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Hydroids from the West African coast: Guinea Bissau, Namibia and South Africa*

JOSEP-MARIA GILI[1], WIM VERVOORT[2] & FRANCESC PAGÈS[1]

[1] Institut de Ciències del Mar, Passeig Nacional, s/n. 08003 Barcelona, Spain.

[2] Rijksmuseum van Natuurlijke Historie, Raamsteeg 2, P. O. Box. 9517, 2300. RA, Leiden, Netherlands.

SUMMARY: The purpose of the present report is to provide a taxonomic account of the deep-water and shallow-water hydroids recorded by the cruises carried out by the Institut de Ciències del Mar, Barcelona, Spain, along three areas of the West African coast. The areas studied comprise the continental shelfs of Guinea Bissau and Namibia, the Walvis Ridge, the Valdivia Bank, the littoral zone of Namibia and some localities off the northermost part of South Africa. The hydroid collection numbers 50 species distributed over 12 families. The species were collected with hauls made between 0 and 1200 m depth: the most frequently occurring species being related with muddy to sandy bottoms. Illustrations are provided for all the species recorded, whilst data on morphology and distribution are given for the majority.

Key words: Hydropolips, Taxonomy, Distribution, Guinea Bissau, Namibia, South Africa.

RESUMEN: HIDROPÓLIPOS DE LA COSTA OCCIDENTAL AFRICANA: GUINEA BISSAU, NAMIBIA Y SUDÁFRICA. — En esta monografía se estudian las colecciones de hidropólipos (Hydrozoa: Cnidaria) recolectados durante las campañas llevadas a cabo por el Institut de Ciències del Mar de Barcelona en tres áreas de la costa oeste de África. Las áreas estudiadas comprenden las plataformas continentales de Guinea Bissau y Namibia, la zona del talud enfrente de Walvis Bay, el Banco de Valdivia, algunas zonas del noreste de Sudáfrica y la zona litoral de Namibia. Las colecciones comprenden un total de 50 especies de hidropólipos distribuidos en 12 familias. Los ejemplares se recolectaron en muestras y pescas efectuadas entre 0 y 1200 m de profundidad y la mayoría de ellas provienen de fondos de arena y fango. Se han ilustrado todas las especies, además de acompañar cada una con un estudio más o menos detallado de su taxonomía o morfología y de su distribución.

Palabras clave: Hidropólipos, Taxonomia, Distribución, Guinea Bissau, Namibia, Sudáfrica.

INTRODUCTION

Namibian benthos eventually gained interest in the context of exploratory commercial fisheries in an area of high productivity. Accordingly, the first records of deep- and shallow-water hydroids known from off Namibia and adjacent northernmost South Africa are due to a Spanish fisheries research project started in 1979. Since 1984 Spanish fisheries research projects involving the benthos off the coast of Guinea Bissau have yielded shallow-water hydroids from that area.

The hydroids to be described in the present paper have been obtained during seven of such exploratory cruises (one off Guinea Bissau and six off Namibia and northern South Africa); in addition samples were obtained during one of the Namibian cruises by snorkling in the littoral zone.

We want to express our gratitude to Mr. Valentín Lapido, captain of the fishing vessel M/P "Lulu", for hospitality and help during the Guinea Bissau cruise, and to Dr. E. Macpherson for his encouragement and support during the preparation of this paper.

All the material is preserved in the collections of

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the Institut de Ciències del Mar, Barcelona, Spain. Duplicates are in the collections of the Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands.

LIST OF THE SPECIES

STATION LIST

Guinea Bissau:

St. P-35 (10° 33′ N, 16° 24′ W), 03.01.1985, 34 m, gravel:
Halecium tenellum Hincks, *Hydrodendron mirabile* (Hincks), *Lytocarpia myriophyllum* (Linnaeus), *Campanularia hincksi* Alder.

St. P-41 (10° 38′ N, 16° 25′ W), 04.01.1985, 33 m, sandy mud:
Lytocarpia myriophyllum (Linnaeus).

St. P-47 (10° 57′ N, 17° 17′ W), 06.01.1985, 260 m, sandy mud:
Lytocarpia myriophyllum (Linnaeus).

St. P-57 (10° 45′ N, 17° 16′ W), 08.01.1985, 239 m, sandy mud:
Lytocarpia myriophyllum (Linnaeus).

St. P-59 (10° 43′ N, 17° 16′ W), 08.01.1985, 238 m, sandy mud:
Sertularella gayi (Lamouroux).

St. P-77 (10° 42′ N, 17° 12′ W), 11.01.1985, 234 m, sandy mud:
Lytocarpia myriophyllum (Linnaeus), *Sertularella gayi* (Lamouroux).

St. P-83 (10° 43′ N, 17° 11′ W), 12.01.1985, 228 m, sandy mud:
Lytocarpia myriophyllum (Linnaeus).

St. P-91 (11° 31′ N, 17° 17′ W), 14.01.1985, 219 m, mud:
Modeeria rotunda (Quoy & Gaimard), *Polyplumaria flabellata* G.O. Sars.

St. P-95 (11° 53′ N, 17° 21′ W), 17.01.1985, 194 m, mud:
Lytocarpia myriophyllum (Linnaeus).

St. P-96 (11° 57′ N, 17° 20′ W), 17.01.1985, 205 m, mud:
Lytocarpia myriophyllum (Linnaeus).

St. P-101 (11° 58′ N, 17° 22′ W), 18.01.1985, 197-219 m, mud:
Plicatotheca anitae Calder & Vervoort, *Halecium beanii* (Johnston), *Antennella secundaria* (Gmelin), *Nemertesia ramosa* Lamouroux, *Polyplymaria flabellata* G. O. Sars, *Cladocarpus* cf. *sinuosus* Vervoort, *Lytocarpia myriophyllum* (Linnaeus), *Diphasia margareta* (Hassall), *Sertularella gayi* (Lamouroux).

St. P-102 (11° 53′ N, 17° 20′ W), 18.01.1985, 183-263 m, mud:
Modeeria rotunda (Quoy & Gaimard), *Halecium delicatulum* Coughtrey, *Nemertesia ramosa* (Lamouroux), *Diphasia margareta* (Hassall), *Sertularella gayi* (Lamouroux).

St. P-110 (11° 30′ N, 17° 20′ W), 20.01.1985, 238 m, mud:
Lytocarpia myriophyllum (Linnaeus), *Diphasia margareta* (Hassall).

St. P-114 (11° 28′ N, 17° 11′ W), 20.01.1985, 4751 m, mud:
Eudendrium ramosum (Linnaeus), *Halecium beanii* (Johnston), *Polyplumaria flabellata* G. O. Sars, *Lytocarpia myriophyllum* (Linnaeus), *Diphasia margareta* (Hassall), *Sertularella gayi* (Lamouroux), *Clytia paulensis* (Vanhöffen).

St. P-123 (11° 36′ N, 17° 20′ W), 22.01.1985, 241-439 m, mud:
Nemertesia ramosa (Lamouroux), *Aglaophenia tubulifera* (Hincks), *Diphasia margareta* (Hassall), *Sertularella gayi* (Lamouroux).

St. P-147 (11° 22′ N, 17° 21′ W), 27.01.1985, 256 m, gravel and stones:
Cryptolaria pectinata (Allman), *Plicatotheca anitae* Calder & Vervoort, *Nemertesia perrieri* (Billard), *Nemertesia ramosa* (Lamouroux), *Nemertesia ramosa* var. *plumularioides* (Billard), *Aglaophenia lophocarpa* Allman, *Aglaophenia tubulifera* (Hincks), *Lytocarpia myriophyllum* (Linnaeus), *Diphasia margareta* (Hassall), *Dynamena cornicina* McCrady, *Sertularella gayi* (Lamouroux), *Obelia dichotoma* (Linnaeus).

St. P-149 (11° 23′ N, 17° 22′ W), 28.01.1985, 270-292 m, mud:
Eudendrium sp., *Lafoea dumosa* (Fleming).

St. P-152 (11° 22′ N, 17° 22′ W), 29.01.1985, 281 m, mud:
Cryptolaria pectinata (Allman).

St. P-163 (11° 38′ N, 17° 20′ W), 31.01.1985, 226-245 m, sandy mud:
Lytocarpia myriophyllum (Linnaeus).

St. P-167 (11° 38′ N, 17° 21′ W), 01.02.1985, 219-263 m, mud:
Modeeria rotunda (Quoy & Gaimard), *Lytocarpia myriophyllum* (Linnaeus), *Diphasia attenuata* (Hincks), *Diphasia margareta* (Hassall), *Sertularella gayi* (Lamouroux).

St. P-177 (11° 28′ N, 17° 20′ W), 03.02.1985, 263-439 m, mud:
Bougainvillia ramosa (Van Beneden), *Cryptolaria pectinata* (Allman), *Plicatotheca anitae* Calder & Vervoort, *Antennella secundaria* (Gmelin), *Nemertesia ramosa* (Lamouroux), *Aglaophenia lophocarpa* Allman, *Aglaophenia tubulifera* (Hincks), *Diphasia margareta* (Hassall), *Sertularella gayi* (Lamouroux).

St. P-189 (11° 42′ N, 17° 11′ W), 05.02.1985, 62 m, mud:
Hebella scandens var. *michaelseni* Broch, *Sertularella cylindritheca* (Allman).

St. P-202 (11° 25′ N, 17° 15′ W), 07.02.1985, 60-64 m, mud:
Halecium delicatulum Coughtrey, *Halecium tenellum* Hincks.

St. P-205 (11° 22′ N, 17° 21′ W), 08.02.1985, 292 m, mud:
Nemertesia ramosa (Lamouroux), *Aglaophenia lophocarpa* Allman, *Aglaophenia tubulifera* (Hincks), *Diphasia margareta* (Hassall), *Sertularella gayi* (Lamouroux).

St. P-213 (11° 39′ N, 17° 20′ W), 09.02.1985, 131-157 m, mud:
Nemertesia ramosa (Lamouroux), *Aglaophenia tubulifera* (Hincks), *Diphasia attenuata* (Hincks), *Diphasia margareta* (Hassall).

St. P-214 (11° 31′ N, 17° 20′ W), 10.02.1985, 142-223 m, mud:
Eudendrium ramosum (Linnaeus), *Antennella secundaria* (Gmelin), *Nemertesia perrieri* (Billard), *Nemertesia ramosa* (Lamoroux), *Nemertesia ramosa* var. *plumularioides* (Billard), *Plumularia setacea* (Linnaeus), *Polyplumaria flabellata* G. O. Sars, *Lytocarpia myriophyllum* (Linnaeus), *Diphasia margareta* (Hassall), *Sertularella gayi* (Lamouroux), *Campanularia hincksii* Alder, *Obelia bidentata* Clarke.

Namibia:

St. 90601 (26° 24′ S, 14° 48′ E), 06.09.1981, 290 m:
Plumularia cf. *warreni* Stechow, *Amphisbetia operculata* (Linnaeus), *Sertularella gaudichaudi* (Lamouroux).

St. 100504 (27° 00′ S, 14° 29′ E), 06.10.1981, 314 m:
Sertularella gaudichaudi (Lamouroux).

St. 260983 (27° 53′ S, 11° 27′ E), 26.09.1983, 212 m:
Halopteris catharina (Johnston), *Nemertesia ramosa* var. *plumularioides* (Billard), *Sertularella gayi* (Lamouroux).

St. 91203 (26° 35′ S, 14° 50′ E), 09.10.1983, 180 m:
Lovenella chiquitita Millard, *Halecium beanii* (Johnston), *Plumularia setacea* (Linnaeus), *Sertularella gaudichaudi* (Lamouroux), *Sertularella striata* Stechow, *Symplectoscyphus macrogonus* (Trebilcock), *Orthopyxis integra* (MacGillivray).

Benguela VI:

St. BB-8 (26° 09′ S, 06° 20′ E), 02.02.1984, 230 m:
Stegopoma plicalite (M. Sars), *Sertularella leiocarpa* (Allman).

St. BB-13 (25° 27′ S, 06° 05′ E), 03.02.1984, 885 m:
Stegopoma plicatile (M. Sars).

St. P-46 (27° 46′ S, 14° 41′ E), 20.01.1984, 373 m:
Eudendrium sp.

St. P-55 (29° 06′ S, 14° 36′ E), 22.01.1984, 249 m:
Plumularia cf. *warreni* Stechow, *Obelia dichotoma* (Linnaeus), *Obelia geniculata* (Linnaeus).

St. P-57 (29° 21′ S, 14° 49′ E), 22.01.1984, 232 m:
Aglaophenia parvula Bale, *Obelia dichotoma* (Linnaeus).

St. P-59 (29° 31′ S, 14° 33′ E), 23.01.1984, 475 m:
Halecium cf. *dichotomum* Allman.

St. P-72 (28° 58′ S, 14° 25′ E), 27.01.1984, 351 m:
Nemertesia ciliata Bale.

St. P-73 (28° 27′ S, 14° 22′ E), 27.01.1984, 470 m:
Nemertesia ciliata Bale.

St. P-76 (27° 18′ S, 14° 09′ E), 28.01.1984, 475 m:
Nemertesia ciliata Bale.

St. P-95 (24° 28′ S, 13° 36′ E), 31.01.1984, 344 m:
Stegopoma plicatile (M. Sars).

Benguela VII:

St. P-24 (27° 03′ S, 14° 51′ E), 24.07.1984, 201 m:
Plumularia cf. *warreni* Stechow, *Obelia dichotoma* (Linnaeus).

St. P-36 (28° 07′ S, 14° 29′ E), 29.07.1984, 439 m:
Nemertesia ciliata Bale.

St. P-38 (29° 03′ S, 15° 09′ E), 30.07.1984, 176 m:
Nemertesia ciliata Bale.

St. P-41 (28° 35′ S, 15° 21′ E), 30.07.1984, 187 m:
Eudendrium sp.

St. P-77 (28° 13′ S, 13° 14′ E), 08.08.1984, 381 m:
Obelia dichotoma (Linnaeus).

St. B-48 (29° 21′ S, 14° 46′ E), 01.08.1984, 245 m:
Sertularella gayi (Lamouroux).

St. PP-1 (23° 05′ S, 12° 45′ E), 09.08.1984, 1193 m:
Bougainvillia ramosa (Van Beneden), *Modeeria rotunda* (Quoy & Gaimard), *Stegopoma plicatile* (M. Sars), *Opercularella denticulata* (Clarke).

St. DP-20 (26° 36′ S, 14° 33′ E), 23.07.1984, 262 m:
Sertularella cf. *dubia* Billard.

St. First Lagoon 1 (26° 30′ S, 15° 20′ E), 15.08.1984, littoral:
Aglaophenia parvula Bale.

St. First Lagoon 2 (26° 30′ S, 15° 20′ E), 15.08.1984, littoral:
Aglaophenia parvula (Bale).

St. Shark Island 6 (26° 30′ S, 15° 20′ E), 15.08.1984, littoral:
Sertularella gaudichaudi (Lamouroux).

Benguela VIII:

St. P-6 (23° 41′ S, 13° 58′ E), 07.07.1985, 167 m:
Halecium lankesteri (Bourne), *Plumularia lagenifera* Allman, *Aglaophenia parvula* (Bale), *Symplectoscyphus macrogonus* (Trebilcock).

St. P-18 (26° 26′ S, 14° 32′ E), 10.07.1985, 258 m:
Eudendrium sp., *Sertularella gayi* (Lamoroux).

St. P-26 (27° 19′ S, 14° 42′ E), 12.07.1985, 295 m:
Stegopoma plicatile (M. Sars).

St. P-29 (28° 10′ S, 14° 31′ E), 13.07.1985, 437 m:
Nemertesia ciliata Bale.

St. P-30 (28° 19′ S, 14° 26′ E), 13.07.1985, 429 m:
Aglaophenia parvula (Bale), *Amphisbetia operculata* (Linnaeus), *Sertularella striata* Stechow, *Symplectoscyphus macrogonus* (Trebilcock), *Obelia dichotoma* (Linnaeus).

St. P-32 (29° 04′ S, 14° 27′ E), 14.07.1985, 378 m:
Nemertesia ciliata Bale.

St. P-33 (29° 07′ S, 14° 34′ E), 14.07.1985, 280 m:
Stegopoma plicatile (M. Sars), *Obelia dichotoma* (Linnaeus).

St. P-34 (29° 17′ S, 14° 31′ E), 14.07.1985, 247 m:
Plumularia lagenifera Allman, *Obelia dichotoma* (Linnaeus).

St. P-35 (29° 41′ S, 14° 39′ E), 15.07.1985, 422 m:
Obelia dichotoma (Linnaeus).

St. P-37 (29° 24′ S, 14° 43′ E), 15.07.1985, 284 m:
Stegopoma plicatile (M. Sars).

St. P-48 (26° 17′ S, 13° 56′ E), 18.07.1985, 364 m:
Stegopoma plicatile (M. Sars).

St. P-54 (25° 18′ S, 13° 50′ E), 19.07.1985, 258 m:
Stegopoma plicatile (M. Sars).

St. P-55 (25° 17′ S, 13° 40′ E), 20.07.1985, 365 m:
Plumularia setacea (Linnaeus), *Aglaophenia parvula* Bale, *Sertularella striata* Strechow.

Benguela IX:

St. P-63 (24° 36′ S, 13° 30′ E), 10.02.1986, 412 m:
Stegopoma plicatile (M. Sars).

Benguela X:

St. P-41 (28° 14′ S, 14° 26′ E), 11.08.1986, 318 m, stones: *Sertularella leiocarpa* (Allman).

SNEC II:

St. E-73 (18° 00′ S, 10° 31′ E), 25.04.1986, 0-40 m, plankton sample:
Clytia hemisphaerica (Linnaeus).

St. E-83 (18° 00′ S, 10° 31′ E), 25.04.1986, 0-20 m, plankton sample:
Clytia hemisphaerica (Linnaeus).

Namibian coast:

St. P-2, Angra Fria (18° 25′ S, 12° 05′ E), 20.02.1986, littoral: *Aglaophenia parvula* Bale.

St. P-4, Angra Fria (18° 25′ S, 12° 05′ E), 20.02.1986, littoral: *Aglaophenia parvula* Bale.

St. P-12, Angra Fria (18° 25′ S, 12° 05′ E), 20.02.1986, littoral: *Aglaophenia parvula* Bale, *Amphisbetia operculata* (Linnaeus).

St. P-14, Angra Fria (18° 25′ S, 12° 05′ E), 20.02.1986, littoral: *Aglaophenia parvula* Bale, *Amphisbetia operculata* (Linnaeus).

St. P-44, Cunene 2 (17° 12′ S, 11° 45′ E), 22.02.1986, littoral: *Plumularia obliqua* (Johnston), *Aglaophenia parvula* Bale, *Amphisbetia operculata* (Linnaeus), *Clytia hemisphaerica* (Linnaeus), *Orthopyxis integra* (MacGillivray).

St. P-47, Cunene 2 (17° 12′ S, 11° 45′ E), 22.02.1986, littoral: *Plumularia obliqua* (Johnston), *Amphisbetia operculata* (Linnaeus), *Orthopyxis integra* (MacGillivray).

St. P-48, Cunene 2 (17° 12′ S, 11° 45′ E), 22.02.1986, littoral: *Plumularia obliqua* (Johnston), *Amphisbetia operculata* (Linnaeus), *Orthopyxis integra* (MacGillivray).

St. P-51, Cunene 2 (17° 12′ S, 11° 45′ E), 22.02.1986, littoral: *Plumularia obliqua* (Johnston), *Aglaophenia parvula* Bale, *Amphisbetia operculata* (Linnaeus).

St. P-53, Cunene 2 (17° 12′ S, 11° 45′ E), 22.02.1986, littoral: *Plumularia obliqua* (Johnston), *Amphisbetia operculata* (Linnaeus).

St. P-55, Cunene 2 (17° 12′ S, 11° 45′ E), 22.02.1986, littoral: *Amphisbetia operculata* (Linnaeus).

St. P-78, Mowe Bay (19° 25′ S, 12° 47′ E), 25.02.1986, littoral: *Aglaophenia parvula* Bale, *Sertularella gaudichaudi* (Lamouroux).

St. P-82, Mowe Bay (19° 25′ S, 12° 47′ E), 25.02.1986, littoral: *Coryne* sp., *Aglaophenia parvula* Bale, *Amphisbetia operculata* (Linnaeus), *Sertularella gaudichaudi* (Lamouroux).

St. P-92, Rocky Point (19° 05′ S, 12° 28′ E), 26.02.1986, littoral: *Aglaophenia parvula* Bale, *Clytia hemisphaerica* (Linnaeus).

St. P-99, Rocky Point (19° 05′ S, 12° 28′ E), 26.02.1986, littoral: *Aglaophenia parvula* Bale.

St. P-101, Rocky Point (19° 05′ S, 12° 28′ E), 26.02.1986, littoral: *Aglaophenia parvula* Bale.

St. P-102, Rocky Point (19° 05′ S, 12° 28′ E), 26.02.1986, littoral: *Aglaophenia parvula* Bale.

St. P-106, Rocky Point (19° 05′ S, 12° 28′ E), 26.02.1986, littoral: *Aglaophenia parvula* Bale, *Sertularella gaudichaudi* (Lamouroux).

SYSTEMATIC PART

FAMILY CORYNIDAE Johnston, 1836

Coryne sp. (fig. 1A)

Material: P-82 (Namibian coast); 1 small colony bearing 2 hydranths.

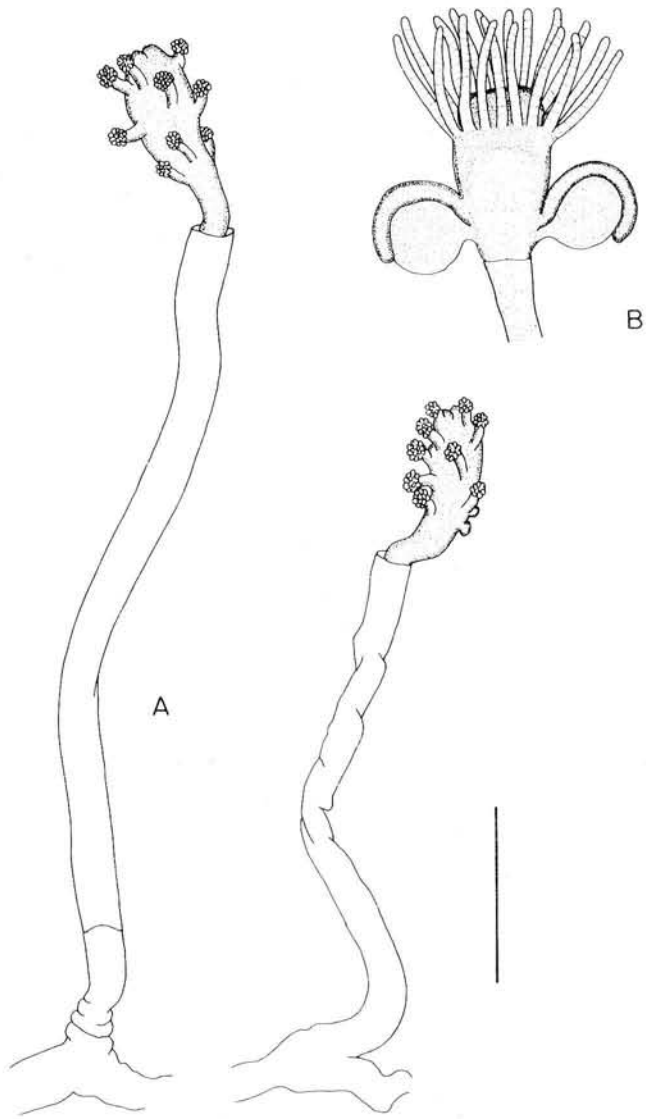

FIG. 1. — A, *Coryne* sp.; B, *Eudendrium ramosum* (Linnaeus), hydranth with developing eggs almost completely surrounded by undivided spadix. Scale equals 300 µ.

Notes: The material present consists of a small fragment of stolon with two sterile hydranths, placed at the end of a nearly smooth stalk, bearing a few basal rings in one case. This sterile material unfortunately cannot be properly indentified, though in all likelyhood it belongs to *Coryne pusilla* Gaertner, 1774, a species recorded from the Indian Ocean coasts of South Africa by MILLARD (1975) but probably also present along the Atlantic coasts of southern Africa.

FAMILY BOUGAINVILLIIDAE Allman, 1876

Bougainvillia ramosa (Van Beneden, 1844)

Eudendrium ramosum VAN BENEDEN, 1844: 56, pl. 4, figs. 10-13.

Bougainvillia ramosa — ALLMAN, 1872: 311-314, pl. 9, figs. 5-7.
Bougainvillia ramosa — STECHOW, 1925: 411-412.
Bougainvillia ramosa — PATRITI, 1970: 15, fig. 7.
Bougainvillia? ramosa — MILLARD, 1975: 97-99, fig. 33E-H.

Material: P-177 (Guinea Bissau); 8 colonies 0.5-1.5 mm high on stem *Diphasia margareta*, with small, developing gonophores.

PP-1 (Benguela VII); c. 30 colonies 10-25 mm high on *Neolithodes asperimus*, with developing gonophores.

Description: Monosiphonic colonies with sparce ramifications running almost parallel to the main axis. Hydranths in bad condition, mostly represented by the pseudohydrothecae, but gonophores profusely present (in the Benguela material, less so in that from Guinea Bissau). Gonophores inserting on the pedicel slightly below the hydranths.

Distribution: The species is recorded from South African waters by STECHOW (1925: Plettenberg Bay, 100 m), and MILLARD (1975: Langebaan Lagoon to Port Elizabeth). PATRITI (1970) gives several localities in Moroccan waters (Rabat, Casablanca, Agadir, Temara).

FAMILY EUDENDRIIDAE Hincks, 1868

Eudendrium ramosum (Linnaeus, 1758) (fig. 1B)

Eudendrium ramosum — HINCKS, 1868: 82-83, pl. 13.
Eudendrium ramosum — ALLMAN, 1872: 332-333, pl. 13.
Eudendrium ramosum — JADERHOLM, 1909: 50-51, pl. 6, figs. 1-2.
Eudendrium ramosum — VERVOORT, 1946a: 147-150, figs. 58-59.
Eudendrium ramosum — PATRITI, 1970: 13-14, fig. 4.
Eudendrium ramosum — MILLARD, 1975: 85-87, fig. 31A-D.

Material: P-114 (Guinea Bissau): 2 colonies 60-70 mm high.

P-214 (Guinea Bissau): 1 colony 120 mm high (on rocks).

Notes: Stem monosiphonic, branched; branches running upwards, almost parallel to stem. Hydranths well preserved, with two type of macrobasic eurytheles. Young female gonophores occur on some of the colonies and are present on fully atrophied hydranths (fig. 1B); they consist of a developing egg almost completely surrounded by an undivided spadix.

Distribution: The geographical distribution of this species includes many localities in the North Atlantic, where it ranges from the Arctic to the Cape Verde region (MILLARD, 1975). Along the African coasts it has been recorded from the coast of Morocco in the north (PATRITI, 1970) and from Saldanha Bay to Inhaca in the south (MILLARD, 1975).

Eudendrium sp.

Material: P-149 (Guinea Bissau); 15 colonies 5-15 mm high, sterile.

BB-46 (Benguela VI); c. 50 colonies on worm tubes, sterile.

P-41 (Benguela VII): 4 colonies 100-120 mm high on worm tubes, sterile.

P-18 (Benguela VIII); 5 colonies 45 mm high, sterile.

Notes: Owing to the sterile condition of the material it could not be identified to the species.

FAMILY LAFOEIDAE Hincks, 1868

Cryptolaria pectinata (Allman, 1888) (fig. 2)

Perisiphonia pectinata ALLMAN, 1888: 45-46, pl. 21, figs. 2-2b.
Perisiphonia pectinata — PICTET & BEDOT, 1900: 4, 18-22, 53, 55, pls. 4-5.
Perisiphonia pectinata — RITCHIE, 1911: 835, pl. 85 fig. 2.
Acryptolaria pectinata — STECHOW, 1925: 448-451, figs. 20-21.
Zygophylax pectinata — JADERHOLM, 1903: 278.
Cryptolaria pectinata — RALPH, 1958: 320-332, figs. 5g-j, 6g-j, 7c.
Cryptolaria pectinata — MILLARD, 1975: 174-175, fig. 58A-F.
Cryptolaria pectinata — REES & VERVOORT, 1987: 49-50.

Material: P-147 (Guinea Bissau); 6 colonies 40-85 mm high on worm tube.

P-152 (Guinea Bissau); 6 colonies 50-160 mm high.

P-177 (Guinea Bissau); 7 colonies 60-130 mm high, with coppinia.

Measurements (in microns):

distance between basal part of two successive hydrothecae	380 - 440
diameter of hydrocaulus	60 - 100
length of hydrotheca	320 - 400
diameter of hydrotheca	65 - 75
diameter of isolated gonotheca	95 - 160
length of nematotheca	60 - 100
diameter of nematotheca	20 - 30

Notes: This well known species needs no detailed redescription. It is known from deep water localities off New Zealand (ALLMAN, 1888; RALPH, 1958), from the temperate North Atlantic (Azores and Bay of Biscay, PICTET & BEDOT, 1900; Madeira, STECHOW, 1925), from the West Indies (fide MILLARD, 1975) and probably the Galapagos area (CLARKE, 1907). MILLARD (1975) lists localities along the South African east coast ranging from East London to Natal.

FIG. 2. — *Cryptolaria pectinata* (Allman). A, stem; B, part of branch; C, part of coppinia. Scale a equals 1 cm; scale b equals 300 µ.

Hebella scandens var. ***michaelseni***
Broch, 1914 (fig. 3A)

Hebella Michaelseni BROCH, 1914: 32, fig. 7, pl. 1, fig. 2.
Hebella scandens var. *michaelseni* — Vervoort, 1959: 238-239, fig. 13.

Material: P-189 (Guinea Bissau); c. 40 hydrothecae, on *Sertularella cylindritheca.*

Measurements (in microns):	Guinea Bissau	Côte d'Ivoire (Vervoort, 1959)
length of pedicel	65 - 80	
diameter of pedicel	80 - 90	
lenght of hydrotheca	520 - 680	540 - 600
diameter of hydrotheca ..	340 - 400	200 - 220

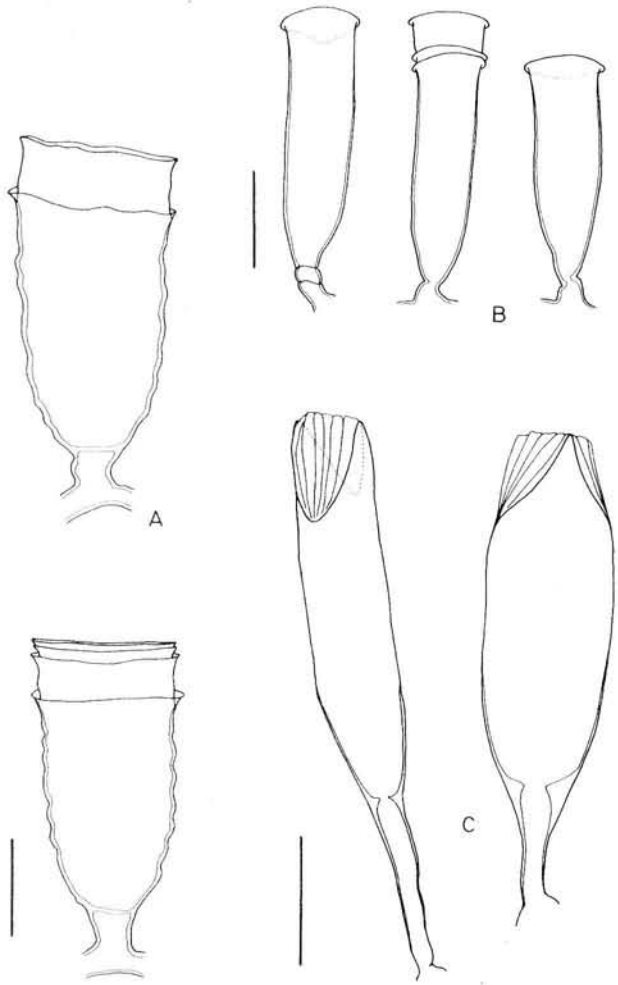

FIG. 3. — A, *Hebella scandens* var. *michaelseni* Broch; B, *Lafoea dumosa* (Fleming); C, *Modeeria rotunda* (Quoy & Gaimard). Scale equals 300 µ.

Notes: The present material differs from that described previously by VERVOORT (1959) by the larger diameter of the hydrotheca, for the rest the material is identical and has the same characteristic undulations of the hydrothecal wall.

Distribution: So far this characteristic variety has been recorded only from Angola, 11-17 m (BROCH, 1914), from off Côte d'Ivoire, 50 m (VERVOORT, 1959) and has now been found farther to the north along the Guinea Bissau coasts at a depth of 62 m.

Lafoea dumosa (Fleming, 1820) (fig. 3B)

Lafoea dumosa — HINCKS, 1868: 200-201, fig. 23, pl. 41, figs. 1, 1a.
Lafoea fruticosa — HINCKS, 1868: 202-203, pl. 41, figs. 2, 2a-b.
Lafoea pocillum — HINCKS, 1868: 204, pl. 40, fig. 2.
Lafoea dumosa — STECHOW, 1925: 455, figs. 24A.
Lafoea fruticosa — STECHOW, 1925: 456-457, fig. 24B.
Lafoea gracillima — STECHOW, 1925: 457-458, fig. 24C
Lafoea dumosa — CORNELIUS, 1975b: 385-390, fig. 4 (full synonymy).
Lafoea dumosa — MILLARD, 1975: 185.
Lafoea fruticosa — MILLARD, 1975: 187, fig. 61A-F.
Lafoea dumosa — REES & VERVOORT, 1987: 40-44, figs. 7-8.

Material: P-149 (Guinea Bissau); c. 12 hydrothecae on *Eudendrium* sp.

Measurements (in microns):

lenght of pedicel	35 - 50
diameter of pedicel	60 - 70
length of hydrotheca	520 - 600
diameter of hydrotheca	175 - 215

Notes: Isolated hydrotheca only were observed, rising from a stolon creeping on *Eudendrium* sp.

Distribution: Cosmopolitan species, recorded from the Moroccan coast by PATRITI (1970, several localities) and from the entire coast of southern Africa by STECHOW (1925) and MILLARD (1975) and likely to occur farther north.

FAMILY LOVENELLIDAE Russell, 1953

Lovenella chiquitita Millard, 1957 (fig. 4)

Lovenella chiquitita MILLARD, 1957: 198-200, fig. 7.
Lovenella chiquitita — MILLARD, 1975: 135-137, fig. 44.

Material: 91203 (Namibia); c. 10 colonies up to 5 mm high, each colony with about 20 hydrothecae and a few gonothecae.

Description: Stems rising from a stolon usually creeping on other hydroids, unbranched and terminating in a hydrotheca, or sympodially branched (up to 4 or 5 times), branches forming a sharp angle with the axis, each terminated by a hydrotheca. Perisarc ringed throughout and until closely under the hydrotheca. Hydrotheca deeply campanulate, basal portion slightly swollen, imperceptibly merging into pedicel, with a fine basal diaphragm: perisarc of hydrotheca smooth, not ringed. Edge of hydrotheca with 8 to 10 shallow, rounded embayments, each with a triangular flap, together forming a shallow roof-shaped structure with a central opening.

Gonothecae inserting on stolon (usually) or on pedicels (occasionally), much larger than hydrothecae, elongated-oval with truncated apical portion, in the nearly mature gonotheca closed by a circular flap. Gonothecae either directly on stolon or axis, or with very short, ringed pedicel. Gonophore developing into two medusa-buds (release of medusa not observed).

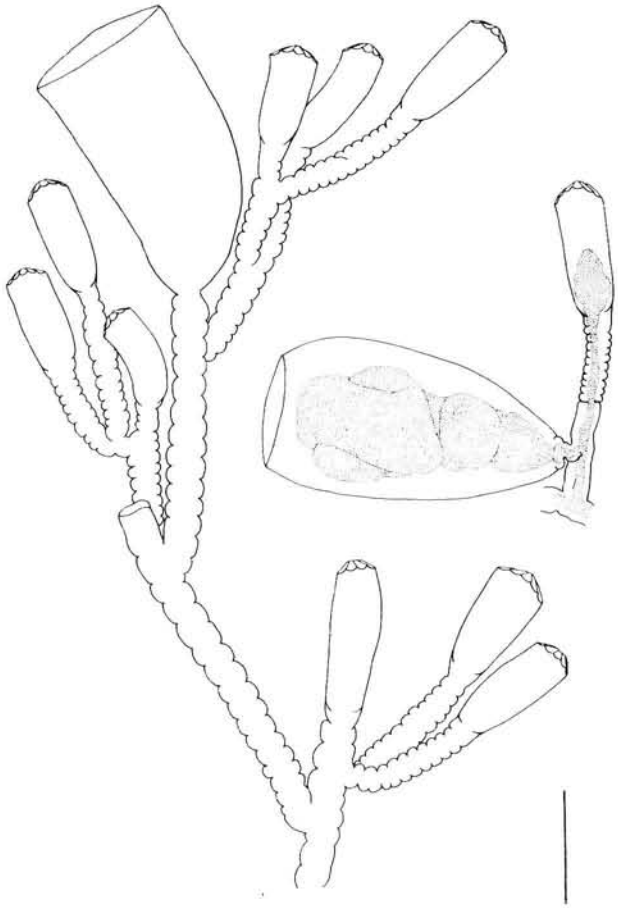

FIG. 4. — *Lovenella chiquitita* Millard. Scale equals 300 µ.

Measurements (in microns):

length of hydrothecal pedicel	80 - 400
diameter of hydrothecal pedicel ..	70 - 90
length of hydrotheca	250 - 300
diameter of hydrotheca	95 - 140
length of gonotheca	680 - 720
diameter of gonotheca	330 - 360

Distribution: Originally described by MILLARD (1957) from False Bay, South Africa and later on found to extend along the South African west coast from Lüderitz Bay to False Bay and considered to be endemic to South Africa. The present record shows that the species occurs even farther north (26° 35′ S, 14° 50′ E), between Walvis Bay and Lüderitz Bay, 180 m depth). It occurs in the littoral zone down to a depth of c. 40 m (MILLARD, 1975).

FAMILY TIARANNIDAE Russell, 1940

Modeeria rotunda (Quoy & Gaimard, 1827) (fig. 3C)

Campanularia fastigiata ALDER, 1860: 73-74, pl. 5, fig. 1
Calycella fastigiata — HINCKS, 1868: 208, fig. 25, pl. 39, fig. 3
Stegopoma fastigiata — MILLARD, 1958: 175.
Stegopoma fastigiatum — TOTTON, 1930: 155, fig. 11.
Stegopoma fastigiatum — KRAMP, 1935: 133, fig. 57B.
Stegopoma fastigiatum — LELOUP, 1935: 12.
Stegopoma fastigiatum — VERVOORT, 1946a: 219, fig. 94.
Stegopoma fastigiatum — VERVOORT, 1959: 234-235, fig. 10
Modeeria rotunda — EDWARDS, 1973: 573-590, figs. 1-3 (full synonymy).
Modeeria rotunda — MILLARD, 1975: 137-138, fig. 45A.

Material: P-91 (Guinea Bissau); c. 20 hydrothecae on hydrorhiza of *Polyplumaria flabellata*.

P-102 (Guinea Bissau); c. 10 hydrothecae on *Halecium delicatulum*.

P-167 (Guinea Bissau); c. 4 batches of hydrothecae from stolon creeping on *Diphasia margareta* and *Sertularella gayi*.

PP-1 (Benguela VII); c. 15 hydrothecae on *Neolithodes asperimus*.

Measurements (in microns):

length of pedicel	240 - 400
diameter of pedicel	50 - 65
length of hydrotheca	800 - 960
diameter of hydrotheca	230 - 300

Notes: The present specimens of this species agree with available descriptions and need no further comment.

Distribution: Cosmopolitan species with an enormous range in the subarctic, boreal, temperate and tropical Atlantic and Indo-Pacific. PATRITI (1970) records the species from Moroccan coastal waters; VERVOORT (1959) gives a locality off Ghana (60-65 m). STECHOW (1925) found the species in the Cape Verde Island region (77 m). The present records fit into the general distributional area.

Stegopoma plicatile (M. Sars, 1853) (fig. 5)

Lafoea plicatilis M. SARS, 1863: 31-34.
Stegopoma plicatile — KRAMP, 1932: 27-29, fig. 33.
Stegopoma plicatile — KRAMP, 1935: 131-133, fig. 57A.
Stegopoma plicatile — NAUMOV, 1960: 316-317, fig. 207.
Stegopoma plicatile — VERVOORT, 1966: 112-114, fig. 13.

Material: BB-8 (Benguela VI); 6 colonies 20 mm high.

BB-13 (Benguela VI); 3 colonies 140 mm high.

P-95 (Benguela VI); 4 colonies 100 mm high, fertile, on *Bathynectes piperitus*.

PP-1 (Benguela VII); 10 colonies 20 mm high on *Neolithodes asperimus*

P-26 (Benguela VIII); 2 colonies 15 mm high.

P-33 (Benguela VIII); 1 colony 60 mm high.

P-37 (Benguela VIII); 3 colonies 30-65 mm high, fertile.

FIG. 5. — *Stegopoma plicatile* (M. Sars). A, part of colony with empty gonotheca; B, part of branch. Scale equals 300 µ.

P-48 (Benguela VIII); 13 colonies 15-110 mm high.

P-54 (Benguela VIII); 4 colonies 10-45 mm high on *Bathynectes piperitus*.

P-63 (Benguela IX); 1 colony 100 mm high.

Description: Colonies composed of a strongly polysiphonic stem, basally c. 3 mm diameter, that gradually gives off side-branches and diminishes in diameter towards the apex, where it is monosiphonic. Ramifications in a single plane, irregular, secondary branches forming all along the axis. Hydrothecae found all over the colony, occurring in two types, viz. sessile hydrothecae, placed alternately along the axis and its ramifications, and stalked hydrothecae, placed on a short pedicel. Hydrothecae of the first type shaped as a curved, gradually widening tube, adcauline wall fused to axis or ramification for about half its length, no distinct separation from pedicel being present, no diaphragm being observed. The closing apparatus of these hydrothecae is composed of two flaps with thickened strips, placed in deep, semicircular embayments of ad- and abcauline walls and closing over the hydrotheca to form a triangular

roof. Hydrothecae of this type also occur in the axil of the ramifications of the axis. The second type of hydrotheca has a short pedicel, composed of a few indistinct wrinkles; hydrotheca itself straight, widening from its base onwards; closing apparatus of the two types identical.

Gonothecae are present in some of the colonies, attached to the axis between the hydrothecae, tubular, narrowing basally and provided with a very short pedicel. Their length is about 6 or 7 times that of the hydrothecae. Gonothecal edge uneven, apparently no closing apparatus being present. All gonothecae are empty. One of the gonothecae is covered by secondary, anastomosing tubules originating from the axis some distance above the insertion of the gonotheca.

Measurements (in microns):

length of sessile hydrotheca	1100 - 1300
diameter of sessile hydrotheca ..	220 - 280
length free part adcauline wall ..	200 - 300
length of free hydrotheca	750 - 1100
diameter of free hydrotheca	220 - 260
length of hydrothecal pedicel ..	90 - 110
length of gonotheca	5100 - 5400
diameter of gonotheca	670 - 690

Distribution: The distribution of this species includes Arctic and boreal waters of the Atlantic and the Pacific (NAUMOV, 1960; VERVOORT, 1966); it has also been recorded from the muddy bottom of the Norwegian fjords, the fjords of the southwestern coasts of Sweden and from the Skagerak (KRAMP, 1935). Along the Namibian coast the species has been recorded from 230 to 1193 m depth almost always on Decapod Crustaceans, of which *Bathynectes piperitus* and *Neolithodes asperimus* are the most common.

FAMILY CAMPANULINIDAE Hincks, 1868

Opercularella denticulata (Clarke, 1907) (fig. 6A)

Campanulina denticulata CLARKE, 1907; 12-13, pl. 8.
Campanulina denticulata — STECHOW, 1913: 122-124, fig. 92.
?Opercularella denticulada — VERVOORT, 1966: 104-106, fig. 4-5.
?Opercularella denticulata — VERVOORT, 1985: 278-279, fig. 2b.

Material: PP-1 (Benguela VII); 6 colonies 10 mm high on *Neolithodes asperimus*.

Description: Colonies with unramified hydrocaulus, short and rigid, rising from a flattened hydrorhiza, not divided into internodes, with thin perisarc. Hydrothecae free, stalked, inserting on the axis and its ramifications, pointing in all directions; pedicels with wrinkled perisarc, twice as long (or more) as hydrotheca. Hydrotheca separated from pedicel by means of a fine diaphragm, normally straight but occasionally rounded. Hydrotheca tubular, twice as long as wide, wall smooth or slightly undulated. Apical part of hydrotheca gradually merging into closing apparatus, consisting of thickened triangular strips of the hydrothecal wall; membrane folding over the hydrothecal aperture to form a roof-shaped structure (fig. 6A). Some of the hydrothecae show signs of renovation.

Gonothecae tubular, springing from the axis between the hydrothecae by means of a short pedicel, fairly short (compared with gonothecae so far described) without distinct closing apparatus, but probably young.

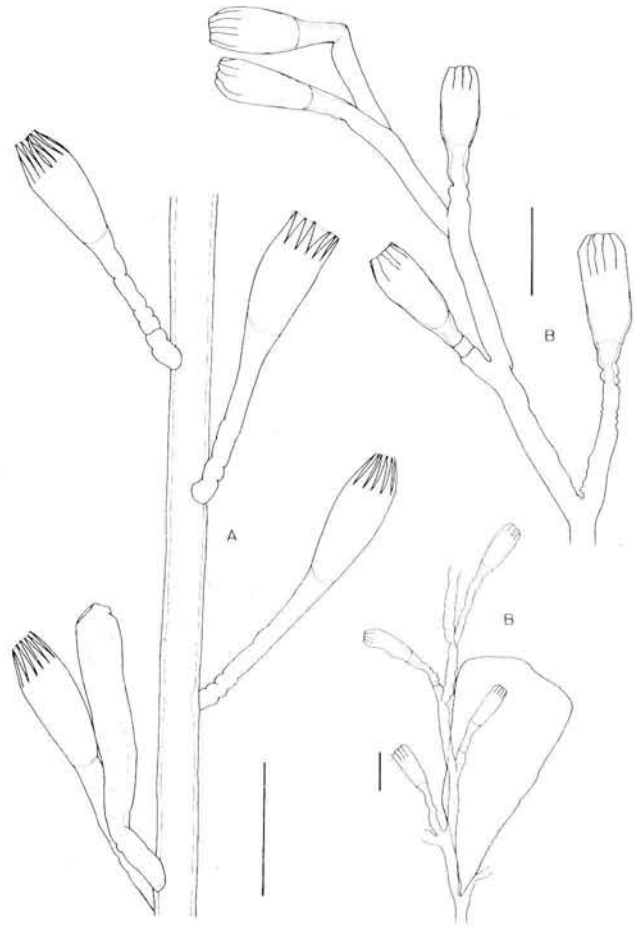

FIG. 6. — A, *?Opercularella denticulata* (Clarke); B, *Plicatotheca anitae* Calder & Vervoort, part of branch and part of stem with empty gonotheca. Scale equals 300 µ.

Measurements (in microns):

diameter of hydrocaulus	110 - 130
length of hydrothecal pedicel	440 - 600
diameter of hydrothecal pedicel	60 - 80
length of hydrotheca	400 - 480
length of gonotheca	720 - 780
diameter of gonotheca	120 - 150

Distribution: The species has so far been recorded from deep water (usually exceeding 500 m depth) in the Pacific (CLARKE, 1970; STECHOW, 1913; FRASER, 1948, as *Campanulina indivisa*), from the Indian Ocean (4040 m, VERVOORT, 1966), and from various deep water sites in the temperate and northern Atlantic (c. 2500-3000 m depth, VERVOORT, 1985).

Plicatotheca anitae (Calder & Vervoort, 1986) (fig. 6B)

?Opercularella spec. no. 2 VERVOORT, 1966: 108-109, figs. 8, 12b.
Opercularella sp. MILLARD, 1975: 138, fig. 45C-D.
Plicatotheca anitae CALDER & VERVOORT, 1986: 2021-2023, figs. 1-4.

Material: P-101 (Guinea Bissau); 1 colony 20 mm high on worm tube.

P-147 (Guinea Bissau); 2 colonies 20 mm high on *Sertularella gayi.*

P-177 (Guinea Bissau); 4 colonies 100 mm high, with gonothecae.

Measurements (in microns):

length of hydrothecal pedicels	120 - 450
diameter of hydrothecal pedicel	50 - 80
length of hydrotheca	360 - 440
diameter of hydrotheca	130 - 150
length of gonotheca	1800 - 2000
diameter of gonotheca (at apex)	900 - 1000

Notes: This species has recently been described by CALDER & VERVOORT, 1986; the Guinea Bissau specimens are in full agreement with that description with two exception. First of all some of the colonies exceed the length so far recorded; those from P-177 being as high as 100 mm, with a tendency towards polysiphony in the lower parts of the hydrocaulus. Secondly, some of the colonies from P-177 bear (empty) gonothecae. Gonothecae triangular and strongly flattened, inserting by means of a very short pedicel on the axis slightly above the insertion of the side-branches. They open by means of a slit at the apex, no closing apparatus being developed. There was no sign of a gonophore: all gonothecae being empty. The shape of the gonothecae is quite unlike that found in *Opercularella* and reminds strongly of the condition observed in *Halisiphonia* Allman, 1888.

Distribution: Recorded first from moderately deep water (430 m) off Durban (VERVOORT, 1966, as *?Opercularella* spec. no. 2). The species was later on found in Bermudan waters and redescribed as *Plicathotheca anitae* by CALDER & VERVOORT (1986), the locality being coastal waters southeast of Castle Harbour, Bermuda. The present records are from 200-400 m depth off Guinea Bissau.

FAMILY HALECIIDAE Hincks, 1868

Halecium beanii (Johnston, 1838) (fig. 7A)

Thoa beanii JOHNSTON, 1838: 120-121, pl. 7, figs. 1-2.
Halecium beanii — HINCKS, 1868: 224-225, pl. 43, fig. 2.
Halecium beanii — VERVOORT, 1946a: 161-163, figs. 29b, 65-66.
Halecium beanii — RALPH, 1958: 332-334, fig. 10a, b, e-k.
Halecium beanii — VERVOORT, 1959: 225-226, fig. 6.
Halecium beanii — VERVOORT, 1966: 103, fig. 3.
Halecium beanii — VERVOORT, 1972: 30-33, figs. 6-7.
Halecium beanii — MILLARD, 1975: 144-145, fig. 47A-E.
Halecium beanii — CORNELIUS, 1975b: 391-393, fig. 5.

Material: P-101 (Guinea Bissau); 3 colonies 20 mm high on *Sertularella gayi,* sterile.

P-114 (Guinea Bissau); 25 colonies 10-30 mm high on worm-tubes, sterile.

91203 (Namibia); 2 colonies 25 mm high, sterile.

Measurements (in microns):

length of internode	680 - 800
diameter of internode	140 - 175
diameter of hydrophore	120 - 140
length of hydrophore	85 - 140
length of hydrotheca (diaphragm-margin)	35 - 45
diameter of hydrotheca at margin	125 - 145

Notes: The present specimens agree with VERVOORT's (1959) description of Atlantide material, particularly in the shape of the hydrophore, which is also distinctly separate from the axis and in this respect differs from *Halecium halecinum* (Linnaeus, 1758).

Distribution: Cosmopolitan species in moderately deep water all over the world (STECHOW, 1919; FRASER, 1939; MILLARD, 1958; NAUMOV, 1960; CORNELIUS, 1975), particularly in the boreal, temperate, subtropical and tropical parts of the Atlantic. The present material originates from between 47 and 219 m off the coasts of Guinea Bissau and from the litto-

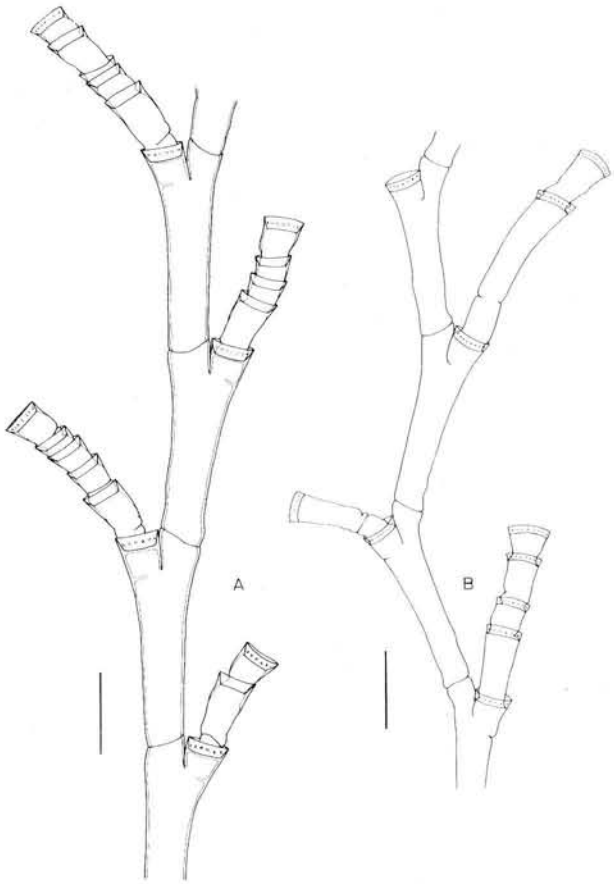

FIG. 7. — A, *Halecium beanii* (Johnston); B, *Halecium delicatulum* Coughtrey. Scale equals 300 µ.

ral zone of Namibia, coming from muddy bottoms, worm tubes and stalks of larger hydroids *(Sertularella gayi)*.

Halecium delicatulum Coughtrey, 1876 (fig. 7B)

Halecium delicatulum COUGHTREY, 1876: 26, pl. 3, figs. 4-5.
Halecium delicatulum — RALPH, 1958: 334-338, figs. 11e, h-n, 12a-p.
Halecium delicatulum — PATRITI, 1970: 23-24, fig. 20.
Halecium delicatulum — VERVOORT, 1972: 27-30, figs. 4-5.
Halecium delicatulum — MILLARD, 1975: 145-147, fig. 47F-L.
Halecium delicatulum — REES & VERVOORT, 1987: 25-28, fig. 5.

Material: P-102 (Guinea Bissau); 1 colony 20 mm high on *Diphasia margareta*, sterile.

P-202 (Guinea Bissau); 12 colonies 20-40 mm high on worm-tubes, sterile.

Measurements (in microns):

length of internodes of hydrocaulus	510 - 600
diameter of internodes of hydrocaulus	85 - 105
length of hydrophore plus primary hydrotheca	95 - 100
idem, secondary hydrotheca	200 - 520
length adcauline wall of hydrophore plus primary hydrotheca	95 - 100
diameter of hydrotheca (primary and secondary)	100 - 130

Notes: The present material agrees with the available descriptions of this fairly well-known species, particularly with that by MILLARD (1975). In spite of the fact that the material is sterile it undoubtedly belongs to *H. delicatulum*.

Distribution: Species with circumglobal distribution in Pacific and Atlantic, probably extending as far south as (sub)antarctic waters (MILLARD, 1975). BILLARD (1906) records the species from Cap Blanc, Morocco. MILLARD (1975) gives a number of localities along the Atlantic coast of South America ranging from False Bay to the Agulhas banks. The species has previously been recorded from Guinea Bissau by VERVOORT (1959).

Halecium cf. ***dichotomum*** Allman, 1888 (fig. 8)

Halecium dichotomum ALLMAN, 1888: 13-15, pl. 6.
Halecium dichotomum — STECHOW, 1925: 419.
Halecium dichotomum — MILLARD, 1957: 188.
Halecium dichotomum — MILLARD, 1966: 466-468, fig. 10A-K.
Halecium dichotomum — MILLARD, 1975: 147-150, fig. 48A-G.

Material: P-59 (Benguela VI); 6 colonies 120-200 mm high, sterile.

Description: Colony flabellate, unable to support itself outside fluid, ramifications on all sides, without distinct main stem. Main stems and branches polysiphonic by the presence of many secondary tubes, that are even present on the finer ramifications, though the ultimate branches are monosiphonic. In part the branching is dichotomous, i.e. two opposite branches originate from the same level closely under a hydrotheca, that becomes enclosed between two distinct apophyses, supporting the ramifications, but this is by no means a regular state of affairs. Division of the axis into internodes quite indistinct, as nodes are only occasionally present. Usually there are few nodes on stems and branches, that are composed of a length of axis with fairly thick perisarc bearing hydrothecae on distinct hydrophores pointing alternately left and right. The axial elements are usually covered by secondary tubules, that communicate with the original primary axis throught perforations of the perisarc usually observed on the hydrophores (see also ALLMAN, 1888: 13). In contradistinction to material described by MILLARD (1966; 1975) the hydrothecae

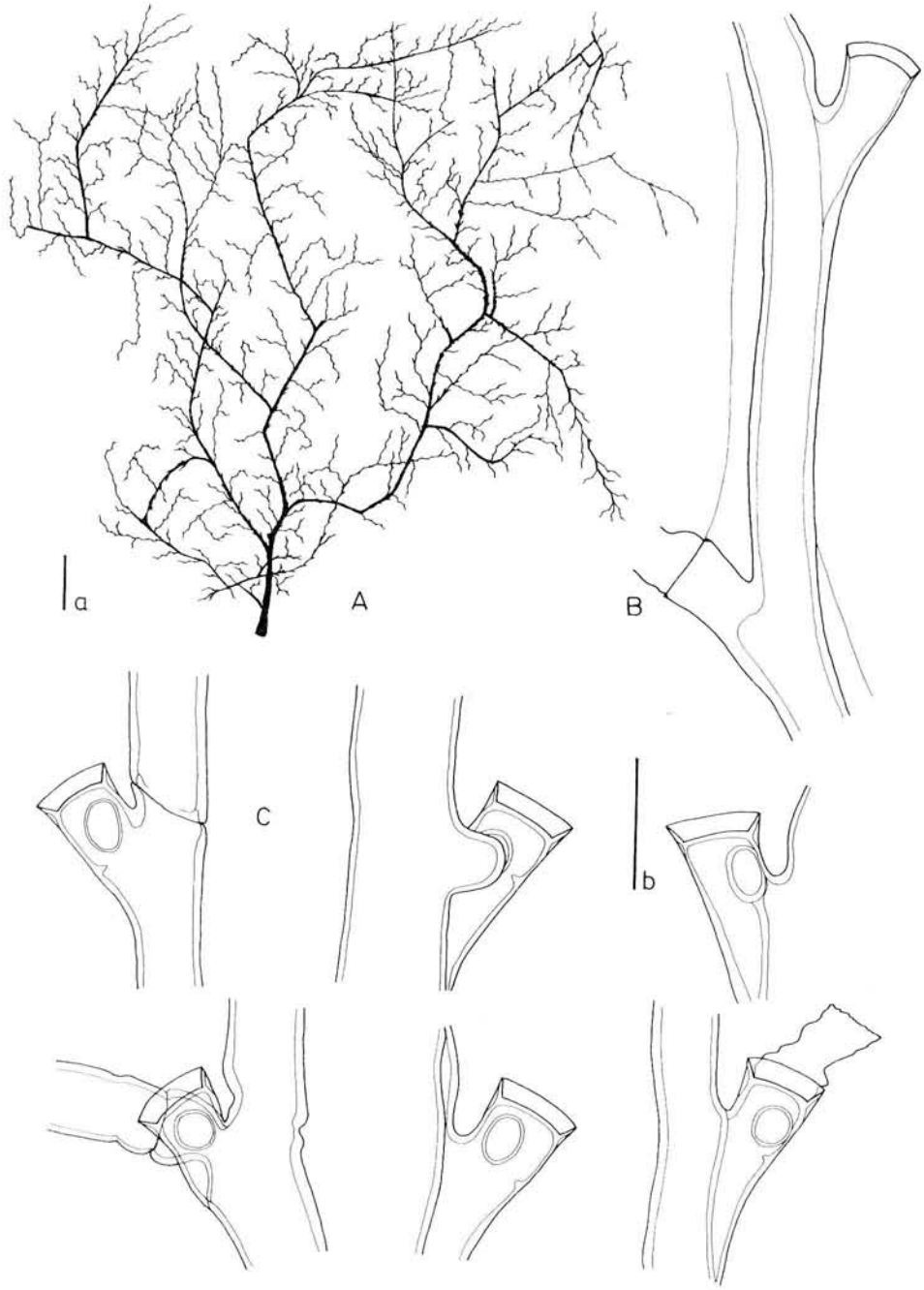

FIG. 8. — *Halecium* cf. *dichotomum* Allman. A, stem; B, part of branch; C, hydrothecae. Scale a equals 1 cm, scale b equals 300 μ.

are placed at the end of distinct hydrophores, being separated from those by a heavy diaphragm. Gap between axis and adcauline wall of hydrophore considerable (fig. 8c), hydrophore usually with a circular hole, probably representing the remnant of the insertion of a gonotheca, and a distinct abcauline notch opposite the axil of adcauline wall and axis. Primary hydrothecae short, distinctly everted but not flaring, no desmocytes have been observed. Secondary hydrothecae very scarce, only some being observed.

Measurements (in microns):

distance between basal portion of successive hydrothecae (or length of internode)	1250 - 1500
diameter of internode	240 - 265
length adcauline wall hydrophore plus hydrotheca	160 - 180
length of primary hydrotheca (from diaphragm onwards)	65 - 80
diameter of primary hydrotheca	210 - 240

Remarks: 1. The present material is fairly dirty and attemps to clean it did not improve the condition of the colonies, which appear to be degenerating after the (spurious) production of (now absent) gonothecae.

2. The condition of the secondary tubules and their connections with the primary axis is exactly as it has been described by Allman (1888: 13).

3. The material in the condition of its hydrothecae is different from that figured by MILLARD (1966, fig. 10A-K; 1975, fig. 48A-G), but that author at length explains the great variability in her material (MILLARD, 1975: 148). Unfortunately our material is sterile, the gonothecae of both sexes being of very characteristic shape.

4. We were unable to observe any flared hydrothecal margins: they are distincty everted but not flaring. This may be due to the generally poor condition of the material.

Distribution: Originally described from Simon's Bay, Cape Peninsula (ALLMAN, 1888). STECHOW (1925) records specimens from Francis Bay, South Africa, 100 m depth. MILLARD (1975) considers the species to be endemic to South Africa, recording localities from all around the southern part, ranging from Lüderitz Bay to Moçambique, 11-200 m depth. The present material originates from off the mouth of the Orange River, 475 m depth.

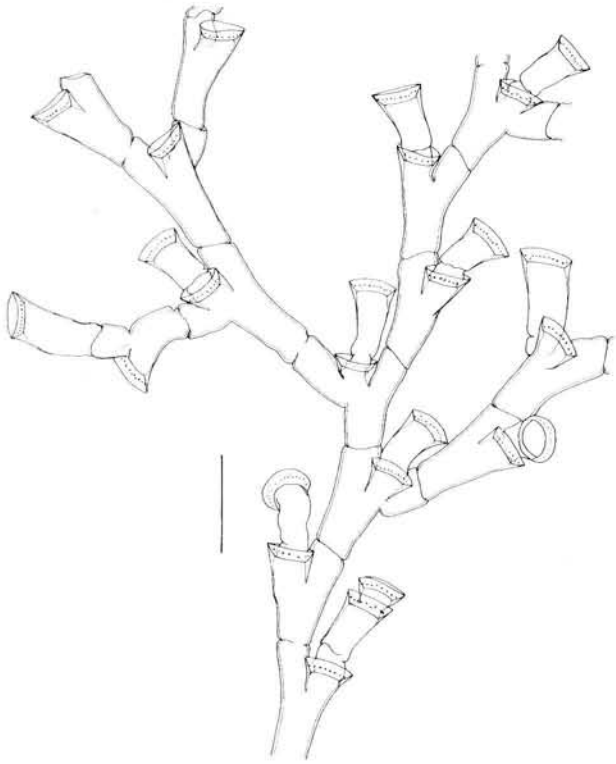

FIG. 9. — *Halecium lankesteri* (Bourne). Scale equals 300 µ.

Halecium lankesteri (Bourne, 1890) (fig. 9)

Haloikema lankesterii — BOURNE, 1890: 395, pl. 26, figs. 1-2.
Halecium lankesteri — BROCH, 1933: 16-17, figs. 3-4.
Halecium lankesteri — HAMOND, 1957: 302-304, figs. 9-11.
Halecium lankesteri¿ — VERVOORT, 1959: 221-224, figs. 3-5.
Halecium lankesteri — MILLARD, 1975: 153, fig. 50B-E.

Material: P-6 (Benguela VIII); 3 colonies up to 10 mm high, sterile.

Measurements (in microns):

	present material Walvis Bay area	South Africa (MILLARD, 1975)	Guinea and Guinea Bissau (VERVOORT, 1959)
length of internode	280 - 420		420 - 540
diameter of internode	115 - 145		90 - 110
distance desmocytes-hydrothecal margin		20 - 40	10 - 15
distance desmocytes-diaphragm			20 - 25
length primary hydrotheca	60 - 80		30 - 45
length secondary hydrophore-hydrotheca	175 - 280		
diameter of hydrotheca	140 - 160	100 - 150	120 - 130

Notes: We have compared the present material with descriptions by VERVOORT (1959) and MILLARD (1975). It is in general agreement with the Atlantide colonies (VERVOORT, 1966), differing only in the fact that the adcauline wall of the hydrophore is less widely separated from the axis and by the fact that it is generally larger in its measurements. It approaches Millard's material in size, but the secondary (and following) hydrothecae generally are of moderate length. Unfortunately the present material is sterile so that our identification must remain slightly doubtful.

Distribution: For a discussion of the distribution of this species we refer to VERVOORT (1959) and MILLARD (1975): it is a well distributed species in tropical, subtropical and southern boreal waters, but has repeatedly been confused with other species. Along the Atlantic coasts of Africa it has previously been recorded by VERVOORT (1959: Guinea and Guinea Bissau). The present specimens extend its distribution farther southward to the Walvis Bay area, 167 m depth.

Halecium tenellum Hincks, 1861 (fig. 10A)

Halecium tenellum — HINCKS, 1861: 252, pl. 6, figs. 1-4.
Halecium tenellum — VERVOORT, 1959: 229-231, fig. 8.
Halecium tenellum — VERVOORT, 1966: 102, fig. 2.
Halecium tenellum — MILLARD, 1966: 471, fig. 11C-F.
Halecium tenellum — MILLARD, 1975: 156-157, fig. 50F-L.

Material: P-35 (Guinea Bissau); 12 colonies rising from stolon on *Lytocarpia myriophyllum*, sterile.

P-202 (Guinea Bissau); 1 small colony, sterile.

Measurements (in microns):

diameter of stolon	70 - 90
length of hydrophore	120 - 800
diameter of hydrophore	50 - 70
length of hydrotheca (diaphragm-margin)	25 - 40
diameter of hydrotheca	95 - 115

Notes: The general shape of the colonies is very much like that described by VERVOORT (1966) from material of the "Galathea" Expedition. All colonies in the present material are reptant, the stolon being attached to stems of larger hydroids, while the mode of ramification is very irregular.

Distribution: Cosmopolitan species (MILLARD, 1975), occurring at various separated localities along the south and east coasts of South Africa (STECHOW, 1925; MILLARD, 1975). BILLARD (1906) records the species from Cap Spartel and Cap Blanc in Moroccan waters. VERVOORT (1966) lists localities from off Guinea, Guinea Bissau and Ghana (28-65 m). The present records are from Guinea Bissau, 30 and 60 m depth.

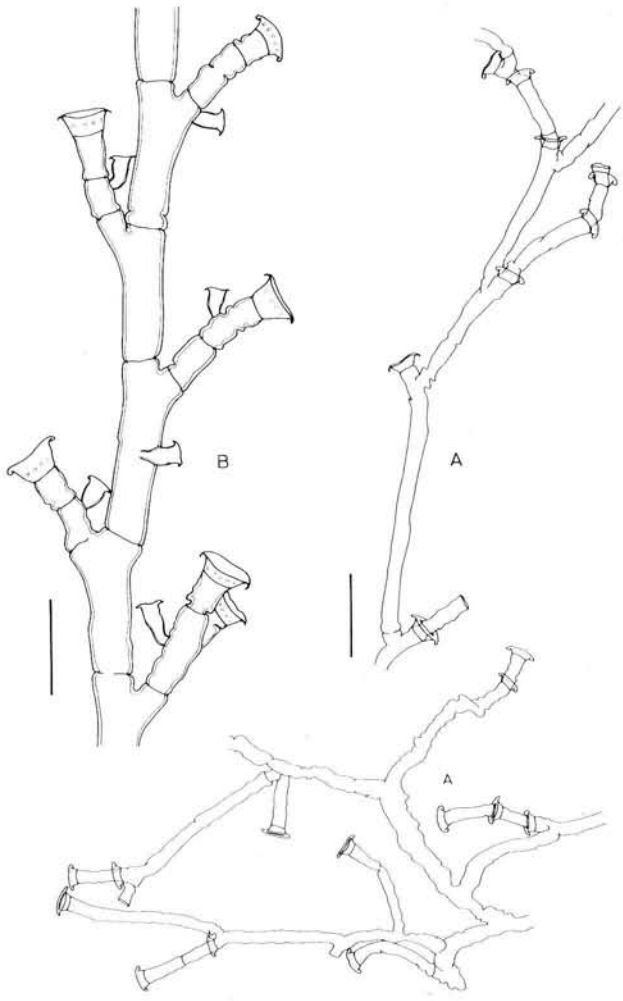

FIG. 10. — *Halecium tenellum* Hincks, reptant colonies; B, *Hydrodendron mirabile* (Hinks). Scale equals 300 µ.

Hydrodendron mirabile (Hincks, 1866) (fig. 10B)

Ophiodes mirabilis HINCKS, 1866b: 422-423, pl. 14, figs. 1-2.
Ophiodes mirabilis — HINCKS, 1868: 231-233, pl. 45, fig. 2.
Ophiodes caciniformis RITCHIE, 1907: 500-501, pl. 23, figs. 11-12, pl. 24, fig. 1, pl. 25, fig. 5.
Ophiodissa mirabilis — STECHOW, 1919: 42.
Hydrodendron caciniformis — MILLARD, 1957: 186, fig. 3.
Hydrodendron caciniformis — RALPH, 1958: 342-344, figs. 13b-c, 14a.
Ophiodissa caciniformis — VERVOORT, 1959: 218-221, figs. 1-2.
Ophiodissa mirabilis — CORNELIUS, 1975b: 414-417, fig. 14.
Hydrodendron caciniformis — MILLARD, 1975b: 158-160, fig. 51.

Material: P-35 (Guinea Bissau), 18 colonies 5-8 mm high, sterile.

Measurements (in microns):

	present material Guinea Bissau	Atlantide (Vervoort, 1959)
length of internode	380 - 420	350 - 575
diameter of internode	105 - 130	140 - 150
length of hydrophore	120 - 200	230 - 260
length of hydrotheca (diaphragm-margin)	60 - 75	70 - 110
diameter of hydrotheca at margin	150 - 175	
length of nematotheca	80 - 110	130
diameter of nematotheca	45 - 70	90

Notes: The present material is in agreement with that recorded by VERVOORT (1959) from off Guinea (Atlantide Expedition); it is also monosiphonic, differing in this respect from the South African material recorded by MILLARD (1975) which from both description and drawings appears to have been slightly polysiphonic. In addition both the Atlantide and the present material appear to be richer in nematothecae than the South African material described by

MILLARD. We have followed CORNELIUS (1975) in synonymizing *Ophiodes caciniformis* Ritchie, 1907, and *Ophiodes mirabilis* Hincks, 1866. Also we have placed this species in *Hydrodendron* Hincks, 1874, following in this respect REES & VERVOORT (1987: 19-23).

Distribution: Recorded from a number of tropical and temperate Atlantic localities (British Isles, Roscoff, NW France, Cape Verde Islands, South Atlantic, South Africa, West Indies, etc., CORNELIUS 1975) as well as from the New Zealand area (RALPH, 1958). From the Atlantic coast of Africa the species has previously been recorded by VERVOORT (1959: Guinea and Guinea Bissau) and MILLARD (1975: False Bay and the coast of Transkei). The present record fits into the general pattern of the geographical distribution of this species. It mostly occurs in the littoral zone down to a depth of 65 m.

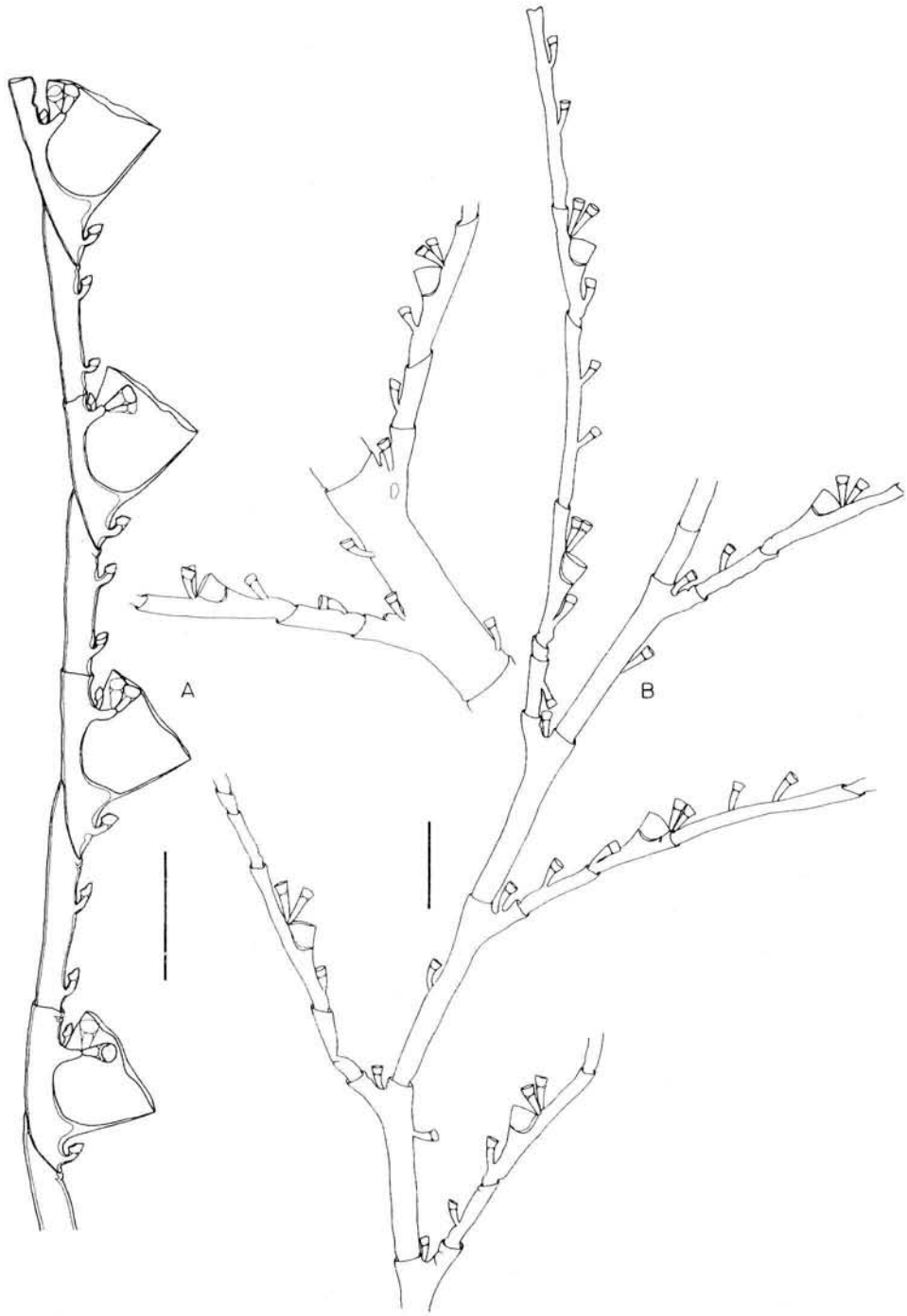

FIG. 11. — A, *Antennella secundaria* (Gmelin), part of stem; B, *Nemertesia ciliata* Bale, Bale, of stem. Scale equals 300 µ.

FAMILY HALOPTERIDAE Millard, 1962

Antennella secundaria (Gmelin, 1791) (fig. 11A)

Antennella secundaria — BEDOT, 1917a: 124.
Antennella secundaria — LELOUP, 1935: 53-54.
Antennella secundaria — VERVOORT, 1967: 42-45, fig. 12.
Antenella secundaria — PATRITI, 1970: 57, fig. 81.
Antennella secundaria — MILLARD, 1975: 332-334, fig. 107F-L.

Material: P-101 (Guinea Bissau); 12 colonies 10 mm high on *Diphasia margareta,* sterile.

P-177 (Guinea Bissau); 47 colonies 8-10 mm high on worm-tubes, sterile.

P-214 (Guinea Bissau); 10 colonies 10 mm high on *Nemertesia ramosa,* sterile.

Measurements:

length of athecate internode	480 - 560
length of thecate internode	400 - 450
diameter of internode	55 - 70
length of hydrotheca	210 - 240
diameter of hydrotheca at margin	280 - 300
length of lateral nematotheca	60 - 80
diameter of lateral nematotheca	25 - 40

Notes: The present material has been compared with MILLARD'S (1975) description of South African material, with which it is in good agreement, with the exception of the length of the internodes, which is usually bigger in the present material. The reduced nematotheca in the axil of adcauline hydrothecal wall and axis is quite distinct. The material exhibits the same degree of variability also mentioned by MILLARD (1975: 332): some of the colonies are more or less of the *Monostaechas*-type, though at close inspection the structure of the resulting axis is different.

Distribution: Cosmopolitan species with distinct preference for warmer localities. Along the Atlantic coast of Africa it has so far been recorded from various Moroccan localities (BILLARD, 1906; PATRITI, 1970). South African records are listed by STECHOW (1925: Cape Agulhas; Francis Bay) and MILLARD (1975: Cape Agulhas on the south coast to Moçambique). The present records are all from Guinea Bissau and fit the general pattern of distribution. The species occurs in the littoral zone down to a depth of at least 440 m.

Halopteris catharina (Johnston, 1833) (fig. 12)

Plumularia Catharina — HINCKS, 1868: 299-302, fig. 35, pl. 66 fig. 2.
Plumularia Catharina — BROCH, 1918: 56-58, figs. 25-26.
Schizotricha catharina — STECHOW, 1925: 497-498.
Antennella catharina — VERVOORT, 1946a: 174-175, figs. 69b, 72.
Halopteris catharina — VERVOORT, 1972: 236-237.

Material: 260983 (Namibia); 22 colonies 15-20 mm high, sterile.

Measurements (in microns):

length of cauline thecate internode	350 - 400
length of cauline athecate internode	940 - 1000
diameter of cauline internode	95 - 105
length of hydrocladial thecate internode	360 - 400
length of hydrocladial athecate internode	440 - 520
diameter of hydrocladial internode	60 - 85
length of free part adcauline hydrothecal wall	150 - 170
length of hydrotheca	190 - 225
diameter of hydrotheca	225 - 260
length of lateral nematotheca	80 - 95

Notes: The specimens agree with individuals from boreal waters with which they have been compared (cf. VERVOORT, 1946a). The hydrocladia are opposite in all colonies; the hydrothecae are flanked by two pairs of lateral nematothecae: a large pair on conspicuous apophyses and a second, much smaller pair placed at the base of the apophyses, that may easily be mistaken for a single reduced axial nematotheca.

Distribution: The species is widely distributed in the temperate and southern boreal Atlantic, occurring on both the American and the European sides: it also occurs in the southern Atlantic (STECHOW, 1925; VERVOORT, 1972); depth range between c. 10 and 413 m. The present record extends its distribution to the African west coast (Lüderitz Bay area, depth 200 m).

FAMILY PLUMULARIIDAE Hincks, 1868

Nemertesia ciliata Bale, 1914 (fig. 11B)

Nemertesia ciliata — BALE, 1914: 170, pl. 36, fig. 1
Nemertesia ciliata — BRIGGS, 1915: 307, pl. 10, fig. 3.
Nemertesia ciliata — BEDOT, 1917b: 43.
Nemertesia ciliata — JÄDERHOLM, 1919: 23-24.
Nemertesia ciliata — MILLARD, 1962: 297, fig. 7E-G.
Nemertesia ciliata — MILLARD, 1975: 383-384, fig. 121F-K.

Material: P-72 (Benguela VI); 2 colonies 200-280 mm high.

P-73 (Benguela VI); 2 colonies 150 mm high.

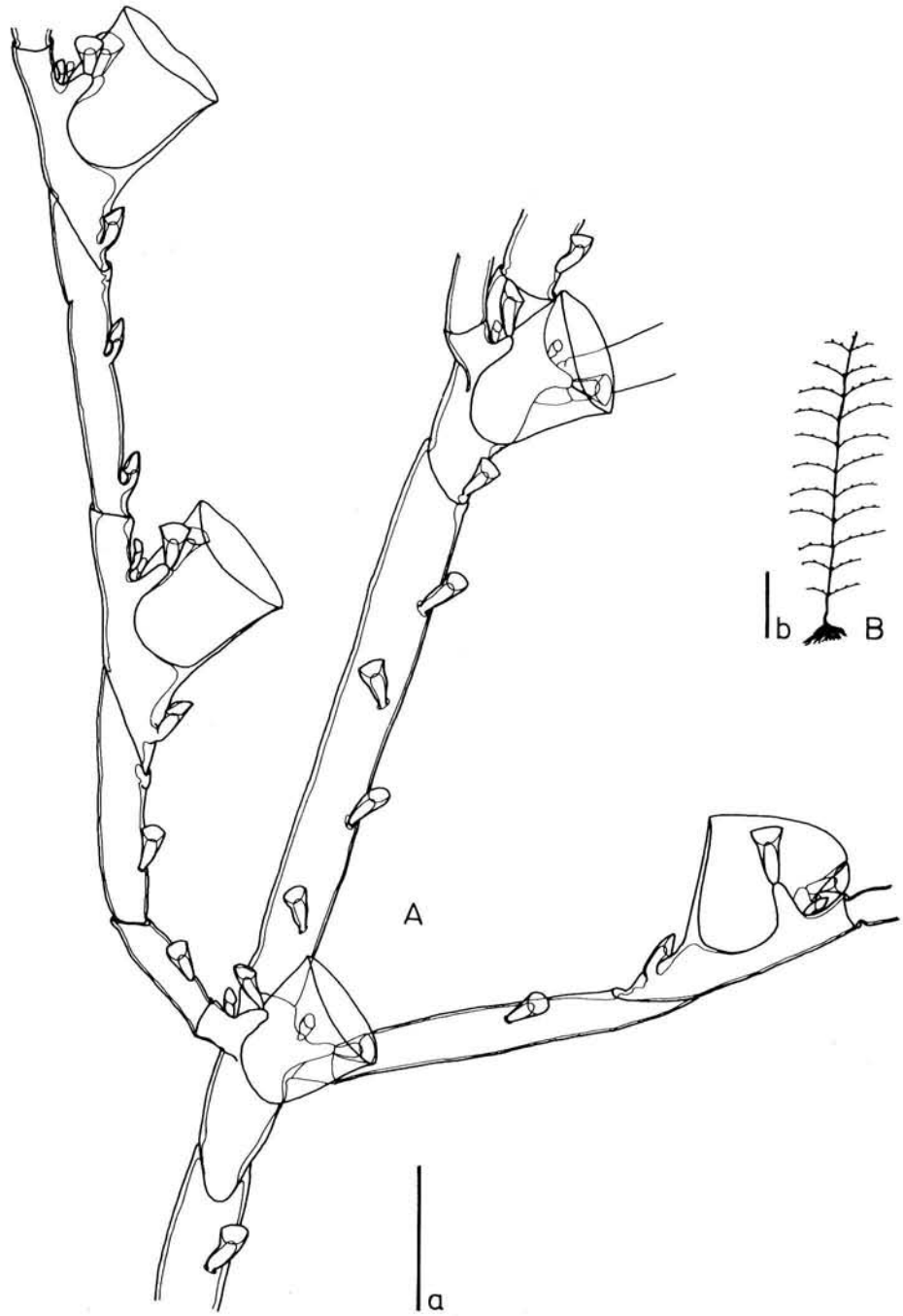

Fig. 12. — *Halopteris catharina* (Johnston). A, part of stem; B, stem. Scale a equals 300 μ; scale b equals 1 cm.

P-76 (Benguela VI); 1 colony 150 mm high.

P-36 (Benguela VII); 2 colonies 220 mm high, with gonothecae.

P-38 (Benguela VII); 1 colony 250 mm high.

P-29 (Benguela VIII); 1 colony 150 mm high, with gonothecae.

P-32 (Benguela VIII); 2 colonies 150-200 mm high, with gonothecae.

Measurements (in microns):

length of athecate internode	200 - 250
length of thecate internode	360 - 410
diameter of internode	50 - 80
length of hydrotheca	45 - 60
diameter of hydrotheca	60 - 80
length of lateral nematotheca	70 - 90

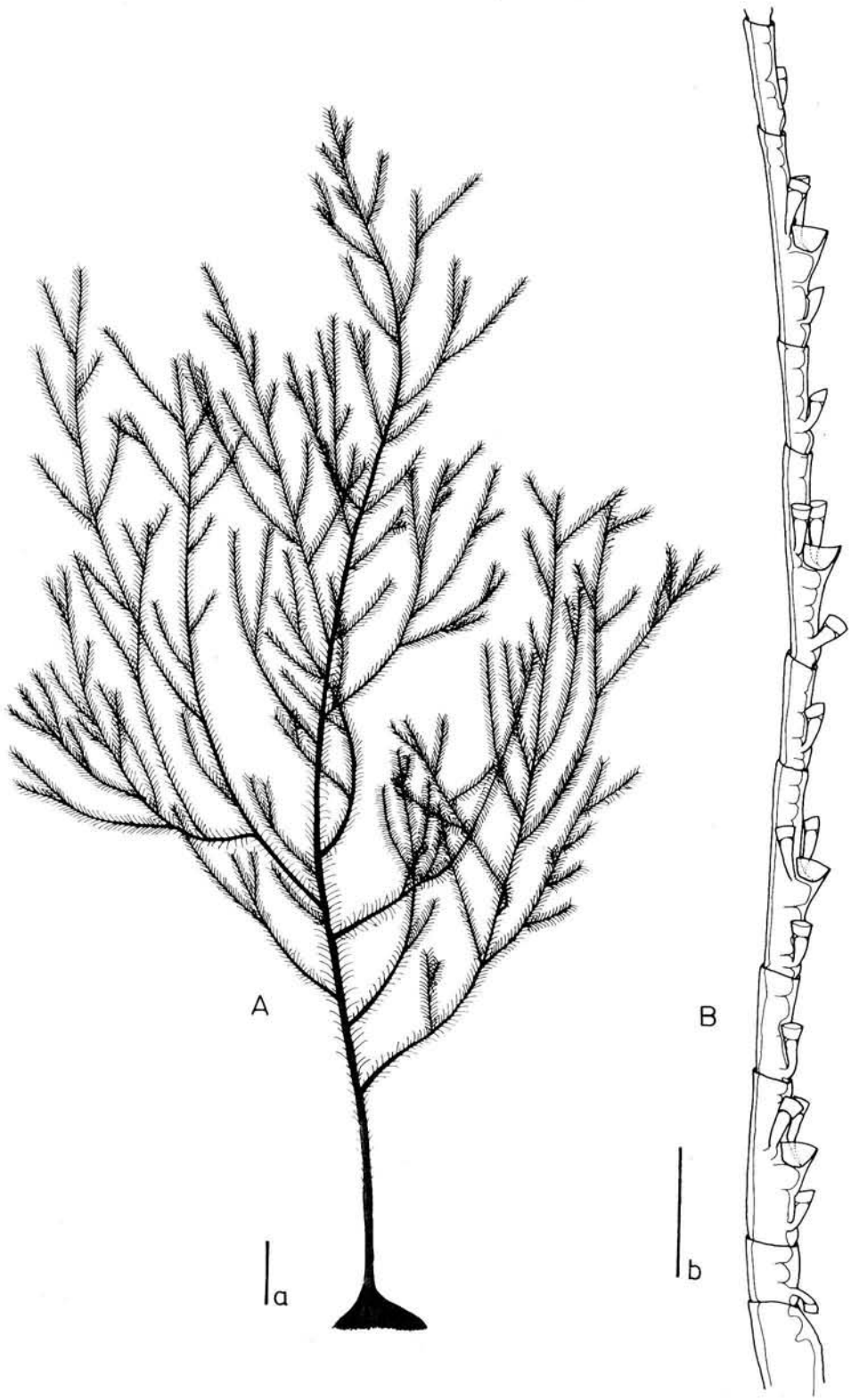

FIG. 13. — A, *Nemertesia perrieri* (Billard). A, Stem; B, part of hydrocladium. Scale a equals 1 cm; scale b equals 300 µ.

Notes: For a description of this species we particularly refer to MILLARD (1962: 1975), with which the present material is in full agreement. Some of the present colonies are larger than those mentioned by MILLARD (maximal height 245 mm), while the internodial septa generally are better developed and consequently better visible in the Benguela material. There is also agreement in the shape of the gonothecae.

Distribution: This species has its main distribution in Indo-Pacific waters (Tasmania, Japan, MILLARD, 1975), but has also been described from various localities along the South African west coast, ranging from 26 degrees South (the Lüderitz Bay area) to off Port Elizabeth, depth 11-392 m. The present material originates from the Lüderitz Bay area, collected at depths varying between 200 and 450 m.

Nemertesia perrieri (Billard, 1910) (fig. 13)

Antennularia perrieri — BILLARD, 1901: 73-75.
Nemertesia perrieri — BEDOT, 1917b: 45.
Nemertesia perrieri — VERVOORT, 1946b: 327.
Nemertesia perrieri — VERVOORT, 1959: 292-293, fig. 46a.
Nemertesia perrieri — VERVOORT, 1966: 138-139, fig. 40

Material P-147 (Guinea Bissau); 6 colonies 10-20 mm high, sterile, on *Cryptolaria pectinata*.

P-214 (Guinea Bissau); 3 colonies 30 mm high, sterile.

Measurements (in microns):

length of stem internode	600 - 680
diameter of stem internode	140 - 160
lengths of athecate hydrocladial internode	175 - 410
length of thecate hydrocladial internode	200 - 250
diameter of hydrocladial internode	35 - 50
length of hydrotheca	50 - 70
diameter of hydrotheca at margin	60 - 80
length of lateral nematotheca	70 - 90

Notes: The principal difference of the present material with VERVOORT'S (1959) description of Atlantide material is in the length of the hydrocladial internodes, that here are longer. As the overall lengths of the colonies are much inferior to those of Vervoort's material (70 mm high), the present specimens may very well be much younger, as is also borne out by the absence of gonothecae.

Distribution: So far recorded from Cadiz (BILLARD, 1906), Cape Blanco (VERVOORT, 1946b), some additional Moroccan localities (Agadir, Rabat, Casablanca, PATRITI, 1970), off Senegal (VERVOORT, 1959), and the Canary Islands (BILLARD, 1906). The present records are from Guinea Bissau: the depth range is from 140 to 250 m.

Nemertesia ramosa Lamouroux, 1816 (fig. 14)

Nemertesia ramosa — BILLARD, 1913: 58-60, fig. 49.
Nemertesia ramosa — BROCH, 1933: 38-40, fig. 14.
Nemertesia ramosa — KRAMP, 1935: 166-167, figs. 67a, 68b.
Nemertesia ramosa — LELOUP, 1937a: 109-110, 116, fig. 12.
Nemertesia ramosa — VERVOORT, 1966: 139-140, fig. 41.
Nemertesia ramosa — VERVOORT, 1972: 234-236, fig. 33.
Nemertesia ramosa — MILLARD, 1975: 386-388, fig. 122D-H.
Nemertesia ramosa — REES & VERVOORT, 1987: 133-135, fig. 28a-b.

Material: P-101 (Guinea Bissau); 16 colonies 150 mm high, sterile.

P-102 (Guinea Bissau); 12 colonies 250 mm high, sterile.

P-123 (Guinea Bissau); 2 colonies 20-50 mm high, sterile.

P-147 (Guinea Bissau); 9 colonies 30-50 mm high, sterile.

P-177 (Guinea Bissau); 4 colonies 30-80 mm high, with gonothecae.

P-205 (Guinea Bissau); 5 colonies 150-200 mm high, with gonothecae.

P-213 (Guinea Bissau); 1 colony 100 mm high, sterile.

P-214 (Guinea Bissau); 99 colonies 100-250 mm high, with gonothecae.

Measurements (in microns):

diameter of stem at base	370 - 400
distance between whorls of hydrocladia	270 - 300
length of (thecate) internode	250 - 310
diameter of internode	65 - 110
length of hydrotheca	60 - 70
diameter of hydrotheca at margin	55 - 70
length lateral nematotheca	80 - 110
length of gonotheca	570 - 720

Notes: This very well known species needs no further comment. The distribution being cosmopolitan its presence in large numbers in the present material is not surprizing. From the Moroccan area it has previously been recorded by PATRITI [1970: Agadir, Cap Blanc (Cape Blanco)]; MILLARD lists localities from off Table Bay and from the south coast, occurring also along the east coast as far north as Moçambique, depths 11-700 m. The present records are all from

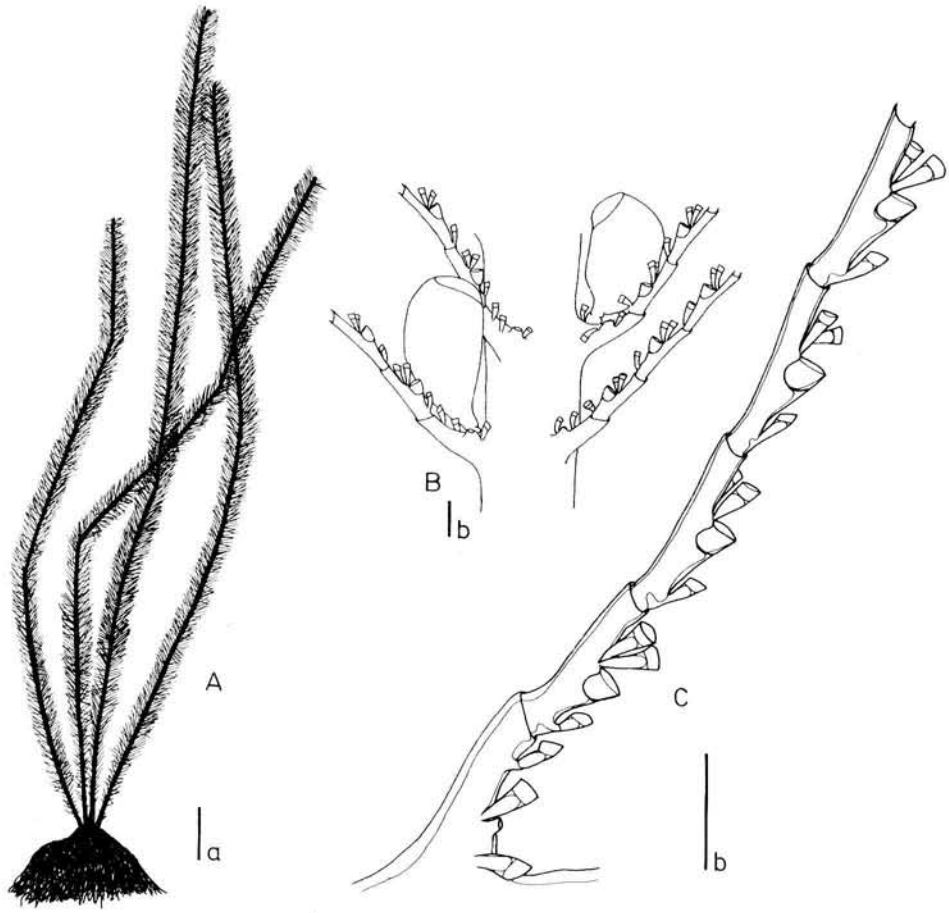

FIG. 14. — *Nemertesia ramosa* Lamouroux. A, stem; B, part of stem with gonothecae; C, part of hydrocladium. Scale a equals 1 cm; scale b equals 300 μ.

Guinea Bissau, ranging in depth between 150 and 450 m.

Nemertesia ramosa var. ***plumularioides*** (Billard, 1906) (fig. 15)

Antennularia ramosa var. *plumularioides* — BILLARD, 1906: 215-216.
Nemertesia ramosa var. *plumularioides* — BEDOT, 1917b: 46.
Nemertesia ramosa var. *plumularioides* — VERVOORT, 1959: 293-297, figs. 46b, 47.
Nemertesia ramosa var. *plumularioides* — PATRITI, 1970; 45, fig. 61.

Material: P-147 (Guinea Bissau); 2 colonies 20 mm high, sterile.

P-214 (Guinea Bissau); 1 colony 10 mm high, sterile.

260983 (Namibia); 2 colonies 30 mm high, sterile.

Measurements (in microns):

length of stem internode	1800 - 2000
diameter of stem internode	290 - 420
length of hydrocladial internode ..	720 - 770
diameter of hydrocladial internode.	80 - 95
length of hydrotheca	90 - 100
diameter of hydrotheca at margin ..	95 - 110
length of lateral nematotheca	80 - 110

Notes: The identification of the present material is based on comparison with VERVOORT'S (1959) description of Atlantide material from Côte d'Ivoire, Guinea and Gambia, with which it is in complete agreement, the exact shape of the hydrothecal margin excepted, as some specimens in the Atlantide material have a very oblique hydrothecal margin (cf. VERVOORT, 1959, fig. 47). The overall length of the (thecate) internodes in the present material is longer than that observed in the Atlantide material.

Distribution: The variety was originally based on specimens from south of the Gulf of Cadiz (BILLARD, 1906, 60 m depth). The Atlantide records referred to above established its presence off Côte d'Ivoire, Ghana, Guinea, and Gambia, depth range 18-65 m. From the Moroccan coast (Agadir) it has

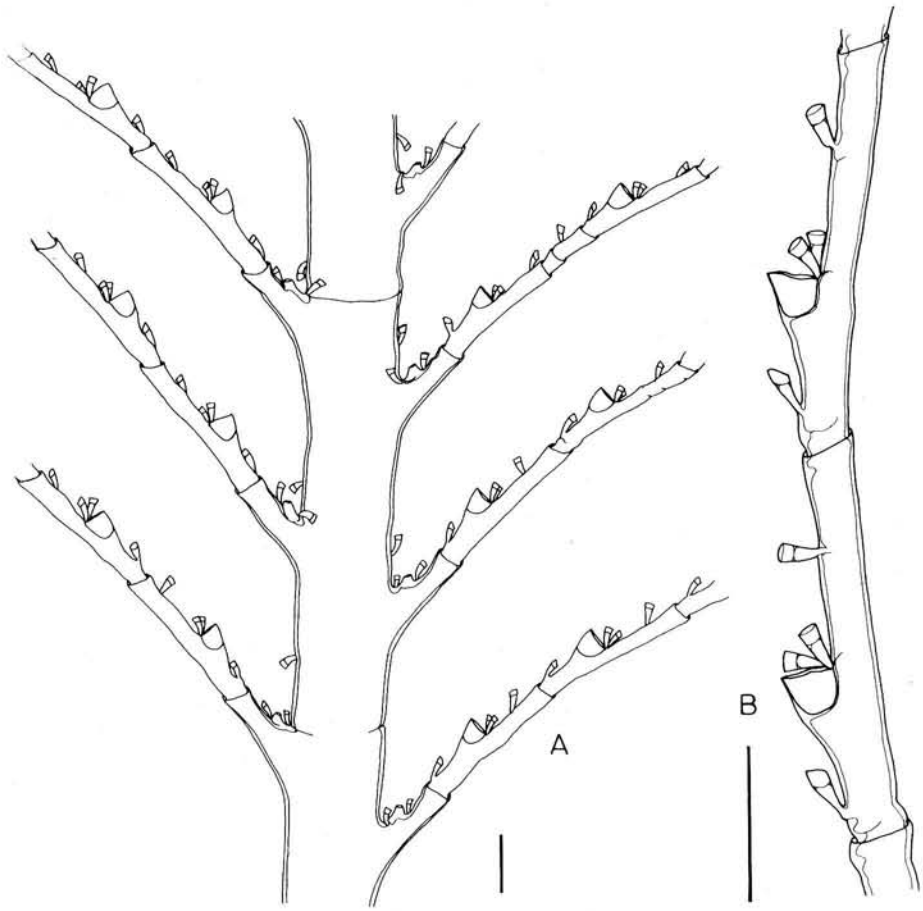

FIG. 15. — *Nemertesia ramosa* var. *plumularioides* (Billard). A, part of stem; B, part of hydrocladium. Scale equals 300 μ.

been recorded by PATRITI (1970). One of the present records extends its distribution along the African west coast to the Walvis Bay area (260983); the other records are from Guinea Bissau. The depth range is from 150 to 250 m.

Plumularia lagenifera Allman, 1886 (fig. 16)

Plumularia lagenifera ALLMAN, 1886: 157, pl. 26, figs. 1-3.
Plumularia lagenifera — BROCH, 1914: 26.
Plumularia lagenifera — MILLARD, 1975: 392-393, fig. 124A-D.
Plumularia lagenifera var. *septifera* — TORREY, 1902: 78, pl. 11, figs. 101-102.
Plumularia lagenifera var. *septifera* — RITCHIE, 1909: 87-89, fig. 7.

Material: P-6 (Benguela VIII); 78 colonies 10 mm high, with gonothecae.

P-34 (Benguela VIII); 35 colonies 10-15 mm high, with gonothecae, on *Eklonia maxima*.

Measurements (in microns):

length of stem internode	300 - 350
diameter of stem internode	215 - 240
length of athecate hydrocladial internode	95 - 110
length of thecate hydrocladial internode	360 - 410
length of hydrotheca	80 - 120
diameter of hydrotheca	105 - 130
length of lateral nematotheca ..	80 - 120
length of gonotheca	1100 - 1300

Notes: The species has been compared with MILLARD'S account: no differences having been observed. In our material it appears as a quite characteristic form, easily separated by the short internodes with heavy perisarc and very distinct septa; this material is too small, nevertheless, to study its variability. Therefore, we are unable to support MILLARD'S suggestion that it might be linked to *Plumularia setacea* (Linnaeus, 1758) by intermediate forms, though there is great comformity in the shape of the gonothecae, that are abundant in our material.

Distribution: According to MILLARD (1975) its geographical range along the West African coast extends as far south as Hermanus, being also present in

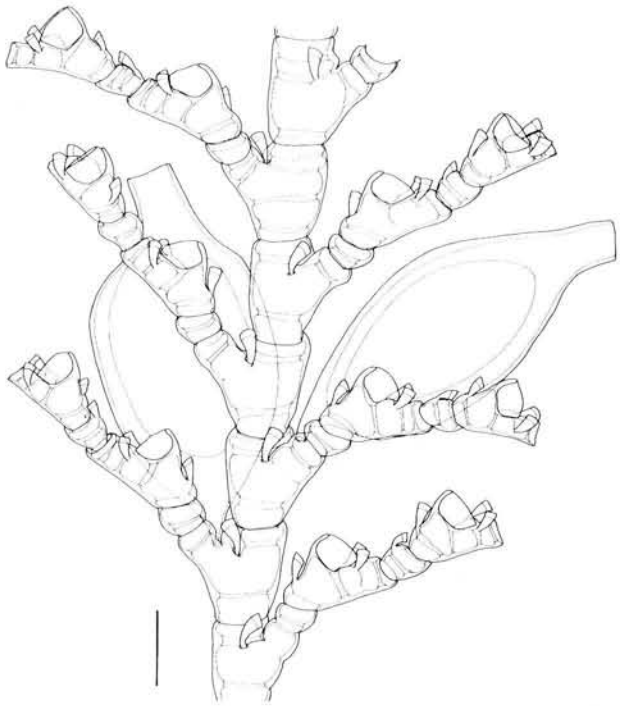

FIG. 16. — *Plumularia laginifera* Allman, part of stem with gonothecae. Scale equals 300 µ.

the Knysna Estuary, vertical range from the subsurface down to 51 m. The present records are from the Walvis Bay area, depth range 160 to 240 m.

Plumularia obliqua (Johnston, 1847) (fig. 17A)

Plumularia obliqua — HINCKS, 1868: 304-306, fig. 36, pl. 67, fig. 1.
Plumularia obliqua — BALE, 1884: 138-139, pl. 12, figs. 1-3.
Plumularia obliqua — BROCH, 1933: 31-35, figs. 10-11.
Monotheca obliqua — PATRITI, 1970: 58-59, fig. 83.
Plumularia obliqua — MILLARD & BOUILLON, 1974: 34-35, fig. 8A-D.
Plumularia obliqua — MILLARD, 1975: 396, fig. 125A-B.

Material: P-44 (Namibian coast); many colonies 5-10 mm high, with gonothecae.

P-47 (Namibian coast); 25 colonies 10 mm high, sterile.

P-48 (Namibian coast); many colonies 5-10 mm high, with gonothecae.

P-51 (Namibian coast); 2 colonies 10 mm high, sterile.

P-53 (Namibian coast); 2 colonies 10 mm high, sterile.

Measurements (in microns)

length of stem internode	350 - 380
diameter of stem internode	85 - 100
length of hydrocladial internode ..	210 - 240
diameter of hydrocladial internode ..	60 - 70
length of hydrotheca	85 - 100
diameter of hydrotheca at margin ..	130 - 170
length of lateral nematotheca	75 - 90
length of gonotheca	850 - 960

Notes: The general shape of the colony agrees with MILLARD'S account of this species. Differences are found in two aspects. First of all the abcauline hydrothecal wall is straight rather than curved (cf. MILLARD, 1975, fig. 125B). Secondly the number of nematothecae is much reduced in our material compared to the situation figured by MILLARD (1975, fig. 125A), particularly as far as the stem nematothecae are concerned. The unpaired, median nematotheca under the hydrotheca is only occasionally present in our material.

The gonothecae have so far not been reported from South Africa. In our material they are abundantly present, being large, sack-shaped structures with a slightly undulated wall and apically provided with a circular operculum.

Distribution: Widely distributed in the North Atlantic, in the Mediterranean, near Japan, also in temperate waters. From the African coasts it is recorded by PATRITI (1970: Temara near Rabat, Morocco); from South Africa it is recorded from Inhaca and Transkei (MILLARD, 1975); the present records are all from the north coast of Namibia in the littoral zone.

Plumularia setacea (Linnaeus, 1758) (fig. 17B)

Plumularia setacea — HINCKS, 1868: 296-299, fig. 34, pl. 66, fig. 1.
Plumularia setacea — BROCH, 1914: 25, pl. 1, fig. 1.
Plumularia setacea — KRAMP, 1935: 161-162, fig. 64c.
Plumularia setacea — VERVOORT, 1946b: 323-325, fig. 6.
Plumularia setacea var. *setacea* — RALPH, 1961: 33, figs. 3c, 4a, c-d.
Plumularia setacea — VERVOORT, 1966: 142-144, fig. 43.
Plumularia setacea — MILLARD, 1975: 399-401, fig. 124E-K.

Material: P-214 (Guinea Bissau); 2 colonies 5 mm high on *Polyplumaria flabellata*, sterile.

91203 (Namibia); 3 colonies 15 mm high, with gonothecae.

P-55 (Benguela VIII); 2 colonies 15 mm high on *Eklonia maxima*, sterile.

Measurements (in microns):

length of stem internode	160 - 225
diameter of stem internode	50 - 60
length of hydrocladial internode ..	225 - 250

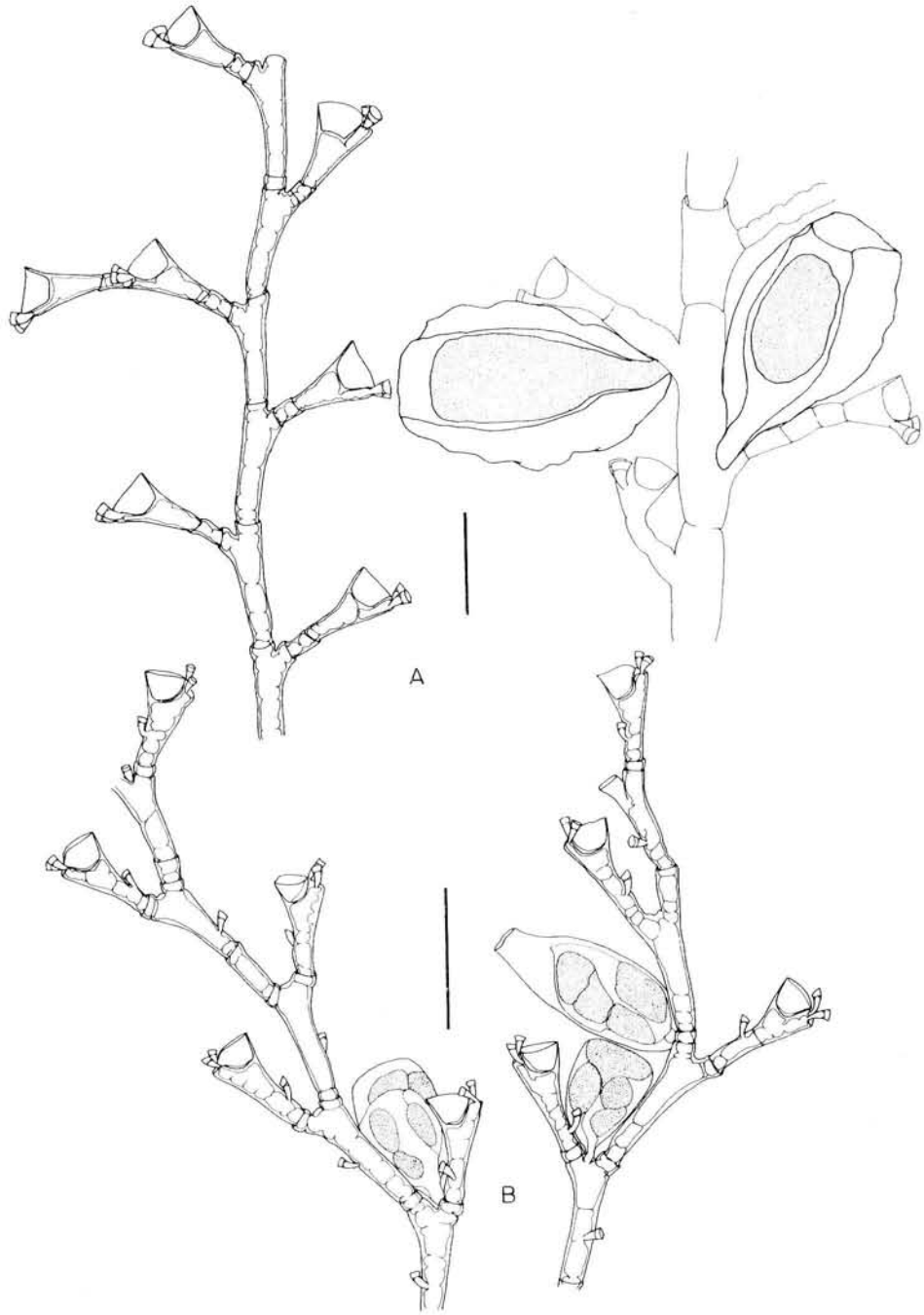

FIG. 17. — A, *Plumularia obliqua* (Johnston), parts of stem with and without gonothecae; B, *Plumularia setacea* (Linnaeus), parts of stem with gonothecae. Scale equals 300 µ.

diameter of hydrocladial internode . .	40 - 50
length of hydrotheca	50 - 60
diameter of hydrotheca at margin . .	80 - 90
length of lateral nematotheca	35 - 45
length of gonotheca	280 - 480

Notes: The material recorded above agrees with the epizootic form described and figured by MILLARD (1973: 27, fig. 3E-J; 1975: 400, fig. 124J-K). We want to draw attention to the fact that MILLARD'S *Hydrodendron gracilis* (1975: 164, fig. 53E-J) is very near that epizootic form, particularly in the shape of the gonothecae, that differ considerably from the types of gonothecae met with in the species of *Hydrodendron*.

Distribution: Cosmopolitan species, found all around the coasts of southern Africa (STECHOW, 1925; MILLARD, 1975), ranging from the littoral zone

down to at least 430 m depth. The present records, all relating to the epizootic form, are all from Guinea Bissau, depth range 150 - 364 m.

Plumularia cf. *warreni* Stechow, 1919 (fig. 18)

Plumularia warreni Stechow, 1919: 119-120.
Plumularia warreni — Pennycuik, 1959: 181-182, pl. 4.
Plumularia warreni — Mammen, 1967: 299-300, figs. 94-95.
Plumularia warreni — Millard, 1975: 404-405, fig. 126F-H.

Material: 90601 (Namibia); 8 colonies 10 mm high, sterile.

P-55 (Benguela VI); 40 colonies 10 mm high, sterile.

P-24 (Benguela VII); 8 colonies 10 mm high, sterile.

Measurements (in microns):

length of the stem internode	250 - 280
diameter of stem internode	140 - 160
length of athecate hydrocladial internode	95 - 120
length of thecate hydrocladial internode	250 - 300
diameter of hydrocladial internode	70 - 90
length of hydrotheca	95 - 110
diameter of hydrotheca at margin	95 - 110
length of lateral nematotheca	70 - 90

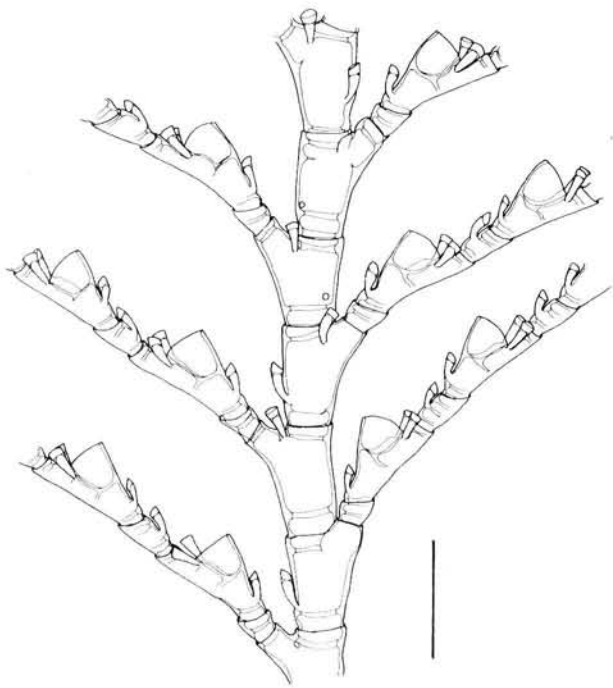

Fig. 18. — *Plumularia* cf. *warreni* Stechow, part of stem. Scale equals 300 µ.

Notes: Though the material agrees closely with Millard's account of the species (Millard, 1975), possitive identification is possible only in the presence of gonothecae, that are absent in our material. This is characterized by the presence of distinct septa in athecate and thecate hydrocladial internodes and by the thicker perisarc (if compared with Millard's drawings (1975, fig. 126F-H)).

Distribution: The species has so far been recorded from Queensland, Australia, from Madagascar, the Seychelles and southern India (Millard, 1975). From southern Africa is it principally known from the east coast (coast of Natal and Moçambique) with two records from the west coast of the Cape Peninsula (mainly littoral) (Millard, 1975). The present records are from the Namibian coast, Lüderitz to Port Nolloth, depth 200-300 m.

Polyplumaria flabellata G.O. Sars, 1874 (fig. 19)

Polyplumaria flabellata — G. O. Sars, 1874: 101-102, pl. 2, figs. 16-22.
Polyplumaria flabellata — Pictet & Bedot, 1900: 28-32, pl. 7, figs. 1-6.
Polyplumaria flabellata — Broch, 1918: 59-60, fig. 28.
Polyplumaria flabellata — Kramp, 1935: 162-163, fig. 66a.
Polyplumaria flabellata — Leloup, 1940: 22.
Polyplumaria flabellata — Kramp, 1943: 44.
Polyplumaria flabellata — Vervoort, 1966: 134-136, fig. 37.
Polyplumaria flabellata — Patriti, 1970: 56-57, fig. 80.
Polyplumaria pumila — Allman, 1883: 31, pl. 4, figs, 7-8.

Material: P-91 (Guinea Bissau); 3 colonies 100-140 mm high, sterile.

P-101 (Guinea Bissau); 5 colonies 120-180 mm high, sterile.

P-114 (Guinea Bissau); 2 colonies 80-200 mm high, sterile.

P-214 (Guinea Bissau); 4 colonies 100-150 mm high, sterile.

Measurements (in microns):

length of stem internode	1400 - 1680
diameter of stem internode	200 - 220
length of hydrocladial internode	700 - 760
diameter of hydrocladial internode	80 - 95
length of free part of adcauline wall of hydrotheca	110 - 125
length of abcauline wall of hydrotheca	200 - 230
diameter of hydrotheca at margin	190 - 220
length of lateral nematotheca	120 - 150

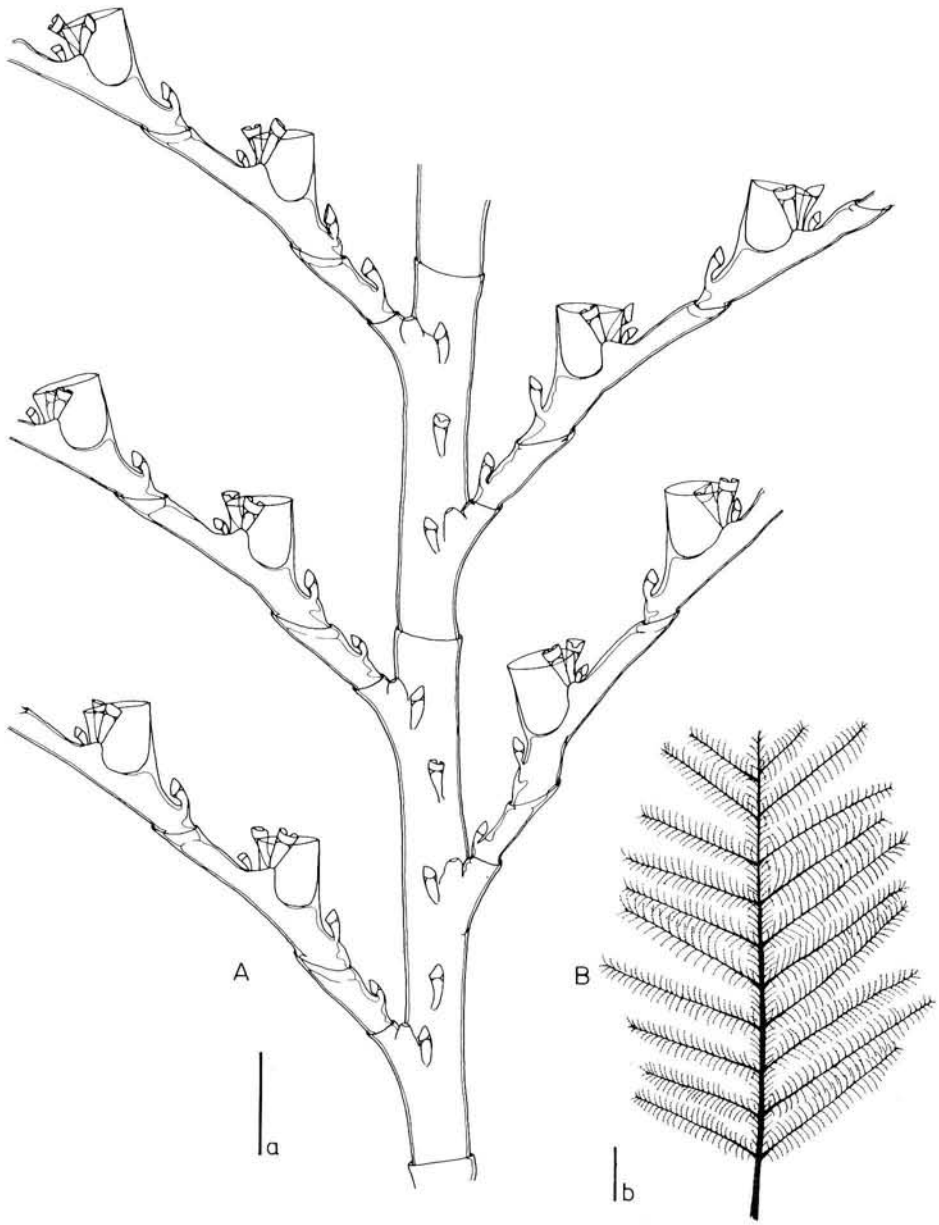

FIG. 19. — *Polyplumaria flabellata* G. O. Sars. A, part of stem; B, stem. Scale a equals 300 μ; scale b equals 1 cm.

Notes: The present material has been compared with descriptions of PICTET & BEDOT (1900) and VERVOORT (1966). It differs from PICTET & BEDOT'S description and drawings by the absence of secondary ramifications of the hydroclades, in which detail it agrees with the material described by VERVOORT (1966). As in ALLMAN'S (1883) "Challenger" material (described as *Polyplumaria pumila*) there are no nematothecae on the older parts of the main stem; these profusely occur on the side-branches, particularly the younger parts, and on the highest part of the stem.

Distribution: Northern and temperate Atlantic deep water species (VERVOORT, 1942). West African records so far include Cap Cantin, Morocco (PATRITI, 1970) and the Gulf of Guinea (VERVOORT, 1966: off Congo River, 291 m depth). The present records are from off Guinea Bissau, depth 47 to 230 m.

FAMILY AGLAOPHENIIDAE Broch, 1918

Aglaophenia lophocarpa Allman, 1877 (fig. 20A)

Aglaophenia lophocarpa — ALLMAN, 1877: 41, pl. 24, figs. 1-4.
Aglaophenia lophocarpa — BEDOT, 1921: 43-45, pl. 6, figs. 45-47.
Aglaophenia lophocarpa — STECHOW, 1923b: 250-252.
Aglaophenia lophocarpa — SVOBODA, 1979: 82-86, figs. 12e, 13e, 15e, 16e.
Aglaophenia apocarpa — ALLMAN, 1877: 41-42, pl. 24, figs. 5-9.

Material: P-147 (Guinea Bissau); 10 colonies 70-80 mm high, sterile.

P-177 (Guinea Bissau); 12 colonies 60-80 mm high, with corbulae.

P-205 (Guinea Bissau); 2 colonies 80 mm high, sterile.

Measurements (in microns):

length of stem internode	500 - 1100
diameter of stem internode	450 - 650
length of hydrocladial internode	550 - 580

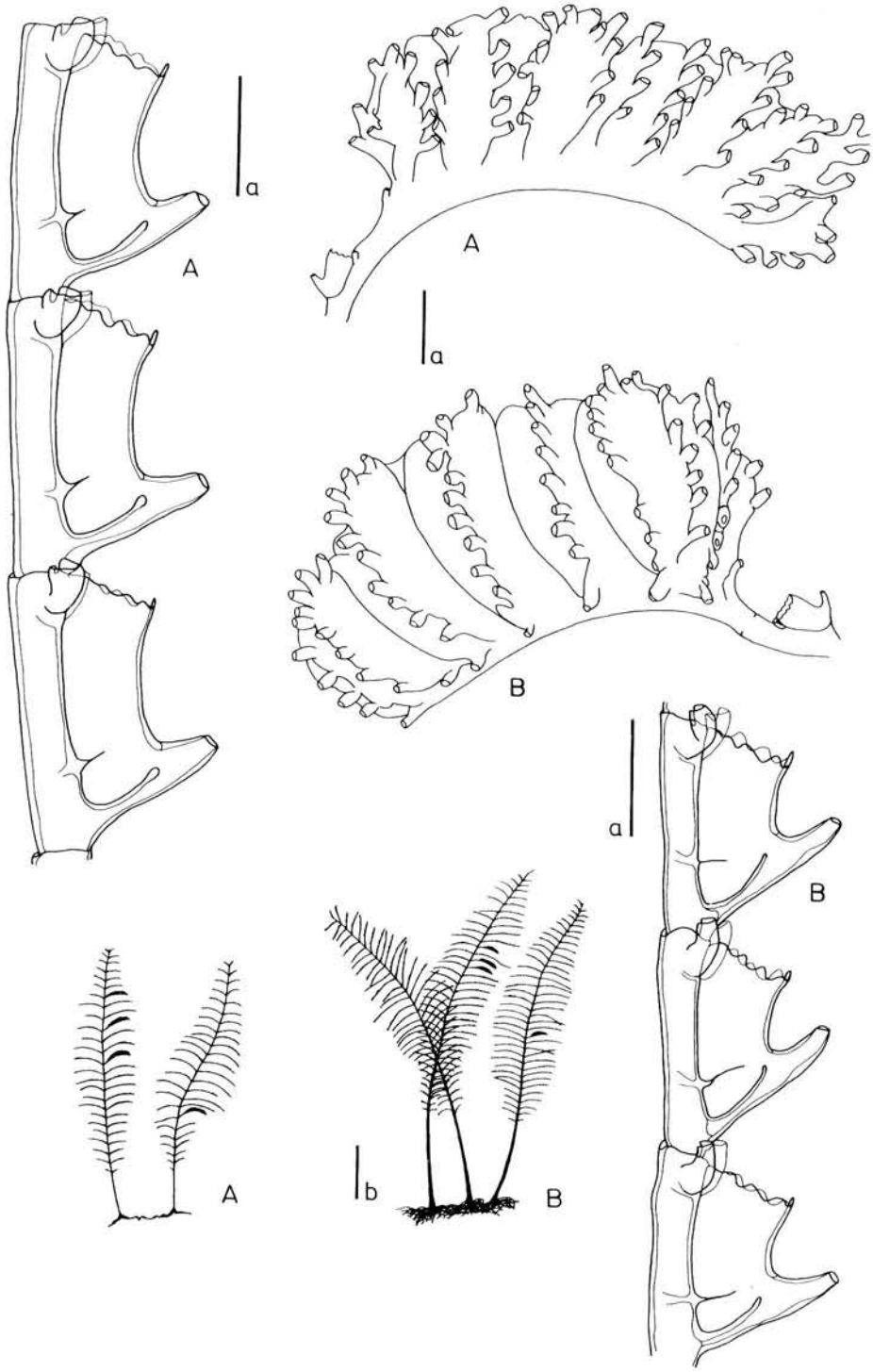

FIG. 20. — A, *Aglaophenia lophocarpa* Allman, stem, part of hydrocladium and corbula; B, *Aglaophenia tubulifera* (Hincks), stem, part of hydrocladium and corbula. Scale a equals 300 μ; scale b equals 1 cm.

diameter of hydrotheca	180 - 195
length of hydrotheca	480 - 500
length of frontal nematotheca ..	240 - 250
length of axis of corbula	2300 - 2500

Notes: The material is in complete agreement with SVOBODA'S (1979) lengthy description and notes on this species, Furthermore, it has been checked by Dr. Svoboda and found to by identical with the material described in his 1979 monograph. It is completely free of zooxanthellae.

Distribution: The area of distribution includes the Caribbean region (ALLMAN, 1877, 60-2000 m depth) and the Azores (BEDOT, 1921, 200-500 m). It has also been recorded from the Mediterranean (SVOBODA, 1979). So far there are no reliable records from the West African Coasts. The present material originates from Guinea Bissau, depth 250 - 440 m.

Aglaophenia parvula Bale, 1882 (fig. 21A)

Aglaophenia parvula BALE, 1882: 35-36, pl. 14, fig. 3.
Aglaophenia parvula — BALE, 1884: 165-166, pl. 14, fig. 3, pl. 17, fig. 10.
Aglaophenia parvula — STECHOW, 1925: 516.
Aglaophenia pluma var. *parvula* — MILLARD, 1957: 239-240, fig. 15D-F.
Aglaophenia pluma var. *parvula* — VERVOORT, 1959: 307-308, figs. 52a, 53b.
Aglaophenia pluma var. *parvula* — LELOUP, 1971: 4-6, fig. 2.
Aglaophenia pluma parvula — MILLARD, 1975: 413-415, fig. 129B, F.

Material: P-57 (Benguela VI); 1 colony 10 mm high, sterile.

FL-1 (Benguela VII); 40 colonies 100-150 mm high, with corbulae.

FL-2 (Benguela (VII); large number of colonies 150-200 mm high, with corbulae.

P-6 (Benguela VIII); 45 colonies 10-15 mm high, sterile.

P-30 (Benguela VIII); 2 colonies 10 mm high, sterile.

P-55 (Benguela VIII); 8 colonies 20 mm high, sterile.

P-2 (Namibian coast); 1 colony 20 mm high, with corbulae.

P-4 (Namibian coast); 2 colonies 10 mm high, sterile.

P-12 (Namibian coast); 1 colony 20 mm high, sterile.

P-14 (Namibian coast); 1 colony 20 mm high, sterile.

P-44 (Namibian coast); 1 colony 10 mm high, sterile.

P-51 (Namibian coast); 1 colony 10 mm high, sterile.

P-78 (Namibian coast); 1 colony 15 mm high, with corbulae.

P-82 (Namibian coast); 4 colonies 10-15 mm high, sterile.

P-92 (Namibian coast); 8 colonies 15 mm high, sterile.

P-99 (Namibian coast); 1 colony 10 mm high, sterile.

P-101 (Namibian coast); 2 colonies 15 mm high, with corbulae.

P-102 (Namibian coast); 2 colonies 15 mm high, with corbulae.

P-106 (Namibian coast), 1 colony 10 mm high, sterile.

Measurements (in microns):

length of stem internode	250 - 300
diameter of stem internode	180 - 230
length of hydrocladial internode	260 - 290
length of hydrotheca	240 - 270
diameter of hydrotheca at margin	150 - 170
length of frontal nematotheca ..	240 - 250
length of axis of corbula	1200 - 1350

Notes: African material of this primarily Australian species has been described by VERVOORT (1959) and MILLARD (1975), the present copious material tallies with those descriptions, particularly in the shape of the hydrothecae. MILLARD (1975), who considered this species to be a subspecies of *Aglaophenia pluma,* does not specifically mention corbulae from South Africa, though they must undoubtedly have been present considering the extent of its distribution in South African waters.

Distribution: Previously recorded from Australian (BALE, 1882, 1884) and Atlantic localities: the Moroccan coast (PATRITI, 1970, Casablanca) and Guinea Bissau (VERVOORT, 1959). MILLARD'S (1975) remark that the (sub)species is very common in the littoral region and in shallow waters all round the coasts of South-West Africa can now be amply supplemented by pointing to its wide distribution in Namibian coastal waters as is apparent from the present records. There are also records available now from deeper water off the Namibian coast (between Walvis Bay and Lüderitz Bay, 200 - 350 m depth).

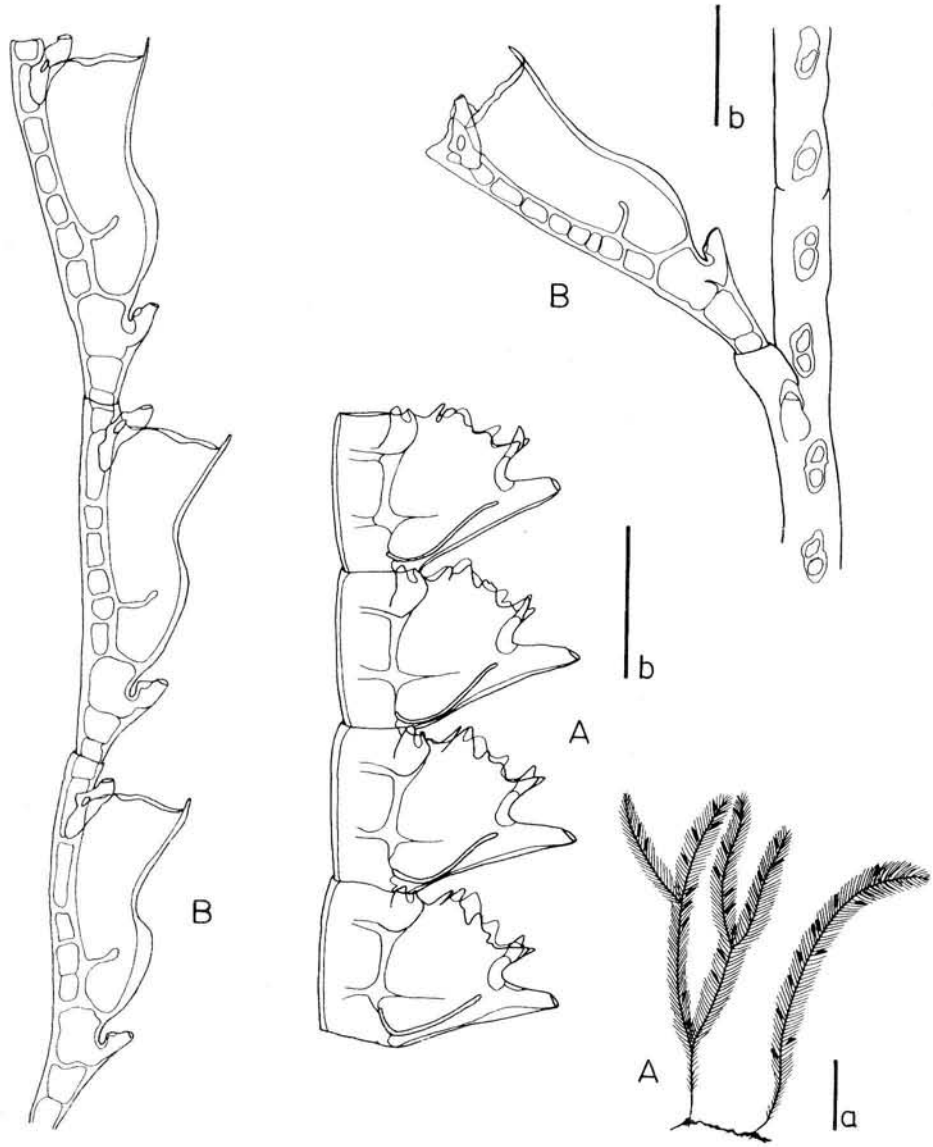

FIG. 21. — A, *Agalophenia parvula* Bale, stem and part of hydrocladium; B, *Cladocarpus* cf. *sinuosus* Vervoort, part of stem and part of hydrocladium. Scale a equals 1 cm; scale b equals 300 μ.

Aglaophenia tubulifera (Hincks, 1861) (fig. 20B)

Plumularia tubulifera HINCKS, 1861: 256, pl. 7, figs. 1-2.
Aglaophenia tubulifera — HINCKS, 1868: 288-289, pl. 73, fig. 2.
Aglaophenia tubulifera — STECHOW, 1923b: 249-250.
Aglaophenia tubulifera — PATRITI, 1970: 50, fig. 69.
Aglaophenia tubulifera — SVOBODA, 1979: 86-87, figs. 12f, 13f, 15f, 16f.

Material: P-123 (Guinea Bissau); 2 colonies 40 mm high, sterile.

P-147 (Guinea Bissau); 42 colonies 40-70 mm high, with corbulae.

P-177 (Guinea Bissau); 12 colonies 80-150 mm high, sterile.

P-205 (Guinea Bissau); 8 colonies 80-140 mm high, with corbulae.

P-213 (Guinea Bissau); 12 colonies 30-50 mm high, sterile.

Measurements (in microns):

length of stem internode	400 - 650
diameter of stem internode	300 - 380
length of hydrocladial internode	400 - 480
length of hydrotheca	500 - 530
diameter of hydrotheca at margin	165 - 180
length of frontal nematotheca	460 - 500
length of axis of corbula	1900 - 2100

Notes: The species has been compared with descriptions by HINCKS (1868) and SVOBODA (1979),

furthermore the material has been cheked by Dr Svoboda and the identification confirmed. Though it is quite variable in the length of the free part of the median (frontal) nematothecae it can, in our opinion, be readily separated from the equally variable *Aglaophenia pluma* by a number of characteristics, particularly relating to the hydrotheca. The variability of the free portion of the frontal nematotheca is also clearly demonstrated in our material, where usually the basal hydrotheca of the hydrocladia has a fairly short free portion, gradually increasing in length along the length of the hydrocladium. The (female) corbula has 1-3 free proximal ribs.

Distribution: This Atlantic species is known from the British Isles, the Channel coasts, Azores and the Cape Verde Islands; there is also one record from the Mediterranean (SVOBODA, 1979: Alboran Island). As far as the African west coast is concerned the species has been recorded from various localities along the Moroccan coast (PATRITI, 1970); MILLARD (1975) lists this species amongst the doubtful South African species, drawing in doubt BUSK'S 1851 record cited by HINCKS (1868), and also KIRCHENPAUER'S (1872) citation. Bearing in mind the plentiful occurrence in the waters off Guinea Bissau its distribution might very well extend to South African waters. All Guinea Bissau records are from between 130 and 340 m.

Cladocarpus cf. *sinuosus* Vervoort, 1966 (fig. 21B)

Cladocarpus sinuosus VERVOORT, 1966: 155-158, figs. 55-57.
Cladocarpus sinuosus — MILLARD, 1975: 428-429, fig. 132E-H.

Material: P-101 (Guinea Bissau); 1 colony 120 mm high, sterile.

Measurements (in microns):

length of hydrocladial internode ..	560 - 600
length of hydrotheca	350 - 370
diameter of hydrotheca at margin ..	160 - 170
length of frontal nematotheca	95 - 100
diameter of frontal nematotheca ..	25 - 30

Notes: This species has doubtfully been referred to *Cladocarpus sinuosus* for the following reasons:

1. The specimen is sterile, so that characters of the phylactocarp can not be compared.

2. In the Guinea Bissau specimen the curvature of the abcauline wall of the hydrotheca is decidedly less deep than that in the Galathea specimen collected off Durban.

3. In the Guinea Bissau specimen the hydrocladial internodes have at least seven distinct septa, while in the Galathea material there were indications of only 4 septa.

MILLARD (1975), who could dispose of a larger material of this rare species, noted variability in a number of characters, amongst which are the curvature of the abcauline hydrothecal wall and the number of septa in the hydrocladial internode.

Distribution: Originally recorded from off Durban, 495 m depth. Millard considers the species to be endemic to South Africa adding some localities from the Agulhas Bank, 183-500 m depth. The present colony was collected off Guinea Bissau, 220 m depth.

Lytocarpia myriophyllum myriophyllum (Linnaeus, 1758) (fig. 22)

Sertularia myriophyllum LINNAEUS, 1758: 810.
Aglaophenia myriophyllum — HINCKS, 1868: 290-292, pl. 64, fig. 2.
Lytocarpia myriophyllum — STECHOW, 1920: 44.
Thecocarpus myriophyllum var. *typica* — BILLARD, 1922b: 343-346, fig. 1A.
Lytocarpia myriophyllum — STECHOW, 1925; 513.
Thecocarpus myriophyllum — BROCH, 1933: 42-44, fig. 16.
Thecocarpus myriophyllum — LELOUP, 1937b: 5, 52-53, fig. 37.
Thecocarpus myriophyllum — VERVOORT, 1946a: 187-189, fig. 79b.
Thecocarpus myriophyllum var. *typica* — VERVOORT, 1959: 305-306, fig. 51a.

Material: P-35 (Guinea Bissau); 1 colony 100 mm high, sterile.

P-41 (Guinea Bissau); 1 colony 300 mm high, sterile.

P-47 (Guinea Bissau); 1 colony 100 mm high, sterile.

P-57 (Guinea Bissau); 3 colonies 200-260 mm high, sterile.

P-77 (Guinea Bissau); 3 colonies 350-500 mm high, with corbulae.

P-83 (Guinea Bissau); 2 colonies 100-300 mm high, sterile.

P-95 (Guinea Bissau); 1 colony 400 mm high, with corbulae.

P-96 (Guinea Bissau); 13 colonies 300-450 mm high, with corbulae.

P-101 (Guinea Bissau); 2 colonies 300-350 mm high, sterile.

P-110 (Guinea Bissau); 1 colony 20 mm high, sterile.

P-114 (Guinea Bissau); 1 colony 150 mm high, sterile.

P-147 (Guinea Bissau); 1 colony 250 mm high, with corbulae sterile.

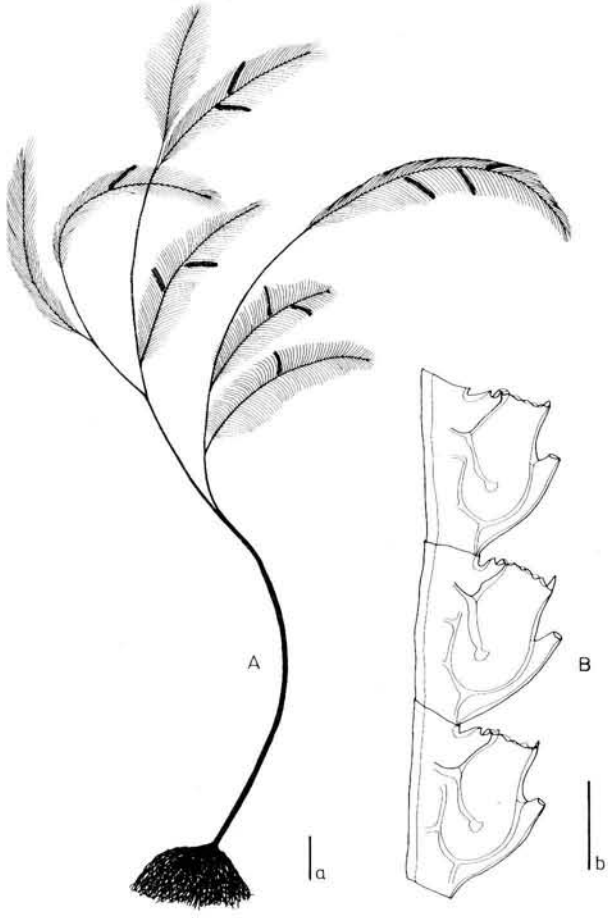

FIG. 22. — *Lytocarpia myrlophyllum myriophyllum* (Linnaeus). A, stem; B, part of hydrocladium. Scale a equals 1 cm; scale b equals 300 μ.

P-163 (Guinea Bissau); 1 colony 80 mm high, sterile.

P-167 (Guinea Bissau); 1 colony 200 mm high, sterile.

P-214 (Guinea Bissau); 33 colonies 80-220 mm high, with corbulae.

Measurements (in microns):

length of stem internodes	530 - 650
diameter of stem internodes	400 - 430
length of hydrocladial internodes	420 - 450
length of hydrotheca	380 - 430
diameter of hydrotheca at margin	290 - 320
length of frontal nematotheca	320 - 340
length of axis of corbula	1800 - 2400

Notes: All the Guinea Bissau material belongs to the nominate subspecies of this well-known species.

Distribution: Widely distributed Atlantic (and Indo-Pacific) species, though represented by different subspecies in the various distributional regions. The nominate subspecies is quite common on sandy bottoms in the temperate Atlantic, though apparently less so along the African West coasts. From this area it has been recorded by PATRITI (1970: Agadir, Casablanca, Rabat, Cap Spartel), by STECHOW (1925: Cape Bojador, Spanish Sahara, 146 m depth), and by VERVOORT (1959: off Senegal and off Sierra Leone, 65-108 m depth). The present records are all from off Guinea Bissau, ranging between 35 and 250 m.

FAMILY SERTULARIIDAE Hincks, 1868

Amphisbetia operculata (Linnaeus, 1758) (fig. 23A)

Sertularia operculata HINCKS, 1868: 263-264, pl. 54.
Sertularia operculata — BALE, 1884: 67-68, pl. 6, fig. 1, pl. 19, fig. 3.
Sertularia operculata — VERVOORT, 1946a: 249-251, fig. 109.
Amphisbetia operculata — RALPH, 1961: 775-779, fig. 8i-k.
Amphisbetia operculata — MILLARD, 1975: 251, fig. 83A-E.
Amphisbetia operculata — CORNELIUS, 1979: 254-256, fig. 6.

Material: 90601 (Namibia); large number of colonies 10-15 mm high, with gonothecae.

P-30 (Benguela VIII); 2 colonies 10 mm high, sterile.

P-12 (Namibian coast); 12 colonies 10 mm high, with gonothecae.

P-14 (Namibian coast); 1 colony 15 mm high, sterile.

P-44 (Namibian coast); 3 colonies 10 mm high, with gonothecae.

P-47 (Namibian coast); 1 colony 10 mm high, sterile.

P-48 (Namibian coast); 20 colonies 10 mm high, with gonothecae.

P-51 (Namibian coast); 15 colonies 10 mm high, sterile.

P-53 (Namibian coast); 3 colonies 15 mm high, with gonothecae.

P-55 (Namibian coast); 1 colony 10 mm high, sterile.

P-82 (Namibian coast); 1 colony 10 mm high, sterile.

Measurements (in microns):

length of stem internode	400 - 450
diameter of stem internode	95 - 100
diameter of hydrotheca at margin	190 - 210

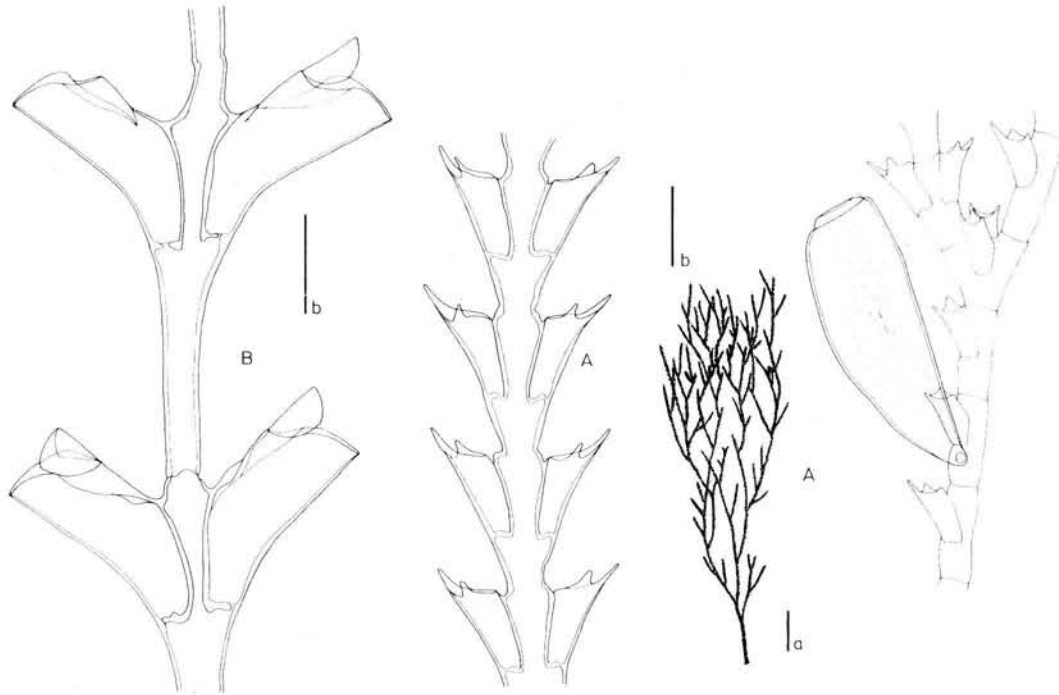

FIG. 23. — A, *Amphisbetia operculata* (Linnaeus), stem, part of stem with gonotheca and part of branch; B, *Diphasia attenuata* (Hincks), part of stem. Scale a equals 1 cm; scale b equals 300 µ.

diameter of basal part of hydrotheca	85 - 100
length of abcauline hydrothecal wall	320 - 340
length of adcauline hydrothecal wall	200 - 230
length of gonotheca	1200 - 1300

Notes: This very known species needs no further discussion. For a description and a discussion of its synonymy we may refer to CORNELIUS (1979).

Distribution: Southern boreal, temperate, and (sub)tropical waters of Atlantic and Indo-Pacific, almost cosmopolitan, though absent from arctic and antarctic waters. Along the west coast of Africa it has been recorded by PATRITI (1970) from the Moroccan area (Agadir, Foum Assaka, Temara, Rabat). STECHOW (1925) and MILLARD (1975) record the species from South Africa, where it occurs in coastal waters from Lüderitz Bay southwards along the Atlantic coast and northwards again along the Indian Ocean coasts until the Richard's Bay area in natal, from the littoral zone down to some 100 m depth. The present records are all from the Namibian coast, ranging between the littoral zone and 430 m depth.

Diphasia attenuata (Hincks, 1866) (fig. 23B)

Sertularia attenuata HINCKS, 1866a: 298-299.
Diphasia attenuata — HINCKS, 1868: 247-249, pl. 49, fig. 1.
Diphasia attenuata — BROCH, 1918: 113.
Diphasia attenuata — VERVOORT, 1946a: 236, fig. 102.
Diphasia attenuata — VERVOORT, 1959: 258 - 260, fig. 26.
Diphasia attenuata — CORNELIUS, 1979: 256-259, fig. 7.

Material: P-167 (Guinea Bissau); 3 colonies 5 mm high, sterile, on *Aglaophenia tubulifera.*

P-213 (Guinea Bissau); 1 colony 5 mm high, sterile, on *Aglaophenia tubulifera.*

Measurements:

length of stem internode	1050 - 1200
diameter of stem internode	115 - 135
length of adcauline wall of hydrotheca	225 - 285
length of abcauline wall of hydrotheca	580 - 680
diameter of hydrotheca at margin	235 - 280

Notes: in absence of the gonothecae the identification remains slightly doubtful. However, on comparing our notes with Cornelius's table of differences of this species with the closely allied *Diphasia rosacea* (Linnaeus, 1758) we find it to have more characters in common with *D. attenuata:* there are no hydrothecal grooves, this hydrotheca is fairly narrow and had only a minor noch at the adcauline wall. The length of the internodes suggests that the material is young.

Distribution: Atlantic warm water species, pene-

trating boreal waters. Along the west coast of Africa it is known to occur along the whole of the Moroccan coast (PATRITI, 1970), and off Guinea (VERVOORT, 1959). MILLARD lists *D. attenuata* among the doubtful South African species, basing herself on BUSK'S record of *Sertularia rosacea* from Algoa Bay. The present records are both from Guinea Bissau, depths 130 and 250 m.

Diphasia margareta (Hassall, 1841) (fig. 24)

Sertularia margareta HASSALL, 1841: 284, pl. 6, figs. 3-4.
Diphasia pinaster — HINCKS, 1868: 252-253, pl. 50, fig. 1.
Diphasia pinaster — ALLMAN, 1888: 63-64, pl. 30, fig. 2.
Diphasia pinaster — STECHOW, 1925: 463-465, fig. 26.
Diphasia pinaster — KRAMP, 1935: 182-183, fig. 76B.
Diphasia pectinata — VERVOORT, 1959: 255-256, figs. 23-24.
Diphasia margareta — CORNELIUS, 1979: 263-265, fig. 12.

Material: P-101 (Guinea Bissau); 8 colonies 120-180 mm high, with gonothecae.

P-102 (Guinea Bissau); 18 colonies 10-110 mm high, on *Lytocarpia m. myriophyllum,* with gonothecae.

P-110 (Guinea Bissau); 6 colonies 100-110 mm high, with gonothecae.

P-114 (Guinea Bissau); 6 colonies 50-60 mm high, with gonothecae.

P-123 (Guinea Bissau); 3 colonies 20-40 mm high on worm-tubes, sterile.

P-147 (Guinea Bissau); 4 colonies 25-60 mm high, sterile.

P-167 (Guinea Bissau); 1 colony 60 mm high, sterile.

P-177 (Guinea Bissau); 3 colonies 35-70 mm high, sterile.

P-205 (Guinea Bissau); 9 colonies 60-100 mm high, sterile.

P-213 (Guinea Bissau); 3 colonies 20-30 mm high on *Lytocarpia m. myriophyllum,* sterile.

P-214 (Guinea Bissau); 14 colonies 20-70 mm high, with gonothecae.

Measurements (in microns):

diameter of stem	350 - 390
distance between hydrothecae on stem	380 - 420
diameter of hydrocladia	210 - 230
distance between hydrothecae on hydrocladium	500 - 530
length of abcauline wall of hydrotheca	500 - 540
length of adcauline wall	350 - 370
diameter of hydrotheca at margin	160 - 180
length of gonotheca	1500 - 1600

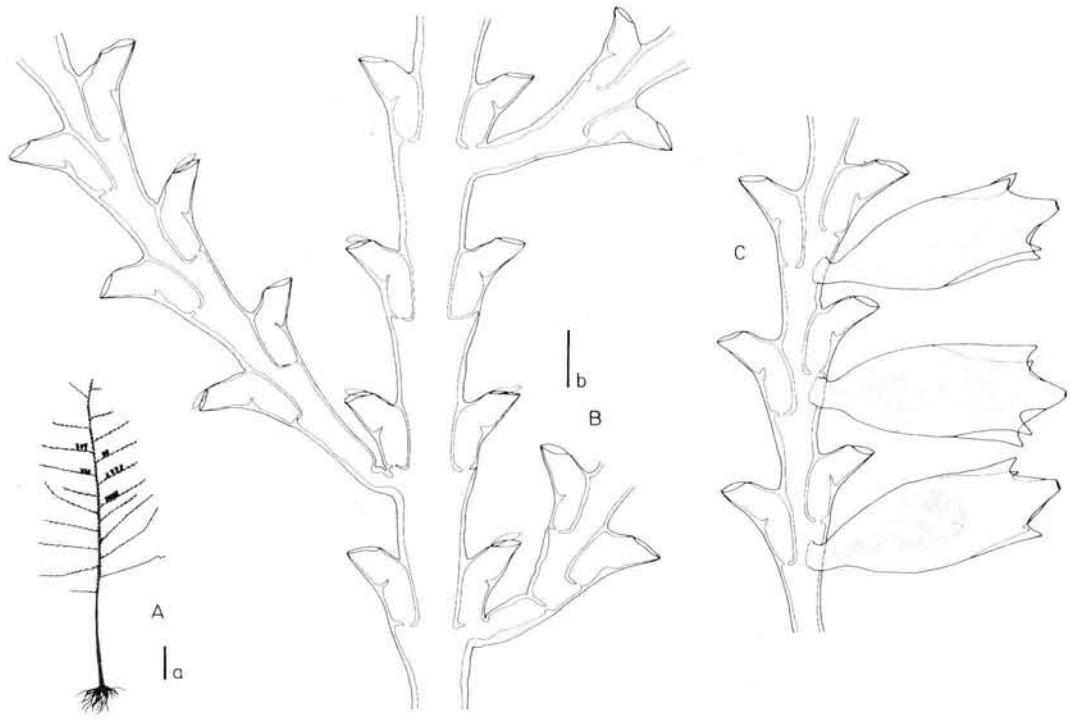

FIG. 24. — *Diphasia margareta* (Hassall). A, stem; B, part of stem; C, part of branch with gonothecae. Scale a equals 1 cm; scale b equals 300 µ.

Notes: For the identification of this species we have based ourselves on the description of VERVOORT (1959, as *Diphasia pectinata,* referred to *D. margareta* by CORNELIUS, 1979: 263), with which it is in good agreement, but we have applied to it the name used by CORNELIUS (1979) in his revision of the British Sertulariidae.

Distribution: Species of the warm southern Atlantic, penetrating north along the British Isles (CORNELIUS, 1979). West African records are those by BILLARD (1906: Cap Spartel); STECHOW (1925, Cape Verde Islands); PATRITI (1970, Cap Rhir), and VERVOORT (1969, off Senegal, 65-89 m depth). The present records are all from off Guinea Bissau, where the species is apparently well distributed, occurring at depths between 45 and 440 m.

Dynamena cornicina McCrady, 1859 (fig. 25A)

Dynamena cornicina — BILLARD, 1925: 188-192, fig. 40, pl. 7, fig. 23.
Dynamena cornicina — VERVOORT, 1941: 206-209, fig. 3.
Dynamena cornicina — PATRITI, 1970: 41-42, fig. 54bis.
Dynamena cornicina — MILLARD, 1975: 261-263, fig. 86A-E.

Material: P-147 (Guinea Bissau); 25 colonies 12 mm high, sterile.

Measurements (in microns):

length of stem internode	400 - 760
diamater of stem internode	80 - 120
length of hydrotheca	360 - 440
diameter of hydrotheca at margin	145 - 175

Notes: The present material consists of unbranched shoots rising from a stolon. It is in agreement with material from South Africa described by Millard, but the distance between the pairs of hydrothecae is greater in our material than in that figured by MILLARD (1975, fig. 86c-d). The basal pair of hydrothecae is largest in our material, slightly diminishing in overall length along the hydrocaulus. The shape of the hydrothecae too changes along the axis: the basal pair is fairly strongly curved, the upper hydrothecae are only slightly so.

Distribution: Cosmopolitan species, chiefly in the warmer parts of the Atlantic and Indo-Pacific. PATRITI (1970) records the species from Temara along the Moroccan coast; MILLARD'S (1975) records of this species are chiefly from the east coast. The present record establishes its presence at Guinea Bissau, 250 m depth.

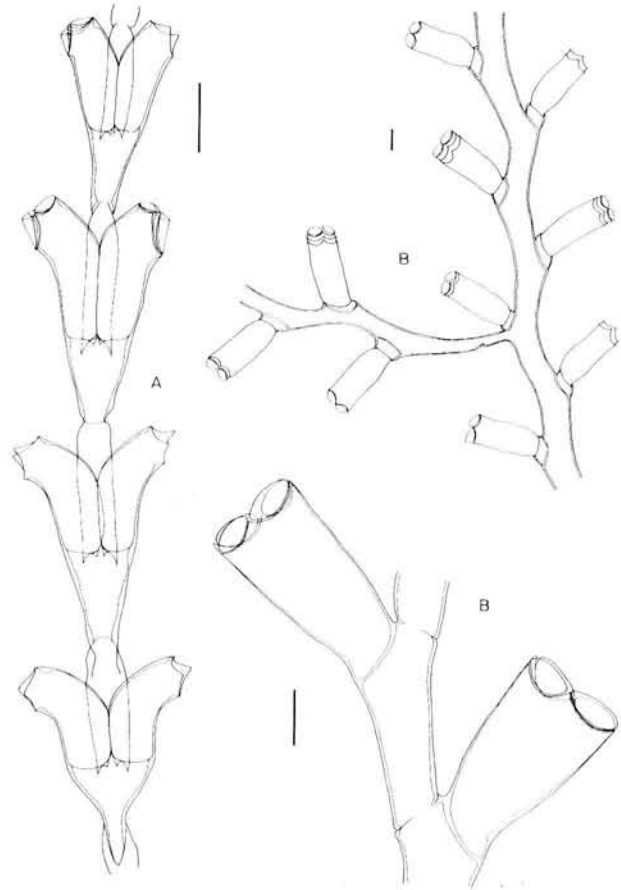

FIG. 25. — A, *Dynamena cornicina* McCrady, part of staem; B, *Sertularella cylindritheca* (Allman), fragment of older part of colony and two young hydrothecae. Scale equals 300 µ.

Sertularella cylindritheca (Allman, 1888) (fig. 25B)

Sertularia cylindritheca ALLMAN, 1888: 59-60, pl. 29, figs. 1, 1a.
Sertularella cylindritheca — NUTTING, 1904: 87, pl. 19, fig. 4.
Sertularella cylindritheca — BILLARD, 1931: 676, fig. 2.
Sertularella cylindritheca — VERVOORT, 1959: 266-269, figs. 30-31.
Sertularella cylindritheca — VERVOORT, 1972: 126, fig. 39a.

Material: P-189 (Guinea Bissau); 3 colonies 100-200 mm high, sterile.

Measurements (in microns):

distance between stem hydrothecae	270 - 290
diameter of stem	180 - 190
length adcauline wall of hydrotheca	800 - 880
length abcauline wall of hydrotheca	900 - 950
diameter of hydrotheca at margin	470 - 500
diameter of hydrotheca at base	320 - 340
length of hydrothecal pedicel	90 - 100

Notes: The Guinea Bissau material has been compared with VERVOORT'S (1959) description. In the present material nearly all hydrothecae, not only the young ones, are provided with a distinct opercular apparatus composed of four flaps, closing over the hydrothecal aperture to form a low roof. In contradistinction to Allman's description of this species the hydrothecae in our material appear to have a short pedicel and are completely free from the perisarc of the internodes. This, however, may also be brought about by renovation, as the hydrothecae with "pedicel" predominantly occur in the older parts of the colonies.

Distribution: Atlantic warm water species recorded from off Bahia, Brazil (ALLMAN, 1888), from Testigos Islands, West Indies (VERSLUYS, 1899) and from Trinidad (NUTTING, 1904). From the eastern part of the Atlantic is has been recorded by BILLARD (1906) and PATRITI (1970), who recorded the species from various localities off the Moroccan coast. VERVOORT (1959) found it to be well distributed off tropical West Africa (15-90 m depth). The present record is from off Guinea Bissau, 62 m depth.

Sertularella cf. *dubia* Billard, 1907
(fig. 26A)

Sertularella dubia — BILLARD, 1907: 344-346, fig. 3, pl. 25, fig. 1.
Sertularella dubia — MILLARD, 1975: 285-287.
Sertularella dubia — VAN PRAËT, 1979: 895, fig. 45.
Sertularella dubia — REES & VERVOORT, 1987: 104-108, figs. 20, 21a-c.

Material: DP-20 (Benguela VII); 1 colony 5 mm high, sterile.

Measurements (in microns):

length of stem internode	950 - 1350
diamater of stem internode	140 - 200
length of adcauline wall of hydrotheca	330 - 360
length of abcauline wall of hydrotheca	480 - 570
diameter of hydrotheca at margin	195 - 215

Notes: In absence of gonothecae this species can hardly be distinguished from *Sertularella gayi* (Lamouroux, 1821). The present colony has provisionally been referred to *S. dubia* because of the smooth condition of the adcauline hydrothecal wall, which only very occasionally shows a few indistinct undulations.

Distribution: The species is chiefly known from the western Indian Ocean (Madagascar, BILLARD, 1907; Gulf of Aden, REES & VERVOORT, 1987). An allied form was described by MILLARD (1958: 189, fig. 7A) as *Sertularella dubia magna;* this subspecies is also mainly known from the Indian Ocean coasts of South Africa extending from False Bay to northern Natal. The present (dubious) record is from the Lüderitz Bay area along the Namibian coast, depth 264 m.

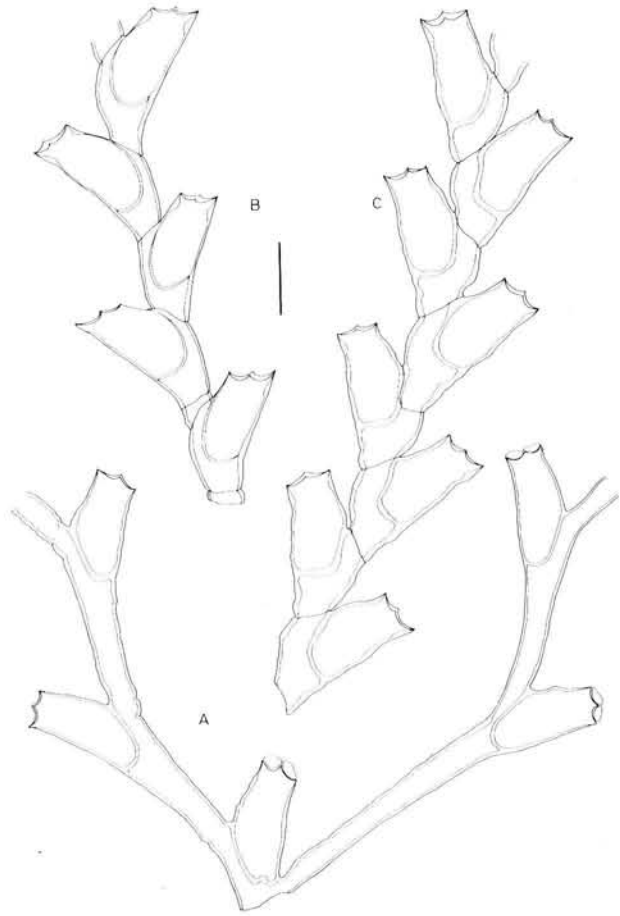

FIG. 26. — A, *Sertularella* cf. *dubia* Billard, part of stem; B, C, *Sertularella gaudichaudi* (Lamouroux); B, colony approaching MILLARD'S (1975) *S. mediterranea assymmetrica;* C, colony approaching descriptions by Vervoort (1959) and MILLARD (1975) as *S. mediterranea.* Scale equals 300 µ.

Sertularella gaudichaudi (Lamouroux, 1824)
(fig. 26B, C)

Sertularella fusiformis HINCKS, 1868: 243, fig. 28, pl. 47, fig. 4.
Sertularella fusiformis — HARTLAUB, 1901: 85-86, fig. 55, pl. 5, figs. 7-9.
Sertularella mediterranea HARTLAUB, 1901: 86-87, pl. 5, figs. 10-11, 15-16.
Sertularella mediterranea — BILLARD, 1922a: 107, figs. 3-4.
Sertularella mediterranea — STECHOW, 1923a: 189-192, figs. C', D'a.
Sertularella mediterranea — VERVOORT, 1959: 272-273, figs. 33a, 34a.

Sertularella mediterranea — MILLARD, 1975: 294-295, fig. 96A.
Sertularella gaudichaudi — BILLARD, 1909: 317-319, figs. 5-6.
Sertularella gaudichaudi — CORNELIUS, 1979: 282-284, fig. 20 (full synonymy).

Material: 90601 (Namibia); 10 colonies 10-15 mm high, with gonothecae.

100504 (Namibia); 18 colonies 5-10 mm high on *Eklonia maxima,* sterile.

91203 (Namibia); 5 colonies 10 mm high, with gonothecae.

SIL-6 (Benguela VII); 1 colony 10 mm high, with gonothecae.

P-78 (Namibian coast); 1 colony 15 mm high, sterile.

P-82 (Namibian coast); 1 colony 10 mm high, sterile.

P-106 (Namibian coast); 1 colony 10 mm high, sterile.

Measurements (in microns):

length of stem internode	420 - 540
diameter of stem internode	200 - 230
length of free adcauline wall of hydrotheca	210 - 240
length of abcauline wall of hydrotheca	420 - 480
diameter of hydrotheca at margin	200 - 240
length of gonotheca	1960 - 2200

Notes: The present colonies have been compared with descriptions by VERVOORT (1959) and MILLARD (1975, in both cases as *Sertularella mediterranea*), with which it agrees in the oblique position of the plane of the hydrothecal aperture, brough about by the greater length of the abcauline hydrothecal wall and the predominance of the abcauline marginal tooth, which is distinctly the largest of the four teeth present. Also the length of the internodes is short, much shorter than appears from CORNELIUS'S drawing of *S. gaudichaudi* (CORNELIUS, 1979, fig. 20a). We have, nevertheless applied the name CORNELIUS uses for the species (i.e. *Sertularella gaudichaudi*) having regard to the considerable amount of variability described by that author. However, it is wise to point out here that all our material has very oblique hydrothecal apertures, a prominent abcauline marginal tooth, occasional internal teeth (3) and short internodes. Also some of the material from SIL-6 approaches the subspecies described by Millard as *Sertularella mediterranea asymmetrica* (Millard, 1958: 191, fig. 7B) by the fact that the planes in which the rows of hydrothecae are arranged meet at a sharp angle, as is figured by MILLARD (1975, fig. 96A).

Distribution: Primarily a warm water species of the eastern Atlantic and Mediterranean, but penetrating northwards along the British Isles. From the African west coast it has been recorded by PATRITI (1970, as *S. ellisi* forma *mediterranea*) from several localities along the Moroccan coast. Further West African records are given by BILLARD (1906), STECHOW (1925) and VERVOORT (1946b, 1959). MILLARD (1975) records the species from the west coasts of the Cape Peninsula to the coasts of Natal, littoral to 73 m depth. The present records are from all from the Namibian coast and all from the littoral zone.

Sertularella gayi (Lamouroux, 1821) (fig. 27)

Sertularella Gayi — HINCKS, 1868: 237-239, pl. 46, fig. 2.
Sertularella gayi — HARTLAUB, 1901: 61-62, fig. 9.
Sertularella gayi — KRAMP, 1935: 176, fig. 73b.
Sertularella gayi — LELOUP, 1947: 31, fig. 23.
Sertularella gayi — PICARD, 1956: 261, figs. 2d, 4a.
Sertularella gayi — VERVOORT, 1959: 273-275, figs. 33b-c, 34b.
Sertularella gayi forma *gayi* — RALPH, 1961: 833-834, figs. 24d-f.
Sertularella gayi — VERVOORT, 1966: 127-128, fig. 30.
Sertularella gayi — CORNELIUS, 1979: 284-287, fig. 21.

Material: P-59 (Guinea Bissau); 10 colonies 10-70 mm high, sterile.

P-77 (Guinea Bissau); 3 colonies 50-100 mm high, sterile.

P-101 (Guinea Bissau); 15 colonies 80-100 mm high, sterile.

P-102 (Guinea Bissau); 3 colonies 15-25 mm high, sterile.

P-114 (Guinea Bissau); 3 colonies 80 mm high, sterile.

P-123 (Guinea Bissau); 2 colonies 10 mm high, sterile.

P-147 (Guinea Bissau); 14 colonies 40 mm high, sterile.

P-167 (Guinea Bissau); 18 colonies 10-40 mm high, sterile.

P-177 (Guinea Bissau); 8 colonies 10-40 mm high, sterile.

P-205 (Guinea Bissau); 10 colonies 20-40 mm high, sterile.

P-214 (Guinea Bissau); 37 colonies 10-30 mm high, with gonothecae.

260983 (Namibia); 35 colonies 5-30 mm high, sterile.

B-48 (Benguela VII); 22 colonies 30-50 mm high, sterile.

P-18 (Benguela VIII); 34 colonies 30-80 mm high, on worm-tubes, with gonothecae.

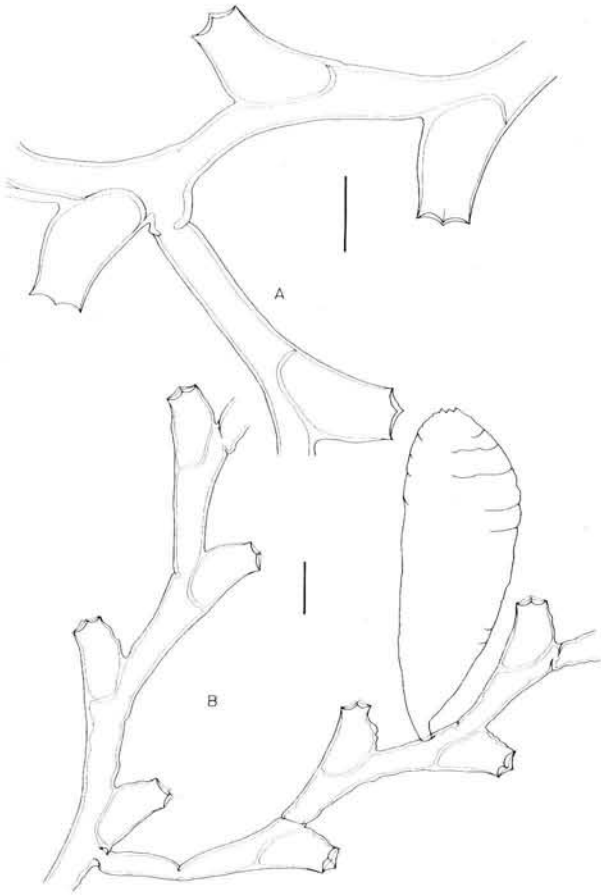

FIG. 27. — *Sertularella gayi* (Lamouroux). A, colony from Guinea Bissau; B, colony from Benguela cruises. Scale equals 300 μ.

Measurements (in microns):

length of stem internode	1080 - 1180
diameter of stem internode	180 - 200
length of adcauline wall of hydrotheca	320 - 360
length of abcauline wall of hydrotheca	480 - 540
diameter of hydrotheca at margin	200 - 230
length of gonotheca	2300 - 2500

Notes: This well-known species needs no detailed description. The material listed above agrees with the accounts in VERVOORT (1959) and CORNELIUS (1979). The gonothecae, that are abundantly present on some of the colonies, have the aperture surrounded by three or four elevations ("teeth"). The Namibian material usually possesses the characteristic undulations of the abcauline hydrothecal wall, while the Guinea Bissau colonies usually have hydrothecae with fairly smooth walls. This, nevertheless, is no fixed rule, smooth and corrugated hydrothecae being occasionally found on the same colony at both sites.

Distribution: *Sertularella gayi* has its main distribution in boreal and temperate parts of the Atlantic, penetrating both north and south. Along the African west coast it is distributed from Cap Spartel (Morocco) southwards, though it does not appear to occur along the coasts of South Africa proper, as it is listed amongst the doubtfull species in MILLARD'S (1975) monograph: all previous records in her opinion needing further proof. The present records bring the species as far south as the Port Nolloth area off the coast of Namibia, depth range 47-939 m.

Sertularella leiocarpa (Allman, 1888) (fig. 28)

Sertularia leiocarpa — ALLMAN, 1888: 52-53, pl. 25, figs. 1, 1a.
Sertularella leiocarpa — STECHOW, 1925: 477-478, fig. 35.
Sertularella leiocarpa — VERVOORT, 1966: 128-130, figs. 31-32.
Sertularella leiocarpa — MILLARD, 1975: 292-294, fig. 95D-F.

Material: BB-8 (Benguela VI); 22 colonies 15 mm high, with gonothecae.

P-41 (Benguela X); 2 colonies 5-10 mm high, sterile.

Measurements (in microns):

length of stem internode	800 - 1320
diameter of stem internode	150 - 180
length of adcauline wall of hydrotheca	480 - 600
length of abcauline wall of hydrotheca	660 - 720
diamater of hydrotheca at margin	210 - 240
length of gonotheca	1500 - 1650

Notes: The material tallies with the description of Indian Ocean material in VERVOORT (1966) and MILLARD (1975). The Namibian material recorded here has only occasionally 2 or at most 4 very small internal ribs or teeth, while the number of renovated hydrothecae is very low. In contradistinction to MILLARD'S description and drawings (1975: 292, fig. 95D, F) the hydrotheca in the present material are straight, as they were also in the Galathea material described by VERVOORT (1966). In this character, nevertheless, there may be a certain degree of variability.

Distribution: Originally described from Tristan da Cunha in the southern Atlantic (183-275 m) (ALLMAN, 1888). STECHOW (1925) later on recorded the species from off St. Paul, southern Indian Ocean

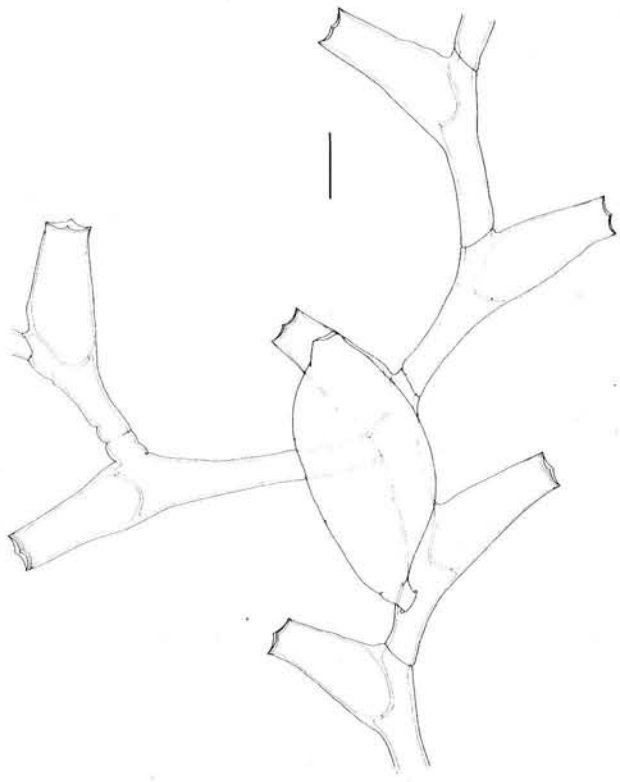

FIG. 28. — *Sertularella leiocarpa* (Allman), part of stem with gonotheca. Scale equals 300 µ.

(672 m depth). The Galathea expedition (VERVOORT, 1966) found the species off Durban and off Natal at depths between 425 and 595 m depth. MILLARD (1975) refers to it as a deep water species with scattered records from the west coast of the Cape Peninsula, from the Agulhas Bank, from Natal and from Moçambique, 200-595 m depth. The present material originates from the Lüderitz Bay area, Namibia, between 230 and 318 m depth.

Sertularella striata Stechow, 1923 (fig. 29A)

Sertularella striata STECHOW, 1923a: 10.
Serturalella striata — STECHOW, 1925: 470-471, fig. 30.
Sertularella striata — MILLARD, 1964: 47-48, fig. 15.
Sertularella striata — MILLARD, 1975: 304-306, fig. 97E-F.

Material: 91203 (Namibia); 2 colonies 10 mm high, sterile.

P-30 (Benguela VIII); 1 colony 10 mm high, sterile.

P-55 (Benguela VIII); 8 colonies 5-10 mm high, sterile.

Measurements (in microns):

length of stem internode	560 - 600
diameter of stem internode	150 - 180
length of adcauline wall of hydrotheca	320 - 360
length of abcauline wall of hydrotheca	780 - 820
diameter of hydrotheca at margin ..	240 - 260

Notes: The number of ridged annulation of the hydrothecal wall in our specimens is 5 or 6, the number in STECHOW'S (1925) and MILLARD'S (1975) material being 8 to 9. For the rest there is full agreement: the hydrothecae here are usually slightly asymmetrical, but quite symmetrical hydrothecae also occasionally occur. The closing apparatus is composed of four rounded flaps attached in rounded embayments of the hydrothecal margin. There are no internal hydrothecal teeth.

Distribution: MILLARD (1975) refers to this species as being endemic to South Africa. It was originally described from Cape Agulhas, 80 m depth (STECHOW, 1925); MILLARD (1975) lists localities from Agulhas bank and from between Cape Agulhas and

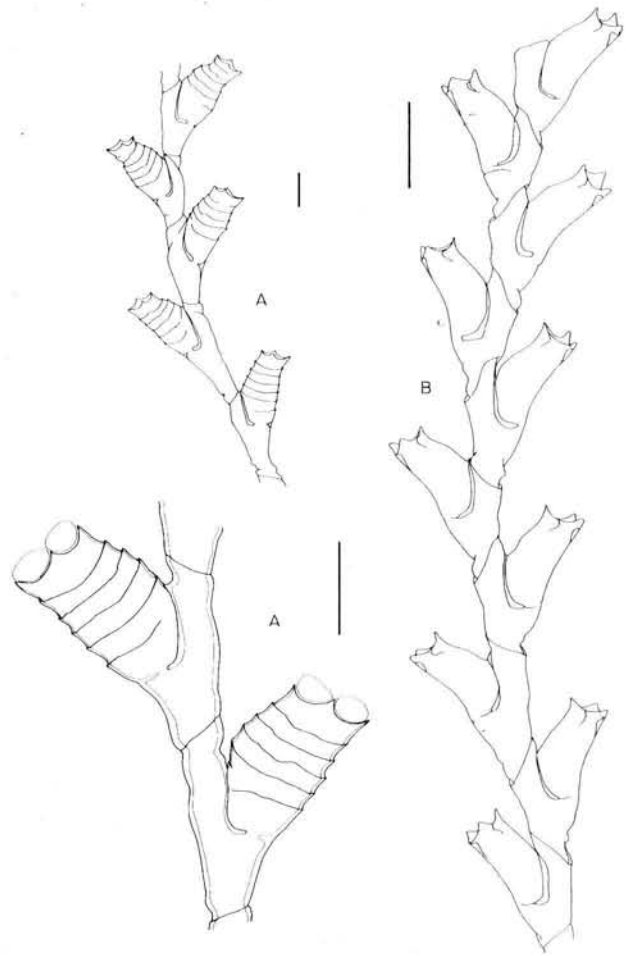

FIG. 29. — A, *Sertularella striata* Stechow, part of stem and two young hydrothecae; B, *Symplectoscyphus macrogonus* (Trebilcock), part of stem. Scale equals 300 µ.

East London, 9-100 m depth. The present records extend its distribution along the west coast of southern Africa as far north as the Lüderitz Bay area, 364-429 m depth.

Symplectoscyphus macrogonus (Trebilcock, 1928) (fig. 29B)

Sertularella macrogona — TREBILCOCK, 1928: 11, pl. 1, figs. 4-4d.
Symplectoscyphus macrogonus — MILLARD, 1957: 219-220.
Symplectoscyphus macrogonus — RALPH, 1961: 798-800, fig. 14a-b.
Symplectoscyphus macrogonus — MILLARD, 1975: 316-317, fig. 102D-G.

Material: 91203 (Namibia); 10 colonies 10 mm high, sterile.

P-6 (Benguela VIII); 2 colonies 10 mm high, sterile.

P-30 (Benguela VIII); 7 colonies 5-10 mm high, sterile.

Measurements (in microns):

length of stem internode	320 - 390
diameter of stem internode	120 - 150
length of adcauline wall of hydrotheca	190 - 220
length of abcauline wall of hydrotheca	280 - 330
diameter of hydrotheca at margin	110 - 130

Notes: MILLARD's (1975) description of this species has been used for the identification. The present material consists of unbranched stems rising from a stolonal network; the rows of hydrothecae are strictly in one plane. All hydrothecae in the material are of one type: they are only slightly curved, with the abcauline wall showing a minor curvature only, while three internal teeth are almost invariably present. The abcauline hydrothecal wall is only moderately thickened.

Distribution: Originally a New Zealand species (TREBILCOCK, 1928; RALPH, 1961), but also recorded from tropical South West Africa (20 degrees north) all aroud the coast to East London, depth littoral to 37 m. The present records are from the Walvis Bay — Lüderitz Bay area of the Namibian coast, between 167 and 429 m depth.

FAMILY CAMPANULARIIDAE Hincks, 1868

Campanularia hincksii Alder, 1856 (fig. 30A)

Campanularia hincksii ALDER: 1856: 360, pl. 13 fig. 9
Campanularia hincksii — HINCKS, 1868: 162-163, fig. 18, pl. 24, fig. 3.
Campanularia hincksii — VERVOORT, 1946a: 276-277, fig. 122.
Campanularia hincksii — VERVOORT, 1959: 311, fig. 55a.
Campanularia hincksii — MILLARD, 1975: 208, fig. 67B-E.
Campanularia hincksii — CORNELIUS, 1982: 53-55, fig. 3.

Material: P-35 (Guinea Bissau); 20 hydrothecae from stolon on *Lytocarpia m. myriophyllum*, sterile.

P-214 (Guinea Bissau); c. 200 hydrothecae from stolon on worm-tubes, sterile.

Measurements (in microns):

length of hydrothecal pedicel	1450 - 1950
diameter of hydrothecal pedicel	60 - 70
length of hydrotheca	560 - 600
diameter of hydrotheca at margin	360 - 400

Notes: The representatives of this characteristic species in our material are characterized by the castellate hydrothecal margin. The striae of the hydrothecal wall end in the embayments of the hydrothecal margin, the castellated teeth are apically indented forming two small, rounded teeth. A line halfway the length of the pedicel, present in many

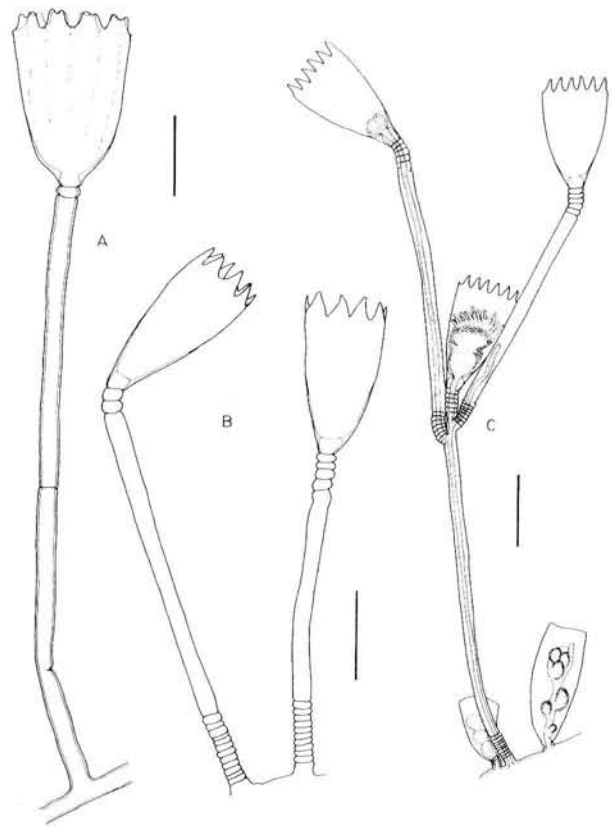

FIG. 30. — A, *Campanularia hincksii* Alder, hydrotheca; B, C, *Clytia hemisphaerica* (Linnaeus); B, hydrothecae from fixed colony; C, pelagic colony with gonothecae. Scale equals 300 µ.

thecae may point towards renovation of the hydrothecae.

Distribution: Cosmopolitan species with a wide distribution in the eastern Atlantic. From the west coast of Africa the species has previously been recorded by PATRITI (1970: various localities in Moroccan coastal waters) and VERVOORT (1959: Ghana, Guinea, Guinea Bissau, 28-65 m). MILLARD (1975) gives East London as the only South African locality (86-210 m), mentioning at the same time that the species is of rare occurrence. The present records re-establish its presence off Guinea Bissau.

Clytia hemisphaerica (Linnaeus, 1767) (fig. 30B, C)

Campanularia Johnstoni ALDER, 1856: 359, pl. 8, fig. 8.
Clytia Johnstoni — HINCKS, 1868: 143-146, pl. 24, figs. 1-1a.
Clytia johnstoni — RALPH, 1957: 823-824, figs. 1h-u, 2, 3a-f.
Campanularia johnstoni — VERVOORT, 1959: 312-313.
Clytia hemisphaerica — MILLARD, 1975: 217-218, fig. 72A-D.
Clytia hemisphaerica — CORNELIUS, 1982: 73-82, fig. 9.

Material: E-73 (SNEC 11); 2 colonies 15 mm high on *Cavolinia* sp.

E-83 (SNEC 11); 2 pelagic colonies, 10-15 mm length, with gonothecae.

P-44 (Namibian coast); c. 35 hydrothecae from creeping stolon, sterile.

P-92 (Namibian coast); c. 30 hydrothecae from stolon creeping on *Eklonia maxima,* sterile.

Measurements (in microns):

	fixed colonies	pelagic colonies
length of hydrothecal pedicel	960 - 1360	1600 - 2350
diameter of hydrothecal pedicel	65 - 70	55 - 65
lenght of hydrotheca	480 - 550	450 - 550
diameter of hydrotheca at margin	225 - 250	330 - 390
length of gonotheca		540 - 900

Notes: For a discussion of the variability of this species and for a discussion of the synonymy we refer to CORNELIUS (1982), though it must be born in mind that *Clytia hemisphaerica* (LINNAEUS, 1767) and *Clytia gracilis* (M. SARS, 1850) are now considered separate species (ÖSTMAN, 1983; CORNELIUS & ÖSTMAN, 1986). In the present material there are two distinct forms of the polymorphic *C. hemisphaerica,* viz., a benthic form with slender hydrothecae with c. 12 sharply pointed, triangular teeth, and a pelagic form with branched pedicels, slender hydrothecae and a slightly increased (14) number of marginal teeth. This latter material agrees with VERVOORT's (1959: 313-315, fig. 55b-c) *Laomedea (Phialidium) pelagica* (Van Breemen, 1905).

Distribution: Cosmopolitan species known from all over the world's oceans (MILLARD, 1975; CORNELIUS, 1982). Known to occur along the whole of the African coast.

Clytia paulensis (Vanhöffen, 1910) (fig. 31A)

Campanularia paulensis VANHÖFFEN, 1910: 298, fig. 19.
Clytia paulensis — STECHOW, 1923b: 110, fig. N.
Clytia paulensis — STECHOW, 1925: 428, fig. 7.
Obelia paulensis — NAUMOV & STEPAN'YANTS, 1972: 37, fig. 2.
Clytia paulensis — MILLARD, 1975: 221, fig. 73A-D.
Clytia paulensis — CORNELIUS, 1982: 88-91, fig. 14.

Material: P-114 (Guinea Bissau); c. 100 hydrothecae from stolon on *Halecium beanii,* with gonothecae.

Measurements (in microns):

length of hydrothecal pedicel	640 - 730
diameter of hydrothecal pedicel	35 - 40
length of hydrotheca	520 - 560
diameter of hydrotheca at margin	225 - 255
length of gonotheca	800 - 840

Notes: The descriptions of MILLARD (1975) and CORNELIUS (1982) have been used for identification of this species: the present material is in good agreement and shows no further noteworthy differences. The shape of the hydrothecae is almost identical to that of *Obelia bidentata* Clarke, 1875, which might lead to confusion in the identification of young, sterile specimens of both species.

Distribution: Species with widely scattered records from the North Atlantic, from the Mediterranean, the Californian coast, the Indian Ocean and the Antarctic (cf. MILLARD, 1975). The type locality is off St. Paul in the southern Indian Ocean. Along the African west coast it was first recorded by STECHOW (1925: Francis Bay, northern part of Agulhas Bank). Millard found the species chiefly along south and east coasts, ranging from Cape Infanta to Inhaca, depths 0-138 m. The present record is from Guinea Bissau, depth 50 m.

Obelia bidentata Clarke, 1875 (fig. 31B)

Obelia bicuspidata CLARKE, 1875: 58, pl. 9, fig. 1.
Obelia bidentata CLARKE, 1875: 58-59, pl. 9, fig. 2.

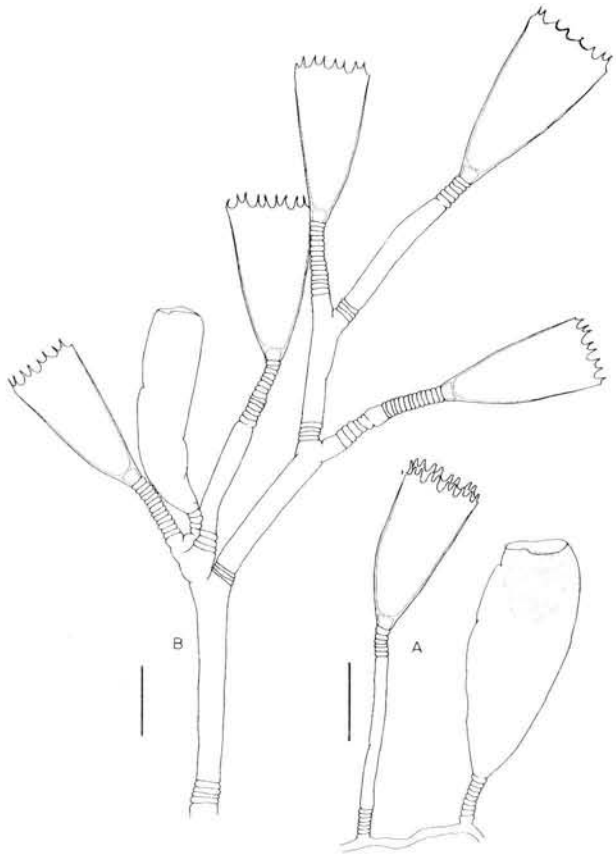

FIG. 31. — A, *Clytia paulensis* (Vanhöffen), reptant colony with gonotheca; B, *Obelia bidentata* Clarke, stem with gonothecae. Scale 300 µ.

Laomedea bicuspidata — VERVOORT, 1946a: 298-300, fig. 132.
Laomedea (Obelia) bicuspidata — VERVOORT, 1959: 315.
Obelia bicuspidata — MAMMEN, 1965: 11-13, figs. 37-38.
Obelia bicuspidata — MILLARD, 1975: 226-227, fig. 75C-E.
Obelia bidentata — CORNELIUS, 1975a: 260-265, fig. 2.
Obelia bicuspidata — STEPAN'YANTS, 1979: 37-38, pl. 7, fig. 1.
Obelia bidentaca — CORNELIUS, 1982: 113-117.

Material: P-214 (Guinea Bissau); 1 colony 30 mm high, with gonothecae.

Measurements (in microns):

length of hydrothecal pedicel	240 - 800
diameter of hydrothecal pedicel ..	60 - 80
length of hydrotheca	560 - 640
diameter of hydrotheca at margin ..	225 - 300
length of gonotheca	680 - 740

Notes: This is a well-known and well-distributed species. No differences with existing descriptions were observed.

Distribution: Well distributed in tropical, subtropical and temperate waters of all oceans, penetrating north along the coasts of the continents and the British Isles. Along the coasts of West Africa it has been recorded by PATRITI (1970: various localities along the Moroccan coast); VERVOORT (1959: Ghana, Nigeria, Guinea and Gambia, littoral down to 50 m), and MILLARD (1975: Table Bay and east coast of South Africa). The present record establishes its presence off Guinea Bissau, 140-220 m depth.

Obelia dichotoma (Linnaeus, 1758) (fig. 32A, B)

Obelia dichotoma — HINCKS, 1868: 156-157, pl. 28, figs. 1, 1a.
Laomedea dichotoma — BROCH, 1933: 105-109, fig. 46.
Laomedea dichotoma — KRAMP, 1935: 110-112, figs. 48A, 49A.
Laomedea dichotoma — VERVOORT, 1946a: 292-294, fig. 128.
Laomedea (Obelia) dichotoma — VERVOORT, 1959: 315-316.
Obelia dichotoma — CORNELIUS, 1975a: 265-272, fig. 3-4.
Obelia dichotoma — MILLARD, 1975: 227-229, fig. 75F-J.
Obelia dichotoma — CORNELIUS, 1982: 117-119.

Material: P-147 (Guinea Bissau); 6 colonies 10 mm high, sterile.

P-55 (Benguela VI); large number of colonies 10 mm high on *Eklonia maxima*, sterile.

P-57 (Benguela VI); 10 colonies on *Eklonia maxima*, sterile.

P-30 (Benguela VIII); 10 colonies 30 mm high, with gonothecae.

P-33 (Benguela VIII); 8 colonies 20 mm high, with gonothecae.

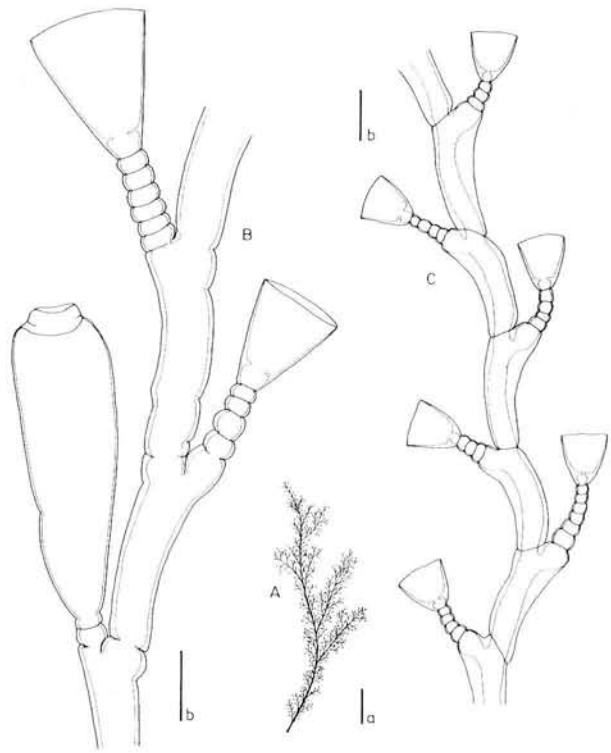

FIG. 32. — A, B, *Obelia dichotoma* (Linnaeus); A, stem; B, part of branch with gonotheca; C, *Obelia geniculata* (Linnaues), part of staem. Scale a equals 1 cm; scale b equals 300 µ.

P-34 (Benguela VIII); large number of colonies 5-20 mm high, with gonothecae on *Eklonia maxima.*

P-35 (Benguela VIII); 14 colonies 10-20 mm high, sterile.

Measurements (in microns):

length of stem internode	640 - 720
diameter of stem internode	160 - 190
length of hydrothecal pedicel	240 - 320
diameter of hydrothecal pedicel. . .	85 - 120
length of hydrotheca	330 - 480
diameter of hydrotheca at margin	280 - 380
length of gonotheca	950 - 1100

Notes and distribution: Cosmopolitan species, well distributed around the coasts of West Africa (VERVOORT, 1959; PATRITI, 1970; MILLARD, 1975, littoral down to c. 100 m, occasionally deeper). The present records are from Guinea Bissau and from all along the coast of Namibia, 150-450 m depth.

Obelia geniculata (Linnaeus, 1758) (fig. 32C)

Obelia geniculata — HINCKS, 1868: 149-151, pl. 25, figs. 1, 1a.
Laomedea geniculata — VERVOORT, 1946a 294-298, figs. 129-131.
Laomedea geniculata — LELOUP, 1974: 19-21, fig. 16.
Obelia geniculata — CORNELIUS, 1975a: 272-278, fig. 1, 5.
Obelia geniculata — MILLARD, 1975: 229-230, fig. 75A-B.
Obelia geniculata — CORNELIUS, 1982: 119-120.

Material: P-55 (Benguela VI); 11 colonies 10 mm high, sterile.

P-24 (Benguela VII); 35 colonies 60-150 mm high, with gonothecae.

P-77 (Benguela VII); 45 colonies 80 mm high, with gonothecae.

Measurements (in microns):

length of stem internode	540 - 580
diameter of stem internode	95 - 110
length of hydrothecal pedicel	120 - 300
diameter of hydrothecal pedicel ..	60 - 95
lenght of hydrotheca	160 - 190
diameter of hydrotheca at margin ..	220 - 250

Notes and distribution: Cosmopolitan species well distributed along the West African coasts. The material from Benguela VII is characterized by being branched and has only very slight thickening of the perisarc. The gonothecae contain developing medusae. West African records are listed by STECHOW (1925), PATRITI (1970), and MILLARD (1975). The present records are from the Namibian coast, 294-380 m depth. The branched material referred to above is all from deep water (200-380 m depth).

Orthopyxis integra (MacGillivray, 1842) (fig. 33)

Campanularia integra — HINCKS, 1868: 163-164, pl. 31, fig. 1.
Campanularia integra — BROCH, 1909: 185-187, 225-226, fig. 40.
Campanularia integra — VERVOORT, 1946a: 274-276, figs. 120-121.
Campanularia integra — MILLARD, 1975: 208-211, fig. 69.
Orthopyxis integra — CORNELIUS, 1982: 60-67, fig. 6 (full synonymy).

Material: 91203 (Namibia); c. 20 hydrothecae from detached stolon, sterile.

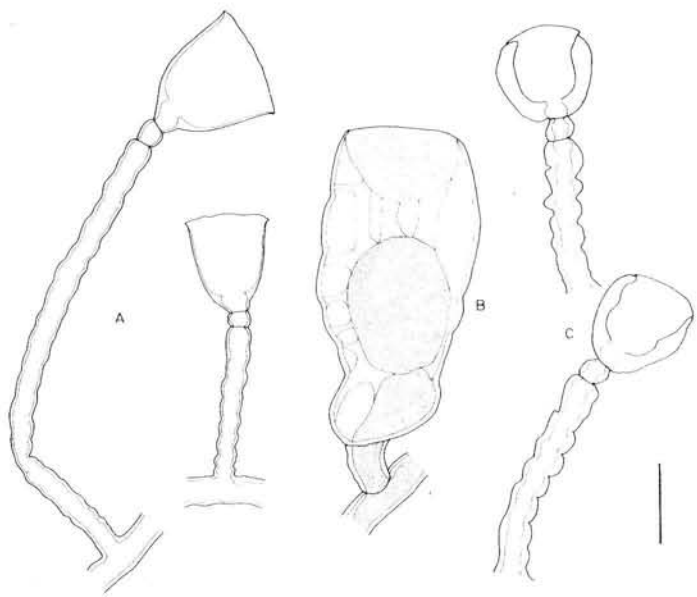

FIG. 33. — *Orthopyxis integra* (MacGillivray). A, hydrothecae from deep water sample; B, C, gonotheca and hydrothecae from littoral samples. Scale equals 300 µ.

P-44 (Namibian coast); many colonies on algae, with gonothecae.

P-47 (Namibian coast); c. 50 hydrothecae on algae, sterile.

P-48 (Namibian coast); c. 50 hydrothecae on algae, sterile.

Measurements (in microns):

lenght of hydrothecal pedicel	600 - 1750
diameter of hydrothecal pedicel ..	80 - 140
length of hydrotheca	360 - 440
diameter of hydrotheca at margin ..	280 - 420
lenght of gonotheca	930 - 1150
diameter of gonotheca	560 - 620

Notes: Comparing our specimens with descriptions in MILLARD (1975) and CORNELIUS (1982) we are able to bear out their remarks on the great variability in shape and thickness of perisarc in the hydro- and gonothecae (see also fig. 33). Specimens with campanulate hydrothecae with thin perisarc are present as well as specimens with extremely thickened perisarc and bell-shaped hydrothecae. The gonophores in our material have 2 or 3 medusa-buds.

Distribution: Cosmopolitan species with preference for slightly warmer waters. PATRITI (1970) records *Campanularia compressa* Clarke, 1876, from Temara and Rabat in Moroccan coastal waters; this species is considered by MILLARD (1975) to be synonymous with the present. STECHOW's (1925: 423-424, fig. 6) record of *Campanularia gracilis* Allman, 1876, from Plettenberg Bay, South Africa, is included by MILLARD (1975) in the doubtful synonyms of this species. Her records furthermore include the whole of the South African coast, ranging from northern South West Africa and Table Bay to the coastal waters of Moçambique; depth range from the littoral zone down to some 100 m depth. The present records are from the northern part of the Namibian coast, all from the littoral zone.

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