

straight and gently inclined; posterior margin short, parallel with the dorso-ventral axis and forming a blunt truncation. Sculpture consisting of regularly spaced, raised lamellae (about 10-12 per millimeter) separated by sulci. Ligament light brown and slightly protuberant. Calcareous portion of the ligament poorly developed. In the left valve, the cardinal complex consists of an anterior subdeltoid bifid tooth with subequal lobes and of a posterior extremely elongate laminate tooth; distal anterior and posterior lateral teeth present, protruding and weak. In the right valve, the cardinal complex consists of a posterior thickened bifid tooth with subequal lobes and of an anterior subdeltoid laminate tooth; distal anterior and posterior lateral teeth present, elongate, strong, upcurled and socketed. Adductor muscle scars well impressed. Anterior adductor scar elongate, pointed above and rounded below; posterior adductor scar subquadrate. Pallial sinus equal in opposite valves, rising gently behind, widely separated from the anterior adductor scar and forming a short confluence posteriorly. Periostracum dull reddish-brown; the external surface of the valves eroded in the umbonal region and the remainder a dull white.

length	height	width	
8.3 mm.	6.5 mm.	3.0 mm.	Paratype of <i>alerta</i>
8.3	6.0	2.8	Holotype of <i>alerta</i>

Types. The holotype of *Tellina (Merisca) alerta* is in the British Museum (Natural History), no. 79.10.15.171.2; type locality, 32°45' S; 50°39' W, about 15 miles SE of Rio Grande do Sul, Brasil, in 48 fathoms; specimen collected by R. W. Copping on the HMS *Alert*.

Remarks. *Tellina alerta* is most closely allied to *Tellina aequistriata* Say. The shape of the shell, the concentric sculpture and the configuration of the lateral teeth of the right valve serve to indicate the close relationship between these species. The pallial sinus is the most important character used to distinguish these species. In *aequistriata*, the sinus falls to and is confluent with the pallial line at or very near the base of the anterior adductor muscle scar while in *alerta* it is widely separated from the anterior adductor scar and the confluence of the sinus, and the pallial line is short. *Tellina alerta* possesses a distinct reddish-brown periostracum which differs from the

AUG 10 1964

HARVARD

white periostracum of *aequistriata*, and the lateral impression of the valves appears to be greater in *alerta*.

Range and specimens examined. The species is known only from the type locality.

Tellina (Angulus) paramera, new species

Plate 55, figs. 3 and 8

Description. Shell extending to 14.5 mm. (about 5/8 inch) in length and to 12.5 mm. (about 1/2 inch) in height, ovate, sub-solid to solid, moderately inflated with both valves of more or less equal convexity and with or without a slight posterior flexure to the right. Umbos posterior to the middle, somewhat elevated, inflated and blunt. Anterior margin broadly rounded; ventral margin convex and rising slightly posteriorly; anterior dorsal margin straight and gently sloping; posterior dorsal margin rather steeply inclined, short and slightly convex; posterior margin short and forming an irregular blunt truncation. Concentric sculpture consisting of closely set, raised ridges (about 8–10 per millimeter) separated by shallow sulci; radial sculpture consisting of poorly developed, evenly spaced lirations which more or less cover the disc. Ligament reddish brown, poorly developed, not protuberant and sunken in an elongate and narrow escutcheon; lunule poorly defined, shallow and broad. Calcareous element of the ligament moderately developed and resting on a flattened hinge plate; no true nymphal callosities. In the left valve, the cardinal complex consists of an anterior deltoid bifid tooth with subequal lobes and of a posterior elongate thickened laminate tooth; no true lateral teeth present. In the right valve, the cardinal complex consists of a posterior, elongate slightly skewed bifid tooth with subequal lobes and of an anterior thickened, subdeltoid laminate tooth; anterior lateral tooth large, strong, thickened and proximal to the cardinal complex; posterior lateral absent or obsolete, consisting of a weak enlargement in the distal terminus of the hinge plate with an indented socket above. Adductor muscle scars not strongly impressed. Anterior adductor elongate and lunate; posterior scar transversely quadrate. Pallial sinus usually equal in opposite valves, rising abruptly behind, forming a rounded apex above and descending gently to the

Plate 54

Diagrammatic representation of the shell morphology of a generalized *Tellina*.

Fig. 1. Internal view of a right valve.

1. Cardinal complex with the single anterior laminate cardinal tooth and the bifid cardinal tooth.
2. Ligament.
3. Nymphal callosity.
4. Posterior lateral tooth.
5. Posterior adductor muscle scar.
6. Cruciform muscle scars.
7. Pallial sinus.
8. Pallial line.
9. Interlinear scar.
10. Anterior adductor scar.
11. Pedal retractor scars.
12. Anterior lateral tooth.

Fig. 2. External view of a left valve.

1. Umbo.
2. Anterior dorsal margin.
3. Oblique sulcus or scissulation.
4. Anterior margin.
5. Disc.
6. Ventral margin.
7. Concentric sculpture.
8. Posterior margin.
9. Posterior slope.
10. Posterior dorsal margin.

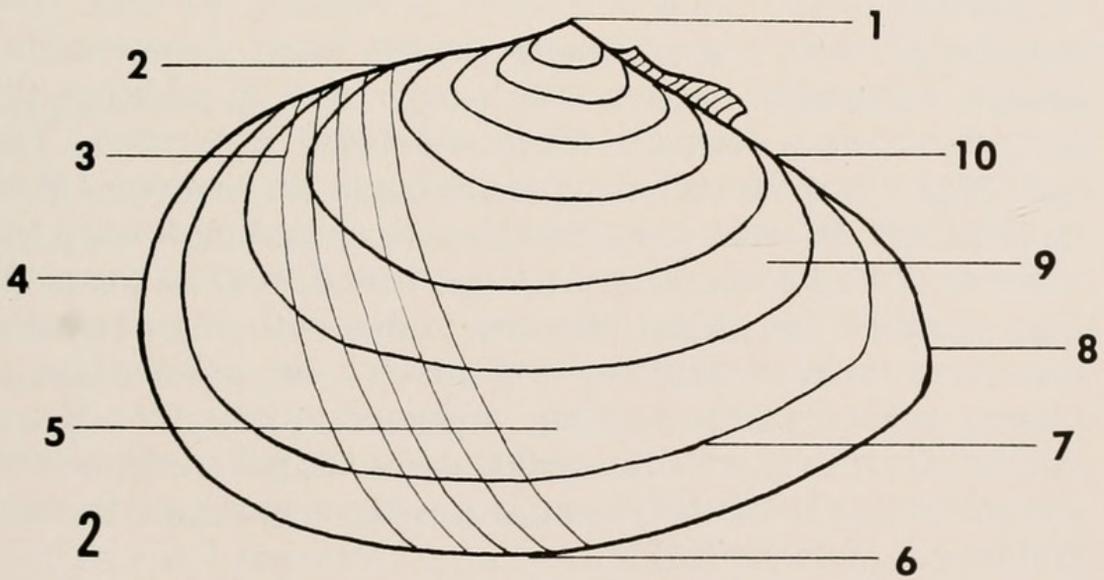
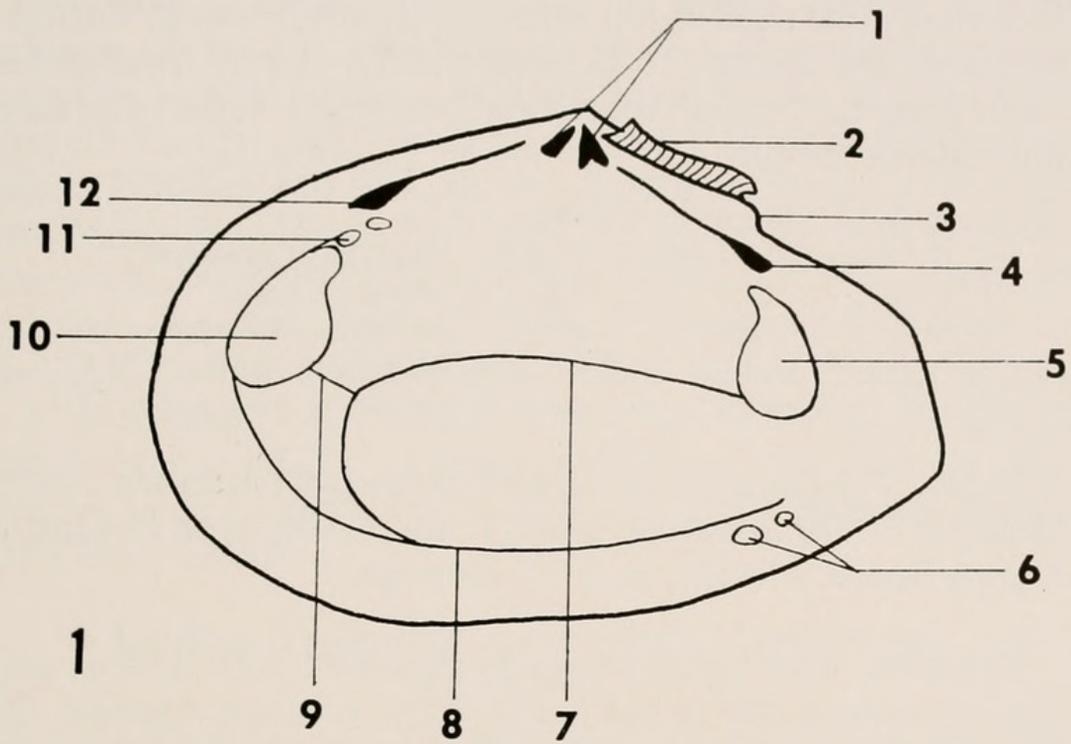


Plate 54

pallial line below; confluence entire. The pallial sinus generally does not coalesce with the anterior adductor scar but unites with the pallial line just beneath the anterior adductor scar. Externally, the shell is dull white; internally, shining, not highly polished and tending to become chalky; the internal surface often possesses radial vermiculations which reflect the external radial sculpture.

length	height	width	
12.5 mm.	10.0 mm.	5.2 mm.	Holotype of <i>paramera</i>
14.5	12.5	6.5	'Florida Keys'
10.3	8.4	4.3	Off Miami, Florida
9.2	7.2	—	Off Miami, Florida
6.2	4.5	—	Off Miami, Florida

Types. The holotype of *Tellina (Angulus) paramera* is in the Museum of Comparative Zoology, no. 242904; type locality, off Miami Beach, Florida, in 8 1/2 fathoms.

Remarks. This species is easily confused with *Tellina mera* Say, its nearest ally in the fauna of the Western Atlantic. The similarity in shape and color combined with the morphological similarities of the hinge line serve to indicate the close relationship of *mera* and *paramera*. In the latter, however, the shell is noticeably thicker and heavier and, in addition, the posterior margin forms a diagnostic blunt truncation. The configuration of the pallial sinus distinguishes *paramera* from its relatives. In *mera*, the sinus though extending toward the anterior adductor muscle scar, is separated from it; the sinus then parallels the pallial line and unites with it posteriorly, forming a short confluence. In *paramera*, the pallial sinus is closely aligned to the anterior adductor muscle scar, if not contiguous with it, and the confluence of the pallial sinus with the pallial line is virtually complete, extending the entire ventral length of the pallial line.

Tellina paramera occurs from the shore line to depths of fifty fathoms. As specimens are relatively rare and the species has remained unrecognized to date, it is postulated that an off-shore habitat in moderate depths is preferred. An analog of *Tellina paramera* is not recognized from the Eastern Pacific.

Range. The species occurs from Bermuda, through the Ba-

hama Islands and off the coast of southeastern Florida to the Barbados, British West Indies.

Specimens examined. FLORIDA: off Miami Beach, in 6–30 fathoms; off Bear's Cut, Miami, in 18–20 fathoms; off Government Cut, in 3–38 fathoms; off Bell Buoy, Miami, in 15–22 fathoms; off Fowey Light, in 22–40 fathoms; Bird Key, Biscayne Bay, in 2–10 feet (all USNM); off American Shoals, in 45 fathoms (MCZ); Key West; Tortugas, in 15 fathoms (both USNM). BERMUDA: Ferry Point, St. George's Island (USNM). BAHAMA ISLANDS: Grand Bahama (USNM); Thompson's Bay, Long Island (MCZ). CUBA: Cape Cajon; Cayo Levisa; Bahia Honda, in 1–12 fathoms (all USNM). HISPANIOLA. SANTO DOMINGO: Puerto Sousa (MCZ). LESSER ANTILLES: off Payne's Bay Church, in 50 fathoms, and Carlisle Bay, in 6 fathoms, Barbados (both USNM).

***Tellina (Angulus) exerythra*, new species**

Plate 55, fig. 7

Tellina (Eurytellina) vespuciana 'd'Orbigny' Dall and Simpson 1901, Bull. U.S. Fish. Comm., **20**(1): 480, non d'Orbigny 1842.

Description. Shell extending to 18.5 mm. (about 3/4 inch) in length and to 11 mm. (about 3.8 inches) in height, subtrigonal, subsolid to solid, inflated with the left valve more convex and with a variously developed posterior flexure to the right. Umbos just posterior to the middle, slightly elevated and pointed. Anterior margin broadly rounded; ventral margin slightly convex and rising in a gentle arcuation posteriorly; anterior dorsal margin elongate and convex; posterior dorsal margin rather steeply inclined and straight; posterior margin short, parallel to the dorso-ventral axis and forming a small truncation. Concentric sculpture consisting of more or less widely and evenly spaced sulci separated by broad, flattened bands; no radial sculpture. Ligament light brown, weak and protuberant. Calcareous portion of the ligament subtended by short and weak nymphal callosities. In the left valve, the cardinal complex consists of an anterior elongate bifid tooth with subequal lobes and of a posterior elongate laminate tooth; no true lateral teeth present. In the right valve, the cardinal complex consists of a posterior, skewed and thickened bifid tooth with subequal

Plate 55

Fig. 1. *Tellina alerta* n. sp., paratype, BMNH; 32°45' S; 50°39' W, off Rio Grande do Sul (right valve internal; 4.5×).

Fig. 2. *Tellina alerta* n. sp., holotype, BMNH; 32°45' S; 50°39' W, off Rio Grande do Sul (left valve external; 4.6×).

Fig. 3. *Tellina paramera* n. sp., holotype, MCZ 242904, off Miami Beach, Florida (right valve external; 2.6×).

Fig. 4. *Tellina probrina* n. sp., holotype, USNM 461905, off Fowey Light, Florida (right valve internal; 2.7×).

Fig. 5. *Tellina ewitrea* n. sp., holotype, USNM 461952, Santa Lucia, Pinar del Rio, Cuba (right valve internal; 2.8×).

Fig. 6. *Tellina diantha* n. sp., holotype, MCZ 239110, Barbados, British West Indies (right valve internal; 2×).

Fig. 7. *Tellina exerythra* n. sp., holotype, MCZ 239220, Boca del Infierno, Bahía de Samaná, Santo Domingo (right valve internal; 2.9×).

Fig. 8. *Tellina paramera* n. sp., holotype, MCZ 242904, off Miami Beach, Florida (right valve internal; 3.4×).

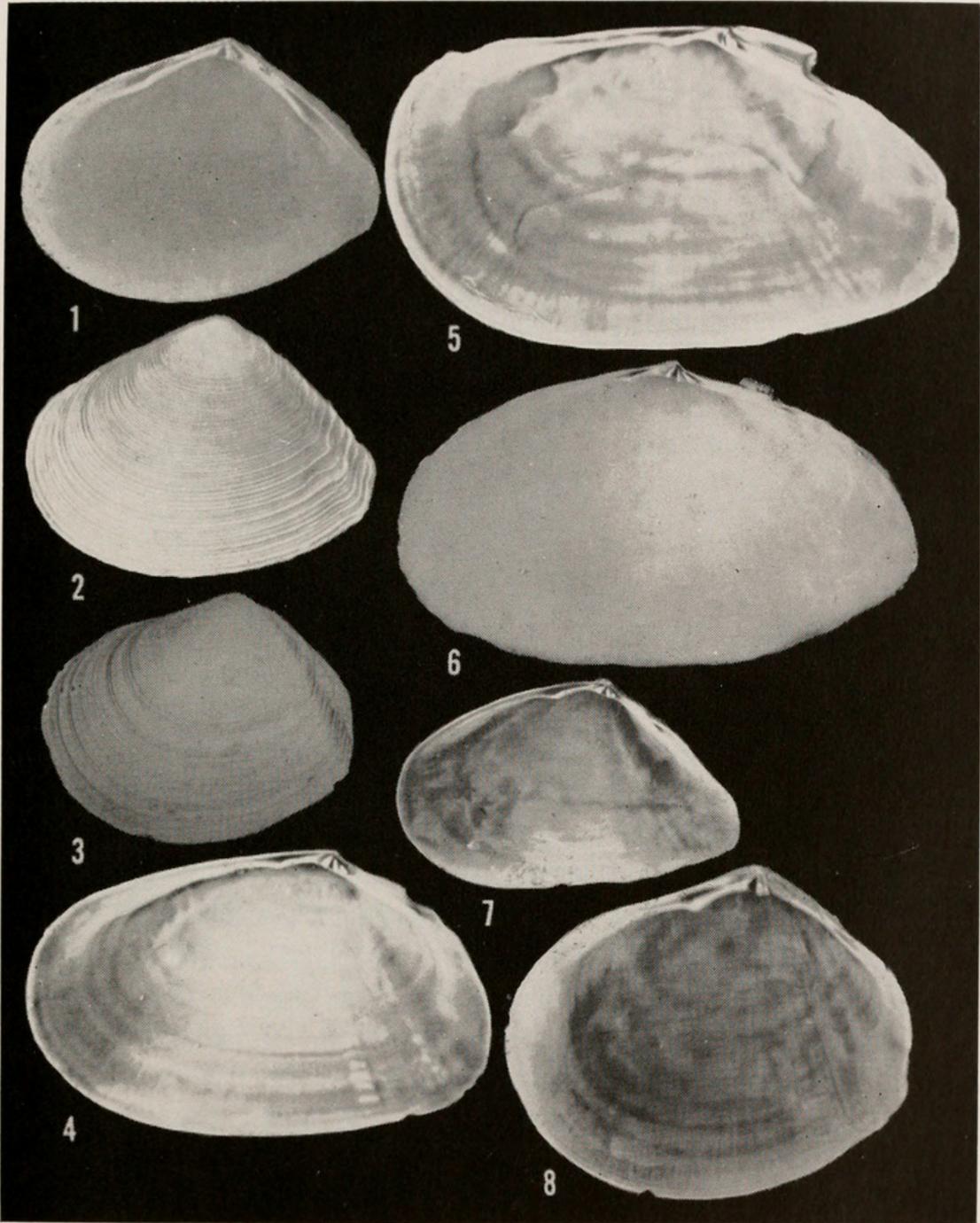


Plate 55

lobes and of an anterior subdeltoid laminate tooth; anterior lateral tooth thickened, upcurled and proximal to the cardinal complex; small distal vestige of the posterior lateral tooth evident. Adductor muscle scars moderately impressed. Anterior adductor scar elongate and rounded below; posterior adductor scar rounded. Pallial sinus more or less equal in both valves, rising gently posteriorly, descending in a concave line, extending nearly to but separated from the anterior adductor muscle scar and falling in a short rounded arcuation to the pallial line. Shell basically ivory white in color with a predominance of red suffusion; the periphery is generally white and variously formed rays of red, white or pink underlie the posterior ridge; external surface shining and sometimes iridescent; internal surface generally highly polished.

length	height	width	
12.0 mm.	7.0 mm.	3.5 mm.	Holotype of <i>exerythra</i>
18.5	11.0	—	West Indies
10.3	6.5	3.0	Mayaguez, Puerto Rico
7.0	4.3	1.9	Bahía de Samaná, Santo Domingo

Types. The holotype of *Tellina (Angulus) exerythra* is in the Museum of Comparative Zoology, no. 239220; type locality, Boca del Infierno, Bahía de Samaná, Santo Domingo, Hispaniola.

Remarks. *Tellina exerythra* appears to occur in considerable numbers off the two easternmost islands of the Greater Antilles. It is most easily confused with and closely related to *T. versicolor* De Kay. In general, *exerythra* is subtrigonal in shape, bright red in color and relatively high in proportion. In this respect it can be contrasted with the elongate elliptical shape and whitish coloration of *versicolor*. The shell of *exerythra* is thicker, heavier and of a greater convexity than that of *versicolor*. The posterior ridges of *exerythra* are rather strongly developed, and there are generally one or two supernumerary ridges separated by weak sulci upon the posterior slope. In contrast, *versicolor* possesses less definitely developed posterior ridges, and extra ridges do not seem to be evident.

In the south Atlantic, *Tellina gibber* v. Ihering, because of its strong shell and the configuration of its pallial sinus, may be related to *exerythra*, but *gibber* lacks the red coloration and possesses a distinctly divided posterior margin with a peculiar and strongly developed posterior sulcus.

Tellina subtrigona Sowerby of the Eastern Pacific is quite similar to *T. exerythra* but the Pacific species attains a greater size.

Range. The species appears to be concentrated in the area of the Greater Antilles exclusive of Cuba. Some specimens have been found at Colon, Panama and others in Brazil.

Specimens examined. GUATEMALA: Livingston (ANSP). BRITISH HONDURAS: Belize (ANSP). JAMAICA: Little Goat Island, Portland Bight (MCZ). HISPANIOLA. HAITI: Aquin; Bizoton (both USNM). SANTO DOMINGO: Monte Cristi (ANSP); Puerto Plata; Bahía de Samaná (both MCZ). PUERTO RICO: Mayaguez; Puerto Real; Ponce (all IMBPR). PANAMA: Colon (MCZ). BRAZIL: (MCZ).

***Tellina (Angulus) probrina*, new species**

Plate 55, fig. 4

Description. Shell extending to 25 mm. (about one inch) in length and to 14 mm. (about 9/16 inch) in height, elongate to subrectangular in shape, fragile, compressed, with the left valve of slightly greater convexity and with a slight posterior flexure to the right. Umbos posterior to the middle, small and pointed. Anterior margin broadly rounded; ventral margin straight to slightly convex; anterior dorsal margin long and gently sloping; posterior dorsal margin short, slightly concave and slightly inclined; posterior margin long and forming an oblique and blunt truncation. Sculpture consisting of weakly incised and irregularly spaced, concentric sulci; no radial sculpture present. Ligament light brown and protuberant. The calcareous portion of the ligament is subtended by strongly developed and protuberant nymphal callosities in both valves. In the left valve, the cardinal complex consists of a narrow anterior bifid tooth with elongate lobes and of a thin and curved laminate tooth; no true lateral teeth. In the right valve, the cardinal complex consists of a strongly skewed posterior bifid tooth whose posterior lobe is the larger and of an anterior slightly thickened and subdeltoid laminate tooth; anterior lateral proximal, laminate and curved upward; posterior lateral absent or obsolete. Adductor muscle scars moderately

impressed. Anterior adductor muscle scar irregularly shaped, but elongate and rounded below; posterior adductor more or less rounded. Pallial sinus rising very abruptly from the posterior adductor muscle scar to a high point beneath the umbo, then gently descending, rounded anteriorly and arcuately falling to the pallial line. The pallial sinus is well separated from the anterior adductor muscle scar. Shell white to pink or flesh-colored with a variously shaped posterior ray which may be absent in bleached individuals. The periostracum imparts an iridescence to the external surface of the valves, and the internal surface may be shining.

length	height	width	
18.5 mm.	11.0 mm.	—	Holotype of <i>probrina</i>
25.3	14.0	—	Off Freeport, Texas
16.0	9.4	—	Bird Key, Florida
14.2	8.4	2.5 mm.	Off Fowey Light, Florida
11.1	6.5	2.1	Sombrero Key, Florida
8.3	4.8	—	Bird Key, Florida

Types. The holotype of *Tellina (Angulus) probrina* is in the U.S. National Museum, no. 461905; type locality, *Eolis* Station 151, off Fowey Light, Florida, in 55 fathoms.

Remarks. *Tellina probrina* is most easily recognized by its subrectangular shape and its broad, flattened and oblique posterior truncation. Young individuals closely assume the proportions of average adults but very large individuals have the truncation more oblique and the anterior dorsal margin less gently inclined. The vitreous external appearance also identifies this species, but its nearest relative in the Western Atlantic, *Tellina euvitrea*, may be confused with it. However, *euvitrea* has a straight and peculiar anterior dorsal margin, nearly parallel with the ventral margin. In contrast to *probrina*, *euvitrea* is more tumid, much more pointed behind, and with a pallial sinus which does not arise so abruptly from the posterior adductor muscle scar.

Another species with which *Tellina probrina* may be confused is *T. consobrina* d'Orbigny, however, the latter is distinctly allied to the subgenus *Scissula* and its sculpture may be used to distinguish it from *probrina*. In addition, *probrina* is more compressed, higher in proportions, and more strongly and broadly truncate.

Range. This species occurs in depths up to 100 fathoms. It is found in the Straits of Florida off Miami, in the Gulf of Mexico, and in the Caribbean to Tobago.

Specimens examined. FLORIDA: off Government Cut, Miami; off Fowey Light; off Ragged Key; off Bird Key; off Triumph Reef (all USNM); off Sombrero Key (MCZ); off Sand Key; Key West; Dry Tortugas (all USNM). TEXAS: 68 miles SE of Freeport, in 48 fathoms; 80–100 miles S of Port Isabel, in 40 fathoms (both MCZ). BAHAMA ISLANDS: (USNM). LESSER ANTILLES: Grenada (USNM); 2 miles S of Fort George, Scarborough, Tobago, in 36 fathoms (MCZ).

***Tellina (Angulus) euvitrea*, new species**

Plate 55, fig. 5

Tellina (Angulus) vitrea 'd'Orbigny' Dall and Simpson 1901, Bull. U.S. Fish. Comm. **20**(1): 481, non d'Orbigny 1842.

Description. Shell extending to 21 mm. (about 3/4 inch) in length and to 12 mm. (about 7/16 inch) in height, elongate-elliptical, thin, only slightly inflated with the right valve of a greater convexity and with only a slight flexure to the right posteriorly. Umbos just posterior to the middle, opisthogyrous, pointed and not elevated. Anterior margin very broadly rounded; ventral margin straight and with a slight postbasal arcuation: anterior dorsal margin not descending, long, straight and parallel to the ventral margin; posterior dorsal margin variously sloping and short; posterior margin short and poorly defined. Sculpture consisting of weak concentric sulci which are separated by broad bands. Radial sculpture consisting of extremely weak and obscure lirations which are more or less restricted to the peripheral areas. Ligament light brown, strong and protuberant. Calcareous portion of the ligament well developed and subtended by a short nymphal callosity. In the left valve, the cardinal complex consists of an anterior fragile bifid tooth and of a posterior thin and weak laminate tooth; no true lateral teeth present. In the right valve, the cardinal complex consists of a strong posterior bifid tooth with a poorly developed sulcus and a strong anterior and heavy laminate tooth; no true posterior lateral tooth present; anterior lateral proximal to the cardinal complex, rather small and laminate.

Adductor muscle scars generally well impressed. Anterior adductor scar irregularly elongate, smaller than the posterior scar. Pallial sinus equal in opposite valves, pointed above, descending rather steeply, and smoothly arcuate anteriorly. The sinus is deep but is well separated from the anterior adductor muscle scar. Externally the shell is iridescent and banded with white or pink; internally, the shell is usually white.

length	height	width	
21.0 mm.	11.0 mm.	4.5 mm.	Holotype of <i>euvitrea</i>
20.0	11.0	4.0	Bahía de Samaná, Santo Domingo
11.0	6.0	—	Puerto Plata, Santo Domingo

Types. The holotype of *Tellina (Angulus) evitrea* is in the U.S. National Museum, no. 461952; type locality, *Barrera Station* 200, Santa Lucia, 15 miles SW of La Esperanza, Pinar del Rio, Cuba, in 2–4 fathoms.

Remarks. This species had actually been recognized by Dall and Simpson in their report on the mollusks of Puerto Rico, and it was at that time called '*Tellina vitrea* d'Orbigny', but the holotype of *vitrea* d'Orbigny is a young individual of *Tellina magna* Spengler. *Tellina evitrea* is characterized by its periostracum which imparts a vitreous lustre to the external surface of the valves. Its closest relative in the Western Atlantic is *Tellina probrina*, from which *euvitrea* may be separated by a more gently rising pallial sinus, a more pointed posterior end, and by a peculiar anterior dorsal margin which is parallel to the ventral margin. In addition, *Tellina probrina* is compressed whereas *euvitrea* is somewhat inflated. Some individuals of *T. versicolor* may be confused with *euvitrea*, but generally the red coloration and the pallial sinus which is closely aligned to the anterior adductor muscle scar in *versicolor* serve to identify it.

Range. This species appears to be restricted to the Greater Antilles except for Jamaica where it has not been recorded.

Specimens examined. CUBA: Santa Lucia, in 2–4 fathoms; La Esperanza, in 4–6 feet; Bahia Honda, in 1–12 fathoms; Cabanas Harbor, in 3–12 fathoms (all USNM). HISPANIOLA. SANTO DOMINGO: Puerto Plata (MCZ); Bahía de Samaná (USNM).

PUERTO RICO: Aguadilla; mouth of Anasco River, in 40–60 feet (both MCZ); Mayaguez, in 42–60 feet (IMBPR; USNM); off Ponce, in 50 feet (IMBPR).

Tellina (*Angulus*) *diantha*, new species

Plate 55, fig. 6

Description. Shell extending to 26 mm. (about 1 inch) in length and to 15 mm. (about 5/8 inch) in height, elongate-subelliptical, thin, fragile, with the right valve of a greater convexity and with a slight flexure to the right posteriorly. Umbos posterior to the middle, inflated and blunt. Anterior margin generally narrowly rounded; ventral margin straight to slightly convex and rising posteriorly; anterior dorsal margin long and gently sloping; posterior dorsal margin straight and short; posterior margin short and forming a poorly defined, oblique truncation. Sculpture consisting of closely set, weakly developed concentric lines; no true radial sculpture present. Ligament light to dark brown and slightly protuberant. Calcareous portion of the ligament subtended by slightly protuberant nymphal callosities. In the left valve, the cardinal complex consists of an anterior small, subdeltoid bifid tooth with subequal lobes and of a posterior, very thin, extremely elongate laminate tooth; a subproximal anterior lateral thickening represents a vestige of the anterior lateral tooth; no posterior lateral dentition. In the right valve, the cardinal complex consists of a posterior skewed bifid whose posterior lobe is much the larger and of an anterior short slightly thickened laminate tooth; the anterior lateral tooth is proximal to subproximal, thin, laminate and often weakly upcurled; no true posterior lateral tooth present. Adductor muscle scars moderately impressed. Anterior adductor muscle scar narrow and rounded below; posterior adductor scar subquadrate. Pallial sinus more or less the same in opposite valves, rising gently behind, rounded above, descending gently in a more or less straight line and falling in an arcuation to the pallial line; the sinus is distinctly removed from the anterior adductor scar. Externally, shell smooth, shining and suffused with pink or yellowish green; internally, chalky.



Boss, Kenneth J. 1964. "New species of Tellina from the western Atlantic." *Occasional papers on mollusks* 2(29), 309–324.

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