

NEW LAND MOLLUSCA FROM JAPAN AND THE BONIN ISLANDS.

BY HENRY A. PILSBRY.

A monographic account of the non-marine mollusks of the Bonin Islands (Ogasawara-jima) is now in preparation, in which all of the species will be illustrated. As Mr. Nakada is still collecting in the islands for Mr. Hirase, and will probably spend a month or two more there, it has been thought desirable to publish brief notices of his discoveries, reserving the consideration of the extrinsic relations of the Ogasawaran fauna for the article to follow.

Besides the material sent by Mr. Hirase, I am indebted to Mr. S. Yoshiwara, of the College of Science, Imperial University, at Tokyo, for valuable specimens and data which will be fully utilized in the projected monograph. One of the most interesting of Mr. Yoshiwara's discoveries is the true locality of *Mandarina ruschenbergeriana* (Pils.), which he found on the islet Minami, off the southern end of Chichijima.

HELICINA Lam.

This genus is represented in the Bonin Islands by several species and varieties, all more or less related, and doubtless claiming a common ancestor, though several of them are conspicuously diverse. Those now known from Hahajima may be determined by the following key:

- a.*—Spire elevated, conic; lip simple, blunt, unexpanded. Whorls $4\frac{1}{2}$. Alt. 4, diam. 5.2 mm., . . . *H. capsula* n. sp.
- a*¹.—Spire convex or merely somewhat conoidal; base convex; lip more or less expanded or thickened.
 - b.*—Periphery conspicuously carinate; lip expanded and thickened.
 - c.*—Whorls 4; strongly striate spirally above. Alt. 3.2 or 3.3, diam. 5 mm., . . . *H. ogasawarana* n. sp.
 - c*¹.—Much depressed and very acutely carinate; pale yellowish-corneous; whorls $4\frac{1}{2}$. Alt. 2.7 to 3, diam. 5.8 to 6 mm., . . . *H. hirasei* n. sp.
 - b*¹.—Periphery more or less angular, or rounded though compressed.

Blanfordia bensoni A. Ad., Ann. and Mag. Nat. Hist. (3), XII, p. 424, Pl. 7, fig. 11.

Blanfordia bensoni A. Ad., Möllendorff, Nachr'bl. d. D. Malak. Ges., 1897, p. 32 (description of specimens from Hakodate).

Pomatiopsis hirasei Pils., Nautilus, May, 1900, p. 12.

Southern Yesso, in the Province Ojima, at Matsumai (A. Ad.), Kayabe (Y. Hirase), and Hakodate (B. Schmacker).

B. japonica (A. Adams).

Tomichia japonica A. Ad., Ann. and Mag. (3), VIII, p. 308 (October, 1861).

Blanfordia japonica A. Ad., Ann. and Mag. (3), XII, p. 424, Pl. 7, fig. 12.

Sado Island (A. Ad.).

B. japonica var. **simplex** Pils. See above.

Blanfordia japonica Mildf., Nachr'bl. d. D. Malak. Ges., 1900, p. 153.

Nishigo, Uzen, Nippon; Kajima, Satsuma, Kiushiu (Y. Hirase).

I have given the references in full because several authors, notably von Möllendorff and Kobelt, have expressed ignorance of the existence of descriptions of A. Adams' species; the former author, with characteristic temerity, stating that one of them had never been described.

Cyclophorus kikaiensis n. sp.

Shell depressed-turbinate, moderately solid but not thick, openly umbilicate; pale yellowish, encircled by many dark red-brown dotted or spotted lines and bands, those above usually more or less confluent, and usually marked with radiating zigzag light streaks; the earlier whorls purplish-brown; sculptured with minute, thread-like striæ, coarser and more separated on the early whorls. Whorls $4\frac{3}{4}$, very convex, the last rounded or sometimes indistinctly angular in front, convex below. Aperture circular, oblique, bluish inside, the peristome built forward beyond a very slight expansion, in fully mature individuals; in contact with the preceding whorl for a very short distance only.

Alt. $11\frac{1}{2}$, diam. 15 mm.

Alt. 12, diam. 16 mm.

Alt. $12\frac{1}{2}$, diam. 17 mm.

Kikai-ga-shima, Osumi. Types No. 81,940 Coll. A. N. S. P., from No. 547 of Mr. Hirase's collection.

I formerly thought this a small variety of *C. turgidus* Pfr., but further study of larger series shows it to be distinct. It is a smaller,

less elevated shell, with decidedly larger umbilicus, the whorls being more loosely coiled. Specimens from the fossil-bed on the same island (Hirase's No. 684*b*) are a little larger, the largest measuring alt. 15, diam. 20 mm. They show the same open umbilicus and rather lax coil.

C. turgidus Pfr., from the same deposit, is decidedly larger than the typical form, diam. 27-28 mm.

***Diplommatina kiiensis* n. sp.**

Shell cylindric, conic above, the tapering portion less than half the length of the shell; dull red; sculptured with strong but narrow thread-like rib-striae, slightly coarser on the cone than on the last two whorls. Whorls $6\frac{1}{2}$, convex, the last narrower, strongly ascending in front. Aperture circular, the lip narrowly expanded, reinforced by a narrow rib or crest close behind it; continuous across the parietal wall. Columellar denticle strong. Palatal fold very long. Length 3.3, diam. nearly 2 mm.

Nachi, Kii. Types No. 82,656, Coll. A. N. S. P., from No. 837*a* of Mr. Hirase's collection; also No. 837*b*, from the same locality.

Some specimens are superficially eroded, and whitish ash-colored. The palatal fold is unusually long. It is a smaller species than *D. tenuiplica*, larger than *nipponensis* or *cassa*.

***Diplommatina kobelti* var. *ampla* nov.**

Shell with the spire long and regularly tapering to an obtuse apex. Whorls 8 to $8\frac{1}{2}$, convex, the last narrower and ascending as usual; pale reddish or corneous; evenly sculptured with delicate thread-like rib-striae, subobsolete on the last half of the last whorl. Aperture subcircular, with straightened, sinuous columellar margin. Columellar tooth strong. Palatal fold curved, covered by the expanded parietal callus.

Length 4, diam. 2 mm.

Gotô, Uzen. Types No. 82,664, Coll. A. N. S. P., from No. 812 of Mr. Hirase's collection. It is larger than *D. kobelti*, with more whorls.

***Diplommatina pudica* n. sp.**

Shell cylindric below, tapering in a long, slender spire above, the apex small, somewhat obtuse; dull red, the spire and apex blushing deep rose. Sculpture of thread-like riblets, conspicuous and

very widely spaced on the spire, rapidly becoming finer at the beginning of the penultimate whorl, which is very finely and closely striate; last whorl contracted, similarly sculptured but with the striæ partially effaced, ascending as usual. Aperture somewhat oblique, subcircular, the peristome expanded and reflexed, but not doubled and with no rib behind it. The columellar tooth is rather small, and deeply placed. No palatal fold is visible through the shell. Length 3, diam. 1.5 mm.

Nachi, Kii. Types No. 82,652, Coll. A. N. S. P., from No. 836a of Mr. Hirase's collection.

A very distinct species, like *D. kobelti* in the long spire, but in *D. pudica* the cone is more slender above. The disparity in sculpture between the whorls of the cone and the last two is unusually marked. The color of fresh, unworn shells is deeper than in the other species of Nippon known to me.

***Mandarina exoptata* var. *obtusa* nov.**

More depressed than the typical form, and merely angular at the periphery; whorls $4\frac{1}{3}$.

Alt. 13, diam. $22\frac{1}{2}$ mm.

Hahajima, No. 845 of Mr. Hirase's collection.

***Mandarina mandarina* var. *hahajimana* nov.**

Shell small, thinner than typical *mandarina*, pale yellowish; uniform or with a pale reddish band above, another below the periphery. Whorls $4\frac{1}{2}$, the last slightly angular in front, soon becoming rounded at the periphery. Surface very densely engraved with clear-cut, minutely crimped spiral striæ, obsolete immediately around the axis.

Alt. $13\frac{1}{2}$, diam. $18\frac{1}{2}$ mm.

Sekimon-zan, Hahajima (Mr. S. Yoshiwara); Hahajima (Mr. Y. Hirase).

Genus **HIRASEA** Pilsbry.

This group has been modified to fill many places in the Ogasawaran snail fauna. Six species have already been found on Hahajima alone, and one on Chichijima. Those known from the former island may be determined by the following key:

- I.—Spire more or less convex or low-conic; periphery angular or carinate.
- a.*—Basal lip produced forward beyond the outer and upper margins; periphery angular above; whorls $5\frac{3}{4}$, closely coiled; upper surface dull, striate, base glossy.
- b.*—Spire but slightly convex. Alt. 2.1, diam. 4.3 mm.,
H. sinuosa.
- b*¹.—Spire low-conic; base very convex. Alt. 2, diam. 3.1 mm., *H. eutheca.*
- a*¹.—Aperture normally oblique, the outer and upper margins projecting forward of the basal.
- b.*—Base translucent, thin, polished; whorls $5\frac{1}{2}$; periphery merely angular. Alt. 2, diam. 4.6 mm.,
H. hypolia.
- b*¹.—Base opaque, finely ribbed, like the upper surface; periphery acutely carinate.
- c.*—Biconvex; whorls $4\frac{1}{2}$ to $4\frac{3}{4}$. Alt. 2.2, diam. 4 mm., *H. nesiotica.*
- c*¹.—Much depressed, the keel very acute; whorls 4. Alt. 1.6, diam. 4 mm., . . . *H. acutissima.*
- II.—Spire concave, the earlier whorls sunken; periphery rounded.
- a.*—Disk-shaped; rich brown, and densely, minutely rib-striate above and at the periphery, becoming polished and somewhat translucent beneath, whitish near the axis. Whorls 5, the last rounded at the periphery; aperture lunate, the lip simple and acute in the specimens seen, which are probably not adult. Alt. 1.7, diam. 4 mm.,
H. biconcava.

Another genus or subgenus, apparently allied to *Hirasea*, is represented by one species sent from Hahajima, and by *Helix operculina* of Gould, collected on Peel Island [Chichijima] by the North Pacific Exploring Expedition, but not yet obtained by Mr. Hirase. This group may be defined as follows:

FAMETESTA subgen. nov.

Shell disk-shaped, excessively depressed and acutely carinate, concave below the keel, imperforate, thin, minutely striate. Aperture oblique, extremely narrow, the basal lip thickened within. Type *H. mirabilis*.

Two species are now known. Both are pale brown with 5 whorls. They differ thus:

- a.*—Diameter three times the altitude, 2.5 x 7.5 mm. Chichijima,
H. operculina Gld.

*a*¹.—Diameter five times the altitude, 1.5 x 7 mm. Hahajima,
H. mirabilis n. sp.

The last species is so flat it looks as though trodden upon.

***Kaliella ogasawarana* n. sp.**

Shell large for the genus, subperforate, conic, pale yellowish-corneous, subtransparent, glossy, smooth except for slight growth-lines. Spire almost straightly conic, the apex obtuse. Whorls $7\frac{1}{2}$, somewhat convex, the last strongly angular at the periphery, moderately convex below. Aperture slightly curved, in crescent form, truncate at the ends; lip thin and acute, the columella concave, with narrowly reflexed margin. Alt. 5, diam. 5 mm. Hahajima, Ogasawara (Y. Hirase, No. 846).

***Nesopupa dedecora* n. sp.**

Exceedingly small, obesely oval, dark red-brown, faintly striate. Whorls $4\frac{3}{4}$, convex, the last swelling in a very conspicuous crest some distance behind the aperture, and grooved at the position of the upper palatal fold. Aperture squarish, well rounded below, the lip expanded, brown. Parietal lamella long and strong; angular lamella well developed, not united with the parietal. Columellar lamella deeply placed, small. Basal fold small, close to the columella. Lower palatal fold very small and deeply situated. Upper palatal large and prominent. All the teeth are whitish.

Length about 1.6, diam. 1 mm.

Hahajima, Ogasawara (No. 855 of Mr. Hirase's collection).

***Eulota senckenbergiana* var. *awaensis* nov.**

Very large, dark brown with wide, ill-defined darker brown, and lighter dusky yellowish streaks, a narrow blackish supra-peripheral band bordered with yellow on both sides, and the interior of the umbilicus blackish. It wants the bright yellow variegation of typical *senckenbergiana*. Surface conspicuously malleate.

Alt. 30, diam. 55 mm.

Alt. 33, diam. $53\frac{1}{2}$ mm.

Suimura, Awa. Types No. 82,608 Coll. A. N. S. P., from No. 828 of Mr. Hirase's collection.

The species has not hitherto been reported from Shikoku Island.

Eulota vulgivaga var. *lanx* nov.

Shell more depressed than *vulgivaga*, the base less convex. Last whorl deflexed in front. Aperture more oblique. Fringe at the periphery and sometimes along the suture well developed.

Alt. 9, diam. 22 mm.

Suimura, Awa, Shikoku Island (Mr. Hirase, No. 825).

A large form of *vulgivaga* occurs at Mt. Ibuki, Omi, having almost 7 whorls, a dome-like spire, and comparatively smooth cuticle; but smaller specimens seem to occur with the large ones, so that with the material now in hand I do not see that a distinct local race is indicated.



Pilsbry, Henry Augustus. 1902. "New land Mollusca from Japan and the Bonin Islands." *Proceedings of the Academy of Natural Sciences of Philadelphia* 54, 25–32.

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