

# NEW SPECIES OF MOLLUSKS OF THE GENUS CORBICULA FROM URUGUAY AND BRAZIL

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In my paper "New Uruguayan Mollusks of the Genus *Corbicula*"<sup>1</sup> I described:

*Corbicula (Cyanocyclas) circularis.*

*Corbicula (Cyanocyclas) compacta.*

*Corbicula (Cyanocyclas) delicata.*

*Corbicula (Cyanocyclas) exquisita.*

*Corbicula (Cyanocyclas) felipponei.*

*Corbicula (Cyanocyclas) fortis.*

*Corbicula (Cyanocyclas) oleana.*

*Corbicula (Cyanocyclas) paysanduensis.*

Specimens from Brazil, which were already in the Museum collection, and many specimens, all of them from the Department of Colonia, Uruguay, and nearly all from the Bay of Colonia in the Rio de la Plata, lately received from Prof. Auguste Teisseire, Directeur du Lycee Departemental de Colonia, make it necessary to describe six new species.

In many specimens of *Corbicula* there are radiating splashes of purple along the interior edge of the ventral margin. When these occur there should be a corresponding ray, usually of reddish, on the outer surface and often such rays will be revealed by careful examination although at first their presence may be unsuspected. In some specimens in which there are rays it is impossible to detect them, because of a thickening of the periostracum which makes it nontranslucent. In such cases if the periostracum be removed the rays will show clearly on the white background; or if a longitudinal section of the shell be made dots of color will show where the rays were cut. When radiating splashes of purple occur along the ventral inner edge they are a sure sign that rays, even though invisible, are present on the outside, and it is unnecessary to remove the

<sup>1</sup> 1924, Proc. U. S. Nat. Mus., vol. 66, art. 15, pp. 1-12.

periostracum or to section the shell to determine the fact. On the outside the rays are single, narrow "clear-cut" and reddish, but on the inner margin many of them are double, broad, blurred, purple, or deep lavender. A section across the rays near the ventral margin shows that there they go entirely through the calcareous portion of the shell. In sections made nearer the beaks they go at least part way through.

Several of the specimens received from Professor Teisseire contained young. When collected, these specimens were not cleaned, and the young of various ages are included in the dried flesh of the females. The young are in perfect condition.

A fine specimen of *C. felipponei* (Cat. No. 365390) from the Bay of Colonia contained embryonic and nepionic shells. The latter were probably not yet developed to the age of extrusion, as they are smaller than one would expect from the size of the adult. In these young, which are very pale straw color, there is a splash of purple on the anterior area and one on the posterior. Immediately after the close of the embryonic stage fine radiating lines of lavender make their appearance. Such lines occur in specimens not more than a millimeter in length.

**CORBICULA (CYANOCYCLAS) TEISSEIREI, new species**

Plate 1. figs. 1, 2

Shell rather thin, nearly elliptic, rounded and slightly narrower in front, more broadly rounded at the rear; a little inflated, beaks rather low, situated at the middle of the dorsal line, which is well arched. Ventral line regularly curved. Posterior and anterior ridges not well defined, the descent to the margin more abrupt at the rear than in front. Periostracum generally clothlike and dull, but slightly glossy on the convexity of the shell. Sculpture of numerous concentric striae, which develop into fine ribs on the anterior area. Color brownish with an olivaceous cast and with three obscure broad fuscous rays in the vicinity of the posterior ridge, and with faint radiating lines of color over the general surface. The shell being "dead" the color of the interior has changed to nearly uniform purple. (Fresh specimens have the interior gay with pink, lavender, and purple, with three broad purple interrupted rays indicating the location of the three fuscous rays of the exterior—a number of fine lavender rays unequally distributed.) In the right valve the middle and posterior cardinal teeth are distinctly grooved on the summit, the anterior cardinal small and thin. In the left valve none of the cardinals is grooved, and the posterior one is small and thin. In both valves the cardinals are widely divergent. In the right valve the two posterior laterals are rather

distant from the beak, the inner lateral being finely crenulated on its upper surface. In this valve the two anterior laterals begin near the beak, the inner one being finely crenulated on its upper surface. Left valve with one anterior and one posterior lateral, both crenulated on the edge. Anterior adductor scar deep; posterior scar not so deep, but well marked.

The type (Cat. No. 365382, U.S.N.M.) measures: Length, 27.5 mm.; height, 23 mm.; diameter, 14 mm. It comes from Arroyos in the Department of Colonia, Uruguay, and was collected and presented by Prof. Auguste Teisseire.

The finest specimen of all (Cat. No. 365380, U.S.N.M.) measuring: Length, 28 mm.; height, 23 mm.; diameter, 15 mm.; has the teeth abnormal and therefore could not be used as type. The abnormality consists in having the two posterior cardinals of each valve fused into a single tooth. The interior of this specimen is especially gay with mixed colors of white, pink, lavender, and purple. Other specimens which retain the true coloring of the interior show these gay colors to be usual with the species. Younger and weathered shells are greenish, or pinkish on the outside and show several radiating fine lines.

CORBICULA (CYANOCYCLAS) SIMPLEX, new species

Plate 1, figs. 3, 4

Shell rather thin, somewhat inflated, nearly round, but broader at the rear than front, posteriorly subtruncate, anteriorly slightly extended. Dorsal margin well arched, beaks a little behind the middle, anterior dorsal margin very oblique, posterior dorsal margin gently sloping and shorter. Ventral margin regularly curved, rounding gradually into the anterior margin and suddenly into the posterior margin. Posterior ridge high but rounded; anterior ridge indistinct; sculpture of fine concentric striae, more marked in front than in the rear. Rest periods distinctly marked by deeper lines and blackish color. Color olive green with a broad darker green ray on the posterior ridge and two similar rays on the posterior dorsal area. Interior purple with a white edging around the margin, the exterior rays indicated by purple rays in the interior. In right valve the anterior cardinal is minute and oblique, the middle cardinal thick and deeply bifid, the posterior cardinal thick and moderately bifid and oblique. In the left valve the anterior cardinal is moderately thick, the middle cardinal is thick and deeply bifid, the posterior cardinal long and thin. Right valve with two anterior and two posterior laterals which are rather low and short, the inner ones crenulated. Left valve with a single lateral in front and one at the rear, both rather high and both crenulated. Adductor scars deeply impressed, pallial sinus well marked.

The type (Cat. No. 365385, U.S.N.M.) measures: Length, 24.5 mm.; height, 21.5 mm.; diameter, 18.5 mm. It and a single valve (Cat. No. 365386, U.S.N.M.) come from Arroyos in the Department of Colonia, Uruguay, and were collected and presented by Prof. Auguste Teisseire.

This species is closely related to *C. teisseirei*, but differs in the shortened posterior end and in the greenish color.

Two specimens (Cat. Nos. 365387 and 365388) from Arroyos in the Department of Colonia, Uruguay, sent by Professor Teisseire, contain young in the dried flesh of the mother. The largest of these young is 4½ mm. long. The parent shell has a length of 21½ mm. In the young the tips of the beaks are glassy, tinged with lavender, followed by a broad splash of white, which is surrounded by an irregular circle of violet, then a whitish, concentric band and the ventral portion purplish. The posterior area shows three purple rays. These are the beginnings of the three external fuscous rays and internal purple rays of the adult.

CORBICULA (CYANOCYCLAS) GUAHYBENSIS, new species

Plate 1, figs. 9, 10

Shell small, rather compressed, nearly elliptic, slightly narrower in front than behind. Dorsal margin regularly curved, beaks a little in front of the middle, anterior dorsal margin slightly more oblique than the posterior. Ventral margin lightly curved, rounding gradually into the anterior margin and somewhat more sharply into the posterior. Anterior and posterior ridges rounded, not well defined. Sculpture of numerous fine concentric striae, stronger on the anterior and posterior areas; the rest periods emphasized. Most of the shell glossy, very light straw color, becoming darker with distance from the beaks. Surface with a number of narrow, unequal reddish rays, three of which are more prominent than the others. Interior mostly white with a large spot of lavender in the upper part. In right valve the anterior and posterior cardinals are oblique and thin, the latter larger than the former, the middle tooth thick and slightly bifid on its summit. In left valve the anterior cardinal is thicker and shorter than the posterior; the middle tooth thick and distinctly bifid. In right valve the two pairs of laterals are short and stout, the groove between each pair wide and deep, and the inner ones finely and sharply crenulated. In left valve there is one anterior and one posterior lateral, both of which are rather thick and finely crenulated. Adductor scars deep; the sinus in the pallial line wide, obtusely pointed, and unusually well marked.

The type (Cat. No. 171426, U.S.N.M.) measures: Length, 15 mm.; height, 13 mm.; diameter, 8½ mm. It and 28 paratypes (Cat. No.

122321, U.S.N.M.) come from the Guahyba River, Rio Grande do Sul, Brazil, and were presented by Dr. H. von Ihering. Almost any one of the specimens might have been selected for the type as the variation among them as to form, color, and sculpture is very slight, while in size most of them approximate the type.

This species is related to *C. limosa* but is distinguished at once by the smaller size, the slightly more elongate form, and especially by the very pale color.

CORBICULA (CYANOCYCLAS) UNDULATA, new species

Plate 1, figs. 5, 6

Shell rather thick, subtriangular, inflated, obliquely truncated posteriorly, rounded and slightly extended anteriorly, dorsal line much arched, ventral margin evenly rounded, curving regularly into the anterior margin, and more sharply into the posterior margin. Posterior aspect wedge shaped, wide, and nearly at right angles with the convexity of the shell. Beaks high and moderately narrow, pointing forward. Posterior ridge high and abrupt; anterior ridge low and not well defined. Sculpture consisting of numerous concentric ribs on the upper part of the shell which become less marked near the ventral margin; on the posterior area there are indications of obscure radiating ridges. Color dark yellowish olive, with a number of green radiating lines which are not uniform in width nor evenly spaced. Interior mainly dark purple, with lighter area in the middle and along the margins. Each of the radiating lines on the outer surface is marked by a dark purple spot on the inner margin; pallial line and adductor scars well marked, and the pallial sinus deep and wide. In each valve there are three cardinal teeth, widely divergent. In right valve the anterior cardinal is thin and platelike, the middle cardinal thick and slightly bifid, the posterior cardinal medium thick and long and bifid throughout its length. In left valve the anterior cardinal is thick, the middle one like the one in the right valve, and the posterior one thin. The right valve has two laterals anteriorly and two posteriorly, rather short and stout and crenulated. The left valve with a short, thick, crenulated lateral anteriorly and posteriorly.

The type (Cat. No. 365392, U.S.N.M.) measures: Length, 19 mm.; height, 17 mm.; diameter, 13 mm. It comes from the Bay of Colonia, Rio de la Plata, Uruguay, and was collected and presented by Prof. Auguste Teisseire.

This species differs from *coloniensis* chiefly in the strong concentric ribs. Its proportions, too, are different, as it is more inflated.

## CORBICULA (CYANOCYCLAS) IHERINGI, new species

Plate 1, figs. 11, 12

Like *C. coloniensis* in color and to a great extent in form, but the posterior ridge not so marked, the posterior area less wedge shaped, the cardinal teeth relatively smaller and the lateral teeth relatively longer and thinner.

The type (Cat. No. 171423, U.S.N.M.) consists of a single valve. It measures: Length, 22 mm.; height, 18.5 mm.; diameter (if both valves were present) would be 12 mm. It comes from S. Leopols, Rio Grande do Sul, Brail, and was presented by Dr. H. von Ihering.

This may prove to be a subspecies of *C. coloniensis*, its variation from type due to a distant habitat.

## CORBICULA (CYANOCYCLAS) PLATENSIS, new species

Plate 1, figs. 7, 8

Shell subequitriangular, thick, inflated, obliquely truncate posteriorly extended and sharply rounded anteriorly, dorsal line much arched, ventral margin evenly rounded, curving regularly into the anterior margin and angularly into the posterior margin. Both the anterior and posterior aspects wedge shaped, wide, and rounding into the convexity of the shell. Beaks high, located at the middle of the dorsal line, pointing forward. Posterior ridge high but rounded, the descent to the posterior margin rapid. Anterior ridge gradually rounded. Posterior end of shell slightly nasute. Beaks eroded, white at the tips and then deep purple. General color dark chestnut on a clothlike periostracum, the dorsal area slightly lighter. Several scarcely visible dark radiating lines. Interior mostly purplish, the cardinal teeth white, the lateral teeth and an area at the front and one at the rear delicate pink. Concavity pale purple, area between ventral border and pallial line deep rich purple rayed with white; a wide purple ray marking the posterior angle. In the right valve the anterior cardinal tooth is thin, platelike and very oblique; the middle tooth is thick and deeply bifid; the posterior tooth moderately thick, indistinctly bifid and oblique. In the left valve the anterior tooth is thicker than in the right valve, the middle tooth thick and slightly bifid, the posterior tooth thin. In right valve there are two anterior and two posterior lateral teeth, the inner ones crenulated. The left valve with one anterior and one posterior lateral tooth, the former the smaller, the latter very high, and both of them very sharply crenulated. Adductor scars not very prominent, sinus well marked, deep, and sharply pointed.

The type (Cat. No. 365393, U.S.N.M.) measures: Length, 26.5 mm.; height, 23.5 mm.; diameter, 17.5 mm. It comes from the Bay

of Colonia, Rio de la Plata, Uruguay, and was collected and presented by Prof. Auguste Teisseire.

This species belongs in the same group with *C. felipponei* and *coloniensis*. The clothlike periostracum and the more nasute form and greater inflation serve to differentiate it from them. It is a connecting link between *C. coloniensis* and *C. fortis*, distinct from both and yet partaking of the characteristics of each.

#### EXPLANATION OF PLATE

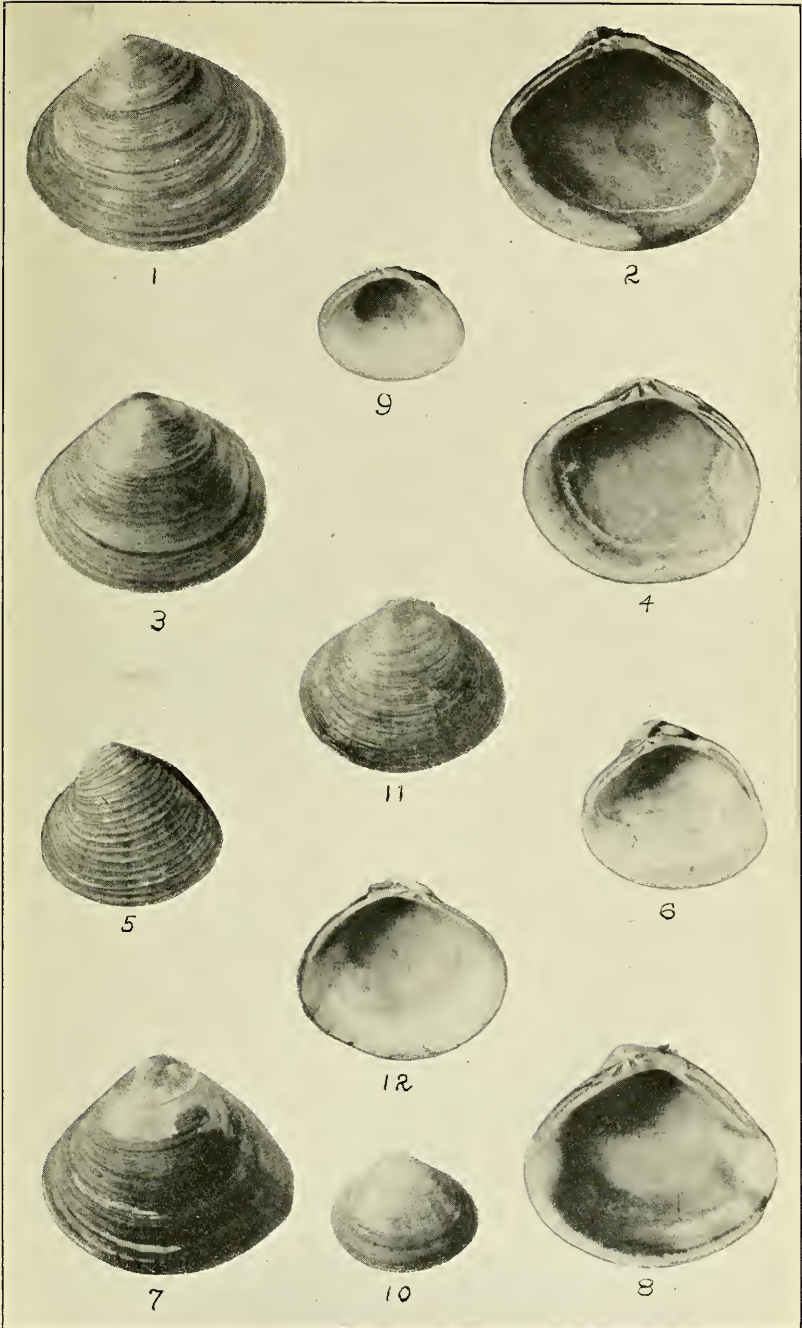
All figures multiplied by  $1\frac{1}{4}$  diameters

- FIGS. 1 and 2. *Corbicula (Cyanocyclus) teisseirei*, new species.  
3 and 4. *Corbicula (Cyanocyclus) simplex*, new species.  
5 and 6. *Corbicula (Cyanocyclus) undulata*, new species.  
7 and 8. *Corbicula (Cyanocyclus) platensis*, new species.  
9 and 10. *Corbicula (Cyanocyclus) guahybensis*, new species.  
11 and 12. *Corbicula (Cyanocyclus) iheringi*, new species.









NEW FRESH-WATER SHELLS FROM URUGUAY AND BRAZIL

FOR EXPLANATION OF PLATE SEE PAGE 7

