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**NOTES ON SPECIES OF THE GENUS AMPHIDROMUS
(MOLLUSCA, PULMONATA, PLEURODONTIDAE) FROM
ISLANDS LYING OFF THE WEST COAST OF SUMATRA,
WITH DESCRIPTIONS OF NEW RACES**

BASED ON COLLECTIONS MADE BY Dr. E. JACOBSON IN 1913

by

F. F. LAIDLAW, M. A.

Dr. E. Jacobson spent some months on the island of Simalur, and on some of the smaller islands in its immediate neighbourhood in the course of the year 1913. He made extensive zoological collections on these islands, whose fauna was very little known up till that time. Amongst his material was a series of shells belonging to the Pleurodontid genus *Amphidromus*. This series has been entrusted to me by Dr. Van Regteren Altena, and I am grateful to him for the chance of seeing these very interesting shells, and for the help he has given me in dealing with them. I have too to thank Mr. G. L. Wilkins for the figures.

Simalur is the most northerly of the long chain of large islands which lie along the West coast of Sumatra. The whole chain is roughly 1000 km in length from North to South. Its several islands are separated from Sumatra, and to some extent from each other by sea-depths of 500-1000 fathoms. Simalur itself is about 90 km in length; Pulau Babi or Saranbau is a smaller island lying S.E. of Simalur. Oelau Lekon (or Lekoeen) is a still smaller island near Pulau Babi. Dr. Van Regteren Altena tells me that Oelau is a local form of the Malay word Pulau.

Loosjes (1953) has described *Pseudonenia jacobsoni*, a Clausiliid, collected by Dr. Jacobson on Simalur. Apart from this I can find no record of land mollusca from the island.

On the other hand three species of *Amphidromus* have been recorded

from Nias Is. which lies about 100 km South of Simalur and is rather bigger. These species were described by Fulton (1907), and a full account of the land molluscan fauna of Nias was published by Van Benthem Jutting (1934-1935).

Degner (1928) has given an account of the known land molluscs of the islands of the Mentawi Archipelago, a group of several islands, three or four of them comparable in size to Simalur, lying about 200 km to the South of Nias Is. His list does not include any species of *Amphidromus*.

Lastly Enggano, the most southerly island of the long chain, has one species of the genus, *A. enganoensis* Fulton, 1896. Specimens were first collected by Modigliani. Later Fruhstorfer (1905) named a race of the species *gracilior*, from a small satellite island of Enggano, known as Pulau Dua. Van Benthem Jutting (1937) listed the land mollusca of Enggano with notes on the distribution of its species.

Amphidromus is a large genus of rather big or medium sized, arboreal snails very characteristic of the Oriental Region. It is interesting zoogeographically, and also because of the difficulty that is met with in many cases in determining the status of forms which have been given specific, sub-specific or varietal rank. Anatomical knowledge of the genus is still very scanty, and meanwhile discrimination of forms must depend mainly on conchological and geographical information.

The forms described as new in these notes belong I believe to quite definite geographical entities, but their relationship to other, similar entities, can only be settled by fuller knowledge of their oecology, anatomy and genetic characters. But clearly their existence is evidence of isolation on these islands from the fauna of the Sumatran mainland.

Note that *perversus* L. which luxuriates almost everywhere else in Malaysia has not been found on any of this chain of islands.

Subgenus *Aphidromus*

1. *Amphidromus webbi* **babiensis** subsp. nov. (C. A. van der Willigen MS.) (fig. 1).

26 ex. (4 immature) E. Jacobson. Poeloe Babi, Sumatra, April 1913. All these specimens are sinistral, and rather uniform in size and colouring.

Globose-conical, suture well impressed, whorls about 6, well rounded, without varices. Umbilicus often entirely covered. Aperture rather large, slightly longer than one-half of the total length of the shell. Peristome white, sometimes with a faint lilac tinge, moderately reflected and recurved; callus poorly developed. Columellar lip flattened and a little expanded above, vertical; outer lip rounded. Inside of shell white. Ground colour pale, yellowish-white; most examples (21) have a supra-sutural brown band, be-

ginning on the third whorl, continuing for a variable distance down the spire, but reaching the back of the aperture in 4 specimens only. From the third whorl on there is also a pale subsutural zone, and the cuticular covering of the shell takes a brownish tinge which intensifies on the lower whorls, leaving the pale subsutural zone to contrast well with the brown of the

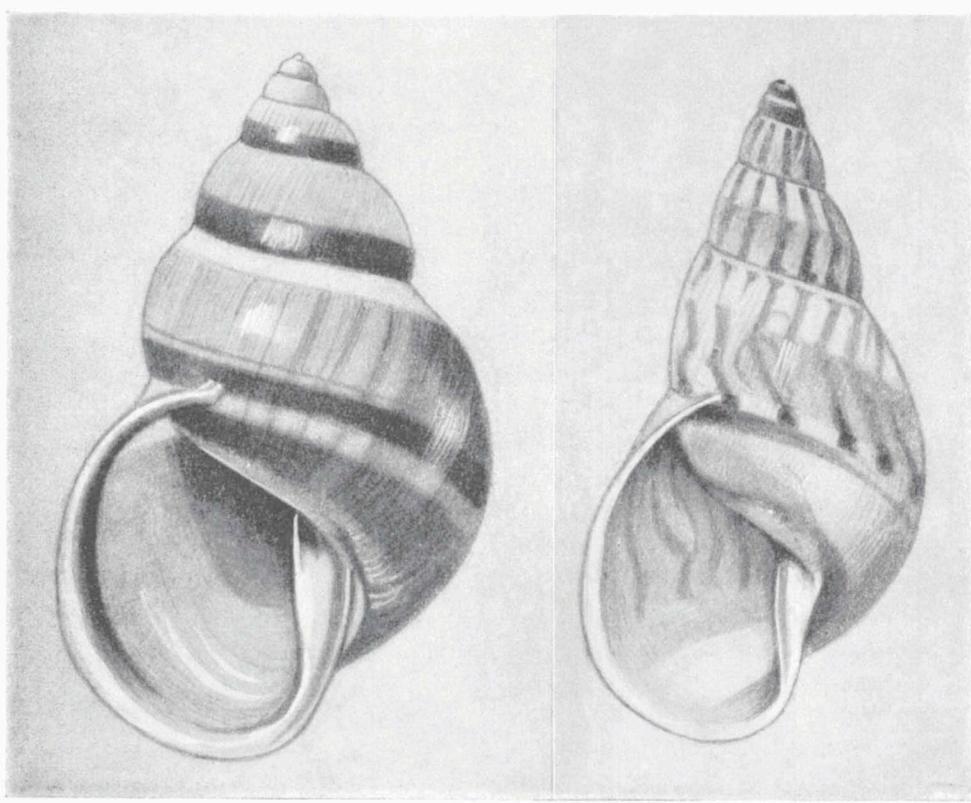


Fig. 1. *Amphidromus* (*Amphidromus*) *webbi babiensis* nov. subsp. Holotype, $\times 2$.

Fig. 2. *Amphidromus* (*Syndromus*) *sumatranus* von Martens, 1864, forma *jacobsoni* nov. forma. Holotype, $\times 3$.

rest of the shell, and giving it a characteristic appearance. This pale zone varies in breadth from about 2 to 4 mm.

In three completely decorticated individuals the whole shell has retained only the pale yellow ground colour and the suprasutural band which is clearly sub-cortical. In several of the specimens the abrasion of the cuticle can be seen in progress.

Measurements given below are in accordance with the method suggested by Haniel (1921).

Shell: length 44.5 mm, breadth 26 mm.

Aperture: length 23.5 mm, breadth 18 mm.

5 ex. "E. Jacobson. Oelau Lekon bij Simalur". March 1913. (These were regarded as belonging to the next form *simalurensis* by Van der Willigen. I believe they stand closer to *babiensis* and for the present include them with it).

All are sinistral, and unfortunately much worn. In colour and general appearance they are very much like *babiensis*, but on the whole a little smaller, and the spire is relatively a little shorter and more flattened. As a result the aperture is relatively longer, and its outer lip not so rounded.

Measurements of the least damaged example:

Shell: height 40 mm, breadth 24 mm.

Aperture: height 24 mm, breadth 16.5 mm.

2. *Amphidromus webbi simalurensis* subsp. nov. (C. A. van der Willigen MS.).

15 ex.: 14 ad., 1 juv. All collected by Dr. E. Jacobson in 1913. Lasiching, April: 3 ex. Soea Lamatau, April: 2 ex. (among which the holotype). Sinabang, May: 4 ex. Loe Dalam, May: 1 ex. Laboean Badjan, June: 1 ex. 'Oerbosch', July: 2 ex. Sibigo, August: 3 ex.

Variable in colour and size; five individuals are dextral and ten sinistral. Nine are unbanded, the rest have brown bands or marking. Eight of the unbanded forms are sinistral. All three specimens from Lasiching are unbanded.

Shell with about six whorls, rather globose, with well impressed suture. No varices. Umbilicus generally obliterated. Surface in fresh specimens rather varnished, very finely striate. Aperture relatively large, auriform, with some angulation at the junction of the columellar and outer lip. Peristome white, reflected and moderately recurved. Callus feebly developed.

The unbanded specimens are almost uniformly pale yellow in colour, this tends to be a little paler immediately below the suture; two individuals have a slight brownish tinge on the lower half of the last whorl. Two decorticated specimens are pale, primrose yellow, but without the lustre seen in fresh examples.

The remaining specimens are more varied. One, from Sibigo, has the upper whorls brown, this is continued on the last two whorls as subsutural and peripheral spiral zones, each about 3 mm in depth, on a yellow background. These bands are visible on the inside of the shell, and run to the

back of the aperture. The specimen is sinistral. Another, a dextral individual from Loe Dalam, has the upper whorls reddish brown, paler immediately below the suture, the brown fades rather abruptly to lemon yellow on the two last whorls, but continues as a fine subsutural line fading out on the last whorl.

Two of the other four specimens are brown with pale apices, the colour deepens gradually on the lower whorls to dark brown, without definite banding. A third, from Lamatau, is similar, the fourth, a dextral shell from Sibigo, is also brown but has irregular, mottled yellow bars on the two last whorls.

The holotype, a sinistral yellow shell with brown bands, measures:

Shell: height 50 mm, breadth 30 mm.

Aperture: height 27 mm, breadth 20 mm.

The largest shell of the series, which is unbanded yellow, measures as follows:

Shell: height 54 mm, breadth 29 mm.

Aperture: height 26.5 mm, breadth 20 mm.

A smaller shell, which is somewhat pyramidal in shape, gives:

Shell: height 44 mm, breadth 29 mm.

Aperture: height 25 mm, breadth 20 mm.

3. *Amphidromus webbi* subsp.?

2 ex. "Verz. No. B. L8. Mentawi Archipel; W. van Sumatra". Much alike in colour and size. One dextral, one sinistral.

Shape of shell much as in the smaller examples of *simalurensis*. Colouring like that of *babiensis* save that the white sutural zone is much less evident, whilst the brown suprasutural band is broader and doubled. In the dextral shell the lower part of the band widens to cover the base of the shell.

Shell: height 43.5 mm, breadth 26 mm.

Aperture: height 24 mm, breadth 18 mm.

As these specimens are not precisely localized, and as it seems possible that each of the larger islands of the Archipelago (Siberut, Sipora, and the two Pagi Islands) may have its own race I do not give them a name, but they will almost certainly prove to be distinguishable as a geographical race when better known.

I have been able to compare the three forms noted above with an example of *webbi* Fulton, 1907, obtained from him and almost certainly a paratype. The largest example of *simalurensis* whose measurements are recorded above agrees so closely with this specimen of *webbi* (and with the figure of the type given by Fulton, differing only in details of colouring) that

it is evident that they are derivatives of a common stock. I look on all four of these forms as subspecies or geographical species, and it is necessary to consider a possible relationship between them and *enganoensis* Fulton, 1896, the first *Amphidromus* to be described from the W. Sumatran chain. *A. enganoensis* has the spire in general relatively a little longer and less globose, and varices are at least occasionally present. For the present I think the three new races here described may be referred to as subspecies of *webbi* Fulton.

4. *Amphidromus enganoensis fruhstorferi* nom. nov.

Amphidromus enganoensis gracilior Fruhstorfer, 1905.

The name *gracilior* is preoccupied by *gracilior* Fulton, 1896, described as a race of *maculiferus* Sowerby, 1841. I suggest the above new name to replace it. The subspecies is apparently confined to a small island lying about three miles East of Enggano itself. It is fairly well differentiated from the typical Enggano form.

Subgenus *Syndromus*.

1. *Amphidromus sumatranus* von Martens, 1864, forma **jacobsoni** forma nov. (fig. 2).

2 ex. Lasiching, Simalur, April 1913. 1 ex. Simalur, July 1913. 1 ex. Sabur Vaeloe-Lae Dalam, Simalur, May 1913. 1 ex. Sibigo, Simalur, Sept. 1913. 1 ex. Poeloe Babi, bij Simalur, April 1913. All collected by Dr. Jacobson.

A variable little series, difficult to deal with. I have compared the shells with Nias Is. forms in the Leiden and British Museums.

Rensch (1932) pointed out that *sowerbyi* Fulton, 1907, is synonymous with *niasensis* Fulton, 1907; intermediate forms link the two extremes, which are dissimilar in colour-pattern. The Leiden Museum has also two examples of the *niasensis* form from Aloer Lho Tjapa, in the Pidie district of Atchin.

Three of the Simalur specimens have the *sowerbyi* type of colouring, bright yellow ground-colour, with spiral bands of brown. In the Simalur specimens these bands are broken up into rows of fine, spirally arranged dots; on one of them, that from Poeloe Babi, the dots are only evident on the upper whorls.

Measurement shows that they are all three shorter, more globose shells than those from Nias.

Shell: length 27 mm, breadth 18 mm.

Aperture: length 14 mm, breadth 11 mm (Sibigo).

Shell: length 28 mm, breadth 17 mm.

Aperture: length 14 mm, breadth 11 mm (Poeloe Babi).

The three others resemble examples of *sumatranus* von Martens, 1864. I have figured one of them, that taken in Simalur in July. In all three the whitish brown of the upper whorls passes to pale beige on the lower. From the third whorl there is a series of radial bars of darker beige, feebly interrupted at their middle, continued to the back of the aperture on the last. The bars tend to fork on the last two whorls from below, and at the base of each fork there is a square spot of more intense colour. These spots make a spiral series round the periphery of the last whorl, and above the aperture rest on a narrow, spiral band of dark beige, which fades as it passes to the back of the shell.

In all three shells the umbilical area is beige; in the shell figured and in one example from Lasiching there is a band of pale yellow above this.

In *niasensis* forms from Nias the ground colour is also largely pale beige rather than yellow; in typical *sowerbyi* forms it is always bright yellow.

The measurements of the shell figured are

Shell: length 28 mm, breadth 16.5 mm.

Aperture: length 14.5 mm, breadth 10 mm.

The type specimens of the new races and form described above, and the specimens from the Mentawi Archipelago are in the collection of the Leiden Museum, as well as paratype series. Unfortunately 16 paratypes of *babiensis*, 5 of *simalurensis*, 2 of *jacobsoni*, and 3 specimens of *babiensis* from Oelau Lekon were destroyed on their way back to the Museum after I had examined the material.

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