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NEW MARINE MOLLUSCA FROM WEST MEX- ICO, TOGETHER WITH A LIST OF SHELLS COLLECTED AT PUNTA PENASCO,¹ SONORA, MEXICO

BY

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The following undescribed species of mollusks were taken by the author on the west mainland coast of Mexico in 1930 and 1931, at various points in the Gulf of California in 1932, at San Felipe, Lower California, in May, 1933, and at Punta Peñasco, Sonora, in February, 1934. Descriptive accounts of the various collecting trips will be found in "The Nautilus" as follows: Mazatlan-Guaymas-Topolobampo, Vol. XLIII, pp. 135-138; Tres Marias-Manzanillo-Acapulco, Vol. XLIV, pp. 24-27; Gulf of California and its islands, Vol. XLVI, pp. 73-76, 109-115; San Felipe, at the head of the Gulf, Vol. XLVII, pp. 45-47; Punta Peñasco, on the northern Sonora coast, Vol. XLVIII, pp. 1-4, 43-46.

I am indebted to Mr. J. R. Pemberton of Los Angeles for the privilege of being included in the party of scientists which cruised in the Gulf of California during the early part of 1932. I also wish to thank the officials of the San Diego Society of Natural History for facilities provided on the co-operative expedition to Punta Peñasco, Sonora, in February, 1934. The splendid research library of Dr. U. S. Grant at the University of California at Los Angeles was of great assistance in the preparation

¹ Also known as Punta Peñascosa.

of the paper. Finally, the fullest credit is due to Mr. Ernest H. Quayle of the Department of Geology, University of California at Los Angeles, for the excellent pen and ink drawings here reproduced.

BIVALVES

Arca gordita, new species. Plate 1, fig. 1.

Acapulco, 20 fathoms (1931). Type 11387, Lowe collection; paratype, Lowe collection, Guaymas, 20 fathoms, (1932).

Shell irregularly ovoid, solid; anterior end roundly sloping downward and backward, posterior end roundly, obliquely produced; color flesh-white; about 27 radiating ribs with somewhat wider interspaces; dorsal margin nearly straight, ventral margin much rounded; greatest altitude of shell in almost vertical line with umbones; anterior wing more sharply produced than the posterior.

Diameter 30 mm., altitude 19.1 mm.

This shell has about nine less ribs than *A. aviculoides* Rve., and is a thicker and heavier shell for the same size.

This species and the two following, *A. delgada* and *A. reinharti*, have subsequently turned up in the dredgings of the Templeton Crocker Expedition off West Mexico, (August, 1933).

Arca delgada, new species. Plate 1, fig. 2.

Manzanillo, 20 fathoms (1930). Type 11388, Lowe collection.

Shell very obliquely ovoid, rather solid; anterior end roundly sloping downward and backward; posterior end roundly obliquely produced; color gray white; about thirty delicately nodulous ribs, growing smaller and closer together toward the anterior end. Between the longest four ribs are delicate riblets. The shell is rather flat sided and the ligamental area about normal.

Diameter 12.3 mm., altitude 8 mm.

Arca (Anadara) reinharti, new species. Plate 1, figs. 3a, 3b, 3c.

Guaymas, 20 fathoms (1932). Type 11389, Lowe collection.

Shell ivory white, covered with a brown, horny epidermis; obliquely rhomboid, solid, equivalve; edges of valves thick; anterior end rounded, posterior end angularly extended downward; about 25 radiating ribs, with narrow interspaces; the ribs toward the anterior end are strongly nodulous. The shell somewhat resembles a miniature specimen of *A. multicosata* Sby., but is much more oblique, has about ten less ribs, and has a ligamental area (in specimens of equal size) of three times the diameter. In young *A. multicosata* the left valve overlaps the right.

In young *A. multicosata* the edges of the valves are quite thin, while those of the species under discussion are abnormally thickened; the grooves on the inner margin of the valves extend almost four times as far within the shell.

To compare the new species with one of almost the same size of *A. multicosata* the following measurements are given:

Arca reinharti—diameter 27.7 mm., altitude 22.1 mm., thickness 24.5 mm.

A. multcostata (young)—diameter 29 mm., altitude 27.5 mm., thickness 20 mm.

The species is named in honor of Philip W. Reinhart, of Stanford University, who has done most excellent work in West Coast Paleontology, especially in the Arcidae.

Phacoides (Pleurolucina) leucocymoides, new species. Plate 1, fig. 4.

Tres Marias (1930). Type 11386, Lowe collection; paratypes, San Diego Society of Natural History, Carmen Island, Gulf of California, 20 fathoms (1932) and Lowe collection, Angel de la Guardia Island, Gulf of California, 20 fathoms (1932).

Shell convex, thin, white; entire surface covered with sharply reflexed concentric lirae, which are much stronger and further apart than in *Phacoides undatus* Cpr. Instead of three radiating costae with four narrow interstices on each valve, as in Carpenter's species, there is but a single wide costa with a channeled groove on either side. The shell is higher and narrower than *P. undatus* and somewhat resembles *P. leucocyma* Dall (Proc. U. S. Nat. Muse., vol. 12, p. 263, pl. 14, figs. 6-7, 1889) from the Atlantic coast. The interior marginal crenations and cardinal teeth are more prominent than in *P. undatus* Cpr., while the subumbonal pit is not so deep as in that species.

Diameter 10.7 mm., altitude 11.1 mm.

Lithophaga abbotti, new species. Plate 1, fig. 5.

Kino Bay, Sonora, tidal zone (1932). Type 11390, Lowe collection; paratypes, San Diego Society of Natural History and Academy of Natural Sciences of Philadelphia.

Shell cylindrical, thin, posteriorly obtusely rounded, anteriorly tending to subangulation above, evenly rounded below; growth lines are plainly visible under the shining light brown epidermis. The whole shell is covered with a lime incrustation somewhat ruffled in the central portion of both valves. The anterior end is less attenuated than either *L. attenuata* Desh. or *L. aristata* Hanley.

Diameter 62.5 mm., altitude 19.5 mm.

The type and several additional specimens were obtained in a mass of worm tubes, coralline growths and lime incrustations on a tidal bar a mile or more back in the estuary at Kino Bay, January, 1932. A single specimen was taken in 1933 at San Felipe on the western side of the Gulf of California.

In the U. S. National Museum is a single specimen (#381411) of the above species marked from San Lucas Island, Costa Rica, which measures as follows: length 40.4 mm., width 12.5 mm.

This largest of our West Coast *Lithophaga* is named in honor of Clinton G. Abbott, Director of the Natural History Museum, San Diego, California.

Solen pazensis, new species. Plate 1, fig. 6.

La Paz, Lower California, tidal zone (1929). Type 11391, Lowe collection; paratypes, San Diego Society of Natural History and Academy of Natural Sciences of Philadelphia.

Shell transversely oblong, with anterior terminal beaks; anterior extremity

obliquely truncated; posterior extremity rather squarish; dorsal and ventral edges very slightly curved; hinge and ligament similar to *S. sicarius* Gld. Epidermis shining horn color, with a darker blotch on the anterior ends and a darker triangle formed by a line from anterior dorsal end to posterior ventral end, instead of the rosy suffusion as in *S. rosaceus* Cpr. Where the epidermis is removed near the beaks, a somewhat darker color is seen in parallel lines corresponding to the lines of growth.

Diameter 57.5 mm., altitude 11.5 mm.

Comparative dimensions are as follows:

Solen sicarius Gld.: diameter 55.5 mm., altitude 14.5 mm.

Solen rosaceus Cpr.: diameter 57.5 mm., altitude 13.5 mm.

Solen mexicanus Dall: diameter 60 mm., altitude 8.5 mm.

Psammosolen guaymasensis, new species. Plate 1, fig. 7.

Guaymas, 20 fathoms (1932). Type 11392, Lowe collection; paratype, Lowe collection, off Angel de la Guardia Island, Gulf of California, 20 fathoms.

Shell oblong-oval, rather thin, convex; extremities equally rounded; dorsal and ventral markings nearly parallel. Beaks not prominent, much nearer the anterior end. Color white; unequal striae of growth crossed by numerous diagonal incised lines. Pallial sinus wide and three-fourths length of shell.

Type: diameter 48.5 mm., altitude 20.3 mm.

Paratype: diameter 18 mm., altitude 8.5 mm.

Both type and paratype are right valves.

Leda (Adrana) penascoensis, new species. Plate 1, fig. 8.

Punta Peñasco, Sonora, dredged 10 fathoms (1934). Type 11393, Lowe collection.

Shell white, with a straw-colored glossy periostracum; strongly compressed beaks much nearer the anterior end. Dorsal line nearly straight, ventral margin curved, anterior and posterior ends about equally angular. Dorsal edges of both valves slightly crenate the entire length. Sculpture of fine concentric lines of growth over the entire surface of both valves, except a narrow portion bordering the posterior dorsal margin, which is entirely smooth.

Diameter 37.5 mm., altitude 9.4 mm.

This shell differs considerably in sculpture and shape from the three other forms described in this group from West America.

Venus kellestii, Fbs. Plate 2, fig. 1.

Carmen Island, Gulf of California, 20 fathoms (1932).

Venus mariae Orb. Plate 2, fig. 2.

Santa Maria Bay, Lower California, 20 fathoms (1931).

Plate 2, figure 1, shows the young stage of *Venus kellestii* Fbs. At this period of its growth, it more resembles *Venus mariae* Orb., figured in Plate 2, figure 2, than the adult form, which is well illustrated in Reeve, Conch. Icon., vol. 14, pl. 18, fig. 82, but which shows none of the exquisite earlier sculpture. Had I not an adult specimen of this species, I should have unhesitatingly con-

sidered it a new species in a group with *Venus mariae* Orb., which it resembles both in form, size, and sculpture. For this reason it seems well to figure the two species for comparison.

Measurements of the *Venus kelletii* Fbs. figured are diameter 16.7 mm., altitude 11.3 mm.; of the *Venus mariae* Orb., diameter 15.4 mm., altitude 12 mm.

UNIVALVES

Calliostoma marshalli, new species. Plate 2, fig. 3

San Felipe, Gulf of California (1933). Type 11380, Lowe collection; paratypes, San Diego Society of Natural History, U. S. National Museum and Academy of Natural Sciences of Philadelphia.

Shell conic, elevated, rather thin; imperforate, light cinnamon brown, with, on the body whorl, about 14 sagittate flames of darker brown, bordered by a white anterior zone, running from suture to umbilicus. Five rounded whorls besides 2 nuclear; sutures distinct; on the penultimate whorl thirteen fine but sharply crenate spiral threads, on the preceding whorl seven, and on the others three. Base slightly convex with about 20 flat spiral threads with narrower interspaces, the fourth, eighth, and twelfth showing regular square dots of dark brown. Columella excurved, pearly white; umbilical callus slightly depressed. Aperture rounded, iridescent within; outer lip thin, with faint lirations within.

Diameter 13.5 mm., altitude 14.1 mm.

I take pleasure in naming this species for Mr. W. H. Marshall, who has given so many years of valuable service to the U. S. National Museum in the Department of Mollusks.

Calliostoma gemmuloides, new species. Plate 2, fig. 4.

Tepopa Bay, Sonora (1932). Type 11382, Lowe collection.

The description of this beautiful species may most clearly be given by comparison with the well known *C. gemmulatum* Cpr. It is a narrower shell; being a full millimeter less in diameter than a *gemmulatum* of equal height. The sutures are well defined but lack the deep channeling of *gemmulatum*, whorls more sloping, less angular. The beaded spiral lines are not so prominent as in *gemmulatum* and more in number. On the base are two extra spirals; above the periphery of body whorl are three extra spirals; on the penultimate one extra. Color dark reddish brown with nine radial flames of a lighter color. Six whorls exclusive of the two nuclear.

Diameter 12 mm., altitude 13.5 mm.

Calliostoma angelenum, new species. Plate 2, fig. 5.

Angeles Bay, Lower California (1932). Type 11381. Lowe collection.

Shell conic elevated, thin, imperforate, color reddish brown, with a few white dots around periphery of body whorl; whorls rather flat, six in number besides the two smooth nuclear; sutures distinct; base rounded; columella excurved, pearly white; umbilical callus slightly depressed. Aperture rounded, iridescent within; outer lip thin, with faint lirations within. There are on the base 16 strap-like spirals with equal interspaces, three nearest the umbilical callus

stronger; on the body whorl above the periphery are 13 regularly beaded spirals and on the penultimate whorl seven, antepenultimate five.

Diameter 13 mm., altitude 14.5 mm.

Tritonalia carmen, new species. Plate 2, fig. 6.

Angel de la Guardia Island, Gulf of California, 20 fathoms (1932). Type 11378, Lowe collection; paratype, San Diego Society of Natural History.

Shell solid turreted, of four angular whorls and three rounded nuclear and post-nuclear whorls, suture distinct, each whorl with sloping shoulders, the lower four prominently angular at the periphery. Below the periphery on the body whorl is a lesser spiral angulosity and a smaller spiral cord below that. Outer lip thin, inner lip covered with a white callous, canal short, moderately wide, and slightly bent to the left. Faint incremental lines are visible over the entire surface. Color of shell a light cream with a few light brown flecks on upper portion of each whorl.

Diameter 5 mm., altitude 9 mm.

The paratype specimen was dredged off Carmen Island in 20 fathoms. Under catalogue number 96326, the U. S. National Museum has three examples of this species dredged in 9 fathoms off La Paz. They had been tentatively identified as young of *Murex squamulatus* Cpr.

Mitrella granti, new species. Plate 2, fig. 7.

San Felipe, Gulf of California (1933). Type 11383, Lowe collection; paratypes, San Diego Society of Natural History and Academy of Natural Sciences of Philadelphia.

Shell smooth, solid, with seven slightly convex whorls; sutures distinct; axial sculpture entirely absent except inconspicuous lines of growth; the body whorl and the two preceding whorls are covered with regularly spaced spiral grooves with wider interspaces. Color dark brown, somewhat suffused with pale yellow. Aperture rather wide; outer lip slightly undulate; a well marked callus on the straight columella.

Diameter 3.4 mm., altitude 9.4 mm.

This interesting species has been dedicated to Dr. U. S. Grant, of the Department of Geology, University of California at Los Angeles.

Anachis sanfelipensis, new species. Plate 2, fig. 8.

San Felipe, Gulf of California, lower tidal zone (1933). Type 11384, Lowe collection; paratypes, San Diego Society of Natural History and Academy of Natural Sciences of Philadelphia.

Shell solid, turreted, of eight rather flat whorls exclusive of the lost nucleus. Sutures distinct, about thirteen strong axial ribs to the whorl. Entire shell covered with fine microscopic spiral threads. On the back of the columella and base are about eleven strong spiral cords with equal interspaces; above these on the base are about the same number of lighter spiral threads. Body of shell of warm flesh color, with longitudinal blotches of light brown between the axial ribs, and, on the base, wavy longitudinal lines of same color.

Diameter 6.5 mm., altitude 17 mm.

This shell belongs in the same group as *Anachis vexillum* Sby. and *A. fulva* Sby. The former species, which comes from Mazatlan, is a somewhat stouter shell, of much darker color and fewer axial ribs and spiral cords. *A. fulva* Sby., which comes from the Panamic region, is also a broader shell with fewer axial ribs and is of an even light brown color.

Strombina carmencita, new species. Plate 3, fig. 1.

Carmen Island, Gulf of California, dredged 20 fathoms (1932). Type 11375, Lowe collection.

The shell has ten rounded, rapidly enlarging whorls, including two smooth nuclear; the four early whorls almost smooth; on the fifth whorl four spiral cords appear just below the suture, which grow stronger on the body of the last whorl; on the last three whorls are fourteen axial ribs which are obsolete below the periphery of body whorl; entire body whorl covered with wavy spiral threads with about equal interspaces. Color white, slightly mottled with brown, a little darker on the ribs of body whorl. Aperture rather narrowly oblique, with heavily calloused inner and outer lips; canal short and recurved.

Diameter 11 mm., altitude 29.7 mm.

Strombina subangularis, new species. Plate 3, fig. 2.

Carmen Island, Gulf of California, dredged 20 fathoms (1932). Type 11374, Lowe collection.

Shell with acuminate spire, oblong, pyramidal; pale, variegated with brown; eight flattish whorls exclusive of the lost nucleus, ten rather sharp axial ribs, with much wider interspaces, to the whorl; middle of the last whorl gibbously angled, reflected at base; aperture somewhat square, canal long, slightly recurved, lip much thickened, slightly ribbed inside.

Diameter 11.7 mm., altitude 32.2 mm.

This species was subsequently taken in two locations off the Mexican West Coast by the 1933 Crocker Expedition.

The most nearly comparable representative in the group is *S. angularis* Rve. (Conch. Icon., vol. 11, pl. 1, figs. 1a, 1b, 1859), which has four more ribs to the whorl and a much shorter canal.

Turbonilla (Ptycheulimella) penascoensis, new species. Plate 3, fig. 3.

Punta Peñasco, Sonora, dredged 10 fathoms (1934). Type 11588, Lowe collection.

Shell elongate conic, of a warm flesh color, with two yellowish brown spiral bands, the one a little below the suture over twice as wide as the one on the periphery. Nuclear and all post nuclear whorls lacking all axial or spiral sculpture, except the last three, which show very faint microscopic spiral threads visible under a high power lens. There are seventeen rather flat whorls including the nucleus; sutures well appressed, base and aperture well rounded.

Diameter 1.5 mm., altitude 10.4 mm.

Pyramidella (Triptychus) hermosa, new species. Plate 3, fig. 4.

San Felipe, Gulf of California (1933). Type 11376, Lowe collection; cotype, California Academy of Sciences.

Shell small, semiopaque, ivory white. Eight moderately rounded whorls, including the smooth nuclear. Rather strongly tabulated at the shoulders. Sculptured by three strong rounded spiral cords, of which the second and third are stronger than the one just below the suture. In addition to the spiral cords, the whorls are marked by axial ribs which are of about equal strength over the entire shell. Their junction with the spiral cords forms prominent tubercles, which are the outstanding part of the sculpture pattern. There are about thirty-two of these axial ribs on the body whorl. Base moderately rounded, marked with a single spiral cord. Outer lip a little thickened and slightly reflexed. Columella covered with a heavy white callus.

Diameter 2.4 mm., altitude 6.7 mm.

This very interesting species differs considerably in sculpture from *Triptychus olssoni* Bartsch from Santa Elena Bay, Ecuador (Proc. U. S. Nat. Muse., vol. 69, pl. 1, fig. 11, 1926), which seems to be the only other species in this group described from this coast except *Odostomia pedroana* Dall and Bartsch, which was provisionally placed in their new subgenus *Ividella*.

Simnia quaylei, new species. Plate 3, fig. 5.

San Felipe, Gulf of California (1933). Type 11379, Lowe collection; paratypes, San Diego Society of Natural History, University of California at Los Angeles and Academy of Natural Sciences of Philadelphia.

Shell thin, fusiform, swollen at the middle; color a bright shrimp pink; surface polished and glossy; under a lens are seen many fine longitudinal striations; the low spiral cords at either end of the shell appear wavy where crossed by these striations. The callus on the outer lip is not very heavy; aperture rather wide, especially toward the base. There is no trace of an angulated callus on the body whorl side of the aperture, as in *S. aequalis* Sby. and other species.

Diameter 7.8 mm., altitude 23.2 mm.

I have named this finest of all West Coast species of *Simnia* in honor of Mr. E. H. Quayle, who accompanied me on my trip to San Felipe in May, 1933, and who has executed the very excellent drawings for this paper.

Clavus pembedtoni, new species. Plate 3, fig. 6.

Angeles Bay, Lower California (1932). Type 11377, Lowe collection; paratypes, San Diego Society of Natural History and Academy of Natural Sciences of Philadelphia.

Shell heavy, turreted, with eleven rounded, strongly nodulous whorls, exclusive of two smooth nuclear whorls. About thirteen nodes on the penultimate whorl, a heavy callosity on back of body whorl. A few strong spiral incised lines are below the periphery of each whorl and on the body whorl extend to the canal. Anal fasciole large, marked with numerous fine incremental lines. Anal sinus very deep; siphonal sinus short and wide. Outer lip slightly thickened and undu-

lated. Columella pillar rather straight, covered with a strong glistening callus. Shell of a deep cream color with a light brown blotch on each node.

Diameter 17.3 mm., altitude 49 mm.

In Dr. R. E. C. Stearns' paper on the shells of the Gulf of California (Proc. U. S. Nat. Muse., vol. 17, p. 172, 1894), he lists a specimen (No. 55239 U. S. N. M.) under the name *Pleurotoma unimaculata* Sby. and compares it with *P. echinata* Lam. and *P. gibbosa* Kiener. I have examined this specimen in the U. S. National Museum and find it to be identical with my specimens of *Clavus pembertonii*. It is quite different from the glistening porcelain white shell of *P. unimaculata* Sby. in color, size and texture.

I take pleasure in dedicating this species to Mr. J. R. Pemberton, owner of the yacht "Petrel" and sponsor of the cruise in 1932 in the Gulf of California.

Elaeocyma acapulcana, new species. Plate 4, fig. 1.

Acapulco, dredged 20 fathoms (1930). Type 11587, Lowe collection.

Shell turreted, acute, smooth, of a delicate flesh color with a pinkish spot on each axial rib at the periphery. There are ten whorls including the smooth nucleus. Suture distinct, slightly undulated by the ribs of preceding whorl; spiral sculpture of sharp, narrow grooves, with much wider, flat, smooth interspaces; there are about twenty of the grooves on the body whorl anterior to the siphonal fasciole; the wide anal fasciole is faintly spirally striate under a high power lens; axial sculpture of about ten straight sharp-edged ribs, with wider interspaces, on the body whorl. Aperture rather wide and short, with a deep, rounded anal sulcus and prominent subsutural callosity; outer lip subvaricose, sharp-edged, smooth within; inner lip with thick layer of enamel; pillar short, straight; canal deep, short, wide, slightly recurved.

Diameter 7 mm., altitude 17 mm.

This shell differs from *Elaeocyma aerope* Dall (Proc. U. S. Nat. Muse., vol. 56, pl. 1, fig. 3, 1920), in having about twice as many spiral grooves on the body whorl, and in the prominently colored peripheral spots on the axial ribs.

Clathrodrillia pilsbryi, new species. Plate 4, fig. 2.

Punta Peñasco, Sonora, dredged 10 fathoms (1934). Type 11587, Lowe collection; paratype, San Diego Society of Natural History.

Shell pale horn-color, with sienna brown blotches between the whitish ribs. There are three smooth nuclear whorls, with nine succeeding whorls; axial sculpture of seven prominent ribs to the whorl, which undulate the well-defined suture. The ribs are obsolete on the base and the wide anal fasciole. The spiral sculpture consists of four or five flat strap-like cords, with wider interspaces, which pass over the periphery and continue over the base. Anal sulcus deep, and prominent anal fasciole smooth, except for strong growth striae; a strong subsutural callus. Outer lip moderately thickened, crenulated by spiral sculpture of the body whorl. Siphonal sinus short, of medium width; columella pillar straight.

Diameter 7.3 mm., altitude 23.5 mm.

This fine species is one of the most interestingly colored and sculptured in the genus, and so far as is now known seems to be confined to the upper end of

the Gulf of California. It has not turned up in any of the numerous dredgings south to Panama.

It is named for Dr. H. A. Pilsbry, of the Academy of Natural Sciences of Philadelphia, in appreciation of his kindly assistance through many years.

(?) **Homalopoma concepcionensis**, new species. Plate 4, fig. 3.

Concepción Bay, Lower California, 15 fathoms (1932). Type 11593, Lowe collection.

Shell small, pure white, solid, globose, suture strongly appressed; five whorls, including the smooth nucleus, strongly tabulated by a peripheral keel. On the penultimate whorl is a strong sutural keel and two almost equally strong just below it; on the flat shoulder just anterior to the major keel are three secondary flat spiral cords with wide interspaces. On the body whorl, just below the suture, are two major spiral cords with a secondary spiral thread between; next three of the strong cords with four spiral threads anterior to each; posterior to the last are thirteen flattened spiral cords of about equal strength and equal interspaces. The entire surface between the spiral sculpture is covered with microscopic, diagonally radial striae. Aperture circular, outer lip thin; heavy callus on the columella, back of which is a large, flattened chink with four radial threads on its flat surface.

Diameter 5.6 mm., altitude 5.6 mm.

As there was no sign of an operculum attached to the animal, I am in doubt whether to place the species in *Homalopoma* or *Liotia*. In Dall's paper on the Florida Fossils (Trans. Wagner Free Inst. Sci., vol. 3, Aug., 1890) is a species which is certainly congeneric—very similar in form and sculpture, and even in having the same umbilical chink with four radial threads. Dall has placed the shell with a question in *Gibbula*, as *G. americana* Dall (Plate 22, fig. 32).

Hemitoma hermosa, new species. Plate 4, fig. 4.

Carmen Island, Gulf of California, 20 fathoms (1932). Type 11385, Lowe collection.

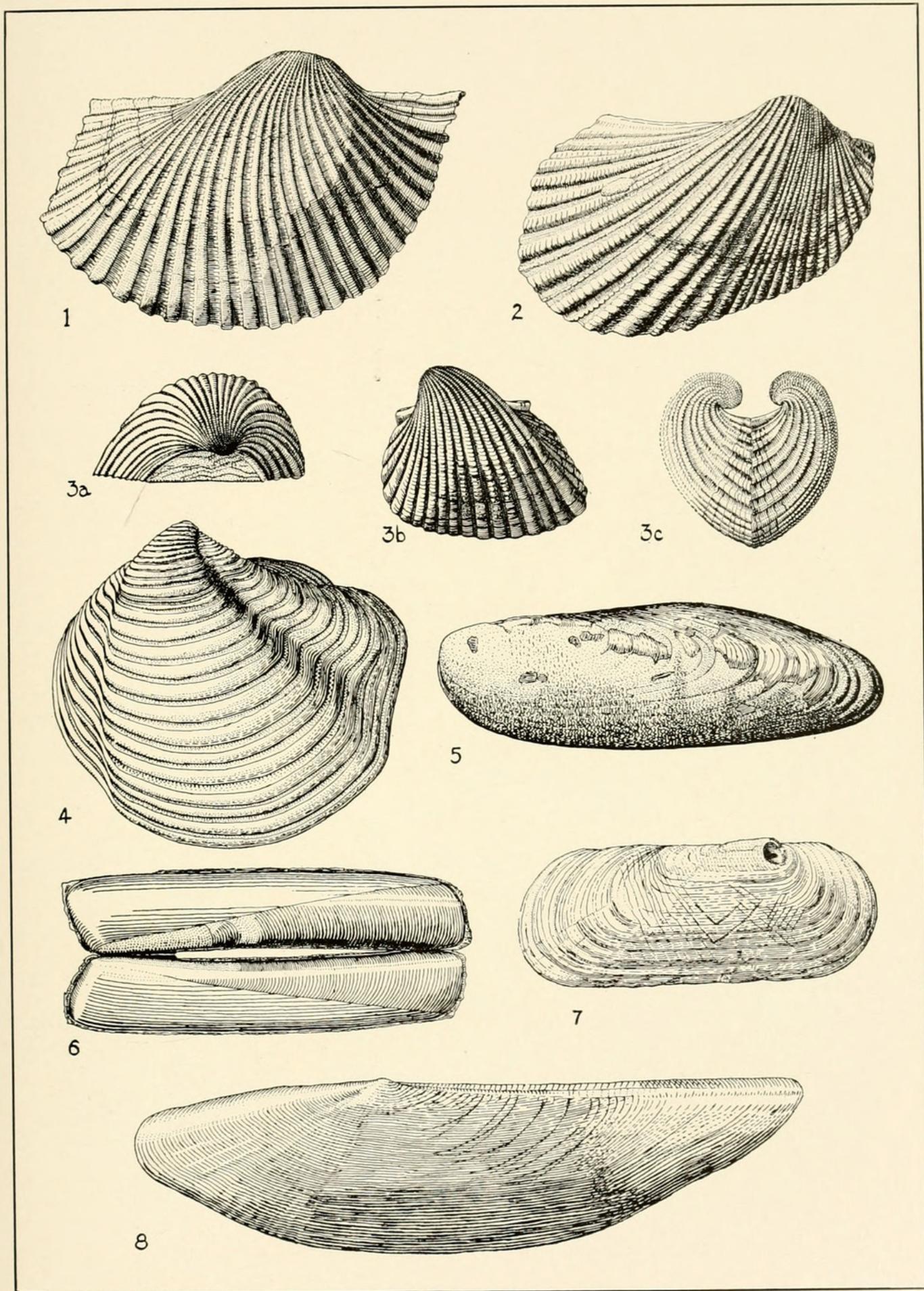
Shell small, thin, oblong oval, much elevated, narrowest anteriorly; apex posterior, prominent and somewhat recurved; outline in front of apex slightly convex, from apex to the posterior margin slightly excavated, sides descending nearly straight; sinus moderate, situated at the extremity of a prominent, strongly nodulous rib. Three slightly less prominent, but nodulous ribs on either side, with weaker ribs between, giving the margin of the shell a crenulated appearance. Inside of the shell is a glossy horn color, outside chalky of a lighter shade.

Diameter 7.3 mm., breadth 5 mm., altitude 4.7 mm.

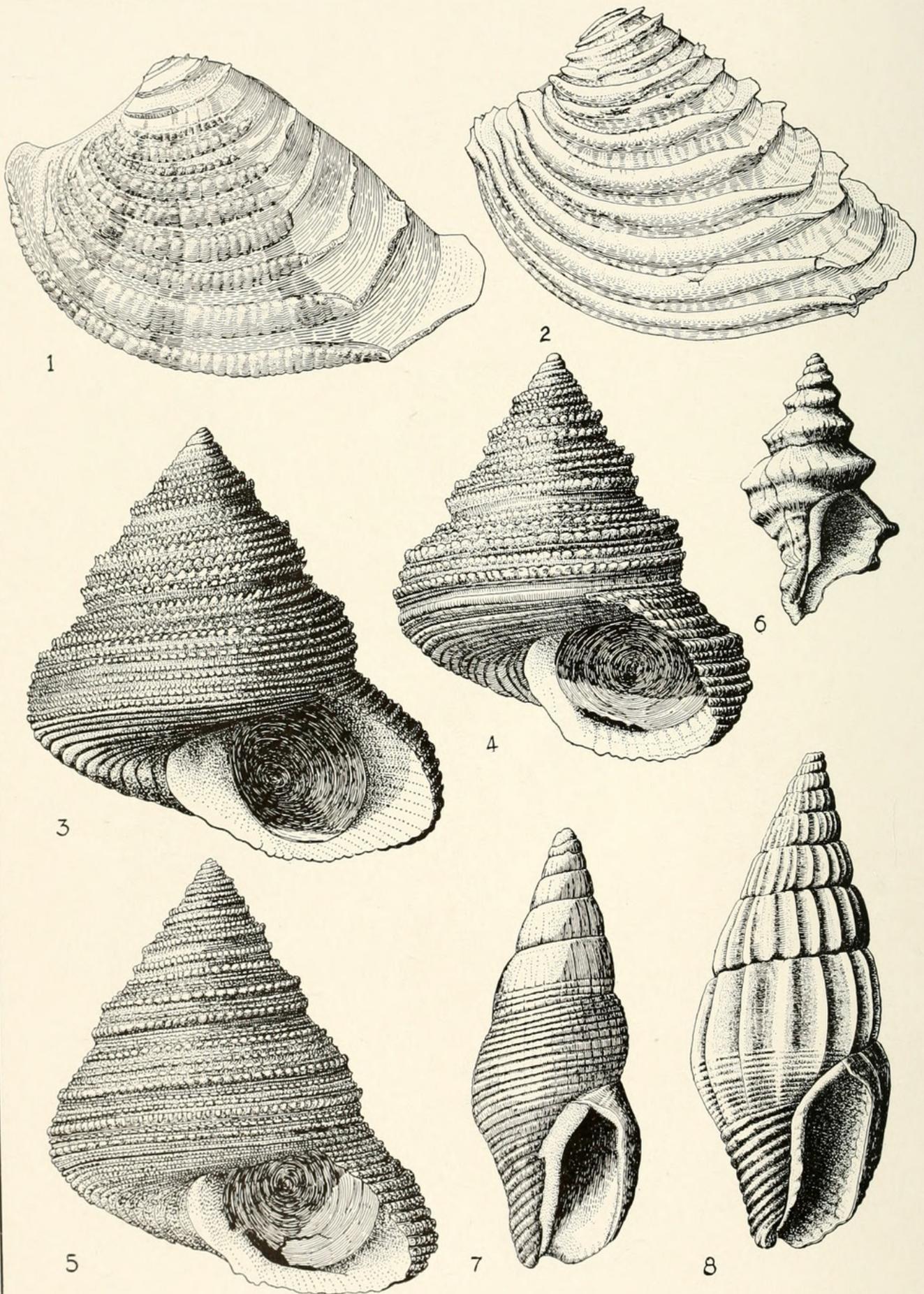
Fusinus fredbakeri, new species. Plate 4, fig. 5.

San Felipe, Gulf of California (1933). Type 11590, Lowe collection; paratypes, San Diego Society of Natural History and California Academy of Sciences.

Shell with six well-rounded, strongly sculptured whorls exclusive of the nuclear whorls. Axial sculpture, on the penultimate whorl, of twelve rounded

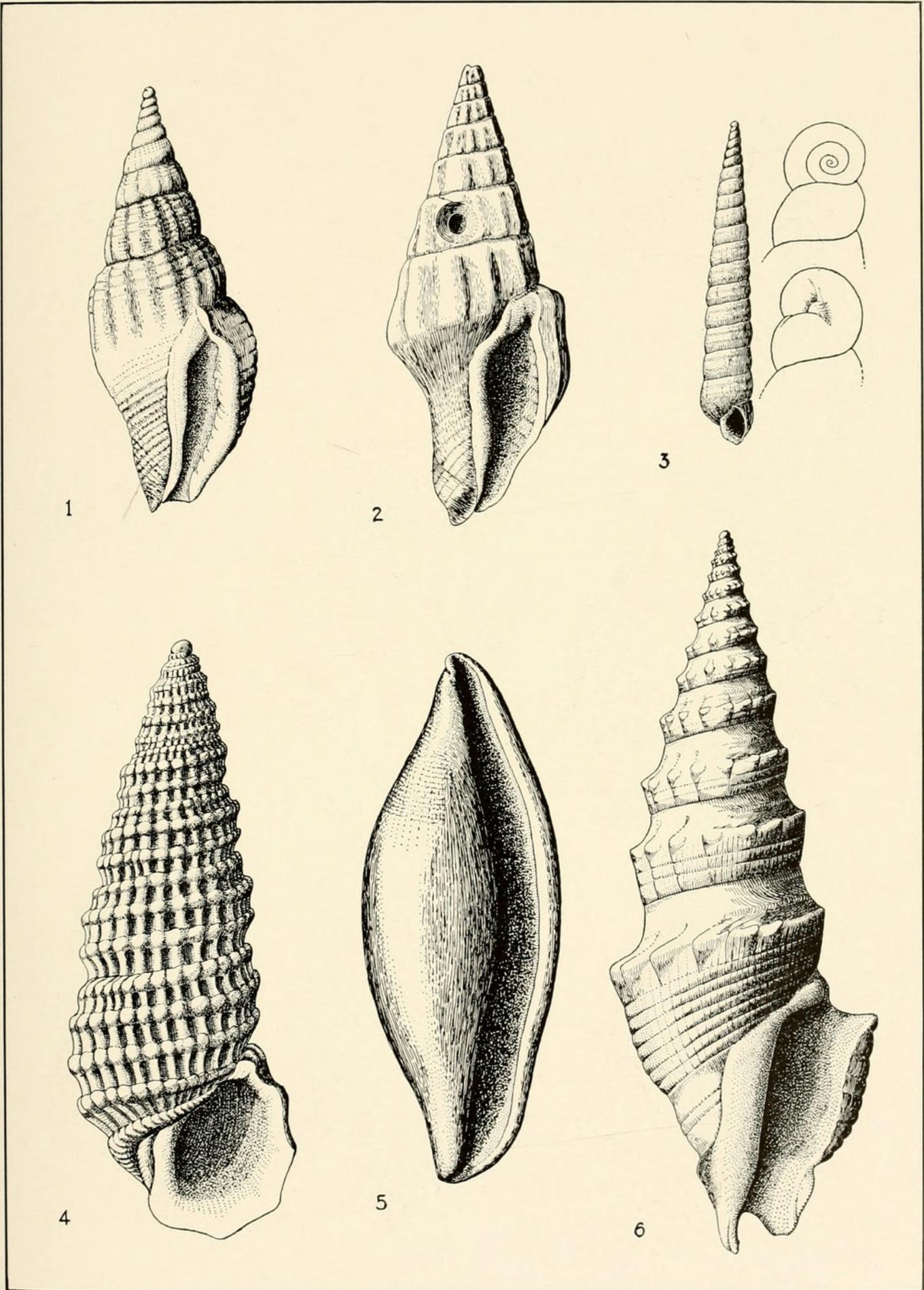


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|---|---|
| 1. <i>Arca gordita</i> n. sp. | 5. <i>Lithophaga abbotti</i> n. sp. |
| 2. <i>Arca delgada</i> n. sp. | 6. <i>Solen pazensis</i> n. sp. |
| 3a, b, c. <i>Arca (Anadara) reinharti</i> n. sp. | 7. <i>Psammosolen guaymasensis</i> n. sp. |
| 4. <i>Phacoides (Pleurolucina)</i>
<i>leucocymoides</i> n. sp. | 8. <i>Leda (Adrana) penascoensis</i> n. sp. |



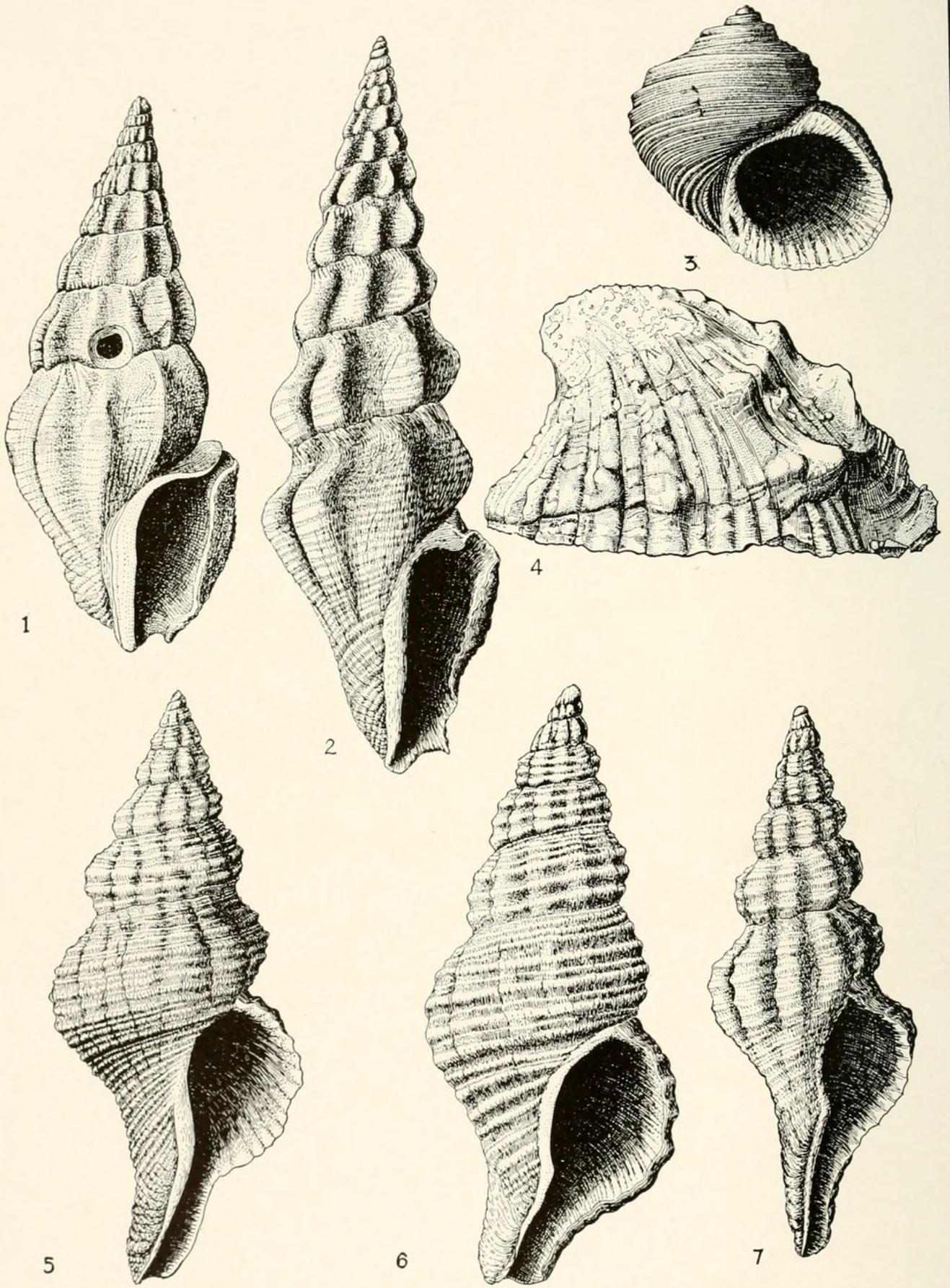
1. *Venus kelletii* Fbs.
2. *Venus mariae* Orb.
3. *Calliostoma marshalli* n. sp.
4. *Calliostoma gemmuloides* n. sp.

5. *Calliostoma angelenum* n. sp.
6. *Tritonalia carmen* n. sp.
7. *Mitrella granti* n. sp.
8. *Anachis sanfelipensis* n. sp.



- 1. *Strombina carmencita* n. sp.
- 2. *Strombina subangularis* n. sp.
- 3. *Turbonilla* (*Ptycheulimella*)
penascoensis n. sp.

- 4. *Pyramidella* (*Triptychus*) *hermosa* n. sp.
- 5. *Simnia quaylei* n. sp.
- 6. *Clavus pembertoni* n. sp.



- | | |
|---|-------------------------------------|
| 1. <i>Elaeocyma acapulcana</i> n. sp. | 4. <i>Hemitoma hermosa</i> n. sp. |
| 2. <i>Clathrodrillia pilsbryi</i> n. sp. | 5. <i>Fusinus fredbakeri</i> n. sp. |
| 3. (?) <i>Homalopoma concepcionensis</i> n. sp. | 6. <i>Fusinus felipensis</i> n. sp. |
| | 7. <i>Fusinus hertleini</i> n. sp. |

ribs, with about equal interspaces, most prominent on the periphery. There are eight or nine spiral cords of unequal strength on the penultimate whorl. The type specimen is of a deep cream color, on other specimens shaded to a warm sienna brown. Canal straight, narrow and of medium length, aperture broadly rounded; outer lip thin, crenulated by the spiral sculpture, which shows through on the inside.

Diameter 15.5 mm., altitude 38 mm., 7 whorls, 12 varices.

In all stages of growth this shell is much broader than *F. ambustus* Gld., measurements of which are diameter 13.3 mm., altitude 38 mm., 8 whorls, 10 varices. It also has more, although less prominent, axial ribs. It is named in honor of my good friend Dr. Fred Baker, of San Diego, who has done so much valuable work in West Coast Conchology and whose kindly assistance and advice to me have been of great help.

Fusinus felipensis, new species. Plate 4, fig. 6.

San Felipe, Gulf of California (1933). Type 11589, Lowe collection; paratypes, San Diego Society of Natural History and California Academy of Sciences.

Shell small, purplish brown, nearly the same size as the average *Fusinus luteopictus* Dall of the upper California coast. There are seven rounded whorls, including the smooth white nucleus. There are eleven axial ribs with somewhat wider interspaces on the penultimate and ten on the antepenultimate whorl, which are continuous from suture to suture; they gradually fade out on the body whorl. There are four or five strong, spiral cords to the whorl, with a weaker spiral thread between, which render the axial ribs nodulous. Aperture oval, of a purplish color; outer lip thin, slightly crenulated by the spiral sculpture; inside smooth; canal straight, of medium length and width.

Diameter 7.7 mm., altitude 19.2 mm.

Fusinus hertleini, new species. Plate 4, fig. 7.

Concepción Bay, Lower California (1932). Type 11592, Lowe collection; paratypes, San Diego Society of Natural History and California Academy of Sciences.

Shell elegantly and regularly fusiform, of six or seven well rounded whorls. On the body whorl are eleven or twelve rounded axial costae, which become obsolete below the periphery, crossed by three strong, spiral cords and several lesser spiral threads; canal straight and narrow; aperture suboval; outer lip slightly crenate at the margin. Color sienna brown with cream-colored costae.

Diameter 15.1 mm., altitude 41.1 mm.

At Sargent's Point on the Sonora coast, off the north end of Tiburón Island, I collected a form entirely cream-colored, except two or three post-nuclear whorls which show the brown blotches between the costae. This may take the name of variety *albescens*.

At the same locality I collected another form with wide white subperipheral band on body whorl and a narrow dark brown band just below. This may be known as variety *bruneocincta*.

The new species has more prominent axial ribs than *Fusinus ambustus* Gld., which has sharper spiral sculpture. It also has two more axial ribs to the whorl than *F. ambustus*.

The shell is named in honor of Dr. L. G. Hertlein, of the California Academy of sciences, who has been studying the West Mexican molluscan faunas for a number of years.

Fusinus cinereus (Reeve) and varieties

Specimens of a *Fusinus* collected by me at La Paz and also at Guaymas match the figure given by Reeve for his *Turbinella cinerea*² so closely that I do not hesitate to identify them as typical examples of his species. Since Reeve's *cinerea* was described under the genus *Turbinella* and Say's earlier *Fusus cinereus*³ under *Fusus* (a group generally known as *Fusinus*, though Say's *cinereus* is really a *Urosalpinx*), it does not seem advisable to consider Reeve's specific name a homonym. The two species bear the same specific name, but were described under different genera and actually are not congeneric or even members of the same family.

The present species, *Fusinus cinereus* Reeve (olim *Turbinella id.*) is probably the species which Dall⁴ once identified as *F. taylorianus* Reeve,⁵ but in all my collecting I have never encountered a west coast shell which I could identify unquestionably as *taylorianus*, and I believe that Dall must have overlooked Reeve's *cinereus* because it was included in *Turbinella*.

On the Coronado Island in the Gulf of California I collected a smaller, lighter colored form of *Fusinus cinereus* Reeve with white axial ribs. This may take the varietal name of *coronadoensis*.

On the Sonora coast, north from Guaymas to Sargent's Point (opposite the north end of Tiburón Island), I collected in several localities an almost black form, with only the first three whorls showing white on the axial ribs. This color form may be known as variety *sonoraensis*.

² Conch. Icon., vol. 4, *Turbinella*, pl. 13, fig. 68, 1847.

³ Acad. Nat. Sci. Philadelphia, Journ., vol. 2, p. 236, 1822.

⁴ Nautilus, vol. 29, no. 5, p. 55, 1915.

⁵ Conch. Icon., vol. 4, *Fusus*, pl. 20, fig. 85, 1848, (unknown habitat).

AN ANNOTATED LIST OF SHELLS COLLECTED
AT PUNTA PENASCO, SONORA, MEXICO,
IN FEBRUARY, 1934

BY

HERBERT N. LOWE

San Diego Society of Natural History

BIVALVES

- Solemya panamensis* Dall — 10 fathoms, dredged.
 valvulus Cpr. — a single example of each dredged in 10 fathoms; gray mud.
- Nucula declivis* Hds. — many valves taken at 10 fathoms.
- Leda impar* Pils. and Lowe — a few pairs and many valves at 10 fathoms.
 leviradius Pils. and Lowe — four pairs only at 10 fathoms.
 (Adrana) *penascoensis* Lowe — the type and a damaged paratype at 10 fathoms;
 mud.
- Glycimeris maculata* Brod. — a large colony at low tide near Punta La Cholla in
 coarse gravely sand. Many valves found in Indian kitchen middens near by.
 gigantea Rve. — a single beach valve only.
 multicostata Sby. — many young valves brought up in dredge at 10 fathoms.
- Arca alternata* Sby. — valves only taken in dredge at 10 fathoms.
 gradata B. and S. — valves only taken with preceding species.
 illota Sby. — living examples not rare under rocks.
 pacifica Sby. — one pair only, although plentiful in kitchen middens.
 reeveana Orb. — three pairs taken under rocks.
 reinharti Lowe — valves only at 10 fathoms.
 solida B. and S. — common living under rocks.
- Pinna rugosa* Sby. — several very young pairs on beach.
 maura Sby. — several very young pairs on beach.
- Pteria peruviana* Rve. — three young pairs washed in attached to sea fans. Many large
 valves in kitchen middens.
- Melina* (Pedalion) *chemnitziana* Orb. — common under rocks.
 (Pedalion) *anomioides* Rve. (=janus Cpr.) — not rare under rocks.
- Ostrea chilensis* Phil. — a few attached to rocks at half tide.
 palmula Cpr. — fairly plentiful with preceding species.
 dalli Lamy (=serra Dall) — a few valves brought up in dredge at 10 fathoms.
- Pecten circularis* Sby. — beach valves and a few very young brought up in dredge.
- Lima pacifica* Orb. — a few living pairs under rocks, extreme tide.
 orbignyi Lamy — a few beach valves only.
- Anomia peruviana* Gray — two beach valves only.
- Mytilus adamsianus* Dkr. — not common.
 multiformis Cpr. — abundant in rock crevices at half tide, though not in such
 profusion as at San Felipe.
- Modiolus capax* Conr. — a few good pairs washed up.
 guyanensis Lam. (=braziliensis Chem.) — plentiful living in sandy mud flats.
- Gregariella denticulata* Dall — a few good pairs.
- Lithophagus attenuata* Desh. — boring in ledges of fossiliferous sandstone.
 aristata Dill. — with preceding species, but more abundant.
- Crenella divaricata* Orb. — a few valves in dredge.
- Thracia curta* Conr. — a few perfect pairs.
 squamosa Cpr. — one young pair dredged at 10 fathoms.

- Pandora claviculata* Cpr. — several fragments dredged.
- Lyonsia inflata* Conr. — on reefs with ascidians.
sp. ? — dredged at 10 fathoms.
- Cuspidaria didyma* Hds. — a few pairs dredged.
dulcis Pils. and Lowe — six valves only dredged.
- Crassatellites gibbosus* Rve. — odd valves and a few very young examples dredged.
- Cardita affinis* var. *californica* Desh. — very large and abundant under rocks at half tide.
- Chama buddiana* C. B. Ads. — one pair only; common in the Indian kitchen middens.
echinata Brod. — beach valves; abundant in kitchen middens.
- Diplodonta subquadrata* Cpr. — a few valves.
- Felaniella serricata* Rve. — not common.
- Divaricella eburnea* Rve. — valves brought up in dredge.
- Codakia distinguenda* Tryon — beach specimens not rare.
mexicana Dall — dredged at 10 fathoms.
chiquita Dall — odd valves plentiful with foregoing species.
- Phacoides cancellaris* Phil. — odd valves in dredge.
mazatlanicus Cpr. — odd valves in dredge.
nuttallii var. *centrifugus* Dall — odd valves in dredge.
(*Cavilucina*) *lamprus* Dall — a few beach valves.
- Cardium* (*Papyridea*) *aspersum* Sby. — beach valves only.
(*Fragum*) *biangulatum* Sby. — a few pairs brought up in dredge.
(*Laevicardium*) *elatum* Sby. — young shells in dredge and a few full grown valves on beach.
(*Laevicardium*) *elenensis* Sby. — a few in dredge.
(*Trigonicardia*) *graniferum* B. and S. — many valves in dredge.
(*Bingicardium*) *procerum* B. and S. — good pairs on tide flats.
- Dosinia dunkeri* Phil. — a few fresh pairs.
ponderosa Gray — single valves abundant on beach.
- Tivela delesserti* Desh. — rare living on sand flats at low tide.
- Chione fluctifraga* Val. — living on mud flats.
succincta Val. — with preceding species.
purpurascens Dall — one beach valve only.
mariae Orb. — odd valves plentiful in dredge.
- Macrocallista squalida* Sby. — a few beach pairs.
- Pitar concinna* Sby. — a few valves in dredge.
newcombiana Gabb — valves only in dredge.
- Paphia grata* Sby. — plentiful in sand between small stones near mouth of estuary.
- Cyclinella singleyi* Dall — one pair and a few valves in dredge.
- Petricola denticulata* Sby. — not rare in fossiliferous limestone reefs.
robusta Sby. — seemingly a rare species; only two pairs taken with preceding species.
- Metis excavata* Sby. — one beach valve only.
- Tellidora burneti* B. and S. — valves only in dredge.
- Tellina crystallina* Chem. — valves only in dredge.
- Macoma panamensis* Dall — valves in dredge.
(*Cymatoica*) *undulata* Hanley (= *occidentalis* Dall) — many valves at 10 fathoms.
indentata Conr. — many pairs on mud flats.
- Tellina simulans* C. B. Ads. — odd valves on beach.
(*Moerella*) *meropsis* Dall — dredged at 10 fathoms.
(*Moerella*) *reclusa* Dall — dredged at 10 fathoms.
(*Angulus*) *amianta* Dall — dredged at 10 fathoms.

- Semele flavescens** Gld. — three beach specimens.
guaymasensis Pils. and Lowe — a few pairs in dredge.
pacifica Dall — odd valves only in dredge.
 sp. ? — one valve only in dredgings.
- Donax gracilis** Hanley — living on sand flats.
navicula Hanley — living on sand flats.
- Heterodonax bimaculatus** Orb. — beach valves.
- Tagelus affinis** C. B. Ads. — plentiful on mud flats.
- Psammosolen guaymasensis** Lowe — two valves dredged at 10 fathoms in mud.
- Solen rosaceus** Cpr. — two pairs only on sand flats.
- Mactra dolabriformis** Conr. — a single beach valve.
californica Conr. — valves in dredge.
- Sphenia fragilis** Cpr. — two pairs only.
- Corbula marmorata** Hds. — a few in dredge.
nasuta Sby. — plentiful in dredgings.
bicarinata Sby. — a single pair under a rock.
 sp. ? — odd valves in dredge.
- Solecardia eburnea** Conr. — one valve in dredge.
- Crassinella varians** Cpr. — valves plentiful in dredge.

UNIVALVES

- Dentalium inversum** Desh. — dredged at 10 fathoms.
fisheri Stearns — dredged at 10 fathoms.
splendidum Sby. — dredged at 10 fathoms.
numerosum Dall — dredged at 10 fathoms.
- Cadulus panamensis** Sby. — dredged at 10 fathoms.
- Retusa paziana** Dall — dredged at 10 fathoms.
gonzagensis Baker and Hanna — dredged at 10 fathoms.
- Volvulella californica** Dall — dredged at 10 fathoms.
- Acteocina infrequens** C. B. Ads. — dredged at 10 fathoms.
- Bulla gouldiana** Pils. — several taken living in sand pockets in reefs.
- Haminea virescens** Sby. — one specimen.
- Terebra bridgesi** Dall — a few in dredge at 10 fathoms.
larvaeformis Hds. — dredged at 10 fathoms.
 sp. ? — dredged at 10 fathoms.
- Turritella goniostoma** Val. — dredged at 10 fathoms.
tigrina Kiener — dredged at 10 fathoms.
- Conus interruptus** Brod. — a fine colony of extra large specimens taken in gravelly sand with *Glycimeris maculata*.
puncticulatus Hws. — a few in dredge.
regularis Sby. — a few live ones on mud flats.
- Turris olivacea** Sby. — a number taken living on reef.
tuberculifera Brod. and Sby. — two beach specimens only taken of this very rare form.
- Crassispira bottae** Val. — two living specimens taken on reef, in sand pockets; an exceedingly rare species.
nymphia Pils. and Lowe — four taken on reef.
nigerrima Sby. — a few in the 10 fathom dredgings.
pluto Pils. and Lowe — abundant living on moss-covered rocks of reef.

- Clathrodrillia halis* Dall — dredged at 10 fathoms; not rare.
alcestis Dall — dredged at 10 fathoms.
thestia Dall — dredged at 10 fathoms.
callianira Dall — dredged at 10 fathoms.
rosea Sby. — one fine specimen in dredgings.
pilsbryi Lowe — a few in dredgings.
- Elaeocyma unimaculata* Sby. — dredged at 10 fathoms.
aeolia Dall — dredged at 10 fathoms.
ianthe Dall — dredged at 10 fathoms.
palmeri Dall — dredged at 10 fathoms.
 sp. ? — dredged at 10 fathoms.
- Glyphostoma adria* Dall — a few choice specimens.
- Cytharella phaethusa* Dall — a single shell dredged.
- Mangelia arteaga roperi* Dall — a few dredged at 10 fathoms.
antipyrgus Pils. and Lowe — a few dredged at 10 fathoms.
cymatias Pils. and Lowe — a few dredged at 10 fathoms.
- Cancellaria cassidiformis* Sby. — a few beach specimens.
obesa Sby. — two beach specimens.
funiculata Hds. — one dredged living at 10 fathoms.
- Oliva incrassata* Sol. (= *angulata* Lam.) — fine large ones living with *Conus interruptus* at low tide.
polpasta Duclos — dredged; this species seems to live only in deep water.
- Olivella dama* Gray — abundant in sand pockets in reefs.
zonata Duclos — very rare on beach; living.
gracilis B. and S. — taken in dredge.
- Agaronia testacea* Lam. — many fine specimens taken living on sand beach at half tide.
- Marginella californica* Tomlin — not rare, under stones.
- Mitra attenuata* Rve. — a few fine specimens dredged.
dolorosa Dall — a single example taken on reef.
- Latirus lugubris* C. B. Ads. — three specimens from reef.
- Galeodes patula* Brod. — beach specimens.
- Hanetia pallida* Brod. and Sby. — abundant on reef.
- Fusinus dupetithouarsi* Petit — a number of young specimens in dredge.
felipensis Lowe — several live specimens under rocks.
- Nassa iodes* Dall — many living in sand flats.
leucops Pils. and Lowe — abundant in sandy mud.
tiarula Kiener — a few taken on sand flats.
pagoda Rve. — dredged at 10 fathoms.
versicolor C. B. Ads. — taken alive in sand pockets in reef.
versicolor striatula C. B. Ads. — with preceding species.
angulicostis Pils. and Lowe — dredged at 10 fathoms.
- Anachis coronata* Sby. — living specimens under rocks.
hilli Pils. and Lowe — four living specimens under rocks.
vexillum Rve. — four living specimens under rocks.
varia Sby. — four living specimens under rocks.
- Columbella fuscata* Sby. — common under rocks.
major Sby. — not common.
- Mitrella diminuta* C. B. Ads. — a few of this tiny species.
ocellata var. *guttata* Sby. — common under rocks.
- Strombina dorsata* Sby. — dredged at 10 fathoms.
gibberula Sby. — dredged at 10 fathoms.
maculosa Sby. — dredged at 10 fathoms.
- Parametaria dupontii* Kiener — a few living under rocks.

- Cosmioconcha palmeri* Dall — two specimens in dredge.
- Phos veraguensis* Hds. — two young in dredge.
mexicanus Dall — a number of fine specimens in dredge.
- Murex elenensis* Dall (= *plicatus* Sby.) — beach shells only.
- Phyllonotus bicolor* Val. — many fine specimens feeding on bivalves on sand beach at very low tide.
nigritus Meusch. — abundant on reefs feeding on *Cerithium stercus-muscarum*.
- Acanthina angelica* Oldroyd — very abundant living on exposed wave-beaten rocks.
muricata Brod. — very good examples taken on reefs.
- Thais triserialis* Blv. — a few taken on reef.
- Muricopsis erynaceoides* Val. — a few taken in dredge.
- Eupleura muriciformis* Brod. — some good specimens taken with dredge.
triquetra Rve. — not rare on reefs feeding on *Cerithium*; a few were yellow and some almost white.
- Epitonium crenimarginata* Dall — three beach specimens.
crenatooides Cpr. — one dredged.
 (*Asperoscala*) *canna* Dall — two dredged.
bialatum Dall — two dredged.
 sp. ? — two dredged.
- Melanella mexicana* Dall — dredged at 10 fathoms.
rutila Cpr. — one dredged at 10 fathoms.
- Strombiformis lapazana* Bartsch — four dredged at 10 fathoms.
townsendi Bartsch — one dredged at 10 fathoms.
- Niso excolpa* Bartsch — a few fine examples dredged.
- Turbonilla ceralva* Dall and Bartsch — dredged at 10 fathoms; 3 specimens.
mayana Baker, Hanna and Strong — dredged at 10 fathoms.
calvini Dall and Bartsch — dredged at 10 fathoms.
sanctorum Dall and Bartsch — dredged at 10 fathoms.
pazana Dall and Bartsch — dredged at 10 fathoms.
penascoensis Lowe — dredged at 10 fathoms.
azteca Baker, Hanna and Strong — several dredged at 10 fathoms.
subangulata Cpr. — three specimens dredged.
macbridei Dall and Bartsch — dredged at 10 fathoms.
- Pyramidella mazatlanica* Dall and Bartsch — a few dredged at 10 fathoms.
bicolor Dall and Bartsch — a few dredged at 10 fathoms.
- Odostomia telescopium* Cpr. — dredged at 10 fathoms.
convexa Cpr. — six specimens dredged.
gabrielensis Baker, Hanna and Strong — two specimens dredged.
effusa Cpr. — several dredged.
- Cypraea annettae* Dall (= *sowerbyi* Kiener) — some fine living specimens under rocks.
- Trivia solandri* Gray — many specimens taken feeding on upper side of moss-covered rocks.
californica Gray — a few taken with preceding species.
- Cymatium adairensis* Dall — a few taken alive in crevices of rocks; a rare form.
 Nearly topotypes, as Adair Bay is only a few miles north of Punta Peñasco.
- Cerithiopsis* sp. ? — three specimens in dredge.
- Alabina diomedea* Bartsch — common in dredgings.
- Seila assimillata* C. B. Ads. — several taken living on under side of old valves of *Dosinia ponderosa* on reef.
- Cerithium maculosum* Kiener — living in sand pockets in reefs.
incisum Sby. — common living under rocks.
stercus-muscarum Val. — thousands living on reefs at half tide.
- Cerithidea mazatlanica* Cpr. — abundant on mud flats.

- Caecum firmatum* Cpr. — common in dredgings.
liratocinctum Cpr. — common in dredgings.
- Vermetus pellucidus* Brod. — a few under rocks.
tripsycha Pils. and Lowe — one beach specimen.
- Rissoina barthelowi* Bartsch — four crab specimens dredged at 10 fathoms.
mexicana Bartsch — four specimens dredged at 10 fathoms.
- Hipponyx barbatus* Sby. — extra fine specimens with lower plate developed into a deep concave valve; taken on outer reefs.
serratus Cpr. — under rocks at low tide.
- Calyptrea mamillaris* Brod. — dredged at 10 fathoms.
conica Brod. — dredged at 10 fathoms.
- Crucibulum spinosum* Sby. — a few in dredge.
- Crepidula arenosa* Brod. — half grown specimens in dredge.
onyx Sby. — one beach specimen.
nivea Gld. — one beach specimen.
- Natica marochiensis* Gmel. — two living specimens on mud flats.
- Polinices bifasciatus* Gray — extra large specimens taken in sandy gravel with *Glycimeris maculata*.
uber Val. — living specimens taken on sand flats.
recluzianus Petit — young specimens in dredge.
- Lamellaria diegensis* Dall — a number taken alive with ascidians on beach after storm.
- Acmaea mesoleuca* Menke — abundant on rocks at half tide.
mitella Menke — not common; almost at high tide; a very tiny species.
- Turbo fluctuosus* Wood — plentiful under rocks.
- Leptothyra conceptionensis* Lowe — one specimen dredged.
- Liotia carinata* Cpr. — several in dredgings at 10 fathoms.
- Tegula globulus* Cpr. — abundant under stones in same zone as *A. mesoleuca*.
rugosa A. Ads. — extra large specimens taken on upper side of rocks.
mariana Dall — a few good living specimens taken under rocks at low tide.
- Calliostoma palmeri* Dall — a few in dredgings.
marshalli Lowe — a single example dredged.
- Circulus annulatus* Cpr. — dredged at 10 fathoms.
tricarinatus C. B. Ads. — dredged at 10 fathoms.
- Neritina picta* Sby. — plentiful on rocks at mouth of estuary.
- Nerita scabricosta* Lam. — on rocks near high tide.
bernhardi Recl. — on rocks near high tide.
- Strombus galeatus* Sby. — half grown specimens on mud flats.
- Diadora alta* C. B. Ads. — four specimens taken under rocks at low tide.
inaequalis Sby. — not rare under rocks.
- Ficus decussatus* Wood — three fair beach specimens.
- Cassis abbreviatus* Lam. — several beach specimens.
- Heliacus radiatus* Mke. — two crab specimens under rocks.
- Aplysia* sp. ? — the animal looks much like our *californicus*.
- Chiton virgulatus* Sby. — abundant under rocks.
- Ischnochiton acrior* Cpr. — plentiful under rocks.
clathratus Rve. — plentiful under rocks.
 (Stenoplax) *limaciformis* Sby. — five specimens on reef.
- Callistochiton infortunatus* Pils. — not common under rocks.
 sp. ? — a beautiful color series taken on reef.
 sp. ? — a few taken on reef; both this and preceding species were taken in 1933 at San Felipe.
- Acanthochites diegensis* Pils. — three specimens on reef.
- Dendrochiton* sp. ? — three specimens on reef; similar to *D. thamnophora* Berry.
- Nuttallina* sp. ? — a very small species; taken on outer rocks.



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