

THE IDENTITY OF *FANNYELLA ROSSII* J. E. GRAY (COELENTERATA: OCTOCORALLIA)

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Abstract.—The conspecificity of *Ascolepis splendens* Thomson & Rennet, 1931, with *Fannyella rossii* J. E. Gray, 1873, is established. A syntype of *Ascolepis splendens*, register number G-13237 in the Australian Museum, Sydney, is selected as lectotype of the species and simultaneously established as neotype of *Fannyella rossii*. A revised description of the species is provided, illustrated by scanning electron micrographs, in comparison with the original illustrations of *Fannyella rossii* and *Ascolepis splendens*.

During the Antarctic voyage of HMS *Erabus* and *Terror* 1839–1843 under the command of Captain Sir James Clark Ross, a dredge haul made on 19 January 1841 at a depth of 270 fathoms (=494 m) at 72°31'S, 173°39'E, in the vicinity of Cape Hallett, Ross Sea, obtained a "new species of *Primnoa*, which I name *P. Rossii*," along with another gorgonian, a scleractinian coral, and some bryozoans (Stokes 1847:258–259). Ross entrusted these, together with some other invertebrates from the expedition, to Charles Stokes for investigation. In 1846, Stokes sent drawings and notes on the specimens to Ross (Stokes 1847:259), who, in turn, gave the drawings to J. E. Gray. They were not published in the volume on the zoology of the expedition, remaining in Gray's custody until 1872, when he presented them together with descriptive text of his own at the meeting of the Zoological Society of London June 18, 1872. According to Gray (1873:744), the specimens by that time had been "lost to science."

Although Stokes (1847) specifically discussed his new *Primnoa rossii*, he referred only to the then unpublished drawings without giving any characters to make the name nomenclaturally available. Gray (1873), in publishing the drawings, established a new genus, *Fannyella*, and used the name *rossii* proposed by Stokes for the species. He seems

to have been unaware of the paper published by Stokes. Good though the drawings are, they have not been associated with any gorgonians obtained by later Antarctic expeditions.

Numerous specimens provisionally identified as *Ascolepis splendens* Thomson & Rennet, 1931, a species first obtained at four localities between 92°10'E and 145°21'E by the Australasian Antarctic Expedition, have been taken at various localities around the Antarctic continent by expeditions of the U.S. Antarctic Research Program. This material agrees with the published drawing of *Fannyella rossii*, leaving no doubt that they represent the same species, and comparison with a syntype of *Ascolepis splendens* confirms that the two species also are identical.

Although the generic name *Ascolepis* has been used in keys (see below), the species *A. splendens* Thomson & Rennet, 1931, has not been reported again in the literature since 1931, so no justification exists for retaining it as the valid name for the genus and species in preference over the senior synonym *Fannyella rossii* Gray, 1873, also used only once. In order to place this undoubted but subjective synonymy on an objective basis, the illustrated syntype of *A. splendens* Thomson & Rennet, 1931 (Australian Museum, Sydney, register no. G-13237), is hereby simultaneously selected as lectotype of *As-*

colepis splendens and designated as neotype of *Fannyella rossii* Gray, 1873.

Fannyella J. E. Gray, 1873

Primnoa (part).—Stokes, 1847:260

Fannyella Gray, 1873:744. (Type species, *Fannyella rossii* Gray, 1873, by monotypy.)

Ascolepis Thomson & Rennet, 1931:20.—Bayer, 1981:936 (in key only); 1982:120–122 (passim).—Bayer & Stefani, 1989:454 (in key only). (Type species, *Ascolepis splendens* Thomson & Rennet, 1931, here designated.)

Diagnosis.—Dichotomously branched Primnoidae with verticillate polyps protected by sclerites arranged in distinct longitudinal rows on abaxial and lateral aspects of body; adaxial surface with fewer sclerites, in some cases unarmed except for a few small scales immediately below opercular and circumopercular scales. Body sclerites vertically overlapping, exposed part smooth and distinctly differentiated from strongly tuberculate covered part. Circumopercular (i.e., marginal) scales folding over bases of opercular scales. Outer layer of coenenchyme with thick polygonal, rounded, or irregular plates and many smaller, rounded scales; inner layer with irregularly tuberculate discoidal forms and spindles, which occasionally are triradiate or branched.

Fannyella rossii Gray, 1873

Figs. 1–6

Primnoa Rossii Stokes, 1847:260, 261 (nomen nudum).

Fannyella rossii Gray, 1873:745, pl. 62, figs. 1–3 (Antarctic Ocean).

?*Caligorgia antarctica* Kükenthal, 1912:321, figs. 27–35, pl. 21, fig. 10 (*Gauss*-Station, 385 m).

?*Caligorgia ventilabrum*.—Gravier, 1914: 85, figs. 109–119; pl. 6, fig. 30 (Marguerite Bay, Antarctic Peninsula, 176–230 m).—

Molander, 1929:60 (Seymour I., Graham Land, 150 m; South Georgia, 75 m).

Not *Caligorgia ventilabrum* Studer, 1879: 647, pl. 2, fig. 12 (North of New Zealand, 165 m).—Versluys, 1906:74, figs. 83, 84 (illustrates polyp from Studer's type specimen).

Ascolepis splendens Thomson & Rennet, 1931:20, pl. 9, figs. 6, 7; pl. 10, figs. 1, 2; pl. 11, fig. 6 (Off Wilkes Land, from Adelle Coast west to Davis Sea, 46–582 m).

Gray (1873:745) gave no description of the species, but a combined description of genus and species (1873:744), which runs as follows:

“Coral slightly furcately branched; branches club-shaped, enlarging upwards, and then rapidly contracting at the tip; polypiferous cells many, in numerous close concentric rings, forming regular whorls round the branches, the cells oblong, cylindrical, contracted at the base, and each covered with six longitudinal series of transverse oblong hexangular scales, truncated at top and closed with elongated more or less acute scales, converging to a point when the animal is withdrawn; axis covered with small scales.”

The club-shaped branches are related to the small size of the very young colony with only two bifurcations (Fig. 2d), and are not characteristic of fully developed colonies. As the adaxial surface of the polyps is naked save for a few small scales just below the operculum, Gray's description of “six longitudinal series” of scales, rather than the more usual eight, is basically correct.

The more exhaustive description of *Ascolepis splendens* provided by Thomson & Rennet (1931:20) is more nearly definitive. The specimen from *Aurora* station 2, 66°55'S, 145°21'E, 318 fathoms (=582 m), 28 Dec 1913 (Australian Museum no. G-13237) conforms with the specifications

cited by Thomson & Rennet (1931:20) and clearly is the specimen upon which the description of *Ascolepis splendens* is based. A photograph of this specimen is given herewith (Fig. 1). The drawing reproduced on Thomson & Rennet's Plate IX, Fig. 6, appears to be a somewhat simplified representation either of the detached branch accompanying the complete specimen, or of a branch of the complete colony as isolated by the artist.

The original description of *A. splendens* is accurate except in regard to the form of the polyp sclerites: "The striking peculiarity is that the main sclerites of the vertical rows have a distinct ascus-like or chalice-like form. That is to say, the basal portion is the substantial very warty support of a delicate cup whose cavity is open to the exterior! The delicate edges of the cups are weakly notched, sometimes almost entire. The cup of the sclerite is broader than the substantial knobbed support, so that the appearance is somewhat like a short-stalked chalice or fruit-basket." The authors go on to say that "We must emphasise the point that the specimen is on the whole like a *Caligorgia*, but its hollow ascus-like sclerites are very far from the ctenoid-scale type" (Thomson & Rennet 1931:20-21).

As is immediately apparent from scanning electron micrographs (Figs. 3-5), the "delicate" cups are an optical illusion. As the calcite of which the sclerites are composed is almost glassy clear, only the edges of the smooth outer portion of the body sclerites are visible as a bright line under the light microscope; the fact that it is solid is not easily detected in a bulk preparation of sclerites. It is, however, readily perceived in intact polyps viewed with a binocular

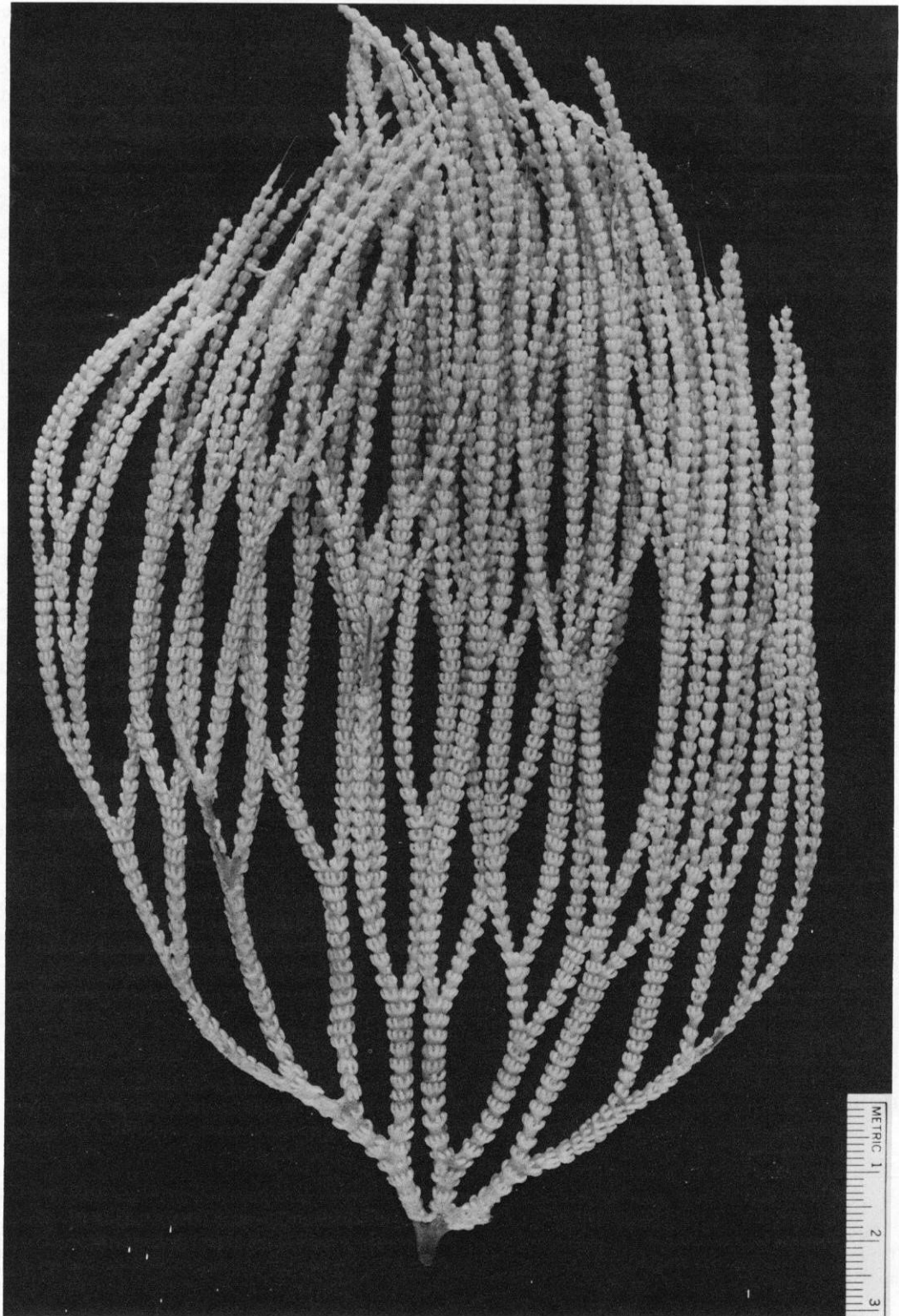
dissecting microscope, and it is a mystery why this was not noticed during preparation of the drawing reproduced by Thomson & Rennet as fig. 7 of Plate IX (Fig. 2b). When sclerites seen by Thomson & Rennet as transparent objects are viewed by SEM as opaque objects, it can be seen that the surface of the exposed part of the body sclerites is sometimes very weakly concave, but as often it is flat or slightly convex and ornamented by rows of low, smooth, elongate granules (Figs. 4, 5).

The abaxial and lateral opercular scales are broad and have a marginal point located more or less off center, but the adaxial operculars are narrow and toothlike. The outer lateral rows of body sclerites are well developed and composed of nearly as many scales as the abaxial rows, but these are more rounded in outline and not nearly so "ascus-like" as the abaxial sclerites (Fig. 5). The inner lateral rows are present but short, comprised of only 2 or 3 scales below the operculars, and the adaxial rows are reduced usually to a single small marginal below each opercular (Fig. 4).

In order to show the true form of the sclerites illustrated by Thomson & Rennet, the various types included in their fig. 6 of Plate XI (Fig. 2c) have been photographed under the SEM and arranged so as to reconstruct their illustration (Fig. 6), which appears to have been drawn free-hand.

Distribution.—Circum-Antarctic, 46-852 m. The southernmost locality reported thus far is from 77°13.7'S, 40°03.8'W, off Filchner Ice Shelf (*Polarstern* "Antarktis I" sta. 180); the northernmost record is from 54°22.1'S, 03°38.2'E, off Bouvet Is. (*Marion Dufresne* sta. 17, haul CM 30), which also is the deepest record.

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Fig. 1. *Fannyella rossii* J. E. Gray, 1873. Neotype colony, natural size. Lectotype of *Ascolepis splendens* Thomson & Rennet, 1931. Australasian Antarctic Expedition, HMS *Aurora* sta. 2. Australian Museum register no. G-13237.



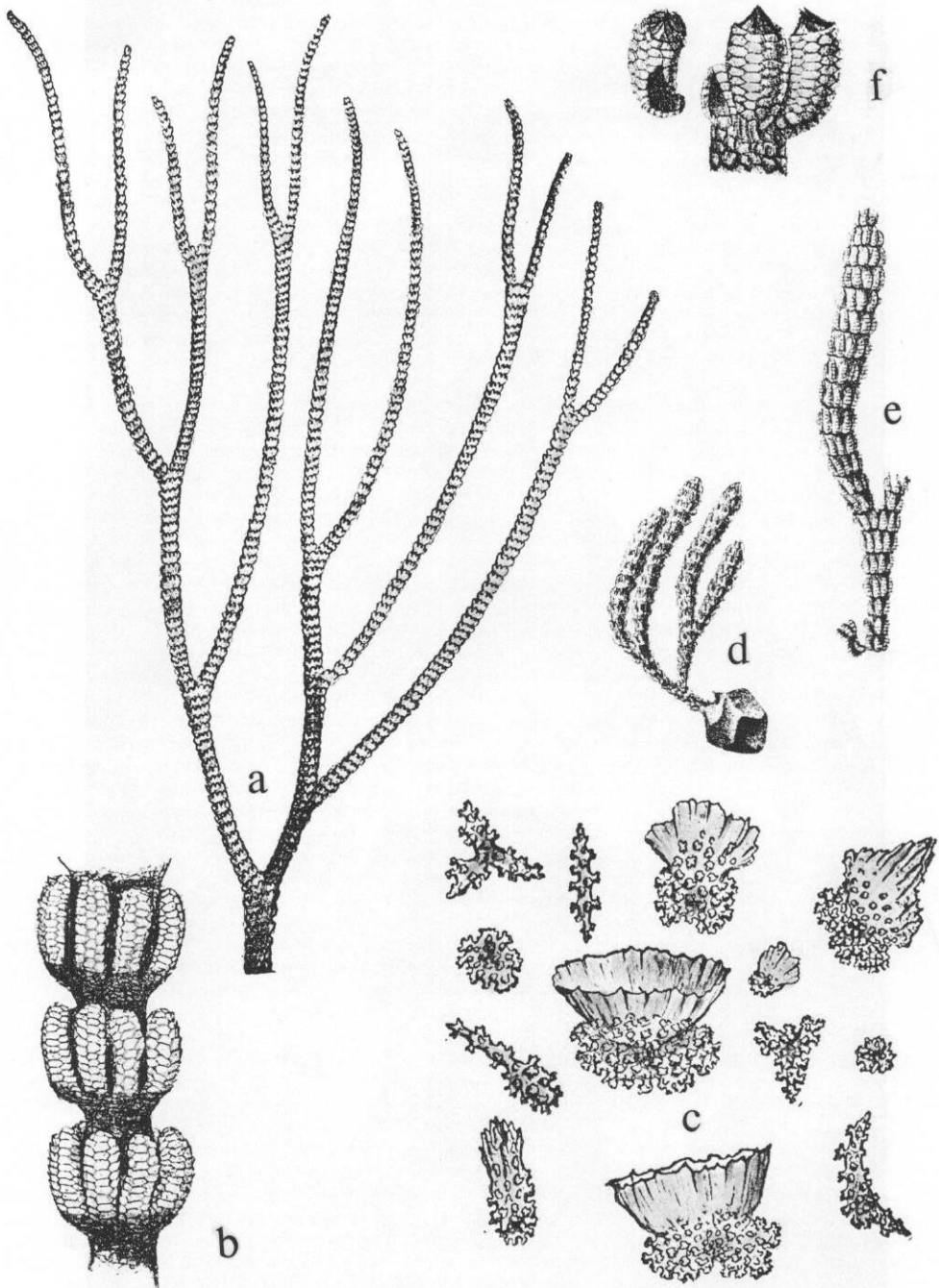


Fig. 2. a-c.—*Ascolepis splendens* Thomson & Renpet, 1931. Original illustrations. a, Copy of pl. IX, fig. 6; b, Copy of pl. IX, fig. 7; c, Copy of pl. XI, fig. 6.—d-f, *Fannyella rossii* Gray, 1873. Original illustrations. Copies of pl. XLII, figs. 1-3.

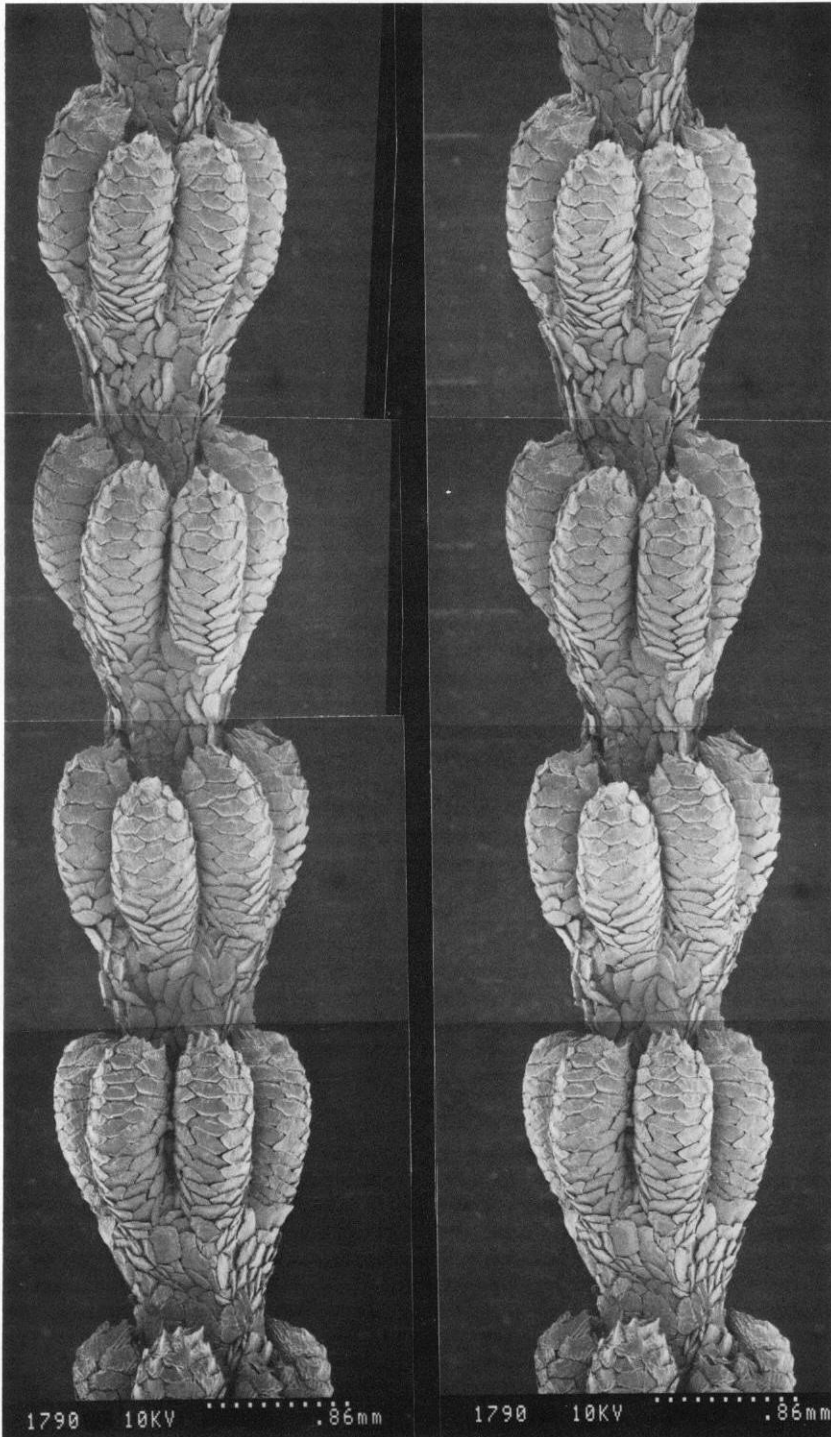


Fig. 3. *Fannyella rossii* J. E. Gray, 1873, neotype = *Ascolepis splendens* Thomson & Rennet, 1931, lectotype. Stereomicrographs of whorls of polyps.

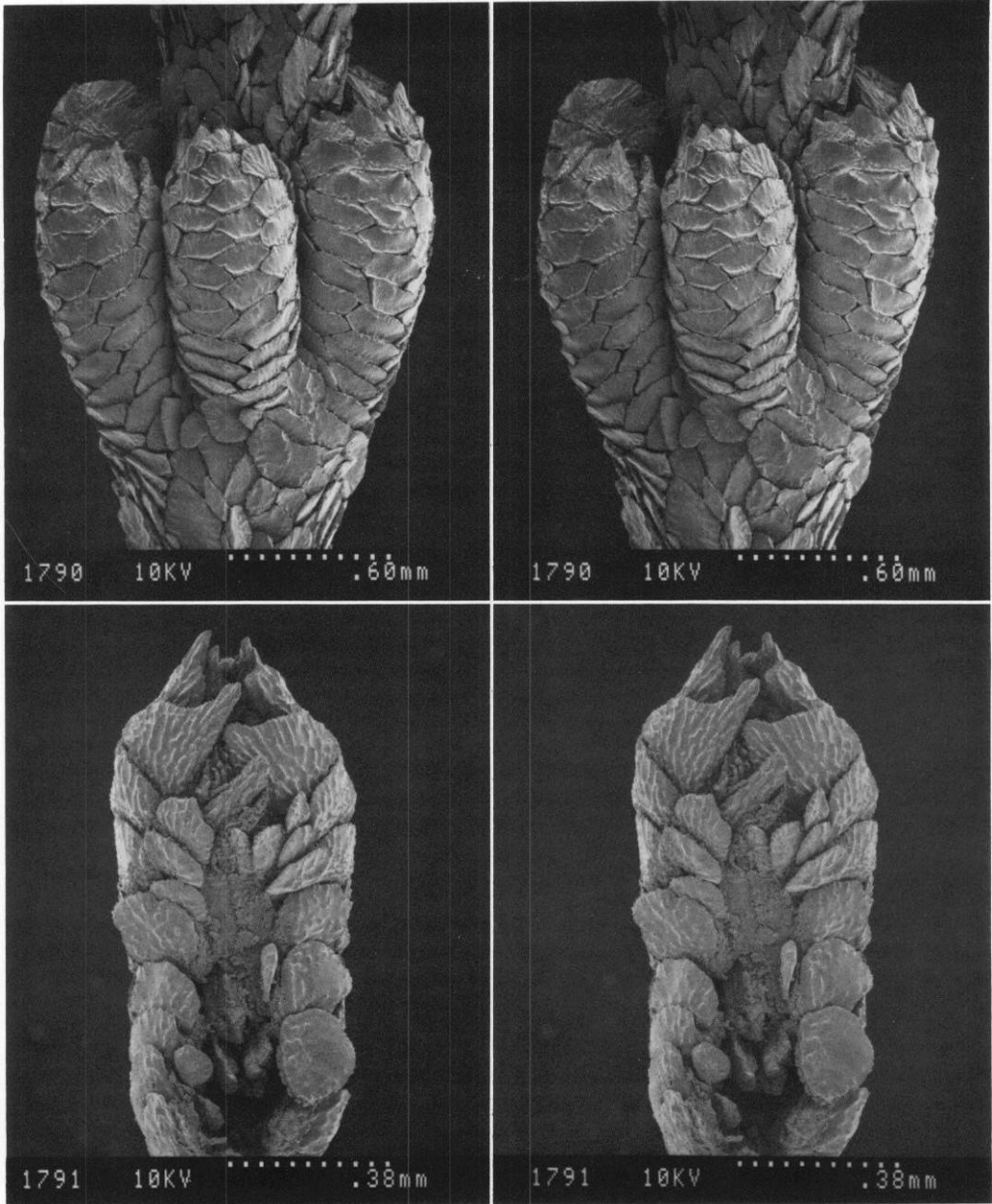


Fig. 4. *Fannyella rossii* J. E. Gray, 1873, neotype = *Ascolepis splendens* Thomson & Rennet, 1931, lectotype. Top, Whorl of polyps. Bottom, Adaxial surface of isolated polyp. Stereomicrographs.

Fannyella rossii is one of the most abundant and widely distributed gorgonians of the Antarctic and sub-Antarctic fauna. It has been taken by various expeditions at the following locations.

U.S. Antarctic Research Program. Specimens in the U.S. National Museum of Natural History:

Ross Sea, off Cape Hallett: 72°32'S, 171°26'E, 337-329 m, USNS *Eltanin* sta.

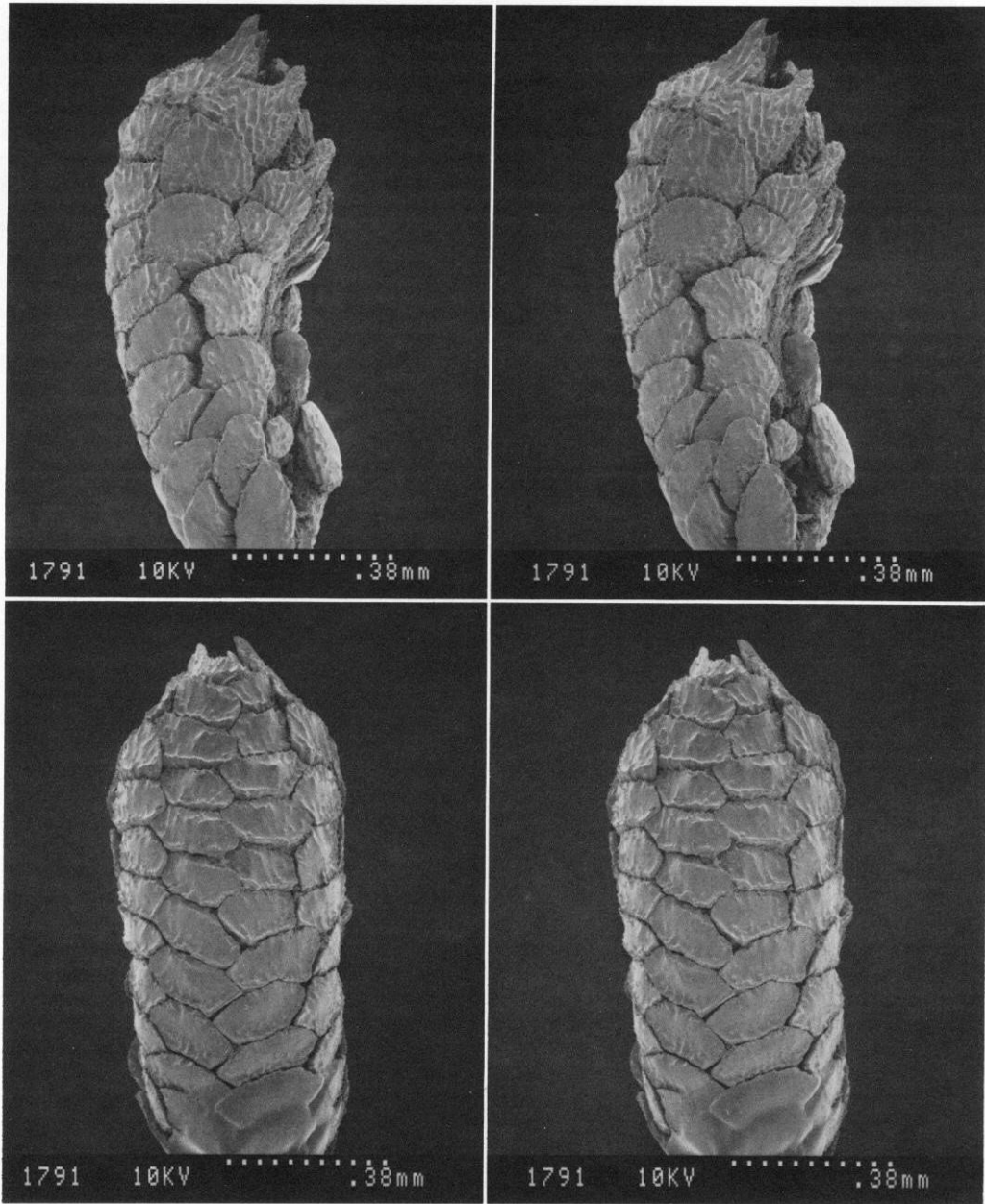


Fig. 5. *Fannyella rossii* J. E. Gray, 1873, neotype = *Ascolepis splendens* Thomson & Rennet, 1931, lectotype. Stereomicrographs of isolated polyp. Top, Lateral view. Bottom, Abaxial view.

1875, 15 Jan 1967. Five large more or less complete colonies without holdfasts, and detached branches, USNM 82949 (SEM 1417, 1427).

Ross Sea, off Cape Washington: 75°01'S, 168°23'E, 334–335 m, USNS *Eltanin* sta. 2036, 18 Jan 1968. One large colony lacking holdfast, USNM 82078 (SEM 1471–1473).

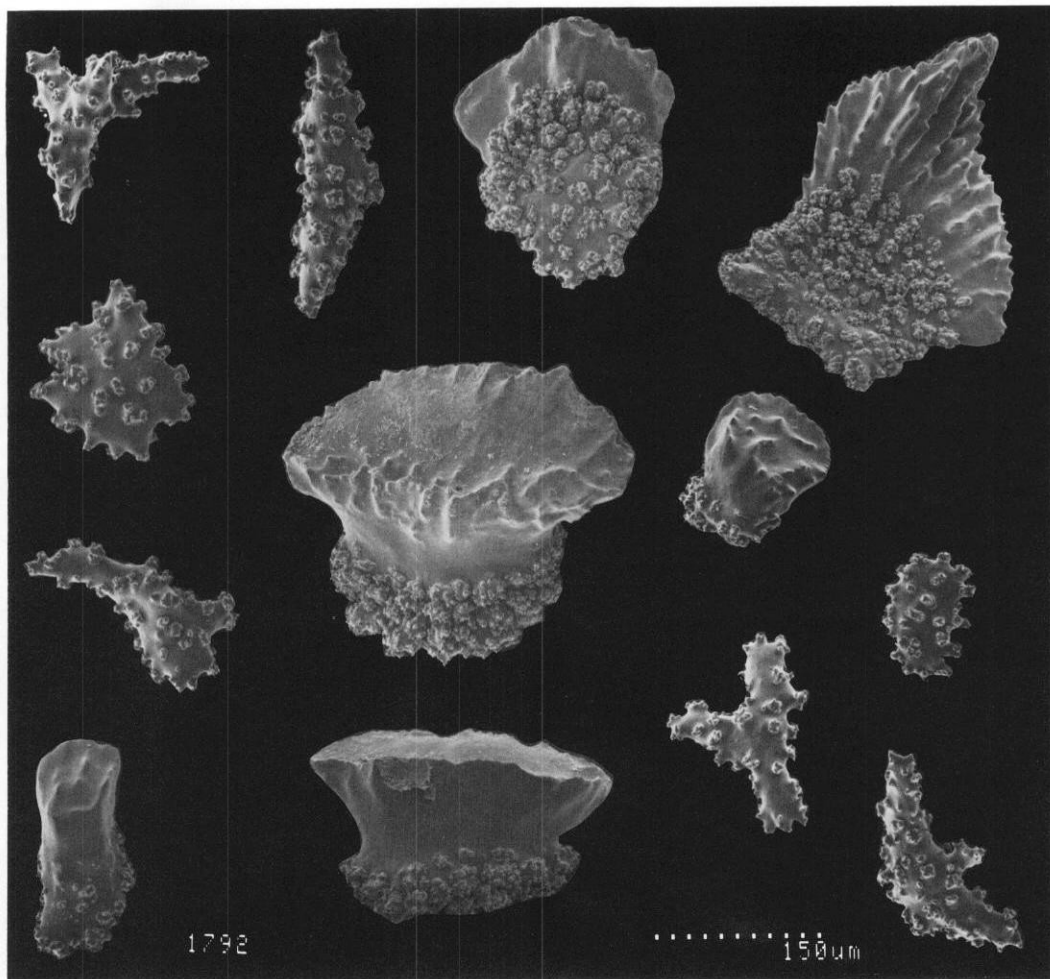


Fig. 6. *Fannyella rossii* J. E. Gray, 1873, neotype = *Ascolepis splendens* Thomson & Rennet, 1931, lectotype. Sclerites. Reconstruction of Thomson & Rennet's plate XI, fig. 6. Scanning electron micrographs.

Ross Sea: 76°00'S, 176°48'W, 566–569 m, USNS *Eltanin* sta. 2045, 20 Jan 1968. One colony and detached branches, USNM 82079 (SEM 1407).

Ross Sea: 76°25'S, 170°24'W, 568 m, USNS *Eltanin* sta. 2075, 30 Jan 1968. One colony without holdfast, and 1 detached branch, USNM 82109.

Ross Sea, Bay of Whales: 76°08'S, 165°04'W, 494–498 m, USNS *Eltanin* sta. 2097, 4 Feb 1968. 2 small incomplete specimens, USNM 82950.

South Shetland Islands: 61°18'S, 56°09'W,

220–240 m, USNS *Eltanin* sta. 410, 31 Dec 1962. One colony lacking holdfast, USNM 82072 (SEM 1404, 1405).

South Shetland Islands: 61°25'S, 56°30'W, 164 fathoms (=300 m), USNS *Eltanin* sta. 993, 13 Mar 1964. One complete colony with holdfast attached to coral, USNM 60342.

South Shetland Islands: 63°26'S, 62°15'W, 119–124 m, R/V *Hero* cruise 691 sta. 26, 10 Feb 1969. One large colony nearly complete but lacking holdfast, and 1 detached branch, USNM 82952 (SEM 1448, 1449).

Antarctic Peninsula, vicinity of Brabant Island: 64°21'24"S, 61°28'12"W, 110–155 m, R/V *Hero* sta. 21-1, 23 Mar 1982, coll. G. Hendler. One large colony complete with holdfast, USNM 77360 (SEM 1798, 1799).

Antarctic Peninsula: 64°46'28"S, 63°26.5'W, 100–150 m, R/V *Hero* cruise 731 sta. 1944, 11 Mar 1973. Three colonies lacking holdfasts, USNM 82071.

Antarctic Peninsula: 64°50'S, 63°12'W, 155 fath. (=283 m); *Eastwind* sta. 66-006, haul 3, coll. D. F. Squires and D. L. Pawson, 29 Jan 1966. Two colonies, USNM 58151 (SEM 303).

Antarctic Peninsula: 65°03.71'S, 63°57.05'W, 360–375 m, R/V *Hero* cruise 833 sta. 8-2, 10 March 1983. One colony lacking holdfast, USNM 82082.

Antarctic Peninsula: 65°06.7'S, 65°00.7'W, 100–180 m, R/V *Hero* cruise 731 sta. 1884. One colony extensively overgrown by hydroids, USNM 82118.

Antarctic Peninsula: 65°54.5'S, 65°15.5'W, 246–270 m, R/V *Hero* cruise 824 sta. 5-1, 16 Mar 1982. Two incomplete colonies, USNM 82119 (SEM 1440–1442).

Weddell Sea off Filchner Ice Shelf: 76°50'S, 40°55'W, 513 m, IWSOE University of Connecticut, USS *Glacier* cruise 2 sta. 0006, 1 Mar 1969. One small branch, USNM 82951.

R/V *Polarstern*. Specimens in Senckenberg Museum Frankfurt:

Off Atka Iceport, Princess Martha Coast: 70°30.3'S, 08°04.0'W, 261–263 m, cruise "Antarktis I" sta. 220, 1 Mar 1983. One large, slender colony without holdfast.

Weddell Sea, off Nantucket Inlet, Lassiter Coast, Antarctic Peninsula: 74°49.9'S, 61°08.3'W, 637 m, cruise "Antarktis II/4" sta. 386, 31 Jan 1984. Two small colonies without holdfasts.

Weddell Sea, off Nantucket Inlet, Lassiter Coast, Antarctic Peninsula: 74°57.3'S, 60°31.4'W, 662 m, cruise "Antarktis II/4" sta. 378, 31 Jan 1984. Six colonies without holdfasts.

Weddell Sea, off Cape Adams, Antarctic

Peninsula: 75°00.1'S, 59°38.0'W, 621 m, cruise "Antarktis II/4" sta. 372, 30 Jan 1984. Three colonies without holdfasts and 6 fragments.

Weddell Sea, off Gardner Inlet, Antarctic Peninsula: 75°08.5'S, 59°38.1'W, 627 m, cruise "Antarktis II/4" sta. 369, 30 Jan 1984. Two large and 2 smaller colonies without holdfasts, and many fragments.

Weddell Sea: 75°49.2'S, 56°15.1'W, 456 m, cruise "Antarktis II/4" sta. 450, 8 Feb 1984. Two small colonies with holdfast, 8 small colonies without holdfasts, and 10 fragments.

Weddell Sea, north of Luitpold Coast, Coats Land: 76°08.4'S, 32°37.6'W, 788 m, cruise "Antarktis II/4" sta. 510, 22 Feb 1984. One large incomplete colony.

Weddell Sea: 76°09.7'S, 52°21.4'W, 416 m, cruise "Antarktis II/4" sta. 438, 7 Feb 1984. Two incomplete colonies.

Weddell Sea: 76°38.6'S, 52°10.3'W, 304 m, cruise "Antarktis II/4" sta. 341, 26 Jan 1984. One small colony without holdfast.

Weddell Sea: 76°52.5'S, 50°40.4'W, 259 m, cruise "Antarktis II/4" sta. 308, 20 Jan 1984. One large incomplete colony.

Weddell Sea, off Filchner Ice Shelf: 77°13.7'S, 40°03.8'W, 673–717 m, cruise "Antarktis I" sta. 180, 18 Feb 1983. One large detached branch.

R/V *Marion Dufresne*. Specimen in Muséum National d'Histoire Naturelle, Paris:

East of Bouvet Is.: 54°22.1'S, 03°38.2'E, 965–852 m, sta. 17, Marinovich trawl 30, 22 Aug 1980. One large colony almost complete, with holdfast, and 2 detached branches.

The original material of *Ascolepis splendens* taken by HMS *Aurora* of the Australasian Antarctic Expedition, now preserved in the Australian Museum Sydney, was obtained at station 2, 66°55'S, 145°21'E, 318 fathoms (=582 m), 28 Dec 1913 (AMS no. G-13245 and G-13237 [lectotype]; station 7, 65°42'S, 92°10'E, 60 fathoms (=110 m), 21 Jan 1914 (AMS no. G-13221); station 8, 66°08'S, 94°17'E, 120 fathoms (=219 m),

27 Jan 1914; and at Commonwealth Bay, Adelie Land, in 25–318 fathoms (=47–582 m), 3 Sep 1912 (AMS no. G-13273).

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