

ON A COLLECTION OF LAND AND FRESHWATER

AND

MARINE MOLLUSCA

FROM

WAIGEU, CERAM, PULU WEH AND JAVA

BY

M. M. SCHEPMAN.

PRAEDA ITINERIS  
a L. F. de Beaufort in Archipelago indico facti  
annis 1914—1915.

II.

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The Mollusca enumerated in this paper, have been collected by Dr. L. F. de Beaufort during his stay in our colonies; the majority is from Waigeu. No new species have been named, as the few specimens which are probably new, are in young or in poor condition, but some varietal names have been applied to forms which differ from the types by shape, or which, as for instance in *Xesta aulica* Pfr. have not been designed by names, as has been done for *X. citrina* Lin. many years ago, by E. von Martens. I have to thank Mr. G. K. Gude for assistance in naming some doubtful specimens and a few other authorities for the same or for loan of specimens. The few marine species have no special interest.

A. LAND AND FRESHWATER MOLLUSCA.

**PULMONATA.**

Suborder GEOPHILA.

Fam. *Limacidae*.

**Microparmarion** Simroth.

1. *Microparmarion* n. sp.

Java. Tosari, 6000 feet. March 1910.

The only specimen was unknown to me. Mr. Collinge, who had the kindness to study it, writes about it: „The *Microparmarion* is certainly a new species, unfortunately it is immature but differs from any other species I know of, in the form of the vestibule, penis and dart-sac. It undoubtedly belongs to that section or group, possessing the large vestibule and elongated dart-sac, of which *M. javanica* Cllge. and *M. Austeni* Smr. are typical representatives”. As moreover the shell was wanting, I think it is preferable not to name the species, as it is not probable that it should be recognized by the description of the external appearance of

the soft parts and by the description or even figure of the immature generative organs. The animal is of a dark grey tinge, with black clouds on its tail and black spots on the mantle, lighter and more brown under the mantle and at the sides or front half of body, with two black streaks on the back behind the ommatophores. Length about 20 mill.

Fam. *Zonitidae*.

*Xesta* Albers.

1. *Xesta citrina* Linné.

LINNÉ. Syst. Nat. Ed. X, p. 771.

RUMPHIUS. Amb. Rariteitkamer, p. 92, Pl. 27, fig. P.

PFEIFFER. Mon. Helic. I, p. 53 pars; III, p. 60; IV, p. 41; V, p. 95; VII, p. 107.

PFEIFFER. Martini-Chemn. Conch. Cab. Ed. II, Helix, Vol. I, p. 212, Pl. 24, fig. 1, 2, Pl. 35, fig. 1—3; p. 405, Pl. 147, fig. 11—13, 15.

REEVE. Conch. Ic. Helix, Pl. 89, fig. 482.

v. MARTENS. Ostas. Landschn. p. 193, Pl. 6, fig. 1, 2, Pl. 7.

SEMPER. Reisen Philippinen, Vol. III, p. 63, Pl. 2, 4, fig. 30 (Anat.).

TAPPARONE CANEFRI. Fauna Mal. N. Guinea, p. 196, Pl. 8, fig. 2 (Anat.).

TRYON. Man. of Conch. Ser. II, Vol. II p. 72, Pl. 20, fig. 88—94 (incl. vars.).

*a. typica*. Two specimens with a brown band, two with only the opaque white zone, one pale brown with dark band.

Amboina. March 1910.

*b. var. ex col. dimidiata* v. Martens, l. c. p. 194, Pl. 7, fig. 5.

Amboina, a few specimens in which the difference in colour between upper and basal part of shell is but slight, thus forming a passage between the type and variety.

Western Ceram, Honitetu, Feb. 1910. Four specimens, rather young, belong to this variety, which has not yet been recorded from Ceram, and may be ascribed to the typical form with thin shell; in one of them, the contrast of upper and basal part of shell is very conspicuous, less so in the other ones; they are brown banded; a fifth specimen pale purplish-brown, with a white zone and only a trace of a peripheral brown band, is only slightly paler below and by its colour and shape, seems to be allied to var. *tiara* Beck, but is too thin, I think not only on account of youth.

*c. var. columellaris* Beck. v. Martens, l. c. p. 194, Pl. 7, fig. 2, 6, 8.

Western Ceram, upper part of river Tuba, Febr. 17, 1910. Honitetu, Febr. 1910.

One specimen from the river Tuba by its shape, sculpture and thick shell belongs to this variety, it has no dark umbilical patch and is of a very pale colour, with a narrow, dark brown band; both specimens from Honitetu agree in shape, but one of them has a thinner shell and in colour it approaches the var. *dimidiata* v. Marts.

2. *Xesta aulica* Pfeiffer, fig. 1.

PFEIFFER. Proc. Zool. Soc. Lond. 1852, p. 56.

PFEIFFER. Mon. Helic. I, p. 53 (*citrina* var.); III, p. 61; IV, p. 41; V, p. 95; VII, p. 107.

PFEIFFER. Martini-Chemn. Conch. Cab. Ed. II, Helix, Vol. II, p. 406, Pl. 147, fig. 10; Vol. I, Pl. 35, fig. 4, 5.

REEVE. Conch. Ic. Helix, fig. 481.

v. MARTENS. Ostas. Landschn. p. 199, Pl. 8, fig. 2, 3.

TAPP. CANEFRI. Fauna Mal. N. Guinea, p. 197.

TRYON. Man. of Conch. Ser. II, Vol. II, p. 73, Pl. 20, fig. 96—100.

Waigeu, Pulu Beo in Telago Majalibit; Dec. 1909, Jan. 1910, many specimens.

The specimens are very numerous, they are very variable in colour and slightly so in

sculpture, many having a groove at some distance from the suture and nearly belong to the var. *gibbosa* v. Marts. (Reeve, l.c. fig. 481 c) but the groove and gibbosity seem to be less developed, moreover they differ in colour.

As to colour, I can separate the specimens which have been collected in four varieties:

a. var. ex col. *beoensis* Schepman, more or less orange or orange-yellow, with a broad, opaque, white zone at periphery and a narrow one below the suture, the top commonly more red, and a broad band of a brownish-orange colour at the periphery, sometimes fading near the aperture.

b. var. ex col. *cinerea* Schepman, like the preceding, but of a thinner, more hyaline texture, the top lighter, the peripheral darker band often less conspicuous, the whole shell of a yellowish-grey tinge; this variety nearly merges into the preceding one, it much resembles PFEIFFERS' figure Pl. 35, fig. 4, 5 (l.c.).

c. var. ex col. *albida* Schepman, white, with a broad, blackish-brown band on the opaque peripheral zone and a purplish patch around the umbilicus. This variety has been figured by v. Martens, Ostas. Landschn. Pl. 8, fig. 3, (copied by Tryon, Pl. 20, fig. 100).

d. var. ex col. *aurantia* Schepman, resembling the preceding var. but of an orange colour, the band often darker, also with a purple umbilical patch.

A specimen of var. *beoensis* has been captured while laying eggs, 65 in number, they are large, nearly globular, length about  $5\frac{3}{4}$ , breadth about  $5\frac{1}{4}$  Mill. with a calcareous, slightly granose shell, yellowish-white.

The radula, fig. 1, has about 341 rows of teeth; the median tooth (m.) has a long, slender, pointed cusp, much surpassing the base; the cusp of the admedian rows (1) is considerably broader, but likewise surpassing the base, after these a large number of lateral rows has only a plain cusp (u 1), while another larger series, continuing to the margin is bicuspidate (u 2).

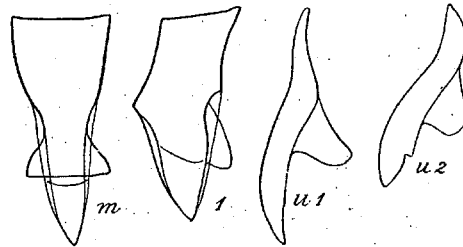


Fig. 1.

The maxilla is horny with blunt corners.

A very young specimen from Jeffum, Waigeu, collected Jan. 4, 1910, may belong to this or to the preceding species. Another naninoid shell from Beo, evidently does not belong to the known species from Waigeu, as the whorls are too narrow, but it is too young for identification.

#### Hemiplecta Albers.

##### 1. *Hemiplecta patens* v. Martens.

v. MARTENS. Archiv f. Naturgeschichte, 1899, p. 27, Pl. 3, fig. 1.

SCHEPMAN. Proc. Mal. Soc. Lond. Vol. X, 1912, p. 230.

Java, Tosari, 6000 feet. March 1910.

The specimens are not full-grown, the diameter of the largest one being only 37 mill. (45 in v. Martens' type) some of them appear to be more elevated, if compared with the figure of v. Martens, but the specimens I have seen, vary more or less in this respect: otherwise I find no differences of any importance, that can not be ascribed to the younger state. As related in my quoted paper, Prof. Thiele has formerly compared specimens from my private collection, with the type in the museum at Berlin.

#### Fam. *Helicidae*.

##### *Plectotropis* v. Martens.

##### 1. *Plectotropis* sp.

Java. Tosari. 6000 feet. March 1910.

Two specimens of a small snail evidently belong to *Plectotropis*; they are corneous, hairy,

more conical than *P. winteriana* Pfr. though probably allied, but they are still very immature and so I think it not advisable to name them. *Pl. Schepmani* Mildff. differs by its spiral striae, in *Pl. tenggerica* Schepm. the umbilicus is still much smaller and the new form is considerably smaller, than that species will be with an equal number of whorls.

### Planispira Beck.

#### 1. *Planispira zonaria* Linné.

LINNÉ. Syst. Nat. Ed. XII, p. 1245.

Of this species the following varieties have been collected:

##### a. var. ex col. *lineolata* v. Martens.

v. MARTENS. Ostas. Landschn. p. 310, Pl. 16, fig. 6, Pl. 19, fig. 6.

RUMPH. Amb. Rariteitkamer, p. 92, Pl. 27, fig. O.

PILSBRY. Man. of Conch. Ser. II, Vol. VI, p. 278, Pl. 44, fig. 4, 5.

Amboina. March 1910.

##### b. var. ex col. *fulminata* v. Martens.

v. MARTENS. Ostas. Landschn. p. 310, Pl. 16, fig. 9.

PILSBRY. l. c. Pl. 44, fig. 10.

Buru, Kajeli.

##### c. var. ex col. *coluber* Beck.

BECK. Index, pag. 30.

PFEIFFER. Martini-Chemn. Conch. Cab. Ed. II, Helix, Vol. I, p. 49 Pl. 6, fig. 8, 9,  
Pl. 14, fig. 11, 12.

v. MARTENS. Ostas. Landschn. p. 311, Pl. 16, fig. 7, (*lumulata*).

PILSBRY. l. c. Pl. 45, fig. 6, 7.

Western Ceram, Kairatu, Febr. 7, 1910; upper part of river Tuba, Febr. 17, 1910;  
Honitetu, Febr. 1910.

The specimens which I have united under this head, differ in markings, according to the localities; in those from Kairatu, the brown flames are much less developed than in those from river Tuba and Honitetu, where the flames run from suture to suture, across the whorls, in those from the latter locality the brown basal bands are very conspicuous; these differences are however gradual, so it is not desirable to apply new names to any of these slight varieties. The anatomy has been treated by Tapparone Canefri (Fauna Mal. N. Guinea, p. 181, Pl. 7, fig. 8, Pl. 9, fig. 1 and 19) and by Pilsbry (Man. of Conch, Vol. IX, p. 110, Pl. 12, fig. 1, 2, 3, 7).

#### 2. *Planispira (Cristigibba) corniculum* Hombron & Jacquinot, var. $\beta$ Tapp. Canefri.

HOMBRON & JACQUINOT. Voyage an Pole Sud. Pl. 5, fig. 10—13.

REEVE. Conch. Ic. Helix, fig. 502.

PFEIFFER. Martini-Chemn. Ed. II, Helix, Vol. III, p. 425, Pl. 149, fig. 16, 17.

TAPP. CANEFRI. Fauna Mal. N. Guinea, p. 180, suppl. p. 31 (var.  $\beta$ ).

PILSBRY. Man. of Conch. Ser. II, Vol. VI, p. 291, Pl. 46, fig. 65—67.

Waigeu, Waiu-waigé. Dec. 25, 1909.

The only specimen belongs to var. *beta* Tapparone Canefri by its rosy peristome, it agrees very well in shape, but is less depressed than specimens from New Guinea and slightly larger, its diameter being at least 23 Mill.; its band is very broad and the last half of ultimate whorl, above the band is dark purplish. I believe it is the first record for Waigeu as neither

one of the quoted authors nor Gude (A classified list of the helicoid landshells of Asia 1903) has mentioned it from that island.

3. *Planispira (Cristigibba) tortilabia* Lesson, var.

LESSON. Voy. Coquille, Zool., Vol. II, p. 311, Pl. 13, fig. 1.

REEVE. Conch. Ic. Helix, fig. 498.

TAPPARONE CANEFRI. Fauna Mal. N. Guinea, p. 171, (Forma, B, var.  $\gamma$ ).

PILSBRY. Man. of Conch. Ser. II, Vol. VI, p. 294.

Waigeu, Naperboi. Dec. 20, 1909.

I was much in doubt about the only specimen that has been collected; it is smaller than typical specimens, its largest diameter being only  $19\frac{1}{2}$  Mill., the crest behind the peristome is but weakly developed, the base more inflated, the peristome agrees with the type in its basal part, but is more flatly expanded above, moreover it was not yet known from Waigeu. Mr. Gude however, who had the kindness to compare it with his own collection and that of the British Museum, declared it to be a form of this variable species; it may belong to the small form B of Tapp. Canefri (l. c.) and to his var. ex col.  $\gamma$ , with dark band and rosy peristome, represented by the quoted figure of Reeve.

4. *Planispira (Cristigibba) leptocheila* Tapparone Canefri.

TAPPARONE CANEFRI. Ann. Mus. Civico St. Nat. Vol. XX, 1887, p. 150, Pl. I, fig. 14—16.

PILSBRY, Man. of Conch. Ser. II, Vol. VI, p. 296, Pl. 61, fig. 25—27.

Waigeu, Bajon. Jan. 1, 1910.

Of this species, as far as concerns the type, only one specimen has been collected, the quoted authors record it from the Moluccas, without exact locality, perhaps the original specimens are likewise from Waigeu; in my private collection I have a specimen probably from the Aru-islands, at all events it is a new record for Waigeu.

var. *efasciata* Schepman, fig. 2.

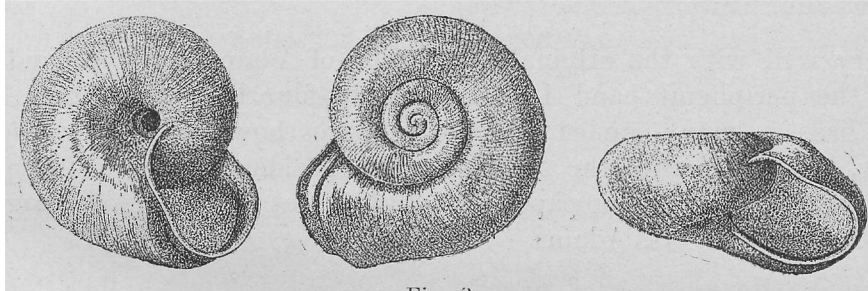


Fig. 2.

This variety differs slightly from the type in shape, the last whorl being more rounded, which is especially conspicuous on the base, the brown band is wanting, the rosy colour of the peristome, extends a little behind it. Mr. Gude who looked at it, thinks there is no reason to separate it specifically, and after comparing it again, I must confess, these differences are only very slight.

Waigeu, Beo. Jan. 1910.

*Albersia* H. Adams.

1. *Albersia waigiouensis* Sykes.

SYKES. Journal of Malacology, Vol. XI, 1904, p. 88, Pl. 9, fig. 16.

Waigeu, Sepon Karèn, Dec. 25, 1909. Bajon Jan. 1, 1910.

The specimens agree rather well with the description of Sykes, the whitish band is

conspicuous; the specimen from Bajon is young, but in the other one, the tubercle of the columellar part of peristome is present, however the spire is higher and agrees more with the figures of *A. granulata*, so I am not quite convinced that the specimens from Waigeu will prove to be specifically distinct from the type of *A. granulata*, which has been recorded from Port Dorey, N. Guinea. If the tubercle of the peristome proves to be constant, in the specimens from Waigeu, this would be the best character, to distinguish the two forms, in accordance with the differences of sculpture.

**Papuina v. Martens.**

1. *Papuina Aurora* Pfeiffer.

- PFEIFFER. Proc. Zool. Soc. London, 1862, p. 271.  
 PFEIFFER. Novit. Conch. Vol. II, p. 72, Pl. 54, fig. 9—11.  
 PFEIFFER. Mon. Helic. Vol. V, p. 341.  
 TAPPARONE CANEFRI. Fauna Mal. N. Guinea, p. 145.  
 PILSBRY. Man. of Conch. Vol. VII, p. 41, Pl. 11, fig. 10, 11, 2.

Waigeu, Beo. Jan. 1910.

One fine specimen has been collected, which is in size intermediate between the type of Pfeiffer (30 Mill.) and the var.  $\alpha$  of Tapp. Canefri (38 Mill.), the largest diameter being nearly 35 Mill. The keel of the last whorl is not very conspicuous and disappears on the last half, so it is also intermediate in this respect.

2. *Papuina waigiouensis* H. Adams.

- H. ADAMS. Proc. Zool. Soc. London, 1865, p. 415, Pl. 21, fig. 6, 7.  
 PFEIFFER. Mon. Helic. Vol. V, p. 339.  
 TAPPARONE CANEFRI. Fauna Mal. N. Guinea, p. 147.  
 PILSBRY. Man. of Conch. Vol. VII, p. 43, Pl. 17, fig. 34, 35.

Waigeu, Beo. Jan. 1910.

Agreeing very well with the original description of Adams, but the bands are commonly broader; above the peripheral band I find three to four bands, of which 2 are united on last whorl, the base is many-banded; if one compares however the two figures of Adams, copied by Pilsbry, it appears that the species varies considerably in this respect. The species has been mentioned in the same paper by Wallace as *Papuina*, on page 411, as *Helix* (*Geotrochus*) on page 415, by H. Adams.

Fam. *Oncidiidae*.

**Oncidium** Buchanan.

1. *Oncidium* sp.

Waigeu, small river near Gå. Jan. 4, 1910.

The collection contains only one rather small specimen of an *Oncidium*, its length in a contracted state is nearly 10 Mill., its breadth 8 Mill. of which nearly  $3\frac{1}{2}$  come to the foot, the back is dark greyish-brown, with black spots at the sides and a few lighter spots near the centre. Besides the scattered blackish and grey oculiferous tubercles, I see many large and small tubercles. The base is lighter greyish- the sole yellowish-brown. Mr. Collinge writes about it, it differs from anything he has seen, but that his experience with the group is too poor, to express a decided opinion. Dr. Simroth refused to look at it. Under these circumstances, I abstain myself from describing as new this only, perhaps young specimen.

## Suborder GEHYDROPHILA.

Fam. *Auriculidae*.**Pythia** Schumacher.1. *Pythia* sp.

Waigeu, Waiu-waigé. Dec. 25, 1909.

Two very young specimens undoubtedly belong to this genus; as the largest one has only a length of 10½ Mill., the smaller one of 8½ Mill., they are unfit for identification; this smaller one has conspicuous brown bands, traceable only in the larger one.

## Suborder HYDROPHILA.

Fam. *Limnaeidae*.**Limnaea** Lamarek.1. *Limnaea javanica* Mousson.

MOUSSON. Land- u. Süßw. Moll. von Java, p. 42, Pl. 5, fig. 1.

v. MARTENS. Malak. Blätter, XIV, 1867, p. 222.

v. MARTENS. Conch. Mittheilungen, Vol. I, p. 87, Pl. 16, fig. 1—10.

v. MARTENS. Süß- u. Brackw. Moll. des Ind. Archipels, p. 3, Pl. 1, fig. 3—7, Pl. 12, fig. 2, 4.

Java, Lawang, kali below a cataract. Nov. 24, 1909.

As this specimen is young and moreover slightly damaged, it is not to be made out to which of the numerous varieties, described by v. Martens, it belongs.

**PROSOBRANCHIATA.**

## Suborder PECTINIBRANCHIATA.

Fam. *Melanidae*.**Melania** Lamarek.1. *Melania (Sulcospira) testudinaria* v. d. Busch.

PHILIPPI. Abb. u. Beschr. neuer Conch. Vol. I, p. 3, Pl. 1, fig. 14.

BROT. Martini-Chemn. Conch. Cab. Ed. II, *Melania*, p. 49, Pl. 6, fig. 3.

v. MARTENS. Süß- u. Brackw.-Moll. p. 31.

P. & F. SARASIN. Süßw.-Moll. von Celebes, p. 28, Pl. 5, fig. 69, Pl. 6, fig. 92.

Java, Kali Taman, Salatiga, Nov. 1909. Lawang, kali below cataract. Nov. 24, 1909.

The quotation of P. & F. Sarasin regard the operculum and radula of their var. *perconica*.

2. *Melania (Stenomelania) funiculus* Quoy & Gaimard Fig. 3.

QUOY & GAIMARD. Voy. Astrolabe. Zool. Vol. III, p. 158, Pl. 56, fig. 43, 44.

BROT. Martini-Chemn. Conch. Cab. Ed. II, *Melania*, p. 136, Pl. 17, fig. 1.

Amboina, river Batu Merah. Dec. 6, 1909.

One large specimen, strongly decollated, with about 5½ remaining whorls, has still a length of about 83 Mill., it is strongly plicate below the suture of the last 4 whorls, with



2 spiral grooves just below that suture, the other specimens are comparatively smooth, with eventually faint ribs and a few spiral striae, much younger ones with the spire nearly entire, are beautifully flammulated.

The operculum, which was unknown to Brot, is dark brown, with a basal nucleus, and especially in the basal part, conspicuously radiately striated, less so in the upper part, with eventually stronger rib-like striae; this sculpture is more or less crossed by fine, concentric striae, which give to the radiating ones a nearly granular appearance. Its interior surface is dull in the centre, with a shining, rib-like rim at the whole periphery, broader at the outer margin, the basal half of central part, with a thickened rim and some rugosities at the spot

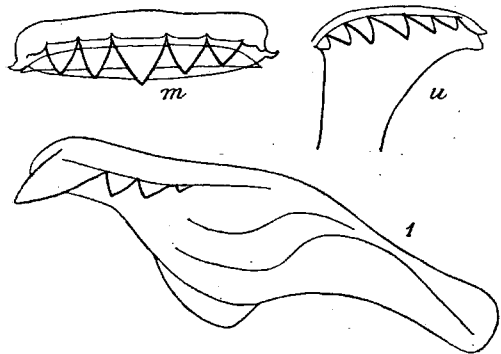


Fig. 3.

where the operculum has been attached. Mantle yellowish-grey, with a smooth, dark margin, and on its inner side with 5 or 6 lobes, of which the 3<sup>d</sup> and 4<sup>th</sup> from the left rather large; back and head blackish, with yellowish-grey, black-lined margins. The jaws consist of subquadrate plates, with rounded corners.

The radula, fig. 3; has a median row (m) of narrow, transverse teeth, with 5 cusps, of which the median one is considerably larger than the lateral ones, at each side is a little hook-like process and the basal part has on each posterior corner a point; the admedian tooth (1) has 5 denticles, nearest to the median tooth a small, then a very large one,

followed by 3 smaller ones, of which the distal one is by far the smallest, on each of the two elongated uncini (u) I see 8 denticles, which are largest in the centre, regularly diminishing in size towards the sides.

### 3. *Melania (Stenomelania) moluccensis* Quoy & Gaimard, Fig. 4.

QUOY & GAIMARD. Voy. Astrolabe, Zool. Vol. III, p. 151, Pl. 20, fig. 22—25.

BROT. Martini-Chemn., Conch. Cab. Ed. II, *Melania*, p. 166, Pl. 20, fig. 2.

Amboina, River Batu Merah, Dec. 6, 1909.

Waigeu, Waisa, Jan. 18, 1910; River Waihã, freshwater above the rapids, Dec. 20, 1909.

The largest specimen from Waisa, has a somewhat different aperture, probably by having been broken and repaired. In the only one from Waihã, the columella is less turned to the left, a character ascribed by Brot (l. c. p. 167) to *M. erosa* Less., but I find the same in more or less degree in juvenile specimens from Waisa, moreover the sculpture agrees, the lirae are not quite flat, as should be the case in *M. erosa*. Tapparone Canefri thinks the two (and *arctecava* Mouss.) may prove to constitute only one species. I think the differences at least between *M. moluccensis* and *erosa* are very slight.

The operculum is of the same type as in the preceding species, but I find no or scarcely any traces of concentric striae; the shining, thickened part of the inner surface is much



Fig. 4.

broader. Soft parts brownish-yellow, margin of the mantle with 3 or 4 larger lobes on the left side and about 10 small ones on the rest of its length.

The median tooth (m) of the radula, fig. 4, has a broadly pentagonal shape, with its

posterior margin protracted triangularly, the posterior lateral corners with small points, its cusp with 5 denticles, of which the median one is very broad; the admedian teeth (1) have a very elongated tail, the principal denticle of the cusp is very large, with a small denticle at its proximal side, in most cases nearly or quite covered by the large one, and 2 smaller but distinct ones, at its distal side, with a third very small one, which is often scarcely perceptible; the elongated uncini have 8 or 9 long denticles at their cusp.

4. *Melania (Stenomelania) uniformis* Quoy & Gaimard.

QUOY & GAIMARD. Voy. Astrolabe, Zool., Vol. III, p. 154, Pl. 56, fig. 30—33.

BROT. Martini-Chemn. Conch. Cab. Ed. II, *Melania*, p. 124, Pl. 15, fig. 3.

v. MARTENS. Süß- u. Brackw. Moll. p. 46.

P. & F. SARASIN. Süßw.-Moll. von Celebes, p. 40, Pl. 5, fig. 76, Pl. 7, fig. 105, 105 a.

Amboina, River Batu Merah. Dec. 6, 1909.

Waigeu, River Waihã, freshwater above the rapids. Dec. 20, 1909.

The specimen from Waigeu is still young, having only a length of 21 Mill., so its identification remains a little doubtful, it agrees in most respects with a specimen from the Philippines, but I see no plicae on the upper whorls: as the spire is eroded, it may be that they have been present in a few of the uppermost ones; the last whorl, if seen by transparent light, has a row of regular, small, brown spots below the suture, in accordance with Brots' description, and many rows of very small brown points on the rest of its surface, more crowded near the base. One of the smaller specimens from Amboina has the same colour-markings, in another small one they are much less numerous, in the larger ones, the last part of last whorl is at least without any spots, but as the shells are covered by a black layer, it is possible that the former whorls may be spotted; in these shells the upper whorls are likewise wanting. The figures of Sarasin represent the operculum and radula, the operculum of a specimen from Amboina has a rather rude aspect, caused by strong concentric striae, which at distances are separated by a few grooves, some spiral striae cross them. Soft parts, if cleaned of mud, yellowish-olive, margin of the mantle with 4 larger lobes, on their left side, the rest of the mantle is nearly smooth or slightly crenulated, but without real lobes.

5. *Melania (Stenomelania) pantherina* v. d. Busch.

v. d. BUSCH. Malak, Blätter, Vol. V, 1858, p. 33.

BROT. Martini-Chemn. Conch. Cab. Ed. II, *Melania*, p. 172, Pl. 20, fig. 8.

Pulu Weh, Sabang, Nov. 2, 1909, small stream along the road.

Amboina, River Batu Merah. Dec. 6, 1909.

The shells vary in markings, that from Pulu Weh has the flames but slightly interrupted, those from Amboina have large brown spots below the suture and small lines of the same colour on the rest of shell, remembering *M. punctata* (Brot, l. c. Pl. 20, fig. 4) and *M. fulgurans* (Brot, l. c. Pl. 21, fig. 13) but from the first species they differ by narrower shape than specimens of the same size, from the latter by the lacking of ribs on the upper whorls, as far as this can be made out in more or less eroded specimens; in the shells from Amboina I find no trace of ribs, in that from Pulu Weh it remains a little doubtful, but it agrees in most other respects, though a trifle broader.

6. *Melania (Melanoides) tuberculata* Müller.

MÜLLER. Hist. Verm. N° 378.

BROT. Martini-Chemn. Conch. Cab. Ed. II, *Melania*, p. 247, Pl. 26, fig. 11.

v. MARTENS, Süß- u. Brackw.-Mollusken, p. 56.

Waigeu, Njanjef. Dec. 25, 1909.

To this species I must bring 2 small specimens, evidently young, only 12—13 Mill. in

length, the upper whorls with the characteristic sculpture, the lower ones with a smoother upper part; they much resemble *M. unifasciata*, Mouss., but have no basal band, so I can see only young specimens of the polymorphous *M. tuberculata* in them. (cfr. the var. *seminuda* of v. Martens).

7. *Melania (Plotia) granum* v. d. Busch, fig. 5.

PHILIPPI. Abb. u. Beschr. neuer Conch. Vol. I, p. 4, Pl. 1, fig. 7.

BROT. Martini-Chemn. Conch. Cab. Ed. II, Melania, p. 270, Pl. 27, fig. 12 b.

v. MARTENS, Süß- u. Brackw.-Mollusken, p. 65.

Java, Lawang, in a river below cataract, Nov. 24, 1909.

var. *buccinoidea* Mousson.

MOUSSON. Land- u. Süßw. Mollusken von Java, p. 77, Pl. 12, fig. 4.

BROT. l. c. fig. 12, 12 a (inermis).

Java. Salatiga, Kali Taman, Nov. 1909.

Of the typical specimens, one is nearly uni-coloured, brown with darker ribs, the other yellowish-green with brown spots, the specimens belonging to var. *buccinoidea* are of the latter colour.

The operculum of a specimen of the variety is thin, reddish-brown, with an indistinct darker nucleus in its basal left corner, and a darker, thickened, oval spot in its lower half, externally it has the usual radiating striae, which are however rather faint. The margin of its mantle has 4 more distinct lobes on its left side, the rest is slightly crenulated; the soft parts are light yellowish-grey. The animal contained many young ones, of which the largest one has a shell of about  $1\frac{1}{4}$  Mill. in length, in a typical specimen it reached about  $1\frac{3}{4}$  Mill. All, if large enough, exhibit the brown columellar stain.

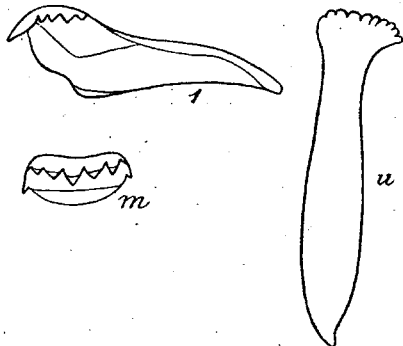


Fig. 5.

The radula of a typical specimen (fig. 5) has a median tooth (m) with a broad base, of which the posterior margin is convexly rounded, with small points at the sides, the cusp has 5 distinct denticles, of which the median one is the largest and on each side, in most cases a very small denticle; the admedian teeth (l) have a moderately large principal denticle, with a smaller one at its proximal side, which in the normal position is quite or nearly covered, on its distal side I find 4 small ones, the rather long uncini (u) have about 10 denticles.

8. *Melania (s. str.) setosa* Swainson.

SWAINSON. Quarterly Journ. of Science, 1824, p. 13.

BROT. Martini-Chemn. Conch. Cab. Ed. II, Melania, p. 297, Pl. 30, fig. 5, Pl. 31, fig. 7.

v. MARTENS. Süß- u. Brackw.-Moll. p. 66.

TROSCHEL. Gebiss der Schnecken, Vol. I, p. 121, (*Melacantha setosa*) Pl. 9, fig. 11.

P. & F. SARASIN. Süßw.-Moll. v. Celebes, p. 50, Pl. 8, fig. 109.

Amboina, river Batu Merah. Dec. 6, 1909.

Waigeu, Waihä, above the rapids, Dec. 20, 1909, River at Mumes, Dec. 29, 1909, Waisa, Jan. 18, 1910.

The radula has been figured and described by Troschel and the Sarasins. The shell of a much eroded specimen from Mumes, has a tooth-like tubercle about halfway on the columellar margin, which must be considered to be accidental, (as it is otherwise quite typical) and has

the appearance of being a strong development of the common protracted part of the margin. Brot, l. c. has figured the operculum.

The soft parts are yellowish-olive, on the dorsal parts however blackish to intense black, which seems to be due, at least in part, to particles of mud, which in many of the preceding species, could be easily rubbed off, the free margin of the mantle has about 25 lobes, of which the left 3 ones are by far the largest, followed by a couple of smaller ones, the rest being considerably smaller.

9. *Melania (Tiaropsis) rudis* Lea var. *cylindrica* n. var. fig. 6.

Shell much more cylindrical than the type, the uppermost of the 3 remaining whorls having a diameter of 5, the last only of  $7\frac{1}{2}$  Mill.

Alt.  $21\frac{1}{2}$ , lat.  $7\frac{1}{2}$ , apert. alt.  $8\frac{3}{4}$ , lat.  $3\frac{1}{2}$  Mill.

West Ceram, Kairatu, Febr. 16, 1910.

This specimen has much puzzled me, its shape being considerably different from the figures and measurements of Brot. (Martini-Chemn. Conch. Cab., Ed. II, *Melania*, p. 305, Pl. 32, fig. 1—1 c) the sculpture is less coarse, the aperture more elongate, however, amongst my 3 specimens labelled „Phu-Yen”, one agrees rather well in sculpture and somewhat in shape (alt. 21, lat.  $8\frac{1}{2}$  Mill.). It differs in the same manner from an allied species from Java, described by Preston (Journ. of Mal. 1904, p. 51, Pl. 4, fig. 3) as *M. fortitudinis*, which seems to be the same, though much larger, as *M. Moussoni*, named but not described by Boettger, which has the ribs more oblique and a more oval shape; in sculpture it is still nearer to *M. drilliiformis* Bttg. (undescribed) from Java, which is however quite ovate and has the ribs oblique. Perhaps if many specimens of these forms could be compared, they should prove to belong to one species (*rudis*) or the variety described above, might have specific rank, I preferred however to describe this single specimen only as a variety.

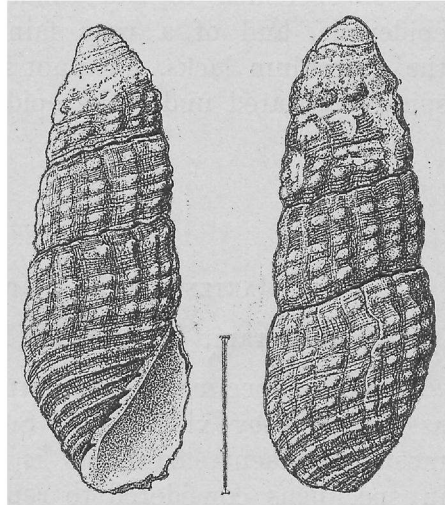


Fig. 6.

10. *Melania (Tarebia) celebensis* Quoy & Gaimard.

QUOY & GAIMARD. Voy. Astrolabe, Zool. Vol. III, p. 152, Pl. 56, fig. 26—29.

BROT. Martini-Chemn. Conch. Cab. Ed. II, *Melania*, p. 317, Pl. 32, fig. 15.

v. MARTENS, Süßw.- u. Brackw.-Moll. p. 69.

Amboina, River Batu Merah. Dec. 6, 1909.

Sarasin (Süßw.-Moll. von Celebes, p. 46) unites this form with *M. granifera* Lam., the only specimen agrees by its narrow shape and columella with the description and figures of Brot and with specimens named by him, so I have kept it separated.

11. *Melania (Tarebia) asperula* Brot.

BROT. Martini-Chemn. Conch. Cab. Ed. II, *Melania*, p. 327, Pl. 33, fig. 11.

Java. Kali Taman, near Salatiga. Nov. 1909.

The specimen is young, the basal band is well developed, the peripheral one very faint, the sculpture nearly absent. As however I find the sculpture in numerous specimens from Banjuwangi, Java, fainter on the upper whorls, I have no doubt that this shell must be identified with that species.

Fam. *Cyclostomatidae*.**Cyclotus** Guilding.1. *Cyclotus* sp.

Waigeu. Beo. Jan. 3, 1910.

The only specimen has the appearance of being not quite developed, though nearly so, the peristome being very narrow and thin. It seems to be allied to *C. guttatus* Pfr. but is smaller than the smallest specimen recorded by v. Martens (Ostas. Landschn. p. 119); perhaps, if more materials had been collected, it should prove to deserve a new name. Alt.  $7\frac{1}{2}$ , lat.  $13\frac{1}{2}$  Mill.

**Adelomorpha** Tapparone Canefri.1. *Adelomorpha?* sp.

Waigeu. Small brook near Njanjef. Dec. 25, 1909.

A specimen in bad condition seems to belong to this genus, it shows traces of an epidermis, and of a very faint keel with still one scaly hair and traces of other ones; as the operculum lacks, I cannot identify its generic position with certainty. The shell is closely spirally striated under the epidermis. Alt. 7, lat. nearly 6, apert. alt. 3, lat.  $2\frac{1}{2}$  Mill.

**Leptopoma** Pfeiffer.1. *Leptopoma vitreum* Lesson var. *latilabre* v. Martens.

v. MARTENS. Ostas. Landschn. p. 144, Pl. 4, fig. 5.

West Ceram, River Tuba, Febr. 17, 1910; Kairatu, Febr. 1910; Honitetu, Febr. 1910.

A few specimens have faint traces of spiral keels, one from Honitetu has brown streaks, as recorded by v. Martens. Some authors regard this form as a good species; one of the most prominent characters is the broad, flat peristome, which is broader and flatter than in specimens considered to represent the type, moreover it has a stronger inner peristome; however v. Martens says in describing the type: „peristoma duplex”, which character is lacking in specimens from Java and Celebes. I have followed the views of v. Martens. In order to satisfy myself still more, I have examined the radula, which exhibits no differences of any importance, from the beautiful drawings of the Sarasins (Die Landmollusken von Celebes, Pl. 7, fig. 77).

2. *Leptopoma diplochilus* Sykes, fig. 7.

SYKES. Journ. of Malacology, Vol. X, 1903, p. 66, Pl. 6, fig. 16—18.

var. *erythrostoma* n. var. Top and last part of last whorl of shell often, inner peristome always red, rest of shell more or less yellowish-white, in few cases typical.

This species seems to be very variable in many respects; though Sykes does not mention the colour of the peristome, I can scarcely think he should have omitted to do so, if his shell had been red-lipped interiorly, this being a very prominent character; otherwise the specimens agree in shape and in most other particulars with his description, so I prefer to give to the shells under consideration only varietal rank. Otherwise the specimens vary much in size and in colour-markings, only a few have narrow brown bands, many have more or less conspicuous brown spots, sometimes united to flames or are without markings at all, the red colour is spread over a larger or smaller part of the top and last part of body-whorl, in many instances the interior of the umbilicus is brown; as to sculpture I find a few rather conspicuous spirals on the upper whorls, fading on the lower ones and not visible or only represented by faint traces on last whorl. The exterior face of the outer

peristome is often plicate as in *Lept. crenilabre* Strub., the inner peristome projects more or less, probably on account of age, but reaches the extraordinary size recorded by Sykes. The species has been collected in considerable numbers from the following localities, all on Waigeu.

Waiu-waigé, Dec. 25, 1909; along river Rabiai, Dec. 31, 1909; Beo, Jan. 3, 1910; Jefjum Jan. 4, 1910; Waimenil, Jan. 5, 1910; Kaiawat, Jan. 6, 1910.

According to colour, I can distinguish the next varieties ex colore:

- a. *typica*, with more or less conspicuous bands, which are sometimes interrupted or pellucid.
- b. *maculata*, with more or less numerous brown spots, having sometimes a tendency to be united into flames.
- c. *unicolor*, quite or nearly without brown markings, but like the preceding varieties as far as concerns the recorded red tinges.

The radula of a specimen from Beo, Fig. 7, has no very special characters to distinguish it from those of *L. vitreum* or *celebesianum*, as figured by the Sarasins (Landmollusken von Celebes, pl. 7, fig. 77, 78), it agrees more with the last named species by the broad central

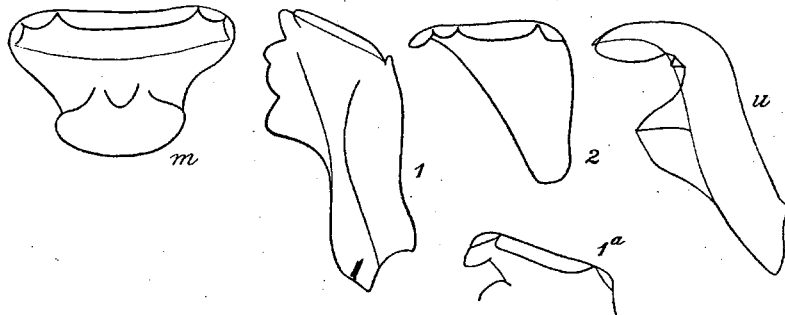


Fig. 7.

denticles of the median and first and second lateral teeth, the median tooth (m) seems to be broader in comparison to its length than in both species; as to the uncini (u), the wing-like process is more protracted and the list of the upper margin of that process stronger than in *vitreum*.

### 3. *Leptopoma (Leucoptychia) scalare* H. Adams, fig. 8.

H. ADAMS. Proc. Zool. Soc. London, 1865, p. 416, Pl. 21, fig. 9, 10.

PFEIFFER. Mon. Pneumonop. Suppl. III, p. 131.

CROSSE. Journ. de Conch. 1878, p. 164, (*Leucoptychia tissotiana*).

CROSSE. Journ. de Conch. 1879, p. 38, Pl. 1, fig. 2 (*Leucoptychia tissotiana*).

TAPPARONE CANEFRI. Fauna Mal. N. Guinea, I, p. 264, (*Leucoptychia tissotiana*); p. 265, (*L. scalaris*).

Waigeu. Sepon Karèn. Dec. 25, 1909.

The shells from this locality, though slightly broader and more depressed than the figure of Adams, are nearly typical, their diameter is 12 Mill. and consequently intermediate between that recorded for *scalare* (11) and *tissotiana* (12½), they agree in most respects more with the latter; as the species seems to be rather variable in measurements, such slight differences appear to be of little importance. It may be questioned if *L. tissotiana* has been really collected on the mainland of N. Guinea or on Waigeu, at least I have failed to find it recorded from any special locality on the mainland.

var. *lamellata* Sykes, fig. 9.

SYKES. Journ. of Malacology, Vol. X, 1903, p. 66, Pl. 6, fig. 10—12.

KOBELT. Abh. Senckenb. naturf. Ges. XXIV, 1897, p. 27, Pl. 5, fig. 8—10.

Waigeu. Njanjef, Dec. 25, 1909; Waiu-Waigé, Dec. 25, 1909; Bajon, Jan. 1, 1910; Beo, Jan. 3, 1910; Kaiawat, Jan. 6, 1910.

The numerous specimens vary in size, but are considerably larger than those I considered to be typical, the diameter being from  $14\frac{1}{2}$  to 16 Mill. This size and the depressed figure, made me suggest, that the form described by Kobelt, may be *L. lamellatum* of Sykes. I think that *scalare* and *lamellatum* are merely forms of one and the same species, excluding *L. multilabre* Lam, the figures of which differ much from those quoted above.

The operculum is rather strong, with many whorls, of which the outer ones have a more or less developed free margin in both forms.

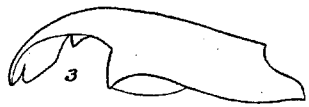


Fig. 8.

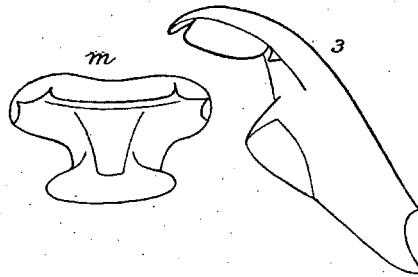


Fig. 9.

The radulae of the type fig. 8 and variety fig. 9 display no important differences, the teeth of the variety are larger than those of the type, in accordance with the size of the shells, the list on the upper part of the wing-like process of the laterals (3), seems to be stronger in the type, but a slight difference in the position of the teeth, if they are turned a trifle to the right or to the left, may produce a somewhat different aspect; the sinus of the basal margin of these laterals is in both cases a little more pronounced, than in the preceding species; the general construction of the radula, as may be seen also in the median tooth (m) does not suffice for the creation of a new section, still less of a new genus *Leucoptychia*, which, if desirable, must be founded on conchological characters.

Suborder SCUTIBRANCHIATA.

**RHIPIDOGLOSSA.**

Fam. *Neritidae*.

*Neritina* Lamarck.

1. *Neritina (Neritaea) pulligera* Linné

LINNÉ. Syst. Nat. Ed. XII, p. 1253.

LESSON. Voy. Coquille, Zool. Vol. II, p. 375.

v. MARTENS. Martini-Chemn., Conch. Cab. Ed. II, *Neritina*, p. 49, Pl. 1, fig. 4, 5.

Amboina. River Batu Merah, Dec. 6, 1909.

Waigeu. Waisa, Jan. 18, 1910; River Lam-Lam, North coast, Jan. 5, 1910; river near Munes, Dec. 20, 1909; Waihã, freshwater above the rapids, Dec. 20, 1909.

Lesson (l. c.) seems to have been the first who recorded this species from Waigeu.

2. *Neritina (Neritaea) Iris* Mousson var.?

MOUSSON. Land- u. Süßw.-Moll. von Java, p. 81, Pl. 12, fig. 10.

v. MARTENS. Martini-Chemn., Conch. Cab. Ed. II, *Neritina*, p. 52, Pl. 9, fig. 5, 6, p. 277.

Waigeu. Small stream running in the river Bajon. Jan. 2, 1910.

The only specimen was very puzzling. In shape it sufficiently agrees with *N. Iris* from Java, but in colour it differs by the black markings being more arranged in bands. As to the aperture, it agrees in the denticles of the columellar margin, but its colour is much fainter, scarcely any traces of red being visible, especially if dry, if wet it agrees a little

more. If one compares the figure of v. Martens (l. c.) with that of *N. Delesserti* Recl. (Journ. de Conch. 1853, p. 260, Pl. 7, fig. 2) which v. Martens (l. c. p. 277) pronounces to be most probably a synonym, one may observe that these characters are variable, and so I concluded, the shell under consideration may belong to *N. Iris*. The operculum is darker than in my specimens from Java.

3. *Neritina (Neritaea) variegata* Lesson.

LESSON. Voy. Coquille, Zool., Vol. II, p. 378.

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Neritina, p. 98, Pl. 10, fig. 11—17.

Pulu Weh, Sabang. Nov. 2, 1909, from a small stream along the road.

The characteristic red columellar spot is rather faint in some specimens, in one of them it is quite absent, the colour of the shells varies from blackish with yellowish spots, to yellow with a few black markings.

4. *Neritina (Neritaea) communis* Quoy & Gaimard.

QUOY & GAIMARD. Voy. Astrolabe, Zool., Vol. III, p. 195, Pl. 65, fig. 12—14.

LESSON. Voy. Coquille, Zool., Vol. II, p. 378 (Waigiensis).

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Neritina, p. 113, Pl. 11, fig. 1—9.

Waigeu. River Waiu-waigé. Dec. 25, 1909.

This species has been named *N. waigiensis* by Lesson, so he will have been the first to report its occurrence on Waigeu. The microscopic spirals on the shells are well developed.

5. *Neritina (Neritodryas) cornea* Linné.

LINNÉ. Syst. Nat. Ed. X, p. 777.

LESSON. Voy. Coquille, Zool. Vol. II, p. 372, Pl. 16, fig. 1 (amphibia).

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Neritina, p. 140, Pl. 12, fig. 14—18.

Waigeu. River Waiu-waigé. Dec. 25, 1909.

6. *Neritina (Neritodryas) subsulcata* Sowerby. Fig. 10.

SOWERBY. Conch. Illustr. N° 50.

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Neritina, p. 142, Pl. 12, fig. 11, 12.

Waigeu. River Rabiai, Dec. 31, 1909; brook near Njanjef, Dec. 25, 1909.

As far as I am aware this and the preceding species have not yet been recorded for Waigeu. The radula (fig. 10), much resembles that of *N. cornea* Lin. as figured by Troschel (Gebiss der Schnecken, Vol. II, p. 178, Pl. 16, fig. 15) under the name of *N. gagates* Lam., which is however, the same as *cornea*, according to v. Martens (l. c. p. 136) who has seen Troschel's specimen; an important difference is that the median tooth (m) is about as long as broad (much shorter in *cornea*), the anterior angles are blunt, but the posterior part is rounded, in consequence the whole tooth is more shield-like, the anterior and lateral margins are slightly thickened; the admedian teeth (1) seem to present no striking differences, the mushroom-like tooth (4) has the smooth margin of its cusp regularly rounded, not divided in two unequal parts as in *cornea*, the uncini have mostly smooth cusps, but those towards the margin of the radula are slightly crenulated and a few of the most external rows, which are however very difficult to observe, have several very fine and sharp denticles.

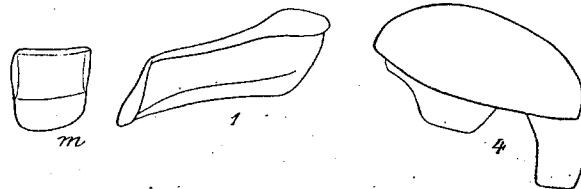


Fig. 10.



7. *Neritina (Clithon) brevispina* Lamarck.

LAMARCK. An. s. vert. Ed. II, Vol. VIII, p. 572.

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Neritina, p. 156, Pl. 17, fig. 1—4, 9.

Amboina. River Batu Merah, Dec. 6, 1909.

var. *mutica* v. Martens (l. c.).

One specimen from the same locality.

8. *Neritina (Clithon) haemastoma* v. Martens. Fig. 11.

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Neritina, p. 157, Pl. 13, fig. 6, 7.

West-Ceram. Honitetu, Febr. 1910.

It is not without some doubt that I have identified this specimen with *N. haemastoma* of v. Martens, but after I have compared the type from the Berlin Museum, which Prof. Thiele had the kindness to send me for inspection, I think this mollusk is a gigantic specimen of that species; there are some differences, but if one considers the utmost variability of many species of *Neritina* and the great difference in size, this may be ascribed partly to age, partly to variability. The shell, which is strongly eroded, has a diam. maj. of about 35 Mill. against 26½ in v. Martens' specimen, the colour of the aperture is identical, but the columellar plane is darker, the teeth on its margin fainter, scarcely perceptible; the columellar plane is flatter, more distinctly circumscribed by a ridge; the colour of the shell is nearly uniformly brown, with traces of coarse black network on the hinder part of last whorl; the eroded part is blackish, with a bluish tint. The operculum, which was unknown to v. Martens is nearly uniformly red or dark flesh-coloured, slightly darker near the columellar side, lighter at the nucleus, with a dark red external margin, the surface is without peculiar sculpture, only with coarse growth-striae (moreover accidental scratches) the characters of the inner surface could not be ascertained, without damaging the only specimen. As v. Martens' specimen was recorded from the Philippines, the locality is no objection for the identification.

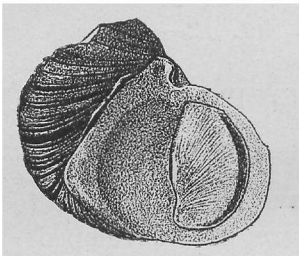


Fig. 11.

9. *Neritina (Clithon) subpunctata* Recluz.

RECLUZ. Proc. Zool. Soc. Lond. 1843, p. 199.

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Neritina, p. 179, Pl. 18, fig. 20, 22—24.

Waigeu. River Lam-Lam, on the Northern coast. Jan. 5, 1910.

Both specimens are young, the largest one is quite typical, the black markings of the very young one are extremely fine, more so than I ever have seen, this renders its identification a little doubtful.

10. *Neritina (Clithon) olivacea* Recluz.

RECLUZ. Proc. Zool. Soc. Lond., 1842. p. 172.

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Neritina, p. 183, Pl. 19, fig. 5—7.

Waigeu. Waimenil, Jan. 5, 1910.

The specimen is young, the black markings are identical with those of a specimen from the Wynkoops-bay, Java, but on this latter one the layer of olive is in most parts of the shell more conspicuous. The reddish colour on the hinder part of columellar plane, which is faint in that shell, is wanting in that from Waigeu.

**Septaria** Ferussac.1. *Septaria suborbicularis* Sowerby.

SOWERBY. Cat. Tankerville, App. p. X.

v. MARTENS. Martini-Chemn. Conch. Cab. Ed. II, Navicella, p. 31, Pl. 6, fig. 5—8, 11—14.

Waigeu. Waisa, Jan. 18, 1910. Small river near Mumes Dec. 20, 1909.

var. ex col. *furcato-radiata* v. Martens, l. c. fig. 9, 10.

Waigeu, with the other specimens from Waisa.

## B. MARINE MOLLUSKS.

**PROSOBRANCHIATA.**

## TOXOGLOSSA.

**Hastula** Adams.1. *Hastula strigillata* Linné var. *Verreauxi* Deshayes.

DESHAYES. Journ. de Conch. Vol. VI, p. 95, Pl. 5, fig. 3.

Waigeu. Sepon Karèn, from a cave. Dec. 25, 1909.

Darker but quite agreeing in shape with the var. *Verreauxi*.

## TAENIOGLOSSA.

**Littorina** Férussac.1. *Littorina scabra* Linné.LINNÉ. Syst. Nat. Ed. X, p. 770, N<sup>o</sup> 584, (Helix).

PHILIPPI. Abb. u. Beschr. neuer Conchylien. Vol. II, p. 221, Pl. 5, fig. 3—7.

Waigeu. River Waihå, on rhizophores, Dec. 20, 1909.

Two of the specimens of which one with red top, resemble *L. arboricola* Reeve. in shape, but belong by their less developed sculpture, to a narrow form of *L. scabra*.2. *Littorina arboricola* Reeve.

REEVE. Conch. Ic. Littorina, fig. 25.

v. MARTENS. Süß- u. Brackw. Moll. p. 197.

Waigeu. River Waihå, on rhizophores. Dec. 20, 1909.

This form has been often considered to be merely a variety of the preceding species, f. i. by Weinkauff and v. Martens; though it is not improbable that these authors are right, I have kept it separate, as E. A. Smith I. S. O. formerly has named specimens of my private collection, after comparison with the types in the British Museum as *arboricola*; the narrow specimens recorded sub *scabra* may be considered to be a link.

## POLYPLACOPHORA.

**Acanthopleura** Guilding.1. *Acanthopleura spinigera* Sowerby.

SOWERBY. Ann. &amp; Mag. Nat. Hist. 1840, p. 287.

PILSBRY. Man. of Conch. Ser. I, Vol. XIV, p. 221, Pl. 48.

Waigeu, on the coast, collected by Captain Schuitema.