

***Narella nuttingi*, a new gorgonacean octocoral of the family
Primnoidae (Anthozoa) from the eastern Pacific**

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Abstract.—Specimens originally reported by Nutting (1908) as *Stachyodes dichotoma* Versluys from Albatross explorations in Hawaiian waters are shown to be misidentified and are now described as a new species, *Narella nuttingi*.

In the eastern Pacific, four species of *Narella* have been reported (as *Stachyodes*) from the Hawaiian Islands: *Stachyodes angularis* Nutting, 1908; *S. regularis* Wright & Studer, 1889; *S. bowersi* Nutting, 1908, and *Stachyodes dichotoma* Versluys, 1906 (Nutting 1908).

The species described by Nutting (1908: 576) as *Stachyodes angularis* is referable to the genus *Calyptrophora*, not to *Narella*.

The specimen reported by Nutting (1908: 577) as *S. regularis* Wright & Studer consists of an incomplete terminal branch with remnants of only nine whorls of polyps, but it is adequate to demonstrate that it represents *S. dichotoma* Versluys.

The specimens reported as *S. dichotoma* by Nutting (1908:577) were incorrectly identified. Nutting's (1908) plate 43, fig. 5, captioned "*Stachyodes bowersi* Nutting," does not depict *bowersi*, but the specimen reported as "*Stachyodes dichotoma*" (Nutting 1908:577) from Albatross sta. 4013 and retained by Nutting at the State University of Iowa under the name *Calypterinus allmani* Wright & Studer, a species that he did not report from Hawaii. The type specimen of *S. bowersi* (USNM 25377) was not illustrated and does not harbor specimens of the ophiuroid *Ophiocreas*, a specimen of which is clearly shown in Nutting's photograph (1908: pl. 43, fig. 5) and specifically mentioned in the figure explanation (1908:600). In the text (1908:577) Nutting

mentions the occurrence of *Ophiocreas* on *S. dichotoma*, not on *S. bowersi*.

Narella Gray, 1870

Narella Gray, 1870:49.—Deichmann, 1936:168.—Bayer, 1956:222; 1961:295 (key only); 1981:937 (key only).

Stachyodes Studer, 1887:49; 1901:40.—Wright & Studer, 1889: xlvii, 53.—Versluys, 1906:86.—Thomson & Henderson, 1906:35.—Kinoshita, 1907:233; 1908: 45.—Thomson & Russell, 1910:142.—Kükenthal, 1912:59; 1915:152; 1919: 452; 1924:308.

Calypterinus Wright & Studer, 1889:xlvi, 54.

Type species.—*Primnoa regularis* Duchassaing & Michelotti, 1860.

Diagnosis.—Primnoidae forming colonies branched pinnately, dichotomously, or trichotomously, rarely unbranched; polyps in pairs or whorls, usually directed basad; sclerites of polyps comprising three or four pairs of large scales surrounding the polyp body but not solidly fused to form rings, and an operculum of 8 roughly triangular scales; coenenchyme with a layer of large scales that may be polygonal, elongate, sometimes tapered and almost fusiform.

Narella nuttingi, new species

Figs. 1-5

Stachyodes dichotoma.—Nutting 1908:577.

Stachyodes bowersi Nutting 1908: pl. 43, fig. 5.

Not *Stachyodes dichotoma* Versluys 1906: 88.

Material examined.—Kauai Island, Hawaii, Hanamaulu warehouse bearing N. 82°45', W 3.7', 419–399 fath. (= 767–730 m), bottom temperature 41.0°F, USFC str. *Albatross* sta. 4013, 20 Jun 1902. One nearly complete colony with attached ophiuroid, holotype, USNM 91864 (SEM 2336; Figs. 1, 2). This specimen erroneously illustrated as *Stachyodes bowersi* by Nutting, 1908:pl. 43, fig. 5.

Kauai Island, Hawaii: Ukula Point bearing S. 82°30', E. 13.1', 423–438 fath. (= 774–802 m), bottom temperature 41.0°F, USFC str. *Albatross* sta. D-4030, 24 Jun 1902. One colony somewhat broken, paratype, USNM 25376 (SEM 2335; Figs. 4, 5).

Kauai Island, Hawaii: Hanamaulu Warehouse bearing S. 33°, W. 9.5', 500–385 fath. (915–693 m), bottom temperature 40°F, USFC str. *Albatross* sta. D-3989, 11 Jun 1902. One unbranched terminal branchlet, USNM 22561.

Kauai Island, Hawaii: Hanamaulu Warehouse bearing N. 74°30', W. 6.6', 671–957 fath. (1228–1751 m), bottom temperature 38.4°F, USFC str. *Albatross* sta. D-3989, 11 Jun 1902. Detached branches, USNM 25375.

Kauai Island, Hawaii: Ukula Point bearing N. 65°30', W. 7.4', 508–557 fath. (= 930–1019 m), bottom temperature 40°F, USFC str. *Albatross* sta. D-4007, 17 Jun 1902. One colony somewhat broken, paratype, USNM 77293 (SEM 2338; Figs. 3, 4).

North of Maui Island, Hawaii: 21°07.0'N, 156°12.7'W, no other particulars as to collection recorded. Three large, somewhat damaged colonies, with ophiuroids attached, USNM 56790.

Cross Seamount: 18°38.7'N, 158°16.8'W, 1420 m, *Pisces V* dive PV238, station CR201 (sample 1), 29 Aug 1993, coll. Scott France and J. Ewann Agenbroad. One incomplete colony with attached ophiuroid, USNM 94451.

Cross Seamount: 18°38.7'N, 158°16.8'W,

1350 m, *Pisces V* dive PV238, station CR203 (sample 1), 29 Aug 1993, coll. Scott France and J. Ewann Agenbroad. One incomplete colony with attached ophiuroid, paratype, USNM 94452 (Fig. 1).

Cross Seamount: 18°38.7'N, 158°16.8'W, 1205 m, *Pisces V* dive PV238, station CR205 (sample 1), 29 Aug 1993, coll. Scott France and J. Ewann Agenbroad. One incomplete colony with attached ophiuroid, USNM 94453.

Diagnosis.—Bushy *Narella* colonies with branching initially verticillate, subsequently becoming dichotomous and approximately uniplanar in the distal branches; 3–5 polyps per whorl; commonly 8–1/2 to 11 (but sometimes as few as 5–6) whorls in 3 cm of branch length; none of the three pairs of body plates adaxially closed; all body plates regularly curved, without keels or crests, their free margins without serrations or sharp projections; one pair of small adaxial buccal scales; apical keel on inner face of opercular scales low, absent from the larger abaxial scales; adaxials narrow, small; cortical sclerites elongate, usually narrow but a few may be wider, without external crests; tentacles with very few minute, flat rods; coenenchyme with a single layer of elongate oval plates, becoming thick and irregular on the large branches, locally with several strong, hemispherical projections longitudinally arranged along the midline.

Description.—The colonies (Fig. 1) are bushy, the branching of the lower parts verticillate with 3 or 4 lateral branches in widely spaced whorls, in the distal branches becoming dichotomous and tending to lie in one plane so the colonies are compressed-flabellate rather than flat fans. The axis is strongly calcified, round, longitudinally striated, with little or no metallic luster or iridescence. Specimens having the proximal part of the trunk preserved show thick secondary deposits of white calcareous material around and above the holdfast.

Polyps are directed basally, up to 3 mm in height (measured parallel with the branch

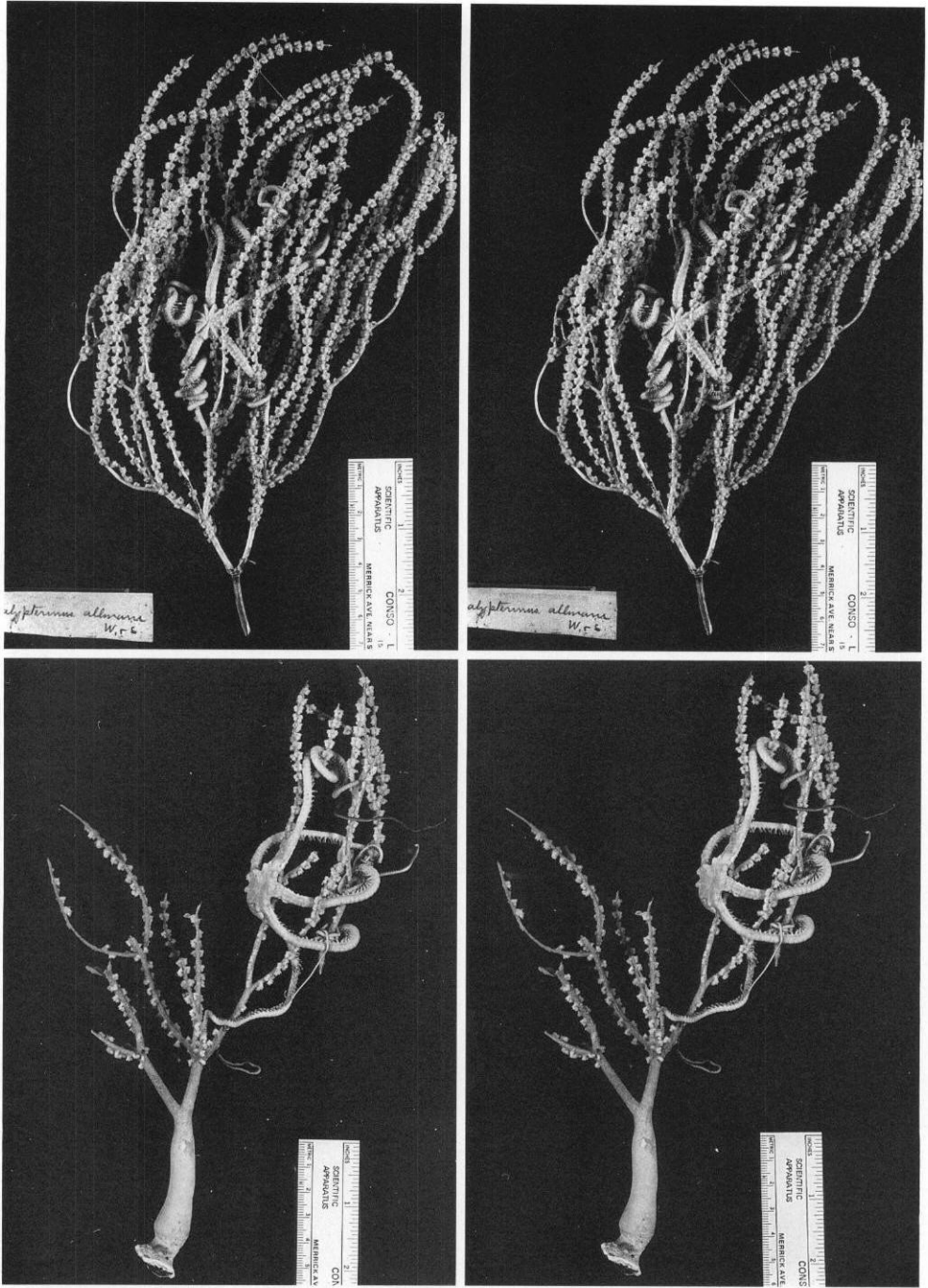


Fig. 1. *Narella nuttingi*, new species. Top, Holotype colony, USNM 91864. Bottom, Paratype colony, USNM 94452.

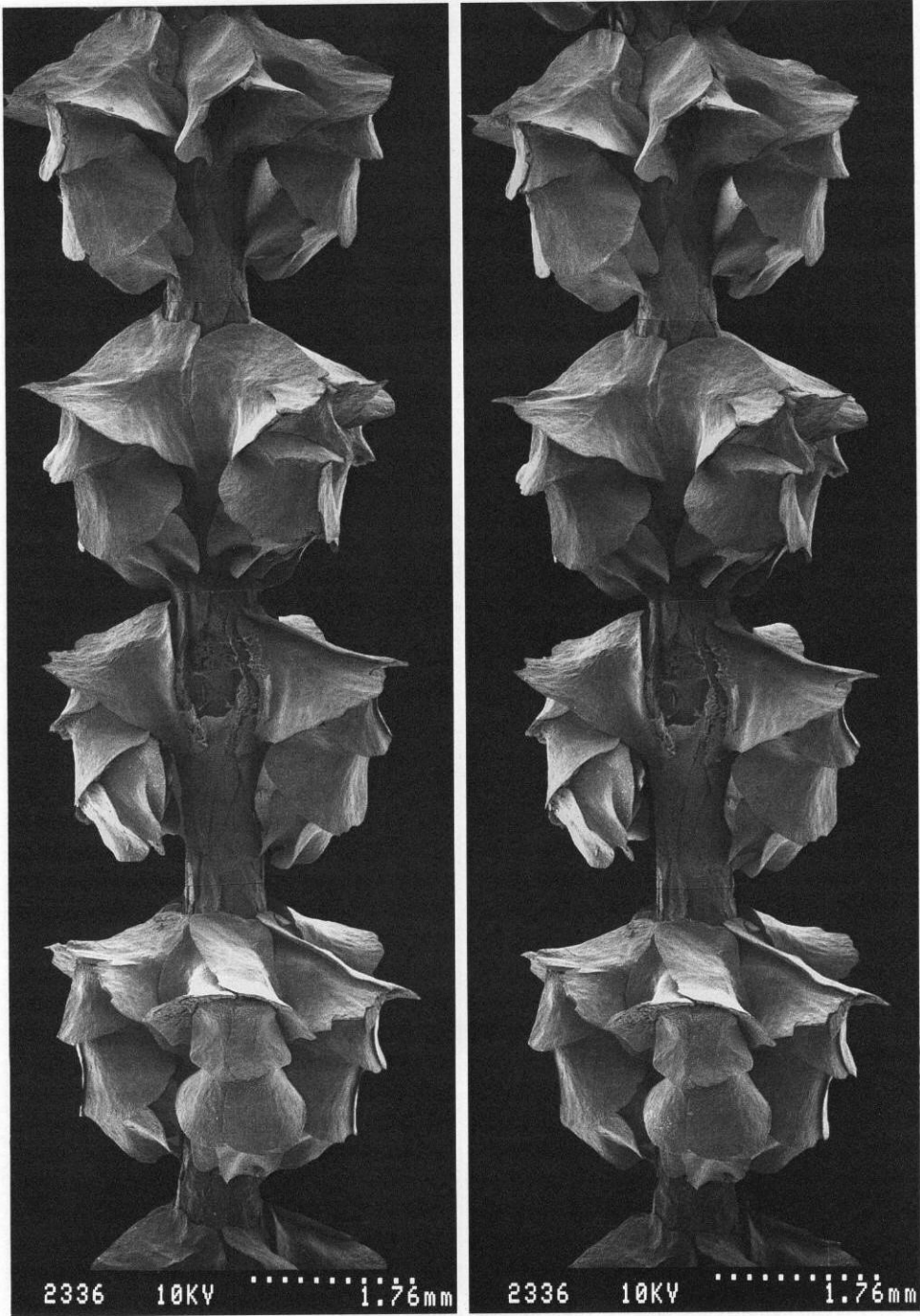


Fig. 2. *Narella nuttingi*, new species. Part of terminal branch of holotype colony, USNM 91684. SEM 2336, stereo pair.



Fig. 3. *Narella nuttingi*, new species. Part of terminal branch of paratype colony, USNM 77293. SEM 2338, stereo pair.

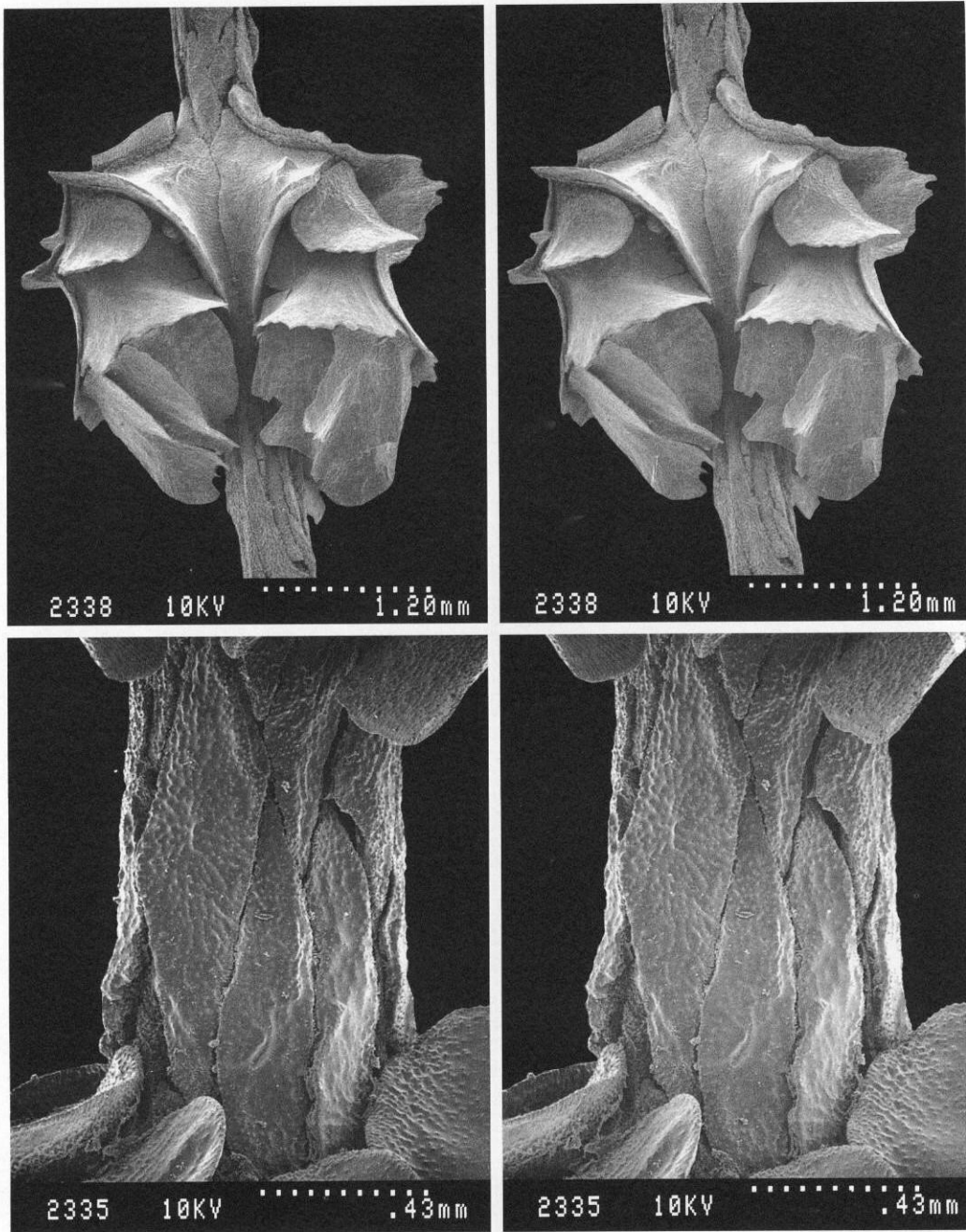


Fig. 4. *Narella nuttingi*, new species. Top, Whorl of polyps of paratype colony, USNM 77293, showing prominent operculum and absence of dorsolateral crest on body scales. SEM 2338. Bottom, Detail of coenenchyme showing elongate, plate-like sclerites; SEM 2335, stereo pairs.

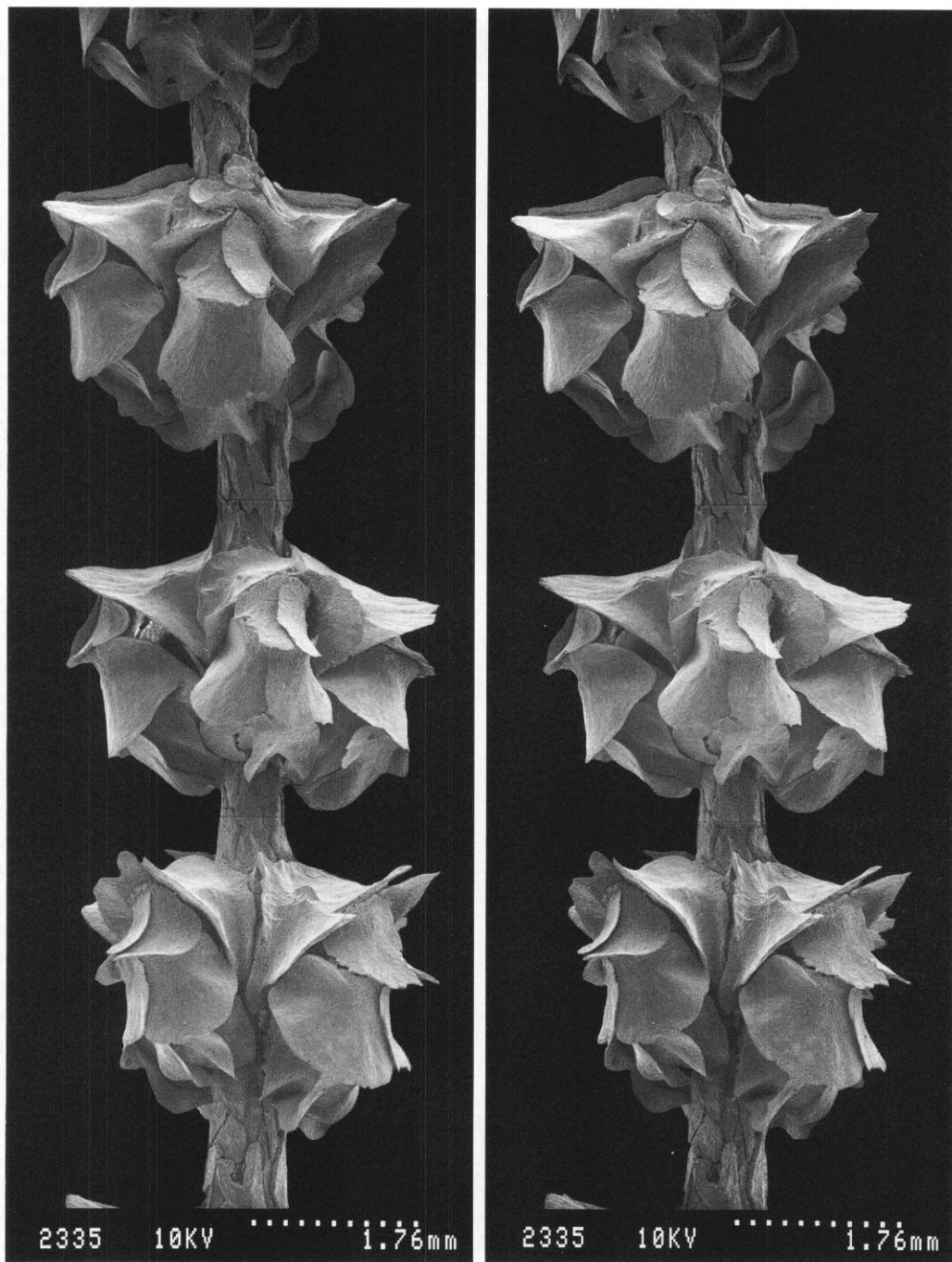


Fig. 5. *Narella nuttingi*, new species. Part of terminal branch of paratype colony, USNM 25376. SEM 2335, stereo pair.

axis), in whorls of 5 on the larger branches, sometimes only 3 near the tips of the terminal branchlets (Figs. 2–5); $8\frac{1}{2}$ to 11 whorls occur in 3 cm of branch length. Polyps with 3 pairs of non-annular body plates, all with uniformly and moderately expanded margins regularly curved and without marginal spines, teeth, or conspicuous serrations. The two basal plates are the largest, regularly curved around the base of the polyp, without a dorsolateral angle or crest, with moderately flared, smooth margins; one of the plates overlaps the other where they meet along the abaxial midline, its thin edge somewhat reflexed. The medial pair of body plates are the smallest, smoothly curved around the body and without dorsolateral crests. The buccal pair have smooth, moderately flared free margins; one pair of small, thin, adaxial buccal scales lie below the adaxial operculars.

The operculum is high, the abaxial scales tall, broad, rounded apically, the outer surface longitudinally concave but without a corresponding well-defined keel on the inner surface; the lateral scales are narrower, more pointed, and have a low keel on the inner surface; the adaxials are narrow, with a low, ridge-like keel. The tentacles have a few minute, irregular flat rods.

The sclerites of the coenenchyme (Fig. 4) are more or less elongate, flat plates with no trace of longitudinal crests or keels even near the polyps, but some of those on the large branches may have several hemispherical projections along the midline.

Etymology.—This species is named for the late Prof. C. C. Nutting, who first unknowingly reported specimens in his report on Hawaiian octocorals collected by USFC steamer *Albatross*.

Variation.—The polyps vary somewhat in size among different colonies, and the spacing of whorls varies locally both within a single colony and among different colonies (compare Figs. 2, 3 and 5).

Distribution.—Eastern Pacific, vicinity of Hawaiian Islands and nearby seamounts, 730–1420 m.

Commensals.—Most colonies have a large ophiuroid, *Asteroschema caudatum* H. L. Clark, entwined among the branches. Nutting (1908:577) reported that colonies examined by him “had coiled around its branches a simple-armed basket fish, probably belonging to the genus *Ophiocreas*.”

Comparisons.—Although the polyps of *N. nuttingi* resemble those of *N. dichotoma* (Versluys) as originally illustrated (Versluys 1906:89, 90), the coenenchymal scales lack the characteristic ridges of that species but instead may have several strong, hemispherical projections along the midline, the adaxial opercular scales are very reduced in size, and branching is not in one plane. *Narella orientalis* (Versluys), which has similar polyps, differs in having broad cortical scales and more strongly developed adaxial opercular scales.

The polyps of *Narella megalepis* (Kinoshita 1908) are generally similar to those of *N. nuttingi*, but the opercular scales have a strong apical keel on the inner surface, the adaxial operculars are broad and well-developed, and the cortical sclerites are thick, irregular polygonal plates; moreover, the overall colonial form is not known because all existing specimens are fragmentary. As originally illustrated (Kinoshita 1908, pl. 3, fig. 21), the branching is dichotomous although it was described as “beinahe federartig.” It seems unlikely that the complete colonies would have the openly bushy aspect of *N. nuttingi*. The identity of specimens collected in Japanese waters by USFC str. *Albatross* and reported as *Stachodes megalepis* by Nutting (1912:59) cannot be determined because the specimens were not returned to the U.S. National Museum for permanent storage. It is unlikely that they were *N. megalepis* as Nutting (1912:60) mentioned the presence of worm galleries formed by parasitic annelids, a feature not reported by Kinoshita (1908:47–49) or Utinomi (1979:1015).

Acknowledgments

I am grateful to Dr. Scott C. France and Ms. J. Ewann Agenbroad Berntson, who

collected some of the material reported herein. The commensal ophiuroid was identified by Dr. David L. Pawson. The stereographic scanning micrographs illustrating this paper were made by Mr. Walter R. Brown, head of the SEM Laboratory, National Museum of Natural History.

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