

FOUR NEW LAND SHELLS FROM THE PHILIPPINE ISLANDS.

By PAUL BARTSCH,

Assistant curator, Division of Mollusks, U. S. National Museum.

The Philippine Bureau of Science, through the honorable the Secretary of the Interior, Dean C. Worcester, has recently transmitted a large consignment of mollusks to the U. S. National Museum for report. Among these are a number of new forms, four of which are here described.

COCHLOSTYLA WORCESTERI, new species.

Plate 29, figs. 14, 16.

Shell elongate-ovate. Nuclear whorls one and one-fourth, almost smooth. Post-nuclear whorls moderately rounded, with closely appressed summits. Sutures moderately impressed. Periphery of the last whorl with a faint angulation. Aperture quite oblique, oval, outer lip moderately expanded and reflected to form a somewhat thickened peristome. Columella slender and twisted. Parietal wall glazed with a weak callus. Entire surface marked by retractive lines of growth and exceedingly fine spiral striations, the last confined to the very thin epidermis.

Color.—Early whorls provided with a peripheral brown band which is strongest on the first and gradually weakens, being lost altogether on the fourth turn. The band renders the first one and one-half whorls of the spire almost brown, after which it appears as a mere suggestion above the sutures. A second brown band, varying in strength in different individuals, is situated at the summits of the whorls. Ground color of early whorls bluish-white; of the later ones straw-colored. Surface covered with irregular axial stripes of a thin opaque yellowish-white epidermis; stripes usually wider than the interspaces and extending from the summits to the umbilical area. These stripes obscure the brown band at the summit, where they cross it and make it appear as an interrupted line of dots. Reflected tip and umbilical area dark chocolate brown; columellar edge pale rose color. Interior bluish-white.

The type (Cat. No. 205213, U.S.N.M.) has six whorls, and measures—length, 37 mm.; diameter, 23 mm.; aperture, length, 19.5 mm.; diameter, 14.9 mm.

This species occurs upon the island of Bantayan, where 893 specimens were collected by Mr. R. C. McGregor of the Philippine Bureau of Science.

There is quite a bit of variation among the members of the lot before us. In a few the dark band at the summit is indicated only on the early whorls. In several the peripheral band persists at maturity.

The range of measurements can be best judged from the appended table, the twenty-five specimens being taken from the lot at random.

Length.	Diameter.	Length.	Diameter.
<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
38.6	23.7	32.6	20.0
36.4	22.7	35.4	21.5
33.0	19.8	34.4	19.5
36.0	21.6	30.5	19.9
35.0	22.1	39.7	23.8
34.0	21.2	32.4	20.4
31.7	19.0	33.0	21.5
35.0	22.0	33.0	20.5
34.6	21.0	34.5	20.0
35.0	21.0	30.5	20.0
37.4	21.7	33.5	20.9
34.5	22.3		
31.4	19.0	Average..34.3	21.37
31.0	19.1		

Named for the Honorable Dean C. Worcester.

COCHLOSTYLA ANNULATA FUGENSIS, new subspecies.

Plate 29, figs. 2, 3, 8, 11, and 12.

Shell similar to *Cochlostyla annulata*, but uniformly more broadly conic and less elevated. In color this form presents all the phases noted in *annulata*. In the present form the yellow phase predominates (there are only six of the white phase in the lot). The umbilical area, too, is uniformly lighter in color than in *C. annulata*.

Specimens were collected by R. C. McGregor, of the Philippine Bureau of Science, on Fuga Island, one of the Babuyan group north of Luzon. *C. annulata* comes from northern Luzon.

Twenty-four specimens of *C. a. fugensis* taken at random give the following measurements:

Length.	Diameter.	Length.	Diameter.
<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
20.7	19.1	20.9	19.0
21.4	19.4	22.8	20.2
22.0	19.0	21.0	18.0
21.0	20.0	20.3	19.1
20.5	19.0	21.0	19.5
22.0	19.8	23.0	20.0
19.6	17.8	18.4	17.5
20.8	18.5	23.0	20.9
21.3	19.2	21.9	20.0
21.3	19.0	22.6	20.0
21.4	19.6	22.2	20.6
18.1	17.5		
21.8	20.4	Average..21.12	19.29

Seven specimens of *Cochlostyla annulata* Sowerby, from von Möllendorff's collection (now Cat. No. 195389, U.S.N.M.), collected at Ilocos, Luzon, measure:

Height.	Diameter.	Height.	Diameter.
<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
26.3	19.0	24.0	20.0
24.0	20.3	21.7	19.0
27.0	21.5		
23.7	19.7	Average..	24.38
24.0	21.0		20.07

Five of these are figured on pl. 29, figs. 1, 4, 5, 10, 13.

LEPTOPOMA FREERI, new species.

Plate 29, figs. 6, 7, 9.

Shell broadly conic, translucent, bluish-white. Nuclear whorls two and one-half, marked by five slender spiral lirations, which are promptly lost as the shell passes to the post-nuclear stage. Post-nuclear whorls well rounded, marked by many (about 82 on the last whorl between the sutures) fine, subequal and subequally spaced, wavy, spiral striations. In addition to these, the whorls are marked between the sutures by four obsolete spiral keels. Sutures weakly impressed. Periphery of the last whorl marked by a strong, acutely compressed keel. The lines of growth on the spire are strongly retractively curved and vary somewhat in strength; the stronger appearing as subdiaphanous lines. Base of last whorl well rounded, narrowly openly umbilicated, marked by faint lines of growth and numerous subequal and subequally spaced fine wavy spiral striations. Aperture very oblique, irregularly semi-oval, outer lip broadly expanded and slightly reflected, somewhat grooved on the flat surface and drawn out slightly into a claw at the peripheral keel; columella equaling the lip in strength; curved, excavated, and reflected; the junction with the basal lip forming an angle. Parietal wall covered by a thin callus. Operculum thin, horny, multispiral, marked by many fine retractive, incremental lines.

The type and fifty-three specimens were collected by Mr. R. C. McGregor, of the Philippine bureau of science, on Calayan Island, one of the Babuyan group.

The type (Cat. No. 205215, U.S.N.M.) has 7 whorls and measures—length 18 mm., diameter 19.6 mm.; aperture, length 11.8 mm., diameter 11 mm.

Twenty-five of the remaining specimens, taken at random, measure:

Length.	Diameter.	Length.	Diameter.
<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
16.0	19.0	17.7	17.8
16.6	19.4	17.3	18.7
16.0	19.8	17.4	19.3
15.8	18.5	18.2	19.6
16.7	18.2	18.2	19.3
17.1	18.8	17.8	19.4
17.1	19.0	17.3	18.7
16.9	19.0	17.6	19.5
18.4	20.0	17.2	18.7
18.3	19.0	19.0	19.6
18.0	18.8	18.2	19.0
18.2	19.6		
18.6	20.3		
16.6	18.2		
		Average..17.45	19.05

Named for Dr. Paul C. Freer, Director of the Philippine Bureau of Science.

COPTOCHEILUS MCGREGORI, new species.

Plate 29, fig. 15.

Shell pupiform, translucent, chocolate brown. Nuclear whorls two and one-half, dextral, smooth, coiled like the rest of the shell, but much lighter in color. Post-nuclear whorls strongly rounded and appressed at the summits, separated by decidedly constricted sutures, crossed by fine, retractive, incremental lines, which are strongest near the summit; the first three and one-half or four whorls are marked also by fine lightly impressed spiral striations. Periphery of the last whorl faintly angulated. Base well rounded, narrowly umbilicated. Aperture subcircular, expanded and reflected to form a thick, continuous peritreme, the parietal side of which is attached to the body wall. Peritreme double color, the inner separated from the outer by a strong deeply incised line, the notch in the inner being a little deeper than in the outer columellar wall. Operculum thin, horny multispiral.

Thirty-one specimens were collected by Mr. R. C. McGregor, of the Philippine bureau of science, on Semerara Island. The type (Cat. No. 205181, U.S.N.M.) has 8 whorls, and measures—length 20.5 mm., diameter 7.5 mm.; length of aperture 6.8 mm.; diameter of aperture 6.6 mm.

Twenty-five of the specimens measure:

Length.	Diameter.	Length.	Diameter.
<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
21.4	7.5	21.3	7.8
20.8	7.8	20.0	7.5
20.7	7.5	19.1	7.3
19.5	7.4	20.0	7.4
20.2	7.5	20.6	7.8
19.3	7.3	20.4	7.7
20.5	7.4	21.0	7.7
21.6	7.8	20.9	7.0
19.8	7.0	20.4	7.3
20.5	7.7	20.2	7.3
19.6	7.3	20.5	7.5 type.
22.3	7.8		
20.4	7.4	Average. .20.42	7.49
19.6	7.5		

Named for R. C. McGregor, of the Philippine Bureau of Science.

EXPLANATION OF PLATE 29.

All figures natural size.

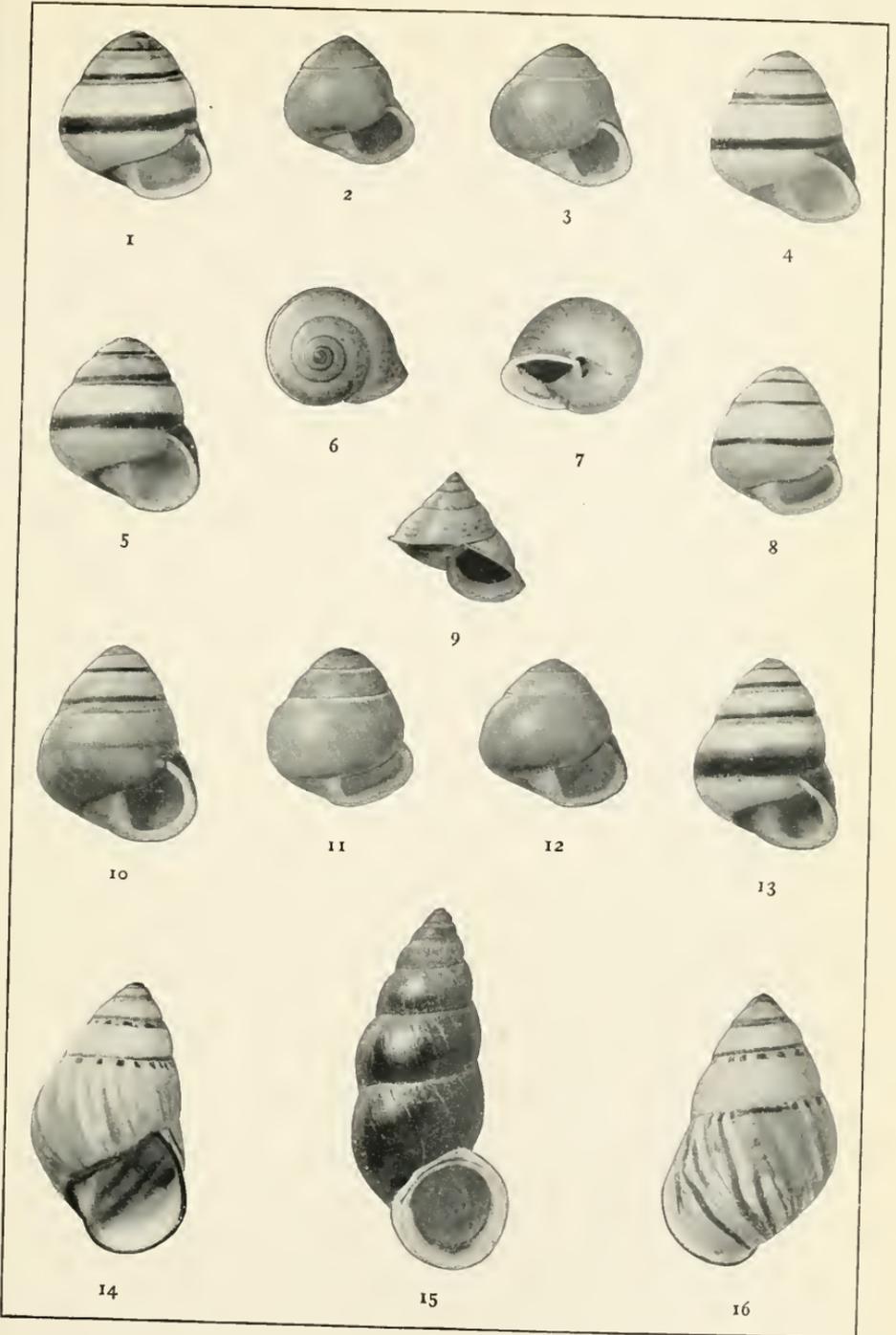
Figs. 1, 4, 5, 10, 13. *Cochlostyla annulata* Sowerby.

Figs. 2, 3, 8, 11, 12. *Cochlostyla annulata fugensis* Bartsch.

Figs. 6, 7, 9. *Leptopoma frecri* Bartsch.

Figs. 14, 16. *Cochlostyla worcesteri* Bartsch.

Fig. 15. *Cochlostyla mcgregori* Bartsch



NEW LAND SHELLS FROM THE PHILIPPINE ISLANDS.

FOR EXPLANATION OF PLATE SEE PAGE 299.