

On *Phaedusa paviei* Morlet and an allied new species

by

F. E. Loosjes and A. C. W. Loosjes—van Bommel

(Wageningen)

Phaedusa paviei Morlet is a very variable form, not only are the shells within one locality varying considerably, but the populations of the different localities in general also differ.

According to Bavay and Dautzenberg, who described six varieties of this species in 1909, the differences are present in the dimensions of the shells, in the number of whorls, in the transparency and colour and in the position of the subcolumellar-lamella. We found these varieties, bearing the original labels, in the Dautzenberg collection. They are chiefly only individual variations. In addition to the differences that lead to these forms, there is still another remarkable feature, denied by Bavay and Dautzenberg, that may produce differences among the *paviei* shells, namely the presence or absence of a hook on the clausilium. This phenomenon is discussed by Loosjes (1948).

In the Dautzenberg collection at the „Musée royal d'Histoire naturelle de Belgique” at Brussels we found one more remarkable form, from the locality Phong-Tho, which was labelled: „*paviei* var. *phongthoensis* Messager mss”¹⁾. There were two sets of shells from this locality, nearly all specimens which were distinctly different from the typical *paviei*. Only a few *paviei*'s were present, there were no intermediates. After a careful examination of the other sets of *paviei* of the Dautzenberg collection, it turned out that this distinct form was present, mixed in different percentages with *paviei*-specimens, at nearly all known localities. Not only did we notice this form, mingled with *paviei* but also there were specimens of the well-known Tonkinese *porphyrostoma* Bavay & Dautzenberg, *thatkana* Bavay & Dautzenberg, and *fistulata* Bavay & Dautzenberg among them.

In our opinion this „*phongthoensis*” must be considered as a distinct species. A description of this new species will be given below.

Phaedusa (*Phaedusa*) *phongthoensis* n. sp.

Textfigs. 1—3; Plate 4 lower series.*

Shell large, sinistral, conical, with slightly convex or straight lateral outlines, spire thick, gradually tapering towards the wide, blunt apex; solid, somewhat transparent; purplish-brown to sometimes yellowish-brown.

¹⁾ Prof. Dr E. Fischer informs us that specimens from Phong-Tho are not in the collections of the „Muséum National d'Histoire Naturelle” at Paris. According to him Messager himself never published on Malacology.

Whorls 10½ to 12, slightly convex, sculptured with a great number of fine, often a little wrinkled, lines, scarcely coarser on the last whorl; viewed with the naked eye the shell is almost smooth, glossy. Nuclear whorls: 2 to 2½; stout and smooth. A distinct usually violet coloured thread is running along the suture at the upper side of every whorl.

Aperture wide, nearly quadrangular, the upper peristomal margin is running upwards a little to the sinulus, which is separated mainly by the superior lamella. The peristome is continuous, whitish, reflexed and thickened; the upper margin is free from the preceding whorl.

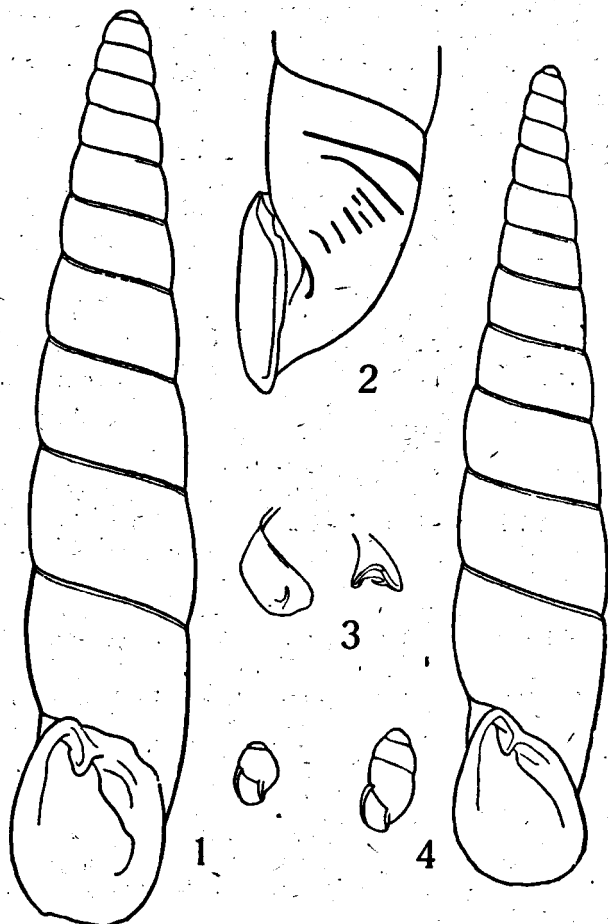


Fig. 1—3. *Phaedusa (Phaedusa) phongthoensis* n. sp., $\times 4$. 1: Adult (the type) and embryonic specimen; 2: view from the right side to show the palatal plicae; 3: clausilium seen from different sides. Fig. 4. *Phaedusa (Phaedusa) paviei* Morlet, adult and embryonic specimen, $\times 4$.

Superior lamella of moderate height, vertical, reaching the margin usually but not always, in connection with the high spiral lamella, which is usually ending ventrally at the left side, either distinctly beyond the inner end of the inferior lamella and of the subcolumellar lamella, or almost together with the other two.

Inferior lamella visible in a front view as a distinct obliquely running fold, the edge nearly parallel with the columella, not reaching the margin, ascending inward and becoming high at a dorsal position, occasionally it may form there a sac-like structure. The lamella gradually decreases at the right side, when entering the parietal wall, and ends at a ventral position.

Subcolumellar lamella either not yet, or scarcely visible behind the inferior lamella in full front view. As soon as it leaves the columella and enters the parietal wall, it decreases and ends almost ventrally.

The closing apparatus is situated laterally. The principal plica runs from the right side to somewhat beyond the dorsal, so it is less than half a whorl long. Below this principal plica there are about 7 palatal plicae, diminishing in size downwards, but the lowest ones may be somewhat larger again.

The clausilium is broad, regularly curved in both directions, with a rounded, blunt, slightly thickened apex. On the outer surface of the plate at nearly one third of the apex near the lateral side there is a distinct hook, pointing across the plate to the median edge. This hook has also been described by Pilsbry in *Phaedusa bocki* Sykes. Ehrmann found it in *Phaedusa paviei* Morlet, while Loosjes mentioned it of *Hemiphaedusa cambojensis* Pfeiffer. The length of the plate of the clausilium is nearly 3.0 mm, the width about 1.5 mm; the hook is only 1.0 mm in length. The hook is often visible without breaking up the shell. This was so in 128 specimens out of 157, only in one instance there was a little knob instead of a hook. The hook was never completely absent.

Length of the shells: 23.9 to 31.0 mm, diam. 4.6 to 5.8 mm; apertures: height 5.5 to 7.2 mm, width 3.8 to 5.3 mm (146 specimens were measured).

The dimensions of the type are: length 29.6 mm, diam. 5.6 mm; aperture: height 6.7 mm, width 4.8 mm. The type specimen is in the Brussels Museum.

The type locality: Phong-Tho, Tonkin.

This new species is very closely related to *paviei* Morlet (textfig. 4, Plate 4 upper series), it is separated, however, by the following shell-features.

- a. The nuclear whorls are much stouter and thicker than those of *paviei*; they are conical and regularly broadening into the lower whorls. In *paviei* they are narrower and cylindrical; where they merge into the lower whorls there is a distinct abrupt broadening.
- b. The shell is more solid, the lateral outlines are never concave, but always slightly convex or straight, the shell has a comparatively plump appearance.
- c. The colour of the shell of most specimens is purplish-brown, glossy, some yellowish-brown specimens are present, however. Most *paviei* specimens are yellowish-brown and are duller, with purplish-brown ones in the minority.

- d. The spiral lamella is often running distinctly beyond both other lamellae at their inner ends, or all three lamellae are ending about at the same level. In *paviei* the spiral lamella is ending before the other two, or is ending together with them.
- e. the hook on the clausilium is always present.

These species have so many features in common, however, that in spite of the above mentioned differences, we required more proof. As long as we did not have stronger arguments to prove the difference between these species, we provisionally considered *phongthoensis* as a form of *paviei*¹⁾.

We tried to find characteristic features by comparing dimensions of a series of shells of *paviei* and of *phongthoensis*, collected at the same locality. This gave no reliable results. Either there were only a few shells of the first species represented and many of the other (at Phong-Tho), or just the reverse (all other localities). Reliable data on the variation could not be based on the available material because in each lot one of the forms was represented in too small a number.

It is known that *paviei* is ovo-viviparous. A few embryonic shells can sometimes be found behind the clausilium of a full-grown specimen. As we ascertained that *phongthoensis* is also an ovo-viviparous species, we studied the offspring to be found in several adult specimens of both forms. The juvenile shells found in one form were quite different from those found in the other. In *paviei* there were cylindric juvenile shells consisting of ca 3 whorls, nearly 3.5 mm long and 1.4 mm broad (above the aperture). In *phongthoensis* we only saw short globoid shells, consisting of 2—2½ whorls and nearly 2.0 mm long and 1.6 mm broad (aperture included). These two types of embryonic shells were never found together within one adult specimen. Thus we never found a globoid one in a shell of *paviei* nor a cylindric one in a shell of *phongthoensis*. Even in a shell of *paviei* from Phong-Tho, where many specimens of *phongthoensis* were found and only very few of *paviei*, we found three cylindric juvenile shells and no globoid ones.

It may be useful for other students to know that with a bright light one can easily see whether there are embryonic shells within an adult. Thus it is not necessary to break up shells simply to determine whether juvenile shells are present or absent.

The described phenomenon of constant offspring confirms our opinion that *phongthoensis* is really a good species.

¹⁾ Loosjes (1948) included *phongthoensis* in a list of specimens of *paviei* from some Tonkinese localities (page 7). The list referred to specimens which either had a hook on the clausilium or did not have it. All *phongthoensis*-specimens which we have seen up till now, have such a hook.

Literature

- Bavay, A. & Dautzenberg, Ph., 1909. Descriptions de coquilles nouvelles de l'Indo-Chine. Journ. de Conch., vol. 57, pp. 81—106.
- Ehrmann, P., 1927. Zur Systematik der Clausiliiden, besonders der Ostasiatischen. Sitzungsber. Naturf. Ges. Leipzig, vol. 49—52, pp. 18—59.
- Loosjes, F. E., 1948. On the inner structure of the shells of *Hemiphaedusa cambojensis* Pfr. and *Phaedusa paviei* Morlet (Gastropoda, Pulmonata). Bull. Mus. Roy. Hist. Nat. Belg., vol. 24, no. 39, pp. 1—8.
- Morlet, L., 1892. Descriptions d'espèces nouvelles provenant de l'Indo-Chine. Journ. de Conch., vol. 40, pp. 315—329.
- Pilsbry, H. A., 1908. Note on the clausilium of a chinese species of *Clausilia*. Proc. Mal. Soc., vol. 8, p. 119.

Samenvatting

Een aan *Phaedusa paviei* Morlet verwante nieuwe soort wordt beschreven, *Phaedusa (Phaedusa) phongthoensis* n. sp., die naast deze op de vindplaatsen in verschillende verhoudingen gevonden werd. De conchologische verschillen met *paviei* hebben voornamelijk betrekking op de uiterlijk waarneembare kenmerken, de inwendige bouw komt vrijwel overeen; reden waarom deze verschillen door ons niet voldoende overtuigend werden geacht om alleen daarop een tweede soort te baseren. Bij nader onderzoek bleek echter, dat in enkele exemplaren van beide vormen jonge schelpjes voorkwamen (beide zijn levendbarende). Ieder van de twee vormen had een eigen type embryonale schelp, wat uit de verschillen in de topwindingen wel te verwachten was, doch het bleek tevens, dat geen broed, bestaande uit beide vormen, voorkomt, noch dat broed van de ene soort gevonden wordt in een volwassen schelp van de andere. Dit gaf voor ons de doorslag om *phongthoensis* als aparte soort te beschouwen.