

## NEW RECORDS OF OPHIURIDAE, OPHIACANTHIDAE AND OPHIOCOMIDAE (ECHINODERMATA: OPHIUROIDEA) FROM SOUTH-EASTERN AUSTRALIA

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### Abstract

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Thirty species of Ophiuroidea from three families: Ophiacanthidae, Ophiuridae and Ophiocomidae, are recorded from south-eastern Australia. *Ophiura jejuna* is placed in the subgenus *Ophiuroglypha* and the inclusion of *O. fidelis* in *Ophiacantha* and *O. bispinosus* in *Ophioplocus* are supported. *Ophiomitrella falklandica* is synonymized with *O. conferta*, *Ophiocten australis* with *O. hastatum* and the possible synonymy of *Ophiacantha sollicita* with *O. aculeata* and *Ophioplinthaca incisa* with *O. plicata* are discussed. Three species: *Ophiomyces grandis*, *Ophioleuce regulare* and *Ophiomitrella* sp. cf. *chilensis*, are new to the Tasman Region and the range of a further seventeen species is extended. Previous reports of *Ophiotreta valenciennesi*, *Ophialcaea congesta* and *Ophiura fluctuans* from the region are found to be erroneous. *Ophiomitrella conferta* and *Ophioplocus bispinosus* are discovered to be viviparous.

### Introduction

Numerous trawling and dredging expeditions over the last decade have vastly increased the ophiuroid collection of the Museum of Victoria, enabling a more accurate assessment of the south-eastern Australian ophiuroid fauna to be undertaken. Predominant in these expeditions were the Bass Strait Benthic Survey (1979–1983) (BSS) and the CSIRO "Soela" cruises (1984–1985). Other cruises included the "Kimbla" East Bass Strait cruise (Nov 1973) and the "Dmitry Mendeleev" cruise (1975–1976) through the Tasman Sea and across southern Australia. Material from the the last expedition has also been deposited in other museums, some of which have been the subject of reports by Baker (1979) and Baker and Devaney (1981).

The ophiuroid fauna of south-eastern Australia is predominantly known from the work of Lyman, (1878–1882), H.L. Clark (1909, 1916, 1928, 1938, 1946), Koehler (1922b, 1930), A.M. Clark (1966) and recently Baker (1979–1982) and Baker and Devaney (1981). A useful key (although now slightly out-dated) to all ophiuroid genera was provided by Fell (1960). This paper deals with three ophiuroid families: Ophiuridae, Ophiacanthidae and Ophiocomidae. Subsequent papers in preparation will deal with remaining families. Seventeen ophiurid, fifteen ophiacanthid and two ophiocomid species are now known from south-eastern Australia from Robe, South Australia to Eden, New

South Wales and Tasmania. This region has sometimes been described as a separate, Maugean, biogeographic province, although this was not supported by Rowe and Vail (1982) in a recent biogeographical study of Tasmanian echinoderms. The material referred to herein is restricted to this region unless it is of significant biogeographical, historical or taxonomic importance. Where the numbers of specimens were substantial, only a representative sample is given. Emphasis has been placed upon species new to the area or where new morphological information was available. Omitted species comprise: *Ophiura kinbergi* Ljungman, 1867a, *Ophiura ooplax* (H. L. Clark, 1911) and *Ophiurolepis acomodata* Koehler, 1922b (Ophiuridae); *Ophiocamax applicatus* Koehler, 1922b (Ophiacanthidae); *Clarkcoma canaliculata* (Lütken, 1869) (Ophiocomidae).

The material is lodged in the following institutions: Australian Museum, Sydney (AM); British Museum (Natural History), London (BMNH); Museum of Comparative Zoology, Harvard (MCZ); Museum of Victoria, Melbourne (NMV); South Australian Museum, Adelaide (SAM); Zoologisk Museum, Copenhagen (ZMC). The abbreviation "d.d." is used for disc diameter.

**Ophiuridae** Lyman, 1865

**Ophiurinae** Lyman, 1865

**Ophiura** Lamark, 1816

***Ophiura (Ophiura) palliata* Lyman**

Figure 1a

*Ophioglypha palliata* Lyman, 1878: 69, pl. IV, figs 98–100.—1882: 43, pl. IV, figs 4–6.—Koehler, 1897: 298.—1899: 18.

*Ophiura fluctuans*.—Baker, 1979: 22, figs 1b, d, f, (non *O. fluctuans* Koehler, 1922a).

**Material examined** (partial list). Tasmania, off north-west coast, 40°54'S, 143°43'E, 520–526 m, 9 May 1984, NMV F52837(6); W of north-west coast, 40°58.2'S, 143°49.0'E, 550–560 m, 26 Jan 1985, NMV F52840(1); 41°03.3'S, 143°53.6'E, 550 m, 26 Jan 1985, NMV F52841(1); 41°02.5'S, 143°53.1'E, 518–520 m, 27 Jan 1985, NMV F52842(1); 40°59.2'S, 143°50.4'E, 542–540 m, 30 Jan 1985, NMV F52843(5); off eastern coast, 42°43'S, 148°25'E, 506 m, 25 Jun 1984, NMV F52844(3); Flinders Canyon, eastern Bass Strait, 39°38.7'S, 148°49.4'E, 770 m, 27 Mar 1979, shell/sand (BSS stn 34), NMV F52849(1 juvenile); eastern Bass Strait, 39°28.2'S, 148°52.4'E, 841 m, 29 Mar 1979, muddy sand (BSS stn 37), NMV F52850(1).

Victoria, off eastern coast, 38°06.2'S, 150°04.1'E, 640 m, 4 Feb 1985, NMV F52846(2); 38°15.4'S, 149°42.4'E, 662–666 m, 5 Feb 1985, NMV F52847(2); 38°14.9'S, 149°41.6'E, 660 m, 5 Feb 1985, NMV F52848(3).

New South Wales, E of Broken Bay, 744 m, 4 Dec 1979, AM J15960(1); off Broken Bay, 33°32'S, 152°00'E, 823 m, 19 Aug 1975, AM J10110(2).

**Description.** Disc, 5–17 mm d.d.; arms 2–3 times d.d. Disc fully scaled (noticeable only when dried); scales fine; large oval scale present proximal to radial shields. Radial shields oval, one-eighth d.d., contiguous distally or just separated. Arm comb papillae spiniform. Oral shields pentagonal, lateral edges straight, not notched. Dorsal arm plates quadrangular, 3 times as wide as long, broadly contiguous. Proximolateral borders of second and third plates bear a row of spiniform papillae opposing each arm comb. 3 arm spines, flattened, tapered to blunt point; uppermost as long as segment, lower 2 half that size (fig. 1a). Live colour: disc centre pink/magenta, margin and ventral surface blue, radial shields and arms orange.

**Distribution.** South-eastern Australia from western Bass Strait to Broken Bay, New South Wales; ?Maldive Is. 506–841 m.

**Remarks.** Baker (1979: 22) referred two of these specimens (AM J10110) to *Ophiura fluctuans* Koehler, 1922a. The type description, however, indicates that *O. fluctuans* has large uncalcified areas on the disc; small, one-eleventh d.d., widely separated radial shields; no papillae on the basal dorsal arm plates and a middle arm spine that is as large as the uppermost spine. These differences

are slight and further research may find *O. palliata* and *O. fluctuans* to be conspecific.

Koehler's (1897, repeated 1899) record from the Maldive Islands (1340 m) needs confirmation as he supplied little morphological information about the 14 mm d.d. specimen, otherwise *O. palliata* has not been reported since the holotype, found off Sydney at 750 m.

***Ophiura (Ophiuroglypha) jejuna* (Lyman)**

Figures 1b–d

*Ophioglypha jejuna* Lyman, 1878: 78, pl. II, figs 55, 56.—1882: 52, pl. V, figs 4–6.

*Ophiura jejuna*.—Matsumoto, 1915: 81.—H.L. Clark, 1915: 325.

**Material examined.** Tasmania, eastern Bass Strait, Flinders Canyon, 39°38.7'S, 148°49.2'E, 770 m, 27 Mar 1979, shell/sand (BSS stn 34), NMV F52703(3); eastern Bass Strait, 39°28.2'S, 148°52.4'E, 841 m, 29 Mar 1979, muddy sand (BSS stn 37), NMV F52704(1).

**Description.** Disc 2.5–11 mm d.d., arms twice d.d. Disc scales thin, close set, regular, round to polygonal; large oval scale present at each inter-radial margin. Radial shields pentagonal, as wide as, or wider than long, contiguous for distal half of their length. Arm comb papillae short, thick, blunt, meeting on dorsal midline (Fig. 1b). Oral shield large, pentagonal, lateral sides straight. 5 papillae on each jaw side, inner 2 spiniform, outer 3 low, widened. Dorsal arm plates fan-shaped, as wide as long, narrowly contiguous. Ventral arm plates 3 times as wide as long, separate. 3 arm spines, one-fifth length of segment, middle spine modified into hyaline upturned hooklet distally (Fig. 1c). 9 tentacle scales on basal pore of largest specimen; succeeding segments with 6, 4, 2, and no scales respectively. An additional small plate situated at lateral tip of second, third and fourth ventral arm plates (Fig. 1d).

**Distribution.** South-eastern Australia and Tristan da Cunha. 770–1860 m.

**Remarks.** Lyman's (1878) description of the holotype (5 mm d.d.) differs from these specimens. He did not mention the modified arm-spine or the additional plate on the ventral arm surface. There are only two tentacle scales on the basal segments and the arm spines are long, two-thirds of a segment long. Otherwise the specimens are very similar. The modification of the second lowest arm spine into an upturned hooklet, indicates that this species belongs in the subgenus *Ophiuroglypha*.

The two smallest specimens (2.5–2.8 mm d.d.) have no arm comb or the additional arm plates,

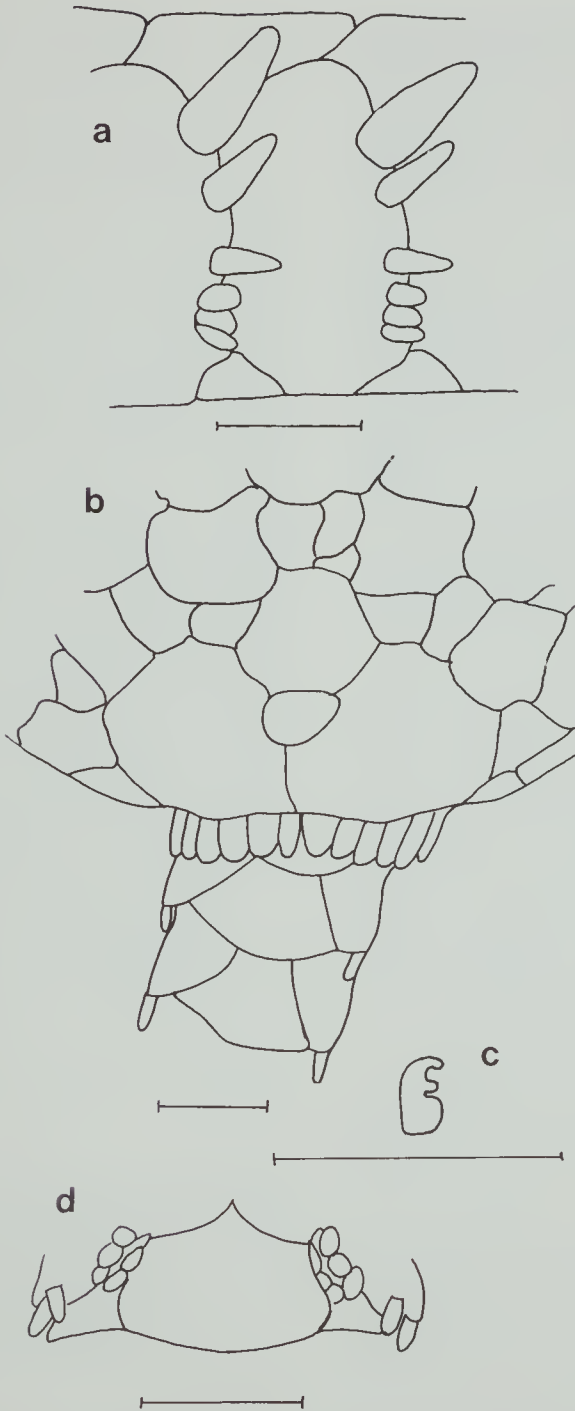


Figure 1. a: *Ophiura palliata* (NMV F52843), lateral view of arm; b-d: *Ophiura (Ophiuroglypha) jejuna* (NMV F52704), b, dorsal view of disc, c, middle arm spine of 25th segment, d, ventral view of 4th arm segment. Scale line = 1.0 mm.

the dorsal and ventral arm plates are comparatively narrower and the arm spine hooklets are more prominent.

*Ophiura (Ophiuroglypha) jejuna* is similar to the widespread species, *Ophiura (Ophiuroglypha) irrorata* Lyman, 1878, which has been found off New Zealand (Pawson, 1969: 52, figs 8–13) but not yet from Australian waters. It also has an additional plate adjacent to the ventral arm plate, although they are smaller than on *O. jejuna* and are present on most of the arm segments instead of the basal few. Mortensen (1933a: fig. 48c), who described and figured these plates, interpreted them as enlarged adradial tentacle scales, an interpretation consistent with their position in the present material. The only other species of *Ophiuroglypha* known from the Tasman region is *O. rugosa* (Lyman, 1878), also found off New Zealand (Baker, 1977: 151). *O. jejuna* can be distinguished from both *O. irrorata* and *O. rugosa* by the arm comb, continuous across the dorsal midline, and the angular radial shields, contiguous for most of their length.

*Ophiura (Ophiuroglypha) clemens* (Koehler, 1904) appears very similar to *O. jejuna*, particularly specimens from the north Atlantic described and figured by Paterson (1985: 120, fig. 45). This species has also been reported from Indonesia and the Philippines at depths of between 686 and 1633 m.

The present specimens of *O. jejuna* are the first to be reported since the type series which included a paratype from off Sydney at a depth of 750 m.

#### *Ophiocrossota* H.L. Clark

##### *Ophiocrossota multispina* (Ljungman)

*Ophioglypha multispina* Ljungman, 1867b: 307. — Lyman, 1878: 99. — 1882: 41.

*Ophiocrossota heteracantha* H.L. Clark, 1928: 451, figs 136a, b. — 1946: 267.

*Ophiocrossota multispina*. — H.L. Clark, 1946: 267. — Baker, 1982: 433, fig. 10:16a.

*Material examined* (partial list). Tasmania, E of King Island, 40°00.0'S, 144°20.9'E, 48 m, 22 Nov 1981, siliceous sand and shell (BSS stn.200), NMV F52893(1); E of Flinders Island, 40°06.2'S, 148°25.0'E, 22 m, 14 Nov 1981, coarse shell (BSS stn 166), NMV F52895(3 juveniles).

Victoria, western Bass Strait, 39°06.3'S, 142°55.6'E, 84 m, 21 Nov 1981, fine shell (BSS stn 191), NMV F52894(1 juvenile); off eastern coast, 37°50'S, 148°40'E, 26 m, 30 Jul 1983, medium sand (BSS stn 208), NMV F52896(28).

*Distribution*. South-eastern Australia from the Great Australian Bight to Sydney, New South Wales, 10–84 m.

*Remarks*. These are the first records of *O. multispina* from Tasmanian waters.

#### *Amphiophiura* Matsumoto, 1915

##### *Amphiophiura urbana* (Koehler)

*Ophioglypha urbana* Koehler, 1904: 50, pl. VII, figs 10–12.

*Amphiophiura urbana*. — Baker, 1979: 25, fig. 1h (partial synonymy).

*Material examined* (partial list). South Australia, 24 n. mi. off Beachport, 37°45'S, 139°41'E, 390–410 m, 24 Oct 1981, NMV F52884(1).

Tasmania, off north-west coast, 41°05.1'S, 143°56.3'E, 382 m, 27 Jan 1985, NMV F52888(1); E of North Point, Flinders Island, 39°44.5'S, 148°49'E, 421 m, 24 Nov 1973, muddy sand, NMV F52886(1); off Maria Island, 42°43'S, 148°25'E, 506 m, 25 June 1984, NMV F52889(3); 42°41.9'S, 148°25.1'E, 440 m, 15 Aug 1984, NMV F52890(1); 42°40.8'S, 148°25.4'E, 472 m, 16 Aug 1984, NMV F52891(2); off southern coast, 43°38.9'S, 147°49.4'E, 160 m, 16 Feb 1976, NMV F52892(1).

Victoria, eastern Bass Strait, 38°52.6'S, 148°25.2'E, 140 m, 15 Nov 1981, muddy sand (BSS stn 170), NMV F52885(1).

*Distribution*. South-eastern Australia from the Great Australian Bight to southern New South Wales, including Tasmania; Indonesia. 108–596 m.

*Remarks*. The largest specimen (NMV F52855), 17 mm d.d. has a split arm with one branch regenerating backward toward the disc.

#### *Haplophiura* Matsumoto, 1915

##### *Haplophiura gymnopora* (H.L. Clark)

*Ophiozona gymnopora* H.L. Clark, 1909: 535, pl. LI, figs 1–3.

*Haplophiura gymnopora*. — Matsumoto, 1915: 76. — H.L. Clark, 1938: 357. — 1946: 267. — Rowe and Pawson, 1977: 351.

*Material examined*. Tasmania, eastern Bass Strait, 39°41.7'S, 148°39.5'E, 115 m, 27 Mar 1979, muddy sand (BSS stn 32), NMV F52859 (10); 39°28.4'S, 148°49.2'E, 110 m, 29 Mar 1979, shell/sand (BSS stn 35), NMV F52860(2); 39°44.8'S, 148°40.6'E, 124 m, 14 Nov 1981, fine sand and mud (BSS stn 167), NMV F52861(20).

Victoria, eastern Bass Strait, 38°54.3'S, 147°13.4'E, 58 m, 18 Nov 1981, coarse shell (BSS stn 176), NMV F52862(6).

*Distribution*. South-eastern Australia from eastern Bass Strait to Wata Mooli, New South Wales, 40–124 m.

*Remarks*. The specimens measure 1–4 mm d.d. *H. gymnopora* was previously known only from southern New South Wales.

**Ophiocten** Lütken, 1855**Ophiocten hastatum** Lyman

*Ophiocten hastatum* Lyman, 1878: 103, pl. 5, figs 133, 134.—Paterson, Tyler and Gage, 1982: 117, figs 5a–e (synonymy).

*Ophiocten australis* Baker, 1979: 26, figs 3a–c.

*Ophiura hastata*.—Guille, 1982: figs 6d, e, 7a, b.

*Material examined.* Tasmania, off south-western coast, 1800–1820 m, 21 Feb 1976, NMV F52773(200).

New South Wales, off Nowra, 34°51.3'S, 151°31.3'E, 1701 m, 16 Jul 1986, NMV F54213(8); 34°58.4'S, 151°23.2'E, 1750 m, 16 Jul 1986, NMV F54214(17).

*Distribution.* South-eastern Australia, New Zealand, Kerguelen and Prince Edward Island, South Africa, eastern Atlantic and Pacific Oceans. 1130–4700 m.

*Remarks.* The present material, 4.5–18 mm d.d., confirms Paterson, Tyler and Gage's (1982) suspicion that *O. australis* is synonymous with the widespread species *O. hastatum*. Baker (1979) distinguished *O. australis* from *O. hastatum* by the lack of genital papillae and the lack of papillae on the first dorsal arm plate. However, Paterson, Tyler and Gage found that these papillae, as well as arm comb papillae, are often absent on *O. hastatum* specimens.

The present specimens agree closely with both Baker's (1979) and Paterson, Tyler and Gage's (1982) descriptions. Genital papillae and dorsal arm plate papillae are absent, but a few specimens have one or two rudimentary arm comb papillae. There are three arm spines, the uppermost thickest and longest, as long as 3–4 dorsal arm plates. The oral shields, even on the smallest specimens, are at least twice as wide as long.

**Ophiomastus** Lyman, 1878 (emend H.L. Clark, 1939)

**Ophiomastus tegulitius** Lyman

*Ophiomastus tegulitius* Lyman, 1878: 104, pl. VI, figs 167–169.—1882: 104, pl. VIII, figs 16–18.—Fell, 1958: 31.

*Material examined.* Victoria, western Bass Strait, 39°06.2'S, 142°28.7'E, 640 m, 9 Oct 1980, yellow mud (BSS stn 66), NMV F52666 (1).

New South Wales, E of Broken Bay, 840–895 m, 6 Dec 1979, AM J16487(3).

*Description.* Disc, 2.6–3.8 mm d.d.; arms, flattened and widened at the base, 1 d.d. long. Disc high, hemispherical, covered in approximately 20 plates; 6 primaries (1 is occasionally split into 2), 1 or 2 plates at each interradial margin and small, sunken radial shields. Oral papillae fused, jaw margin crenulate. Dorsal and ventral arm plates small,

separate, present throughout. 2 opposing tentacle scales on first 3–6 basal pores, large scale on lateral arm plate, smaller rim-like scale on ventral arm plate; only larger scale persists distally. 2 small, conical arm spines. Colour: white.

*Distribution.* South-eastern and eastern Australia, New Zealand, and north of New Guinea. 510–4840 m.

*Remarks.* This is the only *Ophiomastus* species known from the Tasman region. Two other species described by Fell from New Zealand: *O. stellamaris* Fell, 1952 and *O. admiral* Fell, 1958, were found by Baker (1977) to be representatives of *Ophiozonella*.

This is the first report of *O. tegulitius* since the type series.

**Ophiomisidium** Koehler, 1914**Ophiomisidium flabellum** (Lyman)

*Ophiomusium flabellum* Lyman, 1878: 120, pl. V, figs 141–143.—1882: 98, pl. III, figs 4–6.—H.L. Clark, 1909: 539.

*Ophiomisidium flabellum*.—Koehler, 1914: 32; 1930: 251.—H.L. Clark, 1915: 308.—1938: 357.—1946: 266.—Baker, 1977: fig. 1a.

*Material examined.* Tasmania, W of Cape Sorrell, 41°50.2'S, 144°33.2'E, 470 m, 20 Oct 1984, NMV F52669(1 juvenile).

Victoria, SE of Halibut Platform, Bass Strait, 38°27'S, 148°24.5'E, 183 m, 23 Nov 1973, coarse sand, NMV F52667(1).

New South Wales, 7 mi. off Port Jackson, 55–65 m, 4 Jun 1874 (Challenger stn 163a), NMV F52668(6).

Philippines, off Jolo Island, 20 m, coll. Th. Mortensen, 17 Mar 1914, identified by Koehler (1930: 252), ZMC(1).

*Description.* Disc 1.0–4.0 mm d.d.; arms, approximately 1 d.d., considerably widened at base. Approximately 30 disc plates, including 6 primaries, 1 large tubercle-shaped plate at each inter-radial margin, large, a quarter d.d., contiguous radial shields, and several smaller radial and inter-radial plates. Disc margin rampart-like, due to tubercular plates and slightly upraised radial shields. Basal lateral arm plates very wide, dominating ventral surface, meeting distal to small oral shields. First lateral arm plate with up to 4 modified triangular arm spines that fringe the disc; second segment with 2 spines; succeeding segments with 1 short, blunt spine. Tentacle pores only on first 3 segments, each with 1 oval tentacle scale.

*Distribution.* South-eastern Australia from western Bass Strait to Cape Three Points, New South Wales; ?Philippines. 20–420 m.

*Remarks.* This material includes six previously unrecorded specimens from Challenger station 163a, the same locality as the solitary type specimen.

The smallest specimen (NMV F52699) differs in having flat marginal inter-radial disc plates and paddle-shaped basal arm spines, relatively longer than on adults.

Koehler's (1930) specimen from the Philippines is very similar to local material, differing only in having slightly smaller basal arm spines. Although some *Ophiomysidium* species are known to be widespread, (Guille, 1982: 73, has reported the Atlantic species *O. speciosum* Koehler, 1914 from off Kerguelen), this solitary record could be due to a confusion of labels, as is possibly the case for a similar aberrant record of *Ophiomysium incertum*, and needs confirmation.

One of the other seven known species of *Ophiomysidium* is from New Zealand: *O. irene* Fell, 1952. Although very similar to *O. flabellum*, *O. irene* can be distinguished by the presence of an additional tubercle-like plate between the distal ends of the radial shields (Baker, 1977:150).

The increase in the known bathymetric distribution to 420 m is consistent with other members of the genus.

#### **Ophioplepidinae** Matsumoto, 1915

##### **Ophiomysium** Lyman, 1869

##### **Ophiomysium incertum** Koehler

*Ophiomysium incertum* Koehler, 1930: 245, pl. XVIII, fig. 8, pl. XIX, figs 3, 4.—Baker, 1979: 30 (full synonymy).

*Material examined.* Tasmania, western Bass Strait, 40°07.9'S, 143°12.9'E, 503 m, 11 Oct 1980, carbonate mud (BSS stn 106), NMV F52676(3); eastern Bass Strait, 39°27.7'S, 148°51.1'E, 293 m, 28 Mar 1979, coarse shell (BSS stn 36), NMV F52671(1); 39°40.3'S, 148°46.5'E, 293–329 m, 27 Mar 1979, rock and coarse sand (BSS stn 33), NMV F52677(3); E of North Point, Flinders Island, 39°44'S, 148°47.5'E, 329 m, 24 Nov 1973, polyzoa bottom, NMV F52674(2); 39°44'S, 148°49'E, 421 m, 24 Nov 1973, muddy sand, NMV F52672(10); off north-eastern coast, 41°32.9'S, 148°35.0'E, 127 m, 10 Oct 1985, NMV F52675(1); E of Maria Island, 42°39'S, 148°26.3'E, 503 m, 25 Jun 1984, NMV F52673(1).

Indonesia, Arafura Sea, Kei Islands, 270 m, coll. Th. Mortensen, 1 May 1922, ZMC(1 syntype).

*Distribution.* Spencer Gulf or Gulf Saint Vincent, South Australia to eastern Bass Strait and eastern Tasmania; ?Kei Islands. 127–503 m.

*Remarks.* Two pairs of tentacle pores are present on basal segments of juvenile specimens. A 1.0 mm d.d. specimen (NMV F52671) has two distinct

pairs; a 2.4 mm d.d. specimen (NMV F52677) has an indistinct distal pair and a distinct proximal pair; a 3.6 mm d.d. specimen (NMV F52672) has no distal pair and an indistinct proximal pair; larger specimens have no pores.

The discovery of tentacle pores in *O. incertum* is important as it is often quoted as an unusual example of an ophiuroid in which they are absent. I cannot determine from this material whether the pores are functional or vestigial.

In this excellent growth series, the other specific characters can clearly be traced to maturity. The tubercular disc plates as well as the fine granular nature of all the plates, are notable even in the smallest specimens. There are no dorsal or ventral arm plates, two arm spines at 1.0 mm d.d., 3–4 at 3.6 mm d.d. and 5–6 in adults.

Koehler (1930) reported a specimen of *O. incertum* from the Kei Islands. This specimen is identical to local material, however, H.L. Clark (1946: 275) and Madsen (1967: 143) suggested the reported locality may be due to a confusion of labels and therefore needs confirmation.

##### **Ophiomysium australe** H. L. Clark

*Ophiomysium simplex* var. *australe* H.L. Clark, 1928: 449, figs 135a, b.—1946: 274.

*Ophiomysium aporum* H.L. Clark, 1928: 447, figs 134a, b.—1946: 275.—Baker, 1979: 30.

*Ophiomysium australe*.—Baker, 1979: 30.—Baker and Devaney, 1981: 158, figs 25–27.

*Material examined.* Victoria, 18 n. mi. S of Cape Nelson, 38°44'S, 141°33'E, 155 m, 26 Aug 1975, identified by A.N. Baker (Baker and Devaney, 1981: 158). NMV H367(3); 27 n. mi. SSW of Portland, 300–595 m, May 1979, NMV F52771(7).

*Distribution.* Dirk Hartog Island, Western Australia to Cape Nelson, Victoria. 130–595 m.

*Remarks.* The present material, 2.6–13 mm d.d. has only two arm spines, the same number as shown on Baker and Devaney's (1981: fig. 27) figure of the type. However, this is one fewer than reported from the holotype of *Ophiomysium aporum*, the only full description of this species available.

##### **Ophiomysium anisacanthum** H.L. Clark

*Ophiomysium anisacanthum* H.L. Clark, 1928: 446, figs 133a, b.—1946: 274.—Baker, 1979: 31.—Baker and Devaney, 1981: 158, figs 22–24.

*Material examined.* Victoria, W of Cape Nelson, 170–200 m, 6 Jun 1969, NMV F52770(1).

*Distribution.* Lancelin, Western Australia to Cape Nelson, Victoria. 130–310 m.

*Remarks.* *O. anisacanthum* was previously known only from west of Gulf St Vincent, South Australia.

### Ophioplocus Lyman, 1861

#### Ophioplocus bispinosus H.L. Clark

*Ophioplocus bispinosus* H.L. Clark, 1918: 337, pl. IV, fig. 2. — 1946: 276. — Thomas, 1975: 241.

*Ophioceres bispinosus.* — Baker and Devaney, 1981: 157, figs 1–3, 5, 14–17. — Baker, 1982: 433, figs 10:16e–f. — Rowe and Vail, 1982: 222.

*Material examined* (partial list): Tasmania, Narracoopa, King Island, 8–9 Mar 1980, rocky shallows, NMV F52767(1); West Cove, Erith Island, Bass Strait, 8 Jan 1982, under a granite boulder, lower intertidal, NMV F52765(1).

Victoria, Glenaire, W of Cape Otway, 16 Dec 1983, rocky shallows, NMV F52768(1); Cape Schanck, 8 Oct 1982, rocky shallows, NMV F52766(1); Cape Paterson, no depth, 20 Jan 1957, NMV F52764 (3).

*Distribution.* South-eastern Australia from Encounter Bay, South Australia to Wilsons Promontory and eastern Tasmania. 1–50 m.

*Remarks.* *Ophioplocus bispinosus* is viviparous, there is 1 bursa to each genital slit, each of which contains 3–4 juveniles. All the juveniles are typically at the same level of maturity, for example a bursa in a 10.5 mm d.d. specimen (NMV F52764) had 3 young: 1.3, 1.4 and 1.5 mm d.d. respectively, all considerably larger than the genital slit, which was only 0.7 mm (2 arm segments) in length.

In 1981, Baker and Devaney transferred *Ophioplocus bispinosus* to the genus *Ophioceres* Koehler, 1922b, apparently unaware that Thomas (1975) had previously shown that both *Ophioceres* and *Ophioceramis* Lyman, 1865, are junior synonyms of *Ophioplocus* Lyman, 1861. *Ophioceramis* was a heterogeneous assemblage that contained species belonging to the Amphiuroidae and Ophiactidae as well as two species, *O. januarii* (Lütken, 1856) and *O. declinans* (Koehler, 1904), that are intermediate between the type species of *Ophioplocus* and *Ophioceres*, having a small amount of dorsal arm plate fragmentation (2–5 pieces) and 3–6 tentacle scales.

At least three other *Ophioplocus* species are known to be viviparous: *O. incipiens* (Koehler, 1922b) (see Mortensen, 1936: 307), *O. esmarki* Lyman, 1874 (see Hyman, 1955: 629) and *O. marginata* (Fell, 1953) (see Baker and Devaney, 1981: 158).

#### Ophiozonella Matsumoto, 1915

#### Ophiozonella bispinosa (Koehler)

*Ophiozona bispinosa* Koehler, 1897: 319, pl. VI, figs 32, 33.

*Ophiozonella bispinosa.* — Baker, 1979: 32 (full synonymy).

*Material examined.* Tasmania, off north-west coast, 41°05.1'S, 143°56.3'E, 382 m, 27 Jan 1985, NMV F52769(1).

*Distribution.* South-eastern Australia from the Great Australian Bight to north-west Tasmania, Andaman Islands, Philippines and Japan. 205–382 m.

*Remarks.* This 10 mm d.d. specimen is the first to be reported in Australia from east of Gulf St Vincent, South Australia.

Two other species of *Ophiozonella* are known from the Tasman region: *O. stellamaris* (Fell, 1952) and *O. stellata* (Lyman, 1878), both from New Zealand. *O. stellamaris* has only one arm spine and both only have one tentacle scale throughout, unlike *O. bispinosa* which has two, basally three, tentacle scales and two arm spines.

#### Ophioleucinae Matsumoto, 1915

#### Ophioleuce Koehler, 1904

#### Ophioleuce regulare (Koehler)

*Ophioleuce regulare* Koehler, 1901: 26, pl. VIII, figs 52–54.

*Ophioleuce regularis.* — Koehler, 1922b: 36, pl. LXXXVI, figs 1, 2.

*Ophioleuce regulare.* — Madsen, 1983: 45, figs 7a–g (full synonymy).

*Material examined.* Tasmania, eastern Bass Strait, Flinders Canyon, 39°38.7'S, 148°49.4'E, 770 m, 27 Mar 1979, shell/sand (BSS stn 34), NMV F52665(1); eastern Bass Strait, 39°28.2'S, 148°57.4'E, 841 m, 29 Mar 1979, muddy sand (BSS stn 37), NMV F52664(7).

Antarctica, 66°8'S, 94°17'E, 220 m, 27 Jan 1914 (ANARE stn 8), identified by Koehler (1922b: 36), AM J3539(1).

*Description.* Bass Strait specimens: 1.6–3.1 mm d.d, arms, delicate and slender, 2 times d.d. Disc low, sunken inter-radially, ventral side slightly concave; disc plates large, irregular, mostly bordered by 1 or 2 rows of spherical granules (sparse on smallest specimens). Disc margin tapers to sharp edge, bears several rows of elongated granules. No granules ventrally. Ventral arm plates rhombic or triangular, contiguous until just outside disc margin. Tentacle pores under the disc (first 3–7) elongated, with 2–4 tentacle scales; other pores small, circular with 1 tentacle scale. 2 arm spines. Colour: cream.

*Distribution.* Eastern Bass Strait and circumpolar antarctic and subantarctic waters. 69–900 m.

*Remarks.* *O. regulare* was previously known only from antarctic and subantarctic regions.

One of the other five known species of *Ophioleuce* has been discovered from the Tasman Region: *O. seminudum* Koehler, 1904. This Indo-West Pacific species has been found off the coast of southern Queensland (Baker, 1979: 32 as *O. charischema* (H.L. Clark, 1911), see Madsen, 1983) and South of Norfolk Island in the Tasman Sea (NMV F52701). Only the basal pore is elongated in *O. seminudum*, and the inter-radial disc margin is not sunken, consequently, the ventral disc surface, which is also usually granulated, does not appear concave.

### Ophiocomidae Ljungman, 1867b

#### Clarkcoma Devaney, 1970

#### Clarkcoma bollonsi (Farquhar)

*Ophiocoma bollonsi* Farquhar, 1908: 108.

*Clarkcoma bollonsi*. — Devaney, 1970: 5, figs 4, 5, 10, 12, 14 (partial synonymy). — Rowe, 1985: 67, pl. 2, figs 3–8.

*Ophiotreta valenciennesi*. — Koehler, 1930: 66. — H. L. Clark, 1946: 187 [non *O. valenciennesi* (Lyman, 1879)]

*Material examined.* Tasmania, off south-west coast, 43°25.3'S, 145°39.8'E, 160 m, 21 Oct 1984, NMV F52706(2 juveniles); off Maria Island, 42°40'S, 148°27.5'E, 122–174 m, 23 Mar 1931, identified by Madsen (1967: 142) as *Clarkcoma canaliculata* (Lütken, 1869) (BANZARE stn 113), SAM K1347(2).

Victoria, SE of Seaspray, 38°42'S, 147°56.2'E, 69 m, 23 Nov 1973, polychaete substrate, NMV F52705(2); S of Cape Howe, 38°12'S, 149°40'E, 180–280 m, coll. Mortensen 16 Sep 1911, identified by Koehler (1930: 66) as *Ophiotreta valenciennesi* (Lyman), ZMC(1).

*Distribution.* South-western Australia from Don-gara to Hamelin Bay; eastern Australia, from Tasmania to Mooloolaba, Queensland, and New Zealand. 9–630 m.

*Remarks.* Rowe (1985) reported this species from Australia for the first time. The present specimens, 2–13 mm, extend the known distribution to Tasmania.

Koehler (1930) recorded a specimen of *Ophiotreta valenciennesi* (Lyman, 1879) from off Cape Howe, Victoria. This specimen, 8 mm d.d., proved upon examination to belong to *Clarkcoma bollonsi* (Farquhar, 1908). Species of *Ophiotreta*, ophiacanthids, are superficially similar to *Clarkcoma* but lack the block-like hylanated teeth. Moreover, *O. valenciennesi*, unlike other species of *Ophiotreta* (see Mortensen, 1933a: 35, fig. 19b) and all *Clarkcoma* species, only has a single apical tooth papillae.

The other two species of *Clarkcoma* are from southern Australia: *C. canaliculata* (Lütken, 1869) and *C. pulchra* (H.L. Clark, 1928), both from depths of less than 50 m. The three specimens from off Maria Island, Tasmania, 122–174 m, that Madsen (1967) recorded as *C. canaliculata*, are referable to *C. bollonsi*. Interestingly, *C. pulchra*, although common on south-western and eastern coasts of Australia, appears to be absent from Victoria and Tasmania.

The only other ophiocomid species known from southern Australia is *Ophiocomia australis* H.L. Clark, 1928. Juvenile *Clarkcoma* specimens can occasionally be mistaken for this species, as they have only one tentacle scale on most pores (there are two on adults) and, in the case of *C. canaliculata* are also crossbanded dark and light along the arms. However, *O. australis* can be distinguished from all the *Clarkcoma* species by the presence of a distinct distal lobe on the oral shields. *O. australis* is restricted to the South Australian Gulf region.

### Ophiacanthidae Perrier, 1891

#### Ophiacanthinae Paterson, 1985

#### Ophiacantha Muller and Troschel, 1842

#### Ophiacantha sollicita Koehler

Figures 2h–i

*Ophiacantha sollicita* Koehler, 1922b: 14, pl. 79, figs 1–3. — Rowe and Pawson, 1977: 355.

*Material examined.* Tasmania, off Maria Island, 42°48'S, 148°40.75'E, 2420 m, 13 Dec 1912, AM J3557(2 syntypes).

*Description.* Disc, 8 mm and 13 mm d.d., covered in tall, slender spines, 1.5 mm high, with thorny stems and 2–4 terminal points. Basal dorsal arm plates much wider than long, contiguous for first 3–4 plates, bear some spines similar to those on disc; other plates separate, as wide as long, roughly triangular, distal edge convex, lateral edges concave. Ventral arm plates separate throughout, twice as wide as long, distal edge convex. Oral shields triangular to diamond-shaped (depending on degree of distal angle). Adoral shields 3–4 times as long as wide, separate oral shields from first ventral arm plates. 3 oral papillae, inner 2 spiniform, outer widened, highest and thickest proximally with tapering distal flange (fig. 2h). 7–8 finely rugose arm spines, uppermost longest.

*Distribution.* Off eastern Tasmania. 2420 m.

*Remarks.* These specimens are virtually identical to the North Atlantic species *Ophiacantha aculeata* Verrill, 1885 as described and figured by Koehler



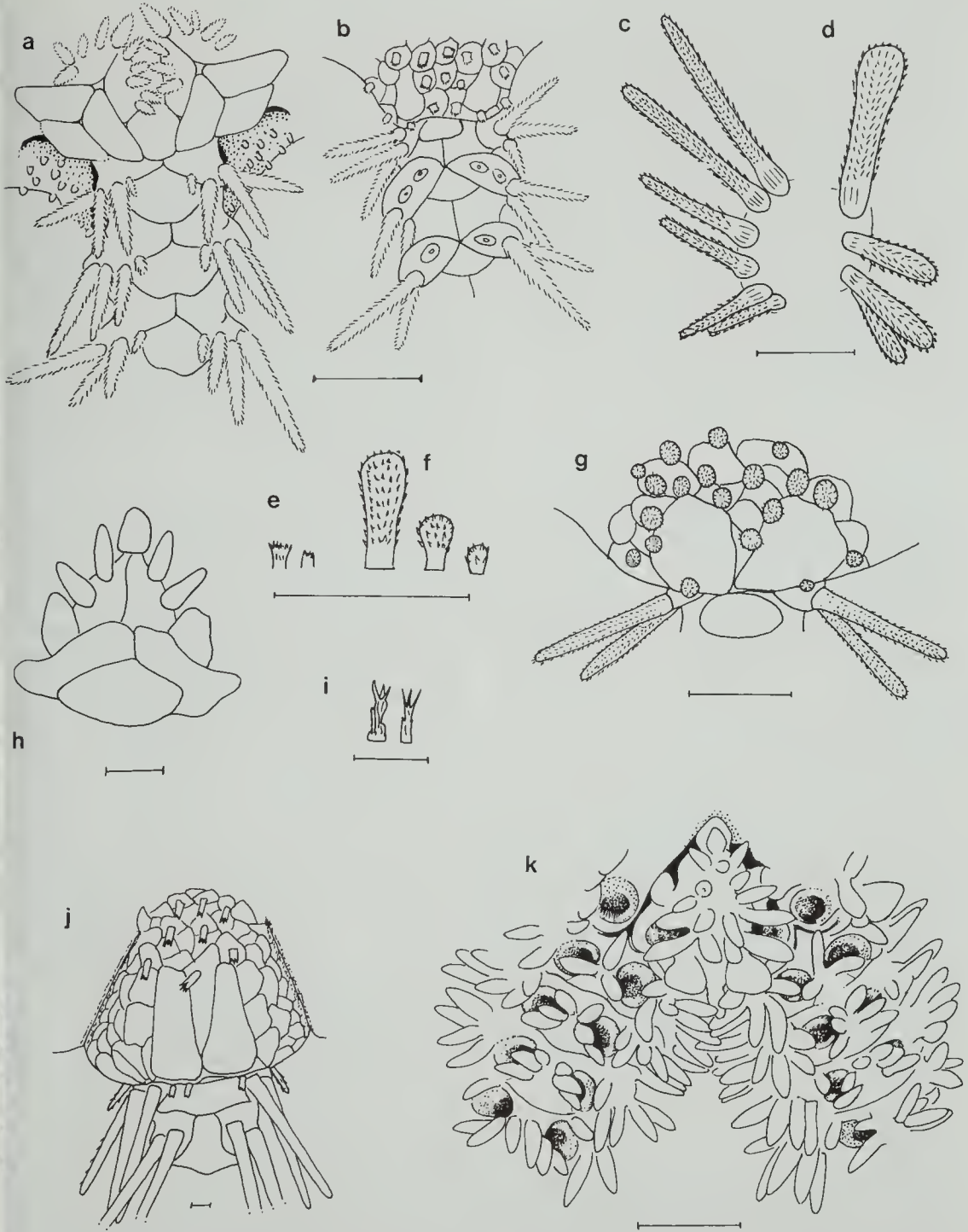


Figure 2, a-b: *Ophiomitrella* sp. cf. *chilensis* (NMV F52700), a, ventral view, b, dorsal view; c-d: *Ophiomitrella conferta*, arm spines, 2nd segment, c, (NMV F52683), d, (SAM K979); e: *Ophiomitrella* sp. cf. *chilensis* (NMV F52700), disc spinelets; f-g: *Ophiomitrella conferta*, f, disc stumps, g, (NMV F52683) dorsal view; h-i: *Ophiacantha sollicita* (AM J3557), h, jaw, i, disc spinelets; j: *Ophioplinthaca incisa* (NMV H361) dorsal view; k: *Ophiomyces grandis* (NMV F52776) ventral view. Scale line = 1.0 mm.

(1914: 74, pl. 11, figs 1, 2), Mortensen (1933a: 28, figs 14c, 15) and Paterson (1985: 38, fig. 17). In particular, the outermost oral papillae and disc spinelets are very similar. If *O. aculeata* proves to have a more widespread distribution, *O. sollicita* should be treated as a synonym.

Some specimens referred to the similar species *O. cosmica* Lyman, 1878 are possibly better placed in *O. aculeata* or *O. sollicita*. *O. cosmica* differs in having 3–4 spiniform oral papillae and stouter disc spinelets (Paterson, 1985, fig. 17), but Lyman (1878, fig. 269) figured a specimen from off Tristan da Cunha with a widened outer oral papillae and H.L. Clark (1939: 42) unjustifiably synonymized the two species without mentioning the difference in the number and form of the oral papillae or the disc spinelets.

### *Ophiacantha yaldwyni* Fell

*Ophiacantha yaldwyni* Fell, 1958: 23, pl. 4, figs F, H, I. — Baker and Devaney, 1981: 173.

*Material examined.* Tasmania, off north-west coast, 43°45'S, 143°40'E, 930–1210 m, Apr 1986, NMV F52863(1).

Victoria, off Point Hicks, 38°24.5'S, 149°25.5'E, 823 m, 21 Nov 1973, rock/coral, identified by Baker (Baker and Devaney, 1981: 173—mistakenly listed as H361), NMV H362(1).

*Description.* Disc 4.0–6.5 mm d.d., arms 4 times d.d.. Disc covered in flat, rounded scales; scales bear 1 large cylindrical granule, as high as wide with terminal thorns. Radial shields bar-shaped, concealed. Oral shields rhomboid, wider than long; adoral shields 3 times as wide as long. 1 apical, 3–5 oral papillae, short, stout, club-shaped to spherical, thorny, irregular in size and orientation. Dorsal arm plates fan to bell-shaped, separate, distal edges of basal plates bear some spines similar to those on disc. First ventral arm plate large, longer than wide; second triangular, as wide as long; rest wider than long, distal edge often raised and notched, always separate. 5–6 stout arm spines; uppermost basal spine enlarged; terminally or proximally thorny. Tentacle scale small, pointed. Colour: pale brown or cream.

*Distribution.* Eastern Bass Strait and New Zealand. 841–1210 m.

*Remarks.* The two specimens differ slightly in appearance. The largest (NMV H362) has a tumid disc, multifid disc spines and stout arm spines with predominantly terminal thorns and the arms are broken distally. The other has a flat disc, slightly constricted inter-radially, bifid or trifid disc spines and slender arm spines which have a row of thorns on the proximal side. The arms are very slender dis-

tally and coiled around an octacorallia upon which it was living.

These specimens also differ slightly from Fell's description of the holotype (11 mm d.d.). It had up to nine oral papillae, adoral shields only 1.5–2 times as wide as long and lacked tentacle scales after the third segment.

### *Ophiacantha rosea* Lyman

*Ophiacantha rosea* Lyman, 1878: 139, pl. X, figs 267, 268. — Paterson, 1985: 45, fig. 18 (partial synonymy).

*Ophioprium rosea.* — Baker and Devaney, 1981: 173 (partial synonymy).

*Material examined.* Tasmania, E of North Point, Flinders Island, 39°45.3'S, 148°54'E, 640 m, 24 Nov 1973, rock/mud, identified by Baker (Baker and Devaney, 1981: 173), NMV H364(13); eastern Bass Strait, 39°20.5'S, 148°46.3'E, 440 m, 2 Feb 1985, NMV F52852(1); 39°18'S, 148°44'E, 448–480 m, 3 May 1984, NMV F52853 (7); S of Cape Howe, 39°11.7'S, 149°48.7'E, 644–650 m, 3 Feb 1985, NMV F52851(3).

*Distribution.* Eastern Bass Strait, New Zealand, southern Chile, Japan, Marion Island and the Bay of Biscay. 270–1700 m.

*Remarks.* Paterson (1985) disagreed with Baker and Devaney's (1981) placement of this species in *Ophioprium* H.L. Clark, 1915. This species has a jaw that is wider than long and large tentacle pores that are fully covered by one (first pore one or two) large tentacle scales. There are 3–4 large oral papillae and often some additional, smaller spiniform papillae not particularly associated with the oral tentacle pore. In contrast, *Ophioprium* species have elongate jaws, tall, spine-like oral tentacle scales, 2–4 thin tentacle scales along the arm that do not cover the pores and the jaw is elongate.

The present material measures 3.5–16 mm d.d. with arms 4–5 times d.d.. There are only rarely two tentacle scales on basal pores and few additional oral papillae. Colour (preserved): brown or grey.

### *Ophiacantha fidelis* (Koehler)

*Ophiomitrella fidelis* Koehler, 1930: 72, pl. VII, figs 4, 5. — Baker and Devaney, 1981: 173.

*Ophiacantha fidelis.* — H.L. Clark, 1946: 186.

*Material examined.* Tasmania, off north-west coast, 41°15'S, 144°08'E, 520–480 m, 20 Oct 1984, NMV F52728(1); 41°50.2'S, 144°33.2'E, 420 m, 20 Oct 1984, NMV F52727(1); E Bass Strait, 39°20.5'S, 148°46.3'E, 440 m, 2 Feb 1985, NMV F52723(50); E of Maria Island, 42°39'S, 148°26.3'E, 530 m, 25 Jun 1984, NMV F52721(300); 42°39'S, 148°26.3'E, 415–438 m, 25 Jun 1984, NMV F52724(50); 42°43'S, 148°25'E, 506 m, 25 Jun 1984, NMV F52722 (100); 42°42'S, 148°24'E, 420–490 m, 25 Jun 1984, NMV F52725 (50); 42°41.9'S, 148°25.1'E, 490 m, 15 Aug 1984, NMV F52726(50); 42°40.8'S, 148°25.4'E, 472 m, 16 Aug 1984, NMV F52729(50).

Victoria, 20.5 n. mi. S of Cape Nelson, 403 m, 10 Mar 1977, NMV F52720(1).

**Description.** Disc to 7.0 mm d.d., arms 9–10 times d.d. Disc scales small, overlapping, visible only when dried, overlain by skin. Radial shields bar-like, upraised, long, two-fifths d.d., parallel, widely separate, only small triangular section exposed. Disc granules very small, variable in extent and density but usually confined to central disc region proximal to radial shields. No granules ventrally. Oral shields rhombic, wider than long. 1 apical, 3, rarely 4, oral papillae, outermost widened slightly. Dorsal arm plates bell-shaped, as wide as long, separate; basal plates widened. Ventral arm plates 2–3 times as wide as long, separate. 8 finely serrated arm spines, uppermost 3 times as long as a segment (often broken). Colour: dorsal arm, disc surfaces pale, mottled brown; radial shields, arm spines, ventral surface white.

**Distribution.** South-eastern Australia from Portland to Cape Howe, Victoria and south to Maria Island, Tasmania. 270–530 m.

**Remarks.** The thin, rib-like radial shields, mostly overlain by the scales and skin of the disc surface, with only a small distal region exposed, indicates that *O. fidelis* belongs in *Ophiacantha* rather than *Ophiomitrella* Verrill, 1899. In *Ophiomitrella* the radial shields tend to be shorter and wider and integrate with the disc surface. It is not at all similar to the two species of *Ophiomitrella* described below, whereas it is similar to *Ophiacantha brachygnatha* H. L. Clark, 1928. The two species share moniliform arms, bell-shaped dorsal arm plates, wide ventral arm plates, long, upraised radial shields and similar oral frames. However, the arms are less robust and shorter in *O. brachygnatha*, the disc scales are larger and they carry multifid spinelets not granules.

Koehler (1930) listed syntypes from the Kei Islands. This lot, now in Copenhagen, contains 13 specimens (rather than the 3 mentioned by Koehler) which range in size from 4–8 mm d.d. Although similar in general appearance to local specimens, they have multifid spinelets on the disc surface, and so cannot be included in *O. fidelis*.

*O. fidelis* can evidently live in huge aggregations on the sea floor, one trawl took millions of these animals, filling the entire sorting tray (Dr C.C. Lu, Museum of Victoria, pers. comm.), although only a handful were retained (NMV F52721).

#### *Ophiacantha brachygnatha* H.L. Clark

*Ophiacantha brachygnatha* H.L. Clark, 1928: 420, figs 123a, b. — Baker and Devaney, 1981: 171, figs 40, 93–98 (partial synonymy). — Baker, 1982: 425, fig. 10:12e.

**Material examined** (partial list). South Australia, 24 n. mi. SW of Beachport, 37°50'S, 139°46'E, 380 m, 24 Oct 1981, NMV F52733(2).

Victoria, 27 n. mi. SW of Portland, 330–595 m, 14–15 May 1979, NMV F52735(20); S of Point Hicks, 38°17'S, 149°25'E, 640 m, 21 Nov 1973, clay, NMV F52740(6).

Tasmania, W of King Island, 40°27.6'S, 143°23.6'E, 560 m, 28 Jan 1985, NMV F52736(1 juvenile); off north-west coast, 41°05.1'S, 143°53.1'E, 520 m, 27 Jan 1985, NMV F52737(10); western Bass Strait, 40°07'S, 143°13'E, 229 m, 11 Oct 1980, carbonate mud (BSS stn 105), NMV F52738(1); eastern Bass Strait, 39°28.2'S, 148°52.4'E, 841 m, 29 Mar 1979, muddy/sand (BSS stn 37), NMV F52743(1); E of North Point, Flinders Island, 39°44'S, 148°49'E, 421 m, 24 Nov 1973, muddy sand, identified by Baker (Baker and Devaney, 1981: 171), NMV H359(2).

New Zealand, NW of Campbell Island, 51°49.9'S, 169°31'E, 230–276 m, 15 Jan 1976, NMV F52746(10).

**Distribution.** Cape Naturalist, Western Australia to eastern Bass Strait, New Zealand and Campbell Island. 100–841 m.

**Remarks.** The specimens measure 1–9 mm d.d. with arms 5–6 times d.d. Large specimens differ slightly from available descriptions, as previously the holotype was the largest known specimen (6 mm d.d.). The arms are not particularly moniliform except at the arm tip and are not twisted or curved under as is characteristic of younger specimens (H.L. Clark, 1928, fig. 123). Dorsal arm plates are contiguous basally and there are up to eight arm spines, often with a row of thorns on their proximal side. The small (0.1–0.3 mm high), slender, multifid disc spinelets are absent from the area around the oral shields (as on the type) and large orange gonads are often visible beneath the thin skin. One apical, three (rarely to five) oral papillae; inner papillae are placed obliquely on the jaw, whereas the outermost lies flat and therefore appears widened.

Juveniles (to 2 mm d.d.) have the apical and oral papillae, tentacle scales and the lowermost arm spines covered in sharp thorns, often to the point of being misshapen.

The specimens from off the Campbell Islands are the first to be reported from the subantarctic Islands of New Zealand.

#### *Ophiacantha alternata* A.M. Clark

*Ophiacantha alternata* A.M. Clark, 1966: 328, figs 4a–c. — Baker and Devaney, 1981: 167, figs 42, 84–87. — Baker, 1982: 425, fig. 10:12d. — Rowe and Vaill, 1982: 223.

**Material examined** (partial list). Tasmania, western Bass Strait, 39°38.2'S, 143°07.2'E, 127 m, 21 Nov 1981, sandy shell (BSS stn 195), NMV F52702(2); 39°28'S, 148°17'E, 103 m, 11 Oct 1980, medium fine sand (BSS stn 81), NMV F52925(3); eastern Bass Strait, 39°14.8'S, 147°31.5'E, 57 m, 18 Nov 1981, muddy shell (BSS stn 174), NMV F52927(10).

Victoria, Port Phillip Bay, Lonsdale Bight, 5.5–11.5 m, 21 May 1961, NMV H15(holotype).

Also extensive collections of 400 specimens from 96 localities from Nuyts Archipelago, South Australia to Eden, New South Wales and the east coast of Tasmania.

*Distribution.* Cockburn Sound, Western Australia to south Queensland and eastern Tasmania. 1–127 m.

*Remarks.* The arm spines can be smooth or serrated, as Baker and Devaney (1981: 170) have recorded. *O. alternata* was previously known only from depths of less than 50 m.

#### *Ophiacantha clavigera* Koehler

*Ophiacantha clavigera* Koehler, 1907: 247, figs 1–3. — Baker and Devaney, 1981: 170, fig. 41, 79–83 (full synonymy).

*Material examined* (partial list). Tasmania, western Bass Strait, 39°38.2'S, 143°07.2'E, 127 m, 21 Nov 1981, sandy shell (BSS stn 195), NMV F52903(1); E of Flinders Island, 40°06.2'E, 148°25.0'E, 22 m, 14 Nov 1981, coarse shell (BSS stn 166), NMV F52902(1); W of Cape Sorell, 42°10.9'S, 144°48.9'E, 160 m, 20 Oct 1984, NMV F52901(3); W of Port Davey, 43°25.3'S, 145°39.8'E, 160 m, 21 Nov 1984, NMV F52900(1); off southern coast, 43°24.6'S, 147°32.5'E, 82 m, 22 Nov 1984, NMV F52899(1).

Victoria, western Bass Strait, 38°58'S, 143°29'E, 67 m, 8 Oct 1980, sand (BSS stn 51), NMV F52906(10); 39°15'S, 143°19'E, 94 m, 10 Oct 1980, fine sand (BSS stn 74), NMV F52905(15); 39°06.3'S, 142°55.6'E, 84 m, 21 Nov 1981, fine shell (BSS stn 191), NMV F52904(10).

*Distribution.* Broome, Western Australia to eastern Bass Strait, including western and southern Tasmania. 3–160m.

*Remarks.* The specimens measure 0.5–3.6 mm d.d. The enlarged uppermost basal arm spine, usually smooth, can be noticeably serrated, in a similar manner to the arm spines of *Ophiacantha alternata*.

*O. clavigera* was previously known only from west of Encounter Bay, South Australia in 3–30 m.

#### *Ophiacantha shepherdii* Baker and Devaney

*Ophiacantha shepherdii* Baker and Devaney, 1981: 163, figs 37, 38, 69–74.

*Material examined.* Victoria, Shoreham, on algal/sponge material, rocky shallows, 13 Jan 1981, NMV F52909(1); 1 km E of Harmers Haven, 300 m offshore, 4.5–6 m, 6 Mar 1982, NMV F52908(1); 1 km E of Harmers Haven, 500 m offshore, 11 m, 6 Mar 1982, NMV F52907(1).

*Distribution.* Encounter Bay, South Australia to Wilsons Promontory Victoria. 1–25 m.

*Remarks.* The specimens measure 2.0–2.5 mm d.d. This rare species was previously known only from west of Cape Northumberland, South Australia.

#### *Ophiacantha heterotyla* H.L. Clark

*Ophiacantha heterotyla* H.L. Clark, 1909: 542, pl. LII, figs 4–6. — 1918: 286. — 1938: 209. — 1946: 184. — Rowe and Pawson, 1977: 351. — Baker and Devaney, 1981: 167, figs 39, 75–78.

*Ophialcaea congesta*. — Koehler, 1930: 63. — H. L. Clark, 1946: 186 [non *O. congesta* (Koehler, 1904)].

*Material examined* (partial list). Tasmania, 2.5 km SE of Birches Bay, 43°11'S, 147°16'E, 10 m, 16 Apr 1985, NMV F52732(3); W of South-west Cape, 43°25.3'S, 145°39.8'E, 160 m, 20 Oct 1984, NMV F52730(1); W of Cape Sorell, 42°10.9'S, 144°48.9'E, 160 m, 21 Oct 1984, NMV F52731(2).

Victoria, western Bass Strait, 39°16.7'S, 143°06.7'E, 95 m, 21 Nov 1981, sandy shell (BSS stn 193), NMV F52747(5); S of Western Port, 38°56.0'S, 145°16.6'E, 70 m, 12 Nov 1981, fine mud (BSS stn 155), NMV F52750(1); eastern Bass Strait, 38°51.8'S, 148°26.5'E, 130 m, 15 Nov 1981, muddy sand (BSS stn 170), NMV F52752(6); 39°02.4'S, 148°30.6'E, 120 m, 15 Nov 1981, sandy mud (BSS stn 169), NMV F52753(2).

New South Wales, E of Merimbula, 37°05'S, 150°05'E, 55–90 m, coll. Mortensen, 30 Sep 1914, identified by Koehler (1930: 63) as *Ophialcaea congesta* (Koehler), ZMC(1).

*Distribution.* South-eastern Australia from western Bass Strait to Sydney, New South Wales and Tasmania. 9–160 m.

*Remarks.* The 4.0 mm d.d. specimen, referred to *Ophialcaea congesta* (Koehler, 1904) by Koehler (1930: 63), belongs, as H.L. Clark (1946) suggested, to *Ophiacantha heterotyla*. It has enlarged disc spines at the proximal end of the radial shields and enlarged, smooth, uppermost basal arm spines. The dorsal arm plates are fan-shaped and well separated, unlike on *O. congesta*, where they are broadly contiguous.

The other specimens measure 0.5–4.0 mm d.d. and increase the known distribution of *O. heterotyla* to the western end of Bass Strait and the west coast of Tasmania.

#### *Ophiotominae* Paterson, 1985

##### *Ophiopristis* Verrill, 1899

##### *Ophiopristis axiologus* H.L. Clark

*Ophiopristis axiologus* H.L. Clark, 1909: 543, pl. LIII, figs 1–3. — Paterson, 1985: 53.

*Ophioprium axiologum*. — H.L. Clark, 1915: 216. — 1946: 188.

*Ophioprium axiologus*. — Rowe and Pawson, 1977: 350. — Baker, 1979: 39.

*Material examined.* Tasmania, eastern Bass Strait, 39°16.8'S, 147°33.2'E, 57 m, 18 Nov 1981, muddy shell (BSS stn 174), NMV F52681(1).

New South Wales, 5 mi. E of Port Hacking, 100 m, 1 Feb 1945, AM J6683(1 specimen plus 1 arm).

*Description.* Bass Strait specimen: Disc 1.6 mm d.d., arms 10 segments (4 mm) long, slightly arched back above disc. Disc spines short, with ring of 4–5 thorns just short of apex, extending ventrally to oral plates, but diminishing in size until just spherical granules. Jaws elongated, oral plates 3 times as long as wide, broadly parallel. 6–8 oral papillae; 1–2 apical; next 5–6, small, capitate. 3–4 oral tentacle scales on jaw, tall, 1.3–1.5 times as tall as oral papillae, spatulate, confluent with oral papillae, oppose 2–3 smaller scales on ventral arm plate.

Dorsal arm plates small, fan-shaped, separate; distal edge raised, bears a row of spines on basal plates, 5–6 on first plate, similar in size and shape to disc spines, becoming progressively reduced in size and number, until only 1 spherical granule on sixth plate. Ventral arm plates pentagonal, as long as wide, distal edge convex, lateral sides concave. 6 arm spines basally, 4 by sixth segment, uppermost smallest, bottle-shaped, lowest spatulate, as long as ventral arm plate. 2–3 tentacle scales on basal pores, only 1 after sixth segment, covering the pore. Colour: white.

*Distribution.* Eastern Bass Strait to Wata Mooli, New South Wales. 57–172 m.

*Remarks.* The specimen from New South Wales (AM J6683) differs slightly from the Bass Strait specimen. The disc spines terminate in 3 thorns, there are no spines on the oral shields, or on the dorsal arm plates, which instead have minutely serrated edges. The proximal lateral arm plates are swollen, causing the arm to appear widened at the base and the arm spines are long and flatter. It is very similar to the type description and figures. However these differences can be attributed to individual variation and the smaller size of the new specimen.

Paterson (1985: 53) recognized the genus *Ophiopristis*, restricting *Ophioprium* H.L. Clark, 1915 to those species that have oral tentacles that differ markedly from the oral papillae, being more elongate and separate, and open tentacle pores with small thin tentacle scales.

*O. axiologus* was previously known only from the coast of New South Wales.

#### Ophioplinthacinae Paterson, 1985

##### *Ophiomitrella* Verrill, 1899

##### *Ophiomitrella conferta* (Koehler)

Figures 2c–d, f–g

*Ophiopristis conferta* Koehler, 1922b: 19, pl. LXXXV, figs 9–3. — Rowe and Pawson, 1977: 350.

*Ophiomitrella conferta*. — Madsen, 1967: 127.

*Ophiomitrella falklandica* Mortensen, 1936: 256, pl. VII, fig. 5, text-figs 8c, d.

*Material examined.* Tasmania, Flinders Canyon, eastern Bass Strait 39°38.7'S, 148°49.4'E, 770 m, 27 Mar 1979, shell/sand (BSS stn 34), NMV F52685(1 + 3 juveniles); eastern Bass Strait, 39°28.2'S, 148°52.4'E, 841 m, 29 Mar 1979, muddy sand (BSS stn 37), NMV F52684(1 juvenile); off Maria Island, 2340 m, coll. ANARE, 13 Dec 1912, AM J3579(3 syntypes of *O. conferta*); off southern coast, 47°30'S, 148°29'E, 1140–1040 m, 2 Apr 1986, NMV F53761(4).

Victoria, S of Point Hicks, 38°17.3'S, 149°25'E, 640 m, 21 Nov 1973, clay, NMV F52683(6 + juveniles).

Off Falkland Islands, Lively Island, 79 m, 25 Mar 1927 ("Discovery" stn WS85), BMNH 1936.12.30.316–18 (syntypes of *O. falklandica*); 53°52'S, 61°49'W, 368–463 m, 6 Feb 1932 ("Discovery" stn WS840), BMNH 1936.12.30.330–4 (syntypes of *O. falklandica*).

Antarctica, off Enderby Land, 65°48'S, 53°16'E, 193 m, 24 Jan 1934, identified by Madsen (1967: 127) (BAN-ZARE stn 41), SAM K979(1) and SAM K980(9).

*Description.* South-eastern Australian specimens: disc high, convex, 1.0–7.2 mm d.d.; arms moniliform, 2–3 times d.d. Disc plates coarse, overlapping, 0.2–0.3 mm in diameter, minutely pitted, surrounded by transparent border (only visible when dry). Disc stumps large, of various sizes, smallest stumps 0.1–0.2 mm high and wide, largest 0.3–0.8 mm high (although relatively constant over a specimen), 0.25 mm wide, cylindrical or club-shaped, covered in sharp spikes. Radial shields irregular in shape, one-seventh to one-eighth d.d., as wide as, or wider than, long, generally in contact distally but occasionally separate or fully contiguous. Oral shields diamond-shaped, 3 times as wide as long. 1 apical, 3, rarely 4, oral papillae, 1.5–3 times as long as wide, cylindrical, slightly flattened or slightly club-shaped. Dorsal arm plates small, fan-shaped, as long as wide, widely separate. Ventral arm plates pentagonal, slightly longer than wide, distal edge often notched, separate. Arm spines finely serrated, cylindrical, either gradually tapering to blunt point or club-shaped, 5–6 basally, thereafter 4–5. Uppermost arm spines longest, to 2.4 mm, to 0.35 mm wide at midlength, twice as long as second spine. 1 tentacle scale, slightly curved inward, 0.3–1.0 times as long as ventral arm plate. Colour: white.

*Distribution.* South-eastern Australia from eastern Bass Strait to south-west Tasmania; Falkland Is, South Shetland Is; Antarctica, off Enderby, Kemp and Wilkes Land. 40–2340 m.

*Remarks.* The form and size of the arm-spines (figs 2c, d), the larger disc stumps (fig. 2f), the oral papillae and the tentacle scales vary widely in the

material examined, including within each of the separate geographical locations represented.

The syntypes of *Ophiomitrella conferta* examined, 2.4–7.6 mm d.d., have relatively long disc stumps, to 0.8 mm in height; long, tapering arm-spines, the uppermost to 2.4 mm long; comparatively narrow oral papillae, 2.5–3.5 as long as wide and long tentacle scales, almost the length of a ventral arm plate. Other south-east Australian specimens differ in having relatively low disc stumps, to 0.3 mm in height (NMV F52683 fig. 2g, F53761); stout, club-shaped lower arm spines (NMV F53761); stout oral papillae, 1.5–2 times as long as wide (NMV F53761) and short tentacle scales, 0.3–0.5 times the length of a ventral arm plate (NMV F52683, F53761).

The syntypes of *O. falklandica* examined are similar to the south-eastern Australian specimens of *O. conferta* and have the same variation in the height of the largest disc stumps (0.3–0.6 mm long, 0.25–0.3 mm wide). Some have tapered arm spines (BMNH 1936.12.30.330–4). Most, however, have arm spines, including the uppermost, that are stout, club-shaped and often short, the uppermost 1.4–2.5 mm long and 0.30–0.35 mm wide at midlength on specimens 5–6 mm d.d. However, the arm spines are rarely as stout as shown on Mortensen's figures of a 3.5 mm d.d. specimen (1936: figs c, d), which also has shorter than average disc stumps. The oral papillae are usually short and stout.

Antarctic specimens, named as *O. conferta* by Madsen (1967), also have short, stout, club-shaped arm spines (fig. 2d). One 5.5 mm d.d. specimen (SAM K979) has five arm spines basally, the uppermost 1.2 mm in length, 0.25 mm in width at the base and 0.35 mm in width near the tip, and disc stumps, of intermediate height, 0.4–0.5 mm. However, Madsen (1967: 127) reported that other specimens have more slender arm spines. Mortensen (1936) commented on the similarity of his new species, *O. falklandica*, with *O. conferta*, however, he did not attempt to distinguish the two species. Although, no south-eastern Australian specimens have been found with club-shaped upper arm-spines, given the tendency of some (NMV F53761) to develop club-shaped lower arm-spines, the presence of tapered arm-spines on some of the Falkland Island specimens and the variability of other morphological features, it seems unlikely that the *O. falklandica* specimens represent a separate species.

Madsen (1967) has also suggested that *Ophiomitrella ingrata* Koehler, 1908 may be synonymous with *O. conferta*. However, examination of specimens of *O. ingrata* (South Atlantic, off Gough Island, 407 fm, coll. HMS "Scotia", BMNH

1948.11.27.1–2, labelled "Types" but at a different depth than reported by Koehler, 1908: 277, i.e. 100 fm; off Gough Island, 102–141 m, "Discovery" stn 399, BMNH 1936.12.30.301–10) showed that they differ in having only very small, almost spherical, disc stumps (0.12–0.14 mm high, 0.14 mm wide at 4–5 mm d.d.). The arm spines are short and slender, uppermost 1.2–1.6 mm long, 0.15–0.25 mm wide at midlength, and the arms are often curled and twisted downward. These features, and in particular the disc spines, appear to be outside the range of variation present in the *O. conferta*/*O. falklandica* material.

Several specimens from Bass Strait (NMV F52683) were found to be viviparous. There are 10 bursa, one to each genital slit. A 6.0 mm d.d. specimen had up to nine juveniles in each bursa, all roughly at the same stage of development, about 0.6 mm d.d., with arms 1.3 mm in length. The young appear to be approximately 1.2–1.7 mm on emergence, as another specimen had two young of that size clinging to the outside of the disc, and have 20–25 very coarse disc plates, the same size as those on adults, relatively long, tapered disc spines, irregularly covered in large thorns and three arm spines. Mortensen (1936: 258) reported that some of his *O. falklandica* specimens were viviparous, also with 10 separate bursae.

Four, or possibly five, other *Ophiomitrella* species are known to be viviparous: *O. clavigera* (Ljungman, 1864), *O. ingrata* Koehler, 1908, *O. corynephora* H.L. Clark, 1923, *O. hamata* Mortensen, 1933b and possibly *O. chilensis* Mortensen, 1951. *Ophiomitrella clavigera*, *O. ingrata* and *O. chilensis* are like *O. conferta* in having 10 separate bursae. However, *O. corynephora* has only five separate bursae, the usual pair on the sides of each arm are united radially, while *O. hamata* has all the bursae joined, creating one large circular space.

*O. conferta* has been recorded from 640–2340 m off south-eastern Australia but in antarctic and subantarctic regions it has also been found on the continental shelf, 40–603 m. Fell (1961: 42) has reported a similar situation for *Amphiura joubini* Koehler, 1922b, recorded from New Zealand as well as antarctic and subantarctic localities.

#### *Ophiomitrella* sp. cf. *chilensis* Mortensen

Figures 2a–b, e

*Material examined.* Tasmania, Flinders Canyon, eastern Bass Strait, 39°38.6'S, 148°49.4'E, 770 m, 27 Mar 1979, shell/sand (BSS stn 34), NMV F52700(1).

*Description.* Disc flat, 3.2 mm d.d., weakly constricted at inter-radius; arms moniliform, approximately 14 mm in length. Disc plates small, 0.2 mm

in diameter, irregular. Disc stumps 1 per plate, 0.1 mm high, slightly higher than wide, cylindrical, terminating in crown of small thorns. Radial shields small, 1.5–2 times as long as wide, oval or triangular, tapering proximally, widely separated by 2–3 series of disc plates. Ventral surface with smaller disc plates and less numerous, smaller, almost granular, disc stumps. Oral shields small, roughly diamond-shaped, twice as wide as long, distal angle curved, inner sides slightly concave. Adoral shields larger than oral shields, rhombic, 2.5–3 times as long as wide, meeting broadly within, separated radially by first ventral arm plate. 1 large apical papilla, 3, slightly smaller, primary oral papillae, 1–2 diminutive secondary oral papillae inserted in between. All papillae twice as long as wide, tip covered in sharp thorns; some capitate.

First dorsal arm plate 4 times as wide as long, bears few small granules, overshadowed by protruding disc margin; other plates small, fan-shaped, widely separate. First ventral arm plate large, as long but narrower than succeeding plates, next few plates 1.5–2 times as wide as long, widest proximally, other plates as wide as long, pentagonal, lateral sides parallel, distal edge slightly upraised and notched, proximal angle obtuse; first 2 plates contiguous, rest separate. 5–6 finely serrated arm spines; uppermost often broken, to 1.5 mm long; lowermost 0.3 mm long, just longer than ventral arm plate, slightly hooked shaped with a row of thorns facing downwards. 1 spiniform tentacle scale, quarter as long as ventral arm plate. Colour (dry) white.

*Distribution.* Eastern Bass Strait. 770 m.

*Remarks.* This specimen is similar to the South American species *Ophiomitrella chilensis* Mortensen, 1951 which appears from the type description and figures (p. 13, figs 1a–c), to differ only in having contiguous radial shields, non-serrated arm spines and a minute tentacle scale. However, Alarcón (1968: fig. T) figured a 4–5 mm specimen, supposedly of the same species, that also has finer, more numerous, disc scales and stumps. Another 3 mm d.d. specimen (Magellan Strait, South America, 730 m, identified A.M. Clark 1952, BMNH 1877.11.17.2) has separate radial shields and sparsely thorny arm spines but bi- and trifold disc spinelets and minute thorny tentacle scales. Until the range of variation within *O. chilensis* is better known the final placement of this Bass Strait specimen must remain unsettled.

This specimen is also similar to some specimens of *O. conferta*, the other Australian species. The nature of the arm spines, disc scales, dorsal and lateral arm plates are very similar. The disc stumps

are similar to the smallest *O. conferta* stumps. However, *O. conferta* specimens, differ in also having much larger disc stumps, wider, usually contiguous radial shields, finer adoral shields and ventral arm plates that are longer than wide. Most *O. conferta* specimens also have a generally coarser appearance.

*Ophiomitrella ingrata* Koehler, 1908 differs in having contiguous radial shields, smaller, more rounded disc stumps and non-serrated arm spines. *Ophiomitrella hamata* Mortensen, 1933b has denticulate arm spines and similar disc stumps to the present species, but has only four arm spines, a small first ventral arm plate and a triangle-shaped second ventral arm plate.

This specimen is also similar to *Ophiacantha yaldwyni* Fell, 1958. *O. yaldwyni* differs in having bar-like radial shields that are completely obscured, shorter arm-spines with predominately terminal thorns and smaller tentacle scales.

As there is only one specimen, I have not dissected it. The eventual discovery of its mode of reproduction and the form of the bursae, so important in the genus (see *O. conferta*), will help clarify its relationships.

#### *Ophioplinthaca* Verrill, 1899

#### *Ophioplinthaca incisa* (Lyman)

#### Figure 2j

*Ophiomittra incisa* Lyman, 1883: 263, pl. VI, figs 89, 90.

*Ophioplinthaca incisa*. — Verrill, 1899: 351. — H.L. Clark, 1915: 211. — Baker and Devaney, 1981: 174.

*Material examined.* Tasmania, Flinders Canyon, eastern Bass Strait, 39°38.7'S, 148°49.4'E, 770 m, 27 Mar 1979, shell/sand (BSS stn 34), NMV F52755(1).

Victoria, S of Point Hicks, 38°24.5'S, 149°25.5'E, 923 m, 21 Nov 1973, rock/coral, NMV H361(8).

West Indies, off Santa Cruz Island, 1078 m, MCZ 4079(3 paratypes).

*Description.* Bass Strait specimens: Disc to 17 mm d.d., thick, deeply incised interradially (to third d.d.); arms stout, 5–6 d.d. Disc scales coarse, overlapping; 4–5 large scales flank radial shields. Disc spines stout, terminally thorny, occasionally smooth. Radial shields roughly rectangular or tapering to acute angle proximally, quarter d.d., 2–3 times as long as wide, usually contiguous distally but occasionally completely separated. Oral shields wider than long, roughly diamond-shaped, distal edge curved or lobed, inner sides slightly concave. 1 apical, 4 oral papillae; inner papillae spiniform, outer thickened, blunt. Group of granules often present above distalmost papillae.

Basal dorsal arm plates wide, quadrangular, contiguous; others roughly triangular, distal edge

slightly convex, proximal angle rounded, inner sides concave or convex (even on same arm), separate. Ventral arm plates wider than long, distal edge convex, wider distally than proximally, separate. 5–7 denticulate arm spines, uppermost to 4 segments, lowermost to 1 segment long. 2–3 stout tentacle scales on first arm pore, thereafter 1 leaf-like, sometimes thorny, scale. Colour: white.

*Distribution.* Eastern Bass Strait and the West Indies. 610–1572 m.

*Remarks.* The three paratypes, 8 mm, 9 mm, 12 mm d.d., are very similar to the Bass Strait specimens differing only in having the distal edges of the dorsal and ventral arm plates and of the oral shields thickened or even everted.

The size, density and rugosity of the arm spines, the shape of the arm plates and the size and orientation of the oral papillae varies greatly in the present series of specimens. This range of variation is also exhibited by other species of *Ophioplithaca* such as the widespread *O. rudis* (Koehler, 1897). Other Indo-West Pacific species could prove synonymous with *O. incisa*. Baker and Devaney (1981) found that *O. vicina* Koehler, 1904 differed only in the shape of the oral shields and oral papillae, features that vary widely in this series of specimens. Examination of the holotype ("Challenger" stn 205, BMNH 1882.12.23.186) and 4 paratypes ("Challenger" stn 214, BMNH 1882.12.23.313 and BMNH 1888.11.24.1–2) of *O. plicata* (Lyman, 1878) showed that they too are very close to *O. incisa*. They have the same thickened outer edges of the arm plates and the oral shields as the paratypes of *O. incisa*. They differ mainly in having dorsal arm plates that are usually hemispherical, having convex inner sides, whereas this shape is present only rarely on the specimens of *O. incisa*. However, this is not true of all the *O. plicata* specimens, one in particular (BMNH 1882.12.23.313, see Lyman, 1878: pl. IX, fig. 234), has triangular plates, the inner sides concave. Future study of *Ophioplithaca* material from many Indo-Pacific localities will probably find the three forms fall within the range of a single species.

A specimen has what Baker and Devaney (1981) interpret as a dwarf male clinging to the dorsal surface. Dissection did not reveal any viviparous specimens.

*Ophiohelinae* Perrier, 1891, emend. Paterson, 1985

*Ophiomyces* Lyman, 1869

*Ophiomyces grandis* Lyman

Figure 2k

*Ophiomyces grandis* Lyman, 1879: 46, pl. XIV, figs 383–385; 1882: 240, pl. XIX, figs 13–15. — Paterson, 1985: 75, fig. 31 (full synonymy).

*Material examined.* Tasmania, eastern Bass Strait, 38°29.5'S, 149°32.4'E, 1630 m, 16 Nov 1981, mud (BSS stn Q638), NMV F52776 (1).

South Atlantic, Tristan da Cunha, 1860 m, coll. H.M.S. "Challenger", 16–18 Oct 1873, rock/shell, BMNH 82.12.23.291 (holotype).

*Description.* Bass Strait specimen: disc 4 mm d.d., arms to 20 mm, arched dorsally, 2 arms regenerating midlength. Disc dome-shaped, covered in thin scales, sparsely spinose (1:15 scales); spines generally slender, but stouter, shorter and more dense at interradial margins. No radial shields visible. Genital slits conspicuous, continue dorsally, almost meeting above the arms.

3 spiniform apical papillae on dental plate. 4 longitudinal series of erect oral papillae on each jaw. Outer rows (along jaw edge) with 5 papillae; proximal 3 spiniform, increasing in size distally; fourth similar in size to the first but spatulate; fifth large widened, fan-shaped. Inner rows (on outer jaw surface) with 2 tall, slightly flattened papillae.

Dorsal arm plates transversely lens-shaped, 2–3 times as wide as long, widely separate. Second ventral arm plate small, triangular, rest roughly trapezoid, tapering proximally, separate. 9–10 arm spines, upper spines slender, short, becoming longer ventrally, lowermost 3 flattened slightly, half as long as segment. 3 erect spatulate tentacle scales at apex of second ventral arm plate. Third ventral arm plate with 6 scales, 3 on each side, with 2 opposing scales on each lateral arm plate. Innermost of these scales lost by fourth to sixth segment. Inner of ventral arm plate scales lost by fifth segment, middle by ninth, outer by twentieth. Other scale on lateral arm plate, leaf-like, twice as high as wide, continues to the tip. Colour: white.

*Distribution.* Eastern Bass Strait; North Atlantic from Rockall Trough to south of Gibraltar, off Tristan da Cunha. 1630–1860 m.

*Remarks.* The holotype (6.5 mm d.d.) is in poor condition, lacking most of the dorsal disc surface and the inner rows of oral papillae. It differs slightly from the Bass Strait specimen in having roughly square-shaped ventral arm plates with concave sides. There is only 1 tentacle scale on the lateral arm plate, which is large, as high as wide and bluntly pointed. The difference in the shape of the ventral arm plate is possibly due to the larger size of the holotype. It is similar to the description and figures given by Paterson (1985).

Only one other species of *Ophiomyces* is known from the Tasman Region: *O. delata* Koehler, 1904



found south of Norfolk Island in the Tasman Sea (Baker, 1979: 36, fig. 5d and NMV F52777 – same locality). *O. delata* differs mainly in the number and shape of tentacle scales and oral papillae. On basal segments there are two small oval tentacle scales on the lateral arm plate and a larger one on each side of the ventral arm plate; only the middle scale persists after the tenth segment. The oral papillae point distally and nearly all are wide and fan-shaped, characteristic of only the outermost papillae in *O. grandis*. The disc spines are also twice as long and stouter in similar sized specimens.

*O. grandis* was previously known only from the Atlantic Ocean.

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