Notes on the Land-Mollusca of the Batu Caves, Selangor with Descriptions of two New Species

By F. F. LAIDLAW, M.A.

(with three text-figures)

The accompanying list gives the names of some twenty-four species of land mollusca as having been collected in or about the Batu Caves and Gua Tembus both in Selangor, Malay States.

This number will probably be largely exceeded when the fauna is fully known.

It is probable that some of these species are almost or quite confined to a cave habitat, whilst others find at any rate a very congenial home in such a position.

Prosopeas especially is a genus which thrives exceedingly in the caves of the Peninsula, and the late Dr. Annandale has made the interesting observation that the species found in the caves near Biserat, in Jalor, feed on bats' droppings.

It is likely that some of the smaller operculates are also true cave-dwellers, and it is in this group especially that we may expect additions to the already known fauna.

In the caves at Biserat Dr. Annandale found a regular deposit here and there of shells, mostly of *Prosopeas*, but amongst these were a number of minute forms of several species, which could best be detected by sifting the deposit. If any such

deposit should be found in the Selangor caves, or elsewhere, a careful scrutiny should result in the discovery of other small species, of such genera as *Opisthostoma, Diplommatina, Ditropis,* and *Hypselostoma.*

I. PROSOBRANCHIATA

A. Diotocardia

Hydrocenidae

1. Georissa monterosatiana G-A. & Nevill.

Several specimens, Batu Caves, Sept. 1930, and Batu Caves, Dark Cave, Oct. 11. 1930. E. Seimund.

B. Monotocardia

Cyclophoridae

CYCLOPHORINAE

2. Lagochilus townsendi Crosse.

Several specimens, Gua Tembus, Oct. 15, 1930, E. Seimund.

I have seen examples of this species from other localities in the Peninsula. De Morgan speaks of it as common. I suspect that some of the other named species from the Peninsula are synonyms.

3. Rhiostoma spelæotes Tomlin.

Tomlin, *Proc. Malac. Soc. London,* XIX, Pt. V, 1931, p. 227, Pl. 26.

A considerable number of dead shells of this species was found outside the cave in holes in rocks, some seem to have been taken inside the cave also, and of these several are almost completely mineralized, and coated with firmly adherent masses of what I take to be the cave earth. These examples might almost be spoken of as semi-fossil.

This species has not been recorded from elsewhere.

ALYCAEINAE

4. Alycaeus conformis Fulton.

One individual taken on mossy rock outside Batu Caves. Dec. 1928.

A large number of dead shells from Gua Tembus, 15 9 30. E. Seimund.

5. Alycaeus thieroti de Morgan.

Twelve specimens from Gua Tembus.

6. Alycaeus perakensis de Morgan forma.

Numerous specimens from the Batu Caves, and from Gua Tembus.

Fig. 1.—*Diplommatina (Sinica) seimundi* n. sp.

DIPLOMMATINAE

7. Diplommatina (Sinica) seimundi n. sp. (fig. 1).

Several examples from Gua Tembus, Kuala Lumpur, Selangor. Oct., 1930. Collected by E. Seimund.

Shell dextral, ovate-fusiform, imperforate, white or cream-coloured. Whorls 5½, convex, suture deeply impressed, the penultimate whorl broader than the last; the apex smooth, the last four whorls with fine radial costæ, about 12 to 1 mm.

Aperture circular, peristome expanded, double, with a small deeply-set columellar expansion.

Alt. 2mm. Diam. max. 1.3mm.

Quite distinct from any species hitherto recorded from the Peninsula, it is the smallest of the Malayan species, slightly smaller than the sinistral *D. laidlawi* Sykes from Perak.

I can find no trace of any spiral marking even with a compound microscope.

One or two dead specimens were found amongst debris of larger shells from the Batu Caves.

The type will be deposited in the British Museum, topotypes in the Museum of the Federated Malay States, and in my own collection.

Note:—the figure shows the shell with its long axis slightly tilted from below, so that the shell is drawn slightly foreshortened. Drawn with camera-lucida.

8. Diplommatina canaliculata Mlldff.

Several dead specimens of this beautiful little shell from Gua Tembus.

II. EUTHYNEURA

Pulmonata

Enneidae

9. Indoennea ridleyi Peile.

Batu Caves. Mouth of dark cave. Seimund. 18 examples. Oct., 1930.

6 in second tube. do. do.

Rather small specimens varying from 7 to 7.5 mm. in length. (Holotype 8.3×3.3 mm.).

Batu Caves, Sept., 1930.

Two tubes. 31 and 13 specimens varying from 7 to 9.7 mm.

Gua Tembus. Seimund. Oct. 15, 1930.

6 specimens all over average size.

9.3 10.1 10.2 10.3 10.7 11 mm.

The last is exceptionally wide, diam. max. 4.2 mm. and has nine whorls.

Also, same data 14 juveniles: with 5 to 7 whorls.

10. Indoennea butleri Peile.

3 examples: Gua Tembus. Seimund. Oct., 1930. The largest is smaller than the holotype, which measures 3.5 mm.×1.6 mm.

The measurements of the three present specimens are

2.7×1.6 mm.
2.25×1.2 mm.
2.1×1.2 mm.

The costæ on the smallest specimen are rather coarser than on the type, but this may be due to condition. Col. Peile suggests that the length of the shell attained in this species depends on some climatic condition which induces early maturity.

Eulotidae

11. Eulota simularis Fer.

One or two dead shells from outside the dark cave. Taken with *Macrochlamys hachongi.*

This is one of the most widely distributed of all land molluscs: it makes its appearance in most cultivated tropical lands and seems to have a preference for coffee plantations. Probably a native of S. E. Asia.

Subulinidae

12. Prosopeas tchehelense de Morgan.

Opeas dimorpha, Ghosh, Journ. Fed. Malay States Mus., XIV. 1929, pp. 336–337. (fig. 4).

This species occurs in great abundance in the cave, and is also found under stones in more open situations. I am not at all sure that de Morgan's second species (*swettenhami*) is a mere synonym of the present species, but can make no certain statement at present. I have compared long series of this species with Prof. Ghosh's types of his *Opeas dimorpha* and have also consulted Mr. Tomlin, and we both feel sure that his interpretation of the specimens is mistaken. Dr. Annandale noted that this species feeds on the droppings of bats in the cave.

13. Subulina octona Bruguière.

Opeas doveri Ghosh, Journ. Fed. Malay States Mus., XIV. 1929, pp. 335-336. (fig. 3).

This species, like the last is evidently common in the cave. In this case also I have the concurrence of Mr. Tomlin in regarding Prof. Ghosh's species as synonymous.

Subulina octona is another of the species which has managed to spread very widely over the warmer parts of the globe.

14. Opeas gracile Hutton.

I have found some six or seven specimens of this widely distributed species amongst tubes full of *Subulina octona* and *Prosopeas tchehelense.*

15. Curvella jousseaumei de Morgan.

Three individuals of this species are from Gua Tembus.

Clausiliidae

16. Clausilia filicostata Stol.

A number of specimens from moss-rocks, Batu Caves. These are mostly longer than Stoliczka's type. A large specimen is 28 mm. in length and has 15 whorls, whilst the type is said to be 21.2 mm. long and to have 10 or 11 whorls.

Some specimens are distinctly intermediate in size, and the characters of the palatal plicæ agree closely with Stoliczka's description, so that I have little hesitation in referring the specimens to this species.

Ariophantidae

17. Hemiplecta humphreysiana Lea.

A single young and dead shell is to be referred to this species. It is from the Batu Caves.

18. Hemiplecta densa Ad. & Reeve.

Three dead shells from the Batu Caves agree closely with Bornean shells which are I believe to be referred to this species.

19. Macrochlamys hatchongi de Morgan.

Batu Caves "outside cave", and from Gua Tembus. Unfortunately these are all dead shells, and in consequence I can not give more than a guess at the generic position of the species, so I leave it as named by de Morgan. It may turn out to be a *Leptodontarion*.

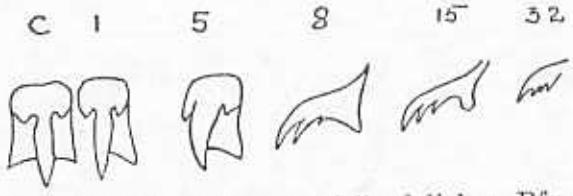

Fig. 2.—Teeth from radula of *Kaliella doliolum* Pfr. (?)
Drawn by Col. A. J. Peile

20. Kaliella doliolum Pfr. (?) (fig. 2).

Several specimens of a beautiful little shell which, rather doubtfully, I refer to this species.

It differs from the description of the type in being scarcely perforate, and distinctly smaller. The measurements of the type are given by Pfeiffer as.: diam. max. 3½ mm., min. 3¼ mm., alt. 2½ mm. Pfr., Mon. Hel. Viv.).

The largest specimen from the caves has the diam. max. 3 mm. and alt. 2.2 mm.

The animal is viviparous. Col. Peile tells me that the radula is characteristic of the genus, he has very kindly made a drawing of some of the teeth, which I reproduce here. As these small shells are difficult to differentiate and as I have not been able to compare them with the type of *doliolum* I leave them under this heading with a query.

21. Sitala carinifera Stol.

Several specimens, "outside cave".

Recorded also from Penang and Gunong Inas, Perak.

22. Eurybasis sp.

A single mineralized specimen from Gua Tembus. This is a smaller species than *lychnia* and with a somewhat higher spire. Otherwise it is similar except that the carina is single.

Diam. max. 8 mm. Alt. 5 mm. whorls about 6½.

Probably an undescribed species.

Shell conoid, rounded below and scarcely perforate, keeled. A single liration lies above the keel, close to the suture. Lines of growth scarcely evident. Spire rather elevated and turretted. Suture fairly well marked. Aperture narrow, semilunate. Columellar margin slightly reflected.

23. Microcystis (?) palmicola Stol.

A number of specimens from Gua Tembus, and two or three from the Batu Caves.

The generic position of this species is quite doubtful, they may be allied to *Philalanka*.

Endodontidae

Fig. 3.—*Philalanka sericea* n. sp.

24. Philalanka sericea n. sp. (fig. 3).

Several specimens from the Batu Cave and from Gua Tembus. Though I have no anatomical data wherewith to support the ascription of the species to this genus the resemblance of the shell to such a species as *bolampattiensis* G. A., is so marked that there is at least justification for my putting it provisionally into *Philalanka*.

It is a smaller shell than *bolampattiensis*, more tumid and with a more elevated spire.

Shell conoidal, rounded and scarcely perforate below, keeled, with in addition a single liration on the upper side, rather close below the suture, which latter is well impressed. Lines of growth very fine. Colour dull, horny. Spire pyramidal, sides rather angulated. Whorls 6, convex below the keel, rather flattened above it. Aperture narrow, semi-lunate, columellar lip descending rather sharply at first, and columellar margin a little reflected.

Size: diam. max. 2.75 mm., alt. 2.25 mm.