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Notes on terrestrial molluscs of Sumatra, Indonesia, with descriptions of ten new species (Gastropoda, Prosobranchia & Pulmonata)

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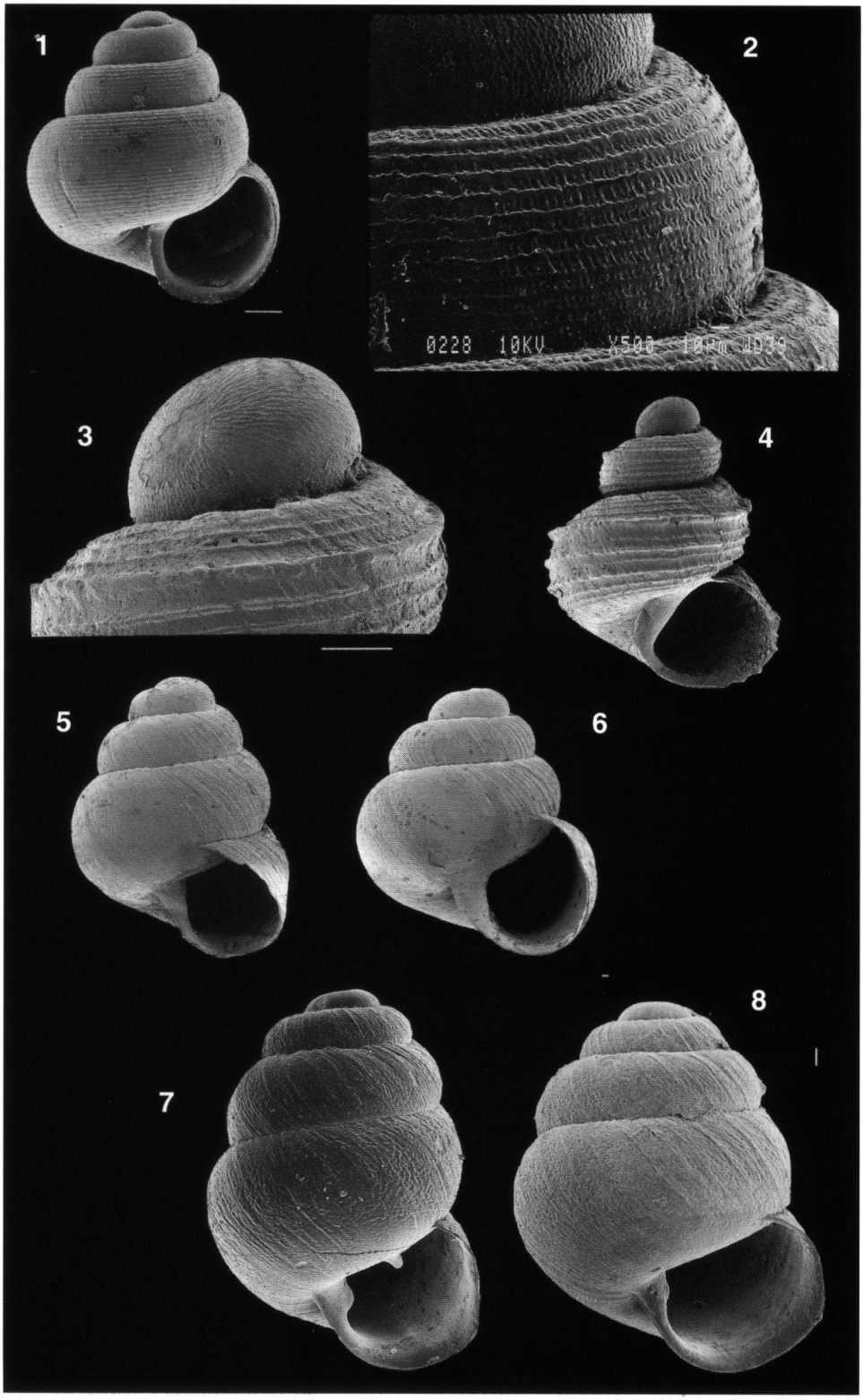
This paper deals with the descriptions of *Teracharopa* gen. nov. and ten species from Sumatra, viz. *Anaglyphula minutissima* spec. nov. (Assimineidae), *Georissa pangianensis* spec. nov. (Hydrocenidae), *Teracharopa goudi* spec. nov. and *T. rara* spec. nov. (Charopidae), *Ptychopatula solemi* spec. nov. and *P. vermeuleni* spec. nov. (Valloniidae), *Microcystina clarkae* spec. nov., *Rahula moolenbeeki* spec. nov. and *Liardetia pseudojavana* spec. nov. (Helicarionidae), and *Philalanka pusilla* spec. nov. (Endodontidae). New records are given for *Ptychopatula orcula* (Benson, 1850), *P. orcella* (Stoliczka, 1873), *P. circumlitum* (Hedley, 1897) and *Pupisoma moleculina* (Van Benthem Jutting, 1940) (Valloniidae), *Philalanka nannophya* Rensch, 1932, *Ph. kusana* (Aldrich, 1889), and *Ph. carinifera* (Stoliczka, 1873) (Endodontidae), and *Coccoderma glandula* (Mousson, 1848) (Enidae).

Key words: Gastropoda, Prosobranchia, Pulmonata, Assimineidae, Hydrocenidae, Charopidae, Valloniidae, Helicarionidae, Endodontidae, Enidae, taxonomy, Indonesia, Sumatra.

INTRODUCTION

During various excursions to Sumatra, Indonesia, material representing a fairly large number of species of land molluscs was collected. Several new species were encountered. This is the second paper that deals with a part of the results (see Maassen, 1999: 121). Some records from the island of Sulawesi are also mentioned. In spite of quite a large number of publications on Asian terrestrial molluscs, our knowledge on the subject is still very poor. In many cases it is even impossible to classify the genera in the proper families with certainty. The generic assignments of the species are also preliminary in some cases. Paratypes will be distributed to the collections mentioned under abbrevations and to the reference collection of Dr. J.J. Vermeulen (Singapore). The total number of specimens per locality is indicated after MD/. The other material is still in the reference collection of the author, which will be deposited in the National Museum of Natural History, Leiden. Unless stated otherwise, the specimens mentioned under material for the new species are to be considered paratypes.

Abbreviations for shell characters: B, shell width; H, shell height. For collections: BMNH, British Museum (Natural History), London; FMNH, Field Museum of Natural History, Chicago; MD, W.J.M. Maassen, Duivendrecht (to be deposited in RMNH); MNHN, Muséum National d'Histoire Naturelle, Paris; MZB, Museum Zoologicum Bogoriense, Bogor; RMNH, National Museum of Natural History (formerly Rijksmuseum van Natuurlijke Historie), Leiden; ZMA, Zoölogisch Museum, Universiteit van Amsterdam, Amsterdam.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SYSTEMATIC PART

FAMILY ASSIMINEIDAE

Anaglyphula minutissima spec. nov. (figs 1-2)

Material. — W. Sumatra: cave Gua Pangian, 3 km E. of Lintau, SE. of Bukittinggi, 00°28'19.5"S, 100°45'11.7"E; vii.1996 (RMNH 73674/holotype [gold-coated]; MD/5); Desa Gadut, limestone rocks near kampung, E. of Payakumbuh, 00°15'36.0"S, 100°43'58.7"E; vii.1997 (MD/1).

Description. — Shell low-conical, extremely small, whitish, transparent, rather solid. First whorl smooth, the following ones ornamented with spiral lirae, 14 on the penultimate whorl. Between the spiral lirae, fine radial lirae can be observed. Whorls four, rounded at the periphery, separated by a deep suture. Base rounded; umbilicus open, narrow, measuring c. 1/8 of the total shell width. Aperture oblique, rounded. Peristome thickened, reflected at the columellar side, connected by a thin callus at the parietal side. Operculum unknown as only dead specimens could be collected in leaf-litter.

Dimensions: Holotype H 0.80 mm; B 0,65 mm. The paratypes have nearly exactly the same measurements.

Derivatio nominis. — The name refers to the minute size of this species.

Remarks. — The placement in *Anaglyphula* Rensch, 1932 is somewhat doubtful. *A. minutissima* differs from other members of the genus *Anaglyphula* in being much smaller and having a quite different sculpture, consisting of radial and spiral lirae. This genus actually comprises several conchologically very diverse species. Species very similar to the one described here, are found in material collected in Vietnam by J.J. Vermeulen and in Thailand by P. Subai, but these are still to be described. We leave it to future investigators to name, if necessary, a new genus for these extremely small species.

FAMILY HYDROCENIDAE

Georissa pangianensis spec. nov. (figs 3-4)

Material. — W. Sumatra: cave Gua Pangian, 3 km E. of Lintau, SE. of Bukittinggi, 00°28'19.5"S, 100°45'11.7"E; vii.1996 (MD/2); vii.1997 (RMNH 73675/holotype [gold-coated]; MD/2).

Description. — Shell very small, elongate-conical, red-brown, becoming lighter brown or yellowish towards the aperture. Whorls three, separated by a deep suture. Rather solid, somewhat transparent and glossy. Protoconch smooth, bulbous. Subsequent whorls flattened above, with a prominent spiral sculpture hardly interrupted by axial threads. On the last whorl this sculpture consists of three strongly protruding lirae, with somewhat less prominent ones in between. Between the suture and the first strong lira three fine spiral lirae are present; base with about 15 similar lirae, decreasing in prominence

Figs 1-8. Species from Sumatra. 1-2, *Anaglyphula minutissima* spec. nov., holotype (RMNH 73674), N. Sumatra, near entrance of cave Liangdehar; actual height 0.8 mm. 3-4, *Georissa pangianensis* spec. nov., holotype (RMNH 73675), W. Sumatra, cave Gua Pangian; actual height 1.7 mm. 5, *Ptychopatula solemi* spec. nov., paratype, W. Sumatra, cave Gua Pangian; actual height 1.3 mm. 6, *Ptychopatula vermeuleni* spec. nov., paratype, N. Sumatra, near entrance of cave Liangdehar; actual height 1.4 mm. 7, *Pupisoma moleculina* (Van Benthem Jutting, 1940), N. Sumatra, near entrance of cave Liangdehar; actual height 1.8 mm. 8, *Pupa lignicola* Stoliczka, 1871, possible syntype [BM]; actual height 2.0 mm. Scale bars 0.1 mm, except for 0.01 mm for figure 2.

near the umbilical callus. Umbilicus closed by a broad, polished callus. Aperture ovate, slightly wider than high; peristome continuous, outer lip sharp, not reflected. Operculum unknown because only dead specimens could be collected.

Dimensions: Holotype H 1.7 mm, B 1.3 mm. The holotype was the only undamaged adult specimen.

Derivatio nominis. — Named after its type locality, the Pangian cave.

Remarks. — Some Bornean species have a similar sculpture, differing in details however. They additionally differ from *G. pangianensis* in size. The most similar Bornean species, *G. hosei* Godwin-Austen, 1889, differs in having only two strongly protruding lirae, which are broken into short segments by axial threads. For detailed descriptions see Dance & Thompson (1983: 101).

FAMILY VALLONIIDAE

Ptychopatula orcula (Benson, 1850), *P. orcella* (Stoliczka, 1873) and *P. circumlitum* (Hedley, 1897).

According to Vermeulen & Whitten (1998: 81), *Pupisoma orcula* (Benson, 1850) sensu Van Benthem Jutting (1959: 127), in fact in Indonesia consists of three separate species, viz. *Ptychopatula orcula*, *P. orcella* and *P. circumlitum*. These species proved to occur also in Sumatra. The records are enumerated below.

Ptychopatula orcula (Benson, 1850)

Material. — Aceh Tengah: Laot Tawar, 2.5 km E. of Takengon, near small cave opposite hotel Rengali; Laot Tawar, 7 km NE. of Takengon, north-shore, on slope opposite lake, between rocks in bamboo-wood. N. Sumatra: Bukit Lawang, SW. of Medan; near numerous small caves in limestone, SE. of village at border of rubber tree plantation; Berastagi, Volcano Sibayak, 1700m alt, secondary forest. W. Sumatra: Baso, 14 km NW. of Bukittinggi in direction Payakumbuh; Payakumbuh, near entrance of cave Ngalau Indah; 7 km W. of Payakumbuh; near entrance of cave Gua Pangian, 3 km N. of village Lintau, SE. of Bukittinggi; Rimbo Panti Reserve, near limestone rocks in forest; near entrance of cave near Situmbuk, 30 km E. of Bukittinggi; Desa Gadut, limestone rocks near the village, E. of Payakumbuh.

Ptychopatula orcella (Stoliczka, 1873)

Material. — Aceh Tengah: Laot Tawar, 11 km NE. of Takengon; Laot Tawar, 7 km E. of Takengon. N. Sumatra: Bukit Lawang, SW. of Medan; near entrance of "Bat-cave"; Bukit Lawang, SW. of Medan, near numerous small caves in limestone, SE. of village at border of rubber tree plantation; near entrance of cave Liangdehar, near Kuta Buluh, 40 km NW. of Berastagi. W. Sumara: Desa Gadut, limestone rocks near the village, E. of Payakumbuh; Bungus Bay, 25 km SE. of Padang, 2 km N. of village near waterfall; near entrance of cave near Situmbuk, 30 km E. of Bukittinggi.

Ptychopatula circumlitum (Hedley, 1897)

Material. — N. Sumatra: near entrance of cave Liangdehar, near Kuta Buluh, 40 km NW. of Berastagi. W. Sumatra: 2 km W. of Payakumbuh; Payakumbuh, near cave Ngalau Indah; cave Gua Pangian, 3 km E. of village Lintau, SE. of Bukittinggi; near cave near Situmbuk, 30 km E. of Bukittinggi; Desa Gadut, E. of Payakumbuh.

Ptychopatula solemi spec. nov. (fig. 5)

Material. — Aceh Tengah: Lake Laot Tawar, 11 km NE. of Takengon, north-shore lake, vii.1997 (MD/2); Lake Laot Tawar, 7 km E. of Takengon, south-shore, vii.1997 (MD/6). W. Sumatra: 7 km W. of Payakumbuh, limestone rock along road, vii.1996 (MD/1); little cave near Situmbuk, 30 km E. of Bukittinggi, 00°21'05.6"S, 100°34'10.1"E, vii.1996 (MD/3); Baso, 14 km NW. of Bukittinggi, limestone rocks along road, vii.1996 (holotype RMNH 73676; MD/20); cave Gua Pangian, 3 km E. of Lintau, SE. of Bukittinggi, 00°28'19.5"S, 100°45'11.7"E, vii.1996 (MD/10), vii 1997 (MD/50); cave Ngalau Indah near Payakumbuh, vii.1996 (MD/10).

Description. — Shell very small, clearly higher than wide, elongate-conical, red-brown. Whorls 3.5-3.75, separated by a deep suture. Rather fragile, somewhat transparent and a glossy. Protoconch with a fine granular sculpture. The subsequent whorls well rounded with the same sculpture, interrupted by fine growthlines and without a trace of a radial sculpture. Umbilicus open, but partly closed by the reflected columellar border. Aperture rounded, slightly wider than high, peristome not continuous, outer lip sharp, inner lip reflected, almost closing the umbilicus.

Dimensions: Holotype H 1.3 mm, B 1.1 mm. There is hardly any variation in the measurements of the paratypes.

Derivatio nominis. — The name is in honour of the late Dr. Alan Solem.

Remarks. — Schileyko (1998: 95) recently redescribed the genus *Ptychopatula* Pilsbry, 1889. The shells of *P. solemi* and *P. vermeuleni* differ from this description as follows: the apex is quite acute instead of widely rounded and the shell is granulated instead of radially striated. In spite of these differences, the two species are for the time being classified in *Ptychopatula*. So shells of both *P. solemi* and *P. vermeuleni* differ from those of other *Ptychopatula* species in the lacking of a radial sculpture and by a more acute apex. *P. vermeuleni* differs from *P. solemi* mainly in the shape of the umbilicus, which is wide open but very excentric.

This species is also known from the island of Sulawesi, but that record concerns damaged shells only, which are not considered part of the type series: S. Sulawesi, Rantepao, limestone rocks, 1 km W. of town, v.1995 (MD)

Ptychopatula vermeuleni spec. nov. (fig. 6)

Material. — N. Sumatra: Karo Highlands, Kuta Buluh, 40 km N. of Brastagi, near entrance of the cave Liangdehar, in leaf litter at the foot of limestone rocks, viii.1993 (MD/11); vi.1996 (RMNH 73677/holotype; MD/35). W. Sumatra: Desa Gadut, limestone rocks near village, 00°15'36.0"S, 100°43'58.7"E, vii.1997 (MD/10). S. Sulawesi: Enrekang-Cakke road, natural forest valley of Mata Allo river, 150 m alt.; 16.ix.1991, leg. P. Bouchet (MNHN/1); Timpuseng-Camba area, hills above Mattajang village, leaf litter in open forest with limestone blocks, 530m alt., 8.ix.1991, leg. P. Bouchet (MNHN/10); Malino, leaf litter in degraded vegetation patches, 900m alt., 13.ix.1991, leg. P. Bouchet (MNHN/30); Bantimurung, E. of Maros, v.1995 (MD/3).

Description. — Shell very small, slightly higher than wide, conical, red-brown. Whorls 3.25-3.50, separated by a deep suture. Rather fragile, somewhat transparent and glossy. Protoconch with a fine, granular sculpture. The subsequent whorls well rounded, with the same sculpture, interrupted by fine growthlines; without a trace of radial sculpture. Umbilicus narrow, but as the last quarter of the body whorl is deflected, it becomes wide open and very excentric. Aperture rounded, slightly higher than wide; peristome not continuous, outer lip sharp, inner lip reflected.

Dimensions: Holotype H 1.4 mm, B 1.3 mm. As there was hardly variation of the measurements, only the dimensions of the holotype are given.

Derivatio nominis. — Named after Dr. Jaap J. Vermeulen, the author's friend and expert on the Indo-Malayan malacofauna.

Remarks. — See the remarks with *Ptychopatula solemi.*

Pupisoma moleculina (Van Benthem Jutting, 1940) (fig. 7)

Material. — W. Sumatra: near cave Liangdehar, Kuta Buluh, 40 km NW. of Berastagi.

Remarks. — Vermeulen & Raven (1998: 274) consider *Costigo moluculina* Van Benthem Jutting, 1940, a synonym of *Pupa lignicola* Stoliczka, 1871 (fig. 8). Obviously, however, two separate species are involved. Two lots (BM/ 12 specimen) of the type locality of *P. lignicola* (Myanmar, Moulmein [=Mawlamyine]) were compared with specimens of *P. moleculina* from the entire Indo-Malayan region. In *P. lignicola* specimens with a palatal fold are very rare (Stoliczka, 1871: 172, "out of a great number ... only one was met"), while in *P. moluculina* such a fold is always present. The columellar margin possesses a much smaller lamella in *P. lignicola* than in *P. moleculina.* The radial striation is irregular in *P. moleculina*, whereas in *P. lignicola* the radial ribs are more evenly placed and more conspicuous. In living, juvenile specimens the radial ribs almost become lamellate. In *P. lignicola* the shell and its aperture are much wider than in *P. moleculina.*

These species do not fit in the genus *Costigo* O. Boettger, 1891, because of their apertural armature, and are now tentatively placed in *Pupisoma* Stoliczka, 1873.

FAMILY CHAROPIDAE

Genus **Teracharopa** gen. nov.

Type species. — *Teracharopa goudi* spec. nov.

Diagnosis. — Shell small, low-conical, white, shining and transparent, with a sculpture of sharp, radial, wavy riblets and distinct, delicate spirals. Suture rather deep. Umbilicus very narrow or closed. Aperture narrow, crescentic, the outer margin rounded.

Distribution. — Only reported here from Sumatra, with two species, but according to J.J. Vermeulen (personal communication) there are similar, undescribed species in Borneo.

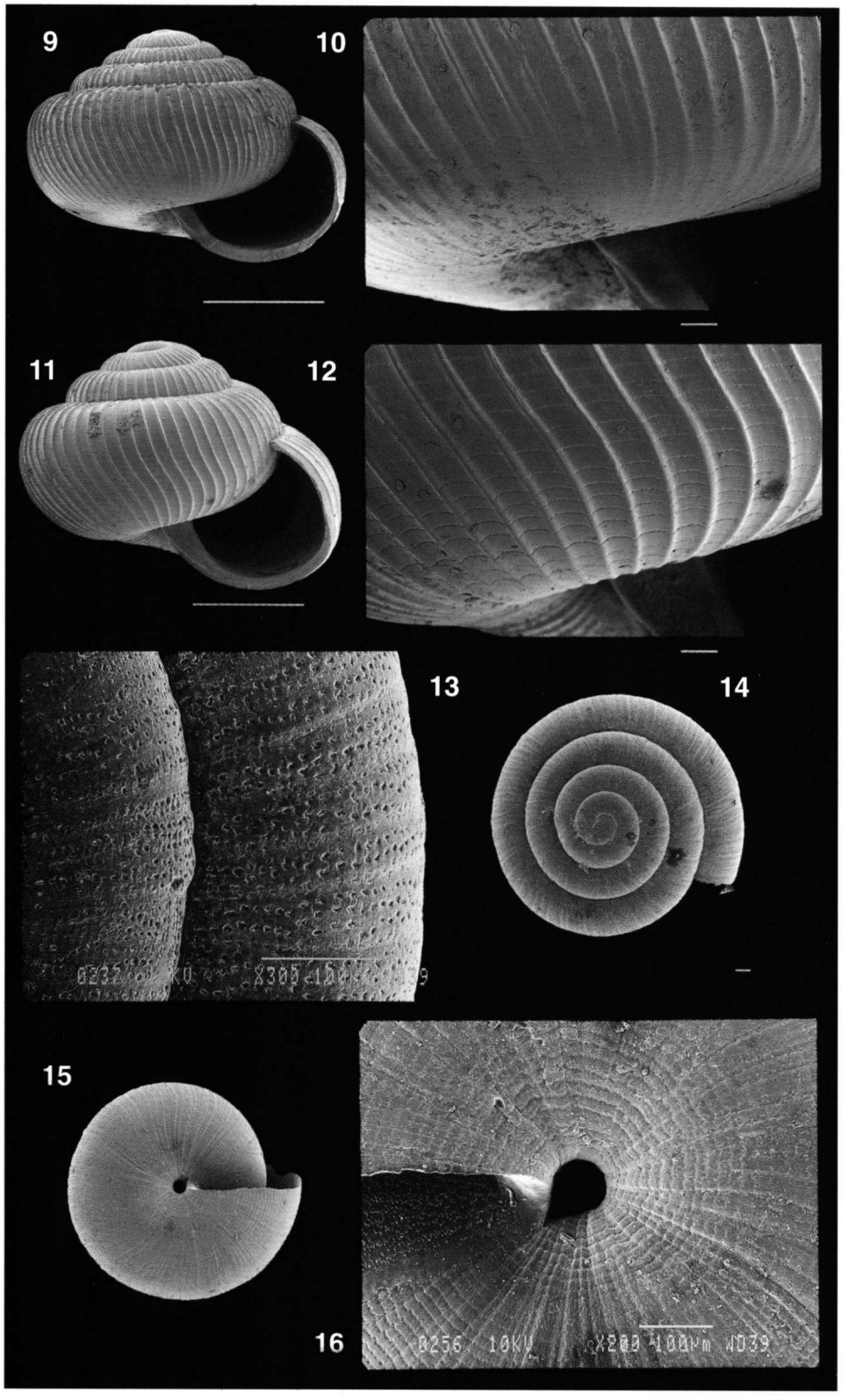
Remarks. — Because this genus shares some conchological characters like the shape of the aperture, and the form of the wavy riblets, with members of the family Charopidae, it is classified here in that family. No other similar species have been described for the Asian fauna.

Derivatio nominis. — The name is a combination of the first name of the late Tera van Benthem Jutting and the generic name *Charopa* Albers, 1860.

Teracharopa goudi spec. nov. (figs 9-10)

Material. — W. Sumatra: cave Gua Pangian, 3 km E. of Lintau, SE. of Bukittinggi, 00°28'19.5"S; 100°45'11.7"E, vii.1996 (RMNH 73679/holotype; MD/20), vii.1997 (MD/50); Desa Gadut, E. of Payakumbuh, rocks near village, 00°15'36.0"S, 100°43'58.7"E, vii.1997 (MD/2); Baso, 14 km NW. of Bukittinggi in direction Payakumbuh, limestone rocks along road, vii.1996 (MD/1).

Figs 9-16. Species from Sumatra. 9-10, *Teracharopa goudi* spec. nov., paratype, W. Sumatra, cave Gua Pangian; actual width 2.7 mm. 11-12, *Teracharopa rara* spec. nov., paratype, N. Sumatra, near entrance of cave Liangdehar; actual width 2.9 mm. 13-16, *Microcystina clarkae* spec. nov., paratype, W. Sumatra, Kampung Desa Gadut; actual width 1.4 mm. Scale bars 0.1 mm.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Description. — Shell small, low-conical, white, shining and transparent. With five whorls, regularly increasing in width, slightly shouldered. In young and semi-adult shells the shoulder is more conspicuous than in full-grown shells. Sculpture of sharp radial, wavy, regularly placed ribs, which disappear near the umbilicus where they are replaced by a delicate spiral sculpture. Suture rather deep. Umbilicus open but very narrow, practically hidden by a somewhat reflected peristome. Aperture narrow, crescentic, the outer margin rounded; at the parietal side there is a very thin callus. Peristome not thickened.

Dimensions: H 2.7 mm, B 3.7 mm

Derivatio nominis. — Named after my colleague Jeroen Goud, who made the excellent SEM photographs accompaning this paper.

Remarks. — See the remarks with the next species.

Teracharopa rara spec. nov. (figs 11-12)

Material. — N. Sumatra: Karo Highlands, Kuta Buluh, 40 km N. of Brastagi, near entrance of the cave Liangdehar, in leaf litter at the foot of limestone rocks, viii.1993 (MD/5), vi.1996 (RMNH 73678/holotype; MD/4)

Description. — Shell small, low-conical, white, shining and transparent. Whorls four, hardly shouldered, rapidly increasing in width. Sculpture of regularly placed, sharp, radial, wavy riblets, continuing into the umbilicus. A distinct, delicate, spiral sculpture is present on all the whorls. Suture rather deep. Umbilicus closed. Aperture narrow, crescentic, the outer margin rounded. Peristome neither continuous nor thickened; at the columellar side reflected.

Dimensions: H 3.1 mm, B 4.1 mm

Derivatio nominis. — Named after the rarity of the species, which is only known from its type-locality.

Remarks. — This species differs from the previous one by the more rounded last whorl, the presence of spiral sculpture and radial riblets all over the shell, and the closed umbilicus.

FAMILY HELICARIONIDAE

Microcystina clarkae spec. nov. (figs 13-16)

Material. — Aceh Tengah: near Lake Laot Tawar, 7 km NE. of Takengon, rocks in little bamboo-forest, vii.1997 (MD/1); near Lake Laot Tawar, 7 km E. of Takengon, at the foot of dry rocks, vii.1997 (MD/2). N. Sumatra: Karo Highlands, Kuta Buluh, 40 km N. of Brastagi, near entrance of the cave Liangdehar, in leaf litter at the foot of limestone rocks, 14.vii.1993 (MD/11), vi.1996 (holotype RMNH 73679; MD/35); Bukit Lawang, near Wisma Cottages, SW. of Medan, viii.1993 (MD/5); Bukit Lawang, near Boat-Rock, E. of village, SW. of Medan, viii.1993 (MD/3); cave Gua Luntir, 9 km N. of Bukit Lawang, SW. of Medan, viii.1993 (MD/2); caves SE. of Bukit Lawang, SW. of Medan, viii.1993 (MD/2). W. Sumatra: 2 km W. of Payakumbuh, limestone rocks along road, vii.1996 (MD/1); near cave Gua Ngalau Indah in Payakumbuh, vii.1996 (MD/1); near cave Gua Pangian, 3 km N. of village Lintau, SE. of Bukittinggi, vii.1996 (MD/10); Rimbo Panti Reserve, near rocks in forest, 00°28'47.6"N, 100°04'01.7"E, vii.1997 (MD/1); little cave near Situmbuk, 30 km E. of Bukittinggi, 00°21'05.6"S, 100°34'10.1"E, vii.1997 (MD/4); Desa Gadut, E. of Payakumbuh, rocks near village, 00°15'35.1"S, 100°44'01.1"E, vii.1997 (MD/1); Desa Gadut, E. of Payakumbuh, rocks near village, 00°15'36.0"S; 100°43'58.7"E, vii.1997 (MD/40).

Description. — Shell very small, low-conical, white, shining and transparent. Already from the protoconch on ornamented with delicate spiral lines formed by small pits and somewhat coarser, close-set, radial ribs. Whorls 4.5, regularly increasing in size, well rounded and separated by a rather deep suture. Umbilicus open but very narrow, partly hidden by the reflected columellar side of the peristome. Aperture rounded, slightly oblique. Peristome neither continuous nor thickened.

Dimensions: H 1.2 mm, B 1.5-1.7 mm

Derivatio nominis. — Named in honour of Stephanie Clark, the first malacologist collecting at the Liangdehar cave.

Remarks. — This species is somewhat similar to *"Charopa" perlata* Van Benthem Jutting, 1959 (figs 17-19). It differs in being smaller, with more rounded whorls, a deeper suture and a clearly different sculpture. It is remarkable that this widespread species has been overlooked in the past. This may be due to the fact that, although occurring at several localities, the species was never found in great numbers. As long as the anatomy of this species remains unknown, its generic classification is uncertain.

Rahula moolenbeeki spec. nov. (figs 20-21)

Material. — N. Sumatra: reserve Tinggi Radja, between Berastagi and Pematangsiantar, 400m alt., debris of the river Bah Banai, vii.1993 (RMNH 73681/holotype; MD/40).

Description. — Shell pyramidal with a flat base, rather solid, brown. Whorls 6.5, convex, separated by an impressed suture; last whorl sharply keeled and carinated at the periphery. Sculptured with sharp, rather regular, sinuate, radial ribs, extending to the basal side. Spiral striation absent. Umbilicus open and deep, measuring c. 1/5 of the total shell width. Aperture sub-circular; peristome thin, angulate at the lower outer margin. Columellar side not thickened, slightly reflected.

Dimensions: H 5 mm, B 5.8 mm.

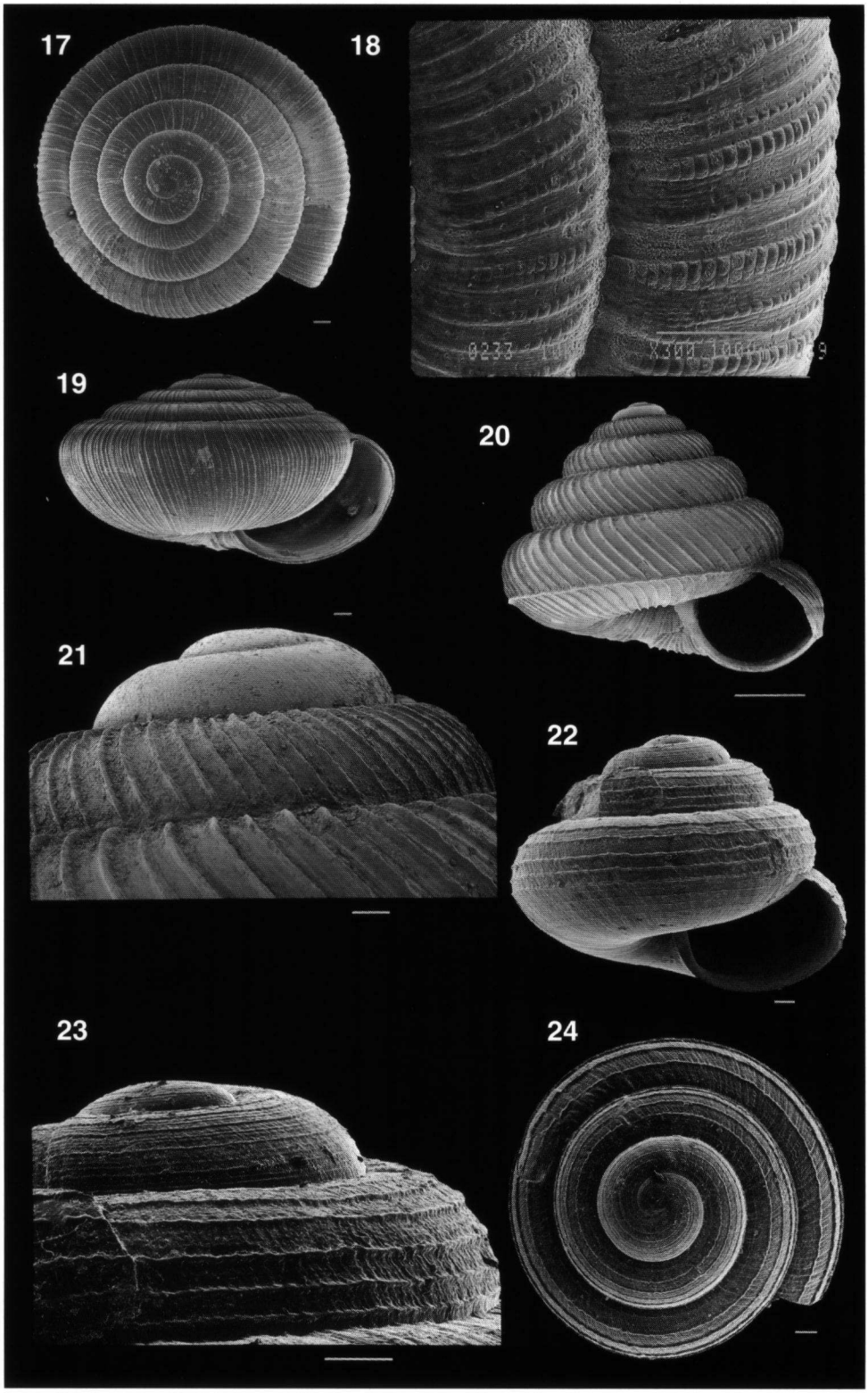
Derivatio nominis. — Named after my friend Rob G.M. Moolenbeek, collection manager at the Zoological Museum in Amsterdam, who gave me access to the collection.

Remarks. — *Rahula moolenbeeki* shares many conchological features with species of *Rahula* Godwin-Austen, 1907, a genus with about ten species described from India (Godwin-Austen, 1907: 216; 1918: 597). Two similar species, described from Tonkin by Bavay & Dautzenberg (1912: 14) as *Kaliella ornatissima* and *K. jucunda*, should be considered *Rahula* species too. *R. ornatissima* is conchologically most similar to *R. moolenbeeki*, but the shell of *R. moolenbeeki* is wider than high, has fewer whorls and a different sculpture.

FAMILY ENDODONTIDAE

Philalanka kusana (Aldrich, 1889) and *Philalanka carinifera* (Stoliczka, 1873)

Van Benthem Jutting (1959: 136) recognized only two species in the genus *Philalanka* Godwin-Austen, 1898, from Sumatra, viz. *P. thienemanni* Rensch, 1932 (two records) and *P. marangensis* (Aldrich, 1898) (five records). She considered *P. marangensis* a quite variable species, described several times, with different names. In her last publication on Indonesian molluscs (1964: 13) she mentioned this species as *P. carinigera* (Tapparone Canefri, 1886) with *P. marangensis* (Aldrich, 1898) and *P. tjibodasensis* (Leschke, 1914) as synonyms. Earlier (1952: 402) she had already placed *P. diminuta* Rensch, 1932, in the synonymy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of *P. tjibodasensis* (Leschke, 1914). Vermeulen & Whitten (1998: 148) reported that two species were in fact synonymized with *P. carinigera*, viz. *P. kusana* (Aldrich, 1889) and the much smaller *P. carinifera* (Stoliczka, 1873), which often live sympatrically.

New records of the three *Philalanka* are reported below and a fourth species is described as new.

Philalanka kusana (Aldrich, 1889)

Material. — Aceh Tengah: Laot Tawar, 7 km NE. of Takengon. N. Sumatra: Bukit Lawang, SW. of Medan, numerous records from different spots; near Kuta Buluh, 40 km NW. of Berastagi; Reserve Tinggi Radja, between Berastagi and Pematangsiantar, 400 m, debris of the river Bah Banai. W. Sumatra: 2 km N. of Bungus Bay, 25 km SE. of Padang; Baso, 14 km NW. of Bukittinggi in direction Payakumbuh; 2 km W. of Payakumbuh; Payakumbuh, near cave Ngalau Indah; 7 km W. Payakumbuh; cave Gua Pangian, 3 km N. of Lintau, SE. of Bukittinggi; Lake Maninjau, north-east slope; Desa Gadut, E. of Payakumbuh.

Philalanka carinifera (Stoliczka, 1873)

Material. — Aceh Tengah: Pulau Weh, 1 km N. of Iboih; Pulau Weh, forest, 5 km S. of Iboih; near Lhong at the northwest-coast along the coastal road; near Pasi at the northwest-coast along the coastal road, 10 km S. of Lhong; Laot Tawar, 2.5 km E. of Takengon near cave entrance opposite hotel Rengali; Laot Tawar, 7 km NE. of Takengon; Laot Tawar, 11 km NE. of Takengon. N. Sumatra: Bukit Lawang, SW. of Medan, numerous records from different spots; near entrance of cave Liangdehar, near Kuta Buluh, 40 km NW. of Berastagi; reserve Tinggi Radja, between Berastagi and Pematangsiantar, 400m alt, debris of the river Bah Banai. W. Sumatra: Bukittinggi, canyon near town; Baso, 14 km NW. of Bukittinggi in direction Payakumbuh; 2 km W. of Payakumbuh; 7 km W. of Payakumbuh; cave Gua Pangian, 3 km N. of Lintau, SE. of Bukittinggi; Rimbo Panti Reserve; cave near Situmbuk, 30 km E. of Bukittinggi; Desa Gadut, E. of Payakumbuh.

Philalanka nannophya Rensch, 1932 (figs 22-24)

Material. — Aceh Tengah: Laot Tawar, 2.5 km E. of Takengon, near cave opposite hotel Rengali, south shore; Laot Tawar, 7 km E. of Takengon, south shore. W. Sumatra: 7 km W. of Payakumbuh; 2 km W. of Payakumbuh; Desa Gadut. N. Sumatra: Karo Highlands, Kuta Buluh, 40 km N. of Brastagi, near entrance of the cave Liangdehar.

Remarks. — This species has so far not been recorded for Sumatra.

Philalanka pusilla spec. nov. (figs 25-27)

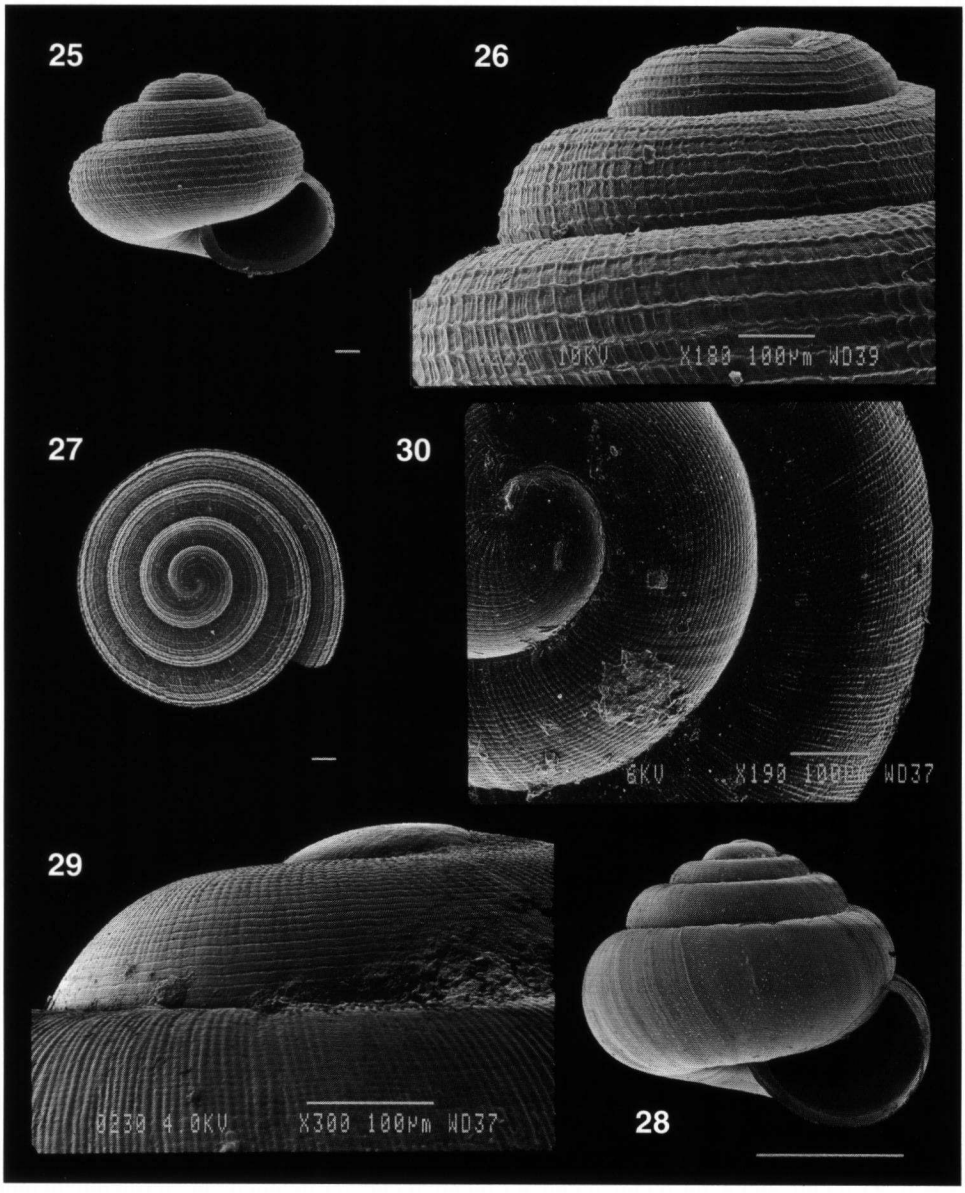
Material. — N. Sumatra: Karo Highlands, Kuta Buluh, 40 km N. of Brastagi, near entrance of the cave Liangdehar, in leaf litter at the foot of limestone rocks, viii.1993 (MD/11), vi.1996 (holotype RMNH 73682; MD/30)

Description. — Shell very small, rounded-conical, light brown, shining, somewhat transparent. Whorls four, separated by a deep suture, finely striated by the growthlines and ornamented with about ten distinct spiral ridges, the lowermost just below the periphery. Below the periphery the base of the shell has only fine spiral lines. Top obtuse, base rounded. Umbilicus very narrow. Aperture somewhat oblique, oval to crescentic. Peristome neither continuous nor thickened, somewhat reflected at the columellar side.

Dimensions: H 0.8 mm, B 1.0 mm.

Derivatio nominis. — Named after its very small size.

Figs 17-24. Species from Sumatra. 17-19, *"Charopa" perlata* Van Benthem Jutting, 1959, N. Sumatra, near entrance of cave Liangdehar; actual width 1.8 mm. 20-21, *Rahula moolenbeeki* nov. spec., paratype, N. Sumatra, Reserve Tinggi Radja; actual width 4.3 mm. 22-24, *Philalanka nannophya* Rensch, 1932, W. Sumatra, Kampung Desa Gadut; actual width 1.5 mm. Scale bars 0.1 mm.



Figs 25-30. Species from Sumatra. 25-27, *Philalanka pusilla* spec. nov., paratype, N. Sumatra, near entrance of cave Liangdehar; actual width 0.95 mm. 28-30, *Liardetia pseudojavana* spec. nov., paratype, W. Sumatra, Baso actual width 2.3 mm. Scale bars 0.1 mm.

Remarks. — *P. pusilla* looks like a miniature of *P. nannophya*, but at the type locality the two species live sympatrically without intermediate forms.

Liardetia indifferens (O. Boettger, 1891)

According to Vermeulen & Whitten (1998: 151), *Liardetia indifferens* (O. Boettger, 1891) should be considered synonymous with *L. scandens* (Cox, 1872), a species inhabiting Australia. However, after a careful comparison with specimens collected by V. Kessner (in FMNH) and identified by the late Dr. Alan Solem, it became clear that two different species are involved. *L. scandens* is endemic for Australia and *L. indifferens* is a common species, occurring in the entire Indo-Malayan region. The former species differs most clearly from the latter by a bigger protoconch and a shallower suture.

Liardetia pseudojavana spec. nov. (figs 28-30)

Material. — Aceh Tengah: 2.5 km E. of Takengon near Laot Tawar, near cave opposite hotel Rengali, vii.1997 (MD/1); 7 km E. of Takengon near Laot Tawar, vii.1997 (MD/10). N. Sumatra: cave Liangdehar near Kuta Buluh, 40 km N. of Berastagi, limestone-area, vi.1996 (MD/4). W. Sumatra: Baso, 14 km NW. of Bukittinggi in direction Payakumbuh, limestone-area along road, vii.1996 (RMNH 73683/holotype; MD/50); near cave Gua Ngalau Indah near Payakunbuh, vii.1996 (MD/6); 7 km W. of Payakumbuh in direction Bukittinggi, limestone rock along road, vii.1996 (MD/10); cave near Situmbuk, 30 km E. of Bukittinggi, 00°21'05.6"S, 100°34'10.1"E (MD/6).

Description. — Shell globose-conical with a blunt top, a rounded base and convex lateral sides, straw-coloured, transparent. There is no peripheral keel, not even in young specimens. With a sculpture of fine spiral lirae and delicate growthlines which are visible at a magnification of x50. Whorls five, well rounded, separated by a rather deep suture. Last whorl rounded at the periphery and the base. Aperture semicircular, oblique; peristome not continuous, sharp, somewhat reflected at the columellar side and partly covering the narrow umbilicus.

Dimension: H 2.0 mm, B 2.3 mm.

Derivatio nominis. — Named after the striking similarity with *Liardetia javana*.

Remarks. — This species is very similar to *Liardetia javana*, mainly differing in the presence of a distinct radial striation.

FAMILY ENIDAE

Coccoderma glandula (Mousson, 1848)

Material. — W. Sumatra: Bukittinggi, Fort de Cock.

Remarks. — This Javanese species was probably introduced into Sumatra. It was found living at the shadow-side of concrete piles, covered with lichens, surrounding the area of Fort de Cock.

Schileyko (1998: 194), without knowing the anatomy of *Coccoderma* Von Moellendorff, 1901, classified this genus with the Pseudonapaeinae. However, this subfamily is anatomically characterized by, among others, a penial appendix, which is absent in *Coccoderma*. As long

as only juvenile specimens are available, no definite classification of this genus is possible. See Maassen (1998: 7) for additional information.

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