

A review of the endemic southern African soft coral genus *Pieterfaurea* Verseveldt & Bayer, 1988 (Octocorallia: Nidaliidae), with descriptions of three new species

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Zool. Med. Leiden 74 (6), 15.ix.2000: 119-142, figs 1-16.— ISSN 0024-0672.
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Key words: Coelenterata; Anthozoa; Octocorallia; Nidaliidae; *Pieterfaurea*; soft corals; endemic genus; South Africa; three new species; southwestern Indian Ocean.

The soft coral genus *Pieterfaurea* Verseveldt & Bayer, 1988, endemic to the south and east coasts of South Africa, is reviewed. Five species are recognized as valid, including three new species described here as new. A dichotomous key and a table of comparative characters are included to aid in the differentiation of the five taxa.

Introduction

The southern African alcyonacean fauna contains a remarkable number of endemic taxa of soft corals with unbranched and digitiform to clavate or capitate colonies (Williams, 1992a). These include *Acropytum claviger* Hickson, 1900, *Eleutherobia studeri* (J.S. Thomson, 1910), *Malacacanthus capensis* (Hickson, 1900), *Pieterfaurea khoisaniana* (Williams, 1988), *P. unilobata* (J.S. Thomson, 1921), *Verveeldtia bucciniforme* Williams, 1990, *V. trochiforme* (Hickson, 1900), and several species provisionally placed in the genus *Alcyonium* (but deserving alternate generic placement), such as *A. elegans* (Kükenthal, 1902), *A. moriferum* (Tixier-Durivault, 1954), *A. mutabiliforme* Williams, 1988, *A. planiceps* Williams, 1986, and *A. variabile* (J.S. Thomson, 1921).

The present paper reports the discovery and description of three new species of *Pieterfaurea*, two digitiform to cylindrical in shape and one clavate to capitate. The geographic range of the genus is recognized as the south and east coasts of South Africa between the vicinities of Cape Town and Durban.

The genus is differentiated from other nidaliids by a palisade-like arrangement of sclerites at the base of each polyp, that is apparently derived from the coenenchyme and does not represent a permanent calyx. Verseveldt & Bayer (1988: 11, 67) first used the term "palisade" to describe these vertically disposed sclerites in a redescription of *Pieterfaurea unilobata*. In addition, the complement of sclerites in the colonies includes spindles, clubs, and foliate forms.

Abbreviations

BMNH = The Natural History Museum, London, United Kingdom

CAS = California Academy of Sciences, San Francisco, U.S.A.

RMNH = National Museum of Natural History, Leiden, The Netherlands.

SAM = South African Museum, Cape Town, South Africa.

Systematics

Family Nidaliidae Gray, 1869

Colonies unbranched and cylindrical to capitate, or multibranched and arborescent. Branches cylindrical and rigid. Surface of branches rough with large longitudinally aligned spindles and other robust sclerites. Anthocodiae usually retractile into spiculose calyces, or palisade-like arrangements of sclerites derived from the coenenchyme.

Distribution worldwide from the intertidal to deep sea. Eight genera, including five with unbranched species (*Nidalia*, *Agaricoides*, *Orlikia*, *Nidaliopsis*, and *Pieterfaurea*), and three genera with multibranched species (*Siphonogorgia*, *Nephtyigorgia*, and *Chironephthya*).

Genus *Pieterfaurea* Verseveldt & Bayer, 1988

Verseveldt & Bayer, 1988: 66; Williams, 1992a: 323.

Diagnosis.— Colonies unbranched: digitiform, cylindrical, clavate or capitate. Polyparium and stalk strongly demarkated. Both rigid with densely-set, longitudinally aligned, tuberculate spindles near the surface. Polyps monomorphic. Each polyp with a more or less distinct basal palisade-like arrangement of densely arranged sclerites, a structure that is presumably derived from the coenenchyme, and does not represent a true calyx. Anthocodial sclerites sparsely-distributed or absent. Sclerites colourless: tuberculate spindles, clubs, leaf clubs and/or radiates; some foliate forms usually present; rod-like or irregular ovoid forms sometimes present.

Type species.— *Sinularia (Sclerophytum) unilobata* J.S. Thomson, 1921, by subsequent designation.

Distribution.— South and east coasts of South Africa, between Cape Town and Durban; depth 8-93 metres.

Key to the species of *Pieterfaurea*

- 1. Colonies digitiform/cylindrical. Stalk length < polyparium length 2
- Colonies clavate to capitate. Stalk length > polyparium length
..... *P. lampas* spec. nov.
- 2. Anthocodial sclerites present *P. khoisaniana* (Williams)
- Anthocodial sclerites absent 3
- 3. Some stalk sclerites > 2.0 mm *P. unilobata* (Thomson)
- Stalk sclerites < 1.5 mm 4
- 4. Colonies robust and cylindrical with rounded apex. Palisades horseshoe-shaped ..
..... *P. equicalceola* spec. nov.
- Colonies elongate and digitiform with tapering apex. Palisades ring-like
..... *P. sinuosa* spec. nov.

Pieterfaurea unilobata (J.S. Thomson, 1921)
(figs 1a-e, 16)

Simularia (*Sclerophytum*) *unilobata* J.S. Thomson, 1921: 172, fig. 5.

Bellonella unilobata; Verseveldt, 1980: 11.

Metalcyonium unilobatum; Williams, 1986: 263, fig. 2b.

Pieterfaurea unilobata; Verseveldt & Bayer, 1988: 67, figs 62-64; Williams, 1992a: 324, figs 37e-g, 38.

Remarks.— This species has been adequately described and figured by J.S. Thomson (1921), Verseveldt & Bayer (1988), and Williams (1992a). It would therefore be redundant to provide a detailed redescription here. *Pieterfaurea unilobata* is distinguished from other species in the genus by a strongly developed palisade-like arrangement of vertically disposed sclerites at the base of each polyp, large sclerites up to 2.6 mm in length, and maximum length of colonies less than 50 mm.

J.S. Thomson (1921: 172) states, "Zoochlorellae not numerous." I consider this reference to the possibility of algal symbiosis in this species to be questionable and in need of verification.

Distribution.— East coast of South Africa, from East London to Durban (fig. 16; sectors 21-25).

Pieterfaurea khoisaniana (Williams, 1988)
(figs 1f-j, 16)

Alcyonium khoisanianum Williams, 1988: 7-14, figs. 5-10, 14, 16a.

Pieterfaurea khoisaniana; Williams, 1992a: 323, figs. 36, 37a-d.

Material.— Holotype, SAM-H3411 [South Africa, Cape Province, off Danger Point, 48 m, 29.iv.1984, coll. W.R. Liltved (Sea Fisheries Line Fish Survey); one specimen cut longitudinally into two halves].

Sclerites.— Figs 1i-j are drawn for this study from two permanent microscopic slides of polyparium and stalk sclerites made from the holotype (uncatalogued material from the author's research collection).

Remarks.— This species has been adequately described and figured by Williams (1988, 1992a). It is therefore unnecessary to provide a detailed redescription here. *Pieterfaurea khoisaniana* is distinguished from other species in the genus by having anthocodial sclerites that form a weakly developed crown and points, sclerites less than 1.9 mm in length, weakly developed palisade-like arrangement of sclerites at the polyp bases, and a colony length up to 130 mm.

Distribution.— Southwestern Cape Province of South Africa (fig. 16; sector 15).

Pieterfaurea sinuosa spec. nov.
(figs 2-5, 16)

Material.— Holotype, CAS 101158 [South Africa, Cape Province, off Port Elizabeth, Algoa Bay, depth 18 m, 30.xi.1993, coll. P. Coetzee; one whole specimen; also included are two permanent microscopic slides prepared from the surface coenenchyme, one containing sclerites of the polyparium, the other of the stalk].

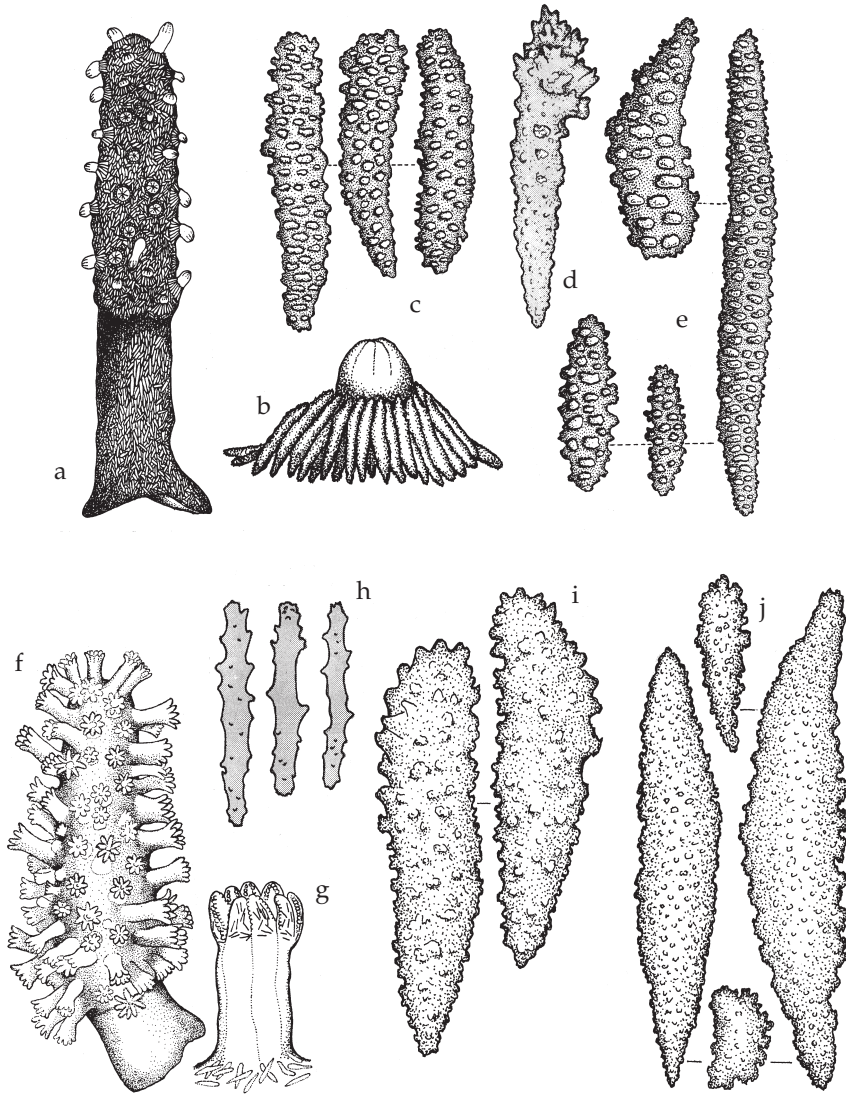


Fig. 1a-e, *Pieterfaurea unilobata*: a, reconstruction of paralectotype SAM-H741, 35 mm in length (from Williams, 1992: 329, fig. 38a); b, a single partly retracted polyp showing palisade-like arrangement of sclerites, diameter at base of palisade 2 mm (redrawn from Williams, 1992: 329, fig. 38b); c, sclerites from the surface of the polyparium; lengths from left to right, 0.80 mm, 0.66 mm, 0.65 mm (from Williams, 1992: 329, fig. 38c); d, palisade sclerite from lectotype, 0.90 mm in length (redrawn from Verseveldt & Bayer, 1988: 131, fig. 64e); e, sclerites from surface of stalk; length measurements clockwise from top left, 0.67 mm, 2.10 mm, 0.34 mm, 0.50 mm (from Williams, 1992: 329, fig. 38d); f-j, *Pieterfaurea khoisaniana*; f, holotype in life (SAM-H3411), 82 mm in length (from Williams, 1988: 8, fig. 5b); g, single polyp showing arrangement of sclerites, 5 mm in length (from Williams, 1992: 325, fig. 36b); h, anthocodial sclerites; lengths from left to right 0.36 mm, 0.31 mm, 0.30 mm (from Williams, 1988: 11, fig. 8a); i, polyparium sclerites from holotype; left 0.90 mm, right 0.80 mm; j, stalk sclerites from holotype; lengths clockwise from top 0.55 mm, 1.10 mm, 0.35 mm, 1.40 mm.

Diagnosis.— Colonies digitiform and elongate, tapering proximally to form a rounded apex. Stalk shorter than polyparium; 30% of total length. Palisade-like arrangement of sclerites at base of each polyp ring-like and indistinct, with only distal tips of sclerites projecting above surface of coenenchyme. Anthocodial sclerites absent. Polyparium sclerites: leaf clubs, wart clubs, and rods. Stalk sclerites: radiates and needles <1.6 mm long. Interior sclerites: spindles, rods, leaf spindles, and clubs. Colour of polyparium in alcohol light tan, stalk cream white.

Description of the holotype

Colony form and size.— The holotype measures 98 mm in length. The widest portion of the polyparium is 25 mm while the widest portion of the stalk measures 22 mm. The colony is unbranched and finger-shaped. The curved polyparium arises from a robust basal stalk; it measures 70 mm in length, while the stalk is 28 mm long. The distal portion of the polyparium tapers gradually and forms a narrow, rounded apex (fig. 2a).

Polyps.— The polyps are densely-arranged and are distributed evenly over the entire surface of the polyparium (fig. 2a). The retracted or partly retracted polyps are approximately 2 mm in diameter. The palisade-like arrangement of sclerites at the base of each polyp is indistinct; in general, only the distal tips of the sclerites project above the surface of the coenenchyme. These sclerites are clustered together forming a ring around the base of each polyp, and are mostly vertically disposed (fig. 2b). The anthocodiae do not contain sclerites. Each tentacle has two opposite rows of 10-15 short pinnules.

Sclerites.— Coenenchymal sclerites from the surface of the polyparium and the palisade-like armature at the base of the polyps include rod-like forms with a few rounded tubercles (0.30-0.40 mm long), leaf clubs and wart clubs (0.26-0.60 mm long), and spindles (0.35-0.60 mm long) (figs 2c, 3a, 4). Some of the spindles may be slightly club-shaped (fig. 4d). Some irregular forms, presumably derived from radiates, may also be present (0.10-0.15 mm long) (bottom of fig. 3a), as well as some robust, tuberculate, ovoid forms (0.22-0.27 mm long) (fig. 4j-k). The palisade sclerites are mostly clubs: leaf clubs, wart clubs, and clubbed spindles (0.30-0.50 mm long) (figs 2c, 3a).

The interior of the polyparium contains mostly sparsely tuberculate spindles and clubs (0.20-0.50 mm long) (fig. 3b). Some rod-like forms and leaf spindles may also be present.

The surface of the stalk contains 6- or 8-radiates (0.06-0.22 mm long), and needle-like spindles (0.40-1.60 mm long) (figs 2d, 3d, 5), many of which are curved to sinuous in shape (figs 3d, 5a-f).

The interior of the stalk contains mostly needle-like spindles (0.40-1.60 mm long) (fig. 3c).

Colour.— The polyparium of the alcohol-preserved specimen is light tan in colour while the stalk is cream-coloured.

Etymology.— The specific epithet is derived from the Latin 'sinus' (curved or bent), in reference to the conspicuously curved needle-like sclerites found in the stalk of this soft coral.

Distribution.— Algoa Bay off Port Elizabeth, eastern Cape Province of South Africa (fig. 16: sector 20).

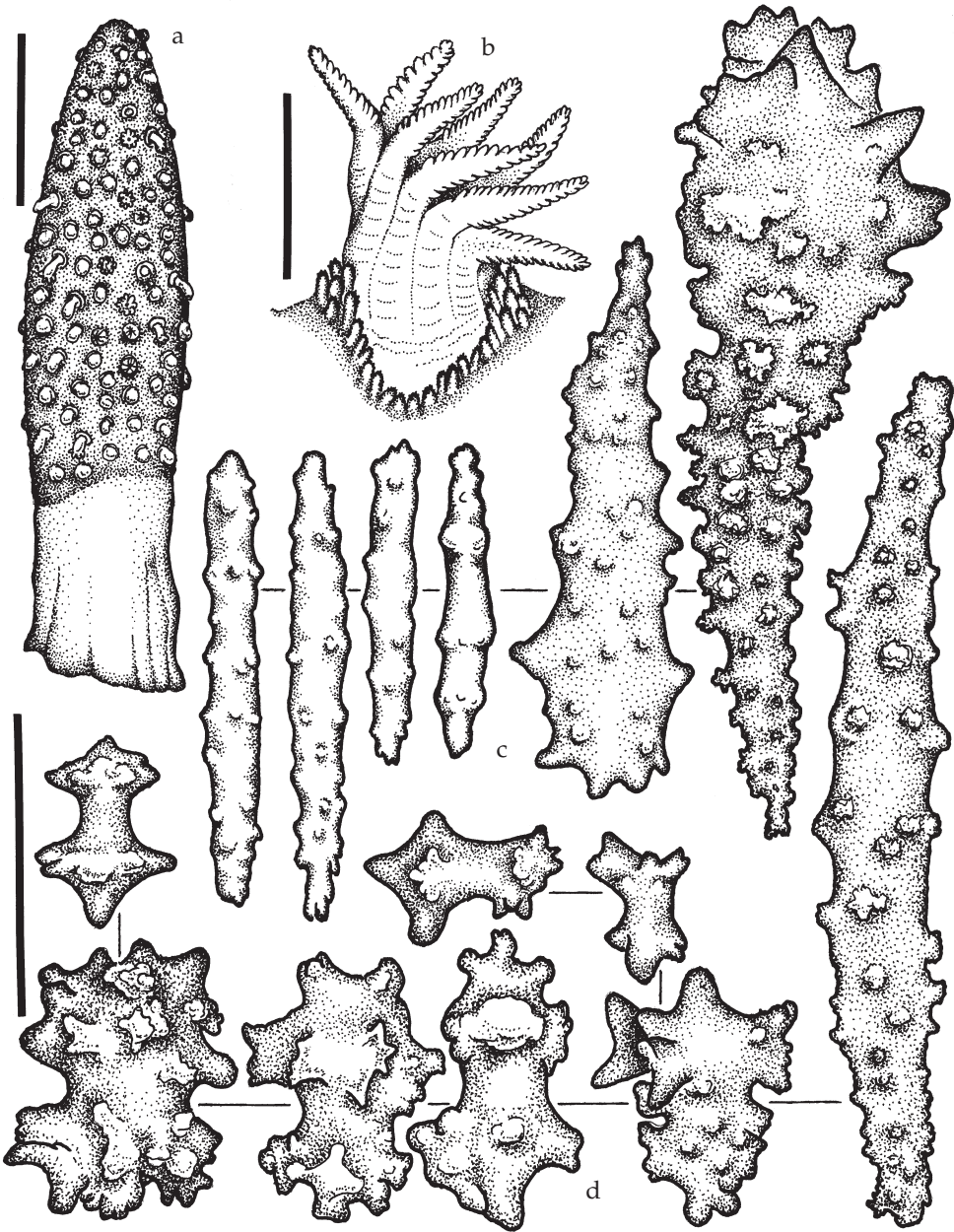


Fig. 2, *Pieterfaurea sinuosa* spec. nov., holotype (CAS 101158): a, entire specimen; scale bar = 25 mm; b, single polyp showing basal arrangement of sclerites; scale bar = 2.0 mm; c, coenenchymal sclerites from the surface of the polyparium and the area surrounding the base of a polyps; d, sclerites from the surface of the stalk. Scale bar for c-d = 0.2 mm.

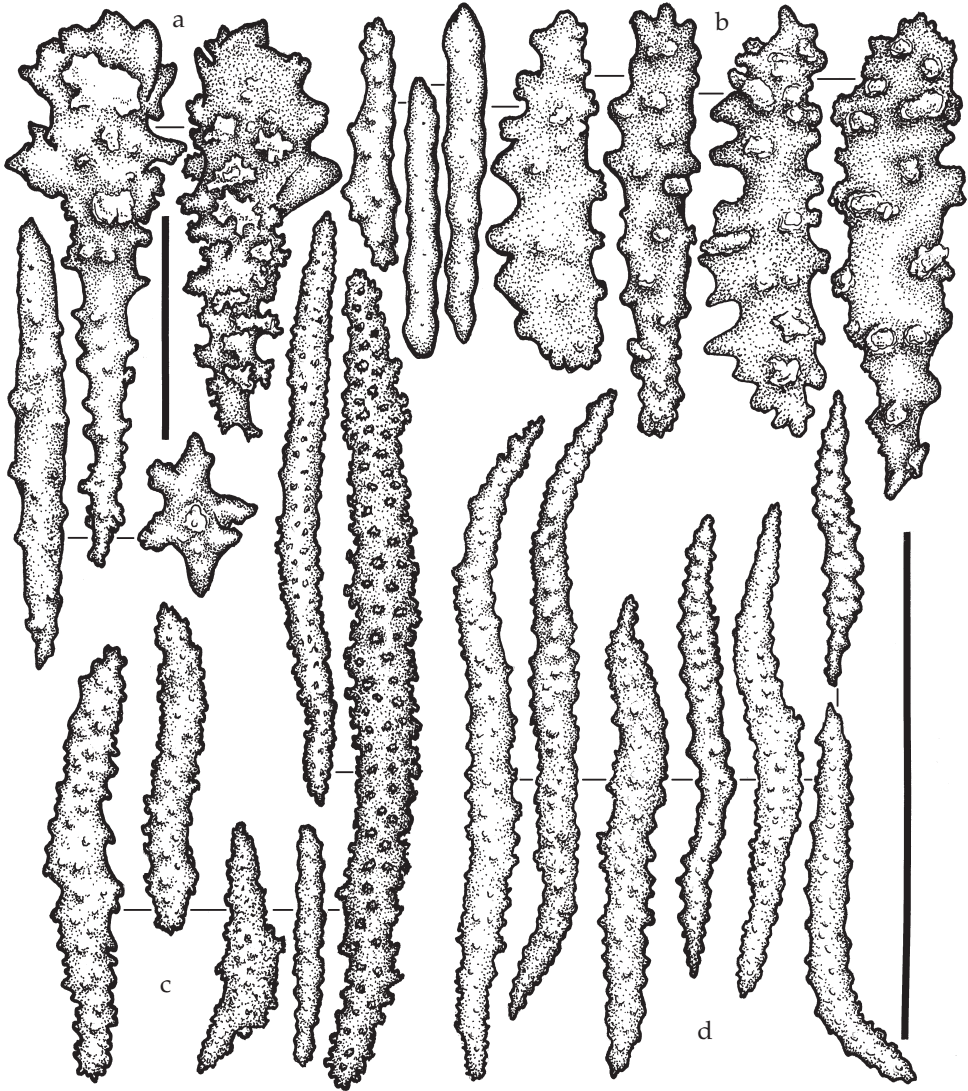


Fig. 3. *Pieterfaurea sinuosa* spec. nov., variation of sclerites: a, surface of polyparium; b, interior of polyparium; c, interior of stalk; d, sinuous needle-like sclerites from the surface of the stalk. Scale bar for a-b (top left) = 0.2 mm; scale bar for c-d (bottom right) = 1.0 mm.

Remarks.— *Pieterfaurea sinuosa* spec. nov. is distinguished from other species in the genus by a tapering, elongate, and digitiform colony; a maximum total length of at least 100 mm; palisade-like arrangement of sclerites at base of polyps ring-like, with only distal portions of vertically disposed sclerites exposed above the coenenchyme; and a predominance of sinuous needles in the stalk up to 1.6 mm in length.

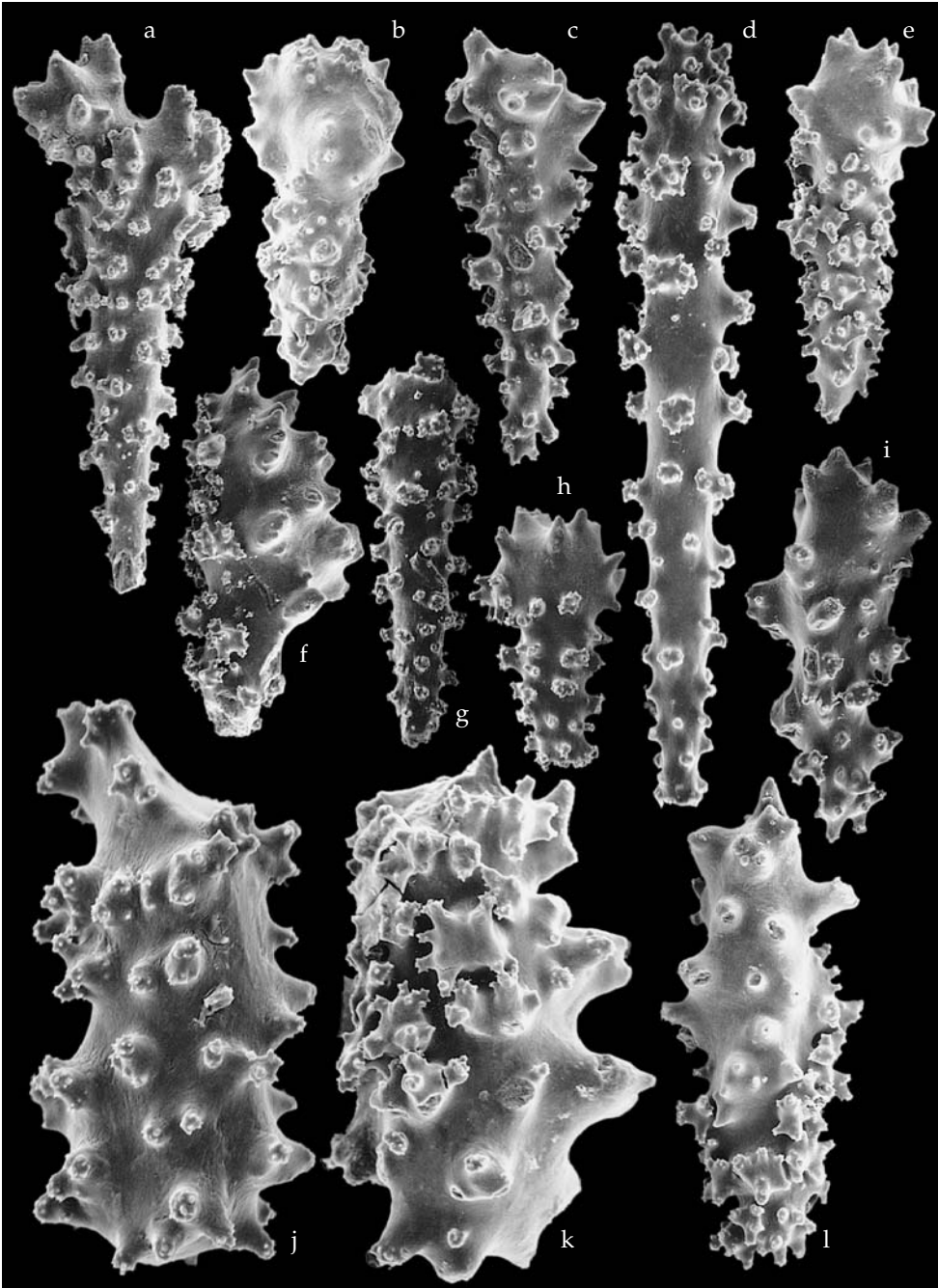


Fig. 4. *Pieterfaurea sinuosa* spec. nov., holotype. Scanning electron micrographs of coenenchymal sclerites from the surface of the polyparium and areas surrounding the polyp bases. a, 0.42 mm. b, 0.34 mm. c, 0.33 mm. d, 0.60 mm. e, 0.40 mm. f, 0.38 mm. g, 0.40 mm. h, 0.26 mm. i, 0.30 mm. j, 0.22 mm. k, 0.27 mm. l, 0.37 mm.

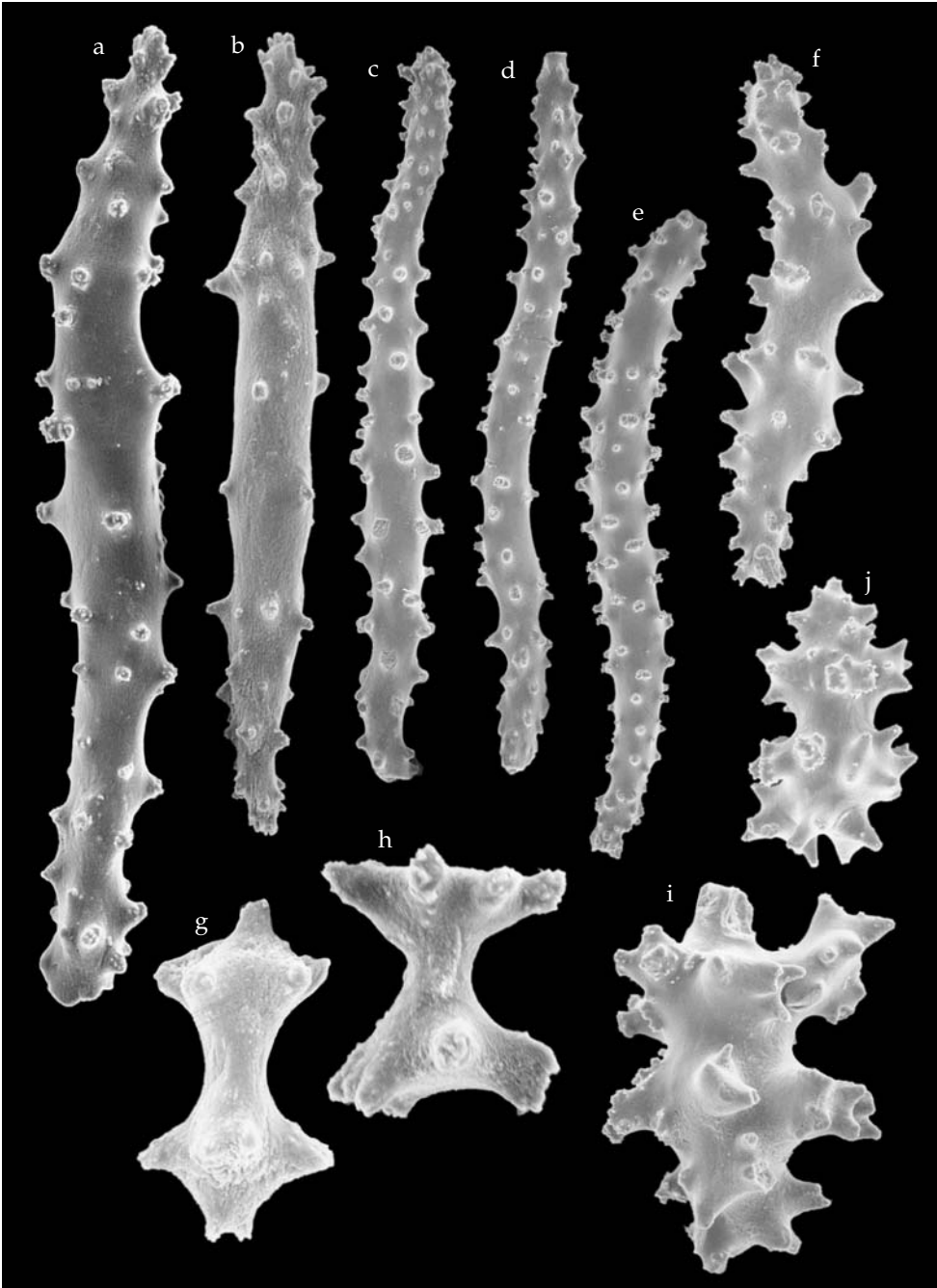


Fig. 5, *Pieterfaurea sinuosa* spec. nov., holotype. Scanning electron micrographs of coenenchymal sclerites from the surface of the stalk. a, 0.50 mm. b, 0.40 mm. c, 0.73 mm. d, 0.73 mm. e, 0.83 mm. f, 0.40 mm. g, 0.10 mm. h, 0.06 mm. i, 0.20 mm. j, 0.22 mm.

Pieterfaurea lampas spec. nov.
(figs 6a-c, 7-10, 11a-b, 16)

Material.— Holotype, CAS # 118495 [South Africa, Transkei, Coffee Bay, depth 9 -12 m, 21.iv.1992, coll. Colin Buxton, (fig. 6a); also included are two permanent microscopic slides of coenenchymal surface sclerites, one each from the capitulum and the stalk].

Paratypes.— CAS # 101295 [one specimen, 28 mm long, with the holdfast and lower part of stalk missing; same data as holotype (fig. 6c, top)]. CAS # 101297 [one specimen, 35 mm long, cut longitudinally into two halves; same data as holotype (fig. 6c, left)]; RMNH 24427 [one specimen 33 mm in length; same data as holotype (fig. 6c, bottom)]. RMNH 24428 [one specimen, 35 mm in length; same data as holotype (fig. 6c, right)].

Diagnosis.— Colonies capitate or clavate; polypary spheroid or cylindrical with parallel sides, forming a broad rounded apex. Stalk longer than polyparium, representing 60% of total colony length. Palisade-like arrangement of sclerites at base of each polyp distinct; sclerites numerous and crowded, mostly vertically disposed and conspicuously emergent from surface of coenenchyme. Anthocodial sclerites absent. Polyparium sclerites: leaf clubs (many torch-shaped) and robust spindles. Stalk sclerites: robust spindles up to at least 1.0 mm in length, radiates also present. Subsurface sclerites: spindles and needles, < 0.7 mm long. Deep interior sclerites absent. Colour of polyparium in alcohol golden brown in alcohol with tan stalk.

Description of the holotype

Colony form and size.— The holotype is unbranched and capitate, and measures 46 mm in total length and 14 mm in width at the widest part of the polyparium. The elliptical polyparium arises from an elongate stalk. The polyparium measures 15 mm in length and represents approximately 40% of the total length of the specimen (fig. 6a).

Polyps.— The polyps are densely arranged and evenly distributed over the entire surface of the polyparium. The palisade-like arrangement of the sclerites at the base of each polyp is distinct; sclerites are numerous and densely-set, vertically-arranged for the most part, and partially but distinctly emergent from the surface of the coenenchyme (fig. 6b). Sclerites are absent from the anthocodiae.

Sclerites.— Sclerites are densely-set in the surface of the capitulum and the stalk; in the subsurface layer, they are more sparsely distributed. Longitudinally disposed needles are present in the capitulum as are robust spindles in the stalk. Sclerites are absent in the deep interior and gastric walls of the capitulum and the stalk.

Coenenchymal sclerites from the surface of the polyparium and the palisade-like armature at the base of the polyps are predominantly wart clubs and leaf clubs (0.25 - 0.43 mm long) (figs 7, 9). Some spindles may also be present, and some of these may be slightly club-shaped (0.27-0.60 mm long) (fig. 7, top right).

The surface coenenchyme of the stalk contains mostly robust tuberculate spindles (0.19-1.86 mm long) and capstan-like radiates (0.15-0.20 mm) (fig. 8). Some sclerites may be curved to arched or slightly clubbed (fig. 10).

The subsurface interior of the capitulum and stalk contain spindles and some needle-like forms with simple tubercles (0.3-0.7 mm in length) (fig. 11a,b).

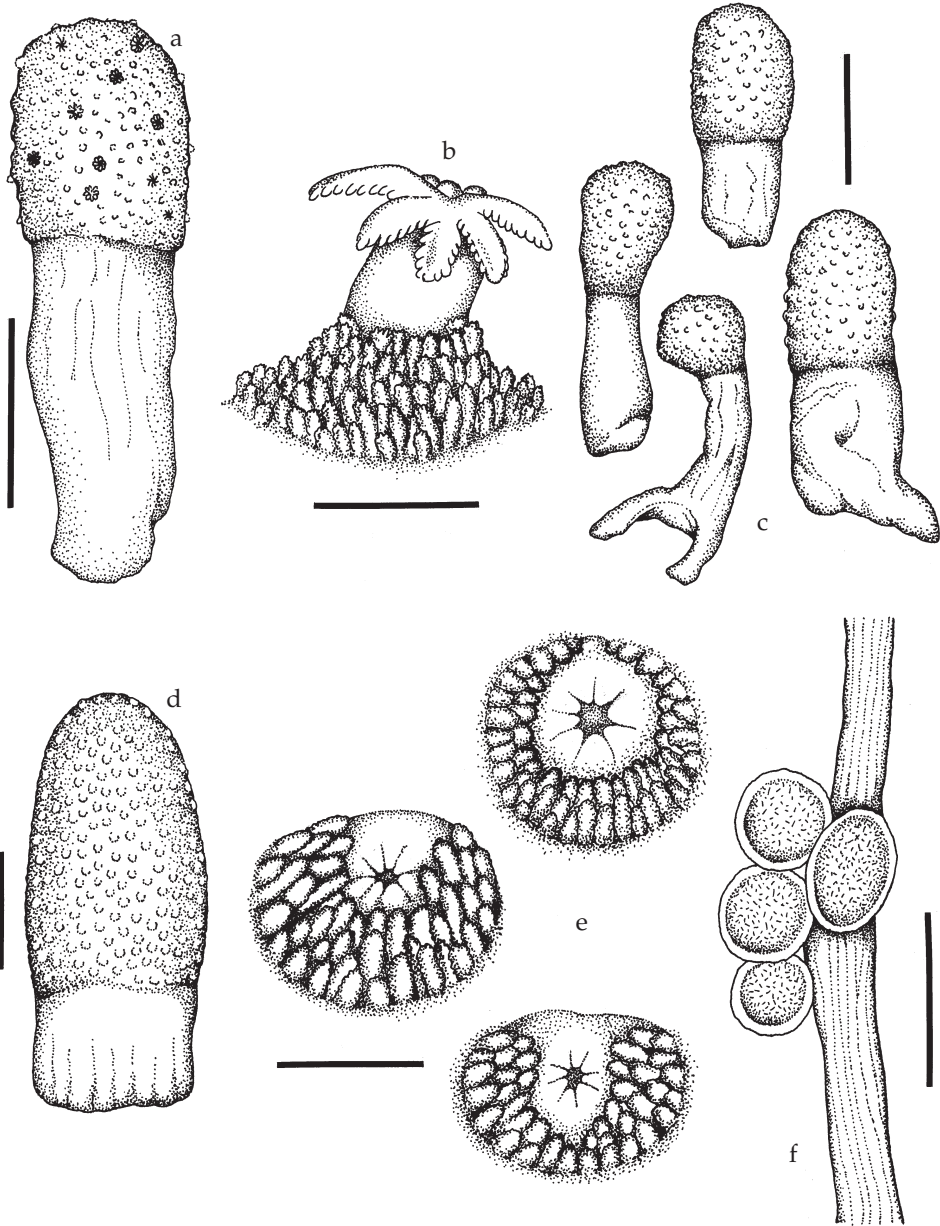


Fig. 6a-c, *Pieterfaurea lampas* spec. nov.: a, holotype (CAS 118495); scale bar = 15 mm; b, a single polyp showing basal arrangement of sclerites; scale bar = 1.0 mm; c, paratypes, variation in growth form; scale bar = 15 mm; top, CAS 101295; right, RMNH 24428; bottom, RMNH 24427; left, CAS 101297. Fig. 6d-f, *Pieterfaurea equicalceola* spec. nov.: d, holotype (CAS 101156); scale bar = 15 mm; e, three retracted polyps showing horseshoe-shaped arrangement of basal sclerites; scale bar = 1.0 mm; f, a single mesenterial filament from a paratype (CAS #101159) with four ova; scale bar = 0.3 mm.

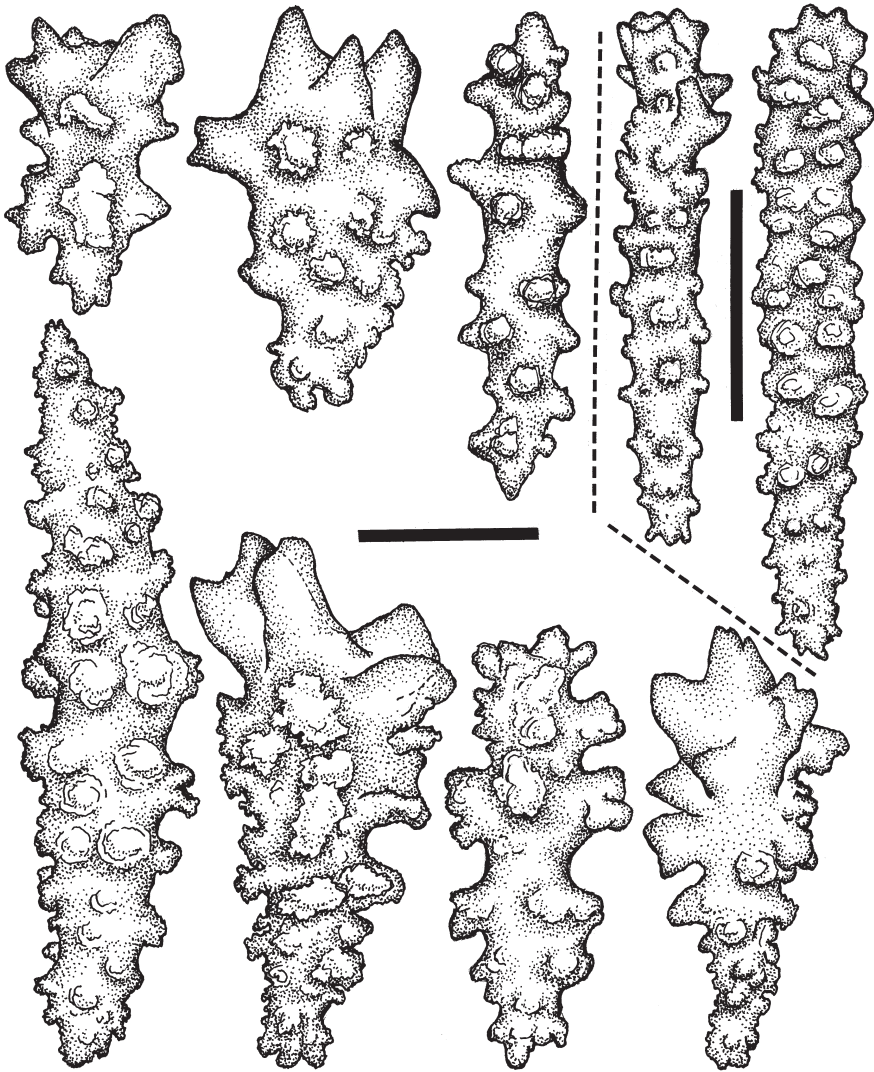


Fig. 7, *Pieterfaurea lampas* spec. nov., holotype; variation in sclerites from the surface of the capitulum and the area surrounding the base of the polyps; scale bar at center = 0.1 mm, scale bar at top right = 0.2 mm.

Colour.— All the material examined varies in colour from light brown to dark brown. In some specimens, the stalk is lighter in colour than the capitulum. Anthocodiae preserved in alcohol are golden brown. The holotype is light brown throughout.

Phenotypic variability.— Some variation is evident in the shape of the polyparium and the proportional length compared to that of the stalk. The shape of the polyparium varies from clavate (elliptical) to capitate (spherical), and the stalk varies in length from equal to, or conspicuously longer than the polyparium (fig. 6c).

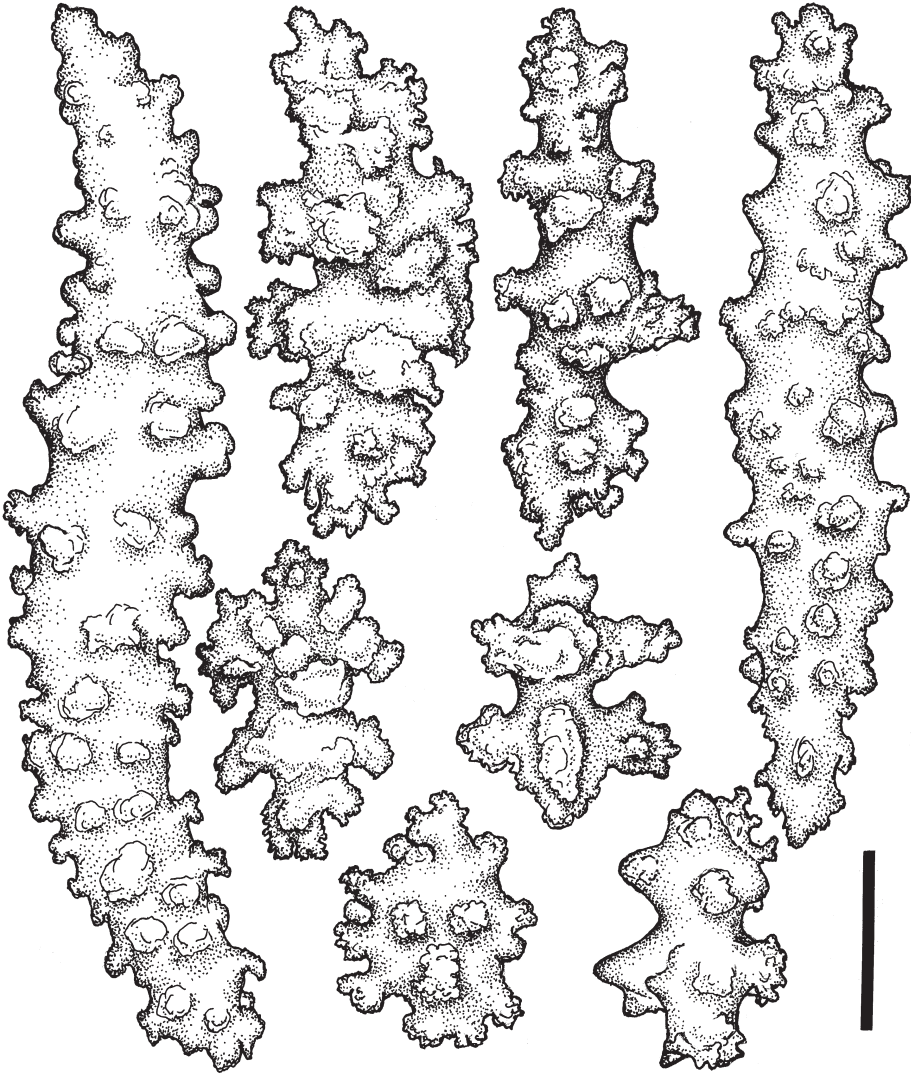


Fig. 8, *Pieterfaurea lampas* spec. nov., holotype; variation in sclerites from the surface of the stalk; scale bar = 0.1 mm.

Etymology.— The specific epithet is derived from the Greek ‘lampas’ (a torch); in reference to the conspicuously torch-like sclerites (foliate clubs) found at the polyp bases of this soft coral.

Distribution.— At present, *Pieterfaurea lampas* spec. nov. is known only from the type locality (fig. 16: sector 22), 9-12 metres in depth.

Remarks.— The new species is superficially similar to *Alcyonium compactofestucum* Verseveldt & Ofwegen, 1992, from the Durban region of South Africa, 68-70 metres in depth. *Pieterfaurea lampas* spec. nov. has a distinct capitulum with polyps distributed

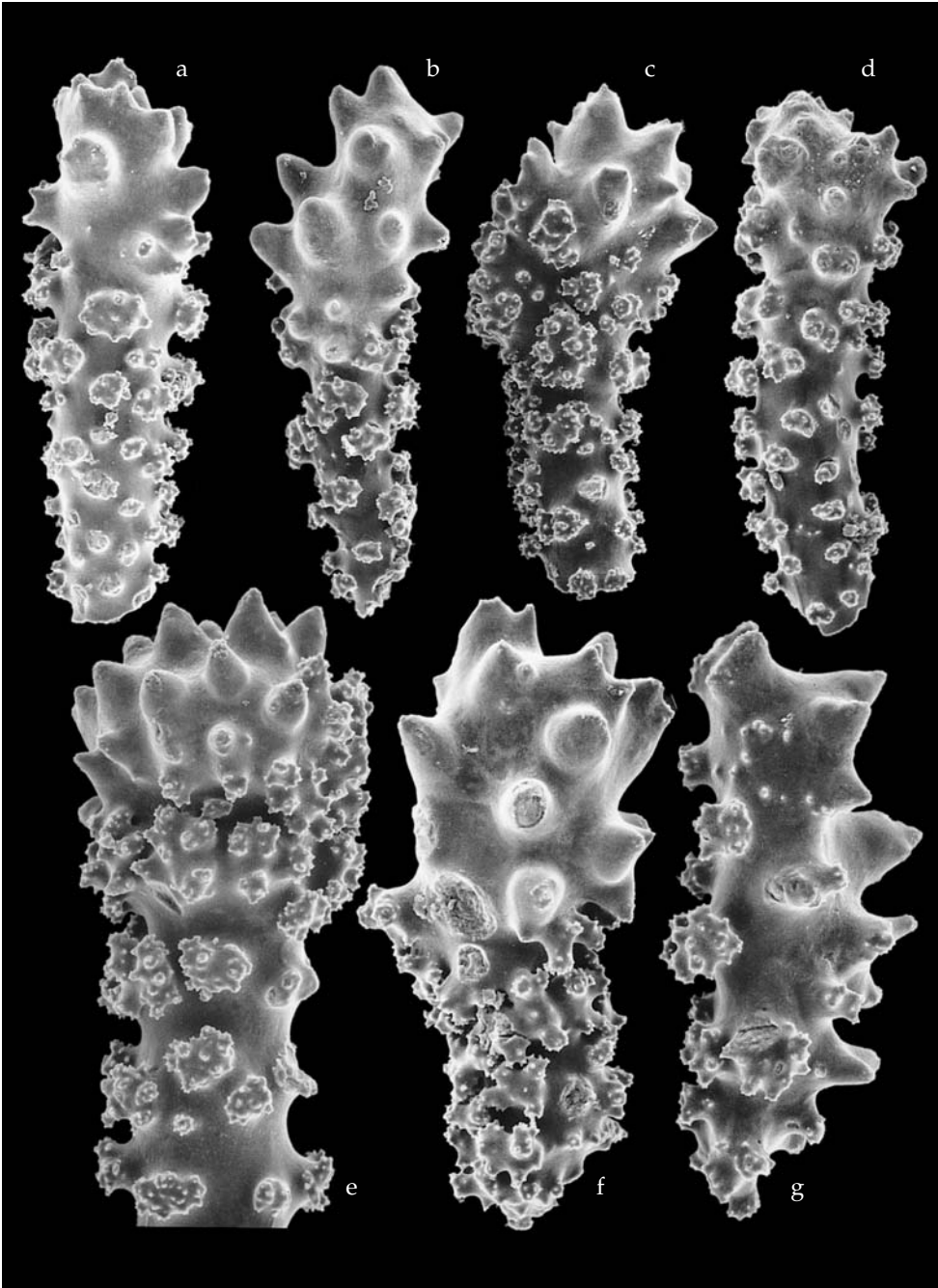


Fig. 9, *Pieterfaurea lampas* spec. nov., holotype; scanning electron micrographs of sclerites from the surface of the capitulum and the area surrounding the base of the polyps. a, 0.43 mm. b, 0.42 mm. c, 0.40 mm. d, 0.42 mm. e, detail from the widest end of a single sclerite; length of portion shown = 0.32 mm. f, 0.32 mm. g, 0.31 mm.

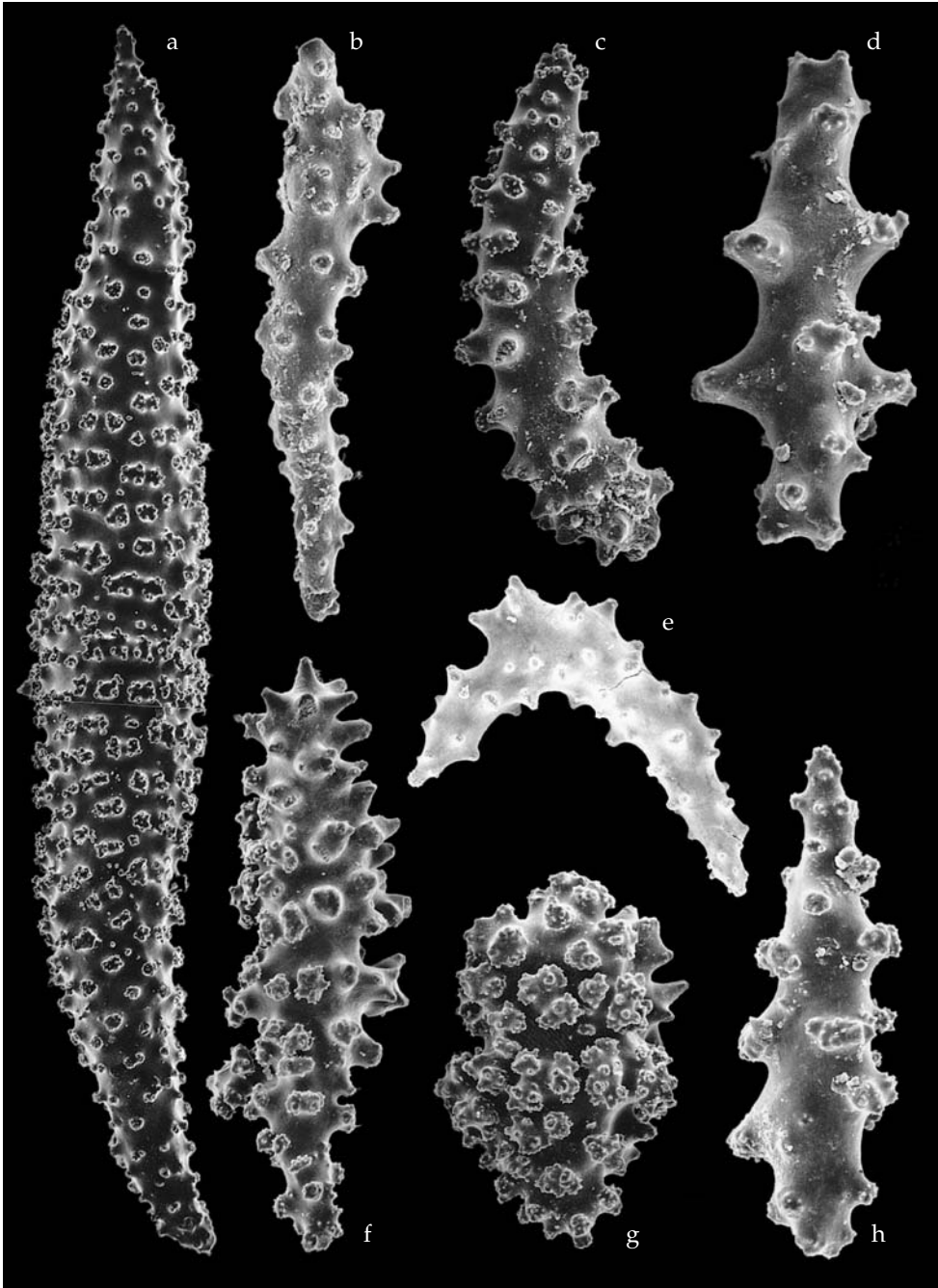


Fig. 10, *Pieterfaurea lampas* spec. nov., holotype; scanning electron micrographs of sclerites from the surface of the stalk. a, 1.86 mm. b, 0.45 mm. c, 0.40 mm. d, 0.19 mm. e, 0.42 mm. f, 0.46 mm. g, 0.29 mm. h, 0.26 mm.

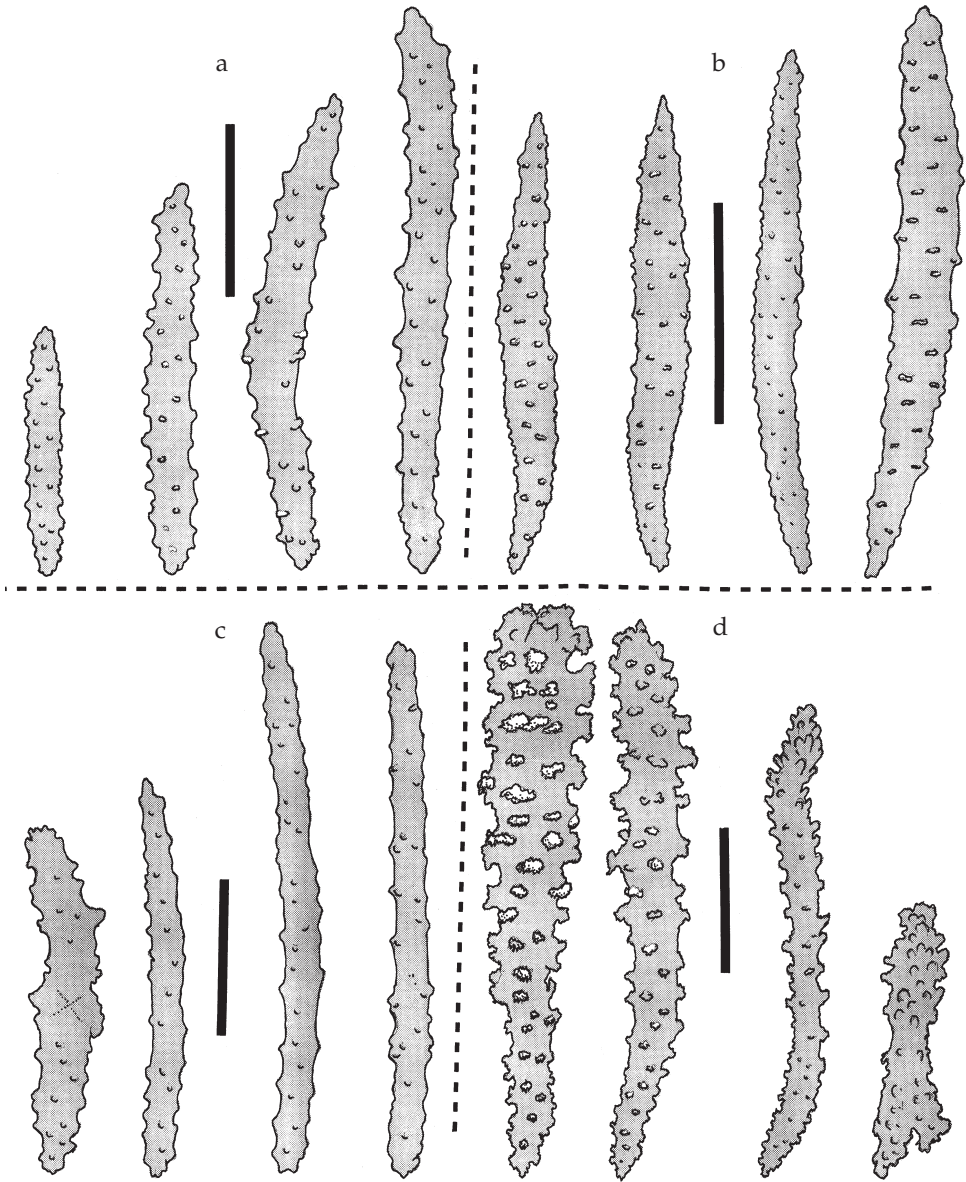


Fig. 11, variation in sclerites from the interior of the holotypes of *Pieterfaurea lampas* spec. nov. (a-b), and *P. equicalceola* spec. nov. (c-d): a, polyparium; b, stalk; c, polyparium; d, stalk. Scale bars = 0.2 mm.

approximately one-third down the entire colony length; sclerites that include robust spindles and foliate clubs; and a palisade-like arrangement of sclerites at the base of each polyp. *Alcyonium compactofestucum*, on the other hand, has polyps restricted to the distal most portion of the colony; sclerites that include slender spindles, spiny

spindles, and clubs that are not foliate; and no palisade-like arrangement of sclerites at the base of the polyps.

Pieterfaurea equicalceola spec. nov.
(figs 6d-f, 11c-d, 12-16)

Material.— Holotype. CAS #101156 [South Africa, Cape Province, off Port Alfred, Riet Point, depth 15 m, 5.ix.1994, coll. G. Hooper with SCUBA, one whole specimen; in addition there are two permanent microscopic slides of sclerites from the capitulum and stalk].

Paratypes.— CAS #101159 [South Africa, Cape Province, off Port Elizabeth, Algoa Bay, depth 18 m, 30.xi.1993, coll. Philip Coetzee with SCUBA, one half of longitudinally cut specimen; the opposite half is paratype RMNH 24429]; RMNH 24429 [same data as CAS #101159; one half of a longitudinally cut specimen].

Diagnosis.— Colonies short and cylindrical with broadly rounded apex. Polyparium longer than stalk, approximately 60% of total length. Palisade-like arrangement of sclerites at base of each polyp horseshoe-shaped, with open portion facing upward; sclerites more or less vertically disposed and partially projecting from surface of coenenchyme. Anthocodial sclerites absent. Polyparium sclerites: clubs and spindles. Stalk sclerites: spindles less than 1.0 mm in length, some radiates also present. Interior sclerites: clubs and spindles, some needle-like. Colour in alcohol cream white, polyps light brown tan.

Description of the holotype

Colony form and size.— The holotype is robust and cylindrical in shape with a length to width ratio of 2.2; the holdfast is missing. For comparison, the whole specimen from which the two paratypes are from, has a length to width ratio of 3.0. The polyparium of the holotype has a gradually tapering distal portion and a conspicuously rounded apex. The polyparium is distinctly longer than the stalk, comprising approximately 60% of the entire body length (fig. 6d).

Polyps.— The polyps are numerous and densely arranged on the polyparium surface. The palisade-like arrangement of sclerites at the base of each polyp is U-shaped with the open portion facing towards the distal apex of the colony. The sclerites comprising the palisade are more or less vertically disposed with the proximal portion partly imbedded in the coenenchyme (fig. 6e).

Sclerites.— The surface of the capitulum and the stalk contains densely-set sclerites (0.2-0.6 mm long) that are mostly spindles (some of which may be club-shaped) and weakly foliate clubs, with some rod-like and radiate-like forms also present (figs 12-15). The interior sclerites of both the subsurface and deep interior of the polyparium are longitudinally disposed needles (0.4-0.7 mm long) that are sparsely distributed throughout the mesogloea; they are not present in the gastric cavity walls. Most of these sclerites have simple tubercles (fig. 11c). The subsurface of the stalk interior contains longitudinally disposed spindles and some densely arranged needles (0.2-0.8 mm in length). Some of the spindles are club-shaped and ornately tuberculated (fig. 11d). The deep interior of the stalk does not contain sclerites.

Colour.— Alcohol preserved colonies are cream-white, while the polyps are pale tan.

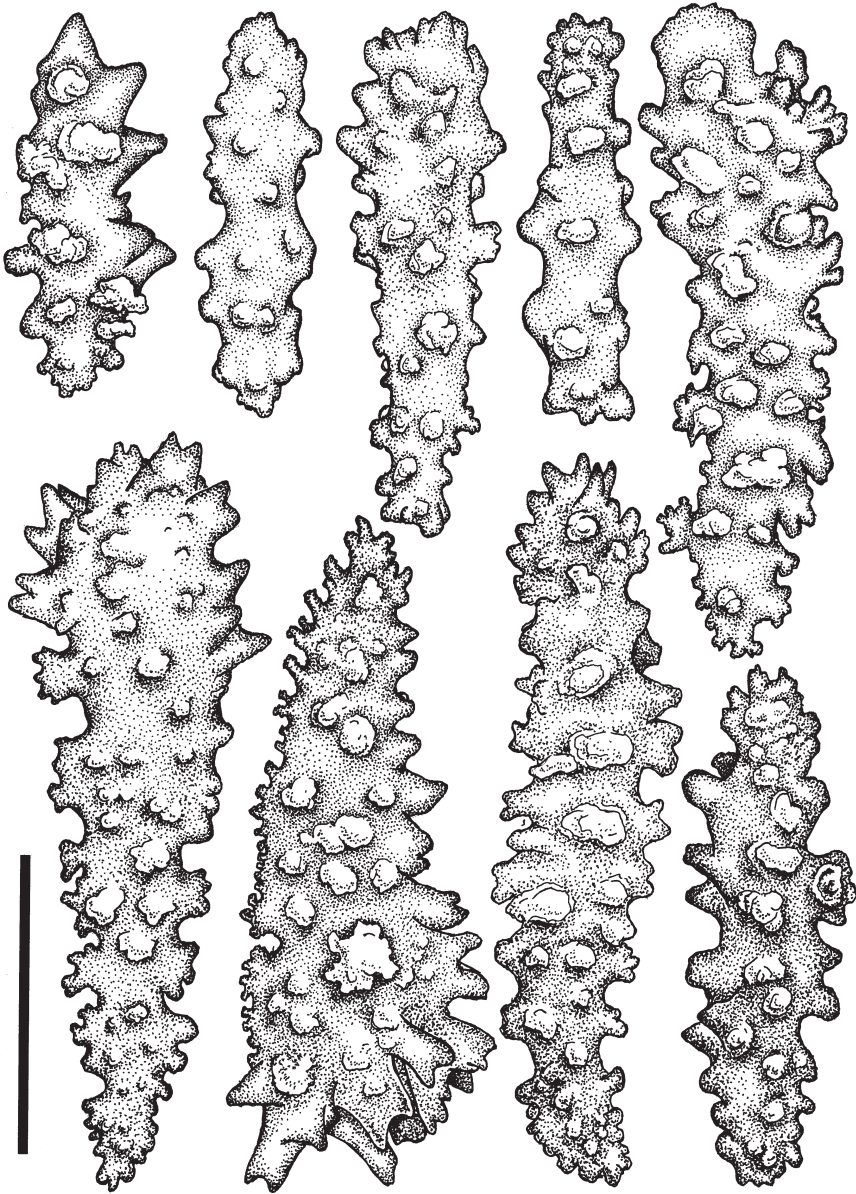


Fig. 12, *Pieterfaurea equicalceola* spec. nov., holotype; variation in sclerites from the surface of the polyparium and the area surrounding the bases of the polyps; scale bar = 0.2 mm.

Etymology.— The specific epithet is derived from the Latin ‘equus’ (horse), ‘calceus’ (shoe or slipper), and ‘-ola’ (a diminutive suffix); in reference to the palisade-like, horseshoe-shaped arrangement of the sclerites at the base of each polyp.

Distribution.— Port Elizabeth and Port Alfred, eastern Cape Province of South Africa (fig. 16: sector 20).

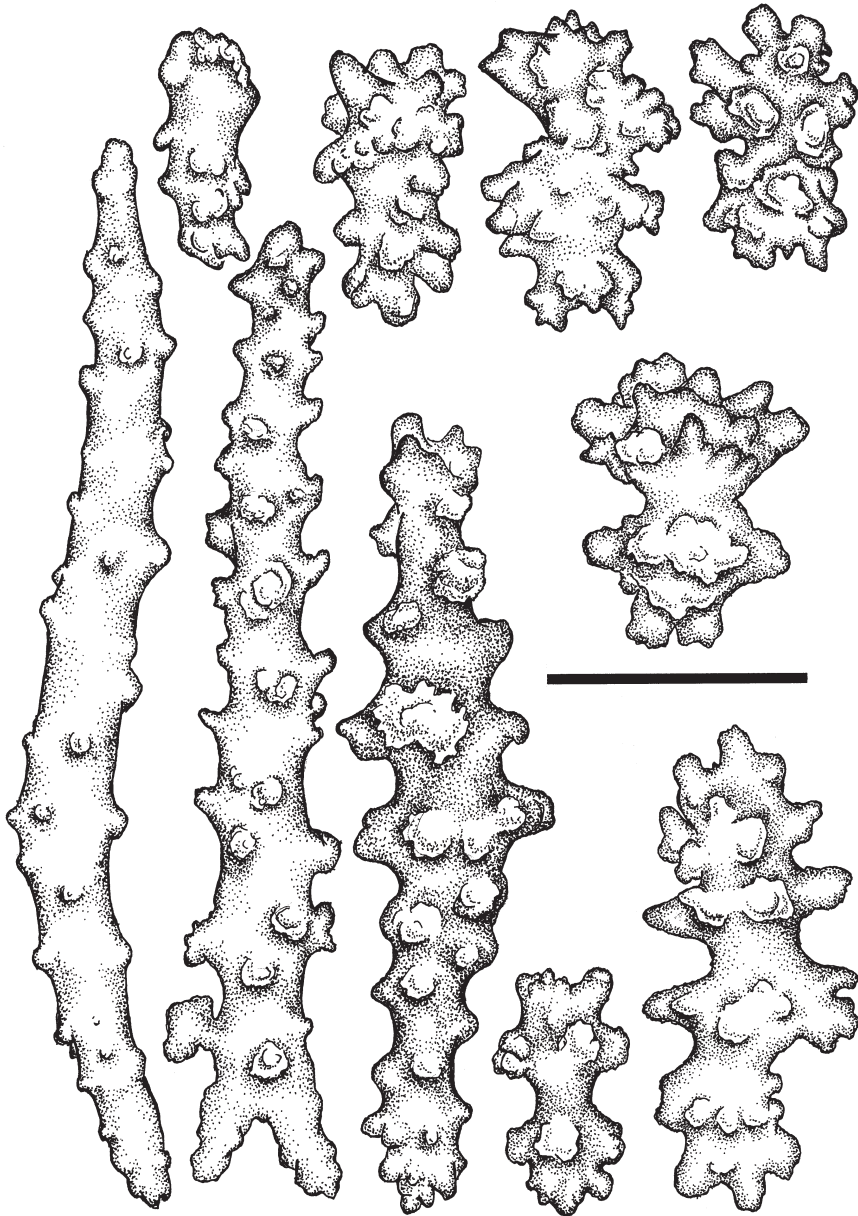


Fig. 13, *Pieterfaurea equicalceola* spec. nov., holotype; variation in sclerites from the surface of the stalk; scale bar = 0.15 mm.

Remarks.— One of the mesenterial filaments of a polyp from paratype CAS 101159 contains four ova, each measuring approximately 1.5 mm in diameter (fig 6f).

Pieterfaurea equicalceola spec. nov. is somewhat similar in appearance to *P. unilobata* but differs in several important characters. The new species is very robust in colony

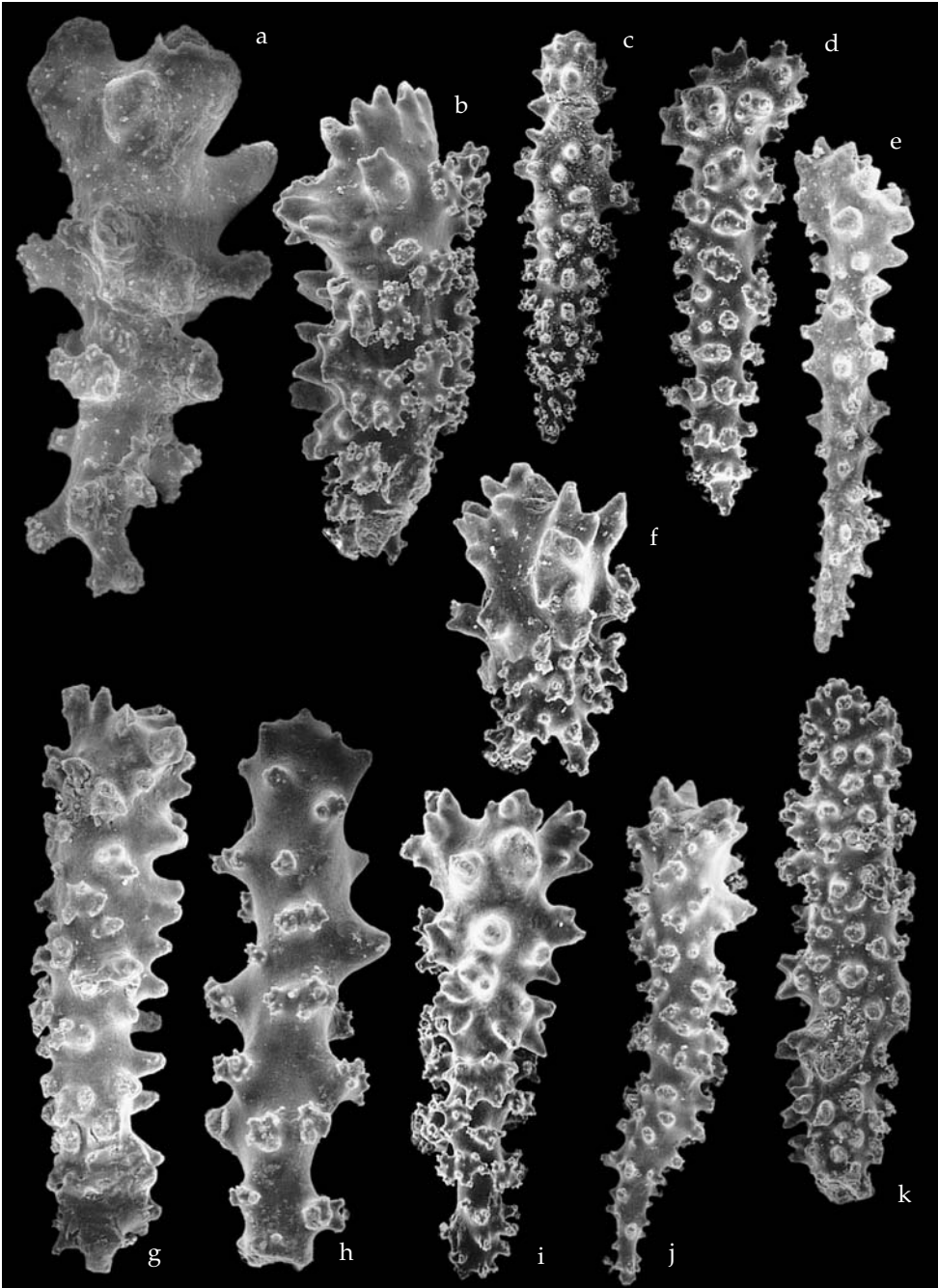


Fig. 14, *Pieterfaurea equicalceola* spec. nov., holotype; scanning electron micrographs of sclerites from the surface of the polyparium and the area surrounding the base of the polyps. a, 0.22 mm. b, 0.36 mm. c, 0.53 mm. d, 0.49 mm. e, 0.39. f, 0.25 mm. g, 0.45 mm. h, 0.28. i, 0.38 mm. j, 0.53 mm. k, 0.54 mm.

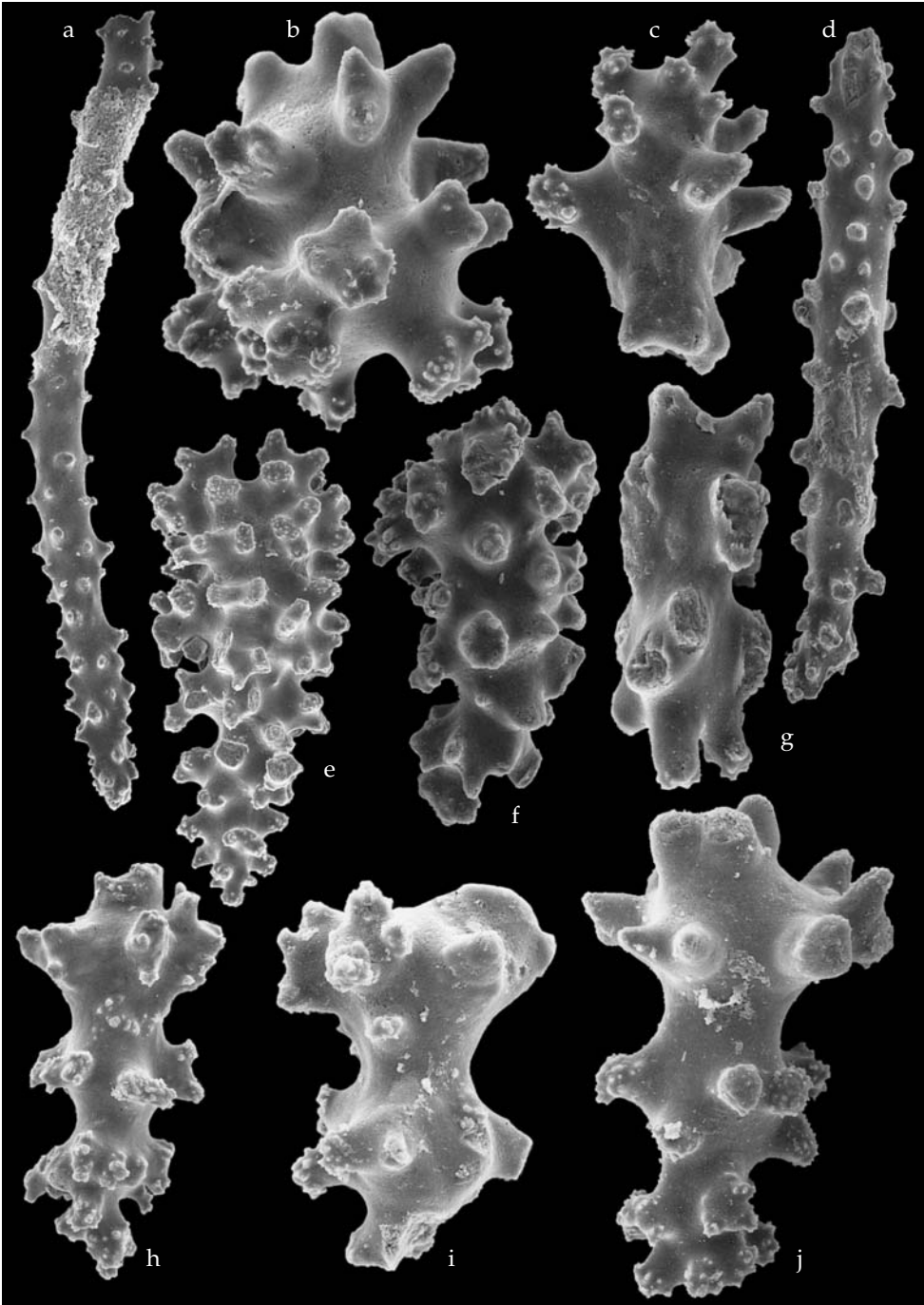


Fig. 15, *Pieterfaurea equicalceola* spec. nov., holotype; scanning electron micrographs of sclerites from the surface of the stalk. a, 0.62 mm. b, 0.12 mm. c, 0.11 mm. d, 0.52 mm. e, 0.37 mm. f, 0.22 mm. g, 0.12 mm. h, 0.21 mm. i, 0.12 mm. j, 0.19 mm.

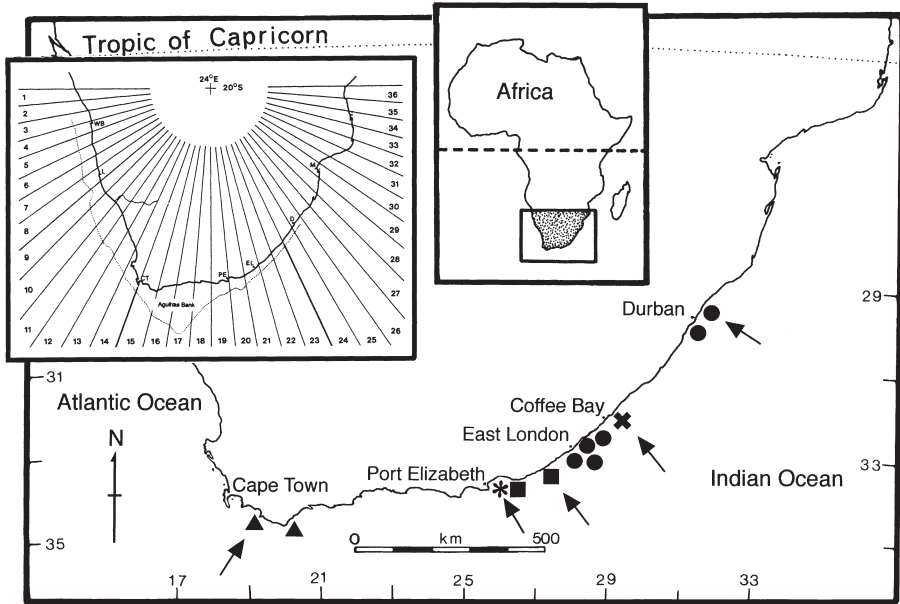


Fig. 16. Map of southern Africa showing distribution of the genus *Pieterfaurea*; collecting stations: *Pieterfaurea equicalceola* spec. nov. (■); *Pieterfaurea khoisaniana* (▲); *Pieterfaurea lampas* spec. nov. (✕); *Pieterfaurea sinuosa* spec. nov. (*); *Pieterfaurea unilobata* (●). Type localities are marked with arrows. Inset top left shows a map of southern Africa divided into sectors (from Williams, 1992b: 356).

shape with a lower length to width ratio, the leaf clubs are usually less than 0.5 mm in length, and the palisades are low with a U-shape, not completely surrounding the base of each polyp. *Pieterfaurea unilobata*, on the other hand, is more elongate and finger-like in shape with a higher length to width ratio; the leaf clubs often exceed 0.5 mm in length, and the palisades are taller, more conspicuous and ring-like, totally surrounding the polyp base.

Acknowledgements

I am grateful to L.P. van Ofwegen and J.C. den Hartog (Nationaal Natuurhistorisch Museum, Leiden) for their helpful comments; and to Michael Davies-Coleman, Philip Coetzee, Colin Buxton, and G. Hooper (South Africa) for providing the specimens that formed the basis of this study.

References

Bayer, F.M. 1981a. Status of knowledge of octocorals of world seas.— Seminarios de Biologia Marinha, Academia Brasileira de Ciencias Rio de Janeiro 1981: 3-102.
 Bayer, F.M. 1981c. Key to the genera of Octocorallia exclusive of Pennatulacea (Coelenterata: Anthozoa), with diagnoses of new taxa.— Proceedings of the Biological Society of Washington 94 (3): 902-947.

- Thomson, J.S. 1921. South African Alcyonacea.— Transactions of the Royal Society of South Africa 9(2): 149-175.
- Verseveldt, J. 1980. A revision of the genus *Sinularia* May (Octocorallia, Alcyonacea).— Zoologische Verhandelingen 179: 1-128.
- Verseveldt, J. and Bayer, F.M. 1988. Revision of the genera *Bellonella*, *Eleutherobia*, *Nidalia*, and *Nidaliopsis* (Octocorallia: Alyconiidae and Nidaliidae), with descriptions of two new genera.— Zoologische Verhandelingen 245: 1-131.
- Verseveldt, J. & L.P. van Ofwegen. 1992. New and redescribed species of *Alcyonium* Linnaeus, 1758 (Anthozoa: Alcyonacea).— Zoologische Mededelingen 66 (7): 155-181.
- Williams, G.C. 1986. Morphology, systematics, and variability of the southern African soft coral *Alcyonium variabile* (J. Stuart Thomson, 1921) (Octocorallia, Alcyoniidae).— Annals of the South African Museum 96(6): 241-270.
- Williams, G.C. 1988. Four new species of southern African octocorals (Cnidaria: Alcyonacea), with a further diagnostic revision of the genus *Alcyonium* Linnaeus, 1758.— Zoological Journal of the Linnean Society 92: 1-26.
- Williams, G.C. 1992a. The Alcyonacea of southern Africa. Stoloniferous octocorals and soft corals (Coelenterata, Anthozoa).— Annals of the South African Museum 100 (3): 249-358.
- Williams, G.C. 1992b. Biogeography of the octocorallian coelenterate fauna of southern Africa.— Biological Journal of the Linnean Society 46 (4): 351-401.

Received: 5.i.2000

Accepted: 10.iv.2000

Edited: J.C. den Hartog

Table 1. Comparative characters for the genus *Pieterfaurea*.

Species	zooxanthellae	growth form	distribution (sector range, fig. 16); and depth	polyparium sclerites	stalk sclerites	polyparium/total length	colour in life	maximum total length	interior sclerites	palisade sclerites	anthocodial sclerites
<i>P. equicalcoala</i> spec. nov.	no	cylindrical stout	20; 15-18 m	spindles; clubs radiates	spindles < 1 mm;	58%	not known	70 mm	clubs; needles; spindles	distinct	absent
<i>P. kloisaiiana</i> (Williams, 1988)	no	digitiform tapering	15; 47-48 m	spindles	spindles up to 1.9 mm	66%	purple & yellow	130 mm	few spindles	not distinct	present
<i>P. lampas</i> spec. nov.	no	clavate to capitate	22; 9-12 m	leaf clubs; spindles	spindles up to 1 mm	22-42%	not known	46 mm	spindles	not distinct	absent
<i>P. sinuosa</i> spec. nov.	no	digitiform tapering	20; 8 m	leaf clubs; wart clubs; rods	radiates; needles up to 1.6 mm	71%	not known	98 mm	spindles; rods; leaf spindles; clubs	not distinct	absent
<i>P. unilobata</i> (Thomson, 1921)	?	digitiform narrow	21-25; 40-93 m	spindles; leaf clubs	spindles up to 2.6 mm	55%	not known	50 mm	robust spindles	distinct	absent