

PRELIMINARY DIAGNOSES OF NEW SPECIES OF NON-MARINE
MOLLUSCA FROM THE HAWAIIAN ISLANDS. PART I.

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DURING the past few years Mr. R. C. L. Perkins has been collecting natural-history specimens in the Hawaiian Islands, under the auspices of a joint committee of the Royal Society and the British Association for the Advancement of Science. Since Mr. Perkins may be still for some time in the Islands, the final report on the Mollusca must be delayed, and it therefore appears advisable to diagnose from time to time the new species as they are found in the fresh material sent home. It is hoped that the new forms will be fully illustrated in the final report.

1. *MACROCHLAMYS PERKINSI*, n.sp.

Testa imperforata, tenuis, cornea vel fusco-cornea, nitida, superne sub lente indistincte striata; spira depresso-conoidea, apice obtuso; anfr. $4\frac{1}{2}$ –5, regulariter et lente accrescentes, convexiusculi, ultimus paulo supra medium subangulatus; sutura subimpressa; apertura lunato-ovata, subobliqua; perist. simplex, tenue, rectum. Diam. max. 6.5, min. 6, alt. 3.5 mm.; alt. apert. 2.5 mm.

Hab.—Lanai (Perkins).

The difficulty of giving a serviceable description of these forms is very great, but perhaps *M. Perkinsi* may be best identified by its colour, which is darker than usual, by the narrowness of the last whorl, the slowness and regularity with which the whorls increase, and the striation on the upper surface.

2. *ENDODONTA (THAUMATODON) RINGENS*, n.sp.

Testa parva, late et perspective umbilicata, regulariter ruguloso-striata, corneo-flavescens, rufo maculata; spira depressa, apice medioeri, lævi; anfr. 5– $5\frac{1}{2}$, tumidusculi, compressi, regulariter accrescentes, ultimus ad peripheriam rotundatus, basi convexiusculus; apertura rotundo-lunaris, lamellis duabus conspicuis parietalibus, supra majore; dentibus quatuoribus in labio. Diam. max. 4.5, alt. 1.5 mm.

Hab.—Mountains of Lanai, behind Koele (Perkins).

This shell recalls in form *E. hystrix*, Mighels, but in lamellæ and teeth strongly resembles *E. rugata*, Pease. It may be separated

from this last species by the more depressed spire, the absence of keel on the last whorl, deeper suture, the absence of revolving striæ, etc.

3. ENDODONTA (NESOPHILA) LANAIENSIS, n.sp.

Testa parva, late et perspective umbilicata, solidula, parum nitens, lutea, strigis brunneis subæqualibus picturata et radiata, confertim costulata costulis parvis, circa umbilicum magis approximatis et tenuioribus, basi sub lente indistincte spiraliter striata; spira depressa, apice lævi; sutura impressa; anfr. $4\frac{1}{2}$; apertura ovato-circularis, peristomate simplici, lamella unica volventi, parietali. Diam. max. 5, min. 4, alt. 1.5 mm.

Hab.—Mountains of Lanai, behind Koele (Perkins).

In possessing only a single parietal lamella, this shell approaches *E. jugosa*, Mighels, *E. rubiginosa*, Mighels, and *E. decussatula*, Pease. From the last-named the absence of decussation, save for a few indistinct spiral striæ on the base, will at once serve to separate it. It may be distinguished from the two first-named by its smaller size, more depressed form, and more distinct colour-markings; the mouth is also more drawn out from the body-whorl of the shell.

4. ENDODONTA (PTERODISCUS) WESLEYI, n.n.

While dealing with species of *Endodonta*, it may be of service to point out that the shell from the Hawaiian Islands made the type of a section of *Endodonta*, called *Tropidoptera*¹ by Mons. Ancey, and subsequently *Pterodiscus*² by Mr. Pilsbry, is not really the *Helix alata* of Pfeiffer. The true *H. alata*, Pfr.,³ has a columellar plait, and will probably prove to be an *Amastra*, allied to *A. heliciformis*, Ancey. The shell figured by Mr. Pilsbry, therefore, requires a new name, and that of *Wesleyi* may be suggested, in honour of Wesley Newcomb, who has done such splendid work on the Hawaiian fauna.

5. LEPTACHATINA IMPRESSA, n.sp.

Testa imperforata, dextrorsa, oblonga, pellucida, micans, pallide-cornea, striata; spira elongata, apice obtusa; sutura impressa; anfr. $7\frac{1}{2}$, convexiusculi, ultimus $\frac{1}{2}$ alt. testæ æquans; apertura sinuato-pyriformis; perist. simplex, tenue, margine dextro recto, arcuato, columellari angusto, adnato, parietali nullo. Alt. 7, diam. 2.5 mm.

Hab.—Mountains of Lanai, behind Koele (Perkins).

An interesting little species belonging to the striate group of *Leptachatina*, principally from Kauai. There are only two specimens, which, although they do not quite agree, belong to one species. No

¹ Preoccupied in Coleoptera.

² Man. Conch., ser. II, vol. ix, p. 36, pl. iv, fig. 44.

³ Type in the British Museum.

species of this genus has previously been recorded from Lanai; Mr. Perkins found seven.

6. LEPTACHATINA SEMIPICTA, n.sp.

Testa imperforata, dextrorsa, acuminato-ovata, tenuis, nitida, pellucida, fusco-cornea, leviter striatula, apice obtusula, pallidiore; sutura modice impressa; anfr. $6-6\frac{1}{2}$, plano-convexi, primi striatuli, ultimus $\frac{5}{8}$ altitudinis testæ æquans, fere lævis, apertura ovato-pyriformis; peristoma margine dextro recto, incrassatulo, columellari angusto, adnato, parietali nullo. Alt. 8, diam. max. 4 mm.

Hab.—Mountains of Lanai, behind Koele (Perkins).

There are, including young shells, about forty examples of this species. Most of them have the lower half of the last whorl of a lighter colour; some, however, are unicolorous.

7. LEPTACHATINA PERKINSI, n.sp.

Testa dextrorsa, ovato-fusiformis, tenuiuscula, sub lente striatula, fuscescens, nitida, semipellucida, apice obtusulo, albido-corneo; sutura simplex, leviter impressa; anfr. $6-6\frac{1}{2}$, plano-convexiusculi, ultimus $\frac{2}{3}$ altitudinis testæ æquans; apertura pyriformis; peristoma margine dextro leviter incrassato, intus albido-corneo, columellari angusto, parietali nullo. Alt. 10·5, diam. max. 5 mm.

Hab.—Mountains of Lanai, behind Koele (Perkins).

This and the next species are very closely allied, and may be separated by the fact that *L. Smithi* is of a lighter colour, smaller size, and is a trifle wider in proportion to its length. In *L. Smithi* the last whorl is slightly longer in proportion to the total length of the shell.

8. LEPTACHATINA SMITHI, n.sp.

Testa dextrorsa, ovato-fusiformis, tenuiuscula, sub lente striatula, pallido-cornea, nitida, pellucida, apice obtusulo, albido-corneo; sutura simplex, leviter impressa; anfr. $6-6\frac{1}{2}$, plano-convexiusculi, ultimus plus quam $\frac{2}{3}$ altitudinis testæ æquans; apertura pyriformis; peristoma margine dextro leviter incrassatulo, intus albido-corneo, columellari angusto, parietali nullo. Alt. 9·25, diam. max. 4·9 mm.

Hab.—Mountains of Lanai, above Koele (Perkins).

For remarks on this species see those on the preceding one.

9. AMASTRA LONGA, n.sp.

Testa dextrorsa, elongata, subperforata, solida, substriata, epidermide nigro-fusco induta, apice acutiusculo; sutura simplex; anfr. 7, modice plani, ultimus plus quam $\frac{1}{2}$ altitudinis testæ æquans; apertura sinuato-semiovalis, intus albida; columella superne parum plicata, tum lamina parva transversim munita; peristoma simplex, rectum. Alt. 11·75, diam. max. 6·5 mm.

Hab.—Lanai (Newcomb); windward side of Lanai, apparently extinct (Perkins).

This is one of those species which are fast disappearing from the fauna of the Hawaiian Islands, or are, indeed, already extinct. The two specimens found by Mr. Perkins have lost their periostracum, but others in the British Museum, collected forty years ago, are in far better condition. The species is, in form, of the group of *A. turritella*, Fér., and has the blackish periostracum usually found on the species of *Amastra* from Lanai.

10. AMASTRA FRATERNA, n.sp.

Testa sinistrorsa, ovato-turriiformis, tenuis; sutura impressa; anfr. $6\frac{1}{2}$ –7, convexiusculi, longitudinaliter striati, epidermide fusco vel nigro-corneo induti; apertura ovata, mediocris; peristoma rectum, acutum, lamina mediocri. Alt. 10, diam. max. 5.5 mm.

Hab.—Mountains of Lanai, behind Koele (Perkins).

This interesting species belongs to the group of *A. soror*, Newc., and *A. elongata*, Newc. It is clothed entirely with a dark-brown periostracum, and is a little more inflated than either of the two species mentioned. There are specimens in the Cumingian Collection which have been labelled *A. soror*, and possibly these were part of the series which induced Newcomb to give Lanai as one of the localities for that species. All later authors have given Maui only.

11. AMASTRA VILLOSA, n.sp.

Testa elongato-turrita, sinistrorsa, subimperfiorata, crassula, pallide-cornea, epidermide brunneo induta; anfr. 7– $7\frac{1}{2}$, convexi, longitudinaliter et irregulariter valde striati; sutura bene impressa; apertura lunata, fere recta; peristoma rectum, acutum, albidum; lamina columellaris parva. Long. 20, lat. 7 mm.

Hab.—Molokai (Perkins).

This shell, nearly related to *A. Hutchinsonii*, Pease, from Maui, may be separated by its greater size, more elongate spire, and the shape of the last whorl, which is not so fusiform as in that species. The suture is also more deeply impressed.

12. AMASTRA CITREA, n.sp.

Testa dextrorsa, imperfiorata, ovato-fusiformis, solidiuscula, nitidula, flavida, suboblique valde striata, apice resinaceo, acutulo; anfr. 6, plano-convexi, primi mediocriter plicati, ultimus $\frac{2}{3}$ altitudinis testæ æquans, epidermide nigro-brunneo leviter indutus; sutura impressa; apertura ovato-lunata; columella contorta; lamina valida, alba; peristoma simplex, margine dextro recto, acuto. Long. 15, diam. max. 8 mm.

Hab.—Molokai (Hutchison, Baldwin).

Though not yet found by Mr. Perkins, I take the present opportunity of describing this form. It is noteworthy for its light straw-yellow colour; the periostracum is almost entirely lacking, save

on the last whorl, though traces may be seen on the earlier whorls. In shape it recalls *A. simularis*, Hartman, but is slightly more ovate and shorter; the difference in colour will at once separate them. The plications on the apices of the two species are about equally marked.

13. *AMASTRA SIMULARIS*, Hartman, var. *ROSEOTINCTA*, n. var.

Differs from the type in the colour being of a very much lighter shade, the apex, however, being of the usual dusky tint; the shell is also more ovate and shorter, and the lamina is slightly more horizontal. I had proposed to describe this shell as a new species, but a few specimens of the variable *A. simularis* show a slight approximation, and it will, I think, only prove to be an extreme variety.

Hab.—Molokai Mountains (Perkins).

14. *NEWCOMBIA PERKINSI*, n. sp.

Testa sinistrorsa, anguste perforata, elongato-fusiformis, solida, cineraceo-fusca, striis vel strigis fuscis fulgurantibus eleganter picta; spira gracilis, apice obtuso, lævi; anfr. $6\frac{1}{2}$, planiusculi, ultimus $\frac{1}{2}$ altitudinis testæ subæquans; sutura marginata; columella subplicata; apertura parum obliqua, semiovalis, basi subangulata; peristoma simplex, margine columellari superne dilatato, adnato. Alt. 25, diam. max. 7.5 mm.; apert. alt. 7.5, lat. 4 mm.

Hab.—Molokai Mountains (Perkins); Molokai (Baldwin, Hutchison).

Specimens are to be found in some collections under the name of *N. Philippiana*, Pfeiffer. The present species, however, is larger, much more solid, the whorls are flatter, the colouring is lighter and different, the columellar lip is more reflexed, and the perforation more conspicuous.

One puzzling question of nomenclature requires consideration in connection with the small, unicolorous, polished, almost imperforate Zonitoid forms found in the Hawaiian Islands, and, indeed, scattered over all Polynesia.

They have been placed most usually in *Microcystis*, Beck, in which course M. Ancey and Mr. Baldwin, in their respective papers on the Hawaiian fauna, have concurred; the latter further making *Microcystis* a section of *Nanina*, Gray. To deal with the latter point first, it may be pointed out that Risso¹ had previously used *Nanina* for a Mediterranean marine Gastropod, and that the name therefore must be removed entirely from the nomenclature of land-shells. The other point, namely, whether these shells belong to *Microcystis* at all, requires far more consideration.

¹ Hist. Nat., vol. iv, p. 150, 1826.

Beck proposed *Microcystis* in 1837¹ as a section of *Nanina*, Gray, and he placed in it six species in the following order:—

1. *pellicula*, Beck. This appears to be of uncertain identity, but is most probably a Cape of Good Hope species near *Zingis Natalensis* (Pfr.).
2. *trifasciella*, Beck = *Helix Cubensis*, Pfr.
3. *pictella*, Beck = *Helix Cubensis*, Pfr.
4. *ornatella*, Beck.
5. *filiceti*, Beck = *Helix Adamsi*, Pfr.
6. *amænula*, Beck = ? *M. ornatella*, Beck, var.

We have first to settle whether *Microcystis* is worthy of retention in our nomenclature, and then what species should stand as its type. The principle which I would suggest should be applied is, that where a genus is put forward in an old catalogue of this kind, with no special named type, but a somewhat heterogeneous list of species, it should only be retained if one of two conditions be fulfilled, namely, that it has either been properly adopted by some subsequent author prior to any other name being suitably proposed, or where no other name at all has been given to the group. Further, the first identifiable species, not belonging to any other genus, should be the type; or, the first species, if the genus has been broken up, so placed by the author dividing the group, provided, of course, it be originally in the genus. Now, how do we stand with regard to *Microcystis*?

Albers,² in 1850, properly adopts this genus, placing as his first species one not included by Beck; his second, however, being *M. ornatella*, Beck.

Möreh,³ in 1852, gives *M. ornatella* as his first species; he created at the same time the genus *Cysticopsis* for *H. Cubensis*, Pfr. (= *trifasciella* and *pictella* of Beck).

Beck's first species being of uncertain identity, I would therefore suggest that *ornatella* be treated as the type of *Microcystis*. Now these small Zonitoids hardly fit into the same genus as this species, and therefore some other generic title is required for them.

It appears to me that *Macrochlamys*, Benson,⁴ is the most suitable. The advantages and disadvantages of retaining this name in nomenclature have been so recently discussed by Colonel Godwin-Austen,⁵ that I will not enter into the subject here, beyond saying that his reasons for its retention appear sufficiently convincing. The type is *M. Indica*, Benson, which has been sometimes improperly confused with the *Helix vitrinoides*, Deshayes, and is even now slightly uncertain specifically: there is no doubt, however, that it agrees with what is usually accepted as *Macrochlamys*. Whether our small forms are in accord with the typical group of this genus anatomically,

¹ Index Moll., p. 2.

² "Die Heliceen," p. 59.

³ Cat. Voldi, 1852, p. 2.

⁴ Journ. As. Soc. Bengal, vol. i, 1832, pp. 13, 76.

⁵ "Mollusca of India," vol. i.

remains to be proved; but, conchologically, they only appear to differ in size.

For the present, therefore, I would suggest the following as a convenient working classification:—

Genus *Macrochlamys*, Benson.

Section *Macrochlamys*, s.str.

Type *M. Indica*, Benson, to include all the highly polished, depressed, almost and quite imperforate species, which have no callosity in the aperture.

Section *Microcystina*, Mörch.

Type *M. Rinkii*, Mörch, to include the species which have a reflected columellar lip showing a sinus or notch.

Section *Lamprocystis*, Pfeiffer.

First species *L. excrescens*, Mousson, to include the species having a dentiform callosity on the columellar lip.

It has been already shown by Colonel Godwin-Austen¹ that the radula and jaw of *Microcystina* are similar to those of *Macrochlamys*; and he has formed a subfamily Macrochlaminae to contain *Macrochlamys*, *Microcystina*, and *Hemiplecta*, giving *Helix Humphreysiana*, Lea, as the type of the latter genus.

The species grouped under *Microcystis* by Semper² would appear to fall in this grouping under *Macrochlamys*, his first species being *M. myops*, Semper and Dohrn.

¹ "Mollusca of India," vol. i, p. 12.

² "Reisen im Arch. der Phil.," Landmollusken, 1870, p. 43.



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