



Three new species of *Tellina* (Bivalvia, Tellinidae) from the Panamic Province

EUGENE V. COAN¹ & PAUL VALENTICH-SCOTT²

Santa Barbara Museum of Natural History, 2559 Puesta del Sol Road, Santa Barbara, California 93105, USA.

E-mail: ¹genecoan@gmail.com; ²pvscoff@sbnature2.org

In preparing a manual on the marine bivalves of the Panamic Province, we have found three species of the Tellinidae that lack names. The purpose of this paper is to describe a new species of *Tellina* (*Hertellina*), a new species of *Tellina* (*Merisca*), and a new species of *Tellina* (*Acorylus*). The subgenus *Acorylus* is reported for the first time from the eastern Pacific Ocean.

Abbreviations: BMNH—The Natural History Museum, London; CAS—California Academy of Sciences, San Francisco, California; LACM—Natural History Museum of Los Angeles County, Los Angeles, California; SBMNH—Santa Barbara Museum of Natural History, Santa Barbara, California; UMML—University of Miami Marine Laboratory, Miami, Florida; USNM—United States National Museum of Natural History, Washington, D.C.

Genus *Tellina* Linnaeus, 1758

Tellina Linnaeus, 1758. Type species (subsequent designation of Children, 1823): *Tellina radiata* Linnaeus, 1758. Recent, Caribbean.

Shell elongate, compressed; hinge plate with two cardinal teeth in each valve and lateral teeth in one or both valves, sometimes overgrown in adults; often brightly colored and elegantly sculptured.

Subgenus *Hertellina* Olsson, 1961

Hertellina Olsson, 1961. Type species (original designation): *Tellina nicoyana* Hertlein & Strong, 1949

Shell ovate elongate, thin shelled; sculpture of commarginal striae that become oblique toward posterior end; lateral teeth prominent in right valve; pallial sinuses not approaching anterior adductor muscle scars.

Tellina (*Hertellina*) *sadeghiana* Coan & Valentich-Scott, new species

Figures 1 A–E, 2 A

Shell ovate-elongate, moderately inflated; subequilateral; exterior color light to dark pink; periostracum adherent, thin, shiny, slightly iridescent; umbonal region smooth; sculpture of commarginal striae that become slightly oblique near posterior end; posterior slope smooth, with only fine commarginal striae; right valve anterior lateral tooth short, thin, moderately close to cardinals; posterior lateral tooth thin, very distant from cardinals; pallial sinuses long, not reaching anterior adductor scars, mostly confluent with pallial line.

Type material. SBMNH 352864, holotype; length, 24.5 mm; height, 14.3 mm. SBMNH 352864, 3 paratypes, paired valves; USNM 1146209, 1 paratype, paired valves.

Type locality. Bahía Parita, Coclé, Panamá; 81°5'47"N, 80°16'35"W; 11–17 m, in sandy mud.

Distribution. Bahía Ballena, Puntarenas, Costa Rica (9.7°N) [CAS], to Esmeraldas, Esmeraldas, Ecuador (1.0°N) [UMML, SBMNH]; 11–17 m [SBMNH]; sandy mud.

Etymology. This species is named after Patricia Sadeghian of the Santa Barbara Museum of Natural History, who has taken thousands of bivalve images for our research projects and monographs.

Comparisons. The only other Recent species in the subgenus, *Tellina* (*Hertellina*) *nicoyana* Hertlein & Strong, 1949, differs from *T. (H.) sadeghiana* in having a posterodorsal flange, widely spaced commarginal ribs on the umbonal region, being lighter in color, and in being more compressed (Figures 1 F–H). *Sanguinolaria* (*Sanguinolaria*) *azulensis* Olsson, 1942 (p. 194, pl. 18, fig. 8), described from the Pliocene Charco Azul Formation of the Burica Peninsula on the Costa Rica and Panama border, seems to be a synonym of *T. nicoyana*. “*Sanguinolaria panamensis* Dall ms” was listed by Bernard (1983: 43) as a synonym of *T. nicoyana*, presumably having been spotted on a label in the USNM. The new species differs from the Late Pliocene of Trinidad *T. (H.) oligoscissulata* Jung, 1969 (pp. 386–387, pl. 33, figs. 1–4), in being slightly more elongate, less high, and with a deeper pallial sinus that is more dorsally directed.

Subgenus *Acorylus* Olsson & Harbison, 1953

Acorylus Olsson & Harbison, 1953. Type species (original designation): *Tellina (Moerella) suberis* Dall, 1900. Late Pliocene, Florida.

Shell small, solid, convex, subovate, with small posterior flexure; two strong lateral teeth equidistant from cardinal teeth; pallial sinus large, deep, reaching to anterior adductor muscle scar and widely confluent with pallial line.

Tellina (Acorylus) rickettsi Coan & Valentich-Scott, new species

Figures 1 I–L, 2 B

Shell ovate; inequilateral, much longer anteriorly (anterior end about 70% of length); posterior slope set off by weak sulcus in each valve; posterior end rounded; lunule shallow, elongate; escutcheon shallow, narrow; sculpture of dense, flat commarginal ribs that become lamellate and less dense posteriorly; commarginal ribs overlain by faint radial striae; right valve with very strong anterior lateral tooth and narrower posterior lateral tooth, the anterior tooth closer to cardinal teeth; pallial sinus merging with ventral edge of anterior adductor muscle scar in both valves. Length to 12 mm [SBMNH].

Type material. SBMNH 149544, holotype; length, 11.5 mm; height, 8.5 mm. SBMNH 149593, 4 paratypes, paired valves; UNSM 1146208, 1 paratype, paired valves; CAS 184230, 1 paratype, paired valves; LACM 3138, 1 paratype, paired valves.

Type locality. Bahía San Carlos, Sonora, México; 27°56'05"N, 111°03'23"W; 15–30 m.

Distribution. Isla Danzante, Baja California Sur (25.8°N) [SBMNH], and Bahía San Carlos, Sonora (27.9°N) [SBMNH], México, to Isla Rancheria, Golfo de Chiriquí, Panamá (7.6°N) [SBMNH]; 9–60 m [SBMNH].

Etymology. Named after Ed Ricketts, preeminent 20th century marine biologist of California and Mexico.

Comparisons. The western Atlantic *T. (A.) gouldii* Hanley, 1846, differs in being more inflated, heavier, in having a still shorter posterior end and less prominent sculpture, and a shinier periostracum. It is well figured in Mikkelsen & Bieler (2007: 338–339).

Subgenus *Merisca* Dall, 1900

Merisca Dall, 1900. Type species (original designation): *Tellina crystallina* Spengler, 1798. Recent, western Atlantic.

Serratina Pallary, 1922. Type species (original designation): *Tellina serrata* Brocchi, 1814. Miocene, France.

Shell ovate to ovate-trigonal; color white to cream internally and externally; with weak to strong posterior flexure; sculpture predominantly commarginal; escutcheon shallow to deep; pallial sinus extending to or slightly to moderately short of anterior adductor muscle scar.

This subgenus was treated in detail by Boss (1966: 260–270).

Tellina (Merisca) steinbecki Coan & Valentich-Scott, new species

Figures 1 M–P, 2 C

Shell ovate-subtrigonal, inequilateral, longer anteriorly (anterior end about 67% of length); posterior slope set off by moderate sulcus in right valve and shallower sulcus in left valve; posterior end not produced, moderately flexed to right, truncate; escutcheon deep, long, narrow; sculpture of dense, irregular commarginal lamellae, with conspicuous radial ribs in larger specimens that make the commarginal lamellae frilly in some places; right valve with very strong anterior and posterior lateral teeth, both distant and equidistant from the cardinal teeth; pallial sinus deep but stopping well short of anterior adductor muscle scar, merged with pallial line for about 70% of length. Length to 26 mm [CAS].

Type material. SBMNH 149550, holotype; length, 20.5 mm; height, 14.5 mm; SBMNH 149592, 56 paratypes, including both paired valves and separate valves; UNSM 1146207, 1 paratypes, 1 set of paired valves and 2 separate valves; CAS 184229, paratypes, 1 set of paired and two 2 separate valves; LACM 3137, paratypes, 2 separate valves.

Type locality. Off the northeast end of Isla Danzante, Baja California, México; 25°48'15"N, 111°14'57"W; 200–300 feet [61–91 m].

Etymology. This species is named after John Steinbeck, noted American author who explored the Gulf of California with Ed Ricketts.

Distribution. Bahía Santa Inés, Baja California Sur (27.0°N) [CAS], and Bahía San Carlos, Sonora (27.9°N) [SBMNH], México, to the Golfo de Cupica, Chocó, Colombia (6.4°N) [UMML]; Isla Baltra, Islas Galápagos, Ecuador (0.4°S) [CAS]; 35–180 m.

Comparisons. *Tellina steinbecki* has a pallial line similar to that of the Caribbean *T. juttingae* (Regteren Altena, 1965), but that species has a flaring, broadly rounded anterior margin, and has fine commarginal intercalary striae, rather than radial ribs. Of eastern Pacific taxa, it is closest to *T. (M.) brevisrostris* Deshayes, 1855, but in that species the pallial sinus reaches very close to or fuses with anterior adductor muscle scars in both valves, with no area where sinus parallels pallial line (Figures 1Q–T). *Tellina brevisrostris* is also more equilateral, the anterior end representing about 60% of the shell length, and the intercalary spaces between the commarginal lamellae have commarginal striae rather than radial ribs.

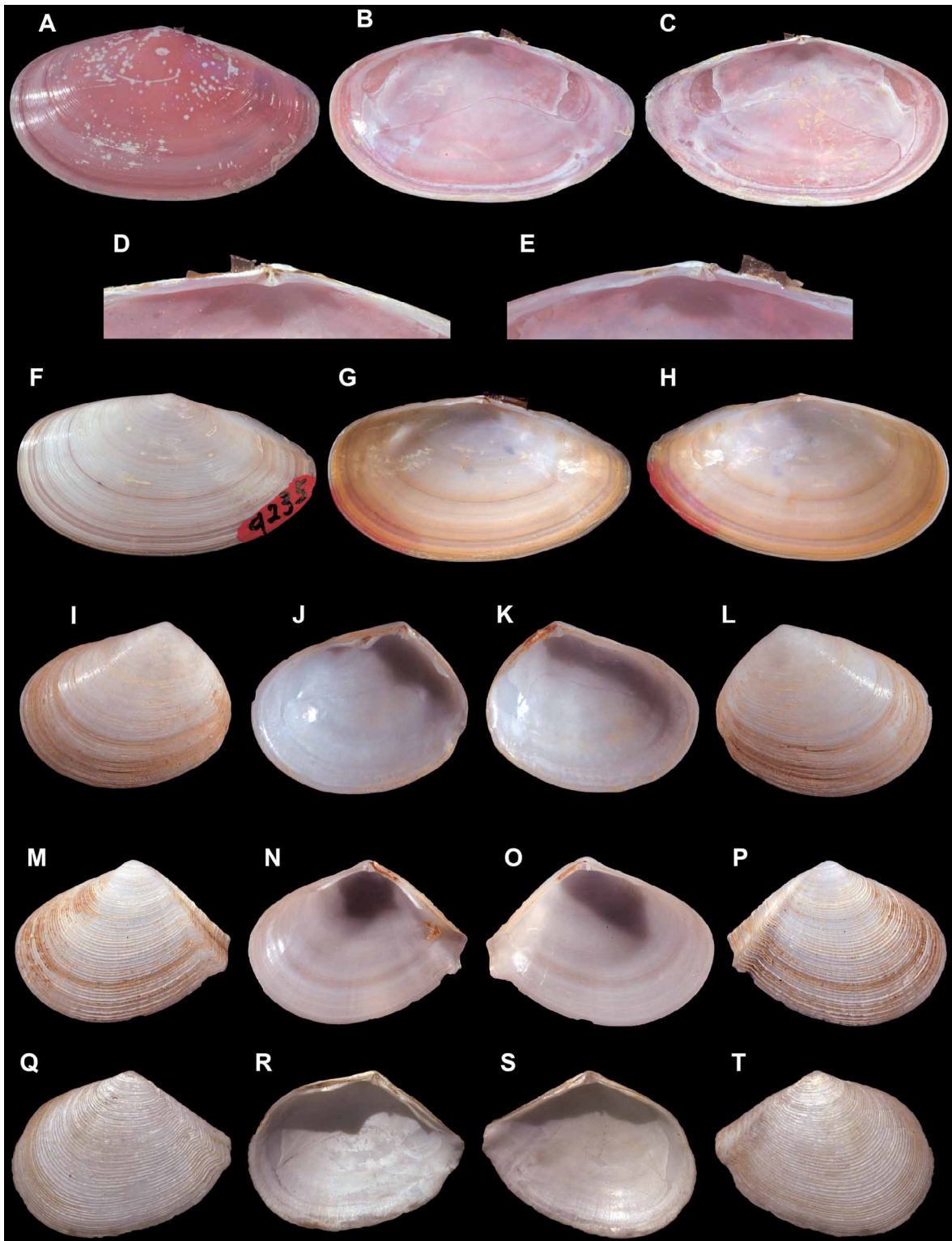


FIGURE 1. A–E. *Tellina sadeghianae* new species, holotype (SBMNH 83582) length = 24.5 mm. A. Exterior of left valve. B. Interior of right valve. C. Interior of left valve. D. Hinge of right valve. E. Hinge of left valve. F–H. *Tellina nicoyana* Hertlein & Strong, 1949, holotype (CAS 31190), length = 34.5 mm. F. Exterior of left valve. G. Interior of right valve. H. Interior of left valve. I–L. *Tellina rickettsi* new species, holotype (SBMNH 149544) length = 11.5 mm. I. Exterior of left valve. J. Interior of right valve. K. Interior of left valve. L. Exterior of right valve. M–P. *Tellina steinbecki* new species, holotype (SBMNH 149550) length = 20.5 mm. M. Exterior of left valve. N. Interior of right valve. O. Interior of left valve. P. Exterior of right valve. Q–T. *Tellina brevirostrus* Deshayes, 1855, lectotype (BMNH 1957.7.15.3) length = 19.0 mm. Q. Exterior of left valve. R. Interior of right valve. S. Interior of left valve. T. Exterior of right valve.

Acknowledgements

We thank Carol Skoglund who provided many specimens for comparison from her collection and gave us useful information on the new species. We deeply thank the curators and staff at BMNH, USNM, CAS, UMML, and LACM for allowing us access to their collections, without which the present study would have been impossible. We thank Patricia Sadeghian (SBMNH) for photographs in Figures 1 A–E.

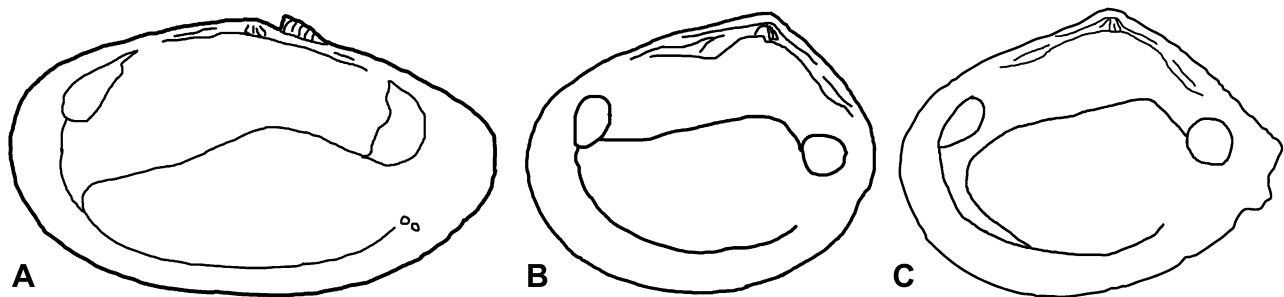


FIGURE 2. A. *Tellina sadeghiana* new species, holotype (SBMNH 352864) length = 24.5 mm, line drawing of pallial sinus of right valve. B. *Tellina rickettsi* new species, holotype (SBMNH 149544) length = 11.5 mm, line drawing of pallial sinus of right valve. C. *Tellina steinbecki* new species, holotype (SBMNH 149550) length = 20.5 mm, line drawing of pallial sinus of right valve.

Literature cited

- Bernard, F.R. (1983) Catalogue of the living Bivalvia of the eastern Pacific Ocean: Bering Strait to Cape Horn. *Canada, Department of Fisheries and Oceans, Canadian Special Publication of Fisheries and Aquatic Sciences* 61, viii + 102 pp.
- Boss, K.J. (1966) The subfamily Tellininae in the western Atlantic. The genus *Tellina* (Part I). *Johnsonia*, 4(45), 217–272, incl. pls. 127–142.
- Brocchi, G.B. (1814) Conchiologia fossile subapennina con osservazioni sugli geologiche sugle appennini e sul suolo adiacente. Milano (Samperia Reale), 1, pp. 1–56 + i–lxxx + 1–240; 2, pp. 241–712, 16 pls.
- Children, J.G. (1822–1823) Lamarck's genera of shells. *The Quarterly Journal of Science, Literature, and the Arts*, 14(27), 64–87, pls. 3, 4 (Oct. 1822); 14(28), 298–322, pls. 5, 6 (Jan. 1823); 15(29), 23–52, pls. 2, 3 (April 1823); 15(30), 216–258, pls. 7, 8 (July 1823); 16(31), 49–79, pl. 5 (Oct. 1823); 16(32), 241–264, pl. 6 ("Jan. 1824", but probably Dec. 1823).
- Dall, W.H. (1900a) Synopsis of the family Tellinidae and of the North American species. *Proceedings of the United States National Museum*, 23, 285–326, pls. 2–4.
- Dall, W.H. (1900b) Contributions to the Tertiary fauna of Florida, with especial reference to the silex beds of Tampa and the Pliocene beds of the Caloosahatchie River, including in many cases a complete revision of the generic groups treated of and their American Tertiary species. Part V. Teleodermacea: *Solen* to *Diplodonta*. *Transactions of the Wagner Free Institute of Science of Philadelphia*, 3(5), 949–1218, pls. 36–47.
- Deshayes, G.P. (1855) Descriptions of new shells from the collection of Hugh Cuming, Esq. *Proceedings of the Zoological Society of London*, for 1854[22](279), 317–320 (8 May); (280), 321–336, (281), 337–352, (282), 353–368, (283), 369–371 (16 May).
- Hanley, S.C.T. (1846) Monograph of the genus *Tellina*. In: G. B. Sowerby II, ed., *Thesaurus conchyliorum; or, monographs of genera of shells*, 1(6), 221–336, pls. 56–66
- Hertlein, L.G. & Strong, A.M. (1949) Eastern Pacific expeditions of the New York Zoological Society. XL. Mollusks from the west coast of Mexico and Central America. Part VII. *New York Zoological Society, Zoologica*, 34, 63–97, 1 pl.
- Jung, P. (1969) Miocene and Pliocene mollusks from Trinidad. *Bulletins of American Paleontology*, 55(247), 293–697.
- Linnaeus, C. (1758) *Systema naturae per regna tria naturae ... editio decima, reformata*, vol. 1 (Regnum animale). Stockholm (Salvii), 824 + iii pp.
- Mikkelsen, P.M. & Bieler, R. (2007) *Seashells of southern Florida. Living marine mollusks of the Florida Keys and adjacent regions. Bivalves*. Princeton, New Jersey: Princeton University, viii + 503 pp.
- Olsson, A.A. (1942) Tertiary and Quaternary fossils from the Burica Peninsula of Panama and Costa Rica. *Bulletins of American Paleontology*, 27(106), 153–258 [1–106], pls. 14–25 [1–12].
- Olsson, A.A. (1961) Mollusks of the tropical eastern Pacific particularly from the southern half of the Panamic-Pacific faunal province (Panama to Peru). Panamic-Pacific Pelecypoda. Ithaca, New York (Paleontological Research Institution), 574 pp., 86 pls.
- Olsson, A.A. & Harbison, A. (1953) Pliocene Mollusca of southern Florida with special reference to those from north Saint Petersburg with special chapters on Turridae by William G. Fargo and Vitrinellidae and fresh-water mollusks by Henry A. Pilsbry. *Monograph of the Academy of Natural Sciences of Philadelphia*, 8: v + 457 pp. 65 pls. [reprinted: New York (Krieger), 1979; Sanibel, Florida (Shell Museum and Educational Foundation), 1990].
- Pallary, P.M. (1922) Malacologie, 1912: deuxième fascicule. Exploration scientifique du Maroc, organisée par la Société de Géographie de Paris et continuée par la Société des Sciences du Maroc. Rabat (Institut Scientifique Chérifien), 107 + [2] pp., 1 leaf pls., 1 leaf maps [as 1920"].
- Regteren Altena, C.P. v. (1965) A new *Lyratellina* from off the coast of Surinam. *Basteria*, 29(1–4), 52–54.
- Spengler, L. (1798) Over det toskallede slægt tellinerne. *Skrivter af Naturhistorie-Selskabet, Kiøbenhavn*, 4, 67–121, pl. 12.