

ON A COLLECTION OF LAND-SHELLS MADE BY MR. I. KUBARY IN
GERMAN NEW GUINEA.

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PLATE XV.

THE material for the present memoir was furnished by Mr. I. Kubary, well known for his ethnological and zoological researches in the Caroline and other islands of the Pacific region. Most of the shells were collected in the neighbourhood of the German colonial station of Constantinhafen, situated in Astrolabe Bay, Kaiser Wilhelms Land; some came from the hills at the foot of the Finisterre Mountains. Small as the collection is, it contains some interesting novelties, and confirms entirely Mr. Hedley's view¹ that the molluscan fauna of New Guinea is essentially Malayan. To this theory I consider the discovery of a true *Cyclophorus* lends very important support.

1. XESTA CITRINA, Linn.

Var. *apicata*, Möll. — Anfr. apicalibus tænia angusta castanea tum evanescente ornatis.

All my examples from the neighbourhood of Constantinhafen are nearly uniformly yellow, or orange yellow, becoming somewhat darker towards the aperture, and showing a narrow brown band on the apical whorls only. The same form, which seems to be a good local variety, I received through Mr. B. Strubell, from the island of Djamna.

2. RHYSOTA (HEMIPLECTA) ACHILLES, Braz.

Brazier, Proc. Linn. Soc. New South Wales, x. p. 842; Tapp.-Can. N. Guin. suppl. 1886, p. 39.

Maclay Coast (Brazier), Tombul, near Constantinhafen, at an altitude of 600 meters.

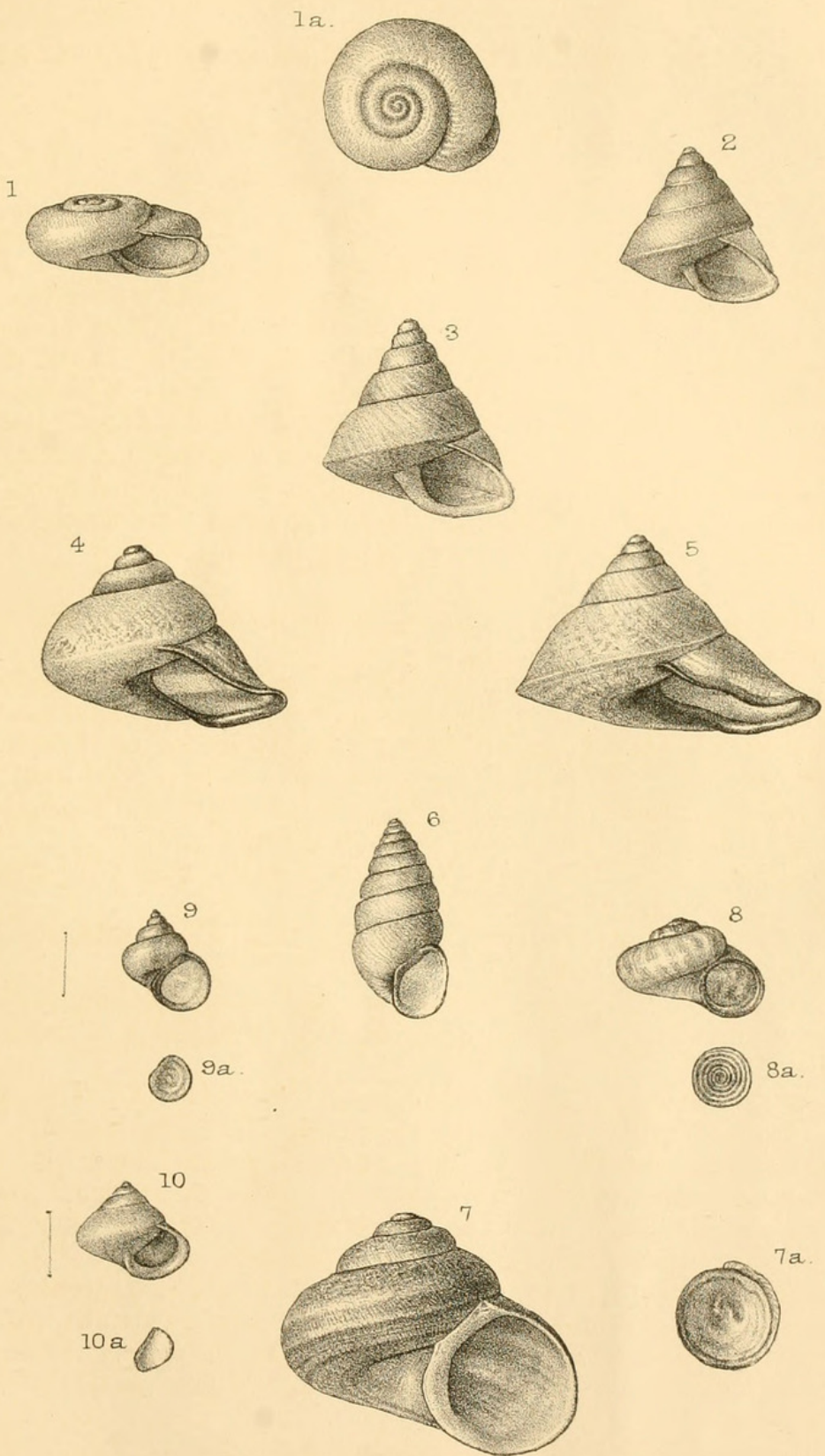
Related to *R. doriae*, Tapp.-Can., but easily distinguished by the open umbilicus. Both species belong to the group of *R. Humphreysiana*, Lea.

3. PLANISPIRA (CRISTIGIBBA) PAPUANA, n.sp. Pl. XV. Figs. 1 and 1a.

Testa sat aperte umbilicata, subdiscoidea, levissime striatula, cuticulâ tenuissimâ, opacê obducta, quasi pruinosa, pallide flavescens, interdum tænia supraperipherica fusca ornata. Spira plana, haud prominula, sursum rosacea. Anfr. 4½, convexiusculi, suturâ valde impressâ discreti, ultimus ad peripheriam indistincte subangulatus, basi sat gibber, pone aperturam modice constrictus, ante stricturam indistincte cristatus, tum subito deflexus. Apertura maxime obliqua, cordiformis, modice excisa, peristoma superne modice expansum, basi reflexiusculum marginibus convergentibus, rosaceum. Diam. maj. 16–19, alt. 8–9.5 mm.

Forma *flavina*: unicolor flava, peristoma album.

¹ Proc. Linn. Soc. New South Wales, ser. II. vol. vi. (1891), p. 693.



G.M.Woodward lith.

West, Newman imp.

New Land-Shells from New Guinea.

Hab.—Prope Constantinhafen, Novæ Guineæ, leg. cl. I. Kubary.

Differs from *P. tortilabia*, Less., not only in its smaller size and rose-coloured lip, but chiefly in the much smaller constriction of the last whorl and the scarcely distinguishable vertical rib or crest behind the constricted part. The opaque hoary covering connects this form with *P. plagiochila*, Tapp.-Can., which latter species has, however, a much narrower umbilicus and scarcely deflected last whorl.

4. SATSUMA EUCONUS, n.sp. Pl. XV. Fig. 2.

Testa anguste et semiobtecte perforata, trochiformis, solidula, tenuiter sed distincte striata, lineis spiralibus microscopicis decussatula, opaca, luteo-cornea; spira valde elevata, fere regulariter conica, apice obtuso. Anfr. $5\frac{1}{2}$ planulati, suturâ per carinam subexsertam marginatâ discreti, ultimus carinâ exsertâ, sat acutâ carinatus, basi convexiusculus. Apertura fere diagonalis, irregulariter trapezoidea, peristoma superne vix, extus et basi sat expansum, margo columellaris dilatatus, reflexus, cum basali angulum obtusum formans. Diam. 16.5, alt. 16 mm.

Hab.—Prope Constantinhafen, leg. cl. I. Kubary.

This fine new species, of which there was only one example, bears a surprising similarity to some Philippine forms, viz. *Satsuma trochus*, Mlldff., and *S. Fernandezi*, Hid. All these trochiform Helices, which have been placed in various groups, such as *Geotrochus*, *Trochomorphoides*, Nev., *Coliolus*, Tapp.-Can., certainly belong to *Satsuma*, a genus, or subgenus, which ranges from Japan and China to the Malay Peninsula and the Indian Archipelago, including the Philippines, and finally to New Guinea and Melanesia. The only species hitherto known from New Guinea are *S. Arfakiensis*, Tapp.-Can., the type of the group *Coliolus*, Tapp.-Can., and *S. Bertiniana*, Tapp.-Can.

5. SATSUMA DASYPLEURIS, n.sp. Pl. XV. Fig. 3.

Testa semiobtecte perforata, trochiformis, solida, costulis confertis obliquis subarcuatis sculpta, corneo-brunnea (?); spira valde elevata lateribus fere strictis, apice obtuso. Anfr. 6 vix convexiusculi, sutura per carinam exsertam marginata discreti, ultimus peracuti carinatus, basi planiusculus. Apertura diagonalis, irregulariter trapezoidea, peristoma superne vix, extus et basi sat expansum, margo columellaris valde dilatatus, subreflexus, cum basali angulum parum distinctum formans. Diam. maj. 20.5, alt. 21 mm.

Hab.—Prope Constantinhafen, leg. cl. I. Kubary.

Mr. Kubary found only two badly preserved specimens of this interesting form. It is without doubt a true *Satsuma*, easily distinguished from the preceding species by the dense and rather acute costulation.

6. CHLORITIS DELPHAX, Kobelt.

Helix (*Chloritis*) *delphax* (Dohrn MSS.), Kobelt, Nachr. Bl. deutsch. Malak. Ges. 1891, p. 204.

Hab.—Astrolabe Bay (Dohrn), in the hills above Constantinhafen (Kubary).

Of the two distinguishing characters mentioned by Kobelt, the dark colouration of the aperture is immaterial, inasmuch as there are similarly coloured examples of *Chloritis erinaceus*, Pfr., but the

last whorl is always comparatively higher and more descendent. Besides—and this is to me the most important difference of all—the hairs are placed far more closely together. In the space of 4 square mm. I can count 16 hairs on *C. erinaceus*, 36 on *C. delphax*.

Kobelt gives the dimensions 30×23 ; my specimens measure diam. 29, alt. 23.5; diam. 27.5, alt. 21.5; diam. 27, alt. 22 mm.

7. *PAPUINA TAYLORIANA*, Ad. and Rve.

Tryon's Man. Conch. 2nd ser. vii. p. 58.

This species is represented in the neighbourhood of Constantinhafen by two different forms, one nearly typical in size and colouring, the other much smaller, 21×13 mm., the sinuation of the upper lip deeper and almost angular, the "beak" at the keel more pointed. I name the latter form var. *genulabris*.

8. *PAPUINA KUBARYI*, n.sp. Pl. XV. Fig. 4.

Testa imperforata, sub-globosa, solidula, striis subtilibus transversis et rugulis oblique antrorsum decurrentibus sculpta, flavescent, maculis nigricantibus irregulariter dispersis basi in tæniam subinterruptam confluentibus picta; spira convexo-conoidea, sursum violacea, apice, obtusulo nigricante. Anfr. $4\frac{1}{2}$ sat convexi, ultimus tumidus, vix subangulatus, basi subgibber, antice breviter sed valde deflexus, saturatius flavus, pone aperturam carneus. Apertura maxime obliqua, irregulariter trapezoidalis, intus rosacea, tum fusca, peristoma sat expansum, reflexiusculum, atrofusum, margo superus sigmoideo-sinuatus, columellaris appressus callo tenui purpureo cum supero junctus. Diam. maj. 26, alt. 19 mm.

Forma *albina*: testa omnino alba, maculis hyalino-translucidis ornata.

Hab.—Prope Constantinhafen, leg. cl. I. Kubary.

In spite of the very different aspect and the entire absence of any keel, I have little doubt that this form is after all an extreme development of *P. Tayloriana*, Ad. et Rve. The mode of colouration is very similar, also the sculpture, the form of the aperture, with the exception of the "beak," which is less acutely pointed on account of the absence of a keel. At the same time it appears to be quite sufficiently differentiated to claim the rank of a separate species. Mr. Kubary sent me a goodly number of examples, and not a single one shows any transition to the sharp keel of *P. Tayloriana*, all being rounded at the periphery with an almost imperceptible angulation. Besides, there is half a whorl less, the whorls are more convex, the corrugation somewhat more distinct and coarser.

The albino form, as mentioned above, is rather frequent. Some examples lack the transparent specks and are uniformly milk-white. There can be no doubt of their belonging to *P. Kubaryi*, and I believe that *P. albocarinata*, Smith,¹ stands in the same relation to *P. Tayloriana*, as Pilsbry has already hinted.

9. *PAPUINA PLANOGYRA*, n.sp. Pl. XV. Fig. 5.

Testa imperforata, trochiformis, solida striis transversis subtilibus

¹ Tryon, Man. Conch. 2nd ser. vii. p. 59.

et rugulis oblique antrorsum decurrentibus sculpta, lactea, sursum carnea, maculis subpellucidis brunnescens, basi in 2 tæniis confluentibus picta; spira valde elevata fere exacte conica, apice acutulo. Anfr. $5\frac{1}{2}$ fere plani, ultimus ad peripheriam peracute carinatus, carinâ usque ad peristoma productâ sed antice magis obtusâ, antice subito et fere verticaliter deflexus, basi convexiusculus. Apertura maxime obliqua, irregulariter lanceolata, peristoma parum expansum, reflexiusculum, atrofusum, sat labiatum, margo superus sigmoideus, externus coarctatus et sursum recurvus, columellaris appressus. Diam. maj. 32, alt. 23 mm.

Hab.—Prope Constantinhafen, leg. cl. I. Kubary.

This seems to be the other extreme of the *P. Tayloriana* series. It is distinguished by its higher spire, the almost entirely flat whorls, the paler colour, the almost vertical deflexion of the end of the last whorl, besides which it has half a whorl more.

10. PAPUINA (INSULARIA) TOMASINELLIANA, Tapp.-Can.

Var. *Maclayana*, Braz.

Helix Maclayana, Brazier, P. Linn. Soc. New South Wales, x. 1886, p. 841; Tryon, Man. Conch. 2nd ser. vii. p. 45.

Maclay Coast (Brazier), Tombul, near Constantinhafen, on trees and in the sheaths of rattan palms.

My examples agree perfectly with the description of *P. Maclayana*, Braz., but on the other hand they differ from *P. Tomasinelliana*, Tapp.-Can., only by the more depressed spire, the less distinct bands, and slightly more expanded lip. Brazier gives diam. 39, alt. 27 mm. My specimens measure as follows:—

Diam.	39,	alt.	26	mm.
„	39,	„	25	„
„	38,	„	26.5	„
„	38,	„	27	„
„	36,	„	26	„

The dimensions of *P. Tomasinelliana* as given by Tapparone-Canefri are: diam. 36, alt. 23 mm.; the latter probably taken from the umbilicus, as the figure¹ shows 36×27 mm. I think it is quite sufficient to separate *P. Maclayana* as a variety only.

I fail to see the reason why Pilsbry has rejected the well-defined section *Insularia*, Tapp.-Can., which seems to me a very natural and easily distinguished group, equally as well characterized as *Dendrotrochus*, Pilsbry. It would be convenient to divide the remaining species of *Papuina* also into sections, with separate names, such as *Rhynchotrochus*, for the group of *P. Tayloriana*.

11. BULIMINUS (ENA) COLONUS, n.sp. Pl. XV. Fig. 6.

Testa aperte rimata, ovato-oblonga, sat solida, subtiliter striatula, luteo-cornea; spira ovato-acuminata apice acutulo. Anfr. 10 convexiusculi, ultimus paullo convexior, paulisper ascendens. Apertura

¹ Ann. Mus. Civ. Genova, xix. t. iv. fig. 1.

parum obliqua, truncato-ovalis, peristoma vix expansum, sublabiatum, margine columellari sat dilatato callo crasso cum supero juncto. Diam. max. 9.5, alt. 21 mm.

Hab.—Prope Constantinhafen, leg. cl. I. Kubary.

The occurrence of a true *Buliminus* in New Guinea is a very interesting point in zoological distribution, since it confirms the theory that the Papuan fauna is more Oriental than Australian. The nearest localities where species of *Ena* have been observed are Java and Borneo, none having been found, as yet, in the Celebes or the Moluccas.

12. *CYCLOPHORUS KUBARYI*, n.sp. Pl. XV. Figs. 7 and 7a.

Testa modice sed aperte umbilicata, sat elate turbinata, solida, transverse leviter striatula, rugis sat irregularibus crassiusculis sculpta, castanea, tæniis atrofusis, plerumque 1 ad suturam 2 ad peripheriam latis, variegata; spira plus minusve elevata, lateribus vix convexiusculis. Anfr. 5 convexi ad suturam ruditer tuberculato-plicati, ultimus antice breviter descendens. Apertura sat obliqua, subcircularis, peristoma vix expansum, intus incrassatum, pallide flavescens, margine columellari valde incrassato, subduplicato. Operculum corneum, crassiusculum, extus fere planum, intus convexiusculum, medio annulo circulari margine elevato indutum, intra anulum impressum, medio papilla validiuscula prominente munitum. Diam. maj. 32.5, min. 27, alt. 28 mm.; apert. lat. (c. perist.) 17, long. 17, alt. 14 mm.

Hab.—In montibus prope Constantinhafen, leg. cl. I. Kubary.

Another most important discovery of Mr. Kubary's. The species somewhat resembles the large *Cyclophori* of the Philippine Islands, both in shape and colouring, whilst its peculiar sculpture calls in mind that of certain species of *Ostodes*. The operculum is not quite typical, inasmuch as it is thicker, and the inner side shows a rather stout tubercle in the centre, with an impressed cone succeeded by an elevated ring around it. We shall probably be obliged to make *C. Kubaryi* the type of a separate section.

13. *LEPTOPOMA VITREUM*, Less.

Frequent near the sea all round Constantinhafen (Kubary). Already known from New Guinea (Lesson, Tapparone-Canefri), New Britain, Louisiades, Key and Aru Islands, the Moluccas and the Philippine Islands.

14. *CYCLOTUS* (*PSEUDOCYCLOPHORUS*) *CANALICULATUS*, n.sp. Pl. XV. Figs. 8 and 8a.

Testa aperte umbilicata, umbilicato $\frac{1}{4}$ diam. adæquante, conoideo-depressa, flavescens, strigis latiusculis fulguratis castaneis picta subtiliter plicato-striata; spira breviter elevata, subregulariter conoidea. Anfr. $4\frac{1}{2}$ teretes, sutura valde profunda canaliculata, disjuncti, ultimus paulisper descendens. Apertura modice obliqua, circularis, peristoma duplex, internum continuum, porrectum, externum superne brevissime dilatatum, subcampanulatum, basi desinens. Operculum terminale, parum concavum, anfr. 8 transverse ruditer striatis, marginibus paullum prominentibus. Diam. maj. 15.5, alt. 9.5, apert. diam. 6.5 mm.

Hab.—Prope Constantinhafen, leg. cl. I. Kubary.



1895. "On a collection of Land-Shells made by Mr. J. Kubari in German New Guinea." *Proceedings of the Malacological Society of London* 1, 234–240.

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