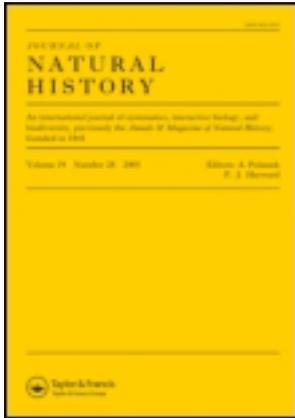


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New species of cheilostomatous Bryozoa from subantarctic Marion and Prince Edward Islands

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Abstract

Fifteen new species of cheilostomatous Bryozoa are described from the subantarctic Marion and Prince Edward Islands: *Pyriporoides judyae*, *Valdemunitella diana*, *Cornucopina elongata*, *Cornucopina bryonyae*, *Cornucopina antiera*, *Paracellaria elizabethae*, *Filaguria lithocrustata*, *Celleporella marionensis*, *Catenicella glabrosa*, *Ipsibuffonella hyalina*, *Parkermavella corrugata*, *Calloporina spinosa*, *Fenestrulina pumicosa*, *Microporella mandibulata*, and *Reteporellina berylae*. Two species originally described from the region, *Sclerodomus myriozoides* and *Reteporella gigantea*, are here reported for only the second time, while three others, *Celleporella alia*, *Celleporella bougainvillei*, and *Talivittaticella frigida*, represent new records for Marion Island. *Phonicosia jousseaumei* was previously recorded from Marion Island as *P. circinata*.

Keywords: Bryozoa, new species, Prince Edward Islands, Marion Island, subantarctic

Introduction

The phylum Bryozoa is one of the most numerically abundant and species-rich zoobenthic taxa in the waters around subantarctic Marion and Prince Edward Islands (MPE), which are situated at 46°50'S, 37°50'E in the Southern Ocean. The bryozoan fauna of these islands has never been the subject of a dedicated study, although there was sporadic collecting through the second half of the 19th century. For example, Busk (1854) described “*Smittia*” *marionensis* from material given to the British Museum by J. Hooker. Three stations were sampled in the relatively shallow area between Marion and Prince Edward Islands by the HMS *Challenger* expedition in 1873, at 80–150 m; a few new species from these collections were described in a small paper by Goldstein (1882), while Busk (1884) recorded a total of 23 species and two “varieties” from the same three samples. RRS *Discovery* II visited the islands in 1935, and in her *Discovery* report on the cellularine families Hastings (1943) recorded seven species, from three stations, between 90 and 100 m depth. D’Hondt (1984) listed seven taxa collected by a French cruise in 1976, but gave no further details. The bulk of the collections originating from *Discovery Investigations*

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remained unstudied for many years and, apart from Powell's (1967) account of the Bryozoa of northern New Zealand, there were no other *Discovery* reports. However, the material was eventually published upon as a series of taxonomic papers, some of which included description or revision of Marion Island species (namely Cook and Hayward 1983; Hayward and Thorpe 1988a, 1988b, 1989, 1990; Hayward and Ryland 1990; Hayward 1991, 1992).

The University of Cape Town undertook an extensive dredging survey in the vicinity of the islands between 1982 and 1989 (Branch et al. 1993). This survey included a number of deeper and more exposed locations where most of the new species were collected. In 1988 the University of Cape Town carried out a series of quantitative scuba-diving surveys down to a depth of 15 m (Beckley and Branch 1992). The known bryozoan fauna from MPE comprises over 80 species and illustrated keys have been prepared describing these species and their distribution (M. L. Branch and P. J. Hayward, in preparation). Fifteen species new to science are described here; three others are recorded for the first time from Marion Island, two are reported for the first time since their original description, while one species is restored to its original taxonomic status. The classification system followed is that of Gordon (1989).

Material

This study is based on the dredged samples from 57 stations from MPE by the University of Cape Town (Figure 1). All specimens listed have been deposited in the Bryozoan section of the Marine Biology Invertebrate Collection of the Iziko South African Museum (formerly the South African Museum) in Cape Town, South Africa. Registration numbers are denoted by the prefix SAM A.

Systematic accounts

Superfamily CALLOPOROIDEA Norman, 1903

Family CALLOPORIDAE Norman, 1903

Genus *Pyriporoides* Hayward and Thorpe, 1989

Pyriporoides judyae sp. nov.

(Figure 2)

Material

Holotype: St. 53 Marion Island (46°55'S, 37°33'E), 600–775 m, on rock, SAM A27567.

Paratype: St. 53 Marion Island, SAM A27566.

Description

Colony developing spreading, uniserial chains, encrusting on rock, each autozooid producing a single distal and paired lateral buds; with a cruciform branching pattern. Autozooids with proximal cauda 0.2–0.3 mm long; distal portion clavate, slightly tapering proximally, broadest halfway along the length of the cryptocyst; 0.5–0.7 × 0.25–0.35 mm. Gymnocyst comprising half of total autozooidal length, continuous distally with slightly ridged, sloping lateral walls; frontal membrane bounded by a smooth, thickened, mural rim and underlain for a quarter of its length by a flat, granular cryptocyst; opesia elongate oval with a near-medial constriction. Six pointed spines spaced around the distal mural rim and five to six pairs of longer, lateral spines arching over the frontal membrane. Ovicell globose,

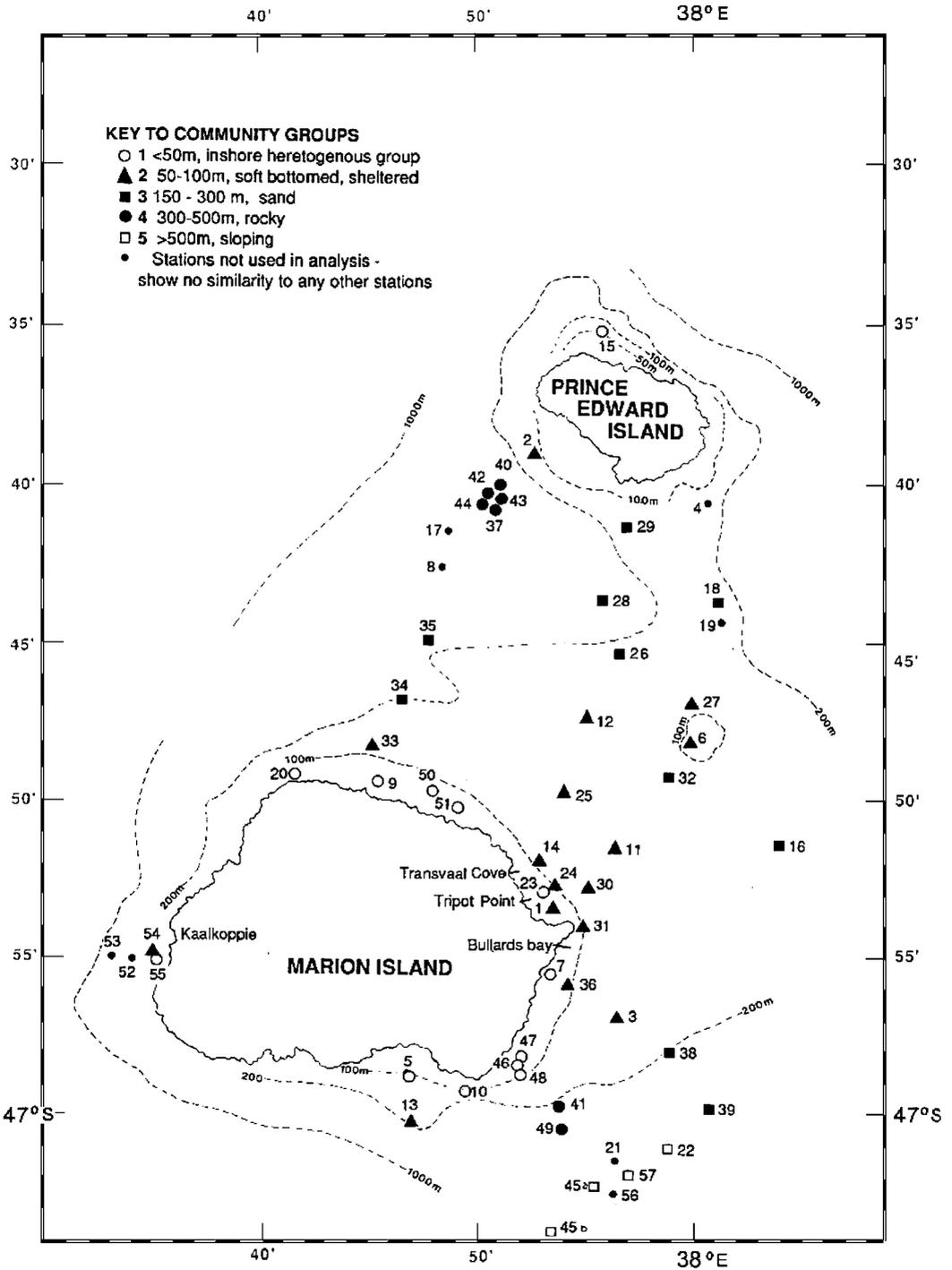


Figure 1. Map of Prince Edward and Marion Islands, showing University of Cape Town survey sampling stations.

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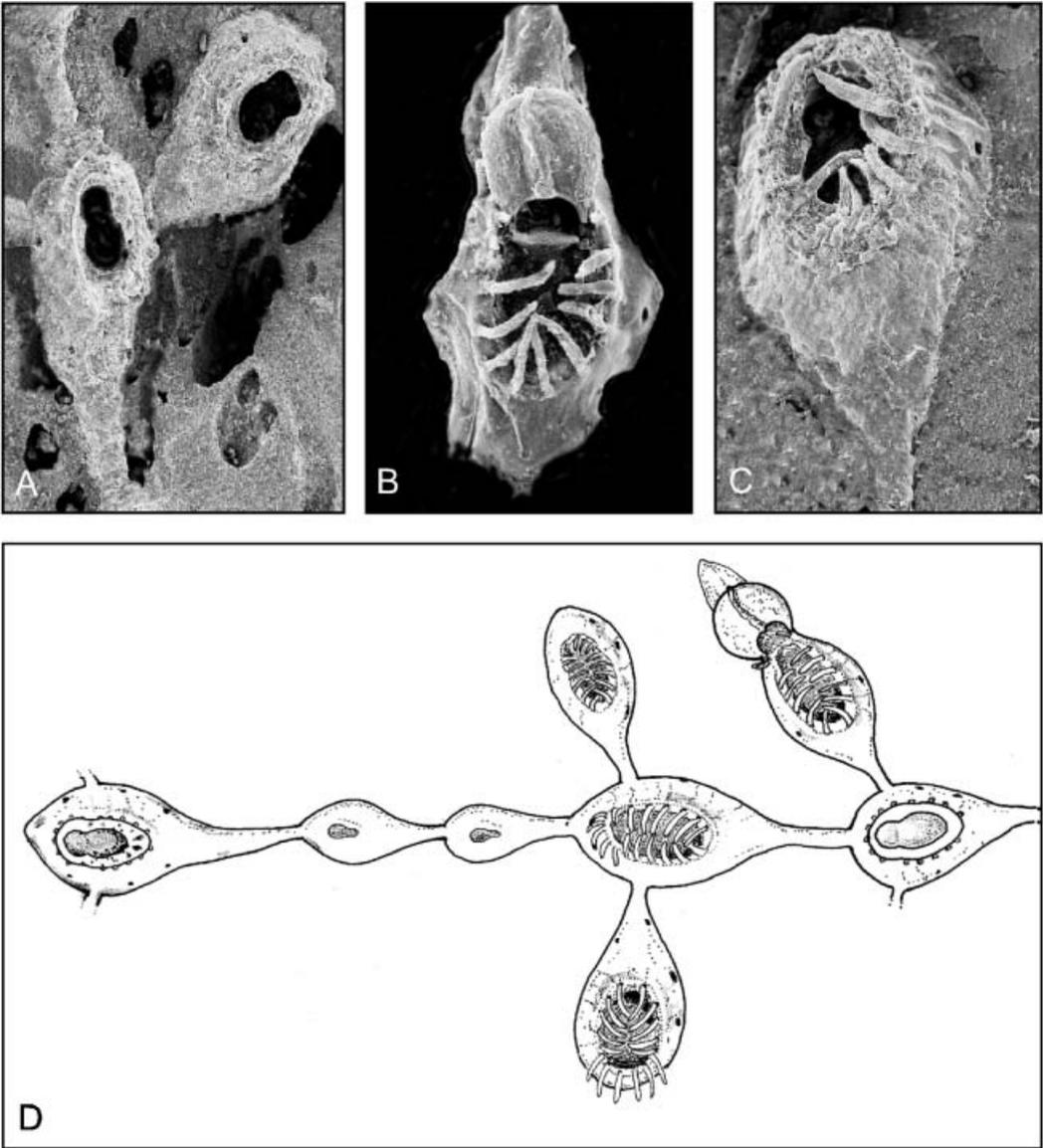


Figure 2. *Pyriporoides judyae* sp. nov., SAMA27566: (A) autozooids showing cryptocyst and opesia, $\times 40$; (B) ovicelled autozooid, $\times 80$; (C) autozooid, $\times 100$; (D) colony showing autozooids, small zooids and ovicelled zooid, $\times 40$.

elongate oval, smooth-surfaced, imperforate; a narrow, longitudinal area of endooecium exposed frontally, the edges of the ectooecium developing as a pronounced ridge; 0.17 mm long \times 0.19 mm wide. An irregularly shaped kenozooid is always present distal to the ovicell, with a portion of membranous frontal wall underlain by a granular cryptocyst (Figure 2B). Avicularia not observed. Basal pore chambers present in vertical walls.

Etymology

Named for the first author's sister, Judy Maré.

Remarks

Pyriporoides was introduced by Hayward and Thorpe (1989) for the Antarctic species *Membranipora uniserialis* Waters, 1904. The autozooids of *P. uniserialis* are shortly clavate, without the proximal cauda seen in *P. judyae*; they are characterized by a broad cryptocystal shelf, but bear only a distal circlet of six short spines. The ovicell has a short longitudinal ridge, perhaps indicative of an occluded endoecial fenestra. The genus *Daisyella* was introduced by Gordon (1989) for two species of calloporids with encrusting, uniserial growth form, from deep waters off south-east New Zealand. Rosso and Taylor (2002) described a third species from two localities off southern Iceland, also in deep water, and provided a review of known calloporid genera with uniserial growth habit. Most of the species attributed to the seven genera reviewed by Rosso and Taylor (2002) are known from comparatively few samples and, as they note, data on ancestrula morphology, early astogeny and budding patterns may lead to a re-evaluation of generic distinctions.

Genus *Valdemunitella* Canu, 1900***Valdemunitella diana* sp. nov.**

(Figure 3)

Material

Holotype: St. 16 Marion Island (46°51'S, 38°04'E), 160–170 m, SAM A27314. Paratype: St. 3 Marion Island (46°57'S, 37°53'E), 135 m, SAM A27557.

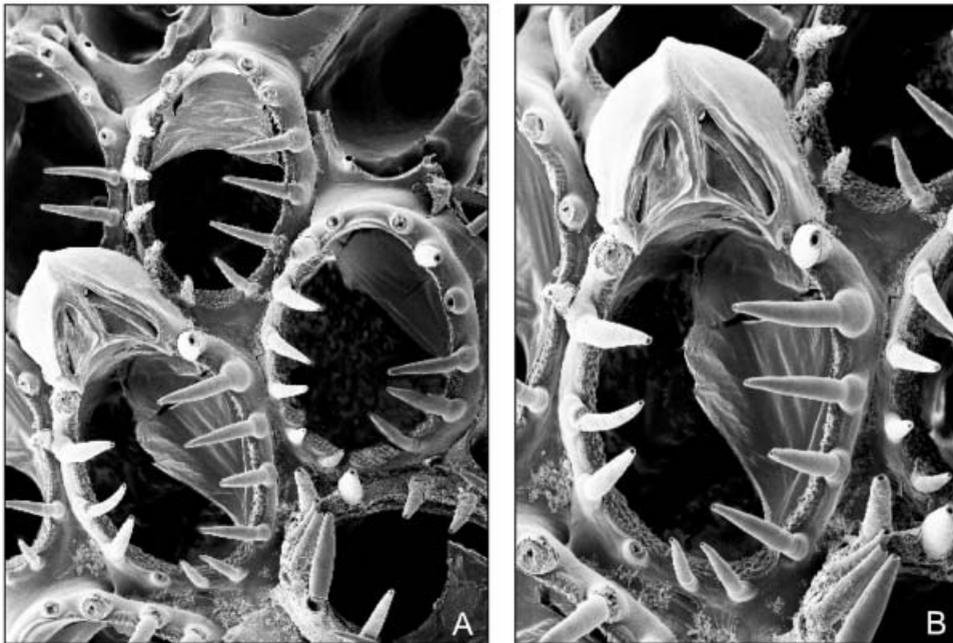


Figure 3. *Valdemunitella diana* sp. nov., SAM A27557: (A) autozooids and ovicelled autozoid, $\times 70$; (B) ovicelled autozoid, $\times 110$.

Other material. St. 19 Marion Island (46°44'S, 38°02'E), 210 m, SAM A27520; St. 28 Marion Island (46°44'S, 37°56'E), 240 m, SAM A27318.

Description

Colony an encrusting, unilaminar sheet. Autozooids elongate-oval, separated by deep grooves marking the incurving lateral walls; $0.5\text{--}0.65 \times 0.3\text{--}0.35$ mm. Gymnocyst reduced, smoothly calcified; cryptocyst developed as a narrow, coarsely granular rim bordering an elongate oval opesia. Four stout distal oral spines present, the distal-most pair obscured in ovicelled zooids; an additional 9–12 slender, tapered spines evenly spaced around the frontal membrane, slightly curved medially. Avicularia absent in all four specimens. Ovicell distinctly bipartite, with a conspicuous longitudinal, median suture; frontal fenestrae, on each side of the suture, large, occupying most of the frontal surface of the ovicell, tapered proximo-laterally, with thickened rims. Vertical walls of autozooids deep, with multiporous septula.

Etymology

Named for Diana Gianakouras, leader of the University of Cape Town offshore sampling group.

Remarks

The type species of *Valdemunitella*, *V. valdemunita* Hincks, 1885, was described from Napier, New Zealand. It has been recorded from a number of other localities in New Zealand, and from Sydney Harbour, New South Wales (Gordon 1986). The few other species presently assigned to the genus are distributed in the New Zealand region, and northwards to south-east Australia. However, *Valdemunitella* has only recently been detached from the synonymy of *Crassimarginatella* Canu, 1900, and it is possible that other species presently accommodated in the latter genus may prove to belong to *Valdemunitella*, which may then be found to have a far wider geographical distribution. All species of *Valdemunitella* have in common the medially sutured ovicell with paired frontal fenestrae. *Valdemunitella diana* sp. nov. and *V. fraudatrix* Gordon, 1986, from New Zealand, have a similar number of spines, but the ovicellular fenestrae of the latter are smaller in relation to the rest of the ovicell, and narrower than in *V. diana*, and while Gordon (1986) reported large vicarious avicularia in his species, none has been discovered in *V. diana* sp. nov. All specimens found were encrusting biogenic carbonates, namely worm tubes and bryozoans.

Superfamily BUGULOIDEA Gray, 1848

Family BUGULIDAE Gray, 1848

Genus *Cornucopina* Levinsen, 1909

***Cornucopina antlera* sp. nov.**

(Figure 4A)

Material

Holotype: St. 42 Marion Island (46°32'S, 37°51'E), 510 m, SAM A27531. Paratype: St. 38 Marion Island (46°58'S, 37°59'E), 200 m, SAM A27545.

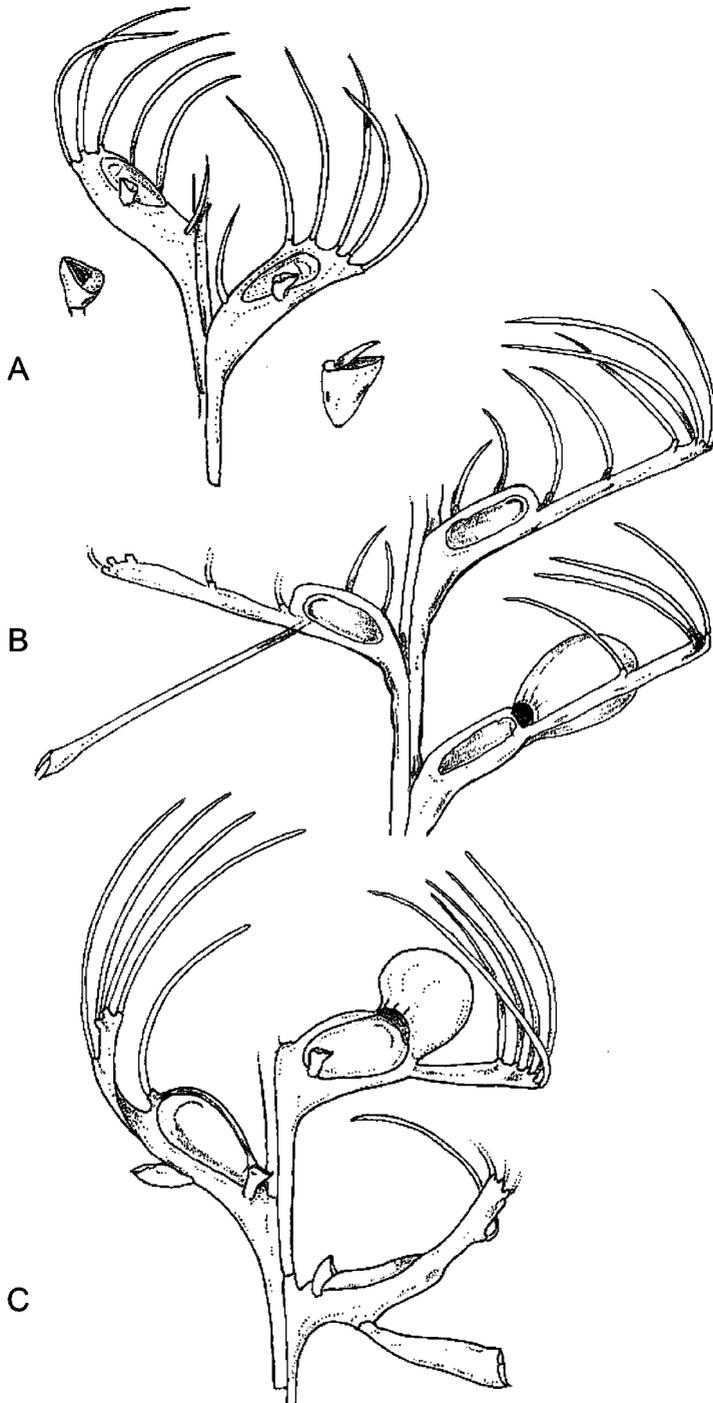


Figure 4. (A) *Cornucopina antlera* sp. nov., SAM A27531, part of the colony showing autozooids and frontal avicularia, $\times 40$; (B) *Cornucopina elongata* sp. nov., SAM A27548, part of the colony showing autozooids, ovicelled autozooid and long avicularium, $\times 40$; (C) *Cornucopina bryonyae* sp. nov., SAM A27547, part of the colony showing autozooids, ovicelled autozooid and three types of avicularia, $\times 40$.

Other material. St. 45 Marion Island (47°00'S, 37°55'E), 420–540 m, SAM A27532.

Description

Colony erect, branching, delicate; made up of two alternating rows of club-shaped zooids. Autozooids with broad distal portion, 0.4–0.55 × 0.25 mm, projecting from the branch axis, and a slender, proximal (axial) portion 0.8–1.0 mm long; opesia elongate-oval, occupying two-thirds of frontal surface of distal portion. Four to five curved, cylindrical spines spaced along the disto-basal wall of the autozooid, up to 1 mm long, and two or more spines on the lateral, axial side of the autozooid; one shorter, proximo-lateral spine. A short, pedunculate avicularium present, fronto-lateral in position, close to the border of the opesia; up to 0.2 mm long and 0.12 mm across the top with hooked, triangular rostrum. Ovicell not observed.

Etymology

Named with reference to the disposition of the disto-basal spines of the autozooid.

Remarks

Cornucopina antlera sp. nov. is characterized by the combination of a short frontal avicularium, the lack of a disto-lateral process and the antler-like arrangement of the spines. Several other species of *Cornucopina* are known in which the spines arise directly from the disto-basal wall of the autozooid, rather than from an elongate dorso-lateral process. *Cornucopina antlera* may be distinguished from all of them by its short, oval opesia, which does not extend close to the colony axis, and in its small, fronto-laterally situated avicularia. The samples were obtained from depths of 200–540 m; that from St. 45 lacked avicularia.

***Cornucopina elongata* sp. nov.** (Figure 4B)

Material

Holotype: St. 38 Marion Island (46°58'S, 37°59'E), 200 m, SAM A27548.

Description

Colony erect, branching, delicate; each branch made up of two alternating rows of club-shaped zooids. Autozooid with a broad distal portion, 0.5 × 0.2 mm, projecting from the axis of the colony, and a slender proximal (axial) portion, 0.7–0.8 mm long; opesia elongate oval, occupying entire frontal surface of distal portion. A long, slender disto-lateral process extends from the frontal side of each autozooid, 0.5 mm long with a maximum thickness of 0.1 mm, bearing a group of two to four articulating, curved, cylindrical spines at the tip (up to 1 mm long) and two spines along its length; two more, short, spines present on the disto-basal side of the autozooid. Avicularia sparse, arising from the basal surface of the autozooid, close to the branch axis; very long and slender, abruptly widening distally to resemble a straight coach-horn shape, up to 1 mm long and 0.18 mm across the top, with a

terminal, hooked rostrum bearing a short triangular mandible. Ovicell slightly longer than wide, 0.41×0.40 mm; smoothly calcified, with a frontal lip.

Etymology

Latin, *elongatus*, prolonged: with reference to the elongate disto-lateral process of the autozoid.

Remarks

The lax, feathery colonies of *Cornucopina* species are frequently damaged by collection, and taxonomically informative structures, such as avicularia, are readily lost. Thus, it is possible that this new species may possess more than one type of avicularium. In its elongate disto-lateral process, with two to four terminal spines, and its slender coach horn-shaped avicularia, *Cornucopina elongata* sp. nov. most resembles *C. moluccensis* (Busk, 1884), recorded from the Malay Archipelago (Busk 1884; Harmer 1926), off Somalia (Hasenbank 1932) and from Three Kings Island, northern New Zealand (Hastings 1943). However, in *C. moluccensis* the opesia is irregularly triangular in outline, extending disto-laterally along part of the spine-bearing process, quite unlike the oval opesia of *C. elongata* sp. nov. Further, judging from the figures of Busk (1884) and Harmer (1926), the avicularia of *C. moluccensis* are proportionately far stouter, and broader distally, than the slender avicularia of *C. elongata* sp. nov. D'Hondt (1984) listed *C. moluccensis* from Marion Island, but provided neither a figure nor description of his material.

Cornucopina bryonyae sp. nov. (Figure 4C)

Material

Holotype: St. 42 Marion Island ($46^{\circ}32'S$, $37^{\circ}51'E$), 460–560 m, SAM A27547. Paratype: St. 44 Marion Island ($46^{\circ}41'S$, $37^{\circ}50'E$), 410–644 m, SAM A27160.

Other material. St. 45 Marion Island ($47^{\circ}00'S$, $37^{\circ}55'E$), 420–540 m, SAM A27161.

Description

Colony erect, branching, delicate; made up of two alternating rows of club-shaped zooids. Autozooids with a broad distal portion, projecting from branch axis, $0.5\text{--}0.55 \times 0.25$ mm, and a slender, proximal (axial) portion, 0.6–0.7 mm long; opesia elongate oval, occupying entire frontal surface of distal portion. A thick disto-lateral process extends from the frontal side of each autozoid, $0.5\text{--}0.6 \times 0.1$ mm, typically no longer than the broad distal portion, slightly broadened at its tip where it bears five to six curved, cylindrical spines, up to 1 mm long; an additional spine present on the disto-basal side of each autozoid. Three types of avicularia present, each with a terminal rostrum, bearing a short, triangular mandible: a short pedunculate type, up to 0.2 mm long and 0.07 mm across the top, frontal in position and proximal to the frontal membrane; a larger, stouter, trumpet-shaped avicularium present latero-basally, midway along the length of the distal portion of the autozoid, 0.3 mm long, 0.12 mm across rostrum; this may be replaced by an even larger type, almost

clavate in form, up to 0.7 mm long and 0.2 mm across the rostrum. Ovicell globular, flexed towards axis, wider than long (0.43 × 0.4 mm), smooth, with faint striations radiating from the frontal lip.

Etymology

Named for the first author's daughter, Bryony Branch.

Remarks

Cornucopina bryonyae sp. nov. is characterized by the combination of three types of avicularia and an unusually stout disto-lateral process, bearing spines along the distal third of its length. Polymorphic avicularia are characteristic of many species of *Cornucopina*, and their variety, morphology and point of origin on the bearing autozoid are taxonomically significant characters. The very stout, almost clavate avicularium, budded from a latero-basal position on the abaxial side of the autozoid, is presently unique to *C. bryonyae*, and distinguishes it from all other described species of the genus.

Cornucopina pectogemma (Goldstein, 1882) is the common *Cornucopina* species at Marion Island, which is the type locality for the species. Colonies are flexuose, forming large, dense, feathery tufts up to 10 cm long. Autozooids are rather small, distal portion 0.35–0.4 mm × 0.15–0.2 mm, proximal (axial) portion 0.5–0.65 mm long. The five to nine curved spines arise directly from the disto-basal wall of the autozoid. Very long and slender coach horn-like avicularia are characteristic, and together with the lack of a disto-lateral process bearing the spines, distinguish this species from *C. elongata* sp. nov. and *C. bryonyae* sp. nov. The characteristic avicularia, differently proportioned autozooids and fewer, shorter spines distinguish *C. antlera* sp. nov. from *C. pectogemma*.

Superfamily CELLARIOIDEA Fleming, 1828

Family CELLARIIDAE Fleming, 1828

Genus *Paracellaria* Moyano, 1969

***Paracellaria elizabethae* sp. nov.**

(Figure 5A–D)

Material

Holotype: St. 42 Marion Island (46°40'S, 37°51'E), 460–560 m, SAM A27537. Paratype: St. 39 Marion Island (46°60'S, 38°01'E), 360–376 m, SAM A27538.

Other material. St. 45 Marion Island (47°00'S, 37°55'E), 420–540 m, SAM A27092.

Description

Colony delicate, translucent, branching dichotomously at frequent and regular intervals, each new ramus separated from the preceding internode by a fracture joint and secured by chitinous rhizoids; up to about 30 mm, internodes usually less than 5 mm long and 0.5 mm wide. Autozooids disposed in alternating whorls of three; elongate hexagonal, separated by thin raised ridges; 0.55–0.70 × 0.40–0.45 mm. Opesia situated close to the distal border of the autozoid, comprising ca one-tenth of total autozoid length; semicircular, slightly

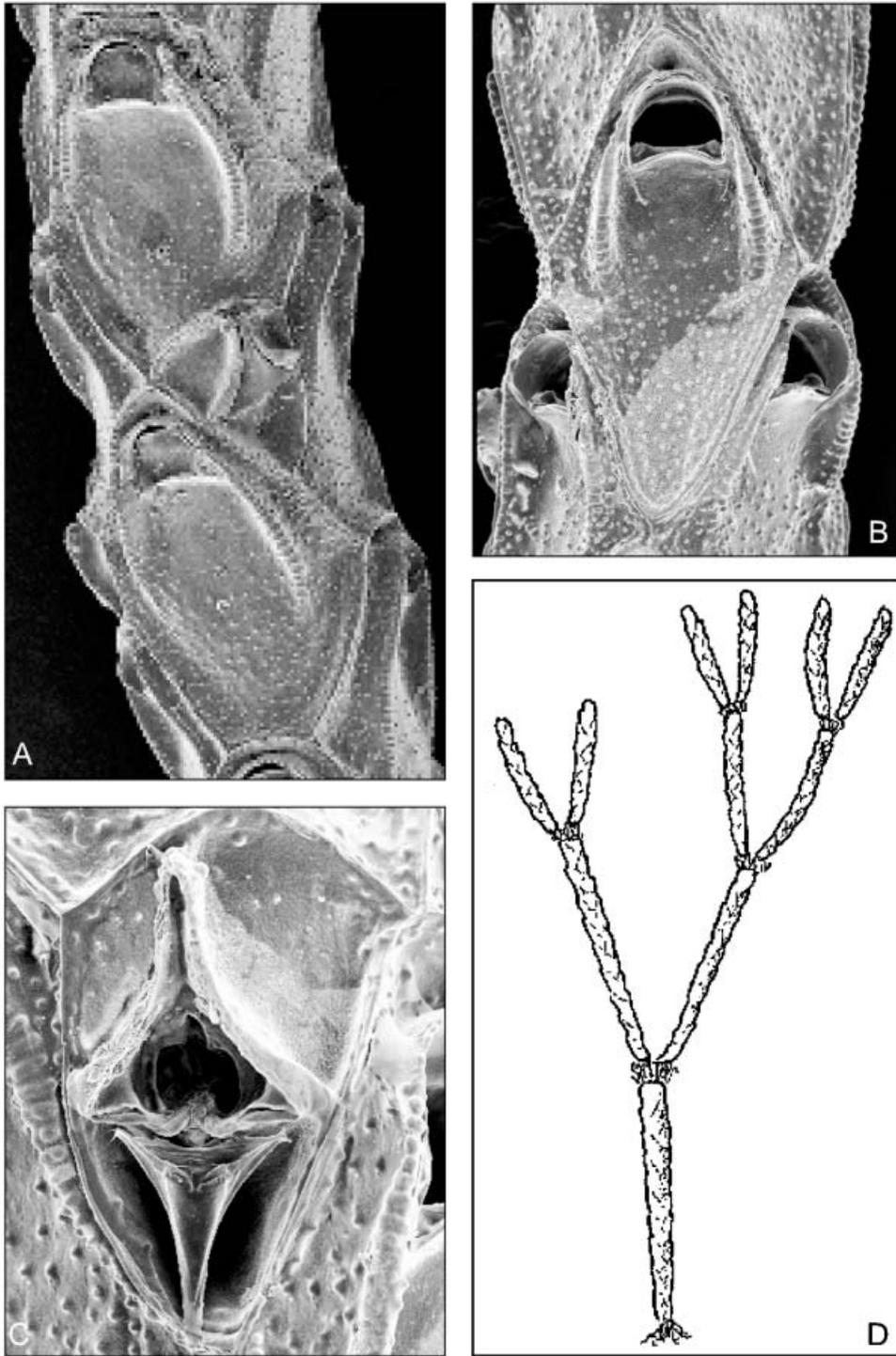


Figure 5. *Paracellaria elizabethae* sp. nov., SAM A27537: (A) autozooids and large avicularia, $\times 80$; (B) autozooid with, distally, the aperture of an endotoichal ovicell, $\times 120$; (C) avicularium, $\times 280$; (D) colony, $\times 3$.

wider than long, 0.1×0.09 mm, with raised, thickened rim; a short, thick denticle visible in each proximo-lateral corner. Cryptocyst concave, smooth medially, grading to finely granular; a pair of curving cryptocystal ridges, with distinctly crenulated edges, extend for ca two-thirds of autozooid length, from adjacent to the opesia, where they are raised and prominent. Avicularia interzooidal, smaller than autozooids, triangular to diamond shaped, with narrow triangular rostrum, 0.1 mm long, directed disto-lateral to the axis of the internode.

Etymology

Named for the first author's mother-in-law, Elizabeth Branch.

Remarks

Paracellaria elizabethae sp. nov. is especially characterized by its short, wide opesia, and the disto-lateral orientation of the avicularium, features particularly important in distinguishing species of this genus. *Paracellaria* is presently constituted by the endemic Antarctic type species, *P. wandeli* (Calvet, 1909), by the subantarctic *P. calveti* (d'Hondt, 1984) and *P. elephantina* (Hayward and Thorpe, 1989), and by *P. cellarioides* (Hayward and Thorpe, 1989), which is known from the southern Patagonian shelf. Raised cryptocystal ridges are seen in all of the latter three species. *Paracellaria cellarioides* differs from *P. elizabethae* sp. nov. in its distally directed avicularia and elongate opesia, and in the arrangement of autozooids, in spiral whorls of eight. In *P. calveti* autozooids are arranged in whorls of four, the opesia is proportionately shorter and broader than that of *P. elizabethae* sp. nov., and the projecting distal portions of the cryptocystal ridges meet and fuse medially. *Paracellaria elephantina*, finally, has proximo-laterally orientated avicularia, and an opesia that is much longer than wide.

Superfamily CRIBRILINOIDEA Hincks, 1879

Family CRIBRILINIDAE Hincks, 1879

Genus *Filaguria* Moyano, 1991

Filaguria lithocrustata sp. nov.

(Figure 6A, B)

Material

Holotype: St. 53 Marion Island ($46^{\circ}55'S$, $37^{\circ}33'E$), 600–775 m, SAM A27523. Paratype: St. 17 Marion Island ($46^{\circ}41'S$, $37^{\circ}49'E$), 335–375 m, SAM A27524.

Other material. St. 16 Marion Island ($46^{\circ}51'S$, $38^{\circ}04'E$), 160–170 m, SAM A27522.

Description

Colonies forming small irregular patches on rock, thickly calcified. Autozooids oval, convex, separated by deep grooves; $0.8\text{--}1.1 \times 0.55\text{--}0.6$ mm. Gymnocyst reduced forming a smooth, imperforate rim around autozooid. Frontal shield consisting of 14–21 (most commonly 18–20) broad costae, not touching around the edges of the shield but fused medially, and at two to three points along their length, leaving large round lacunae between

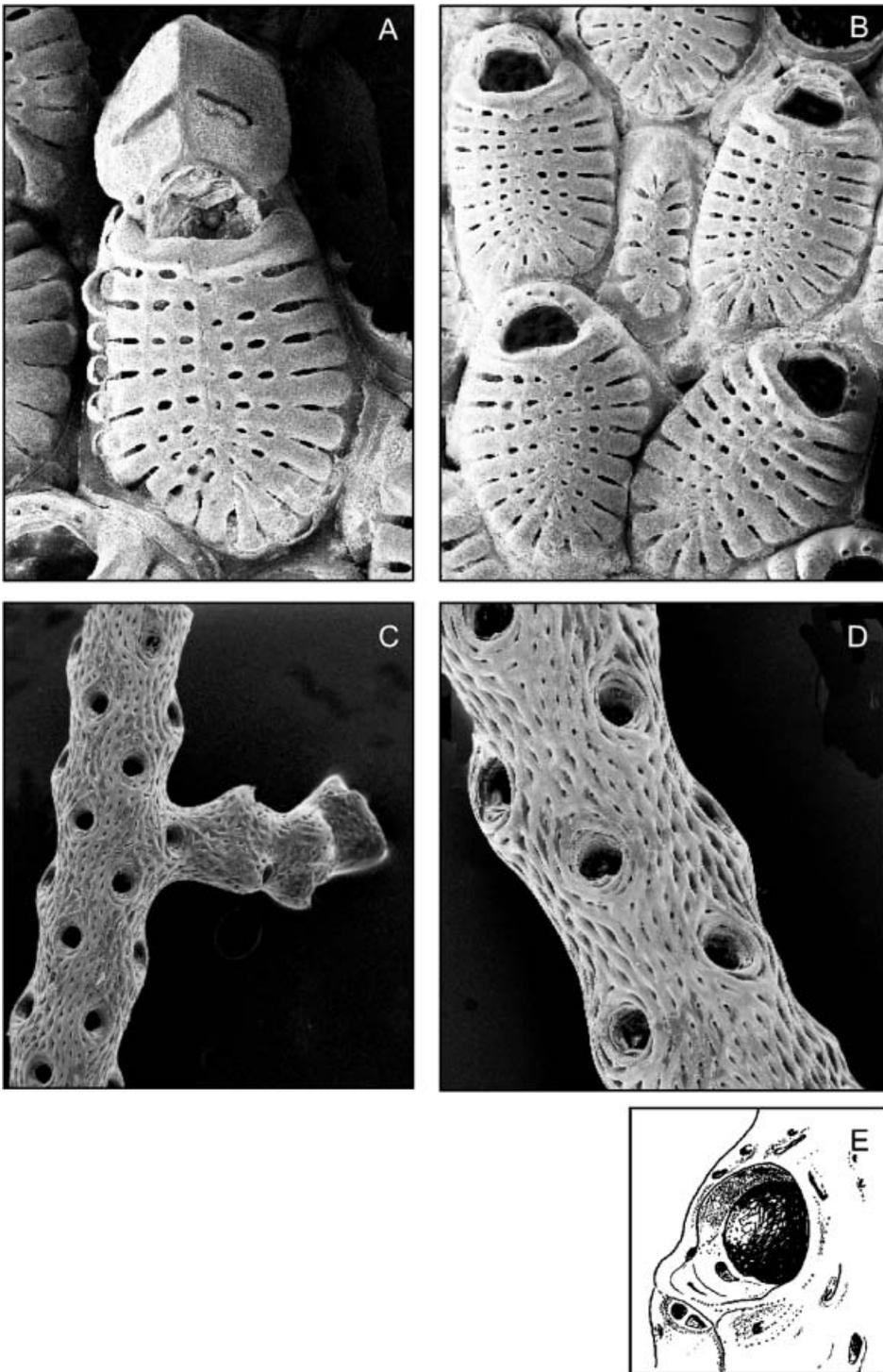


Figure 6. (A, B) *Filaguria lithocrustata* sp. nov., SAM A27523: (A) ovicelled autozooid, $\times 70$; (B) autozooids and a small kenozooid, $\times 40$. (C–E) *Sclerodomus myriozoides*, SAM A27530: (C) part of colony plus young branch, $\times 15$; (D) abfrontal view of colony showing four series of autozooids, $\times 30$; (E) aperture showing associated avicularia.

them. One small uncalcified spot (pelmaticum) present on the surface of most costae, usually at the second point of fusion between adjacent costae. The distalmost pair of costae with broad bases, and especially thickened, forming a stout, nodular apertural bar. Aperture bordered by four to six (usually five) short, stout, flattened and basally jointed oral spines; proximal pair persist in ovicelled zooids. Large avicularia absent. Ovicell elongate oval, about 0.3 mm long \times 0.4 mm wide; hyperstomial, with a longitudinal median ridge and, on each side, an elongate, drop-shaped, transverse frontal fenestra; closed by autozooidal operculum. Small, irregularly shaped kenozooids sporadically distributed throughout the colony, lacking an aperture and with a complete, though reduced, frontal shield.

Etymology

Greek, *lithos*, stone; Latin, *crusta*, shell or rind, with reference to the growth habit of the species.

Remarks

Filaguria lithocrustata sp. nov. is very similar to the Antarctic species *Filaguria spatulata* (Calvet, 1909), which also has about 20 costae, fused medially and at one or two points along their length, and four to five oral spines. However, in *F. spatulata* the uncalcified spots on the surfaces of the costae are situated close to the median line of fusion of the costae (Moyano 1991, Plates 8, 9), while in *F. lithocrustata* sp. nov. they are not median in position, but usually close to the second point of lateral fusion between adjacent costae. *Filaguria lithocrustata* differs from *F. spatulata* in its larger autozooids, and in the prominent, thickened apertural bar, which does not occur in the latter species. The ovicell of *F. lithocrustata* sp. nov. has a distinctive shape, with narrow drop-shaped fenestrae, and large avicularia are absent.

D'Hondt (1979) listed *F. spatulata* from Heard Island and McDonald Island, in the southern Indian Ocean, although it is otherwise known no further north than the South Shetland Isles. The source of d'Hondt's records is not apparent.

Superfamily CATENICELLOIDEA Busk, 1852

Family CATENICELLIDAE Busk, 1852

Genus *Talivittaticella* Gordon and d'Hondt, 1985

Talivittaticella frigida (Waters, 1904)

(Figure 7A)

Catenicella frigida Waters 1904, p 20, Plate 1, Figure 1a–d.

Talivittaticella frigida: López Gappa and Lichtschein 1990, p 23, Plate 7, Figures 4, 5, Plate 11; Hayward 1995, p 237, Figure 151A–C.

Material

St. 49 Marion Island (47°00'S, 37°54'E), 265–306 m, good colony, SAM A27058; St. 16 Marion Island (46°51'S, 38°04'E), 160–170 m, small fragment, SAM A27060; St. 29 Marion Island (46°41'S, 37°57'E), 145 m, small damaged, SAM A27551; St. 35 Marion Island (46°45'S, 37°48'E), 204 m, small fragment, SAM A27059; St. 38 Marion Island (46°58'S, 37°59'E), 200 m, old base, SAM A27055; St. 43 Marion Island (47°40'S, 37°51'E), 350–600 m, small fragment, SAM A27056.

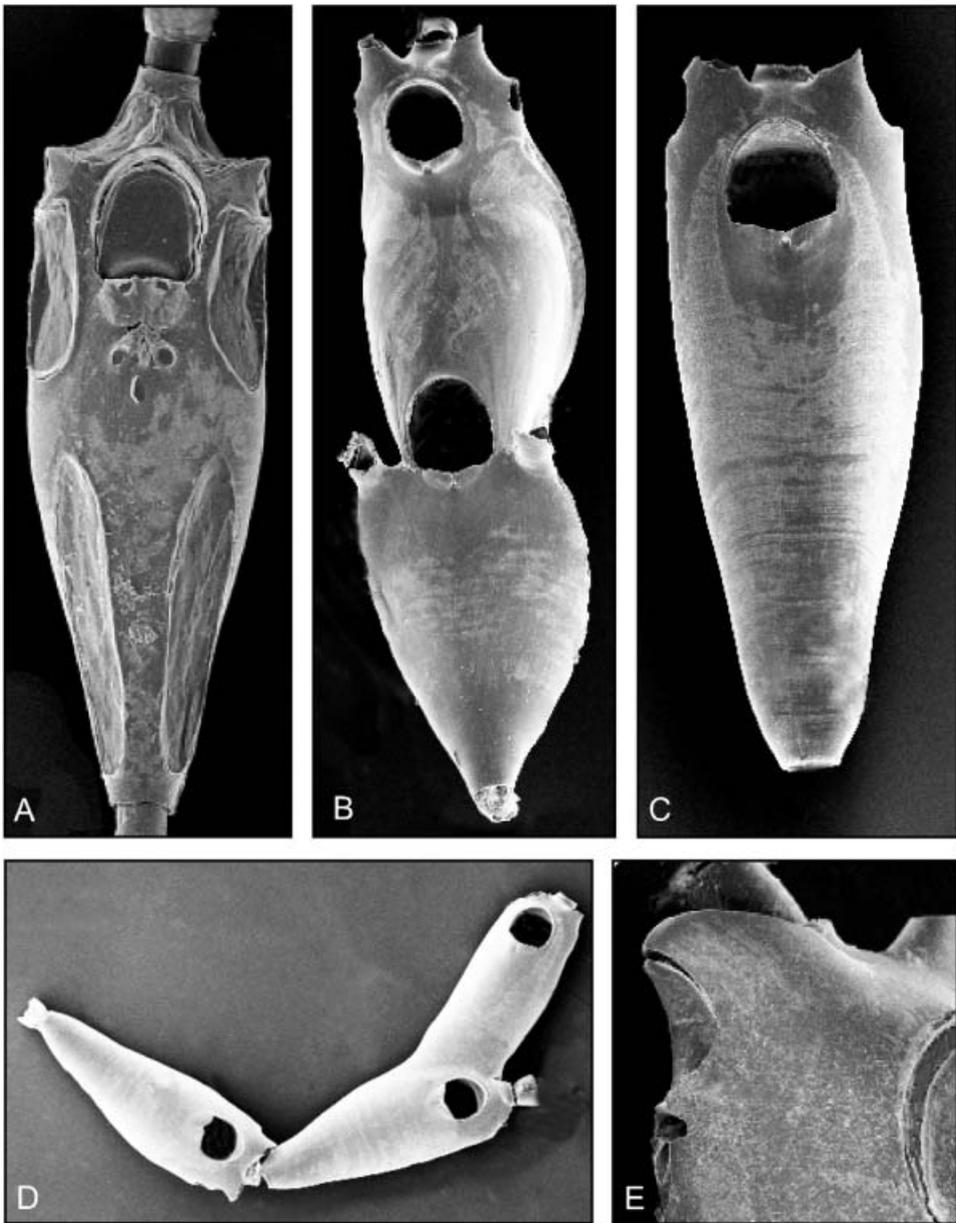


Figure 7. (A) *Talivittaticella frigida*, SAM A27058, autozooid, $\times 110$. (B–E) *Catenicella glabrosa* sp. nov., SAM A27556: (B) autozooid and ovicelled autozooid, $\times 80$; (C) autozooid, $\times 100$; (D) portion of colony showing internodes, $\times 40$; (E) detail of avicularium, $\times 300$.

Description

Colony erect, branching, jointed, up to 10 mm high, attached by chitinous rhizoids. Single-zooid internodes 0.77–0.84 mm \times 0.32 mm, lightly calcified; orifice D-shaped, as long as wide, 0.1 mm; costate frontal shield slightly larger than the orifice, comprising five fused

costae with five conspicuous infra-costal pores, the distalmost pair, bordering the aperture, about three times as wide as the rest. Proximo-lateral pore chambers (vittae) extending along the proximal half of the zooid, elongate oval and shallow with a few small median pores. Two smaller chambers lateral to the orifice and shield, and a further pair of small chambers distal to the orifice. A pair of small avicularia at disto-lateral corners of autozooid, single at dichotomy; rostrum 0.04 mm long. No brooding zooids present. In older parts of the colony rhizoids partly cover and obscure the zooids.

Remarks

This is only the third record of *T. frigida*, and represents a considerable extension of its geographical range. It was described from a single station in the Bellingshausen Sea, at 580 m (Waters 1904), and recorded, and figured, by López Gappa and Lichtschein (1990) from a single locality on the southern Patagonian shelf, at 145 m. *Talivittaticella* was introduced (Gordon and d'Hondt 1985) for three species with deep-sea distributions. *Talivittaticella frigida* is unique in the genus, but similar to other Catenicellidae, in evidently ranging into far shallower water.

Genus *Catenicella* de Blainville, 1830

Catenicella glabrosa sp. nov.

(Figure 7B–E)

Material

Holotype: St. 45 Marion Island (47°00'S, 37°55'E), 420–540 m, SAM A27556. Paratype: St. 53 Marion Island (46°55'S, 37°33'E), 606–775 m, SAM A27087.

Other material. St. 54 Marion Island (46°55'S, 37°35'E), 70–135 m, SAM A27061.

Description

Colony erect, branching, jointed, up to 10 mm or more high. Sterile internodes consist of a single, slender autozooid, 0.85 × 0.28 mm; dichotomous branching occurs at bizooidal internodes, the disto-lateral autozooid slightly narrower than the other autozooids; fertile internodes subterminal, bizooidal, the proximal zooid short and broad, the ovicell as long as the zooid, occupying most of the frontal surface of the distal zooid. Frontal shield smoothly calcified, imperforate; each zooid with a pair of narrow and elongate, curving, lateral pore chambers (vittae), extending from just distal to the node, to level with the orifice, each with a single line of pores. Primary orifice D-shaped, as wide as long, 0.12 mm; proximal border formed by an inconspicuous pair of residual costae, with a single minute pore medio-proximally; condyles not apparent. Distolateral corners of single autozooids each with a small avicularium, with obtuse-triangular rostrum, 0.03 mm long, distally directed. A small (suprascapular?) chamber apparent distal to the avicularium in single autozooids; presence or absence of a (subscapular) chamber proximal to it not established. Originating autozooids at a dichotomy with a single avicularium; ovicell-bearing zooids with a pair of short, cylindrical disto-lateral processes (damaged in all specimens). Ovicell as long as wide, smoothly calcified, imperforate but with indistinct, longitudinal frontal striations.

Etymology

Latin, *glaber*, smooth, with reference to the calcification of the zooids.

Remarks

The generic assignment of this species is only provisional. Its slender autozooids, with narrow, elongate vittae and short disto-lateral processes, are similar to those of many species of *Catenicella*. However, the ovicell of *C. glabrosa* differs from those of other described species of the genus in its smooth, imperforate ectooecial calcification. The apparent lack of condyles is also unusual for a species of *Catenicella*. *Talivittaticella* Gordon and d'Hondt, 1985 is characterized by a very reduced costate frontal shield, visible as three to five minute costae, closely fused just proximal to the primary orifice, and by subterminal, bizooidal fertile internodes. SEM reveals a single pair of much reduced costae constituting the proximal edge of the primary orifice in *C. glabrosa* sp. nov., and the bizooidal fertile internodes are also similar to those seen in *Talivittaticella*. However, the ovicell of *Talivittaticella*, in those species in which it is known, typically has an uncalcified portion of ectooecium frontally, and the vittae are broad and shallow, with very few pores. Unfortunately, much of the material available for study is damaged; details of the morphology of the distolateral chambers and avicularia are unclear, and confident generic assignment must await the collection of better, more extensive material.

Superfamily HIPPOTHOIDEA Busk, 1859**Family HIPPOTHOIDEAE** Busk, 1859**Genus *Celleporella*** Gray, 1848***Celleporella marionensis*** sp. nov.

(Figure 8A–E)

Material

Holotype: St. 55 Marion Island (46°55'S, 37°35'E), 42–47 m, SAM A27555. Paratype: St. 20 Marion Island (46°49'S, 37°41'E), 34–42 m, SAM A27473.

Other material. St. 31 Marion Island (46°60'S, 37°55'E), 42–85 m, SAM A27474.

Description

Colony forming thick, fan-shaped sheets, encrusting pebbles, coherent but with small spaces between the tubular communication structures linking adjacent zooids. Autozooids, ovicelled female zooids and presumed male zooids present. Autozooids elongate oval, convex; commonly 0.4–0.45 × ~0.2 mm; primary orifice as long as wide, 0.09 mm; with a deep U-shaped sinus comprising approximately one-fifth total length and occupying half the total proximal width; condyles distinct, bifid; frontal shield with coarse, transverse corrugations and three to four prominent umbones in a longitudinal series down the mid-line. Female zooid slightly shorter than autozooid; primary orifice wider than long, more or less D-shaped, proximal edge almost straight, with a short, narrow, U-shaped sinus; frontal shield with three to four prominent umbones in a median longitudinal series, the distalmost umbo not completely obscuring the orifice; ovicell globular with about six large pores around its periphery, and up to nine blunt umbones on its frontal surface. Male zooids

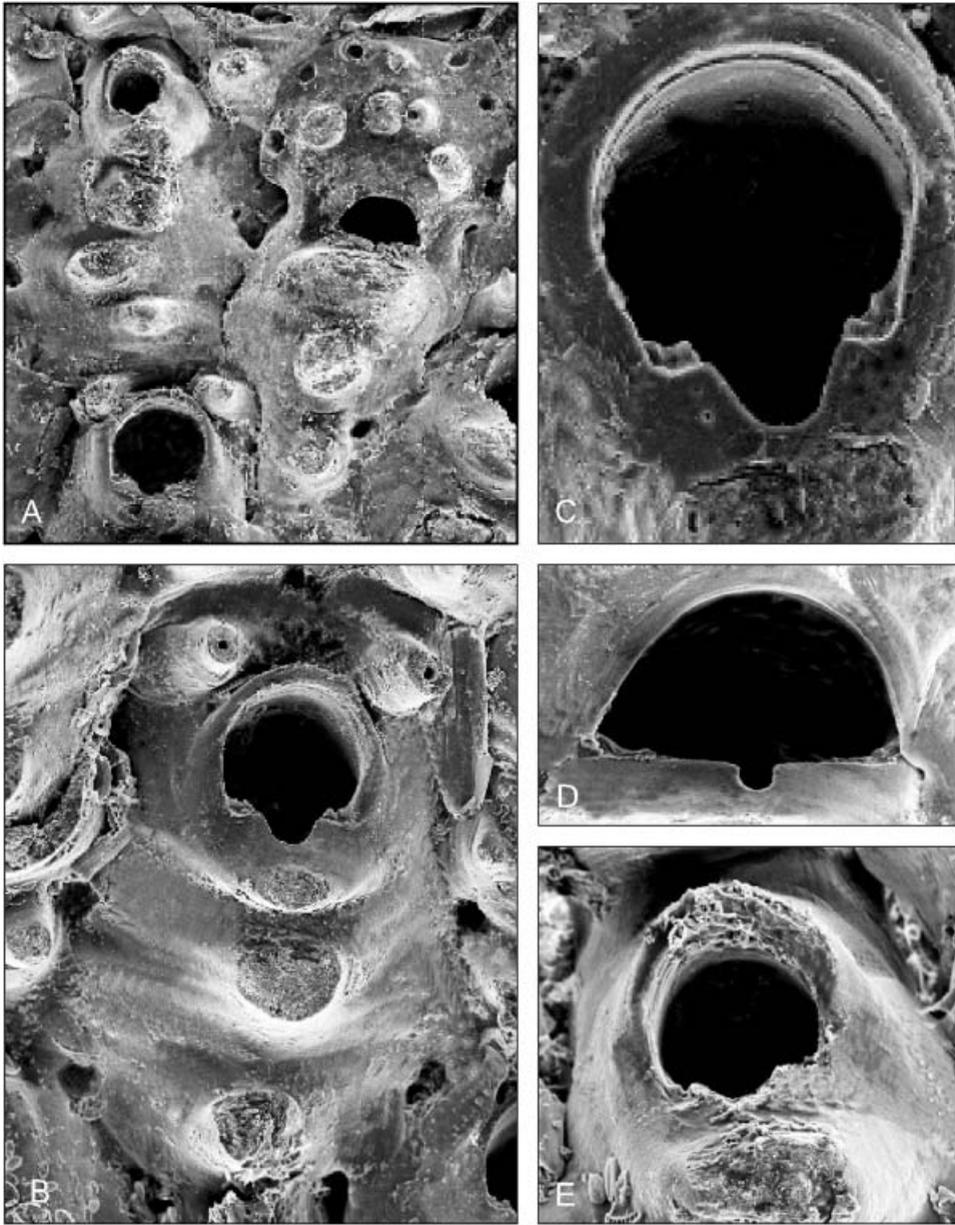


Figure 8. *Celleporella marionensis* sp. nov., SAM A27555: (A) female zooid with ovicell, small male zooid and orifice of autozooid, $\times 150$; (B) autozooid with two distal spines, $\times 200$; (C) orifice of autozooid, $\times 450$; (D) female orifice, $\times 450$; (E) male orifice, $\times 450$.

smaller than autozooids, up to 0.3 mm long, with smaller orifice, 0.04 mm wide. Ancestrula not present.

Etymology

Named with reference to the type locality.

Remarks

This species is most similar to *C. bougainvillei* (d'Orbigny, 1842), which is common in shallow coastal waters of magellanic South America and ranges southwards to South Georgia and the tip of the Antarctic Peninsula. It differs in the proportionately larger sinus of the autozooid orifice, and in the morphology of the female zooid, in which the sinus is proportionately much smaller than in the latter species, and distinctly parallel-sided rather than rounded. The ovicell of *C. marionensis* is similar to that seen in some populations of *C. bougainvillei* in having peripheral perforations (Moyano 1986), but differs in bearing a conspicuous group of frontal umbones. Significantly, all specimens of *C. marionensis* sp. nov. encrusted pebbles from depths of 35–84 m, while *C. bougainvillei* seems to be invariably associated with algae.

Celleporella bougainvillei is also recorded here from Marion Island, considerably extending its known geographical range. However, in view of the facts that the type locality of *C. bougainvillei* is the Falkland Isles; that d'Orbigny's original materials do not seem to have been described or figured again since the introduction of the taxon, and that Moyano (1986) has drawn attention to morphological differences between geographically remote populations of the species, it may prove to be that this extensive range encompasses several similar but distinct species.

Celleporella alia Hayward, 1993, previously known only from the South Orkney Islands, South Georgia and the southern Patagonian Shelf, is also here recorded from Marion Island. It forms thin, translucent sheets on bryozoans and on hydrozoans such as *Lafoea dumosa* and *Symplectoscyphus subdichotomus*. The autozooids of *C. alia* are closely conjoined and rather flat; the frontal shield bears fine longitudinal ridges and transverse wrinkles but umbones are small and sparsely developed. The female zooid has an ovicell with about 20 tubaeform pores, and its orifice has a V-shaped sinus.

Superfamily UMBONULOIDEA Canu, 1904**Family SCLERODOMIDAE** Levinsen, 1909**Genus *Sclerodomus*** Levinsen, 1909***Sclerodomus myrizoides*** (Busk, 1884)

(Figure 6C–E)

Reteporella myrizoides Busk 1884, p 127, Plate 24, Figure 2.*Sclerodomus myrizoides*: Gordon 1988, p 254, Figures 12–15.*Material*

St. 45 Marion Island (47°00'S, 37°55'E), 420–540 m, on rock, SAM A27530; St. 39 Marion Island (46°60'S, 38°01'E), 360–376 m, on rock, SAM A27019; St. 42 Marion Island (46°40'S, 37°50'E), 460–560 m, on rock, SAM A27535; St. 52 Marion Island (46°55'S, 37°34'E), 340–400 m, on rock, SAM A27492.

Description

Colony, erect, branching at irregular intervals, attached basally by chitinous rhizoids; at least 40 mm high, with cylindrical branches up to 1 mm diameter. Autozooids in four alternating longitudinal series (two series at branch tips), their apertures occupying about three-quarters of the branch circumference, defining a clear abfrontal surface; approximately 0.8 × 0.4 mm but individual autozooid boundaries indistinct. Aperture circular,

wider than long; 0.2×0.16 mm, with a low, medio-proximal umbo, more pronounced in early ontogeny; a short lip present within the proximal rim, and a laterally orientated, adventitious avicularium, with short, triangular mandible, situated below it, deep within the peristome. A small laterally orientated frontal avicularium present proximal to the aperture in a minority of autozooids. Frontal shield of autozooids with marginal perforations; developing a reticulate secondary calcification which thickens progressively, and appearing regularly porous with elongate perforations in sinuous lines around the apertures. Ovicell not apparent in present material.

Remarks

Reteporella myriozoides was founded by Busk (1884) on material from a single station, at 210–500 fm depth, off Crozet Island, and does not seem to have been collected subsequently. Gordon (1988) re-examined, and redescribed, Busk's specimens, demonstrating that *R. myriozoides* should be assigned to *Sclerodomus*. SEM illustrations of a syntype specimen (Gordon 1988, Figures 12–15) are closely similar to those of the Marion Island material (Figure 6C, D). Gordon stated that autozooids of the Crozet syntype colony were ordered in six longitudinal series, whereas those of the Marion Island specimens are in series of four. However, this difference may be an astogenetic or ecophenotypic effect, in other respects the Marion Island species seems identical to *S. myriozoides*, and considering the proximity of the two localities a single taxon seems most probable.

Superfamily SMITTINOIDEA Levinsen, 1909
Family BITECTIPORIDAE MacGillivray, 1895
Genus *Parkermavella* Gordon and d'Hondt, 1997
Parkermavella corrugata sp. nov.
 (Figure 9A–D)

Material

Holotype: St. 38 Marion Island ($46^{\circ}58'S$, $37^{\circ}59'E$), 190–210 m, SAM A27559. Paratype: St. 17 Marion Island ($46^{\circ}41'S$, $37^{\circ}49'E$), 335–375 m, SAM A27558.

Other material. St. 25 Marion Island ($46^{\circ}50'S$, $37^{\circ}54'E$), 140 m, SAM A27500; St. 53 Marion Island ($46^{\circ}55'S$, $37^{\circ}33'E$), 606–775 m, SAM A27570.

Description

Colony unilaminar, forming partly attached curled sheets. Autozooids in regular, spreading rows, broad, rectangular to irregularly polygonal; $0.5\text{--}0.7 \times 0.35\text{--}0.45$ mm; frontal shield flat to slightly convex, coarsely granular, with a corrugated, reticulate surface; large circular marginal pores only, occasionally two rows distally. Primary orifice about as wide as long, 0.13 mm, with a broad, shallow sinus occupying about two-thirds of its proximal width; condyles small, blunt. Four distal, oral spines present, usually lost in later ontogeny, and obscured in ovicelled autozooids. Each autozooid with one small adventitious avicularium medio-proximal to the orifice, on a low prominence, the rostrum elongate oval, slightly acute to distal plane, directed proximally; crossbar slender, palate with an extensive foramen; dimorphic avicularia, as long as the orifice and with a lingulate rostrum, replacing

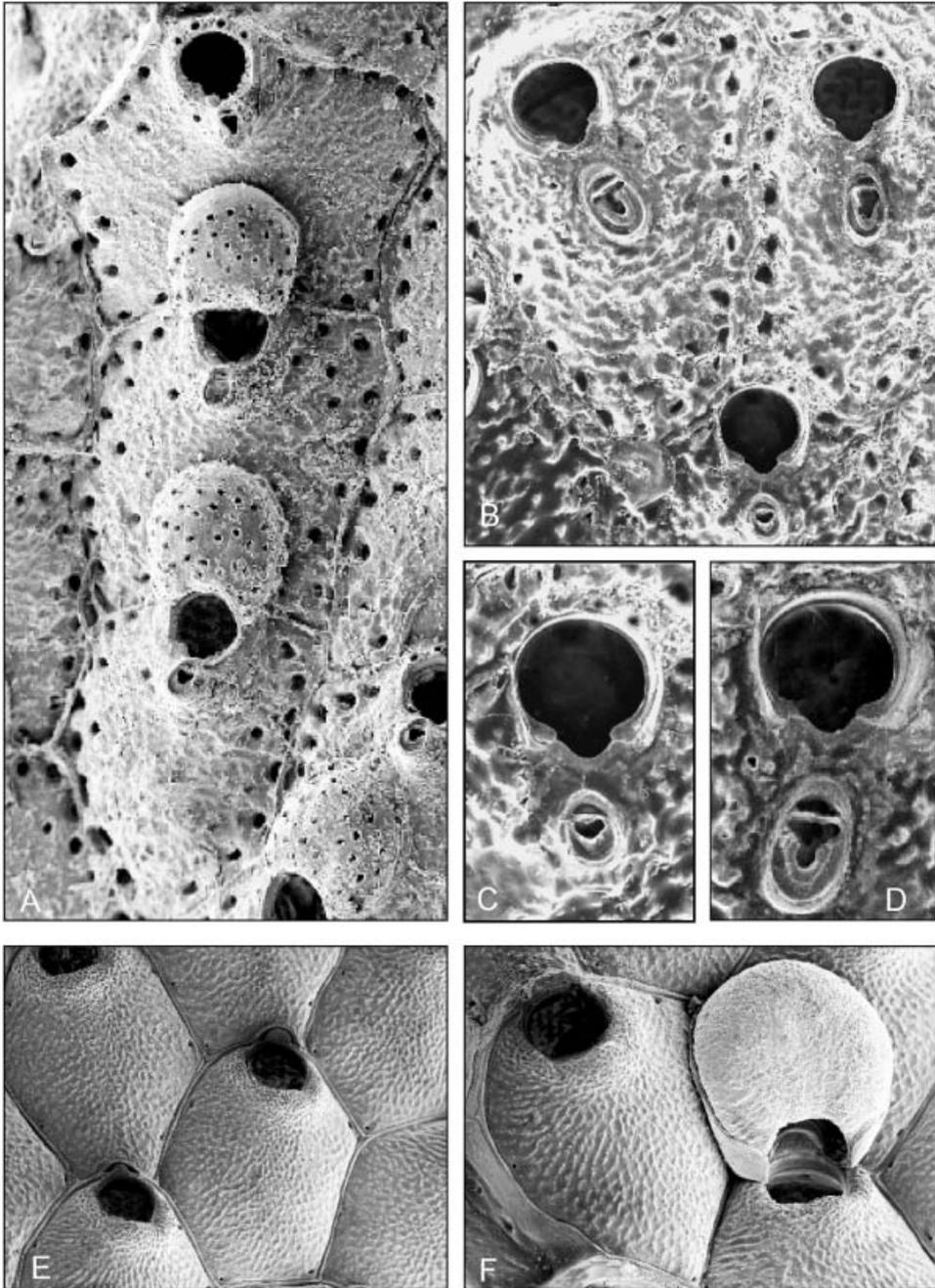


Figure 9. (A–D) *Parkermavella corrugata* sp. nov., SAM A27559 (A, C), SAM A27558 (B, D): (A) autozooid and ovicelled autozooids, $\times 75$; (B) autozooids showing the two types of avicularia, $\times 100$; (C) detail of primary orifice and small avicularium, $\times 150$; (D) detail of primary orifice and large dimorphic avicularium, $\times 150$. (E, F) *Ipsibuffonella hyalina* sp. nov., SAM A27563: (E) group of autozooids, $\times 35$; (F) ovicelled autozooid, $\times 45$.

the small type in some autozooids; both types of avicularia present in a single colony. Ovicell globose, slightly wider than long; 0.25×0.20 mm; smoothly calcified, perforated by about 24 small, thick-rimmed pores. Basal pore chambers and mural septula present.

Etymology

Latin, *corrugatus*, wrinkled, with reference to the frontal shield calcification of the zooids.

Remarks

Parkermavella was introduced by Gordon and d'Hondt (1997) for two new species from New Caledonia, and for a suite of species from the Australian region variously attributed to *Hippomenella*, *Schizoporella*, and *Schizomavella*. The morphology of *Parkermavella corrugata* sp. nov. recalls those south-west Pacific species formerly attributed to the northern hemisphere genus *Schizomavella* (which has an evenly perforated frontal shield, and is most similar to *P. punctigera* (MacGillivray) (see Gordon 1984)). It differs from that species in its larger, flatter autozooids, and broader, shallower sinus, and in possessing four rather than six, distal oral spines. The holotype colony was encrusting the bryozoan "*Myrizoum*" *marionense* Busk, 1884, while other specimens grew on shell (SAM A27500) or formed thick, white patches on rock (SAM A27558, A27570).

Superfamily SCHIZOPORELLOIDEA Jullien, 1883
Family BUFFONELLODIDAE Gordon and d'Hondt, 1987
Genus *Ipsibuffonella* Gordon and d'Hondt, 1997
Ipsibuffonella hyalina sp. nov.
 (Figure 9E, F)

Material

Holotype: St. 53 Marion Island ($46^{\circ}55'S$, $37^{\circ}33'E$), 606–775 m, SAM A27563.

Description

Colony encrusting, unilaminar. Autozooids oval to hexagonal; large, $0.88\text{--}1.0 \times 0.65\text{--}0.8$ mm; frontal shield convex, finely granular, imperforate, except for a few minute peripheral pores. Primary orifice wider than long, 0.24×0.17 mm; the proximal border shallowly arcuate; a low peristomial rim developed laterally and proximally, forming a short, blunt umbo mid-proximally; oral spines absent. Avicularia absent. Ovicell prominent, globose, as wide as long, 0.67 mm; ectooecium entirely membranous, except for a very reduced area of smooth calcification proximo-laterally, on each side of the aperture; endooecium finely granular, imperforate; not closed by autozooidal operculum. Multiporous septula present.

Etymology

Greek, *hyalinus*, glassy, with reference to the calcification of the zooid frontal shield.

Remarks

Ipsibuffonella was introduced by Gordon and d'Hondt (1997) for *I. repens*, recorded from 675 m on the northern Norfolk Ridge, New Caledonia. This new species resembles *I. repens* in its imperforate cryptocystal frontal shield, the shape of the primary orifice, and lack of spines, and in the ovicell, which in *I. hyalina* is almost completely composed of endooecial calcification. While the lateral walls of *I. hyalina* are low, they do not form the smooth slope continuous with the frontal shield, seen in *I. repens*, and the colony consists of a coherent sheet, without the tendency to uniserial growth seen in the latter. Avicularia have not been found in this new species, but they are present medio-proximal to the orifice in *I. repens*.

Superfamily SCHIZOPORELLOIDEA Jullien, 1883**Family LACERNIDAE** Jullien, 1888**Genus *Phonicosia*** Jullien, 1888***Phonicosia jousseaumei*** Jullien, 1888

(Figure 10A–C)

Phonicosia jousseaumei Jullien 1888, p 51, Plate 1, Figure 6.*Phonicosia circinata*: Hayward 1991, p 330, Figure 12.*Material*

St. 53 Marion Island (46°55'S, 37°33'E), 606–775 m, SAM A27573.

Description

Colony forming small rounded patches, encrusting on rock. Autozooids oval to hexagonal, convex, separated by distinct sutures; 0.55–0.65 × 0.35–0.4 mm. Primary orifice slightly wider than long, 0.1 × 0.09 mm, sinus narrowly U-shaped 0.02 mm, parallel-sided, condyles short and broad, occupying entire proximal border of orifice on either side of the sinus. Six to eight oral spines spaced around lateral and distal margins of orifice, three pairs persisting in ovicelled autozooids. Frontal wall thinly calcified, glossy, hyaline, smooth; imperforate except for a single series of large, widely spaced marginal pores, with two to three adjacent to the sinus, on each side. Ovicell 0.3 mm long, slightly longer than wide; basal ring of ectooecium thickly calcified, with basal pores, entooecium smooth.

Remarks

Phonicosia jousseaumei, the type species of the genus, was originally described from the Magellan Strait (Jullien 1888). Hayward (1991) re-examined Jullien's holotype specimen, and considered that it represented the same species collected by *Discovery Investigations* from the southern Patagonian shelf, Gough Island, the South Sandwich Islands, and Marion Island. However, following Powell (1967) and Gordon (1984, 1984), these records were attributed to the Indo-West Pacific species, *P. circinata* (MacGillivray). Powell (1967) noted two "forms" of *P. circinata* in material from New Zealand, and Gordon (1984) recorded further morphological variation in specimens from the Kermadec Ridge. It is possible that the broad geographical range attributed to *P. circinata* is founded upon several different species; D. P. Gordon (in litt.) considers that, at least, *P. jousseaumei* is distinct from *P. circinata* and, on the basis of Hayward's (1991) examination of Jullien's holotype, the Marion Island species is here referred to the former.

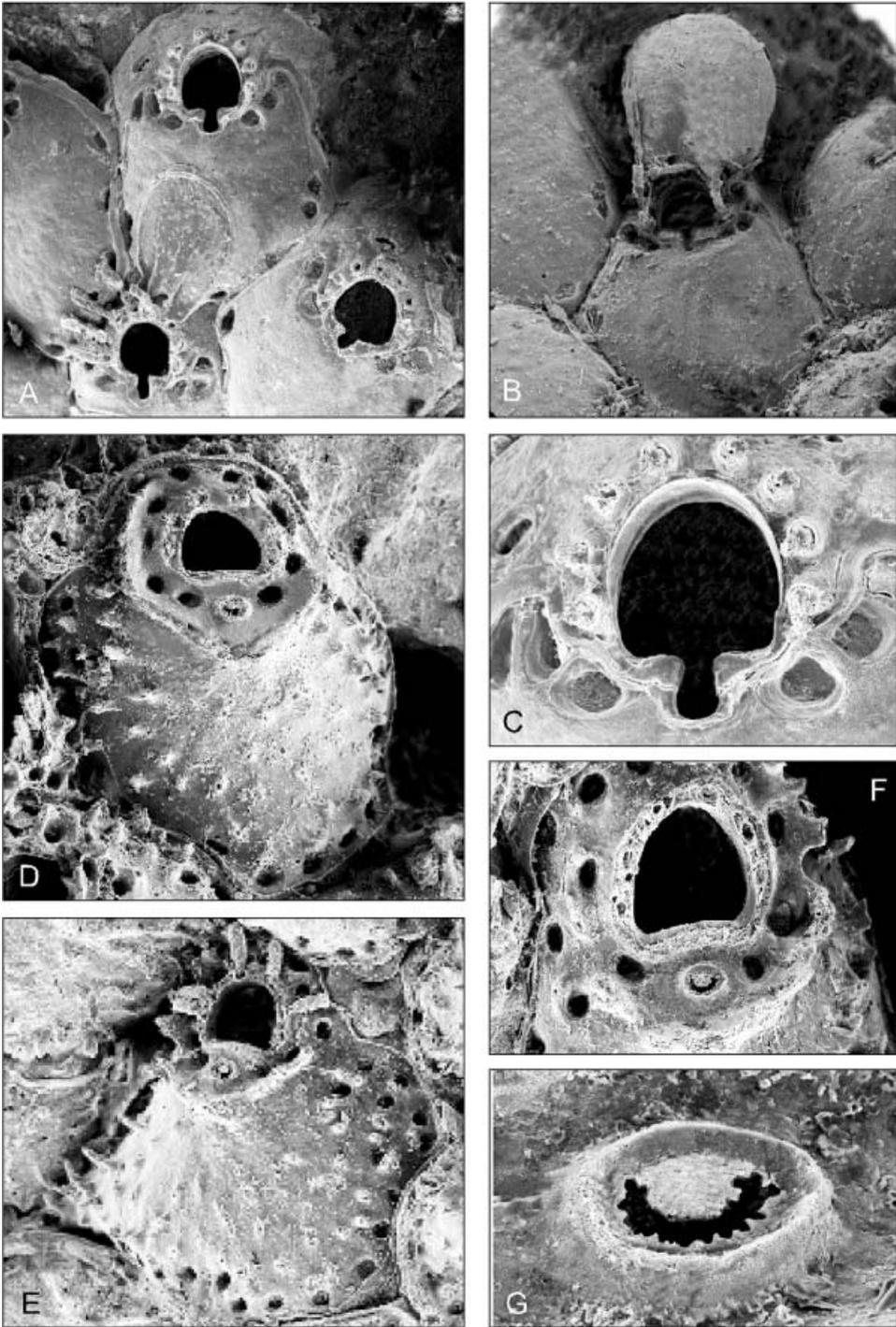


Figure 10. (A–C) *Phonicosia jousseaumei*, SAM A27573: (A) autozooids and incomplete ovicell, $\times 70$; (B) ovicelled autozooid, $\times 60$; (C) detail of orifice and pores, $\times 200$. (D–G) *Calloporina spinosa* sp. nov., SAM A27564: (D) autozooid, $\times 100$; (E) autozooid, $\times 100$; (F) orifice, $\times 160$; (G) ascopore, $\times 800$.

Family MICROPORELLIDAE Hincks, 1879

Genus *Microporella* Hincks, 1877

Microporella mandibulata sp. nov.

(Figure 11D–G)

Material

Holotype: St. 55 Marion Island (46°55'S, 37°35'E), 42–47 m, SAM A 27554.

Description

Colony a flat unilaminar sheet, encrusting rock. Autozooids oval to hexagonal, convex, separated by distinct grooves; 0.7–0.8 × 0.4–0.6 mm; frontal shield with distinctive surface of smooth nodules, and sparse small pores. Primary orifice slightly wider than long, ca 0.10 × 0.09 mm; the rim with fine denticulation revealed by SEM, proximal border straight, the proximo-lateral corners slightly convex; a raised peristomial rim surrounds the entire orifice. Six short, cylindrical spines spaced around lateral and distal borders of orifice. Ascopore prominent, separated from proximal border of orifice by a distance equivalent to ca two-thirds orifice length; crescentic, its rim with fine denticulations that do not fuse. The ascopore is enclosed within a cupped depression, raised proximally as a projecting umbo. A single large adventitious avicularium on each autozooid, adjacent or slightly proximal to ascopore, disto-laterally orientated; rostrum acute to frontal plane, short, bluntly triangular and supporting a slender, setiform mandible, 0.2 mm long. Ovicells not present in sample. Large basal pore chambers present. The specimen was smothered with diatoms.

Etymology

Latin, *mandibula*, mandible, with reference to the avicularian mandible.

Remarks

Species of *Microporella* have been described from shelf and coastal waters worldwide, and many are confusingly similar. Pending a review of this apparently homogenous, and species-rich genus (Taylor and Mawatari 2003), taxa are best characterized by the shape and dimensions of the primary orifice, the number of spines, the morphology of the ascopore and its position relative to the primary orifice, and the morphology and position of the avicularium. In all of these characters *M. mandibulata* is distinct from those southern hemisphere species presently adequately described, and illustrated by SEM (e.g. Gordon 1984, 1989), but distinctions between it and other described species will be best made following systematic revision of the genus on a worldwide basis.

Genus *Calloporina* Neviani, 1895

Calloporina spinosa sp. nov.

(Figure 10D–G)

Material

Holotype: St. 53 Marion Island (46°55'S, 37°33'E), 606–775 m, SAM A27564.

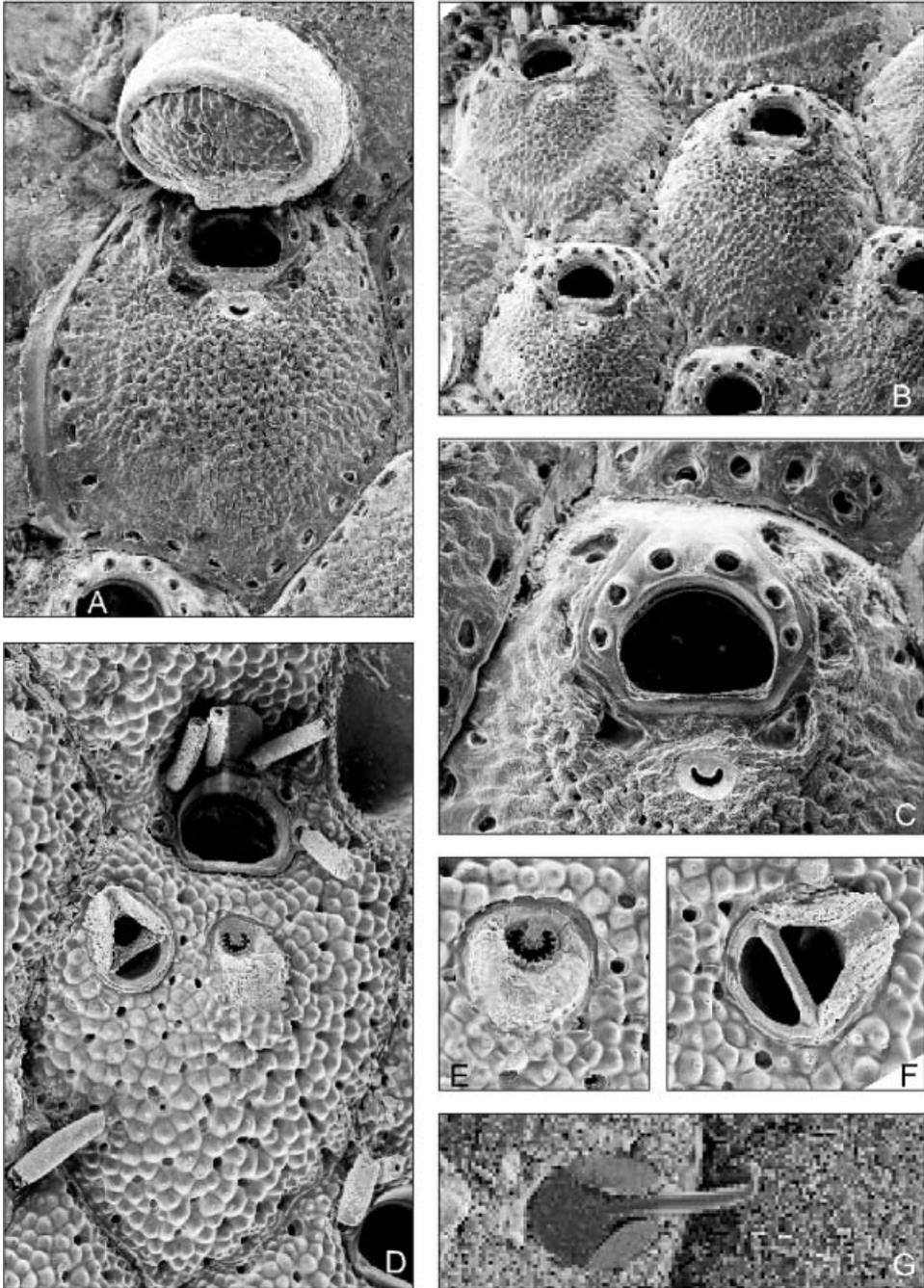


Figure 11. (A–C) *Fenestulina pumicosa* sp. nov., SAM A27362: (A) ovicelled autozooid, $\times 70$; (B) autozooids, $\times 45$; (C) primary orifice and ascopore, $\times 110$. (D–G) *Microporella mandibulata* sp. nov., SAM A27554: (D) autozooid, $\times 100$; (E) ascopore, $\times 180$; (F) avicularium, $\times 180$; (G) avicularium with long mandible, $\times 150$.

Description

Colony encrusting on rock, forming small, unilaminar patches. Autozooids oval to hexagonal, convex, separated by thin ridges marking the vertical walls; $0.55\text{--}0.6 \times 0.4\text{--}0.45$ mm. Frontal shield irregularly spinous, the “spines” representing projections of the frontal calcification; imperforate centrally, but with large, rounded areolar pores closely spaced around the margin. Primary orifice slightly wider than long, 0.1×0.09 mm, with straight proximal border. Six short, cylindrical oral spines present. Ascopore close to the proximal border of the orifice, separated from it by a distance equivalent to one-quarter orifice length; narrowly crescentic, with a toothed rim, set within a shallow dish, ca 0.05 mm diameter; a thick, raised peristome, with coarsely crenulated edge, extends proximally between the bases of the proximal spine pair, enclosing the ascopore. One or two large pores present within the peristome, close to the proximo-lateral corners of the orifice, and equally large pores are present around the distal end of the autozooid. Ovicell not found.

Etymology

Latin, *spinus*, thorny, with reference to the spinous frontal shield calcification of the zooids.

Remarks

The rather robust frontal calcification, with deep areolar pores, and the flaring peristome enclosing the ascopore, suggest that this new species is more appropriately accommodated within *Calloporina* than *Fenestrulina*, although the distinction between the two genera is perhaps becoming less clear. *Calloporina* is characterized by a thickly calcified ovicell, with only a narrow area of entoecium exposed frontally. Most species bear adventitious avicularia, and have large marginal areolar pores. However, in *Calloporina patagonica* Hayward and Ryland, 1990 avicularia are only sparsely present and the ovicell has a broad frontal area of exposed entoecium, and rather resembles that of *Fenestrulina pumicosa* sp. nov. (below). The thick peristomial calcification seen in *C. spinosa* sp. nov. is also a feature of *C. patagonica*. Further material of this new species is required before its taxonomic affinity can be confidently established. It is apparent, however, that the systematics of *Fenestrulina*, *Calloporina*, and related genera in the southern hemisphere are in need of review. *Calloporina* was introduced for a Miocene fossil, *C. decorata* (Reuss, 1848), that is said to be extant, though rare, in the Mediterranean (Zabala and Maluquer 1988). With the exception of *C. patagonica*, the genus is otherwise known from the western Pacific, from Japan to Australasia, and from Tertiary deposits of Australia and New Zealand.

Genus *Fenestrulina* Jullien, 1888

***Fenestrulina pumicosa* sp. nov.**

(Figure 11A–C)

Material

Holotype: St. 16 Marion Island ($46^{\circ}51'S$, $30^{\circ}04'E$), 160–170 m, SAM A27362. Paratype: St. 39 Marion Island ($46^{\circ}60'S$, $38^{\circ}65'E$), 360–376 m, SAM A27268.

Description

Colony encrusting on rock, forming small, unilaminar patches. Autozooids large, oval to hexagonal, convex, separated by deep grooves; $0.68\text{--}0.72 \times 0.55\text{--}0.6$ mm. Frontal shield thickly calcified, coarsely textured with fine radiating, reticulate ripples; central area imperforate; marginal pores large, circular, and closely spaced around the entire periphery; two larger pores on either side of the ascopore. Primary orifice with straight proximal edge, lacking condyles; slightly wider than long; 0.16×0.13 mm. Six short, thick and slightly flattened, oral spines, four of which persist in ovicelled autozooids. Ascopore about 0.1 mm diameter, separated from the proximal rim of the orifice by a distance equivalent to two-fifths orifice length; crescentic, with finely toothed rim, set within a smooth, round to transversely oval dished plate. Ovicell distinctive, with a deep, thick, ectoocial rim and a flat, ridged frontal entoecium bordered by pores; wider than long, 0.45×0.4 mm.

Etymology

Latin, *pumicosus*, resembling pumice, with reference to the frontal shield calcification of the zooids.

Remarks

Species of *Fenestulina* occur in all the seas of the world, and the genus seems to be especially speciose in Antarctica and the subantarctic realm (Hayward and Ryland 1990; Hayward 1995). Each species is readily distinguished by the size and proportions of the primary orifice, number of spines, morphology of the ascopore and its position relative to the primary orifice, and to some extent by its frontal shield calcification, and perforation. *Fenestulina pumicosus* sp. nov. is especially characterized by its unusual ovicell, the broad border of ectoocial calcification being perhaps unique within the genus.

Superfamily CELLEPOROIDEA Johnston, 1838
Family PHIDOLOPORIDAE Gabb and Horn, 1862
Genus *Reteporellina* Harmer, 1933
Reteporellina berylae sp. nov.
 (Figure 12A–E)

Material

Holotype: St. 39 Marion Island ($46^{\circ}60'S$, $38^{\circ}01'E$), 360–376 m, SAM A27527. Paratype: St. 45 Marion Island ($47^{\circ}00'S$, $37^{\circ}55'E$), 420–540 m, SAM A27493.

Description

Colony forms large, erect, reticulate lacy fans, to 30 mm high, with horizontal spread of 30 mm. Branches (trabeculae) 1–1.5 mm in diameter, fusing at irregular intervals, leaving elongate spaces (fenestrulae) between them, often more than 10 mm long. Autozooids in three alternating, longitudinal series (four prior to trabecular division), elongate, separated by clear, raised sutures, $0.8\text{--}1.2 \times 0.37\text{--}0.4$ mm; short, adventitious trabeculae often lack autozooids. Autozooids at growing tips with a terminal primary orifice, bearing a

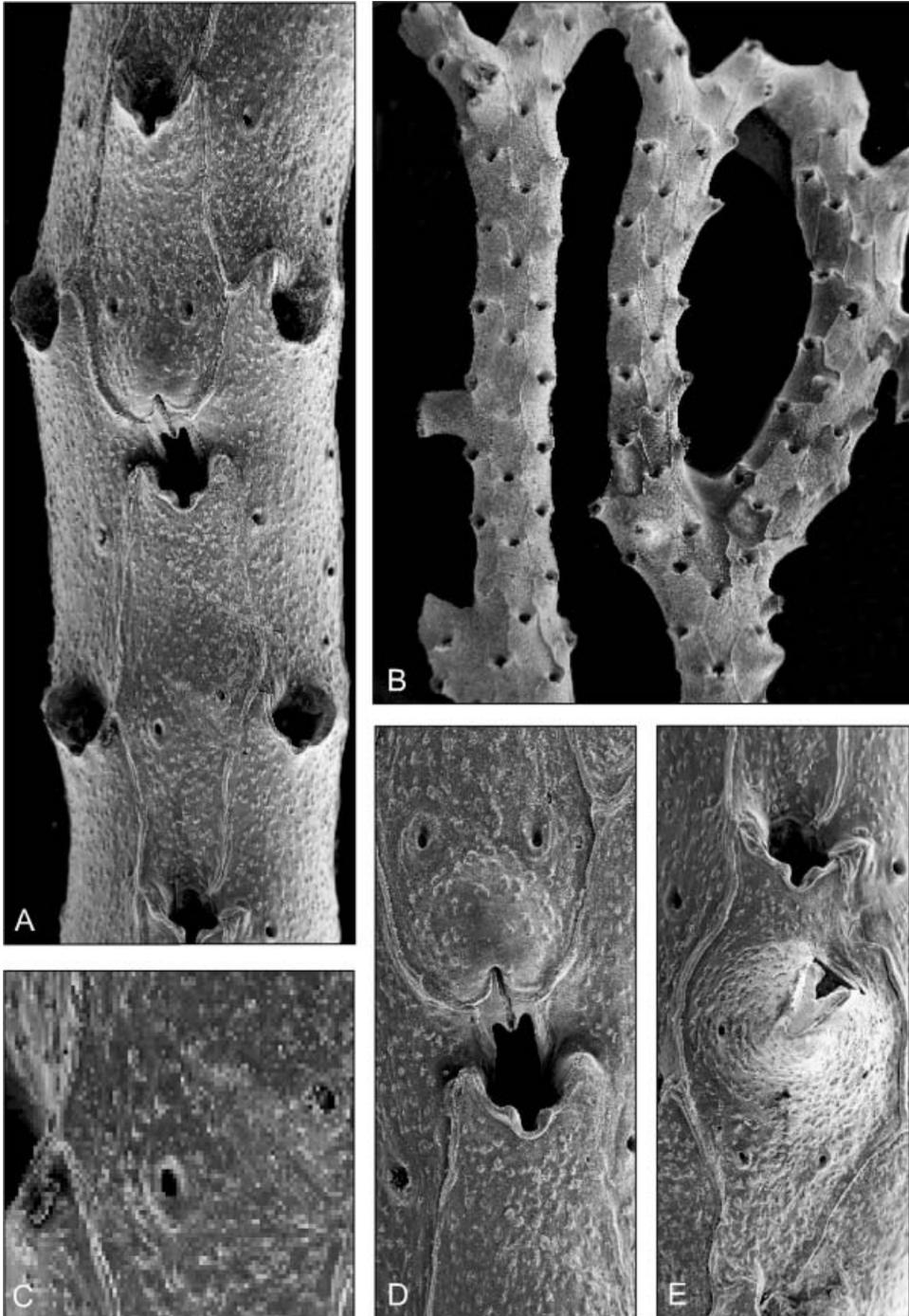


Figure 12. *Reteporellina berylae* sp. nov., SAM A27527: (A) autozooids and ovicelled autozooids with small adventitious avicularia, $\times 50$; (B) part of the colony showing large irregular fenestrulae, $\times 10$; (C) small frontal avicularium, $\times 125$; (D) ovicell and aperture, $\times 70$; (E) large avicularium, $\times 65$.

medio-proximal sinus; a long fluted peristome develops in early ontogeny, its rim flared laterally, and produced into a number of short, blunt processes, and with a distinct medio-proximal notch; no oral spines. Frontal shield granular, with few (less than five) large marginal pores proximally. Small, frontal adventitious avicularia sporadic, sometimes paired, rostrum triangular. Larger avicularia sparsely present, with enlarged cystid and elongate triangular rostrum, almost perpendicular to frontal plane and orientated obliquely proximally. Ovicell hyperstomial, initially prominent but becoming partly obscured by a granular oocial cover; with a V-shaped frontal fissure; aperture overhung by a short labellum.

Etymology

Named for the first author's sister, Beryl Britten.

Remarks

Reteporellina berylae sp. nov. is characterized by the distinctive fenestration, small frontal avicularia with short triangular rostrum, and enlarged avicularia with straight, triangular rostrum. The colony is more robust and irregularly fenestrate than that of *Reteporella gigantea* (Busk, 1884), another species of phidoloprid found at Marion Island, which has avicularia in the lip of the orifice as well as small adventitious avicularia with a semicircular rostrum on the frontal surface of the autozoid.

Genus *Reteporella* Busk, 1884
***Reteporella gigantea* (Busk, 1884)**
 (Figure 13A–G)

Retepora gigantea Busk 1884, p 114, Plate 26, Figure 7.

Material

St. 37 Marion Island (46°41'S, 38°01'E), 360–376 m, SAM A27526; St. 45 Marion Island (47°00'S, 37°55'E), 420–540 m, SAM A27493.

Description

Colony forms large, erect, reticulate lacy fans, to 30 mm high, with horizontal spread of at least 30 mm. Branches (trabeculae) 0.8–1.2 mm in diameter, fusing at regular intervals, leaving diamond-shaped to oval spaces (fenestrulae) between them, usually 3–4.5 mm long and 0.9–1.7 mm wide. Autozooids in two to three alternating, longitudinal series (four prior to trabecular division), opening on one surface, elongate, separated by clear, raised sutures, 0.5–0.9 × 0.35–0.5 mm. Primary orifice circular, obscured in early ontogeny by a low, thick-rimmed peristome, enclosing a small medio-proximal avicularium with a finely denticulate, semicircular rostrum, adjacent to a small, round pseudospiramen. No oral spines apparent. Frontal shield granular, with a few (less than six) large pores scattered on the surface. One or two small, frontal adventitious avicularia present on each autozoid, with semicircular rostrum. Irregularly shaped kenozooids sporadically present between the autozooids, particularly adjacent to trabecular fusion/anastomosis; each bearing one or two

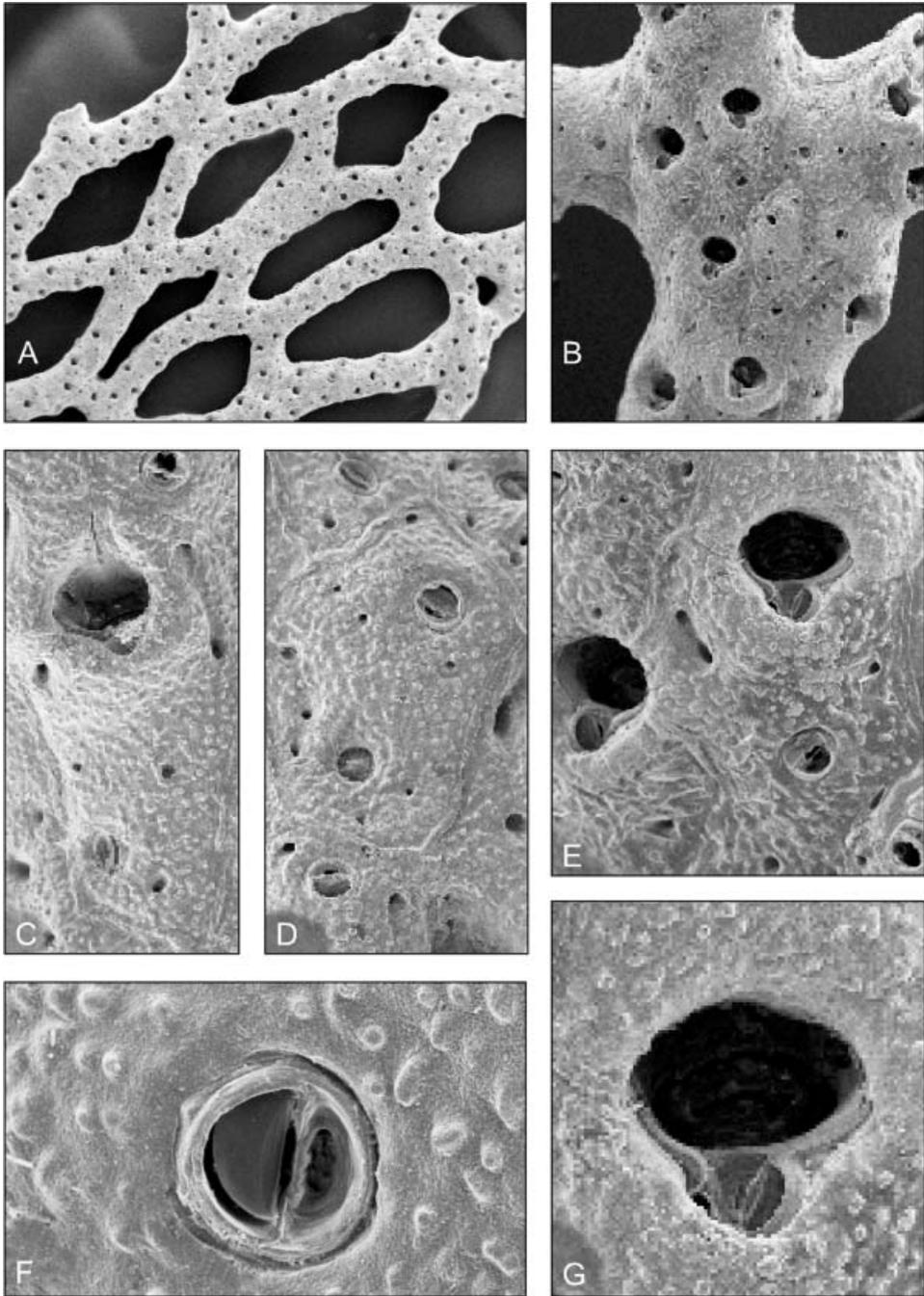


Figure 13. *Reteporella gigantea*, SAM A27526: (A) part of fan-shaped colony showing regular fenestrulae, $\times 6$; (B) autozooids and small adventitious avicularia, $\times 30$; (C) ovicelled autozooid, $\times 75$; (D) kenozooid with adventitious avicularia, $\times 75$; (E) autozooids, $\times 75$; (F) adventitious avicularium, $\times 300$; (G) aperture with avicularium in the lower lip, $\times 150$.

adventitious avicularia. Ovicell hyperstomial, partly obscured by a granular ooecial cover; with a narrow, straight frontal fissure.

Remarks

Reteporella gigantea was described by Busk (1884) from Possession Island (46°47'S, 51°37'E) and has not been reported again since. It is particularly characterized by its large, broadly open, fan-like colony form, by the small pseudospiramen set close to the proximal rim of the peristome, and by its small adventitious avicularia, occurring singly within the peristome, and elsewhere on the frontal shield. Busk (1884) noted a second type of avicularium, with a slender, acuminate mandible, sparsely present in his material, but none were noted in the Marion Island specimens.

Conclusion

The 57 stations sampled by the University of Cape Town survey in the vicinity of Marion and Prince Edward Islands yielded a total of 78 bryozoan taxa. Although 15 of these are considered to be new to science, eight others could only be attributed to genus, as the material was either too scanty, or damaged, to allow confident identification. An additional four species recorded in the sparse early literature results in a provisional list of just 82 species (M. L. Branch and P. J. Hayward, in preparation). While there is no inventory of the bryozoan fauna for any of the islands of the subantarctic Southern Ocean with which to make comparison, it is likely that the species list for MPE underestimates the actual fauna. This is hardly surprising considering the cost and effort associated with benthic survey work in remote and harsh locations, and that the University of Cape Town survey was the first in more than a century of oceanographic research to be devoted to this island group. Repeated surveys will be required before the fauna can be considered to be as well known as, even, that of the Scotia Arc and the Antarctic Peninsula.

The zoogeography of the MPE bryozoan fauna is potentially of interest, partly in establishing the extent of its similarity to the other islands of the Indian Ocean sector of the Southern Ocean, and to those of the South Atlantic sector, and partly for the contribution it might make towards a further understanding of the origins of the Antarctic bryozoan faunas. Hastings (1943) recorded 11 species of cellularine cheilostomes from MPE, five of which occurred also at Kerguelen, to the east, and five others which ranged westward to the South Atlantic islands; no species appeared to be endemic to MPE. The provisional list of MPE bryozoan species (M. L. Branch and P. J. Hayward, in preparation) includes six described species which are still known only from these islands, and the 15 new species might suggest that a significant degree of endemism could be expected. However, the provisional nature of the MPE inventory must be stressed, as must the fact that the faunas of all other subantarctic islands, and indeed of much of the Antarctic Scotia Arc region, are scarcely better known. There is a continuing need for taxonomic and systematic research on the bryozoan faunas of all shelf environments of the Southern Ocean.

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