

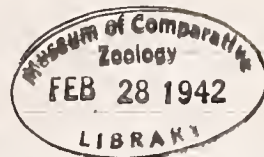
# JOHNSONIA

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VENERIDAE



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## THE GENERA DOSINIA, MACROCALLISTA AND AMIANTIS IN THE WESTERN ATLANTIC

BY  
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### *Dosinia Scopoli*

*Dosinia* Scopoli 1777, *Introductio Historiam Naturalem*, p. 399.

This genus possesses about 100 species, most of which are to be found in the tropics, though a few occur well into temperate seas. It is a remarkably compact group that does not show much variation among its several species, though the characters upon which specific differentiation exists are rather surprisingly constant.

The shells are subcircular to circular in shape, generally compressed and usually sculptured with concentric ridges. The color is white, yellow, or pale brown, rarely with a secondary color pattern of rays or spots. The animal has a large muscular foot which projects below. The two siphons are united and possess simple orifices.

Only three recent species occur in the Western Atlantic, and these are found from Virginia to Brasil.

### *Dosinia elegans* Conrad, Plate 1

*Dosinia elegans* Conrad 1846, *American Jour. of Science* (2) 2, p. 393 (Mullet Key, Tampa Bay, Florida).

*Description.* Shell subcircular, compressed, rather thin and sculptured with concentric ridges. Color generally yellow to straw-yellow which is invested in the periostracum.

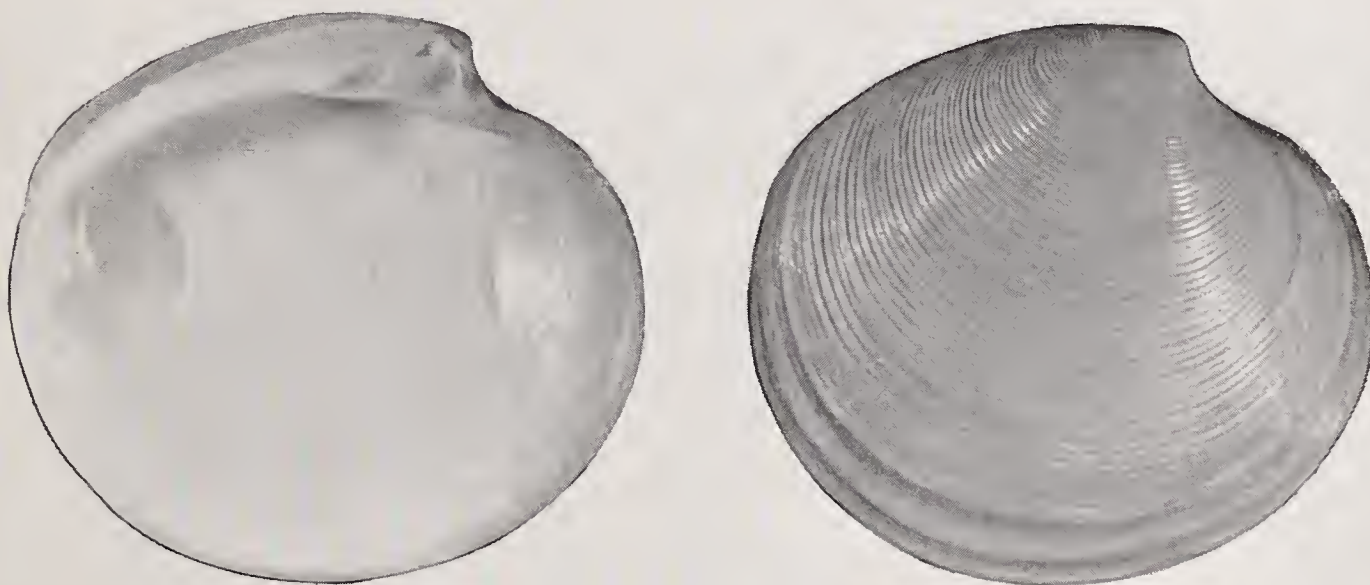


Plate 1. *Dosinia elegans* Conr. Natural size. Gulfport, Florida.

Beaks high, rather sharp and pointing forward. Ligament deeply immersed. Lunule well defined and deeply impressed. Escutcheon weakly defined. Sculpture consisting of moderately fine concentric ridges with about 8 to 10 to one centimeter on the central portion of the disc. Interior of shell a flat white with the muscle scars and pallial complex highlighted. Hinge-plate broad. Right valve with the posterior cardinal bifid. Anterior lateral tooth small and tubercular. Beak cavities deep. Pallial sinus triangular and deep with its apex sharply pointed.

	length	height	width	
(large)	71	65	24 mm.	Sanibel Id., Florida
(average)	66	60	26	Sanibel Id., Florida

*Types.* The type locality is Mullet Key, Tampa Bay, Florida. Conrad's type specimens are not in existence. We here indicate a new neoholotype (MCZ 45308) and a neoparatype, this latter deposited in the ANSP. They are from Egmont Key at the entrance of Tampa Bay, Florida.

*Remarks.* The two North American species *elegans* and *discus* are quite readily told apart. *D. elegans* possesses 8 to 10 ridges per centimeter and *D. discus* has 20 ridges per centimeter in the mid area of the disc. Conrad's original description of *elegans* leaves much to be desired as certain of his statements seem to be conflicting with the facts as now known.

The remaining Western Atlantic species, *concentrica*, occurs in the West Indies and extends south to Brasil. Its distribution on the Central American coast is unknown. If it does exist in this area it may possibly overlap the distribution of *elegans* and, consequently, cause some confusion in determination. Though the two are remarkably similar, they can be differentiated, however, on the greater width of *concentrica* which appears from the specimens we have examined to be nearly proportionate at all stages of growth. A ratio can readily be worked out based upon the measurements we have given for the two species. The ridges which compose the concentric sculpture number about 8 to 10 per centimeter for both *elegans* and *concentrica*.

Other differences exist in all three species, but, similar to the characters given above, they are relative and difficult to give quantitatively in an outline description.

*Range.* Along the coast from Cape Hatteras, North Carolina to Yucatan, Mexico; also Cuba and possibly elsewhere in the Greater Antilles.

*Records.* FLORIDA: Cape Sable; Pavilion Key (MCZ); Cape Romano (ANSP); Naples; Sanibel Id.; Lemon Bay (all MCZ); Osprey (ANSP); Sarasota; Egmont Key; Gulfport; Clearwater (all MCZ); MEXICO: Progreso, Yucatan (ANSP); Isla Mujeres, Yucatan (C. G. Aguayo); CUBA: Caibarien (C. G. Aguayo).

### *Dosinia concentrica* Born, Plate 2

*Venus concentrica* Born 1780, Testacea Musei Caesarei Vindobonensis, p. 71, pl. 5, fig. 5 (Mauritius and Jamaica).

*Cytherea patagonica* Philippi 1844, Abbildungen Neuer Conchylien 1, p. 169, pl. 2 [41] fig. 1 (Patagonia).

*Venus philippi* d'Orbigny 1846, Voyage L'Amérique Meridionale 5, p. 553 (Martinique to Rio de Janeiro).

*Dosinia floridana* Conrad 1866, American Jour. Conchology 2, p. 280, pl. 15, fig. 4 (Florida Keys, Gulf of Mexico). Holotype, ANSP. no. 53958.

*Description.* Shell subcircular, compressed, rather thin and sculptured with concentric ridges. Color a light yellow which is invested in the periostracum. Beaks high and rather sharp and pointing forward. Ligament deeply immersed. Lunule well defined and deeply impressed. Escutcheon weakly defined. Sculpture consisting of rather fine concentric ridges with about 9 per centimeter on the central portion of the disc. Interior of shell a flat white with the muscle scars and pallial complex high-lighted. Hinge plate broad. Right valve with the posterior cardinal bifid. Anterior lateral tooth small and tubercular. Beak cavities deep. Pallial sinus triangular and deep with its apex sharply pointed.

	length	height	width	
(large)	80	77	34 mm.	Monti Cristi, Hispaniola
(average)	68	66	31	Virgin Islands

*Types.* We select Born's figure as cited above, with Jamaica as the type locality.

*Remarks.* See also under *D. elegans*. Born's reference to this species as occurring in Mauritius either was an error or possibly he had confused more than one species with *concentrica*.

As far as we have been able to determine, most West Indian records of *elegans* refer to this species.

Philippi's citation of this species from Patagonia (as *patagonica*) is certainly in error. As far as now known, Brasil is the southern limit of the genus *Dosinia* in the Western Atlantic.

Conrad's *floridana* is unquestionably a synonym of *concentrica*. We have seen the holotype specimen. His statement relative to the color markings "a few yellowish-brown irregular linear stains" is true but these are not natural as one would infer from his description. These linear marks appear under a lens to be iron rust.

*Range.* West Indies from Cuba south and from Panama south to Brasil.

*Records.* HISPANIOLA: Monti Cristi; Puerto Plata (MCZ); PUERTO RICO: Ponce (MCZ: ANSP); VIRGIN ISLANDS: Long Bay, St. Thomas (ANSP); BRASIL: Victoria: Bahia; Salinas; Reconcavo; Ilha de Itaparica; Nietheroy; Bahia de Guanabara (all P. E. de Oliveira); Rio de Janeiro (ANSP).

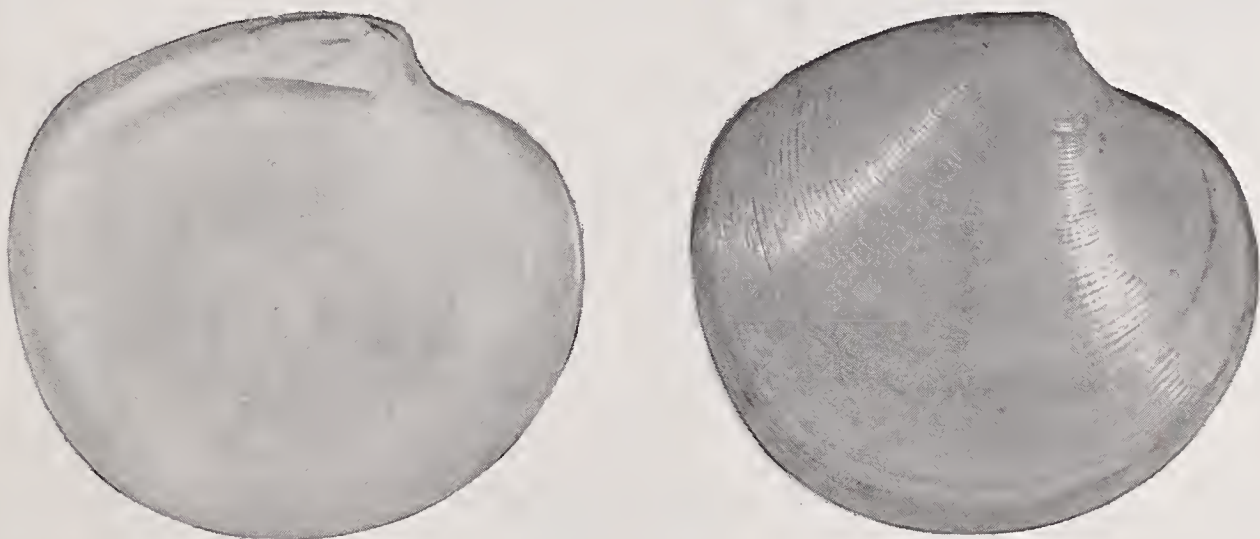


Plate 2. *Dosinia concentrica* Born. Natural size. Cidade de Bahia, Brasil.

**Dosinia discus** *Reeve*, Plate 3

*Artemis discus* *Reeve* 1850, *Conchologia Icon.* **6**, *Artemis*, pl. 2, fig. 9 (United States).

*Description.* Shell subcircular, compressed, rather thin and sculptured with concentric ridges. Color a dirty straw-yellow, generally with a few darker brownish-yellow concentric bands somewhat irregularly disposed. Color invested in the periostracum. Beaks high and rather sharp and pointing forward. Ligament deeply immersed. Lunule well-defined and moderately impressed. Escutcheon weakly defined. Sculpture consisting of very fine concentric ridges with about 20 to one centimeter on the central portion of the disc. Interior of shell a flat white with the muscle scars and pallial complex high-lighted. Hinge plate broad. Right valve with posterior cardinal bifid. Anterior lateral tooth small and tubercular. Beak cavities deep. Pallial sinus triangular and deep with its apex somewhat rounded.

	length	height	width	
(large)	74	65	24 mm.	Cape Canaveral, Florida
(average)	65	58	19	Beaufort, North Carolina

*Types.* As *Reeve* gave only "United States" as a type locality, we here designate it to be St. Augustine, Florida, as this location is well within the range limit of this species. The type specimen is in the Cuming collection (British Museum).

*Remarks.* See also under *D. elegans*. Both *D. discus* and *elegans* were long confused with *concentrica* and, consequently, the older published records are not at all reliable as to just what species was indicated. The ranges for all these three species extend beyond the records that we have seen. The records, however, have all been studied by Mr. McLean or myself.

It is to be borne in mind that any given species may not necessarily occur throughout the range that is indicated for it. Factors in its environment necessary for its existence may be absent in portions of this range and thus considerable distances may occur between records. The area along the west Florida coast from Tampa Bay south to Cape Sable is a region of this sort. Many species found in the northern Gulf area and again along the northeast coast of Florida from Cape Canaveral and north to the Carolinas are absent in southwest Florida. Temperature might be the limiting factor, but the data are as yet too

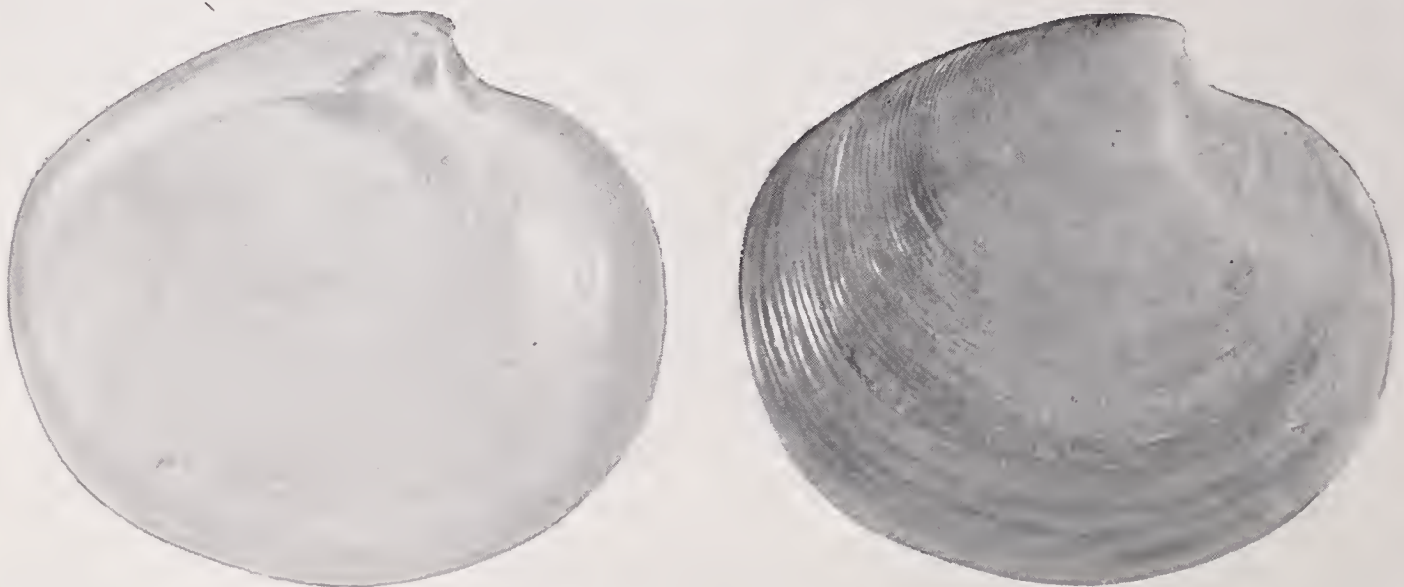


Plate 3. *Dosinia discus* *Reeve*. Natural size. Amelia Island, Florida.

incomplete, even for the distribution of our common species. There is a paucity of records for the Gulf coast of Mexico and the Atlantic shores of Central America.

*Range.* Along the coast from Virginia to Yucatan.

*Records.* NORTH CAROLINA: Bogue Island: Beaufort (MCZ); Ocracoke; Swansboro (ANSP); SOUTH CAROLINA: Isle of Palms; St. Helena; Folly Id.; Sullivan's Id. (MCZ); Long Id. (ANSP); GEORGIA: St. Simon's Id. (MCZ); FLORIDA: Amelia Id.; St. Augustine; Cape Canaveral; Coronado; Daytona (MCZ); Mayport; Fernandina; Clearwater; Tampa Bay; Alligator Harbor; St. Joseph Bay; Crooked Id.; St. Andrew's Sound (ANSP); MISSISSIPPI: Horn Id. (ANSP); LOUISIANA: Shell Id.; Grand Isle (MCZ); TEXAS: Indianola; Corpus Christi (MCZ); Port Aransas; near Galveston (ANSP); MEXICO: Frontera (ANSP); Vera Cruz (MCZ; ANSP; M. E. Bourgeois); BAHAMAS: Cat Cay, Bimini Islands (MCZ).

### **Macrocallista Meek**

*Macrocallista* Meek 1876, Rept. United States Geol. Survey Terr. 9, p. 179 (genotype, *Venus gigantea* Gmel.).

This genus contains some of the most colorful members of the Veneridae. As the status of the genus is still unsettled the exact number of species cannot be given. The genus even in the broad sense, however, is not large and would, perhaps, include not more than twenty-five species. Most of these occur in the tropics, though a few range into temperate seas.

The shell is generally ovate to elongate, usually with radial bands of color, smooth or with fine to moderate concentric ridges. Nearly all species possess a rather heavy though translucent periostracum, most of which flakes off, however, when the shells are dried. The lunule is usually defined but sometimes only poorly so. The pallial sinus is usually deep and generally obliquely truncated. There are three cardinal teeth in each valve, smooth, with the right posterior tooth bifid. Only two species occur in the Western Atlantic and these are to be found a little below low water line.

### **Macrocallista nimbosea Solander, Plate 4**

*Venus nimbosea* Solander 1786, Catalogue of the Portland Mus. pp. 161 and 175 (Florida). Reference is made to De Favanne 1780, La Conchyliologie ou Hist. Nat. des Coquilles, Paris, pl. 49, fig. 1, 1.

*Venus gigantea* Gmelin 1790, Syst. Nat. ed. 13, 1, p. 3282.

*Paphia ala avis* Röding 1798, Mus. Boltinianum, pt. 2, p. 175.

*Venus multiradiata* Menke 1829, Verzeichnis Conchy.-Samm., Malsburg, p. 119.

*Callista (Macrocallista) gigantea* Gmel., Meek 1876, Rept. United States Geol. Survey Terr. 9, p. 179.

*Description.* Shell broadly ovate, moderately compressed, rather thin but strong, smooth and ornamented with radial bands of color. The color is dull to reddish salmon, paler in older and larger specimens. Moderately curved radial bands of darker salmon cross the shell from umbones to margin. These bands of color are not solid but are interrupted by clear areas. Most of this color is invested in the shell. Beaks fairly high and pointing forward. Ligament moderately immersed. Lunule long and slightly impressed. Escutcheon outlined by a change in color. Sculpture consists only of very fine growth lines. Interior of shell dull white with a reddish blush diffused over the central area. Pallial line and sinus

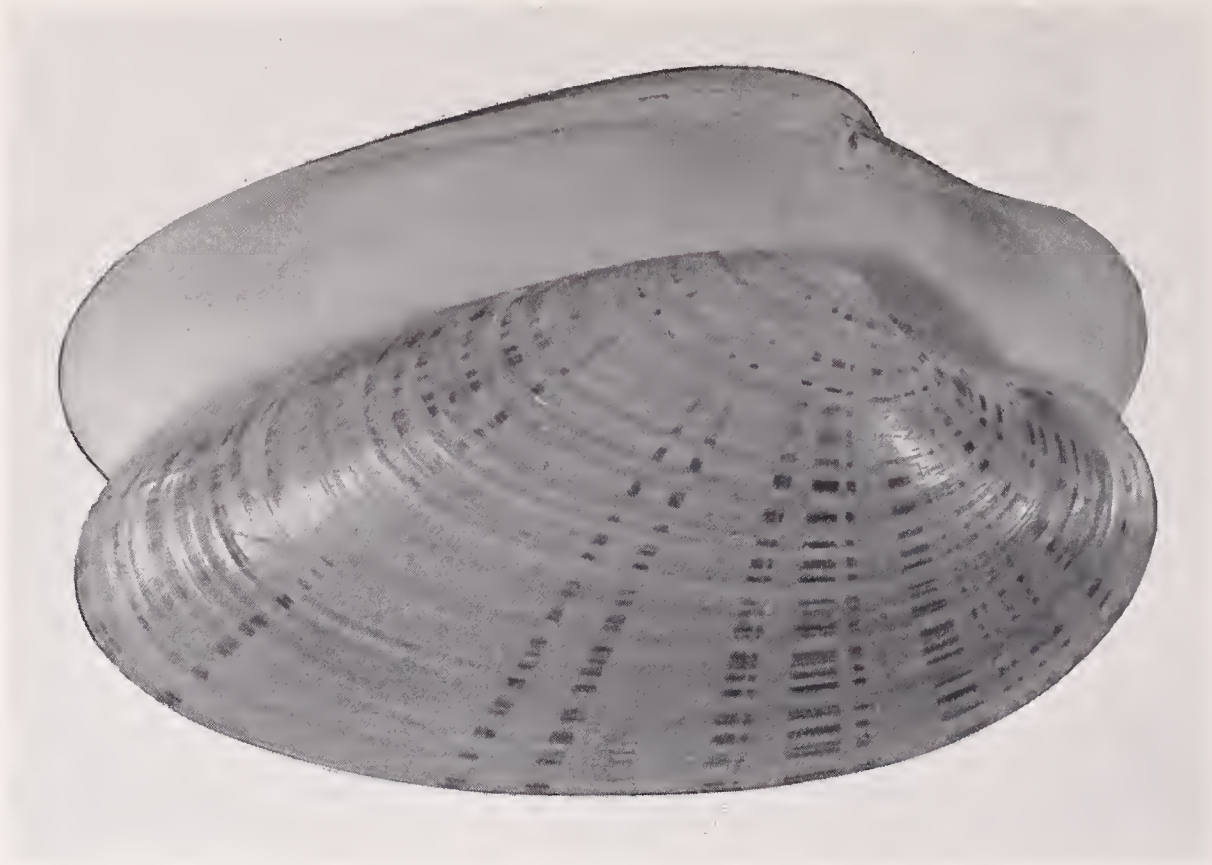


Plate 4. *Macrocallista nimbose* Sol. Natural size. Marco, Florida (Neoholotype).

sharply defined, the sinus deep and somewhat obliquely truncated. Hinge plate long and narrow. Beak cavities moderately deep.

	length	height	width	
(large)	150	72	31.5 mm.	Sanibel, Florida
(average)	121	60	29	Sanibel, Florida

*Types.* Type figure [here selected] De Favanne 1780, pl. 49, fig. 1, 1 (reference above). Type locality [here selected] Marco, Florida. Neoholotype, MCZ 76665. Neoparatypes from the same locality. We have selected this locality as it is near the center of the range of this species.

*Remarks.* This species is the genotype of *Macrocallista*. Though not rare within its range, it does not appear to be excessively common at any locality. It is easy to recognize as there is no other species in the genus that approaches it in size, shape or color.

*Range.* North Carolina south to Florida and west to Texas. (Cuba?)

*Records.* NORTH CAROLINA: Beaufort (MCZ; ANSP); Schackleford Id. (MCZ). SOUTH CAROLINA: Charleston (MCZ). FLORIDA: St. Augustine (ANSP); Cape Canaveral (MCZ); Cape Sable (MCZ); Cape Romano; Sanibel Id. (MCZ; ANSP); Pavilion Key; Marco; Naples; Sarasota; Mullet Key, Tampa Bay; Clearwater; (MCZ); Santa Rosa Id.; St. Joseph Bay; St. Andrew's Bay; (ANSP); Beacon Hill (MCZ). TEXAS: Port Aransas (MCZ).

### ***Macrocallista maculata* Linné, Plate 5**

*Venus maculata* Linné 1758, Syst. Nat. ed. 10, p. 686 (O. Americano).

*Description.* Shell subovate, rather compressed, rather thin but strong, shining, smooth and ornamented with rather regularly disposed squares of color. The shell is dull white with brownish red "squares" irregular in shape, but generally somewhat evenly arranged over the entire surface of the shell. In addition, many specimens have two radial bands

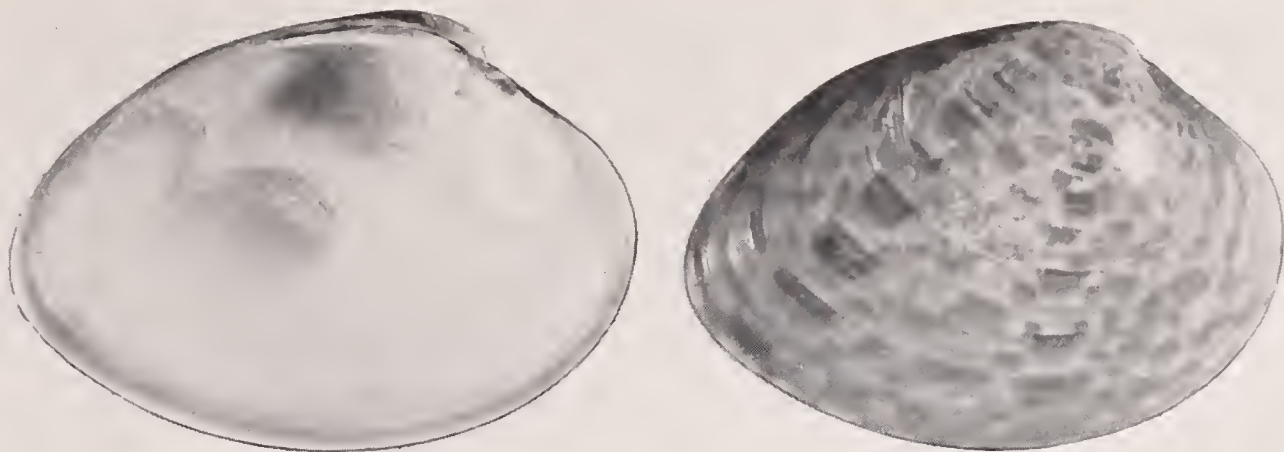


Plate 5. *Macrocallista maculata* Linné, Natural size, Sanibel Island, Florida.

of these markings showing up a little darker than the remainder. This color is invested in the body of the shell. The periostracum, when present, is dull yellowish and tends to diffuse the markings below. Beaks fairly high and directed forward. Ligament rather small and moderately immersed. Lunule rather long, slightly impressed, and not evenly divided by the two halves of the shell. Escutcheon not defined or only very indistinctly so by a change in color. Sculpture consists of exceedingly fine growth lines. Interior of shell a flat white. Pallial line and sinus sharply defined, the sinus large and obliquely truncated. Hinge plate short. Beak cavities moderately deep.

	length	height	width	
(large)	77	60	36 mm.	Rio de Janeiro, Brasil
(average)	66	45	26	Cayo Frances, Caibarien, Cuba

*Types.* Linné did not figure this species and we take as type figure that of his first reference, namely, Gualtieri 1742, Testarum Conchyliorum, pl. 86, fig. I. As type locality we here select Cayo Frances, Caibarien, Cuba.

*Remarks.* This is a species of rather wide distribution, extending as it does from North Carolina to Southern Brasil. We have never found it abundant at any locality during our several field trips. This, like the last species, is very readily determined, as there is no other species that approximates it.

*Range.* North Carolina south to Brasil including the West Indies.

*Records.* FLORIDA: Palm Beach; Sanibel Id.; (MCZ: ANSP); Sarasota; Naples: (MCZ); Osprey (ANSP). BERMUDA (fossil) (MCZ). BAHAMAS: Gt. Abaco Id.; Eleuthera Id.; Cat Cay, Bimini Ids.; (MCZ). CUBA: Cardenas (ANSP); Cayo Frances, Caibarien; Cienfuegos: (MCZ). HISPANIOLA: Monte Cristi (MCZ). VIRGIN ISLANDS: Guana Id., Tortola; Caneel Bay, St. John: (MCZ); St. Thomas (ANSP). LESSER ANTILLES: St. Kitts (ANSP); Nevis; Tobago: (MCZ). MEXICO: Vera Cruz (M. E. Bourgeois); Isla Mujeres (C. G. Aguayo). VENEZUELA: Cumana (MCZ). BRASIL: Cidade da Bahia; São Goncalo, Est. Rio de Janeiro; Ilha de S. Sebastiao, Est. São Paulo: (P. de Oliveira).

### ***Amiantis purpurata* Lamarch, Plate 6**

*Cytherea purpurata* Lam. 1818, Anim. s. Vert. 5, p. 563 (Brasil).

*Chione purpurascens* Gray 1838, The Analyst, 8, p. 306.

*Venus brasiliiana*, var.  $\beta$  Gmelin 1790, Syst. Nat. ed. 13, p. 3289 (non Gmelin 1792).

*Description.* Shell subcircular, rather wide, moderately thin but strong, smooth to moderately ridged. Color creamy white or brownish (rare) or dull purplish with deeper purplish concentric bands at irregular intervals. Periostracum thin and dull yellowish in color. Beaks high and pointing forward. Ligament moderately immersed. Lunule long, deeply impressed and white in color. Escutcheon not defined. Sculpture consists of fine concentric ridges on the earlier portion of the shell with larger and well-flattened irregular ridges indicating growth periods. These are, in addition, intensified in appearance by a darker development of the purple coloration on and below these ridges. This deeper color is well indicated in the figure. Interior of shell a dull white with the pallial line and sinus well high-lighted. Pallial sinus broad and pointed. Anterior muscle scars deeply impressed. Hinge plate broad and strong. Beak cavities deep.

	length	height	width	
(large)	67	58	37 mm.	Punta Médanos, Argentina
(average)	58	51	26	Rio de Janeiro, Brasil

*Types.* As Lamarck did not figure this species, we select as type figure, that of Reeve 1863, *Conchologia Iconica* 14, pl. 8, fig. 32. The type locality [here selected] to be Rio de Janeiro, Brasil.

*Remarks.* A distinctive species owing to its rather unusual purplish coloration. The large flattened concentric ribs are strongly developed (figured specimen) only in certain specimens. In others they are apparent but not so pronounced. Occasional examples are creamy white, completely devoid of the purplish color. Dall (1902, p. 370) gives Cuba as a locality from a citation of Arango but this record is very probably based on an incorrectly determined specimen.

*Range.* Brasil south to Argentina. (Cuba?)

*Records.* BRASIL: Praia de Copacabana, Rio de Janeiro; São Goncalo, São Paulo; Imbituba, Sta. Catarina (P. de Oliveira). URUGUAY: Cabo Sta. Maria (MCZ). ARGENTINA: Punta Médanos (A. Carcelles).

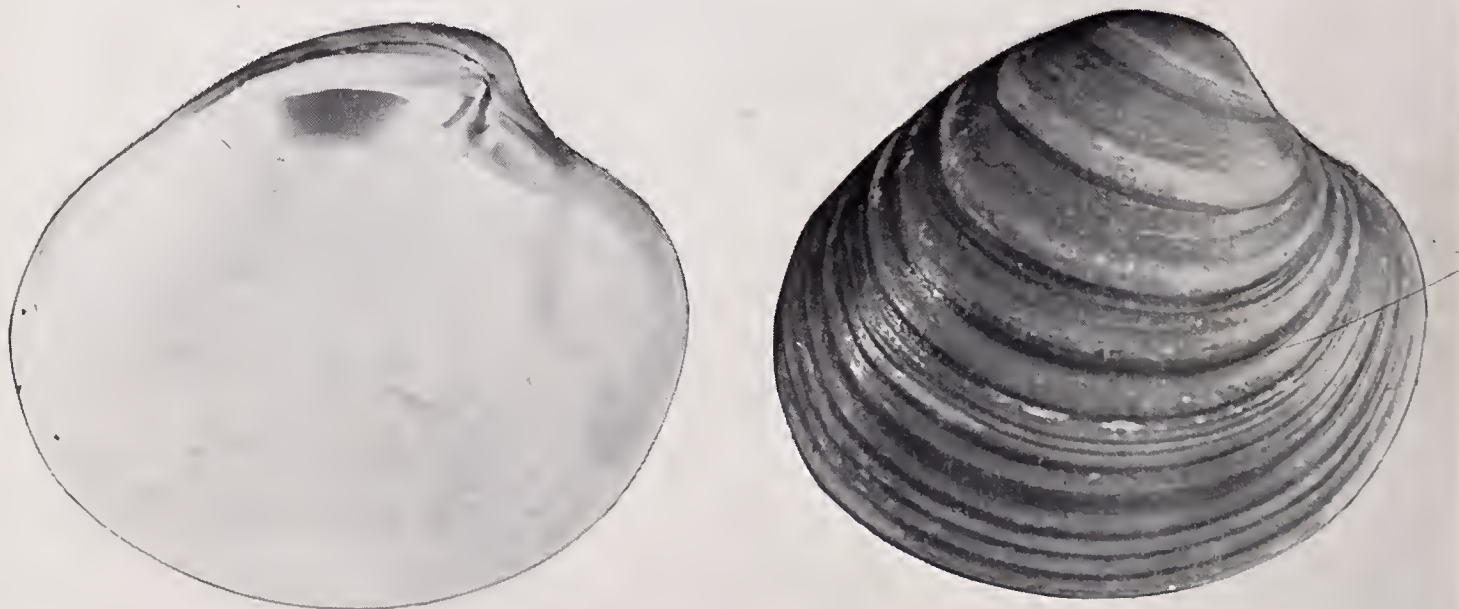


Plate 6. *Amiantis purpurata* Lam. Natural size. Punta Médanos, Argentina.

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