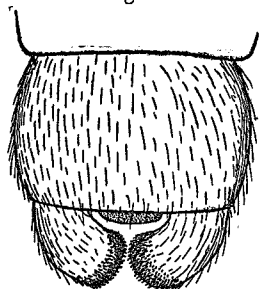


twice as long as broad. Meso- and metathorax yellowish brown. Legs brown, the tarsi darker. Abdomen blackish, superior anal appendages short, stout, incurved, their apices clothed with a mass of minute black bristles. Genital valve quadrate, slightly convex on its upper surface.

Anterior wing elongate, three and a half times as long as broad; membrane hyaline, greyish, marked with brownish along the veins, and a larger brown spot in the anal area. Venation brown, twenty to twenty-three cross-veins in the costal area. Pterostigma feebly marked.

Fig. 1.



*Leptochauliodes esben-peterseni*, sp. n.  
Anal appendages from above.

Posterior wing shorter than anterior, hyaline, greyish, venation brown. Nineteen to twenty-two cross-veins in the costal area, pterostigma brownish.

♀. Larger, antennæ only half as long as anterior wings, which are more distinctly marked with brown. Eyes less prominent.

	♂.	♀.
	mm.	mm.
Length of anterior wing . . .	26	35
Length of posterior wing ..	23	31
Length of body .....	18	26

♂, type, Cape Colony, Caledon, Hottentot-Hollands Mts., 4000 feet, 1916 (*K. H. Barnard*).

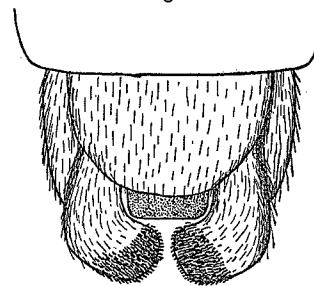
♀, paratype, Cape Colony, Caledon, Hottentot-Hollands Mts., 4000 feet, 1916 (*K. H. Barnard*).

♀, paratype, Wallington, Witte River, 1500 feet, Nov. 1922 (*K. H. Barnard*).

The type and paratypes have been presented to the British Museum by the collector.

The specimens upon which this species is based were sent, as *Leptochauliodes tenuis*, McL., by Mr. K. H. Barnard for comparison with McLachlan's type in the British Museum. Whilst agreeing entirely with the insect described and figured as *L. tenuis* by Dr. P. Esben-Petersen in the 'Annals of the South African Museum,' xix. (1924), they do not agree with the type of *Ch. tenuis*, McL. I have been in correspondence with Dr. Esben-Petersen, and he admits that his conception of *Ch. tenuis*, McL., was incorrect, and, as I had

Fig. 2.



*Leptochauliodes esben-peterseni*, sp. n.  
Anal appendages from beneath.

the material available, he asked me to describe the species for which his genus *Leptochauliodes* was created. The type of this genus will therefore be *Leptochauliodes esben-peterseni*, sp. n. (*Chauliodes tenuis*, Esb.-P., nec McL.). The type of *Chauliodes tenuis*, McL., has, in the fore-wing, the costal area rather broad, and 2A is forked and connected to 1A by a cross-vein. The species should therefore be referred to the genus *Platychnauliodes*, Esb.-P. Owing to the inaccessibility of the type of *C. pusillus*, McL., the question of the synonymy of the two species (as suggested by Van der Weele) cannot be settled definitely at present.

LXVIII.—*Additions to the Sponge Fauna of the Gulf of Manaar*. By MAURICE BURTON, M.Sc., Assistant-Keeper, Department of Zoology, British Museum (Nat. Hist.).

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AMONG the many unidentified sponges bequeathed by the late Professor Arthur Dendy to the British Museum was a collection labelled "Third Thurston Collection." The first

and second Thurston collections from the Gulf of Manaar have already formed the subject of two memoirs by Dendy, and it is of interest to record several new species in this third collection.

In the process of identifying these sponges from the Gulf of Manaar, I have made some notes on the genera of the Suberitidæ and Polymastidæ which it seems worth while to include here.

LIST OF THE MORE INTERESTING SPECIES CONTAINED IN THURSTON'S THIRD COLLECTION FROM THE GULF OF MANAAR.

*Cinachyra hirsuta* (Dendy).

*Tetilla hirsuta*, Dendy, 1889  $\beta$ , p. 75; id. 1905, p. 89; id. 1916, p. 104.

It is difficult to understand why Dendy, after having stressed the similarity between the canal-systems of this species and *Cinachyra barbata* in his original description of the species, should have persisted in referring it to *Tetilla*. It is beyond question a *Cinachyra*.

The colour, in life, is recorded as "green and yellow."

*Chalina similis* (Ridley & Dendy).

*Petrosia similis*, Ridley & Dendy, 1886, p. 327; id. 1887, p. 9, pl. ii. fig. 10, pl. iii. figs. 3-4; Dendy, 1905, p. 145.

The present specimen agrees closely with those described by Dendy (*l. c.*). The colour in life was dark blue.

This species must be removed from *Petrosia* owing to the absence of a tangential dermal skeleton and the presence of oxea only, except where strongyla are occasionally produced by modification of the oxea. It has practically nothing in common with the genotype of *Petrosia* and is, in fact, nothing more than a "Reniera" with unusually dense skeleton.

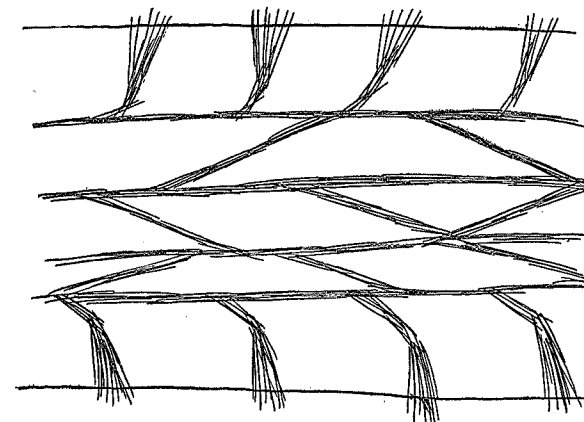
*Chalina tenuiramosa*, sp. n.

*Holotype*.—B.M. no. 25.11.1.1355.

*Diagnosis*.—Sponge a mass of long slender cylindrical branches, varying from 1-4 mm. in thickness; surface even, minutely hispid; vents small, distributed in an irregular linear series; colour in life olive-green, in spirit light brown. Skeleton a fairly regular unispicular reticulation, with quadrangular or triangular mesh; spongin only at nodes of reticulation; no special multispicular fibres or special dermal skeleton; spicules oxea, smooth, slightly curved, .146 by .006 mm.

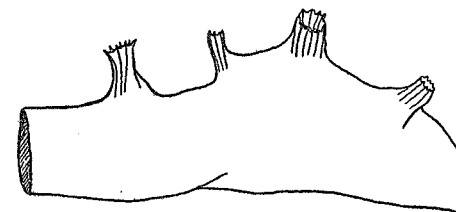
*Remarks*.—The species is in external form not unlike *Halichondria tenuiramosa*, Dendy, but is readily distinguishable from that species by the size of its spicules and the structure of its skeleton. Moreover, *H. tenuiramosa* is a *Chalina* (see fig. 1) and the species must revert to its original specific name, viz.:—*Chalina reticulata* (Baer).

Fig. 1.



Longitudinal section through a branch of *Chalina reticulata* (Baer), (= *Halichondria tenuiramosa*, Dendy), showing the arrangement of the skeleton. (Semi-diagrammatic.)

Fig. 2.



External form of *Cladochalina thurstoni*, sp. n. (Slightly larger than natural size.)

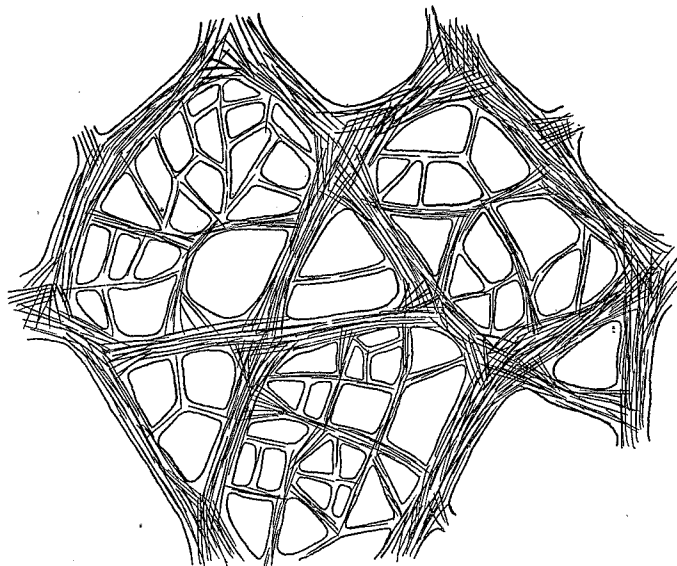
*Cladochalina thurstoni*, sp. n. (Figs. 2, 3.)

*Holotype*.—B.M. no. 25.11.1.1362.

*Diagnosis*.—Sponge massive (?); surface smooth, even; vents situated at summits of tubular processes, in linear series; margins of vents serrated; colour in life white, in

spirit pale brown; main skeleton a stout multispicular reticulation of spiculo-fibre enclosing a quadrate mesh, becoming irregular in places, with primary fibres  $\cdot 175$  mm. thick; dermal skeleton an irregular network of multispicular fibre enclosing irregularly triangular, quadrate or polygonal primary meshes subdivided into secondary or even tertiary

Fig. 3.

Dermal skeleton of *Cladochalina thurstoni*, sp. n.  $\times 60$ .

meshes (fig. 3); tertiary fibres, when present, usually unispicular; spicules oxea, straight or curved,  $\cdot 07$  by  $\cdot 003$  mm.

*Remarks.*—The single specimen consists of a mere fragment bearing several vents (fig. 2), so that it is impossible to state the shape of the complete sponge. The species is characterised by the smooth even surface and the shape of the vents, in addition to the peculiar structure of the dermal skeleton.

*Clathria mæandrina*, Ridley.

The species has been recorded but once before, from the Amirantes Islands.

*Acanthoxifer ceylonensis*, Dendy.

In life the colour of this specimen was orange.

*Sclerochalina spinilamella* (Dendy).

*Pachychalina spinilamella*, Dendy, 1889  $\beta$ , p. 80.

The genus *Sclerochalina* is characterised by a special tangential dermal skeleton composed of a primary mesh subdivided into secondary and tertiary meshes, as in *Cladochalina*. It differs from the latter genus, however, in that the primary fibres of the main skeleton are continued through the nodes of the dermal skeleton as short aculeate processes of spiculo-fibre giving the sponge a characteristic, minutely-conulose appearance. In this respect, the present species clearly corresponds with the typical form of *Sclerochalina* and is, in fact, almost specifically indistinguishable from the genotype, *S. crassa*, Keller.

*Laxosuberites proteus*, Hentschel.

*Laxosuberites proteus*, Hentschel, 1909, p. 389, pl. xxii. figs. 1-3, text-figs. 20-23.

There are two specimens which appear to agree closely with those described by Hentschel from S.W. Australia. The first consists of two kidney-shaped lobes, with slightly uneven surface suggesting an incipient papillation. The second consists of a long finger-shaped lobe, 4 cm. long and  $\cdot 5$  cm. in diameter, with perfectly smooth surface.

*Laxosuberites conulosus*, sp. n.

*Holotype.*—B.M. no. 25.11.1.1360.

*Diagnosis.*—Sponge massive, pyramidal; surface covered with conuli of varying size, of which largest is 5 mm. high and 2 mm. in diameter at base; surface minutely hispid in patches; texture tough but compressible; vents not apparent; colour in spirit pale brown, in life chrome-yellow; skeleton composed of irregular bundles of spicules, with apices directed towards surface, becoming very feeble just below ectosome; spicules tylostyli, and modifications thereof,  $\cdot 56$  by  $\cdot 007$ – $\cdot 014$  mm.

The species differs from *L. proteus* in external form, and in the manner in which the skeleton thins out near the surface. There is, on the other hand, considerable resemblance between it and *L. rugosus*, from Europe, both in external form and in the structure of the skeleton, while the spicules are almost identical in the two species (see Topsent, 1900, pl. v. figs. 1-4). Provisionally, I regard the geographical separation, together with the small differences in external form, as a good reason for not identifying the present specimen with the European species.

A REVISION OF THE GENERA OF THE *POLYMASTIDÆ*  
AND *SUBER.TIDÆ*.

Family *Polymastidæ*.

*Diagnosis*.—Corticate, non-boring *Hadromerina*, with skeleton composed typically of large and small tylostyli, which may be replaced by styli, the larger tylostyli arranged in well-defined radial bundles, and perhaps in one or more tangential cortical layers, the smaller forming a dermal palisade; spirasters, pseudasters, and discasters never present.

Genus *POLYMASTIA*, Bowerbank.

*Polymastia*, Bowerbank, 1864, p. 177.

*Spinularia*, Gray, 1867, p. 524.

*Penicillaria*, id. l. c. p. 527.

*Rinalda*, Schmidt, 1870, p. 51.

? *Clathroscula*, Merejkowsky, 1879, p. 43.

*Weberella*, Vosmaer, 1855, p. 16.

*Rhaphidorus*, Topsent, 1898  $\gamma$ , p. 244.

*Genotype*.—*Spongia mammillaris*, Müller.

*Diagnosis*.—*Polymastidæ* of massive sessile form, usually papillate; skeleton composed of tylostyli, occasionally replaced by styli, arranged in stout radial bundles, with one or more layers of tangentially-placed subdermal tylostyli, and a dermal palisade of brushes of smaller tylostyli placed at right angles to surface.

The genus *Penicillaria* was proposed by Gray for *Hali-chondria mammillaris*, Johnston, so that it is a synonym of *Polymastia*. Both *Spinularia* and *Rhaphidorus* differ from the typical form of *Polymastia* only in the presence of trichodragmata, and, since it is becoming abundantly clear that this form of spicule has no taxonomic importance, the two genera must also be considered as synonyms of *Polymastia*. *Rinalda* differs in no important respect from the latter genus, and *Weberella* differs only in certain histological details, which can hardly be of generic importance. *Clathroscula*, a *nomen nudum*, was evidently intended for a type of sponge indistinguishable from the typical *Polymastia*.

Genus *QUASILLINA*, Norman.

*Quasillina*, Norman, 1869  $\alpha$ , p. 329.

*Bursalina*, Schmidt, 1875, p. 116.

*Genotype*.—*Polymastia brevis*, Bowerbank.

*Diagnosis*.—*Polymastidæ* of spherical form, stipitate, and with a single apical vent; skeleton of choanosome feebly developed, composed of sparsely scattered bundles of large

styli; cortical skeleton well developed, forming a tangential layer of large styli with dermal brushes of smaller styli.

Genus *RADIELLA*, Schmidt.

*Radiella*, Schmidt, 1870, p. 48.

*Trichostemma*, Sars, 1872, p. 62.

*Genotype*.—*Radiella sol*, Schmidt.

*Diagnosis*.—*Polymastidæ* of discoid form, papillate, with marginal fringe of spicules; choanosomal skeleton composed of stellate groups of small tylostyli; cortical skeleton of lower surface composed of a tangential layer of large tylostyli which merge insensibly into marginal fringe; cortical skeleton of upper surface composed of large radially-disposed tylostyli ending in a palisade of small tylostyli at surface.

Genus *PROTELEIA*, Ridley & Dendy.

*Proteleia*, Ridley & Dendy, 1886, p. 152.

*Genotype*.—*P. sollasi*, Ridley & Dendy.

*Diagnosis*.—Differs from *Polymastia* in possession of a dermal layer of small grapnel spicules projecting beyond ectosome.

Genus *RIDLEIA*, Dendy.

*Ridleia*, Dendy, 1888, p. 515.

*Genotype*.—*R. oviformis*, Dendy.

*Diagnosis*.—Sponge oviform, stipitate, with single apical vent; choanosome almost entirely aspiculous; cortical skeleton composed of a tangential layer of long tylostyli, situated at inner margin of cortex, a layer of obliquely-placed intercrossing tylostyli occupying centre of cortex, and a dermal layer of brushes of small tylostyli.

The genus *Ridleia* bears a strong resemblance to *Quasillina*, but differs in the aspiculous nature of the choanosome, the structure of the cortical skeleton, and the possession of tylostyli instead of styli.

Genus *TYLEXOCLADUS*, Topsent.

*Tyloxocladus*, Topsent, 1898  $\gamma$ , p. 242.

*Genotype*.—*T. joubini*, Topsent.

*Diagnosis*.—Differs from *Polymastia* in possession of eladotylostyli projecting at surface and centrotylote oxea associated with choanosomal skeleton.

## Genus SPHÆROTYLUS, Topsent.

*Sphærotylus*, Topsent, 1898 γ, p. 244.

*Genotype*.—*Polymastia capitata*, Vosmaer.

*Diagnosis*.—Differs from *Polymastia* only in possession of a dermal layer of sphærotylostyli.

## Genus ATERGIA, Stephens.

*Atergia*, Stephens, 1915, p. 32.

*Genotype*.—*A. corticata*, Stephens.

*Diagnosis*.—Polymastidæ of rounded massive form, sessile, papillate; skeleton composed of well-defined bundles of large tylostyli running radially to and projecting beyond surface, a dermal palisade of small tylostyli, and bundles of small oxea scattered throughout choanosome between radial bundles of tylostyli.

## Genus TRACHYTELEIA, Topsent.

*Trachyteleia*, Topsent, 1929, p. 152.

*Genotype*.—*T. stephensi*, Topsent.

*Diagnosis*.—Differs from *Polymastia* in possession of a layer of large tylostyli with distal ends spinous and projecting through dermal palisade of small tylostyli.

## Genus VOSMAERIA, Levinsen.

*Vosmaeria*, Levinson, 1885 \*, p. 24.

*Genotype*.—*V. crustacea*, Levinsen.

*Diagnosis*.—Polymastidæ of massive form, bearing fistulous processes; choanosomal skeleton of radial bundles of long tylostyli; dermal skeleton a dense tangential layer of pseudoxea.

## Family Suberitidæ.

*Diagnosis*.—Corticate, non-boring Hadromerina, with skeleton composed typically of large and small tylostyli, which may be replaced by styli; larger spicules arranged in an irregular reticulation or in diffuse radial bundles, smaller forming a dermal palisade or a loose aggregation of brushes placed at right angles to surface; occasionally only one category of tylostyli present, and dermal palisade composed of spicules identical with those of choanosome; in encrusting forms with one spicule-form only, dermal palisade usually absent; spirasters, pseudasters, and discasters never present.

\* Kongl. Svenska Vetens.-Akad. Handl. xxi. 6, 1885, p. 24, pl. ii. fig 5.

It may be reasonably questioned whether the families Polymastidæ and Suberitidæ should be separated in practice. Certain it is that the task of framing adequate diagnoses to meet such a separation is almost impossible.

## Genus SUBERITES, Nardo.

*Suberites*, Nardo, 1833, p. 523.

*Lithumena*, Lieberkühn, 1859, p. 520.

*Ficulina*, Gray, 1867, p. 523.

*Suberella*, Thiele, 1905, p. 416.

*Genotype*.—*Alcyonium domuncula*, Olivi.

*Diagnosis*.—Suberitidæ of massive form; skeleton consisting of an irregularly radial main skeleton of large tylostyli, and a dermal palisade of small tylostyli set at right angles to surface.

*Ficulina* is here included as a synonym of *Suberites*, because the only difference between them is said to be the presence of microstrongyla in the former and their absence in the latter. Since the distribution of these microscleres is variable, and since it is not improbable that *Ficulina ficus*, the only species of the genus, may eventually prove to be synonymous with one of the better known of the European species of *Suberites*, there remains no justification for the retention of the genus *Ficulina*.

*Suberella*, a subgenus of *Suberites*, was erected by Thiele for *Suberites heros*, Schmidt. Topsent (1900, p. 226) has shown, however, that this species is a synonym of *S. domuncula*, the genotype of *Suberites*.

## Genus TERPIOS, Duchassaing &amp; Michelotti.

*Terpios*, Duchassaing & Michelotti, 1864, p. 97.

*Genotype*.—*T. fugax*, Duchassaing & Michelotti.

*Diagnosis*.—Suberitidæ of encrusting habit; skeleton composed of tylostyli with trilobed heads arranged in no apparent order.

## Genus CAULOSPONGIA, Kent.

*Caulospongia*, Kent, 1871 α, p. 616.

*Plectodendron*, Lendenfeld, 1888, p. 66

*Genolectotype*.—*C. plicata*, Kent.

*Diagnosis*.—Suberitidæ of erect growth, stipitate, with sponge-body composed of central axis bearing spirally-arranged laminæ; skeleton of body composed of a reticulation of spongin fibres cored by tylostyli with bilobed heads

and ending at surface in loose dermal brushes of similar spicules; skeleton of stalk essentially same as in body, but without dermal brushes.

I have chosen *Caulospongia plicata* as genolectotype, although it was the second species described by Kent in his original account of the genus, because it is the only species of which I have been able to obtain information, apart from the bare account given by Kent.

Hallmann (1914, p. 348) has already alluded to the synonymy of *Plectodendron* with *Caulospongia*.

#### Genus TENTORIUM, Vosmaer.

*Thecophora* (preoccupied), Schmidt, 1870, p. 50.

*Genotype*.—*Thecophora semisuberites*, Schmidt.

*Diagnosis*.—Suberitidæ of symmetrical columnar form, with apical vent; main skeleton composed of bundles of long tylostyli, passing vertically to end in a dermal palisade of small tylostyli in cortex of upper surface of sponge; cortical skeleton of lateral walls composed of large tylostyli lying parallel to surface.

#### Genus AXOSUBERITES, Topsent.

*Axosuberites*, Topsent, 1893 β, p. 179.

*Genotype*.—*A. fauroti*, Topsent.

*Diagnosis*.—Suberitidæ with central axis of tylostyli bound together by spongin, and radial bundles of similar spicules running from central axis to surface to end in brushes of slightly smaller tylostyli.

#### Genus LAXOSUBERITES, Topsent.

*Laxosuberites*, Topsent, 1896, p. 126.

*Genotype*.—*Suberites rugosus*, Schmidt.

*Diagnosis*.—Suberitidæ of massive form, with skeleton of tylostyli of one size arranged in radial bundles or in a confused reticulation in choanosome and forming surface brushes.

#### Genus PSEUDOSUBERITES, Topsent.

*Pseudosuberites*, Topsent, 1896, p. 127.

*Suberanthus*, Lendenfeld, 1897, p. 144.

*Genotype*.—*Hymeniacion hyalinus*, Ridley & Dendy.

*Diagnosis*.—Suberitidæ of massive irregular form; skeleton composed of tylostyli of one size only, arranged in an irregular reticulation in choanosome and as a tangential layer in ectosome.

#### Genus PROTOSUBERITES, Svarczevsky.

*Protosuberites*, Svarczevsky, 1905, p. 36.

*Genotype*.—*P. prototypus*, Svarczevsky.

*Diagnosis*.—Suberitidæ of encrusting habit; skeleton composed of basal layer of vertically-placed large tylostyli, echinating substratum, and ectosomal layer of small tylostyli set at varying angles to surface.

#### Genus LAXOSUBERELLA, nom. nov.

*Suberella*, Burton, 1929, p. 446; nec *Suberella*, Thiele.

*Genotype*.—*Suberella topsenti*, Burton.

*Diagnosis*.—Suberitidæ of massive form, with specialised pore-areas; skeleton composed of tylostyli of one size, forming an irregular reticulation in choanosome and a loose palisade in cortex.

The genus differs from *Laxosuberites* mainly in the possession of specialised pore-areas.

#### Genus PROSUBERITES, Topsent.

*Prosuberites*, Topsent, 1894 ε, p. xlii.

*Genotype*.—*P. longispina*, Topsent.

*Diagnosis*.—Suberitidæ of encrusting form; skeleton composed of tylostyli of one size placed vertically to substratum.

#### Genus TERPIOSELLA, gen. nov.

*Genotype*.—*Ophlitaspongia fucoides*, Bowerbank\*.

*Diagnosis*.—Suberitidæ growing associated with algæ; skeleton composed of tylostyli of variable size echinating thallus of alga.

*Terpiosymbiotica*, Hentschel (1909), also belongs to this genus.

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