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A new genus and four new species of sea cucumbers (Echinodermata) from Admiralty Bay, King George Island

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Abstract: Four new Antarctic holothuroid species are described for specimens from Admiralty Bay in King George Island. A new genus *Dendrelasia* O'Loughlin is erected for new cucumariid species *Dendrelasia sicinski* with dendrochirotid body form and elasipodid-type spinous rod ossicles. Cucumariid *Staurocucumis krzysztofi* has bowl ossicles predominantly with marginal teeth. Provisionally-assigned thyonid *Allothyone presleri* has table ossicles with spires comprising predominantly four pillars. Molpadiid *Molpadia magdae* has a prickly cover of irregular table ossicle spires and fusiform table discs in both body wall and tail. *Staurocucumis liouvillei* (Vaney) is a "species complex".

Key words: Antarctic, South Shetlands, Holothuroidea, Cucumariidae, Thyonidae, Molpadiidae.

Introduction

A comprehensive overview of the especially diverse Antarctic Holothuroidea species was provided by O'Loughlin *et al.* (2010). A list included 187 species (including 51 until then undescribed). Two subsequent papers, by O'Loughlin and Van den Spiegel (2010) on apodids and O'Loughlin and Whitfield (2010) on psolids, furthered our knowledge of the previously undescribed Antarctic holothuroids. This fauna is predominantly endemic to south of the Antarctic Convergence. We think that most of the benthic morpho-species have now been recognized and are known in terms of morphological systematics, although many re-

main undescribed. However mtDNA sequence data are providing insight into additional cryptic species and synonymies, as evidenced in O'Loughlin *et al.* (2010).

The Laboratory of Polar Biology and Oceanobiology in the University of Łódź in Poland holds a large collection of holothuroids collected in the 1980s from Admiralty Bay in King George Island. In June–July, 2011, 263 lots of holothuroids were identified, some lots with more than 100 specimens. The specimens were well preserved and curated. Species new to science were recognized, and four are described here. Only single small specimens of three of these new species were found in the large collection, but they are well preserved for the purpose of morphological systematic description and we judge that it is important to establish the new taxa in the literature to create a focus for future collecting and to enhance our awareness of the diversity of Antarctic holothuroid species. Specimens were initially fixed in formalin solution and molecular genetic data have not been sought. Two papers with descriptions of additional new species and an overview paper of all holothuroid taxa from Admiralty Bay will follow.

Material and methods

Specimens were collected from Admiralty Bay in King George Island in the 1980s by scientists from the *Henryk Arctowski* Polish Antarctic Station and held in the collections of the University of Łódź. Dr. Piotr Presler has curated the collection. Identifications were made at the University during a 2011 summer school by Mark O'Loughlin, Melanie Mackenzie, and Emily Whitfield from Museum Victoria (Australia). Specimens described here were donated by agreement to Museum Victoria for this systematic work. Photos of specimens were taken in Museum Victoria by Melanie Mackenzie, in collaboration with Mark O'Loughlin, using an SLR Nikon D300S digital camera with 80–70 mm Nikkor lens for large specimens, and a Leica DC500 high-resolution digital camera system with Auto-Montage software for small specimens. Scanning electron microsope (SEM) ossicle images were taken by Didier Van den Spiegel. Ossicles were cleared of tissue with commercial bleach, air dried, mounted on aluminium stubs and coated with gold. Observations were made using a JEOL JSM-6480LV SEM. Measurements were made with Smile view software.

Abbreviations

NMV, Museum Victoria, Australia, used with registration number prefix F; UL, University of Łódź, Poland, with holothuroid echinoderm registration number prefix ULEH.

Systematic description

Order Dendrochirotida Grube, 1840 (see Smirnov 2012)
Suborder Cucumariina Smirnov, 2012

Diagnosis (Smirnov 2012). — Dendrochirotida with calcareous ring of sinusoidal appearance and the following structure: ring segments with high central part and low lateral parts; upper lateral parts of segments, corresponding to the excavations for attachment of tentacular ampullae, are reduced; lower edge of segments with small central depression, lacks processes or with short processes; neither ring segments, nor processes, are subdivided; segments are connected by their lateral sides, corresponding to the lower part of the lateral sides of the ring of other dendrochirotids.

Family Cucumariidae Ludwig, 1894

Diagnosis (Smirnov 2012). — Cucumariina with 10 tentacles; tube feet are most commonly restricted to radii, or may also be scattered in dorsal inter-radii; calcareous ring low, without posterior processes, or at most medium high with short undivided processes; ossicles perforated plates and sometimes baskets.

Dendrelasia O'Loughlin gen. n.

Diagnosis. — Small body with posterior taper; thick soft body wall; 10 equal dendritic tentacles; calcareous ring lacking posterior prolongations; ventro-lateral and some mid-ventral radial tube feet present; lacking dorsal and lateral tube feet; mid-body wall ossicles spinous un-branched and branched rods.

Type species. — *Dendrelasia sicinski* O'Loughlin sp. n. (monotypic).

Etymology. — Named from a combination of *Dendr-* (from the order name Dendrochirotida) and *-elasi* (from the order name Elasipodida) in recognition of the combination of dendrochirotid body and elasipodid ossicle characters present in the type species (feminine).

Type locality. — South Shetland Islands, King George Island, Admiralty Bay, depth 200–250 m.

Discussion. — The morphological characters that require the erection of new genus *Dendrelasia* O'Loughlin are the unique combination of: calcareous ring lacking posterior prolongations, 10 equal dendritic tentacles, ventral only radial series of tube feet, mid-body wall with prominently spinous un-branched and branched rod ossicles. The mid-body ossicles have the prominently spinous rod, X-shape, Y-shape and cross form similar to those in some psychropotid and elpidiid species of Elasipodida. We refer new genus *Dendrelasia* to family Cucumariidae with reservation as the body wall spinous rod ossicles are not a character of the family as recently diagnosed by Smirnov (2012), but there are some spinous perforated plate ossicles in the peri-anal body wall. This suggests further assignment to subfamily Cucumariinae Ludwig, 1894 *sensu* Panning, 1949, but again

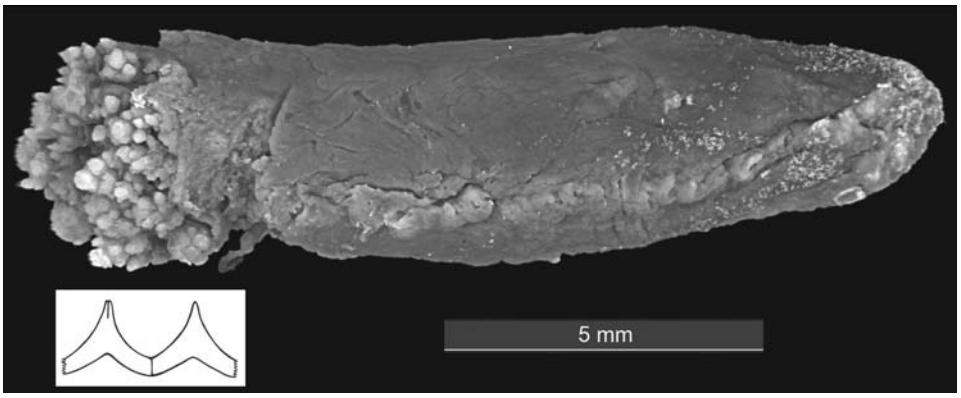

Fig. 1. Left lateral view of the holotype of *Dendrelasia sicinski* O'Loughlin sp. n. (NMV F189855), showing partly withdrawn dendritic tentacles and partly withdrawn ventro-lateral tube feet. Insert with drawing of radial plate (left) and inter-radial plate of the calcareous ring.

with reservation because of the predominant spinous rod ossicles in the body wall. The spinous plate ossicles in the peri-anal body wall suggest a generic affinity with *Heterocucumis denticulata* (Ekman, 1927).

Dendrelasia sicinski O'Loughlin sp. n.
(Figs 1–3)

Material. — Holotype, NMV F189855 (re-assigned from ULEH 0186), King George Island, Admiralty Bay, near Shag Point, OC-293, bottom trawl, depth 200–250 m, mud, gravel, stones, 01 March 1980, coll. P. Presler and J. Siciński.

Description. — Cucumariidae species 15 mm long, diameter up to 4 mm; thick soft grey-brown body wall (preserved); posterior taper; tube feet absent dorso-laterally, present in ventro-lateral radial series in irregular paired rows, some tube feet evident mid-ventrally, most tube feet withdrawn into soft body wall; 10 equal dendritic tentacles; calcareous ring thin, pointed anterior radial and inter-radial projections, undulating posterior margin, lacking posterior prolongations, ring partly decalcified and fragmented; single elongate tubular polian vesicle, sub-equal in length with oesophagus; madreporite free in coelom; long thin un-branched gonad tubules; sub-cylindrical longitudinal muscles; lacking anal scales; tentacle trunk and branch ossicles marginally spinous perforated plates derived from rods, and rods with marginally spinous perforated lateral extensions, oval to triangular in shape, some curved, rare surface spines, ossicles up to 200 μm long; mid-body wall with prominently spinous rod, X-shape, Y-shape and branched rod inter-grading forms, up to 136 μm long, ossicles sparse dorsally, more numerous ventrally; peri-anal body wall with abundant spinous rods as in mid-body, some perforated plates with marginal and surface spines; tube foot ossicles endplates, support plate ossicles curved with marginal and surface spines, some spinous rods with distal perforations, ossicles up to 160 μm long.

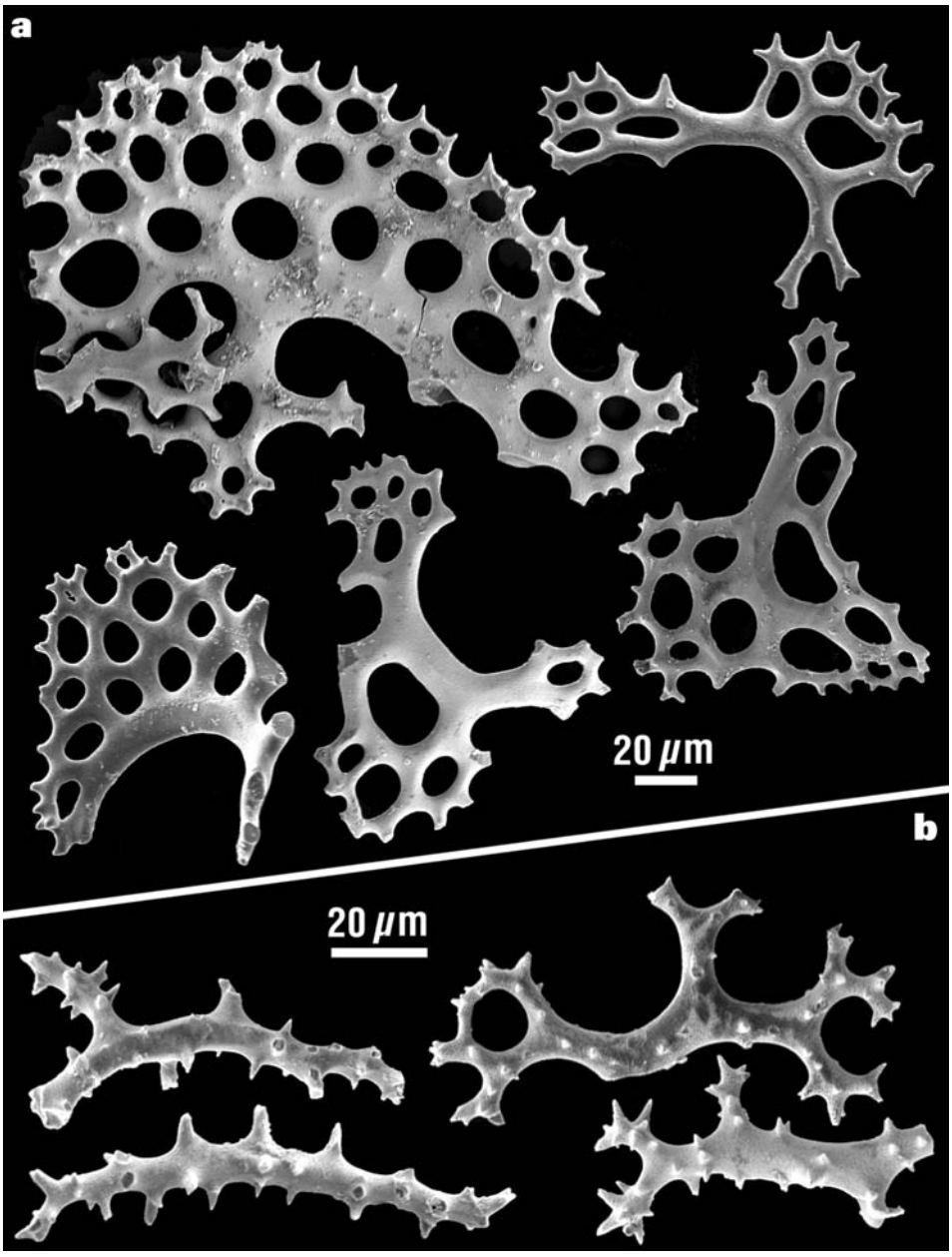

Fig. 2. SEM photos of ossicles from holotype tissues of *Dendrelasia sicinski* O'Loughlin sp. n. (NMV F189855): a, tentacle marginally spinous perforated plates, and rods with marginally spinous perforated lateral extensions; b, ventral mid-body inter-radial body wall spinous rods.

Etymology. — Named for Professor Jacek Siciński, Head of the Department of Invertebrate Zoology and Hydrobiology, and Laboratory of Polar Biology and Oceanobiology in the University of Łódź, with appreciation of his role in collect-

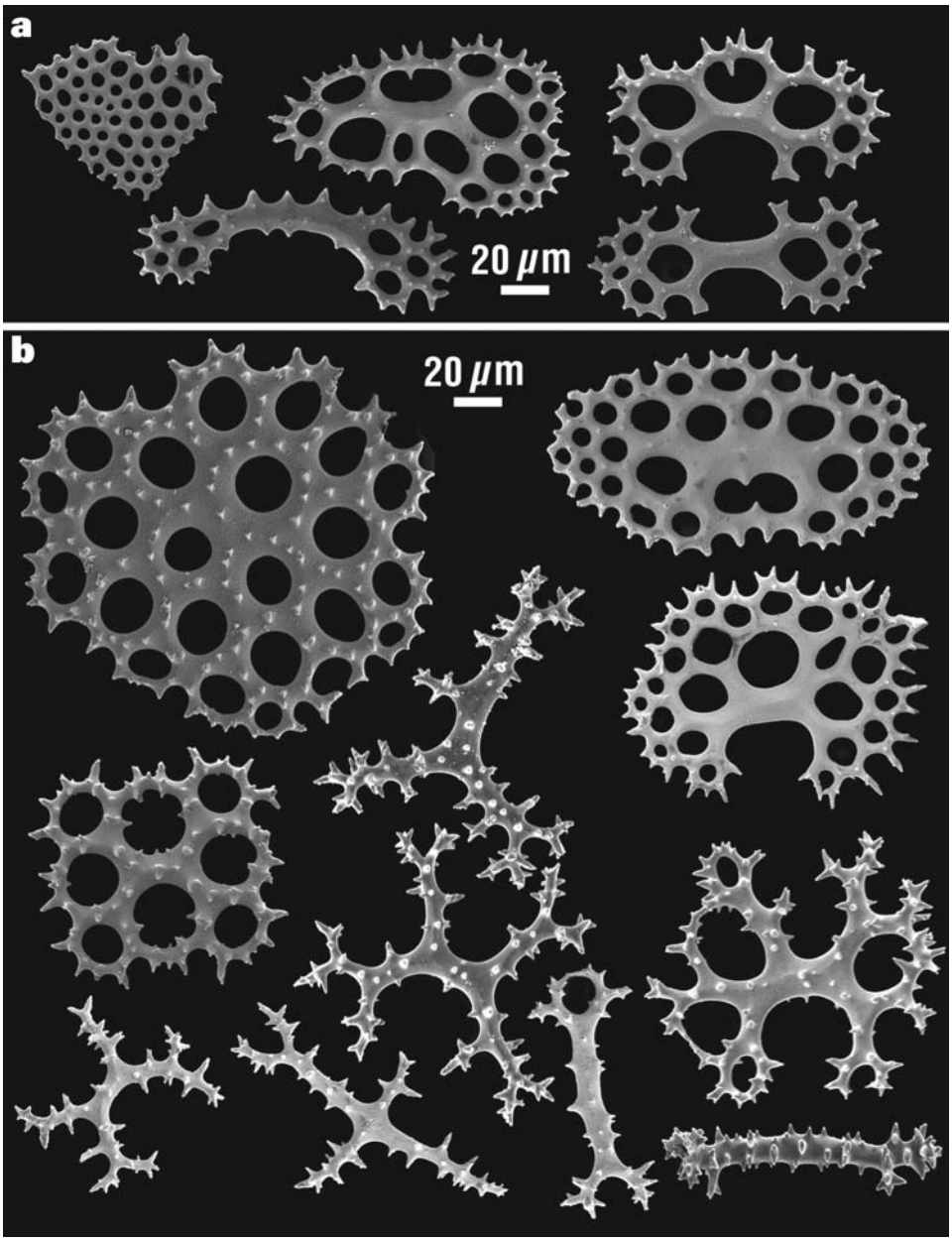

Fig. 3. SEM photos of ossicles from holotype tissues of *Dendrelasia sicinski* O'Loughlin sp. nov. (NMV F189855): a, tube foot perforated support plates with marginal and surface spines, spinous rods with distal perforations, endplate fragment (top left); b, peri-anal body wall spinous plates and rods.

ing the specimen described here, his contribution to polar research, and his enthusiastic support for our work. The species name is a nominative in apposition.

Distribution. — South Shetland Islands, King George Island, Admiralty Bay, depth 200–250 m.

Discussion. — The unique diagnostic characters of genus and species are discussed above under *Dendrelasia* O'Loughlin gen. n.

Staurocucumis Ekman, 1927

Type species. — *Staurocucumis liouvillei* (Vaney, 1914).

Remarks. — Ekman 1927 initially referred five species to his new genus *Staurocucumis*, basing his judgment on observations of ossicle development stages in small juveniles. Like Ekman, Hansen (1988) had many small juvenile specimens of these species available and in his study confirmed three of Ekman's initial five referrals to *Staurocucumis*. In addition to the type species, Hansen retained *Staurocucumis abyssorum* (Théel, 1886) and *Staurocucumis turqueti* (Vaney, 1906). Most recently Massin and Hendrickx (2011) referred *Cucumaria abyssorum* Théel, 1886 to *Abyssocucumis* Heding, 1942, the genus erected by Heding for the Théel species. *Staurocucumis* Ekman, 1927 is diagnosed for the two species in which very small juveniles have ossicles with the form of a primary cross with central vertical apophysis. Ossicle forms in adult specimens of the two *Staurocucumis* species are quite different. Only the type species *Staurocucumis liouvillei* has shallow bowls as the adult ossicle form. Smirnov (2012) assigned *Staurocucumis* to family Cucumariidae Ludwig, 1894.

Staurocucumis liouvillei (Vaney, 1914)
(Figs 4, 7)

Material. — NMV F68092, Eastern Antarctic, Prydz Bay; NMV F85033, Heard Island; NMV F160028, southern Atlantic Ocean, Bouvet Island; NMV F104802, South Georgia.

Staurocucumis krzysztofi O'Loughlin sp. n.
(Figs 4–6)

Staurocucumis species.—O'Loughlin *et al*. 2010: 267.

Material. — Holotype, NMV F189858 (re-assigned from ULEH 0009), King George Island, Admiralty Bay, Ezcurra Inlet, OC-630, bottom trawl, mud, small stones, depth 200–270 m, 31 March 1988, coll. P. Presler. Paratypes (nine), NMV F189859 (re-assigned from ULEH 0007 and ULEH 0009), locality and date same as holotype.

Other material. — ULEH 0198 (4), Admiralty Bay, OC-282, depth 300 m; ULEH 0230 (1), OC-321, depth 290 m; ULEH 0247 (2), OC-562, depth 485–500 m; ULEH 0164 (1), OC-594, depth 240 m; ULEH 0091 (1), OC-615, 60 m; ULEH 0148 (3), ULEH 0207 (1), OC-719, depth 280–320 m; ULEH 0040 (2), ULEH 0041 (1), ULEH 0193 (1), OC-721, depth 380–400 m; ULEH 0066 (2), OC-734, depth 400–420 m.

Fig. 4. Top: right dorso-lateral view of the holotype of *Staurocucumis krzysztofi* O'Loughlin sp. n. (NMV F189858). Bottom: dorsal (left) and ventral (right) views of the similar distribution of tube feet in a specimen of *Staurocucumis liouvillei* (Vaney, 1914) from South Georgia (NMV F104802).

Description. — Up to 45 mm long, up to 17 mm diameter (preserved), flaccid, posterior taper; thick soft pale brown body wall (preserved); tube feet in 5 radial series, paired dorso-lateral spaced series, ventro-lateral and mid-ventral paired series in close zig-zag rows; 10 equal dendritic tentacles; "ring" not calcified; single tubular polian vesicle; short stone canal; 2 tufts of long thin un-branched gonad tubules; sub-cylindrical longitudinal muscles, not divided; lacking anal scales; tentacle trunk and branch ossicles curved bent rods, larger rods widened and perforate distally, many extensively widened mid-rod/apically, perforate widenings marginally bluntly spinous, shafts and rods variably spinous, ossicles up to 246 µm wide from distal ends; mid-body wall ossicles regular and irregular shallow bowls; regular bowls oval, typically 160 µm long, 4 large central perforations, frequently 10 smaller outer perforations, inner margin of perforations with teeth, outer margin of bowl slightly lobed, predominantly with teeth; some bowls variably irregular in shape and arrangement and size of marginally toothed perforations, outer margin variably denticulate; peri-anal bowls predominantly irregular, some toothed on one side, most toothed all around margin, some lacking teeth around margin of inner perforations, bowl ossicles up to 240 µm long; tube foot ossicles endplates, elongate spinous tube foot support plates up to 180 µm long.

Etymology. — Named for Professor Krzysztof Jażdżewski, former vice-rector of the University of Łódź (1990–1996), with appreciation of his pioneering and

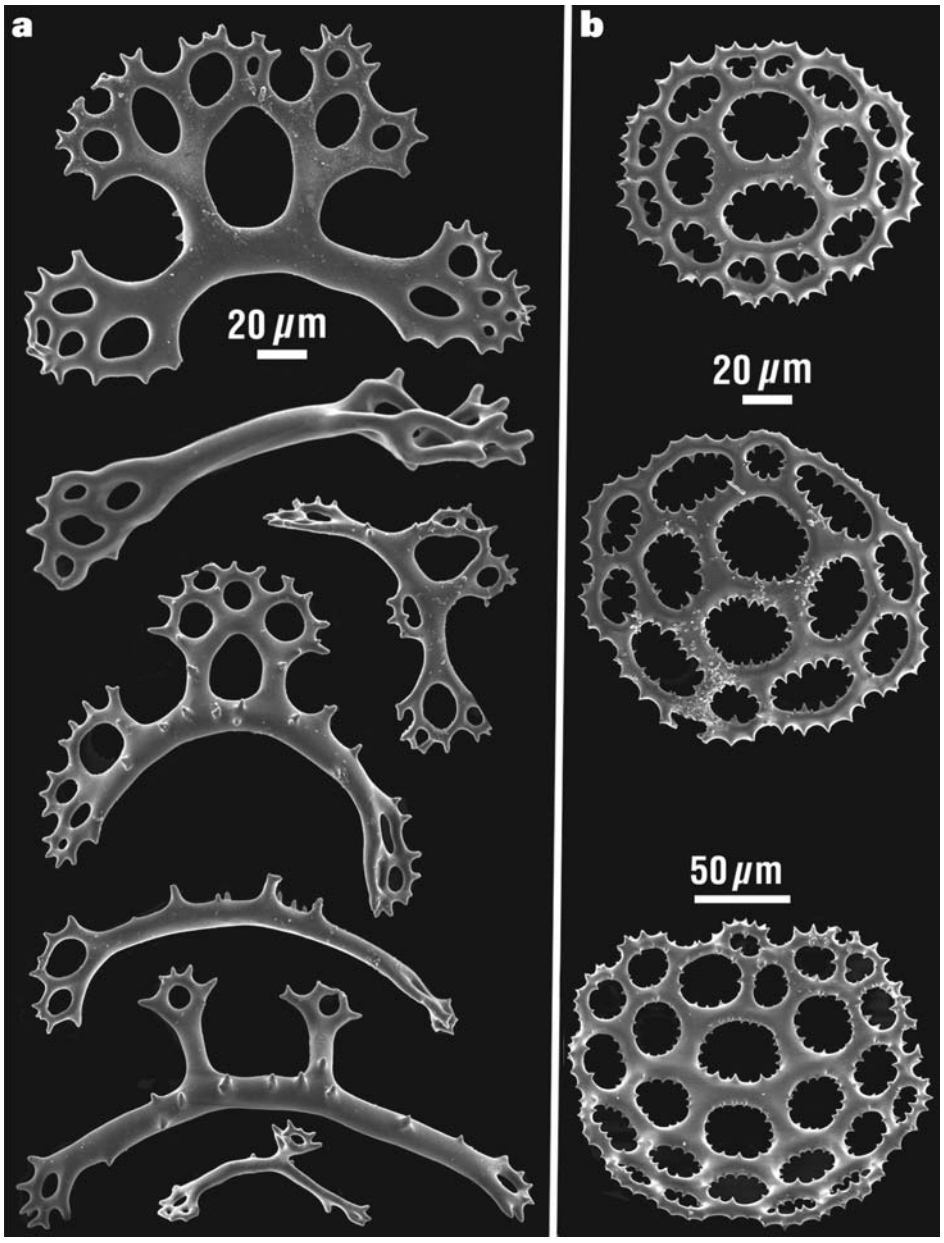

Fig. 5. SEM photos of ossicles from holotype tissues of *Staurocucumis krzysztofi* O'Loughlin sp. n. (NMV F189858): a, tentacle rods; b, posterior body wall bowls with peripheral marginal spines.

on-going contribution to polar research through his study of marine Antarctic amphipod crustaceans.

Distribution. — South Shetland Islands, King George Island, Admiralty Bay, depth 60–500 m.

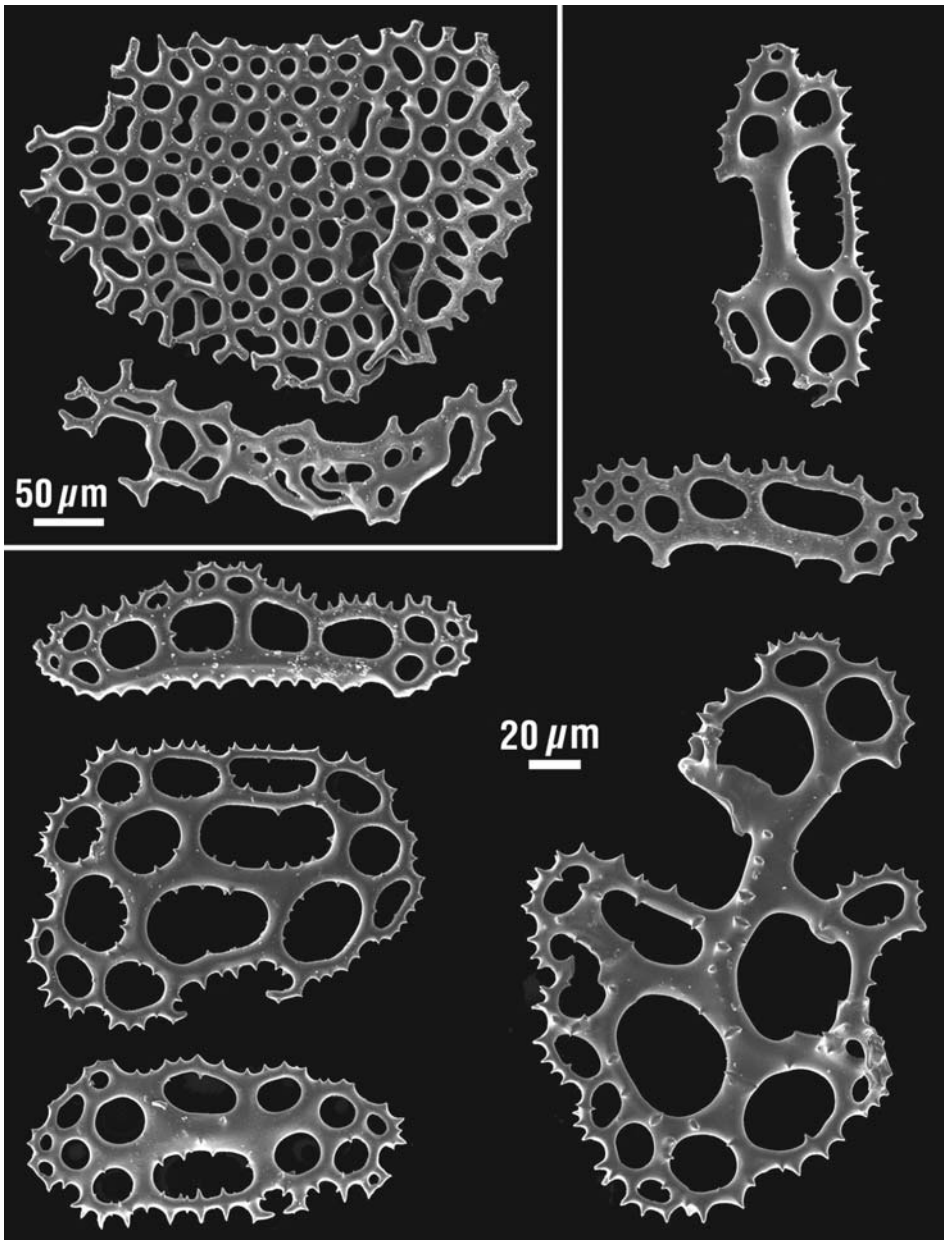

Fig. 6. SEM photos of support plates and endplate fragment (top left) ossicles from holotype tube foot tissues of *Staurocucumis krzysztofi* O'Loughlin sp. n. (NMV F189858).

Discussion. — The new species is assigned to genus *Staurocucumis* Ekman, 1927 because of its morphological similarity and genetic relationship with *Staurocucumis liouvillei* (Vaney, 1914). Antarctic cucumariid species with regular shallow perforate bowls with teeth around the inner margin of the perforations have to date

been collectively referred to *Staurocucumis liouvillei*. O'Loughlin *et al.* 2010 (page 270) illustrated mtDNA sequence data relationships for Antarctic specimens identified as *Staurocucumis liouvillei* that were collected from Bouvet, Falkland, Heard, South Shetland and South Georgia Islands and the Amundsen and Ross Seas. Two distinct genetic clades are strongly supported, and there is evidence for probable further speciation. The sequences in the "tree" for four specimens from the "Amundsen Sea" (collected at 74° W), near the *Staurocucumis liouvillei* type locality specimens from the Bellingshausen Sea (Antarctic Peninsula, 70–72° W), and the sequences for three specimens from the South Shetland Islands, are in the genetically strongly supported separate clades. The ossicle evidence of the presence of abundant irregular bowls frequently with external marginal teeth, as distinct from those typically lacking marginal teeth, separates these two species groups morphologically. On these bases we erect the new species *Staurocucumis krzysztofi* O'Loughlin. In erecting his new species *Staurocucumis liouvillei*, Vaney (1914) did illustrate an irregular bowl with external marginal teeth that he found to be "sometimes" present (Vaney 1914, pl. 3, fig. 1). We have also noticed the rare occurrence of these irregular bowl ossicles with irregular marginal teeth in what we would consider to be true *Staurocucumis liouvillei* specimens. O'Loughlin *et al.* (2010) anticipated the new species *Staurocucumis krzysztofi* in listing "*Staurocucumis* species" from the Antarctic Peninsula.

There are 29 specimens of *Staurocucumis krzysztofi* O'Loughlin sp. n. recorded here for Admiralty Bay. We also determined 36 specimens from Admiralty Bay to be *Staurocucumis liouvillei* (Vaney, 1914), with bowls completely lacking marginal teeth. In five cases specimens of both species were identified from the same collection lot/station. The two species are thus sympatric in Admiralty Bay, and we wonder if these two *Staurocucumis* species are more widely sympatric in Antarctica. There is further evidence of the sympatric occurrence of the two *Staurocucumis* species in the South Shetland Islands in the phylogenetic tree in O'Loughlin *et al.* 2010 (page 270).

In Fig. 7 we provide SEM photos of posterior bowl ossicles from similar sized specimens of *Staurocucumis liouvillei* from around Antarctica. None have external marginal spines, the bowl sizes vary significantly, and the spinelets differ. Bouvet Island specimen bowls are typically about 150 μm wide with more numerous coarse inner spines; Prydz Bay specimen bowls are typically about 300 μm wide with fewer coarse inner spines; Heard Island specimen bowls are typically about 160 μm wide with fine inner spines. Our erection of the new species here, the genetic data in O'Loughlin *et al.* (2010), and these SEM observations of ossicles, indicate that *Staurocucumis liouvillei* (Vaney, 1914) is a "species complex" comprising a number of discrete species.

Family Thyonidae Panning, 1949, *sensu* Smirnov 2012

Diagnosis (Smirnov 2012). — From 10 to 20 tentacles; tube feet scattered all over body, or lying along radii; calcareous ring segments high, ring often tubular,

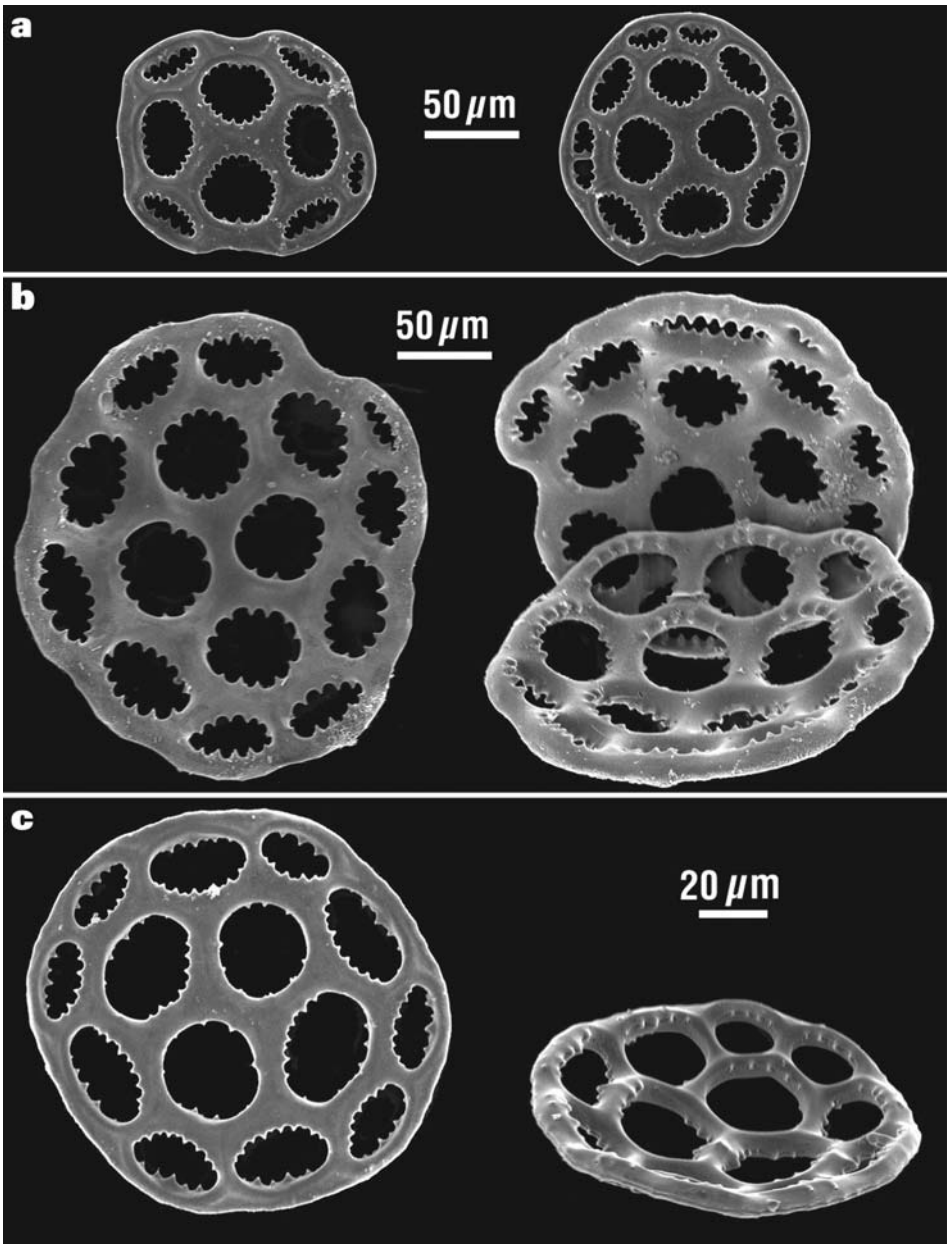

Fig. 7. SEM photos of bowl ossicles lacking marginal spines, from posterior body wall of specimens of *Staurocucumis liouvillei* (Vaney, 1914): a, southern Atlantic Ocean, Bouvet Island, specimen NMV F160028; b, eastern Antarctica, Prydz Bay, specimen NMV F68092 (exceptionally large bowls); c, eastern Antarctica, Heard Island, specimen NMV F85033.

forked processes of radial segments long, prominent, inter-radial segments often strongly elongated basally and fused with processes of radial segments, both cal-

careous ring segments and processes subdivided into many pieces, ring mosaic; ossicles tables with 2 or 4 pillars and/or plates, sometimes baskets present.

Subfamily Thyoninae Panning, 1949

Diagnosis (Smirnov 2012). — Ten tentacles, 2 ventral tentacles reduced; tube feet scattered over entire body; ossicles tables, with 2 or 4 pillars, and / or plates, sometimes cups.

Allothyone Panning, 1949

Diagnosis (Panning 1949). — Ten tentacles, calcareous ring with long forked posterior elongations, body wall ossicles tables with four pillars.

Allothyone presleri O'Loughlin sp. n.
(Figs 8–9)

Material. — Holotype, NMV F189856 (re-assigned from ULEH 0253), King George Island, Admiralty Bay, near Shag Point, N-28, trap, depth 30 m, 12 January 1980, coll. P. Presler.

Description. — Length 2.5 mm, diameter up to 1 mm; body cylindrical, oral end slightly elevated, posterior taper rounded; body wall thin, calcareous, white (preserved); table discs and spires evident all over body in close cover; tube feet in five close zig-zag to double row radial series; 10 dendritic tentacles; calcareous ring ribbon-like with pointed anterior projections, undulating posterior margin; ossicles in mid-body wall tables, disc frequently regular, square or oval, lobed margin, 4 large central and 4 smaller corner perforations, many discs irregular with up to 14 perforations, margin sometimes with small apical knobs on lobes, disc size up to 100 µm wide; table spires often irregular, most frequently with 4 pillars, up to 45 µm long; tentacle ossicles smooth rods, rods straight un-branched or angular with branches at bends, distal ends frequently bifid, rods up to 50 µm long.

Etymology. — Named for Dr. Piotr Presler, curator of the marine collection for the Laboratory of Polar Biology and Oceanobiology in the University of Łódź, with appreciation of his collection and curatorial care of the specimen described here.

Distribution. — South Shetland Islands, King George Island, Admiralty Bay, depth 30 m.

Discussion. — The very small holotype has dendrochirote table ossicles that are unique to the Antarctic dendrochirote fauna. In spite of the very small size of the single specimen we judge it to be important to erect a new species to draw attention to this unique taxon. The pedomorphic or small juvenile specimen presumably does not exhibit adult diagnostic characters such as in the form of the calcareous ring and distribution of tube feet. We are aware that small juvenile specimens of the phyllophorid species *Lipotrapeza vestiens* (Joshua, 1914) have a calcareous ring that is cucumariid-like and completely lacks posterior prolongations, and have radial only tube feet (see O'Loughlin *et al.* 2012). It is not possible to confidently assign the new spe-

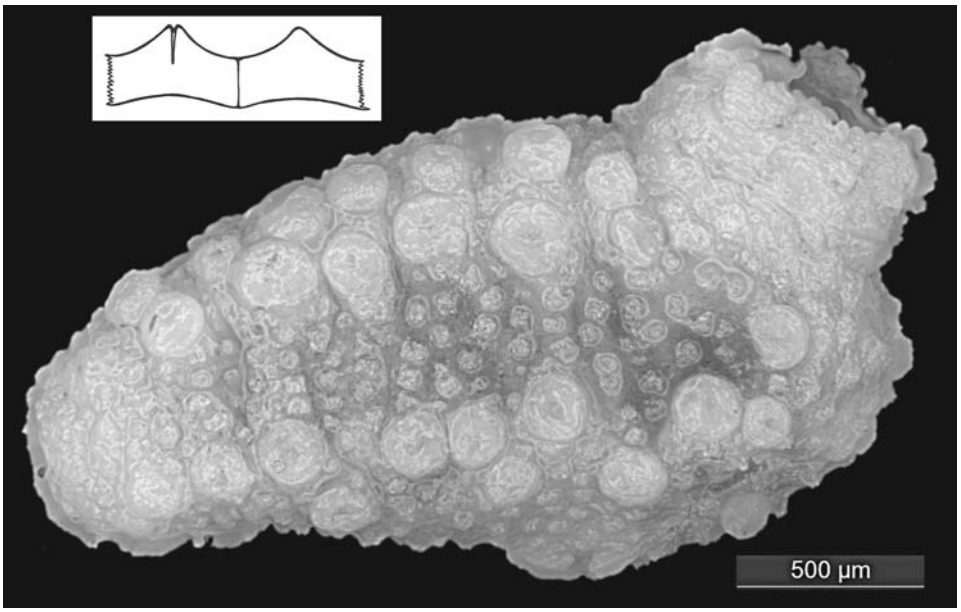

Fig. 8. Right lateral view of the holotype of *Allothyone presleri* O'Loughlin sp. n. (NMV F189856), showing dendritic tentacles, zig-zag to double row radial series of tube feet, and tables in the inter-radial body wall. Insert with drawing of radial plate (left) and inter-radial plate of the calcareous ring.

cies to an appropriate genus. And it would be inappropriate to erect a new genus based on what are presumably pedomorphic or juvenile characters. We have provisionally assigned the new species to *Allothyone* Panning, 1949 based on its obvious dendrochirotid characters and especially the presence of numerous four-pillared tables in the body wall. In addition to the uncertain morphological characters, the "provisional status" of our assignment is furthered by the fact that the species currently assigned to *Allothyone* Panning are from equatorial and northern Pacific waters: *Allothyone longicauda* (Östergren, 1898) (Japan/China); *A. mexicana* (Deichmann, 1946) (Gulf of Mexico); *A. mucronata* (Sluiter, 1901) (Indonesia); *A. multipes* (Augustin, 1908) (Japan); *A. spadix* (Sluiter, 1901) (Indonesia).

Order Molpadida Haeckel, 1896

Diagnosis. — See Smirnov (2012).

Family Molpadiidae Müller, 1850

Diagnosis (Smirnov 2012). — From 13 to 15 tentacles, 1–3 pairs of lateral processes and central process, or tentacles simple; posterior part of body with short narrow tail clearly delineated from remainder of body; free hanging tentacle ampullae usually well developed; stone canal opens externally; radial muscle bands paired, or less commonly undivided; radial calcareous ring segments with processes and usually with perforation or notch for radial nerve; ossicles tables

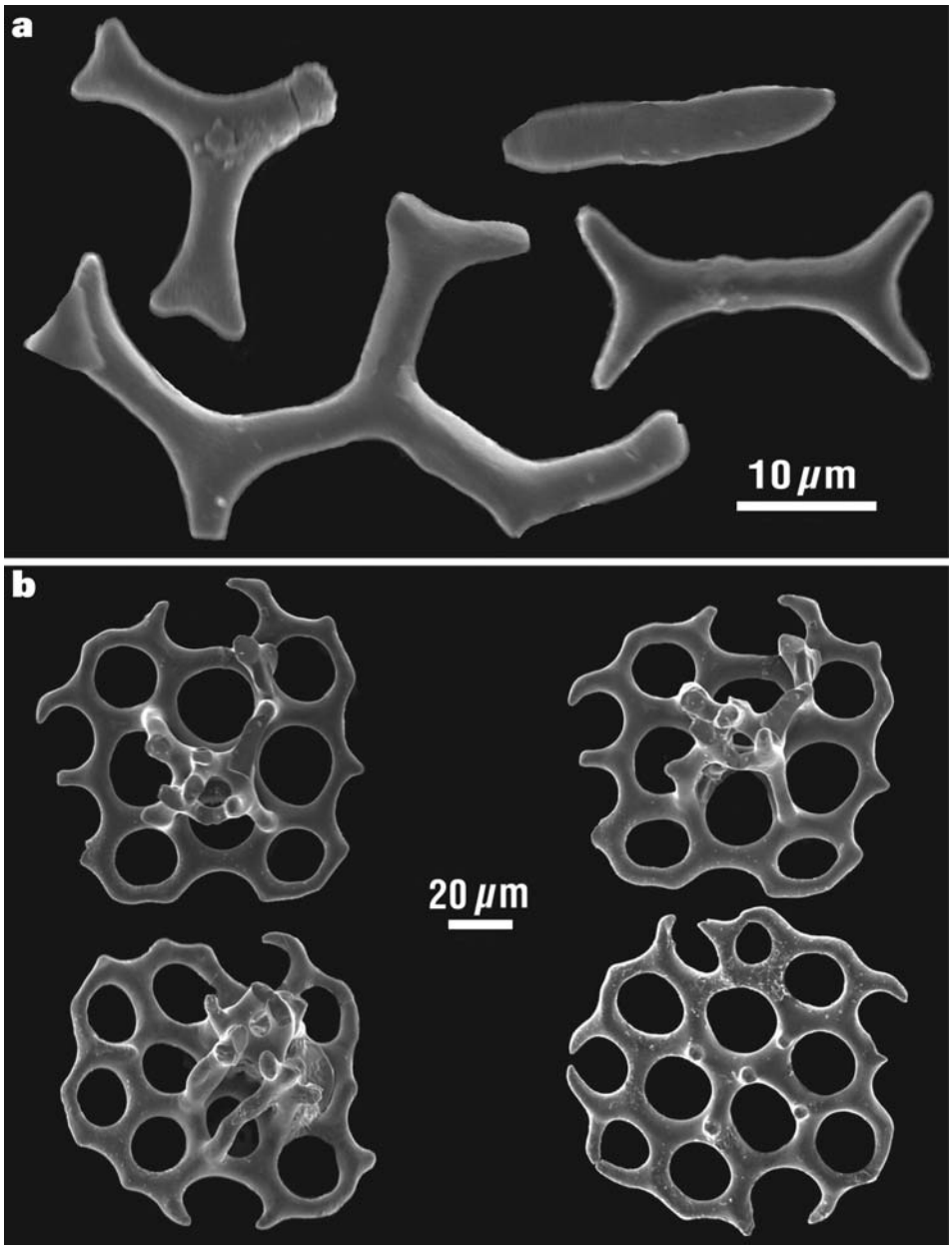

Fig. 9. SEM photos of ossicles from holotype tissues of *Allothyone presleri* O'Loughlin sp. n. (NMV F189856): a, tentacle rods; b, inter-radial body wall tables.

with spire of three fused pillars, sometimes modified into molpadiid anchor, plates, racket-shaped and spindle-shaped plates; in most species body wall possesses oval yellow, brown, or red phosphatic bodies responsible for brown, red, or violet-red colour, number of phosphatic bodies increases with age.

Molpadia magdae O'Loughlin, sp. n.
(Figs 10–11)

Material. — Holotype, NMV F189857 (re-assigned from ULEH 0189), King George Island, Admiralty Bay, near Shag Point, OC-293, bottom trawl, mud, gravel, stones, depth 200–250 m, 01 March 1980, coll. P. Presler and J. Siciński.

Description. — Length 20 mm, body cylindrical, up to 8 mm diameter; distinct short "tail" 3 mm long, off-white; body wall thin, calcareous, closely covered with projecting table spires, grey-brown colour (preserved); holotype specimen damaged, oral disc end almost detached; 15 digitiform tentacles, terminal digit present; anal papillae not evident; tentacle ampullae long, thin, length more than twice width of ring; calcareous ring radial plates with wide anterior notch for muscle attachment, posterior lateral prolongation with deep narrow posterior notch, prolongation sub-equal with length of anterior part of plate; inter-radial plates with narrow tapered pointed anterior projection, shallow posterior indentation; single polian vesicle; broad flat longitudinal muscles; body completely covered with table ossicles, discs regular and irregular in form; regular discs of two types, more

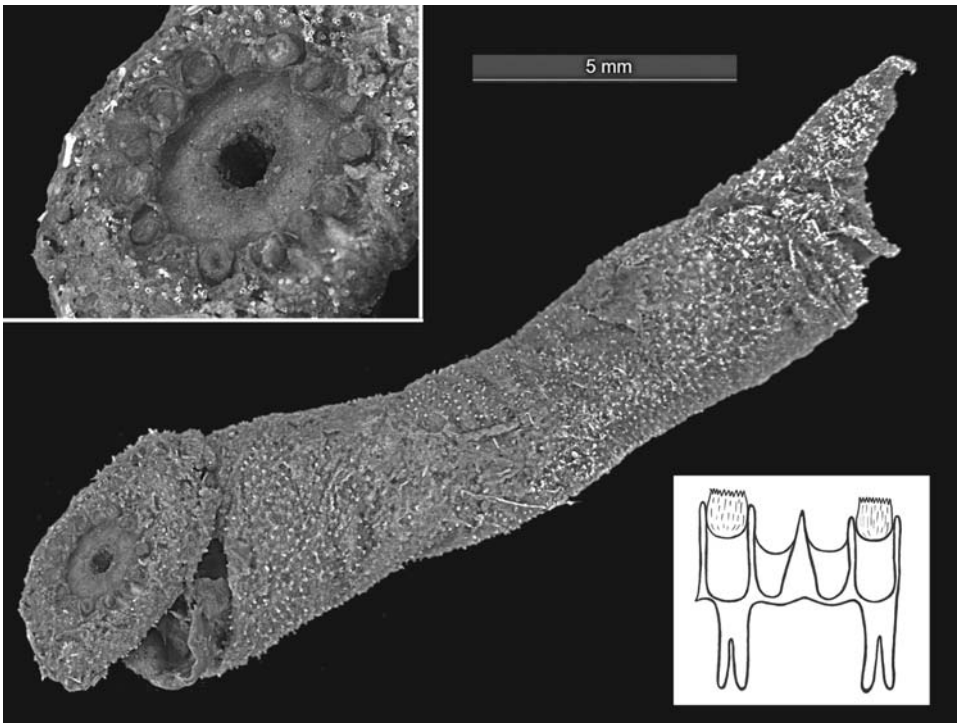

Fig. 10. Lateral view of the holotype of *Molpadia magdae* O'Loughlin sp. n. (NMV F189857), showing partly detached oral end with tentacle crown, surface bristle of table spires, and posterior tail. Insert top left with photo of tentacles. Insert bottom right with drawing of two radial plates and one inter-radial plate (middle) of the calcareous ring.

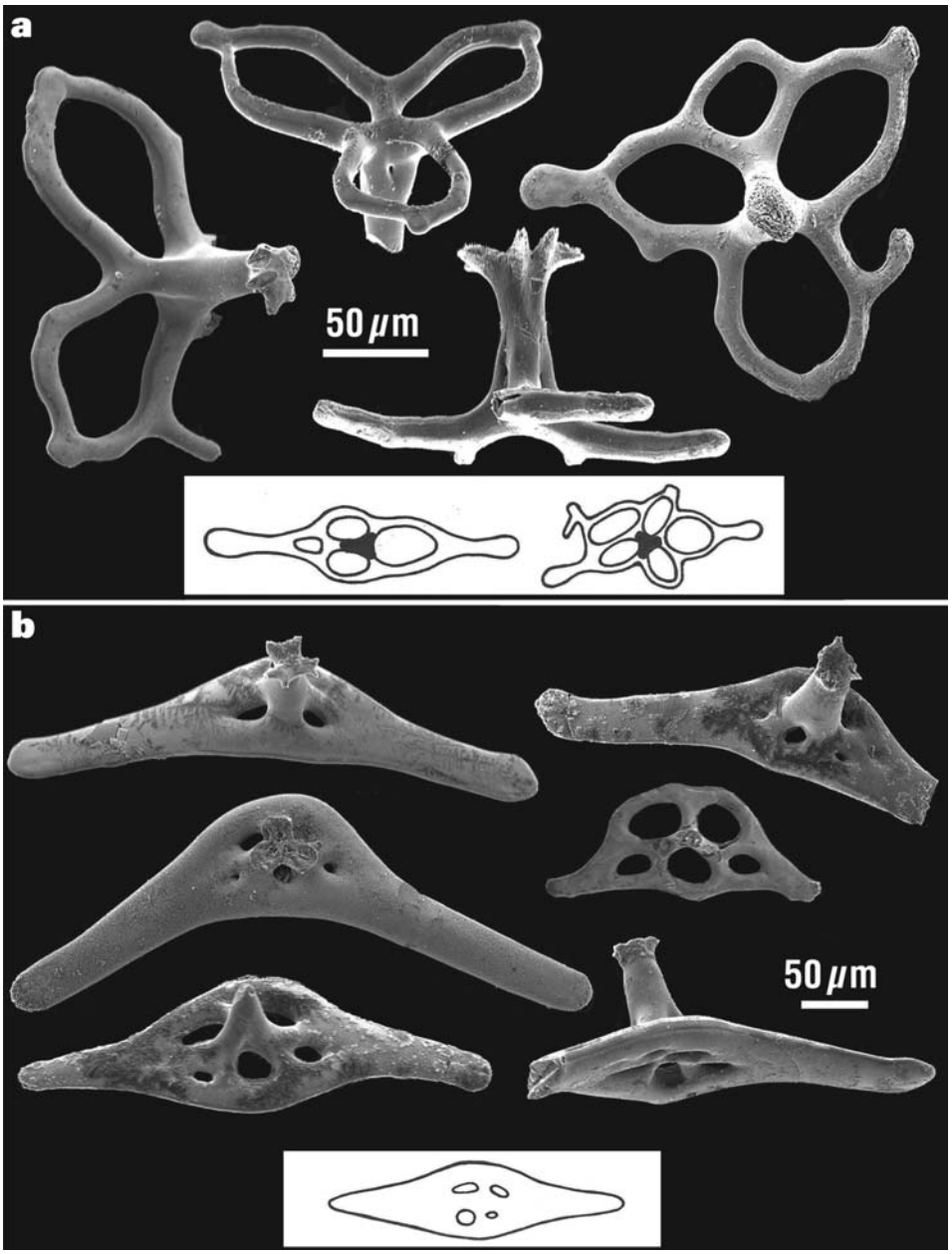

Fig. 11. SEM photos of ossicles from holotype tissues of *Molpadia magdae* O'Loughlin sp. n. (NMV F189857): a, mid-body tables (insert with drawings of mid-body tables, common left, irregular and uncommon right); b, tables from tail (insert with drawing of rare perforated fusiform rod).

common discs with 4 perforations, 2 large, 2 small, and opposing laterally extended "handles" swollen distally, extended "discs" up to 300 µm long; less common discs with three perforations/rounded lobes, apex of each lobe with marginal

blunt knob, discs up to 176 µm across; many discs irregular with up to 6 perforations of various sizes, lobed margin, apical knobs sometimes extended into a variable number of "handles" swollen distally, extended "discs" up to 288 µm across; spires single solid pillars with tripartite base on disc, about 5 rounded to pointed teeth distally, spires about 120 µm long; tail ossicles narrow elongate tables with up to 6 small perforations in the disc extended into opposing knobbed handles swollen distally, extended "discs" up to 350 µm long, spires with single pillar, up to 80 µm long, with distal pointed teeth; some "tables" lack spires and are present as fusiform rods, up to 416 µm long; no phosphatising of ossicles evident.

Etymology. — Named for Dr. Magdalena Błażewicz-Paszkowycz ("Magda"), from the Laboratory of Polar Biology and Hydrobiology in the University of Łódź, with appreciation of her encouraging and generous facilitation of our visit to the University of Łódź, conduct of a summer school, and work on this Admiralty Bay echinoderm collection.

Distribution. — South Shetland Islands, King George Island, Admiralty Bay, depth 200–250 m.

Discussion. — *Molpadia magdae* sp. n. is unique amongst the Antarctic species for its combination of: absence of phosphatising of ossicles; distinct forms of irregular table and fusiform rod ossicles in body wall and tail region; many table discs with extended "handles"; tables with single pillar spire. Particular differences are that *Molpadia amorpha* H.L. Clark, 1908 (Magellanic, shallows) and *Molpadia antarctica* (Théel, 1886) ("cosmopolitan", shallows) have table spires with three discrete pillars. *Molpadia discors* Pawson, 1977 (Antarctic, deep), *Molpadia eltaninae* Pawson, 1977 (Magellanic, shallows), *Molpadia liska* Pawson, 1977 (Antarctic, deep), and a new Ross Sea species of *Molpadia* currently in preparation by Davey and O'Loughlin all have table discs that lack extended "handles". In *Molpadia abyssicola* Pawson, 1977 (Antarctic, deep) table discs in the tail are rod-like with up to 20 perforations. In *Molpadia musculus* Risso, 1826 (?cosmopolitan) the ossicles are predominantly fusiform rods that phosphatise in the body wall.

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