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New Species of Northeast Pacific Archaeogastropods

by

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Abstract. Eight new archaeogastropods from the northeastern Pacific are described: *Anatoma* ***baxteri***, *Puncturella* ***rothi***, *Margarites* ***hickmanae***, *Calliostoma* ***titanium***, *C.* ***bernardi***, *Lirularia* ***discors***, *Halistylus* ***genecoani***, and *Homalopoma* ***draperi***.

THE NEW SPECIES described here are to be included in a report on the rhipidoglossate archaeogastropods of the northeastern Pacific from Alaska to Baja California (McLean, in preparation). Generic and subgeneric allocations are discussed in that work, which also includes new subfamilial classifications.

Abbreviations for the museum collections mentioned in the text are: AHF, Allan Hancock Foundation (collection at LACM); CAS, California Academy of Sciences, San Francisco; LACM, Los Angeles County Museum of Natural History; NMC, National Museum of Canada, Ottawa; USNM, National Museum of Natural History, Washington.

Family SCISSURELLIDAE

Anatoma Woodward, 1859

Anatoma ***baxteri*** McLean, spec. nov.

(Figure 1)

"*Scissurella* (*Anatoma*) *lamellata* (A. Adams, 1862)," McLEAN, 1967:406. Not *Anatomus lamellatus* A. Adams, 1862.

Description: Shell small for genus, low-spired, fragile, translucent grayish white. Protoconch diameter 0.2 mm; teleoconch whorls 2¼; first teleoconch whorl smooth, rounded; suture deeply impressed in first quarter whorl; fine axial ribs appear in second quarter, selenizone appearing in fourth quarter of first whorl. Selenizone at periphery, slit open $^1/_5$ of circumference, bordered by sharp raised edges. Axial sculpture of sharp, thin ridges, curved protractively near suture on upper half of whorl, retractively curved across base. Spiral sculpture of fine striae throughout, much weaker than axial ribs and not crossing them. Peritreme complete at all growth stages; umbilicus partially obscured by reflection of inner lip. Suture laid below lower bordering ridge of selenizone, forming deep channel of same width as selenizone; suture descending slightly on last quarter of final whorl, increasing width of subsutural channel to twice that of selenizone.

Dimensions: Height 1.8 mm, diameter 2.3 mm (holotype).

Type material: 30 specimens from the type locality (many in poor condition), dredged by Rae Baxter and James H. McLean, 2 August 1973. Holotype LACM 1991, 25 paratypes LACM 1992, 2 paratypes CAS 033360, 2 paratypes USNM 784743.

Type locality: 9 m off N side Hesketh Island, Kachemak Bay, Kenai Peninsula, Cook Inlet, Alaska (59°30.5′N; 151°31.0′W).

Referred material: 5 lots in the LACM collection, from the type locality east to Torch Bay, Glacier Bay National Monument, Alaska, in depths of 10–45 m on gravel and mud bottoms. Specimens from Torch Bay were collected by Tom Suchanek.

Comparisons: I previously (McLEAN, 1967) identified this species as *Scissurella* (*Anatoma*) *lamellata* (A. Adams, 1862), which occurs at 50–700 m in central Japan (KURODA *et al.*, 1971; other references in McLEAN, 1967). This species differs from the latter in its smaller size (maximum diameter of 2.3 mm rather than 3.5 mm), and lenticular rather than high-turbinate profile. It is the only eastern Pacific species of *Anatoma* having the axial sculpture much stronger than the spiral sculpture.

Remarks: I follow POWELL (1979) in regarding the differences between *Scissurella* Orbigny, 1824, and *Anatoma* at the generic rather than subgeneric level.

Named after Rae Baxter, Alaska Department of Fish and Game, Bethel, Alaska, who has collected this species from many localities in Alaska.

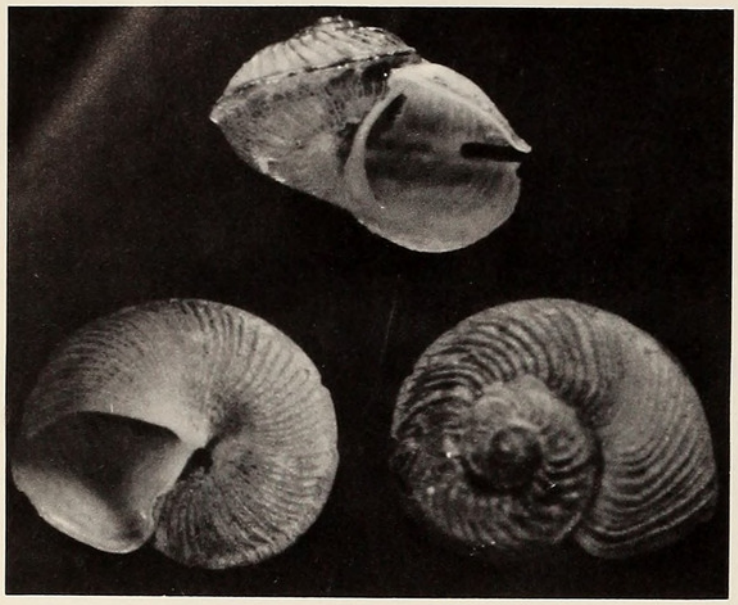


Figure 1

Anatoma ***baxteri*** McLean, spec. nov. Three views of holotype; height 1.8 mm.

Family FISSURELLIDAE

Puncturella Lowe, 1827

Puncturella ***rothi*** McLean, spec. nov.

(Figure 2)

Description: Shell of moderate size for genus, relatively thin; basal outline elongate oval, narrower anteriorly; sides distinctly compressed, nearly parallel. Anterior slope slightly convex, posterior slope slightly concave, lateral slopes nearly straight. Apex approximately central, eroded to blunt, posteriorly directed spur. Foramen long and narrow, constricted in middle, anterior portion narrowed and tapering. Radial sculpture of approximately 30 strong primary ribs originating near apex, secondary ribs emerging when shell is half-grown; secondary ribs not quite attaining same size as primary ribs, but filling interspaces; ribs finely and sharply beaded corresponding to growth increments. Exterior pattern of radial sculpture visible in shell interior; muscle scar not apparent; margin finely crenulated by primary ribs. Septum broadly arched, slanted forward, anteriormost extension of septum continuous with wedge-shaped callus that borders foramen, terminating 3 mm from anterior margin; base of septum with weak lateral extensions or props.

Dimensions: Length 15.0 mm, width 10.5 mm, height 8.0 mm (holotype).

Type material: 4 specimens (1 with remains of mantle tissue, indicating that it was live-collected) from the type locality, collected by the R/V "N. B. Scofield," station B.8, 6 October 1950. Holotype CAS 033361, paratype CAS 033362, paratype LACM 1993, paratype USNM 784744.

Type locality: 521–283 m (285–155 fm), Delgada Canyon, off Buck Creek (approximately 40°05′N; 124°08′W), Humboldt County, California.

Comparisons: *Puncturella* ***rothi*** differs from *P. galeata* (Gould, 1846) in its smaller size, more parallel sides, stronger development of beaded sculpture, larger septum, larger foramen, and absence of sharp ridges that form props to the septum.

Remarks: *Puncturella* ***rothi*** is known only from the type lot. It has the general appearance of *Cranopsis decorata* (Cowan & McLean, 1968), but does not have the anterior seam in the shell nor the split mantle roof that distinguishes *Cranopsis* A. Adams, 1860. All specimens have the apical area eroded. This species occurs at depths greater than those of other eastern Pacific species of *Puncturella*; it lives at depths characteristic for *Cranopsis decorata*.

Named after Dr. Barry Roth of the California Academy of Sciences, San Francisco.

Family TROCHIDAE

Margarites Gray, 1847

Margarites ***hickmanae*** McLean, spec. nov.

(Figures 3, 9)

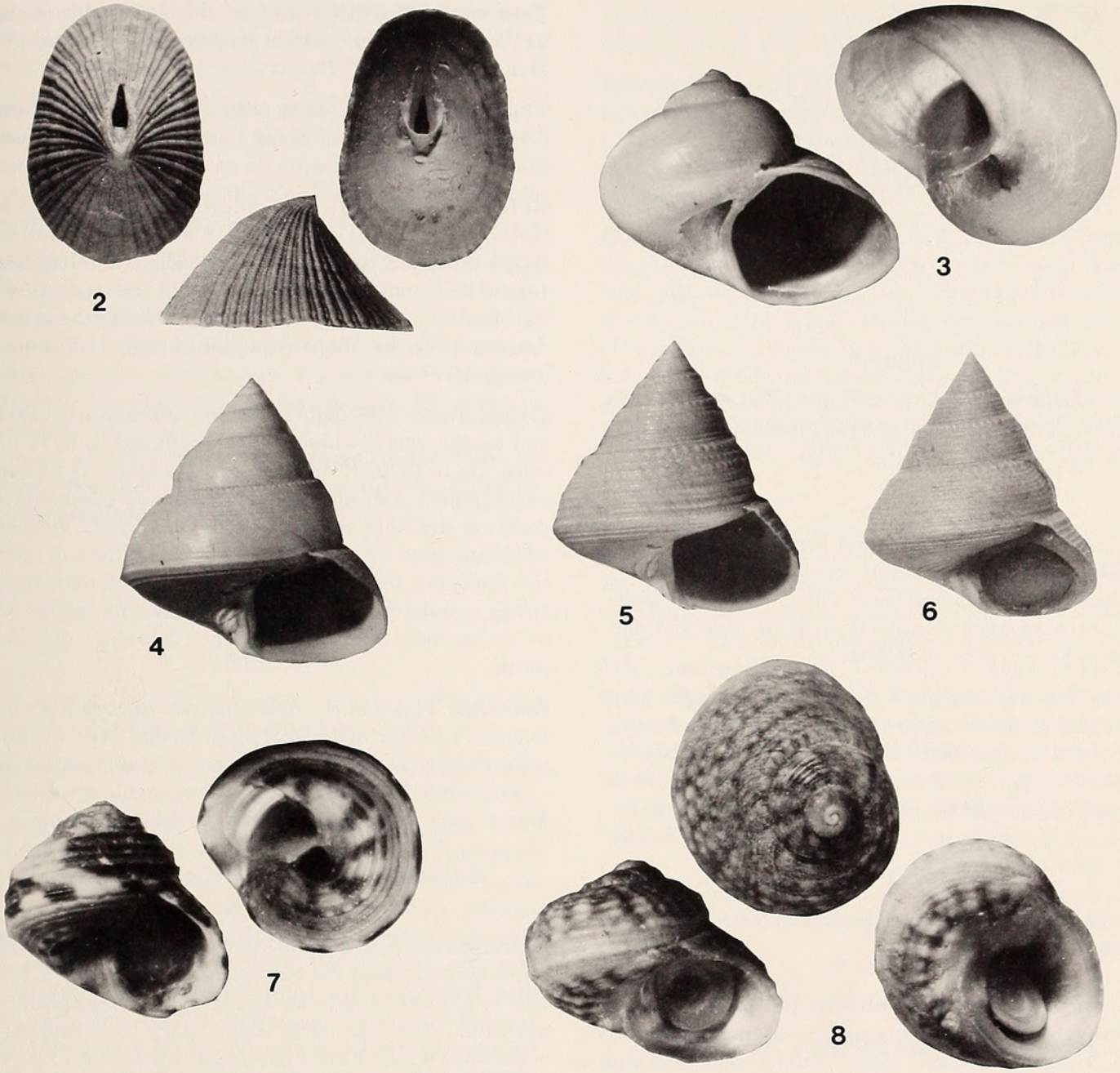
"*Margarites beringensis* E. A. Smith," DALL, 1925:19, pl. 36, figs. 4, 6. Not *Valvatella beringensis* E. A. Smith, 1889.

Description: Shell moderately large for genus, cream-colored under thin, pale brown, shiny periostracum. Protoconch smooth, tip pointed, protoconch diameter 0.35 mm; teleoconch whorls 5; early suture slightly impressed, becoming deeper on later whorls; suture gradually descending on final whorl. Last whorl broadly inflated; aperture markedly oblique, umbilicus narrow. Peritreme nearly complete; inner lip thick, parietal lip reflected, almost blocking umbilicus. Spiral sculpture of fine, microscopic incised lines, about 24 on penultimate whorl, 18 on body whorl; axial sculpture of fine growth lines. Interior iridescent, chiefly lavender. Lateral teeth of radula 7 pairs, overhanging tips long and tapered, tips rounded, both edges finely denticulate.

Dimensions: Height 10.1 mm, diameter 12.2 mm (holotype).

Type material: 14 specimens (all but one specimen live-collected and dried with opercula in place) from the type locality, dredged by the U.S. Fisheries Commission R/V "Albatross," station 4779, 5 June 1906. Holotype, USNM 111048, 9 paratypes USNM 205827, 2 paratypes LACM 1994, 2 paratypes CAS 033363.

Type locality: 99 m (54 fm) on sand and shell bottom, Petrel Bank (near Semisopochnoi Island, Rat Islands, Aleutian Islands), Bering Sea, Alaska (52°11′N; 179°57′W).



Explanation of Figures 2 to 8

Figure 2. *Puncturella* ***rothi*** McLean, spec. nov. Three views of holotype; length 15.0 mm.

Figure 3. *Margarites* ***hickmanae*** McLean, spec. nov. Two views of holotype; height 10.1 mm.

Figure 4. *Calliostoma* ***titanium*** McLean, spec. nov. Holotype; height 32.2 mm.

Figure 5. *Calliostoma* ***bernardi*** McLean, spec. nov. Holotype; height 25.7 mm.

Figure 6. *Calliostoma* ***bernardi*** McLean, spec. nov. Paratype; height 26.5 mm.

Figure 7. *Lirularia* ***discors*** McLean, spec. nov. Two views of holotype; height 4.3 mm.

Figure 8. *Homalopoma* ***draperi*** McLean, spec. nov. Three views of holotype; height 4.0 mm.

Referred material: Known only from the type lot.

Comparisons: This is the only member of *Margarites, s.s.,* in which there are 7 pairs of lateral teeth in the radula (Figure 9). Such similarly proportioned, shallower occurring species as *M. helicinus* (Phipps, 1774), *M. beringensis* (E. A. Smith, 1899), and *M. albolineatus* (E. A. Smith, 1899) lack spiral sculpture and have 6 pairs of lateral teeth in which the tips of the outer laterals are broader than those of *M.* ***hickmanae.*** In size the new species most resembles the offshore *M. gigantea* (Leche, 1878), but that species has 4 pairs of lateral teeth, a less inflated final

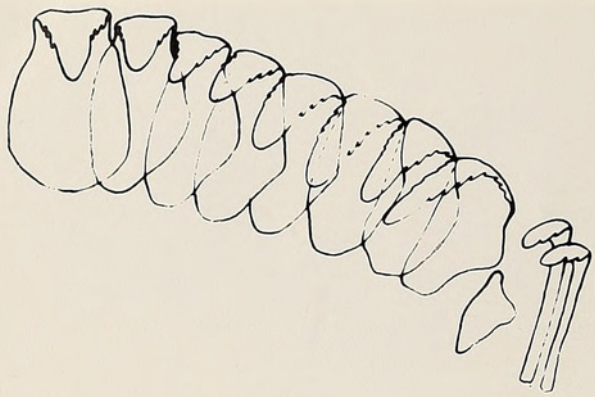


Figure 9

Margarites ***hickmanae*** McLean, spec. nov. Half row of radula of holotype, showing rachidian at left, 7 marginal teeth, lateromarginal plate, and first 2 marginal teeth.

whorl, and a darker, dull-surfaced periostracum. *Margarites* ***hickmanae*** is larger than *M. argentata* (Gould, 1841), which has 5 pairs of lateral teeth. (*M. pribiloffensis* Dall, 1919, is here regarded as a synonym of *M. argentata,* the holotype having 5 pairs of laterals.)

Remarks: The holotype of *M.* ***hickmanae*** was figured by Dall (1925) under the name *M. beringensis* (E. A. Smith, 1899), a species described from the Commander Islands (west of the westernmost of the Aleutian Islands). *Margarites beringensis* differs in having a glossy brown surface and gray early whorls; it is common at low tide in Alaska and British Columbia.

The name honors Dr. Carole S. Hickman of the Department of Paleontology, University of California, Berkeley.

Calliostoma Swainson, 1840

Calliostoma ***titanium*** McLean, spec. nov.

(Figure 4)

Description: Shell large for genus, sturdy, white, protoconch diameter (of smallest specimen) 0.4 mm, teleoconch whorls 7. Whorls only slightly rounded, shoulder slightly tabulate; base defined by moderately sharp keel. First 3 teleoconch whorls with strong, unbeaded spiral cords; spiral sculpture of subsequent whorls very subdued except for subsutural cord; subsutural cord prominently beaded on fifth whorl; fine, even spiral cords emerge on fifth whorl; 16 spiral cords on penultimate whorl; all cords microscopically beaded on final whorl. Suture laid upon basal angulation; base imperforate, smooth, with fine spiral striae, more strongly developed near columella. Aperture quadrate, outer lip thin, columella thick, slightly reflected. Interior iridescent pink and green.

Dimensions: Height 32.2 mm, diameter 30.0 mm (holotype); height 27.4 mm, diameter 25.3 mm (paratype).

Type material: 2 specimens from the type locality dredged by the R/V "Velero," station 1027-39, 10 December 1939. Holotype LACM 1995, paratype USNM 784745.

Type locality: 256–274 m (140–150 fm) on green mud, 8.3 km (5 miles) SE of Santa Catalina Island, California (33°15′N; 118°14′W).

Referred material: Two additional specimens: one (LACM-AHF 1151-40), 214–234 m (117–128 fm) near type locality (33°16′N; 118°16′W), collected 5 July 1940, height 29.5 mm, diameter 28.4 mm; and one (LACM 92119), from 300 m, "Cortes Bank," California, collected August, 1968, by Shane Anderson, height 18.8 mm, diameter 17.7 mm.

Comparisons: Although *Calliostoma* ***titanium*** has its third and fourth whorls without spiral sculpture, as in *C. platinum* Dall, 1890, it differs from the latter in having a sturdier shell, a subsutural tabulation, and numerous fine cords on the final whorl. It is larger than *C.* ***bernardi*** McLean, spec. nov., from which it also differs in having the third and fourth whorls smooth rather than having strong spiral cords on all whorls; the cords on the body whorl are more numerous and finer than those of *C.* ***bernardi***.

Remarks: This and the following new species have been known to me for many years, not having been described until now in the futile hope of obtaining more material.

The name is that of a metallic element, emphasizing lack of shell color, and contrasting with *C. platinum.*

Calliostoma ***bernardi*** McLean, spec. nov.

(Figures 5, 6)

Description: Shell medium-sized for genus, sturdy, white; protoconch diameter 0.4 mm, teleoconch whorls 7½. Early whorls flat-sided except for strongly projecting subsutural cord; final whorl rounded, losing sharp basal angularity of previous whorl. First 3 teleoconch whorls with 3 strong, unbeaded spiral cords, intercalary cords of lesser strength appearing on fourth whorl; original cords becoming beaded on fourth whorl; penultimate whorl with 9 somewhat irregular cords, uppermost of these beaded; body whorl with about 13 cords above ill-defined periphery, uppermost of these finely beaded. Base imperforate, mostly smooth but for fine spiral striae, basal cords more strongly developed toward columella. Aperture rounded, outer lip thin, columella thick. Interior iridescent pink and green.

Dimensions: Height 25.7 mm, diameter 22.8 mm (holotype); height 26.5 mm, diameter 22.8 mm (paratype).

Type material: Holotype LACM 1996; single specimen only from type locality, collected by the R/V "Velero," AHF station 1152-40, 5 July 1940. One paratype, NMC 86653, 128 m (70 fm), Halibut Bank, Georgia Strait, British Columbia (49°18′42″N; 123°41′06″W), collected by Frank R. Bernard, 11 October 1968.

Type locality: 241–271 m (132–148 fm), off SE end of Santa Catalina Island, California (33°15′40″N, 118°13′25″W).

Comparisons: *Calliostoma* ***bernardi*** is closest to *C.* ***titanium*** McLean, spec. nov., but is smaller and has pronounced spiral sculpture at all growth stages, rather than having the nearly smooth third and fourth whorls of both *C.* ***titanium*** and *C. platinum* Dall, 1890.

Remarks: Although only two specimens from well separated localities are known, the fact that they are conspecific argues against the possibility that this is a variant of *C.* ***titanium***, which would be a major concern if only the southern specimen were known. I prefer not to designate paratypes from other than the type locality, but make an exception in this case.

Named after Dr. Frank R. Bernard, of the Fisheries Research Board of Canada, Nanaimo, British Columbia, who submitted the paratype specimen.

Lirularia Dall, 1909

Lirularia ***discors*** McLean, spec. nov.

(Figure 7)

"*Lirularia succincta* (Carpenter)," McLean, 1969:21, fig. 8-3. Not *Gibbula succincta* Carpenter, 1864.

Description: Shell medium-sized for genus; color variegated dark brown and cream, cord interspaces with yellowish green metallic luster, particularly on base. Periostracum extremely thin, barely detectable. Protoconch dark brown, diameter 0.2 mm; teleoconch whorls 4½, suture distinct but not deeply impressed; aperture oblique, umbilicus deep, narrow; peritreme interrupted in parietal area, inner lip moderately thick, not reflected over umbilicus. Spiral sculpture of strong cords: rounded midwhorl carination on first teleoconch whorl, two cords of lesser prominence added on second whorl; penultimate whorl with three major cords and start of lesser, intercalary cords; cords on body whorl alternating in strength. Suture descending on final whorl to expose fourth major cord defining base. Axial sculpture lacking except for fine growth lines. Basal cords usually 7: two outermost cords strong, two middle cords narrower, and three near umbilicus strong and broad; this produces a shallow channel midway between basal angularity and umbilicus, producing also a slight indentation in basal lip. Umbilical wall smooth. Interior iridescent pink and green.

Dimensions: Height 4.3 mm, diameter 4.3 mm (holotype).

Type material: 60 specimens from the type locality, collected by James H. McLean, 12 August 1963. Holotype LACM 1997, 49 paratypes LACM 1998, 5 paratypes CAS 033364, 5 paratypes USNM 784746.

Type locality: 4–7 m on rocky bottom, south side of Punta Banda (near the blowhole), Baja California Norte, Mexico (31°43.6′N; 116°43.0′W).

Referred material: 62 additional lots are in the LACM collection, from numerous localities between Pacific Grove, California, and Isla Cedros, Baja California. The species is common in rocky intertidal and sublittoral zones to 20 m, particularly in areas with cool upwelling.

Comparisons: This differs from *L. succincta* (Carpenter, 1864) in having stronger spiral cords, a more angulate base, and a color pattern of variegated brown and white, rather than uniform gray. Both species have the same kind of broad channel on the base, a feature shared by no other member of the genus. *Lirularia optabilis* (Carpenter, 1864) is a much larger species restricted to and common in the Pleistocene of southern California. *Lirularia acuticostata* (Carpenter, 1864) differs in having regular, sharp axial lamellae.

Remarks: *Lirularia succincta,* the species most closely related to *L.* ***discors***, occurs from Cook Inlet, Alaska, to Piedras Blancas Point, San Luis Obispo County, California. Both species are sympatric in central California between the Farallon Islands and San Luis Obispo County. Here the habitat is partitioned: *L. succincta* is abundant in the intertidal zone and *L.* ***discors*** occurs in the shallow sublittoral zone, as shallow as 2 m. South of the range of *L. succincta, L.* ***discors*** is sublittoral, and, in areas of cool upwelling (as at the type locality), it is also intertidal.

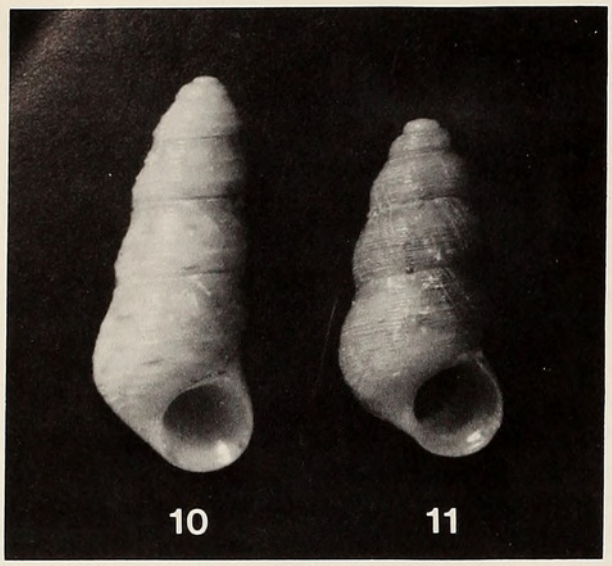
The name is a Latin adjective, meaning "different."

Halistylus Dall, 1890

Halistylus ***genecoani*** McLean, spec. nov.

(Figure 10)

Description: Shell small (normal for genus), sturdy, high-spired; nacreous interior lacking. Protoconch diameter 0.2 mm; teleoconch whorls 7, first 3 whorls low spired, dome-shaped in profile; 4 final whorls turritelliform, evenly expanding, the periphery either bulging or somewhat angulate at lower ⅓ of whorl, profile nearly straight on upper ⅔ of whorl. First teleoconch whorl smooth, rounded, suture not deeply impressed. Second whorl with 5 strong, broad, low, spiral cords; first, third, and fifth cords more prominent, interspaces deeply channeled; third and succeeding whorls with addition of narrow cords in interspaces between major cords. Mature sculpture of 4 broad, rounded cords spaced across lower ⅔ of whorl, interspaces about twice breadth of major cords and filled by about 3 fine cords between each large cord; upper third of whorl with about 4–6 fine cords of varying strength. Subsutural cord strong, sharply defining the incised suture. Base with about 7 strong, flat-topped cords; interspaces of equal width, having 1–3 narrow, sharp cords, separated by deep incisions. Aperture circular, peritreme of juvenile shell incomplete, lip of young shells sharp, crenulated by spiral



Explanation of Figures 10 and 11

Figure 10. *Halistylus* ***genecoani*** McLean, spec. nov. Holotype; height 5.6 mm.

Figure 11. *Halistylus pupoideus* (Carpenter). LACM 75-96, 18 m off Torrance Beach, Los Angeles County, California; height 4.7 mm.

cords; columellar lip raised over an umbilical chink. Mature lip beveled, thickened within; aperture slightly oblique, peritreme complete; parietal and columellar lip sharp and slightly raised; suture descending at final stage, outer lip greatly thickened below suture. Color white, yellow or tan, with irregular dark flammules. Operculum typical for genus: circular, multispiral, early volutions indistinct; 5 volutions showing on outer ⅔ of radius, each volution with projecting edge.

Dimensions: Height 5.6 mm, diameter at aperture 4.4 mm (holotype).

Type material: 37 specimens (2 with opercula) collected by diving at type locality by Camm Swift and Richard W. Huddleston, R/V "Searcher" station 281, 24 October 1971. Holotype LACM 1999, 30 paratypes LACM 2000, 3 paratypes CAS 033365, 3 paratypes USNM 784747.

Type locality: 20–24 m, sandy bottom outside of kelp beds, cove at S side of Punta San Pablo, outer coast of Baja California Sur, Mexico (27°12′55″N; 114°27′30″W).

Referred material: 6 additional lots in the LACM collection, from depths of 13–55 m; 4 lots from the vicinity of the type locality in central Baja California (near Bahia San Cristobal, Isla Natividad, Bahia Tortuga, and Thurloe Head), and 2 lots from southern Baja California (Bahia Santa Maria and Arroyo Conejo).

Comparisons: *Halistylus* ***genecoani*** differs from *H. pupoideus* (Carpenter, 1864) (Figure 11) in having a carinate rather than rounded profile, spiral cords of different strength and spacing, and a less deeply impressed suture in the first two whorls. The two species have both broad and narrow spiral cords, but the broad cords of *H.* ***genecoani*** are fewer and broader than those of *H. pupoideus*. The depth of the suture in the early whorls provides the best distinguishing character, that of *H. pupoideus* being more deeply impressed than that of *H.* ***genecoani***.

Remarks: Both *Halistylus pupoideus* and *H.* ***genecoani*** exhibit considerable variation in strength and spacing of the spiral cords, both species having extreme forms that approach the sculpture of the other. Some specimens of *H. pupoideus* have major cords more prominent than normal, and some of the paratypes of *H.* ***genecoani*** have more rounded whorls than those of the holotype. In both species the infraspecific range of variation is greater than the interspecific difference separating extreme forms of the two species. Distributions of the two species are sympatric at 27°N latitude; however, there are too few records from the region of overlap to establish whether there are habitat differences between the two species.

The species is named after Dr. Eugene Coan, Research Associate of the Los Angeles County Museum of Natural History.

Family Turbinidae

Homalopoma Carpenter, 1864

Homalopoma ***draperi*** McLean, spec. nov.

(Figure 8)

Description: Shell medium-sized for genus, relatively low-spired; whorls 3, rounded; periphery rounded, suture deeply impressed, descending on final half whorl. Color pink, usually white in area of umbilical chink; some specimens with white flecks on spiral cords and predominantly white base. Protoconch diameter 0.2 mm; early whorls rounded, suture deeply impressed; early cords about 8–9, broad, even, low, with narrow interspaces; interspaces of later whorls broader than cords and with 2–3 fine cords or striae. Mature cords of irregular strength and spacing; cords on shoulder often slightly undulating. Periphery rounded, basal sculpture variable; basal cords up to 10, weaker than cords of upper part of whorl; some specimens with 2–3 broadly spaced stronger cords on base, others with more regular basal cording. Half-grown specimens narrowly umbilicate; umbilicus nearly blocked by parietal callus. Aperture of mature specimens markedly oblique; parietal callus broad, covering umbilical chink and forming projecting inner lip; callus extending in advance of aperture on base, forming distinct glazed area. Columella with one prominent tubercle. Operculum typical for genus, opaque white, externally showing 2–3 volutions, thickened on side toward columella.

Dimensions: Height 4.0 mm, diameter 4.8 mm (holotype); height 5.3 mm, diameter 5.8 mm (largest paratype).

Type material: 175 specimens (5 live-collected), collected

by diving at the type locality by James H. McLean, June and July 1971. Holotype LACM 2001, 164 paratypes (2 live-collected) LACM 2002, 5 paratypes (1 live-collected) CAS 033366, 5 paratypes (1 live-collected) USNM 784748.

Type locality: 20–30 m on gravel bottom below the boulder and kelp zone, Isthmus Cove, Santa Catalina Island, California (33°26.5′N; 118°29′W).

Referred material: 42 additional lots are in the LACM collection, mostly from depths of 20–100 m (some dead specimens from greater depths) in the vicinity of all the southern California Channel Islands (except San Miguel and Santa Barbara Islands). It replaces *Homalopoma luridum* (Dall, 1885) on gravel bottoms deeper than the under-kelp habitat favored by the latter at the Channel Islands. The southern record is Cortes Bank, California, 68 m (LACM-AHF 1335-41). North of the Channel Islands, *H.* ***draperi*** is known from a single station, 35 m off Pacific Grove, Monterey Bay (LACM 66-56). It is well represented in lower Pleistocene faunules from many offshore facies in southern California, including the Bath-House Cliff locality of the Santa Barbara Formation.

Comparisons: *Homalopoma* ***draperi*** is characterized by its low spire, numerous subdued early cords, mature sculpture that includes some cords more prominent than others on the body whorl and base, and the callus deposited on the base in advance of the aperture. *Homalopoma grippi* (Dall, 1911) is higher-spired; the latter species also has subdued basal cords, but differs in having fewer, more projecting cords on the early whorls. *Homalopoma luridum* differs in always having prominent cords of the same strength on the spire whorls and base. There is also some resemblance to *H. paucicostatum* (Dall, 1871) in the relatively few major cords on mature whorls, but that species has fewer early cords.

Remarks: This species is by far the most variable eastern Pacific *Homalopoma*. Although none has been illustrated previously, it has long been a source of confusion in collections. Some specimens are nearly devoid of sculpture, and some have rather uniform cords. These variants may be recognized as *H.* ***draperi*** in having cords on the base finer than those of the upper part of the whorl and in having a glazed basal callus.

Named after Bertram C. Draper of Los Angeles, whose photographs have illustrated many papers on eastern Pacific mollusks.

ACKNOWLEDGMENTS

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