base of penis.

DISTRIBUTION. Solomon Islands. 1 sp.

Coxia Ancey, 1887
Fig. 1523

Ancey, 1887: 75.

TYPE SPECIES — *Helix macgregori* Cox, 1870; OD.

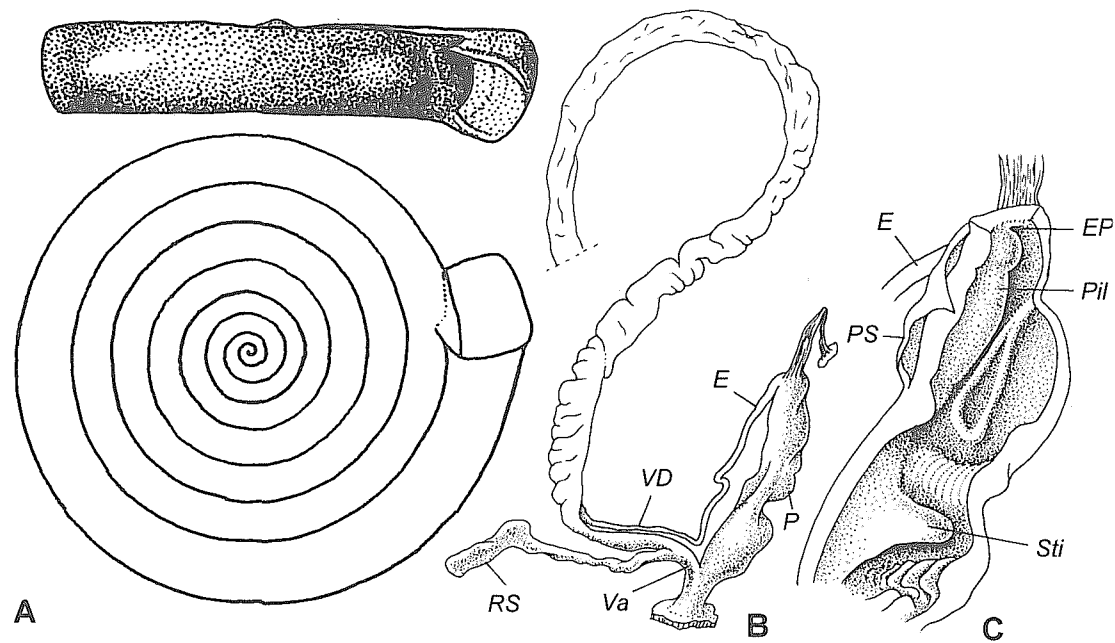
Shell flat, moderately to quite solid, of 8-10 more or less convex whorls. Last whorl compressed laterally, descending in front. Apex a little prominent. Color yellowish-

reddish-corneous. Embryonic whorls almost smooth. Postnuclear whorls with fine, irregular radial wrinkles. Aperture small, subquadrangular, quite oblique, with a little thickened margins and evident parietal callus. Umbilicus extraordinary broad, shallow. Height 4.0-4.5, diam. 20-23 mm (4.1 × 21.2 mm).

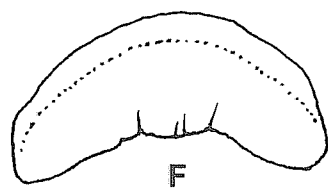
Spermoviduct very long, tightly lying on broad, semilunar in cross-section columellar muscle. Vas deferens thin, free, entering penis subapically through a simple pore. Penis elongated, of irregular shape, its upper half internally with a large axial pilaster and roughly elongated-circular fold on opposite side; upper and lower halves separated by a semicircular, corrugated ridge; under ridge, on opposite side, a large, tubercular stimulator situated; inner surface of distal half covered with transverse rows of high, subquadrangular lamellae. Upper half of penis partially surrounded by a very thin, transparent sheath. Penial retractor attached to penis apically. Free oviduct long, without evident perivaginal gland. Spermathecal stalk slender, long to rather short, reservoir lies on lower part of spermoviduct.

DISTRIBUTION. Papua-New Guinea and Bismark Archipelago (New Ireland). 1 or 2 spp.

REMARK. Two specimens dissected by me differ by length of spermathecal stalk,



A



D

E

F

Fig. 1523. *Cobia macgregori* (Cox, 1870).

A — shell. New Ireland. SPb. B, C — Lossu village, 80 mi SE of Kavieng, New Ireland, Bismark Archipelago, September 1970. Chicago No. 168393. B — reproductive tract. C — interior of penis. D, E, F — Lelet Plateau, Limbin Grotte Perte de Dankobé, 1150 m, Papua-New Guinea, July 26, 1979. D — reproductive tract. E — interior of penis. F — jaw. Geneva No. 979/468.

length of free oviduct and some details of inner penis structure. Perhaps, they belong to different species. Therefore I give anatomical drawings of both.

? *Vitrinoconus* Semper, 1873
Fig. 1524

Semper, 1873: 91.

TYPE SPECIES — *Helix cyatellus* L. Pfeiffer, 1846; OD.

Shell conic or trochiform, moderately thin but opaque, dull, of 4-8 flattened whorls. Last whorl with distinct peripheral keel or angle. Color corneous or grey. Embryonic whorls smooth. Postapical sculpture of fine to rather coarse, more or less regular radial wrinkles. Aperture lunate, quite oblique, with thin or somewhat thickened margins. Umbilicus moderately wide, perspective. Height 2.2-7.0, diam. 3.5-10.0 mm (3.9 × 6.0 mm).

Sole tripartite.

DISTRIBUTION. Philippines. 13-14 spp.

REMARK. I am not sure that *Vitrinoconus* is really a member of Trochomorphidae because it has, according to Semper (1873),

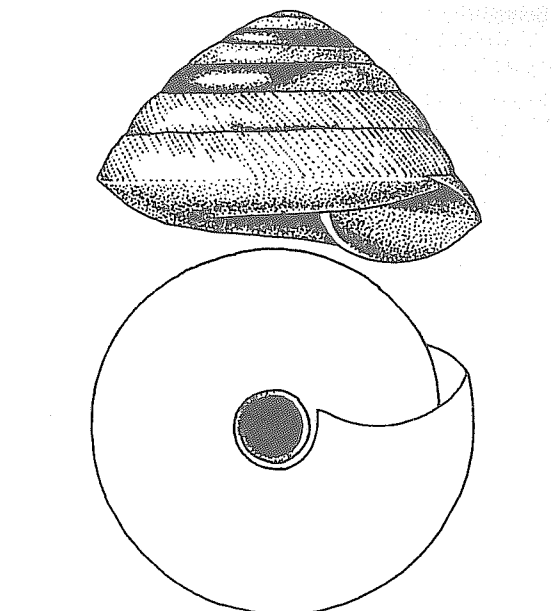


Fig. 1524. *Vitrinoconus cyatellus* (L. Pfeiffer, 1846). Mariveles, Luzon Island, Philippines (Semper's collection). Moscow No. Lc-12048.

tripartite sole, while all other Trochomorphidae have undivided sole.

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Part 1, April 1998: 1-127, figs. 1-140.

Achatinellidae, Amastridae, Orculidae, Strobilopsidae, Spelaeodiscidae, Valloniidae, Cochlicopidae, Pupillidae, Chondrinidae, Pyramidulidae

Part 2, November 1998: 129-261, figs. 141-316.

Gastrocoptidae, Hypselostomatidae, Vertiginidae, Truncatellinidae, Addition To Vertiginoidea, Pachnodidae, Enidae, Sagdidae

Part 3, April 1999: 263-436, figs. 317-566.

Partulidae, Aillyidae, Bulimulidae, Orthalicidae, Megaspiridae, Urocoptidae

Part 4, December 1999: 437-564, figs. 567-732.

Draparnaudiidae, Caryodidae, Macrocyclidae, Acavidae, Clavatoridae, Dorcasiidae, Sculptariidae, Plectopyloidea, Corillidae, Plectopylidae, Megalobulimidae, Strophocheilidae, Cerionidae, Achatinidae, Subulinidae, Glessulidae, Micractaeonidae, Ferrussaciidae

Part 5, May 2000: 565-729, figs. 733-949.

Clausiliidae

Part 6, December 2000: 731-880, figs. 950-1154.

Rhytididae, Chlamydephoridae, Systrophiidae, Haplotrematidae, Streptaxidae, Spiraxidae, Oleacinoidae, Testacellidae

Part 7, June 2001: 881-1034, figs. 1155-1346.

Endodontidae, Thyrophorellidae, Charopidae

Part 8, January 2002: 1035-1166, figs. 1347-1524.

Punctidae, Helicodiscidae, Discidae, Cystopeltidae, Euconulidae, Trochomorphidae

