

Figure 7A-C. *Clathrosepta becki* new species. Holotype NHMW 88.218; 2494 m, Manus Basin, Vienna Woods hydrothermal field, South Equatorial Pacific ($3^{\circ}9.86'S$, $150^{\circ}16.80'E$). Preserved, retracted body length 6.0 mm. A. Periostacial fragment, retaining fine clathrate sculpture (scale bar = 1 mm). B. Right lateral view of body, showing two short anterior epipodial tentacles, two longer posterior epipodial tentacles, and the single upturned posterior pedal tentacle. C. Oblique ventral view of body, showing free axis of right gill and two short anterior epipodial tentacles. Arrow shows right suboptic tentacle. D. SEM view of radula (scale bar = 100 μ m). [All photos by L. Beck.]

60, and at margin approximately 150, emerging secondary ribs quickly becoming as strong as primary ribs. Concentric sculpture of same strength and spacing as radial ribs, forming square clathrations and producing raised beads at intersections, interspaces of approximately same width as beads. Foramen proportionally very small (length 0.8 mm), triangular; septum low, ends curved anteriorly, anterior surface with weak tubercle. Muscle scar horseshoe-shaped, thin, not strongly indicated. Interior surface transparent, revealing exterior scars and markings.

Epipodial tentacles, posterior pedal tentacle, gill and radula as described under the genus.

Dimensions. Length 13.1, width 11.0, height 3.8 mm (holotype).

TYPE LOCALITY. On eastern slope of Volcano 5, Eastern Pacific Rise at $13^{\circ}N$ ($12^{\circ}58.0'N$,

$103^{\circ}26.0'W$), 1160 m. The site is reported to be composed of pillow basalt at a hydrothermal mound topped with red crust (Lisa Levin, pers. comm.).

TYPE MATERIAL. Holotype LACM 2784. *Alvin* dive 1401, 15 June 1984, a single specimen received from Lisa Levin.

REMARKS. This species has the lowest profile of the species assigned to this genus.

Clathrosepta becki, new species

Figure 7

DESCRIPTION. Shell not preserved except for brown periostacial fragments, which show pattern of fine clathrate and beaded sculpture. Interspaces between radial ribs relatively broad, at least two times broader than ribs. Interspaces between con-

centric rings equal to rings. Cancellations are therefore rectangular rather than square.

Posterior pedal tentacle, epipodial tentacles, gill, and radula as described under genus.

Dimensions. Preserved, retracted body length 6.0 mm.

TYPE LOCALITY. Vienna Woods hydrothermal field, Manus Basin, east of Papua New Guinea, south equatorial Pacific (3°9.86'S, 150°16.80'E), 2494 m, on base of active "black smoker" sulfide chimney.

TYPE MATERIAL. Holotype NHMW 88.218. OLGA II, 18 May 1990, a single specimen lacking the shell except for periostracal fragments, received from Lothar Beck.

REMARKS. Although collected alive, the thin shell of the holotype specimen was apparently lost to an overly long initial preservation in unbuffered formalin. Despite the absence of a shell, the characters provided by the periostracal remnants, body, and radula make the generic assignment certain. Further collecting at the western Pacific vents will undoubtedly produce this species, and it is prudent to name it at this time.

The body and radula of the specimen are so similar to those of *C. depressa* that it could be regarded as the same species, although the preserved body is not as compressed as that of *C. depressa*, which suggests that *C. becki* should have a higher shell profile. There are no differences in the radula. Both species have the prominent posterior pedal tentacle. The arrangement and count of the epipodial tentacles is similar (two pairs of long posterior tentacles), except for the pair of short anterior tentacles, for which the difference is that in the holotype of *C. becki* the right tentacle consists of two separate tentacles instead of the one in *C. depressa*. More specimens would have to be compared to determine whether this difference is significant.

The major difference between the two species is in the detail of the sculpture. In *C. becki* (Fig. 6B) the radial ribs are much further apart and the interspaces broader than those of *C. depressa*.

Finally, the geographic distance between the Eastern Pacific Rise and the Manus Basin vents in the western Pacific suggests that speciation would have occurred. Although genera of vent mollusks may occur at both the eastern and western Pacific sites, there are no known instances of the same species occurring in two such widely separated sites.

ETYMOLOGY. This species is named after Lothar Beck, who allowed us to describe the species.

Other species of *Clathrosepta*

The following two species were originally allocated to *Fissurisepta*, although no anatomical or radular descriptions were provided. They are assigned to the new genus *Clathrosepta* because they have nearly straight septa and prominent clathrate sculpture and are larger than known for *Fissurisepta* or *Cornisepta*. As noted above, neither of the follow-

ing two species was recorded from hydrothermal vent habitats.

Clathrosepta agulhasae (Clarke, 1961)

Puncturella (*Fissurisepta*) *agulhasae* Clarke, 1961: 347, pl. 1, fig. 3; pl. 2, fig. 9.—Clarke, 1962:7. *Fissurisepta agulhasae*.—Ghisotti and Giannini, 1983:29.

REMARKS. This species resembles *C. depressa*, but has a higher profile. The foramen is triangular in interior view. Although the specimen was "alive when collected" (Clarke, 1961), the soft parts are no longer retained with the holotype shell at the MCZ. The size is much larger than usual in the genera *Fissurisepta* or *Cornisepta*.

Dimensions. Length 8.5, width 7.5, height 5.5 mm.

Occurrence. Agulhas Basin, 1000 miles west of Capetown, South Africa, 3670 m.

Clathrosepta undulata (Okutani, 1964)

Puncturella (*Fissurisepta*) *undulata* Okutani, 1964: 378, pl. 1, fig. 11. *Fissurisepta undulata*.—Ghisotti and Giannini, 1983:29.

REMARKS. The sculpture is finely clathrate and the foramen was originally described as "subtriangular."

Dimensions. Length 7.9, width 5.65, height 3.65 mm.

Occurrence. Off Torishima Island, Japan, 2280 m, known only from holotype.

Genus *Fissurisepta* Seguenza, 1862

Figures 8, 9

Fissurisepta Seguenza, 1862:83. Type species (SD Woodring, 1928:454): *Fissurisepta papillosa* Seguenza, 1862. Plio-Pleistocene, Sicily, Italy.

The following diagnosis is based on shells of *F. granulosa* Jeffreys, 1882 (LACM 151946), descriptions of the epipodium of that species given by Warén (1972), and notes provided on an additional preserved specimen (Warén, pers. comm.), the SEM illustration of the radula by Hickman (1983), as well as the SEM illustrations of the radula and juvenile shell of *F. enderbyensis* (Powell, 1958) provided by S. Hain.

DIAGNOSIS. Shell small, height low to moderate; all slopes flat-sided. Apical whorl lacking, protoconch retained in young shells until shell length of 2 mm; protoconch sculpture rugose. Foramen apical, obliterating protoconch in mature shell, of weakly tripartite outline. Selenizone lacking. Septum relatively small, straight across, thin, low. Sculpture of raised pustules aligned in radial rows.

Epipodial tentacles 6–8 pairs, of differing lengths, with shorter tentacles between longer ones; posterior pedal tentacle present. Ctenidia monopectinate.

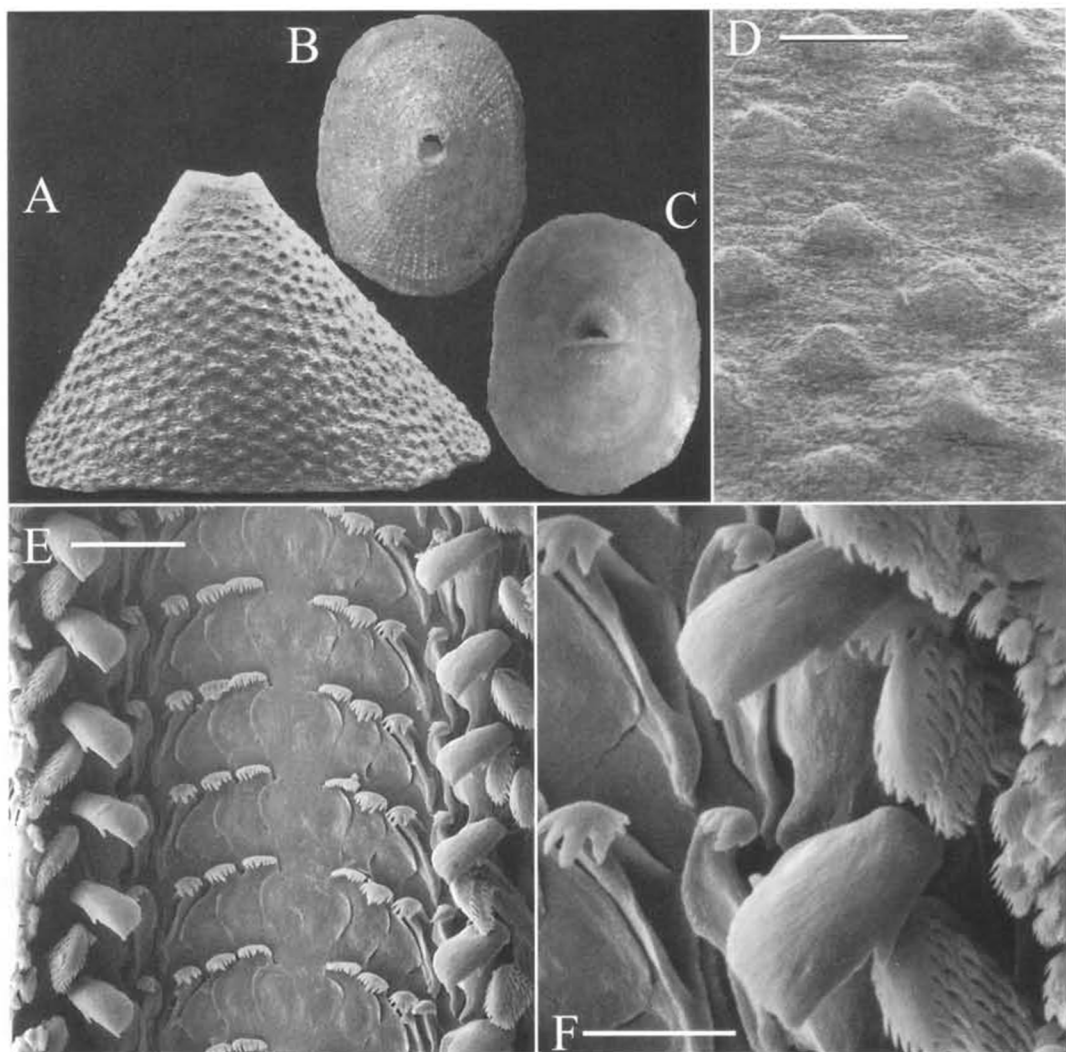


Figure 8A-F. *Fissurisepta granulosa* Jeffreys, 1882. LACM 151946, ex A. Warén; 100-180 m, E of Brattholmen, Hjeltefjord, SW Norway ($60^{\circ}24.5'N$, $05^{\circ}07'E$). A. SEM view, left side of shell; specimen of high profile, showing pustules in radial rows (shell length 3.2, width 2.5, height 1.8 mm). B. Exterior view of shell of low profile, showing pustules in radial rows (shell length 4.3, width 3.3, height 1.7 mm). C. Interior view of same shell as in C, showing low septum and tripartite outline of foramen. D. Same specimen as A; SEM view of pustules (scale bar = 100 μ m). E. SEM view of radula (scale bar = 10 μ m). F. SEM view of radula showing teeth associated with the large pluricuspid tooth of right side (scale bar = 40 μ m). [E, F by C. Hickman.]

Rachidian short, broad, cusplless, with shaft edges laterally projecting; four pairs of laterals having broad, short, laterally projecting, overlapping shafts, tips with narrow overhanging edges with up to seven cusps, but no serrations on lateral edges of shaft; fourth lateral with socket for articulation with flange of pluricuspid; pluricuspid with broad, inwardly directed flange, overhanging tip with short acute tip; marginals numerous, tips finely divided.

REMARKS. The type species of *Fissurisepta* is based on a fossil taxon, but the assumption has been made by previous authors and accepted here

that it is closely related to the living species *F. granulosa*, for which the radula has been illustrated by Hickman (1983:fig. 2). The same radular plan occurs in the Antarctic *F. enderbyensis* (Powell, 1958), as illustrated here (Fig. 9E). The pluricuspid tooth of the two species is not entirely similar (compare Figs. 8F, 9E), although the differences may be a matter of differing orientation.

A drawing of the protoconch of *F. granulosa* still retained on a juvenile shell was provided by Warén (1972:fig. 1A); it agrees with the juvenile of *F. enderbyensis* illustrated here (Fig. 9B).

We have not examined a preserved specimen. Ac-

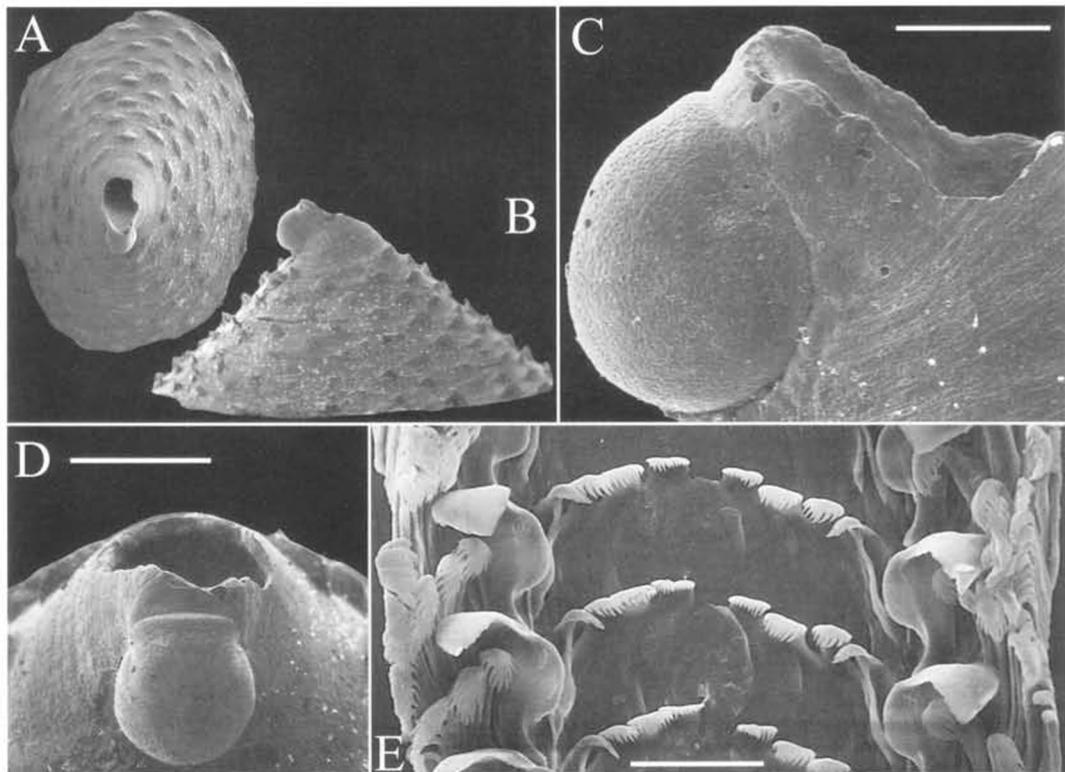


Figure 9A-E. *Fissurisepta enderbyensis* (Powell, 1958). LACM 152291, ex S. Hain; Weddell Sea, Antarctica ($71^{\circ}12.0'S$, $013^{\circ}15.4'W$), 402–412 m. Length 2.2, width 1.4, height 1.0 mm. A. SEM, dorsal view of shell. B. SEM, right side of juvenile shell with intact protoconch. C. SEM, right lateral view of protoconch and foramen (scale bar = 100 μm). D. SEM, posterior view of protoconch (scale bar = 200 μm). E. SEM, radula (scale bar = 20 μm). [All photos by S. Hain.]

cording to Warén (1972:19), the foot of *F. granulosa* "has six epipodial tentacles on each side, of which the two midmost ones are much smaller than the anterior and posterior pairs." A second specimen recently examined by Warén (pers. comm.) has on both sides "one long, then four short, one long, one short, one long and finally one unpaired short." The "unpaired short" is here regarded as homologous with the posterior pedal tentacle of *Manganeosepta* and *Clathrosepta*.

A drawing of the juvenile animal of *F. enderbyensis* provided by S. Hain shows a single pair of posterior epipodial tentacles and one tentacle midway on the left side; however, the juvenile condition of this species is probably not indicative of mature characters.

Fissurisepta is apomorphic in most character states, except for having a relatively low septum.

Fissurisepta granulosa Jeffreys, 1883

Figure 8

Fissurisepta granulosa Jeffreys, 1883:675, pl. 50, fig. 9.—Warén, 1972:17, fig. 1A–D.—Taviani, 1974:40, pl. 1, fig. 2a–b.—Warén, 1980:14, pl.

2, figs. 19, 20.—Hickman, 1983:72, fig. 2 [radula].—Ghisotti and Giannini, 1983:28, pl. 1, figs. 1–4; pl. 2, figs. 1–4.—Warén, 1991:54, fig. 1C. *Puncturella (Fissurisepta) granulosa*.—Pilsbry, 1890:246, pl. 27, figs. 71, 72 [copy of original figure].

REMARKS. According to Jeffreys (1883), this species "is more delicate, the sculpture is much finer, with regular and close-set striae which are studded with far more numerous and minute tubercles. The foramen is circular in the present species, and triangular in *F. papillosa*." Although Warén (1972) placed the two taxa in synonymy, Taviani (1974) illustrated both *F. granulosa* and *F. papillosa*, showing finer pustules in *F. granulosa*, so the two taxa are separated here.

Warén (1972) confirmed that the ctenidium of this species agrees with that described and illustrated by Cowan (1969) for the species here treated as *Cornisepta pacifica*.

Fissurisepta granulosa is highly variable in height, as illustrated by Warén (1972:figs. C and D). Although we have not examined a preserved specimen, the epipodium has been described by

Warén (see generic description above). The radular illustration used here was first published by Hickman (1983).

Dimensions. Length 4.3, width 3.4, height 1.6 mm (Fig. 8C, D), a specimen of low profile. Length 3.1, width 2.4, height 1.6 mm, a specimen of high profile (both LACM 151946).

Occurrence. Mediterranean and northeastern Atlantic, 50–500 m.

Fissurisepta enderbyensis (Powell, 1958)

Figure 9

Puncturella enderbyensis Powell, 1958:180, pl. 2, figs. 1, 2.—Dell, 1990:273 [listed].

REMARKS. Previously unpublished SEM work on the radula (Fig. 9E) done by S. Hain shows that the rachidian and lateral teeth are like those of *F. granulosa* in having short, bulging shafts and a cusplless rachidian. The pluricuspid tooth differs as noted above, however. The single specimen collected by Hain still retained the protoconch (Fig. 9A–D). Mature shells were evidently not obtained. Other shell characters that agree with *Fissurisepta* are the low profile and the pustules aligned in radiating rows.

Dimensions. Length 2.2, width 1.4, height 1.0 mm (Fig. 8).

Occurrence. Enderbyland, Antarctica, 300 m (type locality); Weddell Sea, Antarctica, 402–412 m (Fig. 8).

Other species of *Fissurisepta*

With the exception of the first species below, the following species that were originally described or subsequently allocated in *Fissurisepta* have shell profiles in agreement with the here more restricted definition of *Fissurisepta*. The number of species retained in *Fissurisepta* is smaller than previously. Other species previously treated in *Fissurisepta* are transferred in this paper to the new genera *Clathrosepta* and *Cornisepta*.

Fissurisepta oxia (Watson, 1883)

Puncturella oxia Watson, 1883:36.—Watson, 1886:44, pl. 4, fig. 8a–e.—Pilsbry, 1890:235, pl. 26, figs. 46–49 [copy of original illustrations].—Thiele, 1919:154, pl. 18, figs. 15–17.—Dall, 1927:111.—Farfante, 1947:134, pl. 58, figs. 5–7.

REMARKS. This species has a low profile and pustules in curved rows. If this species is correctly assigned to *Fissurisepta*, it represents an extreme for the genus in which the apex is retained after a shell length of 4 mm. The sculpture of pustules in curved rows allows placement only in the genus *Fissurisepta*. However, this needs to be verified by radular evidence.

Dimensions. Length 4, width 3, height 2.25 mm (Farfante, 1947).

Occurrence. Georgia and St. Thomas, Virgin Islands, 530–740 m (Farfante, 1947).

Fissurisepta manawatawhia (Powell, 1937)

Puncturella manawatawhia Powell, 1937:177, pl. 48, fig. 8.

Fissurisepta manawatawhia.—Powell, 1979:39, fig. 3.7.—Ghisotti and Giannini, 1983:29.

REMARKS. The protoconch is retained in the immature holotype specimen, as noted by Ghisotti and Giannini (1983). The low profile and pustules in radiating rows make this species readily assignable to *Fissurisepta*.

Dimensions. Length 1.5, width 1.15, height 0.8 mm (holotype).

Occurrence. Three Kings Islands, New Zealand, 260 m.

Fissurisepta papillosa Seguenza, 1862

Fissurisepta papillosa Seguenza, 1862:84, pl. 4, fig. 2a, 2b.—Jeffreys, 1870:443.—Jeffreys, 1883:675.—Taviani, 1974:40, pl. 1, fig. 1a–b.—Ghisotti and Giannini, 1983:28, fig. 1A–C [copy of original figs.], pl. 1, fig. 5; pl. 2, fig. 8.—Di Geronimo and La Perna, 1997:395, pl. 1, figs. 1–3.

Puncturella (Fissurisepta) papillosa.—Pilsbry, 1890:245, pl. 64, figs. 16–18 [copy of original figs.].—Clarke, 1962:8 [listed].

REMARKS. This is the type species of the genus. Taviani (1974) illustrated a Plio-Pleistocene specimen showing coarser pustules than those he figured for *F. granulosa*. A recently collected fossil specimen was illustrated by Di Geronimo and La Perna (1997).

Dimensions. Length 2.8, width 1.9, height 2 mm (Seguenza, 1862).

Occurrence. Plio-Pleistocene of Sicily, Italy, but treated as a living species by Ghisotti and Giannini (1983).

Fissurisepta tenuicula (Dall, 1927)

Puncturella tenuicula Dall, 1927:112.

Puncturella (Fissurisepta) tenuicula [sic].—Farfante, 1947:147, pl. 64, figs. 4–6.

Fissurisepta tenuicula [sic].—Ghisotti and Giannini, 1983:23, pl. 2, fig. 9.

REMARKS. The sculpture according to Dall consists of almost microscopic radial granulations. Allocation to *Fissurisepta* is based on the low shell profile.

Dimensions. Length 3, width 2, height 1.75 mm (Farfante, 1947).

Occurrence. Off Cumberland Island, Georgia, 538 m.

Genus *Cornisepta*, new genus

Figures 10–14

Type species: *Fissurisepta antarctica* Egorova, 1972.

The following diagnosis is based on *Cornisepta antarctica*, *C. rostrata* (Seguenza, 1862), *C. pacifica*

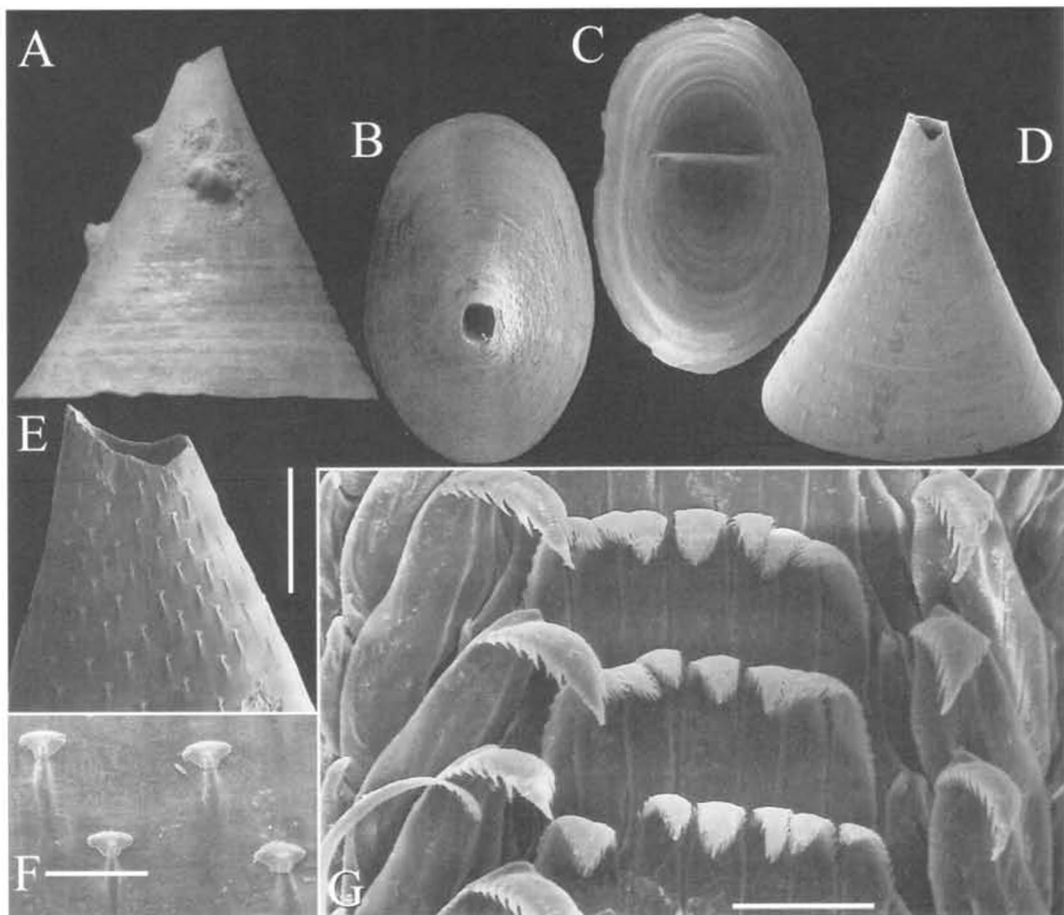


Figure 10A-E. *Cornisepta antarctica* (Egorova, 1972). LACM 151947; 620–640 m, Weddell Sea, Antarctica (74°43'S, 61°13'W), 620–640 m. A. Largest specimen, left side of shell with attached sessile foraminifera; length 7.1, width 5.0, height 6.8 mm. B. Smallest specimen, dorsal view; length, 3.0, width 2.0, height 3.5. C. Interior view of another specimen; length 4.8, width 3.2, height 5.3 mm. D. Oblique lateral view of right side of another specimen; length 5.9, width 4.0, height 5.8 mm. E. Enlargement of pustules on early shell; same specimen as in D (scale bar = 500 μ m). F. Detail of pustules, same specimen (scale bar = 100 μ m). G. SEM view of radula, showing pinnate form of all teeth (scale bar = 25 μ m). [All photos by S. Hain.]

(Cowan, 1969), *C. verenae*, new species, and *C. levinae*, new species.

DIAGNOSIS. Shell height high to very high; anterior slope convex to straight, posterior slope concave. Apical whorl lost, juvenile shell and protoconch unknown. Foramen at summit of mature shell; septum high, straight across, thin. Sculpture of raised pustules aligned in curved rows.

Epipodial tentacles two posterior pairs (Figs. 11C, 12E, 13B, 14D); posterior pedal tentacle lacking. Ctenidium monopectinate (Figs. 11D, 13C).

Radula. Rachidian tooth and three pairs of pinnate lateral teeth of similar morphology, with long shafts and tapered, overhanging tips; tips and shaft edges deeply and finely serrate; pluricuspid tooth large, overhanging tip tapered, sides of overhang with five strong denticles away from tip; shaft edges

of pluricuspid not serrate; marginals numerous, pinnate, tips and sides deeply serrate.

REMARKS. The radula of *Cornisepta* (Figs. 10G, 11E, 12F, 13F, 14F) is unlike that of the European *F. granulosa*, a species closely similar to the fossil type species of *Fissurisepta*. The differences (compare the slender, pinnate rachidian and laterals of *Cornisepta* to the short, overlapping laterals of *Fissurisepta*) are so extreme that placement in the same genus is precluded. On shell characters, the species of *Cornisepta* differ in having the profile higher, the posterior slope concave, and the septum higher.

Cornisepta is the most apomorphic of the genera treated here, having the highest shell profile and the most modified radula, in which all of the teeth are pinnate, autapomorphies for this suite of charac-

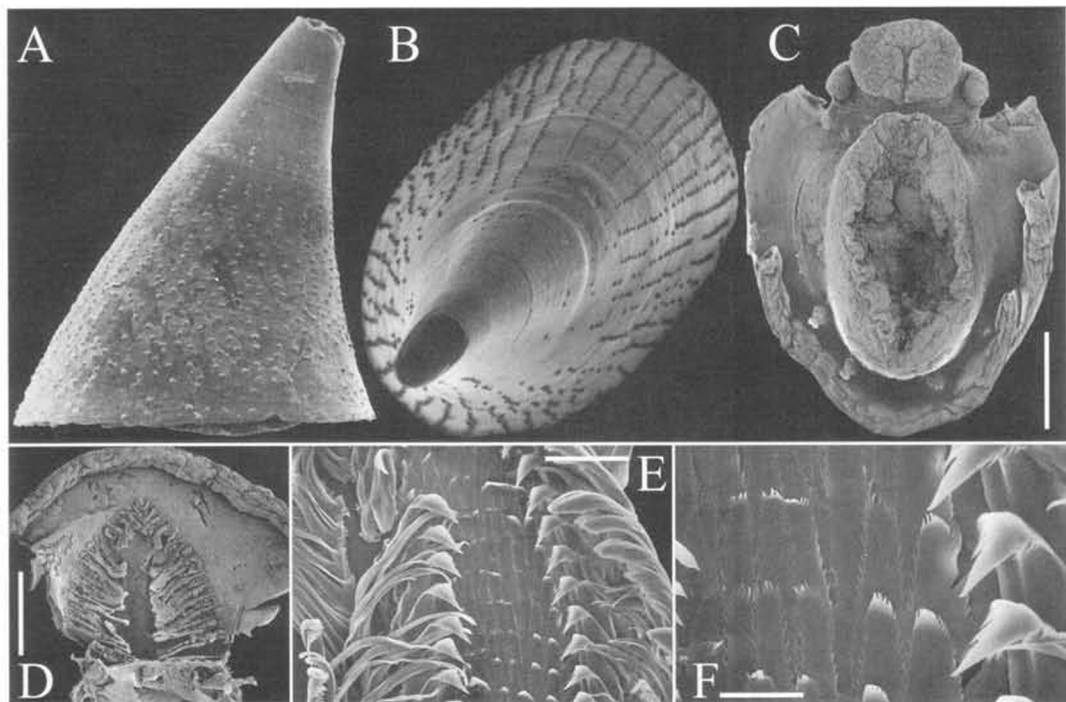


Figure 11A–F. *Cornisepta rostrata* (Seguenza, 1862). MNHN; off western France, 1035–1080 m, Thalassa station Z409 (47°43'N, 08°02'W). Length 3.5, width 2.4, height 4.2 mm. A. Left side of shell, anterior at left. B. Dorsal view of shell, anterior at right. C. Ventral view of body (critical point dried) showing paired, posterior epipodial tentacles (scale bar = 800 μ m). D. Paired monopectinate ctenidia attached to roof of mantle cavity (scale bar = 700 μ m). E. Full width of radula (scale bar = 60 μ m). F. Half row of radula (scale bar = 20 μ m). [All SEM photos by A. Wärén.]

ters. There is considerable interspecific variability in shell height and the size, spacing, and morphology of the pustules, as is evident among the four species illustrated here.

Protoconchs are unknown for all species, which suggests that they must be shed at a very early stage. The smallest specimen known in the genus (1.6 mm length) is the holotype of *C. verenae*, which lacks the protoconch. Knowledge of the type of protoconch sculpture in this genus is a significant gap.

Hain (1990) reported that the gut contents of two individuals of *C. antarctica* (as *Fissurisepta*) were exclusively benthic diatoms of various genera. This suggests that the highly modified radula of *Cornisepta* is adapted to sweeping that food source. It further suggests that the food of all species of *Cornisepta* will prove to be the same.

Cornisepta antarctica is made the type of the genus because it is represented by the largest amount of material, including two preserved bodies, that can be made available on loan for future work, as was Hain's intention in placing the material in the LACM collection.

ETYMOLOGY. The name derives from the Latin noun for horn, suggested by the high profile.

Cornisepta antarctica (Egorova, 1972)

Figure 10

Fissurisepta antarctica Egorova, 1972:384, fig. 1a,b.—Hain, 1990:34, pl. 10, fig. 6a,b [drawings of shell]; pl. 28, fig. 8 [SEM view of radula].

REMARKS. This species is the largest known member of *Cornisepta*. The pustular sculpture of this species can easily be missed, as it is not readily apparent, even under magnification with a dissecting microscope. The pustules are T-shaped under SEM examination, aligned in diagonal rows, and becoming fewer in later growth stages. Size of the pustules increases only slightly with growth of the shell.

Hain (1990) illustrated the radula of this species but did not compare it to the illustration of the radula of *Fissurisepta* provided by Hickman (1983). Other citations of Egorova in the synonymy of this species cited by Hain are repetitive of the original description.

Dimensions. Length 7.0, width 4.9, height 6.7 mm (LACM 151947, Fig. 10A).

Occurrence. Weddel Sea, Antarctica, 280–700 m.

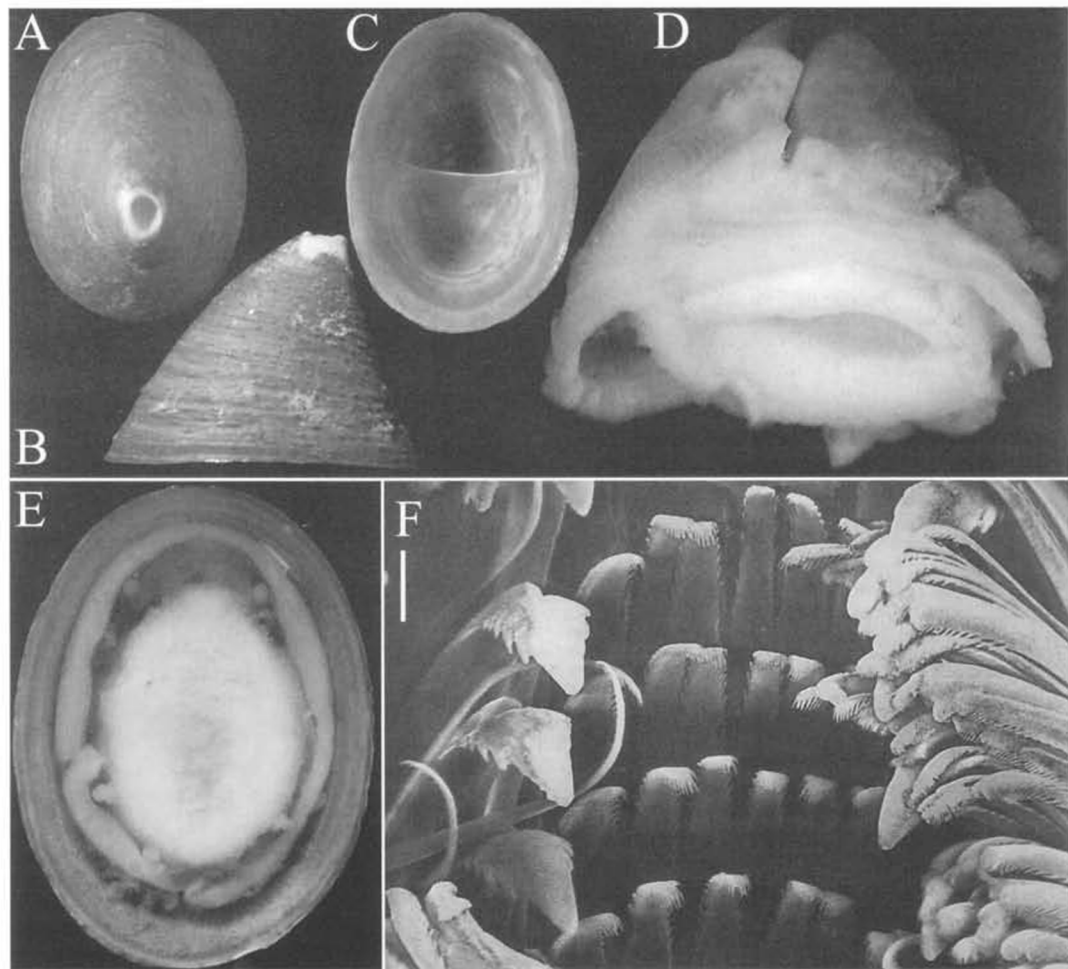


Figure 12A-F. *Cornisepta pacifica* (Cowan, 1969). LACM 77-285.1; 444-500 m, NW slope of Santa Cruz Basin, S of Santa Cruz Island, California (33°46.0'N, 119°49.2'W). Length 4.8, width 3.5, height 3.6 mm. A. Exterior, anterior at top. B. Left side showing weakly developed pustular sculpture and concave posterior slope. C. Interior showing high septum, anterior at top. D. Left side of body removed from shell, showing monopectinate gill by transparency on left and deep cleft left by position of septum. E. Ventral view of body before removal from shell showing reduced epipodial tentacles. F. Radula (scale bar = 20 µm).

Cornisepta rostrata (Seguenza, 1862)

Figure 11

- Fissurisepta rostrata* Seguenza, 1862:84, pl. 5, figs. 3a-c.—Jeffreys, 1883:675.—Ghisotti and Giannini, 1983:28, fig. 2A, B, C [copy of original figs.], pl. 2, fig. 15.—Di Geronimo and La Perna, 1997:395, pl. 1, figs. 4, 5.
- Puncturella (Fissurisepta) rostrata*.—Watson, 1886: 48, pl. 4, fig. 10.—Pilsbry, 1890:245, pl. 25, fig. 25, pl. 64, figs. 30, 31.—Clarke, 1962:8 [listed].
- Fissurisepta rostrata* var. *elata* Seguenza, 1862:84, fig. 3d.—Ghisotti and Giannini, 1983:26, fig. 2D [copy of original figs.].

REMARKS. The high shell elevation is indicative of *Cornisepta*.

Dimensions. Length 5, width 3.5, height 4.6 mm (Seguenza). Length 3.5, width 2.4, height 4.2 mm (Fig. 11A).

Occurrence. Northeastern Atlantic and Mediterranean, 1000-2000 m.

Cornisepta pacifica (Cowan, 1969)

Figure 12

- Fissurisepta pacifica* Cowan, 1969:24, figs. 1, 2 [head and ctenidia], 3 [shell fragments].—Warén, 1972:19 [discussed].—Abbott, 1974:23 [listed only].—Ghisotti and Giannini, 1983:29 [listed only].

REMARKS. The holotype shell was damaged in transit before it was illustrated and the radula of

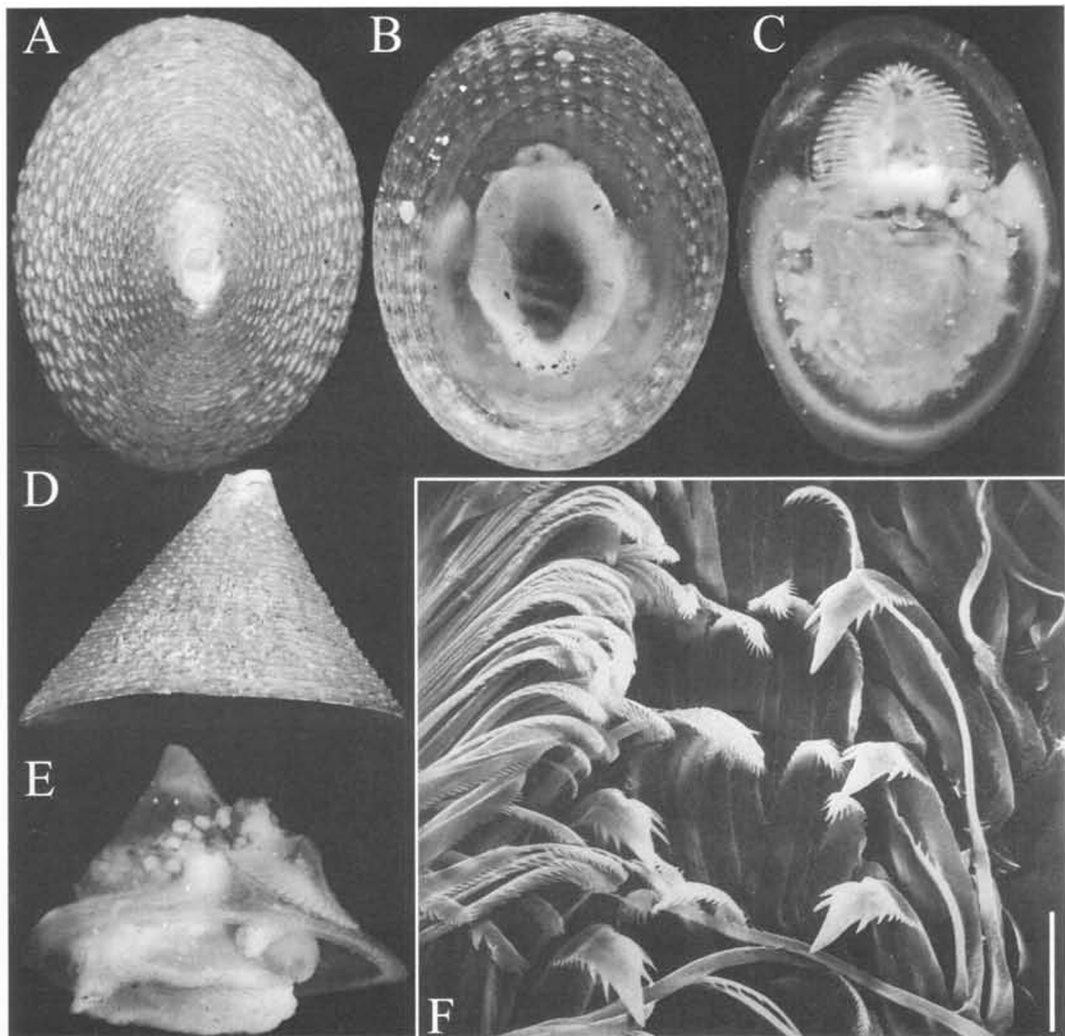


Figure 13A-F. *Cornisepta levinae* new species. LACM 2788, holotype; 1775 m, summit of Volcano 6, Eastern Pacific Rise at 13°N (12°44.0'N, 102°33.0'W). Length 5.2, width 4.1, height 3.5 mm. A. Exterior, anterior at top. B. Ventral view of retracted animal in shell. C. Left side of shell showing pustules in curved rows and concave posterior slope. D. Body in dorsal view, showing paired monopectinate tentacles by transparency. E. Body from right side, showing right tentidium and oocytes by transparency. F. SEM view of radula showing pinnate form of all teeth (scale bar = 10 μ m).

the holotype was not originally figured. However, three specimens from southern California as well as two from Alaska and one from Oregon are now known. The shell (Fig. 12A-C) and radula (Fig. 12F) are here illustrated. Warén (1972:19) noted that Cowan had incorrectly identified the first pair of epipodial tentacles as a second pair of cephalic tentacles.

Dimensions. Length 4.8, width 3.5, height 3.6 mm (Fig. 10A-D).

Occurrence. Kiska, Aleutian Islands, Alaska, San Clemente Island, California. Records from Sitka, Alaska, to southern California have a depth range

of 440-880 m; the single shell from Kiska, Aleutian Islands, was recorded at 168 m.

Cornisepta levinae, new species

Figure 13

DESCRIPTION. Shell of moderate size for genus, profile moderately high (75% of length in holotype); anterior slope nearly straight, posterior slope slightly concave. Juvenile shell and protoconch unknown. Foramen oval in outline, septum deep and straight across (broken in holotype). Sculpture of thin, elongate, projecting pustules, in