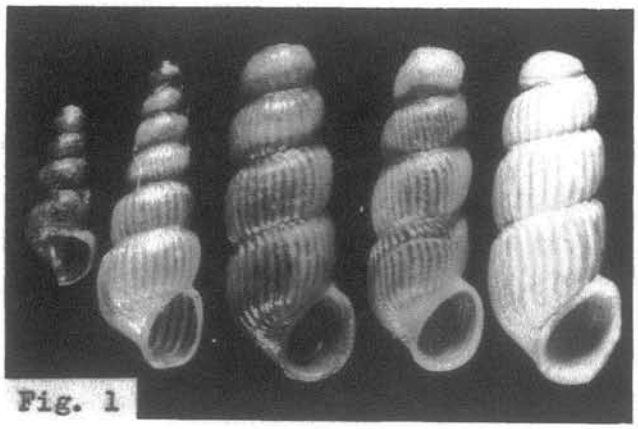
MINUTE SHELLS - Part 7

by Bert Draper

Museum Associate in Invertebrate Zoology, Los Angeles County
Museum of Natural History

The superfamily RISSOACEA, as represented on the west coast of the Americas, includes three other families of small mollusks in addition to those discussed in Parts 5 and 6 of "Minute Shells." They are the Truncatellidae, Cyclostremellidae, and Vitrinellidae.

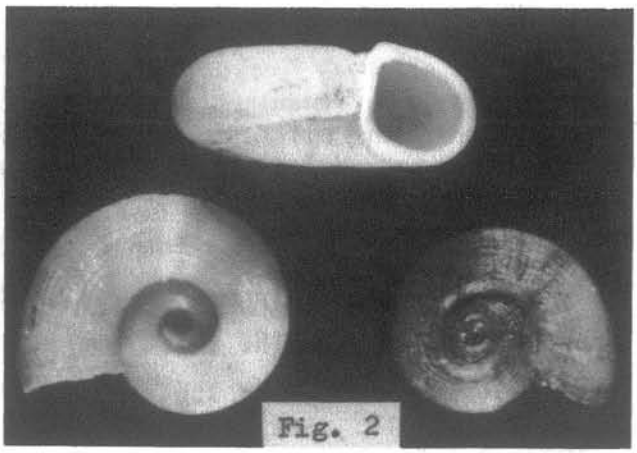
The Truncatellidae has only one genus, *Truncatella*, with only two valid species in the eastern Pacific. The earliest named of these two species is *T. bairdiana* C.B. Adams, 1852, with a type locality of Panama. The other is *T. californica* Pfeiffer, 1857, with San Diego as the type locality. Another species, *T. stimpsoni* Stearns, 1872, is considered to be a synonym of *T. californica*. All the members of this family are characterized by truncation of the shell at maturity. This process involves shedding all but the last four whorls of the shell and then producing a callous patch at the apex to close the shell at the point of truncation (Fig. 1). The variable



Cyclostremella dalli Bartsch, 1911. San Pedro, Calif. Legit. B. Draper, 1961-63. Largest shell - diam. 2.5 mm.

entirely around its aperture, while sculpture of these shells has resulted in confused nomenclature. Adams described his species, *T. bairdiana*, as having an internally thickened lip Pfeiffer described his species *T. californica* as having a simple and continuous, slightly expanded peristome (edge of the aperture). My study of several hundred *T. californica* collected by Emery Chase and myself, indicates that fully mature shells often develop a thickening of the interior completely encircling the lip of the aperture similar to that described for Adams' *T. bairdiana*. If species of *Truncatella* are found between California and Panama with similar overlapping characteristics, it is possible that both these species may be placed in synonomy with *T. bairdiana*.

The family Cyclostremellidae also has few species in the eastern Pacific. The first genus, *Cyclostremella* Bush, 1897, has one Panamic species, *C. orbis* (Carpenter, 1857), a microscopic, flatly spiralled, clear species found on *Spondylus* and *Chama*. Two southern California species are *C. californica* Bartsch, 1907 and *C. dalli* Bartsch, 1911. Specimens of *C. dalli* are shown in Figure 2. The wavy spir-



Truncatella californica Pfeiffer, 1857. Growth series from Southern California showing shell truncation in mature shells. Largest shell 5.6 mm in length. Collection of B. Draper. Legit. E.P.Chace, 1918.

al sculpture is similar in both species with *C. californica* being the larger, but having the weaker sculpture. *C. californica* also has stronger growth rings at rather regular intervals. Both are translucent when live-taken, but dead shells soon become chalky white. A fourth species, *C. concordia* Bartsch, 1920, was described from shells collected at Olga, Washington. Figure 3 shows three specimens from Kodiak Island, Alaska, which appear to be the same species. The only sculpture on these little shells consists of finely incised spiral lines, crossed by growth lines. The operculum is slightly

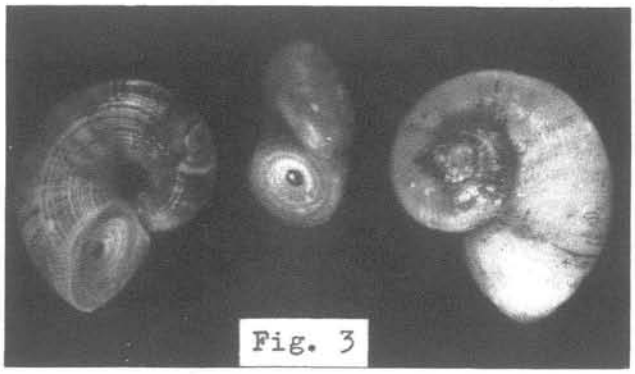


Fig. 3

Moellenia quadrae Dall 1897
~~*Cyclostremella concordia* Bartsch~~, 1920. Kodiak I., Alaska. Legit. J. McLean, 1973. L.A. Co. Museum Coll. lot 73-32. Largest shell - diam. 2.1 mm.

concave with a few spiral turns and a tiny hole in the center.

The only other genus, *Skeneopsis* Iredale, 1915, whose distribution is probably limited to the Aleutian Islands of Alaska and the Bering Sea. This minute shell is similar to *Cyclostremella concordia* in shape but lacks the spiral sculpture of that species. Fresh specimens are pale greenish-white in color.

The very extensive family Vitrinellidae has been divided into two subfamilies with a total of 31 genera and subgenera; approximately 160 species have been described to date from the eastern Pacific. Some of these have been placed in synonomy with previously named species, but Pilsbry & Olsson (1945-1952) state that the total will probably be increased considerably when the Vitrinellidae become as well known as the larger shore shells.

The Vitrinellids of the Pacific coast of the Americas have been named and described by a number of people. In 1852 C.B. Adams named and described 12 species; five years later Carpenter catalogued 20 more species; few additional species were added until Bartsch described 17 species in 1907 and 1911. Strong, Baker, Hanna and Hertlein described an additional 25 species of Vitrinellids between 1938 and 1951. The single largest contribution to knowledge of this family on our coast was made by Pilsbry and Olsson in a two-part paper dated 1945 and 1952, in which 61 new species were described. Detailed figures were provided for all these new species, as well as for most of those previously described by other authors. These two papers, which are still available, are a must for anyone interested in understanding this large family. Myra Keen's SEA SHELLS OF TROPICAL WEST AMERICA lists most of the Panamic species. McLean (1969) included three of the 22 species whose descriptions are given in Oldroyd's MARINE SHELLS OF THE WEST COAST OF NORTH AMERICA for the area from southern California to Alaska. Several of these have since been placed in synonomy. With such a large number of species it is not practical to give descriptions of all of them here, but I will try to include typical examples for each of the genera, especially the more plentiful species which are most likely to be encountered. I will also figure a few of the less common species that have especially interesting features.

The genus *Vitrinella* C.B. Adams, 1850, gives the family its name. The shells are small, smooth, generally glassy or almost transparent. Most have little or no sculpture, although some have quite attractive axial marking, and spiral ribs or carinae are found on others. On our coast the genus has been divided into three subgenera, *Vitrinella s.s.*, *Vitrinellops* Pilsbry & Olsson, 1952, and *Docomphala* Bartsch, 1907.

The subgenus *Vitrinella s.s.* includes three species from the Panamic Province. The principal shell characteristic is a narrow keel around the outer edge of the umbilical well. *V. naticoides* Carpenter, 1857 is shown in Figure 4. The two other species are *V. modesta* C.B. Adams,1852 and *V. goncomphala* Pilsbry & Olsson, 1952. These two species are similar to the specimens figured, but *V. modesta* has a flatter profile and *V. goncomphala* is twice the size of *V. modesta* and has about the same number of shell turns.

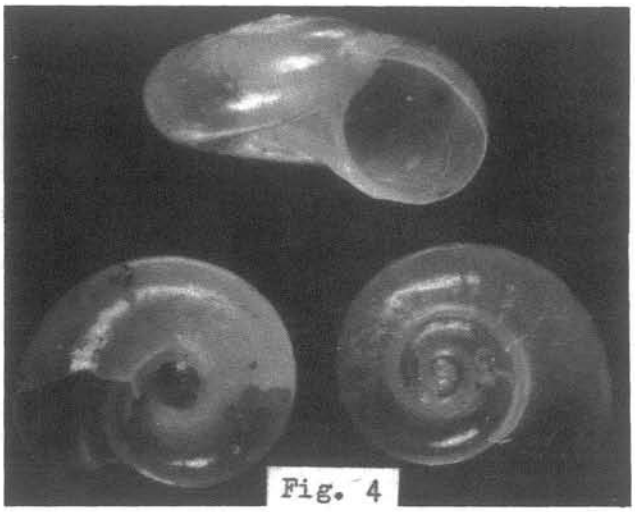


Fig. 4

Vitrinella (Vitrinella) naticoides Carpenter, 1857. Cholla Bay, Sonora, Mexico. Legit. B. Draper, 1973 from low tide bottom skim. Diam. 1.8 mm. Height 0.9 mm. (Three views of same shell).

Keen lists 16 species in the subgenus *Vitrinellops* from the Panamic Province, three species from southern California, and one from Alaska. The shells of this subgenus lack the spiral keel around the umbilical well and are without sculpture except in a few cases where growth lines are present on the top of early whorls. Some species with both spiral and axial sculpture are listed in this subgenus but most likely belong elsewhere.

One of the best known species in this group is *Vitrinella oldroydi* Bartsch, 1907, recorded from Monterey to the outer Baja coast. This species is subject to a peculiar type of damage which makes the shell look marbleized and erodes away the nucleus,leaving a small hole in the center of the shell. (Fig. 5) *Vitrinella eschnauri* Bartsch, 1907 is another southern California species. It has a higher spire and smaller umbilical well than *V.oldroydi*. (Fig. 6). A third species, *V. williamsoni* Dall, 1892, recorded from San Pedro,California, is very flat and

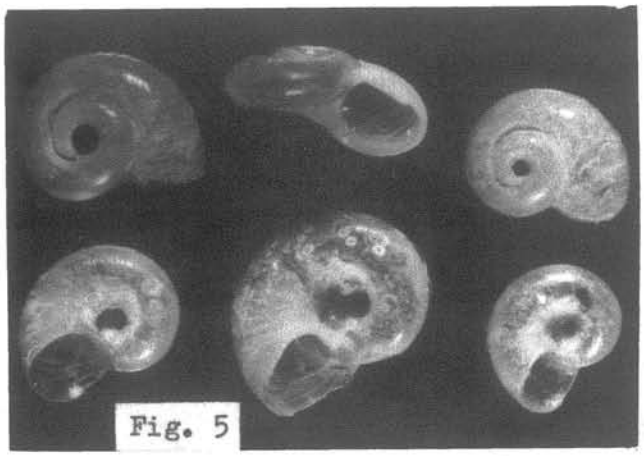


Fig. 5

Vitrinella (Vitrinellops)oldroydi Bartsch, 1907. (Left) San Diego, (center) Monterey, (right) San Pedro. Shows erosion of shell surfaces and center typical to this species. From collection of B. Draper. Largest shell - diam. 2.8 mm.

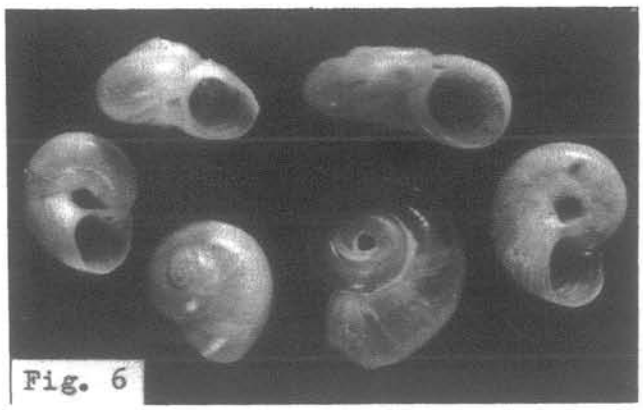


Fig. 6

3 shells at left - *Vitrinella eschnauri* Bartsch, 1907; 3 shells at right - *Vitrinella oldroydi* Bartsch, 1907. All from San Pedro area. Legit. B. Draper 1962-5. Largest shell 2.8 mm diam.

larger. *V. alaskensis* Bartsch, 1907, has a higher spire than *V. eschnauri*, yet is one of the smallest species of the subgenus. As indicated by the name, this species is from Alaska.

From the Panamic Province a total of 16 species of the subgenus *Vitrinellops* have been named. All are listed in Keen (1971). Most of these species were named from shells collected from the southern part of the Province. The few which were named from specimens taken along the Mexican Coast and in the Gulf of California seem to be rather elusive. I have one specimen from Cholla Bay, Sonora, which appears to be *V. subquadrata* Carpenter, 1857. Figure 7 shows three views of this shell. It is quite translucent, with smooth rounded whorls and a moderately small umbilicus. The aperture is partially broken, but it is generally round. Most species in the subgenus *Vitrinellops* appear to be quite similar to the specimen figured; a few species differ in not being completely smooth but rather having spiral thread like sculpture intersected by minute axial lines. *V. bifiliata* Carpenter, 1857; *V. campylochila* Pilsbry & Olsson, 1952 and *V. ponceliana* deFolin, 1867 fall in this category.

The third subgenus of *Vitrinella* is *Docomphala* Bartsch, 1907. The shells assigned to this subgenus have axial sculpture visible on the early whorls, showing as a series of small transverse ridges on the top of the first few whorls, and as strong wrinkles around the wall of the umbilicus. *Vitrinella stearnsi* Bartsch, 1907 shows these characteristics quite well (Fig. 8). These shells grow rather large for the genus, up to 4 mm, and are found along the coast from Monterey, California, to halfway down the outer Baja coast. Two other southern California species of this subgenus are *V. berryi* Bartsch, 1907, with more noticeable axial sculpture and a single spiral ridge below the periphery of the final whorl; *V. smithi* Bartsch, 1927, a very tiny light brown shell from San Pedro with lines of growth only as axial sculpture. *Vitrinella columbiana* Bartsch, 1921, from Departure Bay, British Columbia, is larger, over 3 mm, bluish white in color, and has a series of notches around the umbilicus. To date no species of this

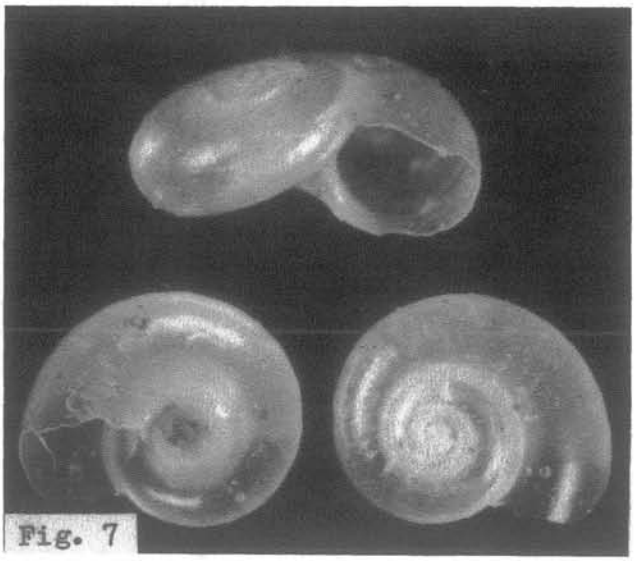


Fig. 7

Vitrinella (Vitrinellops) subquadrata Carpenter, 1857. Cholla Bay, Son., Mexico in low-tide bottom skim. Legit. B. Draper, 1973. Diam. 1.8 mm (Three views of same shell.

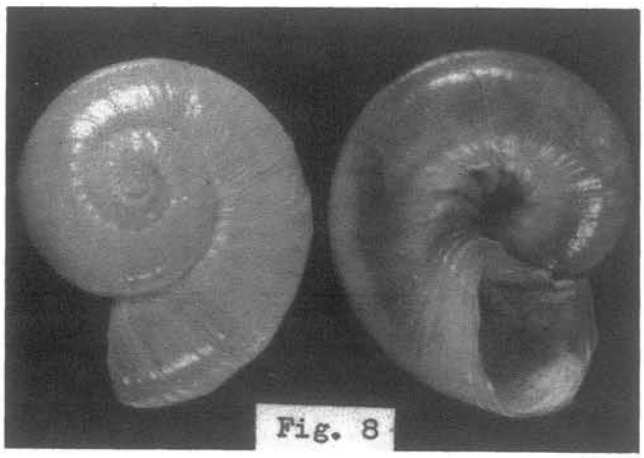


Fig. 8

Vitrinella (Docomphala) stearnsi Bartsch, 1907. Carpinteria, Calif. 1961. Legit. B. Draper. Intertidal to 5 ft. at low tide in fine gravel. Diam. 3.8 mm.

subgenus have been described from the Panamic Province.

The genus *Aorotrema* Schwengel & McGinty, 1942 is represented in the eastern Pacific by only one species, *Aorotrema humbolti* (Hertlein & Strong, 1951). The shell has two strong keels with irregular edges, a rather low spire, and a small but deep umbilicus. Figure 9 shows three views of my best specimen of this species. Note the rows of fine beading which spiral around the shell and show through the mouth.

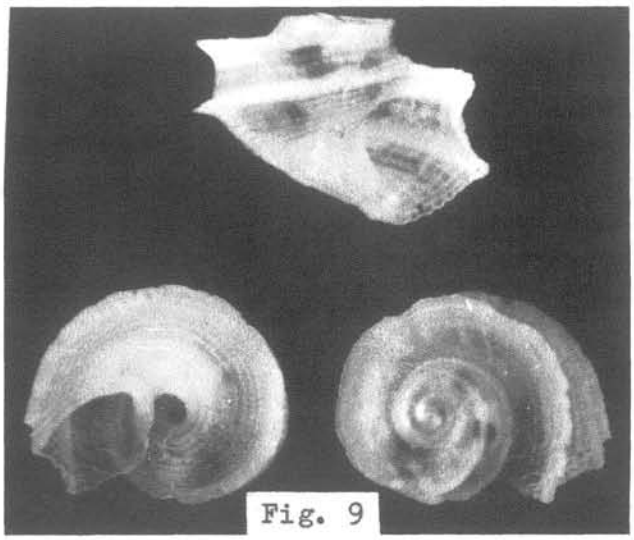


Fig. 9

Aorotrema humboldti (Hertlein & Strong) 1951. East of Willard I., Gulf of Calif. Chamizal II Exp. 1969. Dredged 10-15 fms. Legit. J. Woolsey - in B. Draper coll. Diam. 1.8 mm, height 1.4 mm.

In Part 8 I will continue to describe and illustrate more of the interesting members of the family Vitrinellidae.

(All photos by Bert Draper)

REFERENCES CITED

Adams, C.B. see Ruth Turner, 1956

Baker, Fred, G.D.Hanna and A.M.Strong
1938 Some Mollusca of the families Cerithiopsidae, Cerithiidae and Cyclostrematidae from the Gulf of California and adjacent waters. Proc. Cal. Acad. Sci. Vol. 23, No. 15, pp.229-232.

Bartsch, Paul
1907 New Mollusks of the family Vitrinellidae from the west coast of America. Proc. U. S. Nat. Mus., Vol.32, No.1520:167-176.
1911 Descriptions of new mollusks of the family Vitrinellidae from the west coast of America, Ibid. Vol. 39, No.1785: 229-234.

Brann, Doris C.
1966 Illustrations to "Catalogue of the Collection of Mazatlan Shells" by Philip P.Carpenter. Paleont. Research Inst., Ithaca, N.Y.

Carpenter, Philip P.
1857 Catalogue of the collection of Mazatlan shells in the British Museum, collected by Frederick Reigen. Also see Brann, Doris C. 1966, for illustrations to this catalog. Reprint of the Catalog by Paleont. Research Inst. Ithaca, N.Y. 1967.

Keen, A. Myra
1971 Sea Shells of Tropical West America. Stanford Univ.Press. pp. 376-388.

McLean, James H.
1969 Marine Shells of Southern California. Los Angeles Co. Mus. Nat. Hist., Sci. Ser. 24, Zoology, No. 11, pp.28-29.

Pilsbry, H.A. and A.A. Olsson
1945-52 Vitrinellidae and Similar Gastropods of the Panamic Province, Parts I and II. Proc. Acad.Nat.Sci. of Philadelphia. Vol. XCVII,pp.249-278 and Vol. CIV pp.35-88.

Strong, A.M. and L.S. Hertlein
1939 Marine Mollusks from Panama collected by the Allan Hancock expedition to the Galapagos Islands, 1931-1932. Univ. So. Calif. Press, Vol.2, No.12,pp. 239-245; plts. 21-23.

Turner, Ruth D.
1956 The Eastern Pacific Marine Mollusks described by C.B.Adams in 1852. Occasional Papers on Mollusks. Mus. of Comp. Zool. Harvard Univ. Cambridge, Mass. Vol. 2, No.20, pp.41-96, plts. 14-16.
