

ON THE LAND-SHELLS OF CURAÇOA AND THE NEIGHBOURING ISLANDS.

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SOME years ago Dr. Ernst Hartert, whilst travelling in the West Indies, paid a short visit to Curaçoa and the neighbouring islands of Oruba and Buen Ayre, or Bonaire, and although occupied chiefly in bird-collecting, he also obtained a small collection of land and fresh-water shells, which have been very kindly submitted to me for identification.

The land-shells of those islands are very few in number, and with the exception of *Bulinulus elongatus*, are restricted in their distribution.

Six species are known from Curaçoa, viz.:

1. *Bulinulus elongatus*.
2. *Cerion ura*.
3. *Cylindrella Raveni*.
4. *Pupa longurio*.
5. *Cistula Raveni*.
6. *Tudora megacheila*.

In Bonaire the following occur:

1. *Pinaria Bonairensis*, n.sp.
2. *Cylindrella Raveni*.
3. *Neosubulina Harterti*, n. gen. et sp.
4. *Tudora aurantiaca*.

In Oruba there are found:

1. *Bulinulus elongatus*.
2. *Cerion ura*.

Whilst at Los Roques we have:

1. *Ravenia Blandi*.

No fresh-water shells have hitherto been recorded from any of these islands. The two found by Dr. Hartert are *Paludestrina crystallina*, Pfr., from Buen Ayre, and a *Planorbis* from Curaçoa. Three rather young specimens of the latter do not offer any special characters, and at present must remain undetermined.

1. *BULIMULUS ELONGATUS* (Bolten).

Helix elongata, Bolten: Mus. Boltenianum, p. 107.

Helix virgulata, Férussac: Hist. Nat. Moll., pl. cxlii B, figs. 6, 7.

Bulinus virgulatus, Fér.: Reeve, Conch. Icon., pl. xlix, figs. 320*a-b*.
Bulinus virgulatus, Fér.: Pfeiffer, Conch. Cab., 2nd ed., p. 161,
 pl. xlv, figs. 9-12.

⁵ *Hab.*—Porto Rico and some of the Lesser Antilles as far south as Guadeloupe (Kobelt¹); Venezuela (Martens²); Oruba, Curaçoa, and Buen Ayre (Hartert); Curaçoa (Bland); Buen Ayre (Bland).

The majority of the specimens collected by Dr. Hartert are transversely banded and longitudinally striped with brown, as depicted in Férussac's figures 6 and 7, but a few are uniformly white or pale brown with faint oblique striping. They vary considerably in form, some being much more slender than others. They "often cover the *Cereus* (tall Cactuses) by thousands, giving them a very peculiar look" (Hartert).

2. CERION UVA (Linn.).

Turbo uva, Linnæus: Syst. Nat., 10th ed., p. 765.

Helix uva, Linn.: Férussac, Hist. Nat. Moll., pl. cliii, figs. 9-14.

Pupa uva, Linn.: Küster, Conch. Cab., p. 5, pl. i, figs. 3, 4.

Pupa uva, Linn.: Sowerby, Conch. Icon., vol. xx, pl. i, fig. 7.

Hab.—Curaçoa (Hartert and others); Oruba (Hartert).

Variable in form, some examples being much more slender than others.

Helix pentodon of Menke³ is the young shell of this species, when it is deeply umbilicated and consists of five whorls, the last being acutely carinate at the periphery.

3. PINERIA BONAIRENSIS, n.sp. Fig. I.

Testa parva, elongato-pyramidalis, vix rimata, fusco-cornea, strigis albidis obliquis obscure variegata; spira mediocriter acuminata, ad apicem obtusa; anfractus $8\frac{1}{2}$, convexiusculi, lente accrescentes, striis



FIG. I.—*Pineria Bonairensis*, n.sp.

perobliquis confertis elatis sculpti, penult. ultimo paulo latior; apertura fere circularis; peristoma pallidum, mediocriter tenue, marginibus conniventibus, columellari reflexo. Long. 6, diam. 2.5 mm.; apertura 1.5 mm. lata.

Hab.—Buen Ayre (Hartert).

¹ Jahrb. Deutsch. malak. Gesell., 1880, pp. 278-282.

² Binnenmoll. Venezuela, in Festschrift Gesell. naturf. Freunde Berlin, 1873, p. 184.

³ Pfeiffer, Conch. Cab., 2nd ed., p. 198, pl. c, figs. 32-4.

The minute thread-like lines which cover the surface of the shell are very oblique and extend even to the apical whorls.

One specimen only was obtained. Allied to *P. Beathiana*, Poey, from the Isle of Pines, but more finely sculptured, with less convex whorls, a larger apex to the spire, a narrower body-whorl, and differs in the reflexion of the columella.

4. CYLINDRELLA RAVENI, CROSSE.

Cylindrella Raveni, Crosse: Journ. de Conch., 1872, p. 157; 1873, p. 40, pl. i, fig. 4.

Hab.—Curaçoa (Crosse); Buen Ayre (Hartert).

5. PUPA LONGURIO, CROSSE.

Pupa longurio, Crosse: Journ. de Conch., 1872, vol. xx, p. 158; 1873, vol. xxi, p. 42, pl. i, fig. 2.

Hab.—Curaçoa (Crosse).

6. RAVENIA BLANDI, CROSSE.

Ravenia Blandi, Crosse: Journ. de Conch., 1873, vol. xxi, p. 69; 1874, vol. xxii, p. 69, pl. ii, fig. 4.

Hab.—Los Roques (Crosse).

A curious and very small shell, "intermediate between the true *Spiraxes* and *Pupæ*" as regards the peristome and the character of the aperture.

NEOSUBULINA, n.gen.

Testa aspectu *Subulina* similis, sed lamina parietali instructa et columella spiraliter contorta, basi haud subtruncata; radula haud discrepans. *Tornatellina* et *Leptinaria* similis, sed radula diversa.

7. NEOSUBULINA HARTERTI, n.sp. Fig. II.

Testa elongata, cylindracea, superne angustata, cornea, parum nitida, lineis incrementi tenuibus, obliquis, curvatis striata; an-



FIG. II.—*Neosubulina Harterti*, n.sp.

fractus 8, apicales duo magni, convexi, mammiformes, cæteri convexiusculi, sutura leviter obliqua haud profunda sejuncti, ultimus haud descendens; apertura parva, inverse auriformis, longit. totius $\frac{1}{4}$ haud

æquans; labrum tenue, simplex; columella leviter arcuata, superne reflexa, antice spiraliter torta; lamina parietalis valida, prominens, longe intrans. Long. 9, diam. 2·25 mm.; apertura 2 mm. longa.

Hab.—Buen Ayre (Hartert).

The mammillated apex is often slightly out of the perpendicular. I have much pleasure in associating Dr. Hartert's name with this very interesting and distinct form. On making a section of one specimen, the parietal lamella was found to extend about a whorl and a half inwards, the rest having been absorbed. The radula, kindly examined by Mr. W. Moss, is Stenogyroid.

8. *CISTULA RAVENI*, Crosse.

Cistula Raveni, Crosse: Journ. de Conch., 1872, vol. xx, p. 159; 1873, vol. xxi, p. 43, pl. i, fig. 5.

Hab.—Curaçoa (Crosse).

9. *TUDORA MEGACHEILA*, Pot. & Mich.

Cyclostoma megacheilos, Potiez et Michaud: Gal. Douai, vol. i, p. 237, pl. xxiv, figs. 9, 10.

Cyclostoma megachilum, Pot. & Mich.: Pfeiffer, Conch. Cab., 2nd ed., p. 66, pl. ix, figs. 15–19.

Cyclostoma simile, Sowerby: Thes. Conch., vol. i, p. 103, pl. xxiv, figs. 48, 49.

Hab.—Curaçoa (Pfeiffer, Bland, Hartert).

This species exhibits considerable variation in size. An average specimen, consisting of four whorls, is 16 mm. in length; a very large example, having the same number of volutions, is 19 mm. long, whereas the smallest specimen, which appears to be full-grown, is only 10 mm. Between these forms there are many intermediate specimens, so that a complete gradation in size is observable.

10. *TUDORA AURANTIACA* (Wood).

Turbo aurantius, Wood: Index Test., Suppl., p. 19, pl. vi, fig. 23.

Cyclostoma aurantiacum, Sowerby: Thes. Conch., vol. i, p. 103, pl. xxiv, figs. 46, 47.

Cyclostoma versicolor, Pfeiffer: Conch. Cab., 2nd ed., p. 65, pl. ix, figs. 13, 14.

Hab.—Buen Ayre (Bland and Hartert).

Variable in colour, being uniformly white or flesh-colour, or transversely lineated with brown, the lines more or less interrupted. The largest specimen is 17 mm. in length, the smallest only 10·5 mm. Wood's type, now in the British Museum (Natural History), is so much worn that the surface of the three last whorls is almost smooth. The two upper whorls exhibit the characteristic cancellated sculpture. *T. costata*, Pfr., is very closely related to this species.