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# NEW LAND AND FRESH-WATER MOLLUSKS FROM SOUTH AMERICA

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The *Bulimulus*, the *Planorbis*, and the *Diplodom* herein described are from Uruguay and were received from Dr. Florentino Felippone of Montevideo. The *Ampullaria* and the *Anodontites* are from the Republic of Colombia and were received from Dr. R. H. Palmer of Cartagena. One species of *Odontostomus* is from Uruguay and was received from Prof. Auguste Teisseire of Colonia. The other species of *Odontostomus* and the *Drymaeus* come from Bolivia and Argentina and were received from G. L. Harrington, of General Ballivian, Argentina.

## BULIMULUS (BULIMULUS) FELIPPONEI, new species

### Plate 1, Figure 9

Shell thin, slender, whorls  $7\frac{1}{2}$ , apex minutely granulated, the granules arranged in oblique transverse series and in obscure spirals. Whorls moderately rounded, the body whorl more than half the length of the shell; sutures well impressed. Sculpture of faint longitudinal lines of growth, the rest periods numerous and indicated by minute riblets, the spiral sculpture of numerous microscopic striae. Aperture elongate, outer lip simple, columella nearly erect, reflected over and nearly closing the umbilicus. Color nearly white, the four upper whorls of a rusty tint.

The type (Cat. No. 380691, U.S.N.M.) measures: Length, 19 mm.; diameter, 7 mm.; length of aperture, 6 mm.; width of aperture, 4 mm. It and a paratype (Cat. No. 380692, U.S.N.M.) and a third specimen (Cat. No. 365729, U.S.N.M.) came from Fray Bentos, Department of Rio Negro, Uruguay, and were presented by Dr. Florentino Felippone.

The species is nearest to *Bulimulus krebsianus* Pilsbry, of Venezuela. It is related also to *Bulimulus tenuissimus* Lea, but is much more slender.

**DRYMAEUS HARRINGTONI, new species**

## Plate 1, Figure 7

Shell rather thin, translucent, of stout form, ovate-fusiform. Aperture equal to the spire. Apical whorls regularly grated by vertical and spiral lines. Whorls  $6\frac{1}{2}$ , slightly convex, body whorl somewhat flattened behind the aperture. Sutures linear, not deep. Sculpture of numerous nearly regular longitudinal growth lines and faint indications of spiral striae. Ground color nearly white with flames, bands, and spots of chestnut and blackish brown or purple. On the back of the body whorl the dark color is arranged in five broad bands. On the rest of this whorl it is in longitudinal, jagged bars; on the upper whorls it is arranged in spiral bands of small squarish chestnut spots. The interior is whitish with the five bands of the exterior prominent. Umbilicus narrow. Aperture nearly vertical, slightly drawn down at base. Lip a little expanded and reflected. Columella broadly expanded and almost concealing the umbilicus. Parietal wall with a thin callus.

The type (Cat. No. 380701, U.S.N.M.) measures: Length, 35 mm.; diameter, 17 mm.; length of aperture, 17.5 mm. It comes from General Ballivian, Province of Salta, Argentina, and was collected and presented by G. L. Harrington.

Its nearest relatives are *Drymaeus abyssorum* Orbigny and *Drymaeus hygrophylaeus* Orbigny, both of which inhabit the same general region.

**ODONTOSTOMUS (PLAGIODONTES) TEISSEIREI, new species**

## Plate 1, Figure 3

Shell elongate, the spire tapering, the body whorl on the back tapering, pinched to an angle at the base. Umbilicus openly rimate; whorls  $8\frac{1}{2}$ , rather flatly convex, sutures linear, irregularly crenate, whitish; sculpture of faint longitudinal striae, without spiral sculpture. Aperture nearly vertical, outer lip slightly curving, basal lip abruptly rounded, columellar lip oblique, angular at the left, in front view completely concealing the umbilicus. Color nearly white, the sutures still lighter. Aperture pure white, reflected edge thickened, nearly filled with eight teeth, three of which are large and twisted, as follows: A large 2-ribbed tooth on the parietal wall, its lower edge continuing as a twisted plate for about 4 mm. within the shell. A broad, twisted tooth at the middle of the outer lip, its upper edge continuing within for about 2 mm.; a very broad, tongue-like tooth on the columella bearing a minute denticle on its face, its lower and upper edges continued as ribs twining about the columella within the shell nearly to the base of the penultimate whorl. The

aperture contains also five smaller teeth, namely, two very small ones at the upper portion of the outer lip, two thin teeth near the base of the outer lip, and a platelike tooth curving into the shell at the base of the columellar lip. Deep within the aperture on the wall of the body whorl is an obliquely set lamina about 7 mm. long. This lamina and all the teeth in the outer lip show like white scars through the wall of the body whorl. The true condition of the armature within the shell can be seen only by breaking away a portion of the back of the body whorl. A thick callus across the parietal wall.

The type (Cat. No. 380699, U.S.N.M.) measures: Height, 26 mm.; diameter, 8.75 mm.; height of aperture 10 mm. It comes from Punta Chaparro, Department of Soriano, Uruguay, and was presented by Prof. Auguste Teisseire. The species is related to *Odontostomus rocae*, Doering but is much more slender. Probably it is still more closely related to *Odontostomus multiplicatus* Doering, an unfigured species.

**ODONTOSTOMUS (SPIXIA) CHUQUISACANA, new species**

Plate 1, Figure 2

Shell long, tapering at top and at bottom. Thin, translucent. Whorls  $8\frac{1}{2}$ , flatly rounded, the first four chestnut color, the others grayish-tawny. The apical and first three whorls are confusedly vertically costulate, malleate and spirally striate. Sutures well impressed. Longitudinal sculpture of numerous low, irregular, wavy, sometimes interrupted whitish folds. At the middle of each whorl the folds are somewhat weaker giving the appearance of a smoothish spiral band. Spiral sculpture almost lacking, but with faint indications of spiral striae. Body whorl contracted at the base, angulate around the umbilicus, a deep pit just behind the outer lip. Aperture subtriangular, narrow at the base, outer lip simple, nearly vertical, rounded just below its attachment to the body whorl; basal lip slightly expanded; columellar lip widely expanded, partly concealing the narrow umbilicus; a moderate callus across the parietal wall. The outer lip has a prominent tooth corresponding to the deep pit on its outer portion; the columella has a strong, platelike twisted tooth entering the aperture; the basal lip has a small callus corresponding to a shallow groove in the umbilical area; parietal wall without vestige of a tooth.

The type (Cat. No. 380700, U.S.N.M.), measures: Height, 17.5 mm.; diameter, 4.75 mm.

It came from Province of Chuquizaca, Bolivia, and was collected and presented by G. L. Harrington for whom the species is named.

Evidently closely related to *Odontostomus (Spixia) lemoinei* Ancey<sup>1</sup> from which it principally differs in having no tooth on the parietal wall.

**PLANORBIS PAYSANDUENSIS, new species**

Plate 1, Figures 1, 4, 6

Upper surface flattened, the center sunken, all the whorls showing in the central pit. Sutures deep, each whorl attached to the preceding whorl just below its roundly angulate upper edge, thus forming a spiral ridge into the pit. Under surface sloping inward, the umbilicus showing all the whorls, which descend into it as a narrow ridge. Sculpture of numerous transverse growth striae, with rest periods indicated by a slight thickening; spiral sculpture of nearly obsolete fine striae. Aperture nearly semielliptic, oblique slightly angled at the base, lip sharp. Color, upper surface pale straw; lower surface nearly white.

The type (Cat. No. 380693, U.S.N.M.) measures: Greater diameter, 15 mm.; smaller diameter, 12 m.; height 5 mm. It and a paratype (Cat. No. 380694, U.S.N.M.) came from Paysandu, Uruguay, and were presented by Doctor Felippone, who says they are rare. The paratype has the aperture uptilted, while the type has it horizontal. The inward sloping base and the low altitude as compared with diameter will serve to distinguish this species from all others of the Uruguayan region.

**AMPULLARIA PALMERI, new species**

Plate 1, Figures 5, 8

Shell large and thick, higher than wide. Whorls obscurely shouldered and obsoletely angled below the shoulder. Body whorl including about seven-eighths the height of the shell. Sutures well impressed. Longitudinal sculpture of moderately strong growth striae with several rest periods plainly marked, and emphasized by dark chestnut transverse bars just behind them. Concentric sculpture of nearly microscopic close-set, slightly waving, minutely granular striae, some of them, especially on the upper whorls, and at nearly regular intervals, are stronger and under a lens stand out as lines of spiral granules. On the body whorl these granules tend to coalesce to form continuous spiral lines much stronger than the minute spiral striae. Umbilicus not very wide, aperture somewhat elongate, auriform, outer lip sharp, thickened within; columella nearly erect, slightly reflected toward the umbilicus, a moderately thick callus across the parietal wall. Color mixed tints of olive and chestnut,

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<sup>1</sup> Jour. Conch., vol. 7, 1892, p. 93, fig. 1; p. 97.

obscurely banded with chestnut. At the rest periods the bands become prominent and very dark. Interior rosy with the dark bands of the exterior showing lavender tints, the columella ochraceous buff, outer lip the same color with the dark banding much emphasized at the margin.

The type (Cat. No. 380696, U.S.N.M.) measures: Height, 65 mm.; diameter, 52 mm.; length of aperture, 45 mm.; width of aperture, 30 mm.

It and three paratypes (Cat. No. 380697, U.S.N.M.) and a lot of embryonic shells (Cat. No. 380698, U.S.N.M.) come from a small stream in a dense jungle, 13 kilometers south of Puerto Santos, Province of Santander del Norte, Republic of Colombia, and were collected and presented by Dr. R. H. Palmer.

The fine coloring, the slightly elongated form, and especially the microscopic sculpture of this species will serve to distinguish it.

**DIPLODON YAGUARONIS, new species**

Plate 2, Figures 2, 3, 5, 6

Shell elongate, nearly subelliptic, rather thin, rounded in front, obliquely subtruncate and roundly pointed at the rear. Beaks set about 13 mm. behind the extreme front end of the shell and 50 mm. in front of the extreme back end. Beaks sculptured with strong radiating ribs. (This sculpture is better shown in the three paratypes. It consists of about 20 ribs, covering practically all the young shell, the central pair joining to form a long V and continuing then for some distance as a single rib). Dorsal margin lightly arcuate, fading into both the anterior and posterior margins. Ventral margin very slightly curved, nearly straight, rounding into the anterior margin and making a rounded point with the posterior margin. Posterior ridge rather high, rounded. Anterior ridge not differentiated from the general surface, the descent to the anterior margin steep. Concentric sculpture as shown with a lens, of very fine growth striae, the rest periods plainly indicated by a slight elevating of the older portion of the shell above the newer portion, and accentuated by a deepening of color; lamellose on the anterior and posterior areas and as the ventral margin is approached. Color uniform dark chestnut, slightly glossy on middle portion. Interior of a bluish cast, iridescent, appearing to be radiately striated, the rest periods plainly showing as concentric ridges and perceptible to the touch. Anterior adductor scar deep; the posterior one superficial. Pallial line well marked at the front, obscure at the rear, set about 4 mm. from the ventral margin. Pseudocardinal tooth of left valve thin, tongue-shaped, fitting into the narrow groove formed

by the two thin, platelike pseudocardinals of the right valve. Lateral teeth of left valve long, subequal. The lateral tooth of right valve long, thin, rather high. Prismatic border a mere edging.

The type (Cat. No. 380554, U.S.N.M.) measures: Length, 63 mm.; height, 33 mm.; diameter, 21.5 mm. It and three younger paratypes (380756) come from Rio Yaguaron, Department of Cerro Largo, Uruguay, and were presented by Dr. Florentino Felippone.

The species is closely related to *Diplodon pilsbryi* Marshall, but is smaller, less pointed at the rear, and more nearly elliptic. The Rio Yaguaron flows into the Laguna Merim and forms most of the boundary between the Department of Cerro Largo, Uruguay and the State of Rio Grande do Sul, Brazil. The type locality of *Diplodon pilsbryi* is Canada Grande, the water of which also reaches Laguna Merim through the Rio Tacuary. The two species are thus geographically related as coming from the eastern drainage of Uruguay.

**ANODOTITES PALMERI, new species**

Plate 2, Figures 1, 4, 7

Shell rather thin, elongate, somewhat oblique, wide at the rear, much narrower in front. Dorsal margin lightly arched, ventral margin nearly straight, joining the posterior margin in a rounded point, and gently curving into the ventral margin which is abruptly rounded. Beaks set about 15 mm. behind the extreme anterior end 60 mm. in front of extreme posterior end. Posterior area with a low rib running from the beak to lower portion of posterior margin. Posterior ridge rounded, anterior ridge not differentiated from general surface. Anterior half of surface smoothish, with a dull unctuous polish; posterior portion with innumerable concentric lamellae of fugacious periostracum; concentric sculpture of many fine growth striae. Across the portion just in front of the middle are several puckered bands radiating from the beak to the ventral margin. Under compound microscope the periostracum shows the very fine radiating sculpture usual to the genus<sup>2</sup>. Color of surface uniform chestnut. Interior in poor condition, evidently iridescent, bluish, and flesh-colored. Sinulus triangular, prominent. Cavity of shell shallow. Adductor scars well impressed. Pallial line well-marked, about 8 mm. from the ventral edge. Prismatic border very narrow.

The type (Cat. No. 380695, U.S.N.M.) measures: Length, 75 mm.; height, 42 mm.; diameter, 24 mm. It comes from a small stream, in a dense jungle, 13 kilometers south of Puerto Santos, Province of

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<sup>2</sup> Marshall, Microscopic Sculpture of Pearly Fresh-Water Mussel Shells: Proc. U. S. Nat. Mus., vol. 67 No. 2576, art. 4, 1925, pp. 1-14, pls. 1-4.



Santander del Norte, Republic of Colombia and was collected and presented by Dr. R. H. Palmer. A paratype (Cat. No. 380702, U.S.N.M.) is a younger specimen not quite so elongate.

Like *Anodontites irisans* Marshall, this species has a general resemblance in external characters to the well-known *Elliptio complanatus* (Solander) Dillwyn, of the eastern United States. The shell is related to *Anodontites irisans* in form, size and color, but bears across its surface radiating scalariform sculpture which is lacking in *irisans*. This sculpture relates it to *Anodontites tortilis* Lea, and *Anodontites pittieri* Marshall and it may for the present be classed in that group. The unfigured *Anodontites carinata* Philippi<sup>3</sup> probably is related to *Anodontites palmeri*, but its form, oval, nearly elliptic, serves to differentiate it.

#### EXPLANATION OF PLATES

##### PLATE 1

- Figure 1. *Planorbis paysanduensis*, new species,  $\times 2$  diam.  
 2. *Odontostomus* (*Spixia*) *chuquisacana*, new species,  $\times 2$  dia.  
 3. *Odontostomus* (*Plagiodontes*) *teisseirei*, new species, nat. size.  
 4. *Planorbis paysanduensis*, new species, top view,  $\times 2$  diam.  
 5. *Ampullaria palmeri*, new species, sculpture,  $\times 15$  diam.  
 6. *Planorbis paysanduensis*, new species,  $\times 2$  diam.  
 7. *Drymaeus harringtoni*, new species, nat. size.  
 8. *Ampullaria palmeri*, new species, nat. size.  
 9. *Bulimulus felipponei*, new species,  $\times 2$  diam.

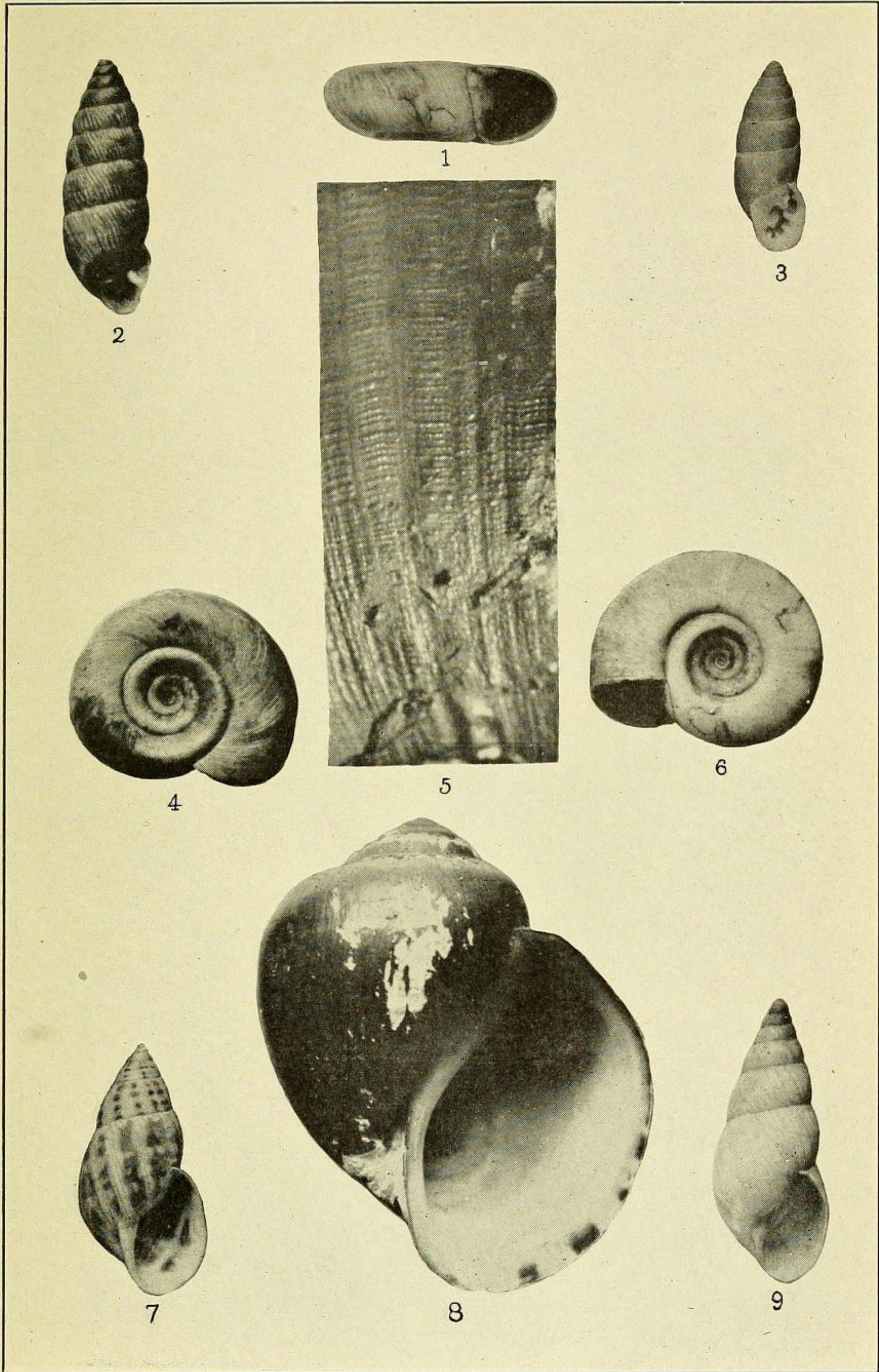
##### PLATE 2

All figures reduced 1/7

- Figure 1. *Anodontites palmeri*, new species.  
 2, 3. *Diplodon yaguaronis*, new species.  
 4. *Anodontites palmeri*, new species.  
 5, 6. *Diplodon yaguaronis*, new species.  
 7. *Anodontites palmeri*, new species.

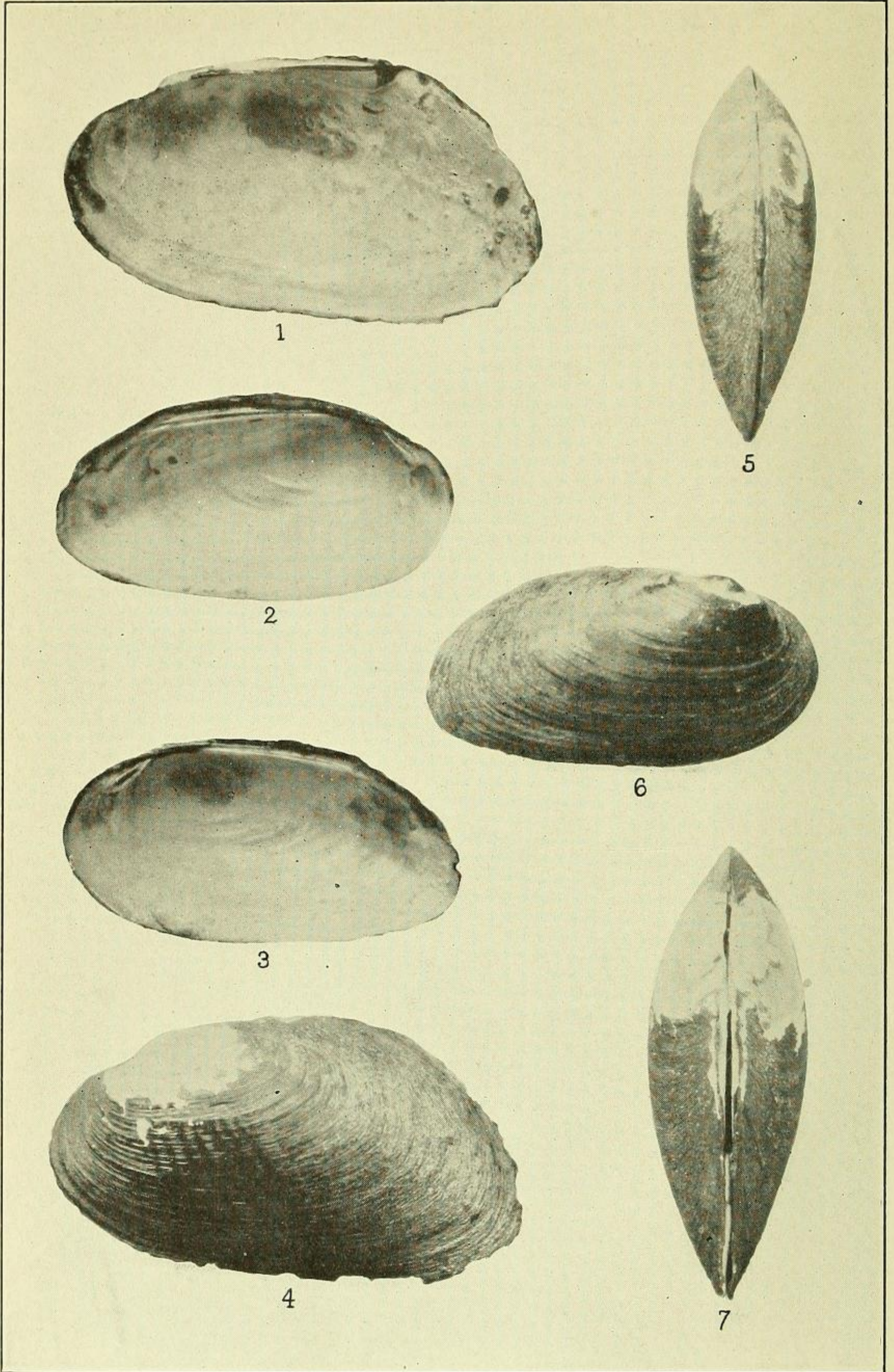
<sup>3</sup> Mal. Blatt., 1858, p. 225.





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