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SHALLOW WATER SPONGES OF JAMAICA

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ABSTRACT

An annotated comprehensive list is provided of all shallow-water sponges (down to 60 m) recently collected and previously recorded from Jamaica. Five new species are described, *Plakina jamaicensis, Melophlus ruber, Agelas repens, Stylissa caribica* and *Hyrtios tubulatus*, two of which belong to genera not recorded before from the Western Atlantic (viz. *Melophlus* and *Stylissa*). The number of species recorded from shallow waters (reefs, mangroves and lagoons) now amounts to 157 species, several of which, however, are still of uncertain status.

INTRODUCTION

Field work and sampling was carried out at the Discovery Bay Marine Laboratory from January to July 1993. Samples were taken from an area enclosed by the mouth of the Rio Bueno in the west of the Marine Laboratory and the mouth of the Pear Tree River in the east. Investigated habitats range from lagoonal habitats with sediment and seagrass areas (*Thalassia* or *Syringodium*), algal-rich areas and blue holes with turbid water to reef and fore-reef areas which were either intact or severely damaged by hurricanes Allen (1980) and Gilbert (1988). The latter were overgrown by various algae, due to the lack of *Diadema* sea urchins and fishes grazing on them.

Among the sponges observed and collected there appear to be several undescribed forms, while other already known species appear to be insufficiently described. It is the purpose of the present paper to provide descriptions and records of the observed species. We also decided to include here all previous records of Jamaican shallow - water sponges - down to 60 m depth -, thus making this a comprehensive checklist. Investigations of deep-fore reef sponges > 60 m are still ongoing and will be reported elsewhere.

Previous studies of the sponge fauna of Jamaica were made by Hechtel (1965) who investigated the area around Port Royal on the south coast and extended the known Jamaican sponge fauna to 57 species.

Reiswig (1970, 1971, 1972, 1973a, 1973b) studied sponges at the Discovery Bay Marine Laboratory but he concentrated mainly on the physiology of individual species. Hartman (1969, 1973) and Hartman & Goreau (1966, 1970, 1972) discovered at this locality several "scleros-ponges" (*Ceratoporella nicholsoni*, *Stromatospongia norae*, *S. vermicola*, *Goreauiella auriculata*, and *Hispidopetra miniana*).

Pang (1973) described 13 excavating sponges from Jamaica, 7 of which were attributed to new species.

Pulitzer-Finali (1986) investigated sponges from different Caribbean localities, a good deal of them from Jamaica.

Several further records of Jamaican sponges are scattered in the literature.

MATERIAL AND METHODS

During 112 dives of HL, 327 samples of sponges were taken in the area of the Discovery Bay Marine Laboratory. The dives were performed by snorkeling or with SCUBA. Multilevel dives were monitored by a Monitor II diving Computer. For identification of the sponges small fragments were cut off, stored in seawater in sample-bags and after return to the Marine Laboratory dried or stored in formalin-seawater. When ever possible the sponges were photographed in situ using a Nikonos V with a 35mm lens and a SB 102 strobe. Spicule preparations and sections followed Rützler, 1979.

All material of HL's collection is deposited in the Zoölogisch Museum Amsterdam (ZMA).

Hechtel's (1965) material, mentioned below with the initials GH, is deposited in the Peabody Museum of Natural History, Yale University (YPM). Hechtel quoted collection numbers only for his holotypes, and these are repeated below.

Excavating sponge species described by Pang (1973) are likewise deposited in the Peabody Museum of Natural History, Yale University (YPM), but additional specimen were donated to the Natural History Museum (London, BMNH) and the State University of New York - University of the West Indies Marine Laboratory, Discovery Bay, Jamaica, W. I. (SUNY-UWI).

Pulitzer-Finali's (1986) records of Jamaican sponges, mentioned below with the initials PL, are deposited in the "Giacomo Doria" Museum of Natural History of Genoa, Italy (MSNG).

Specimen numbers and localities of specimens of these authors are given in the materials section of each species entry.

SYSTEMATICS

The order in which species are treated follows Desqueyroux-Faúndez & Van Soest (1997).

Phylum Porifera
Class Demospongiae
Order Homosclerophorida
Family Plakinidae Schulze, 1880

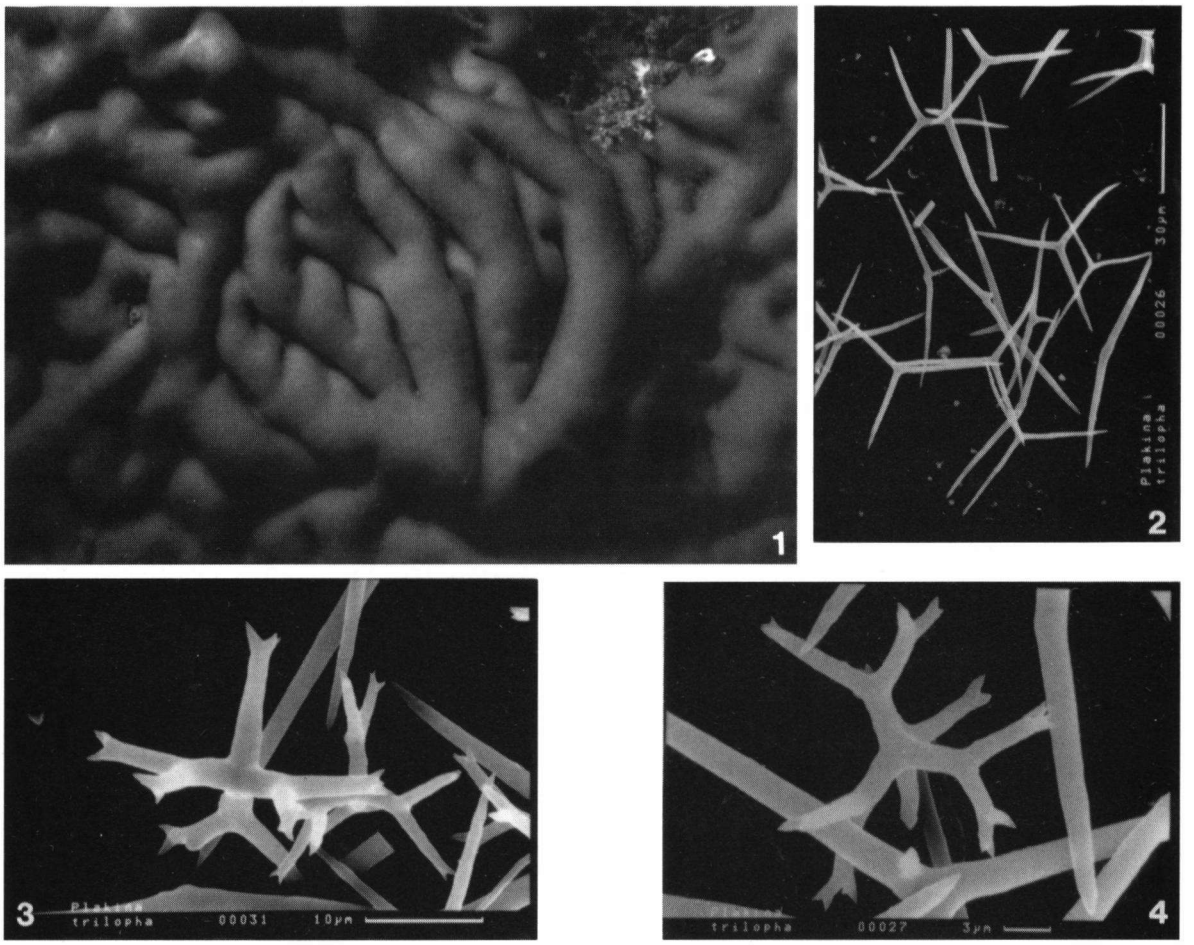
Genus *Plakina* Schulze, 1880
Plakina jamaicensis sp. n.
Figs. 1-4

MATERIAL

Holotype ZMA POR. 12736, Jamaica, Discovery Bay, # J319, 16.7.1993, forereef, underside of *Montastrea annularis*, 35 m.

DESCRIPTION

Shape and size: Tan encrusting sponge, 3-4 mm thick, rather tough, whole sponge easily detachable from the substrate. Surface convoluted brain-like (Fig. 1). Surface smooth without visible oscules. Found on the underside of a *Montastrea*



Figs. 1-4: *Plakina jamaicensis* sp. n., 1. habit photographed in situ; 2. diods and triods; 3-4. tetraloph microscleres.

annularis encrusting an area of approx. 30 x 40 cm. The holotype is a fragment, light brown in the dry state, whereas the choanosome is light grey. The fragment is about 4 x 3.5 x 0.3 cm and has now the consistency of cork. It has a smooth surface interrupted by several sharp ridges (like knife-cuts) which run straight or in curves.

Skeleton: The ectosomal skeleton is a regular arrangement of spicules around pore fields. The choanosomal skeleton is a tight mass of spicules, arranged along large canals.

Spicules: Angulate diods (Fig. 2) , 90-120 μm, at the bend frequently one, or more rarely, two spines; triods (Fig. 2), occasionally calthropses, rays 6-33 μm; lophotriaenes (Figs. 3-4) with all four rays branched and bifurcate at the ends, 20-25 μm in direction of biggest extension. Lophotriaenes mainly in the ectosome.

Ecology: on reefs.
Etymology: named after its origin.

Remarks

The assignment of the present species to the genus *Plakina* is unquestionable. With regard to spicule complement it is closest to *P. trilopha* Schulze (1880). It deviates from this species in the form of the lophotriaenes: trilophs are missing and tetralophs, described for *P. trilopha* as well, have branched and bifurcate arms. There is also a difference in habitus: *P. trilopha* is described as white, while the present species is orange-brown coloured and it has a characteristic brain-like surface pattern.

Genus *Plakortis* Schulze, 1880
'Plakortis simplex" complex

MATERIAL

ZMA POR. 12786, Discovery Bay, #J64, 4.3.1993, forereef, 38 m; ZMA POR. 12800, Discovery Bay, #J81, 17.3.1993, forereef, 28 m; ZMA POR. 12809, Discovery Bay, #J186, 20.5.1993, forereef, 23 m; ZMA POR. 12812, Discovery Bay, #J37, 22.2.1993, forereef, 23 m; ZMA POR. 12814, Discovery Bay, #J95, 23.3.1993, forereef, 32 m; ZMA POR. 12816, Discovery Bay, #J121, 6.4.1993, forereef, 30 m; ZMA POR. 12817, Discovery Bay, #J305, 5.7.1993, forereef, 8 m; ZMA POR. 12819, Discovery Bay, # J185, 20.5.1993, forereef, 25 m; ZMA POR. 12825, Discovery Bay, #J71, 9.3.1993, forereef, inside small cave, 31m; ZMA POR. 12818, Discovery Bay, #J318, 16.7.1993, forereef, 28 m; ZMA POR. 12908, Discovery Bay, #J307, 6.7.1993, forereef, 27 m.

REMARKS

While Mediterranean *Plakortis simplex* Schulze (1880) is probably close to the Caribbean species of *Plakortis*, it is unlikely to be the same species. Hechtel (1965) recorded both *P. simplex* and *P. zyggompha* (De Laubenfels, 1936) from Jamaica. Pulitzer-Finali (1986) recorded *P. simplex* Diaz & Van Soest (1994) record three *Plakortis* species from the Caribbean: *P. angulospiculatus* (Carter, 1882), *P. halichondrioides* (Wilson, 1902), and *P. zyggompha*. In the present study we found the following shapes and spicule sizes:

J37 (ZMA 12812) and J307 (ZMA 12908) are massively encrusting or branching sponges, relatively tough with a dark brown ectosome and light brown choanosome. Diods are of a wide size range, 22-180 x 2-6 μm, rays of triods are 25-50 μm.

J65 (ZMA 12783), J66 (ZMA 12791), J95 (ZMA 12814) and J186 (ZMA 12809) are thickly encrusting brown sponges with a brown choanosome and soft consistency. Very small diods are missing, large diods are 120-180 x 2-7 μm, no triods were observed. All the above mentioned specimens are here assumed to belong to *P. angulospiculatus* . It is likely that Hechtel's *P. simplex* also belongs here.

J64 (ZMA 12786), J81 (ZMA 12800), J121 (ZMA 12816), J185 (ZMA 12819), J305 (ZMA 12817) and J138 (ZMA 12824) were black in life, with a black choanosome with blueish dots. Gives off a dark exudate in preservative. Diods, occasionally with one or both ends bifurcate: 120-180 x 2-6μm, rays of triods: 30-80 μm. According to Diaz & Van Soest (1994) dark exudate and large diods are characteristic for *P. halichondroides* (Wilson, 1902).

J71(ZMA 12825) is a thickly encrusting olive green sponge, still green in preservative. Diods: 35 - 110 x 2-4 μm, rays of triods: 20-55μm. This conforms to Diaz & Van Soest's (1994) - and presumably also Hechtel's - concept of *P. zyggompha.*

Further records: GH: 76, (as *P. zyggompha*), shallow water at Maiden Cay, Port Royal; PL: 65 (as *P. simplex*), Duncans, fore-reef slope, 35-45 m.

Genus *Plakinastrella* Schulze, 1880
Plakinastrella onkodes Uliczka, 1929

MATERIAL

ZMA POR. 12810, reefs in front of the mouth of the Rio Bueno, #J128, 7.4.1993, 14 m.

REMARKS

Massive lump-like sponge, dark grey, only slightly compressible, easy to tear. Oscules flush with the smooth surface or slightly raised. Diods: 20 - 150μm. Triods: ca. 30 μm per ray. Calthropses: 30 - 80 μm per ray. Triods and calthropses are often thicker than the diods.

Genus *Corticium* Schmidt, 1862
Corticium tetralophum Hechtel, 1965:77

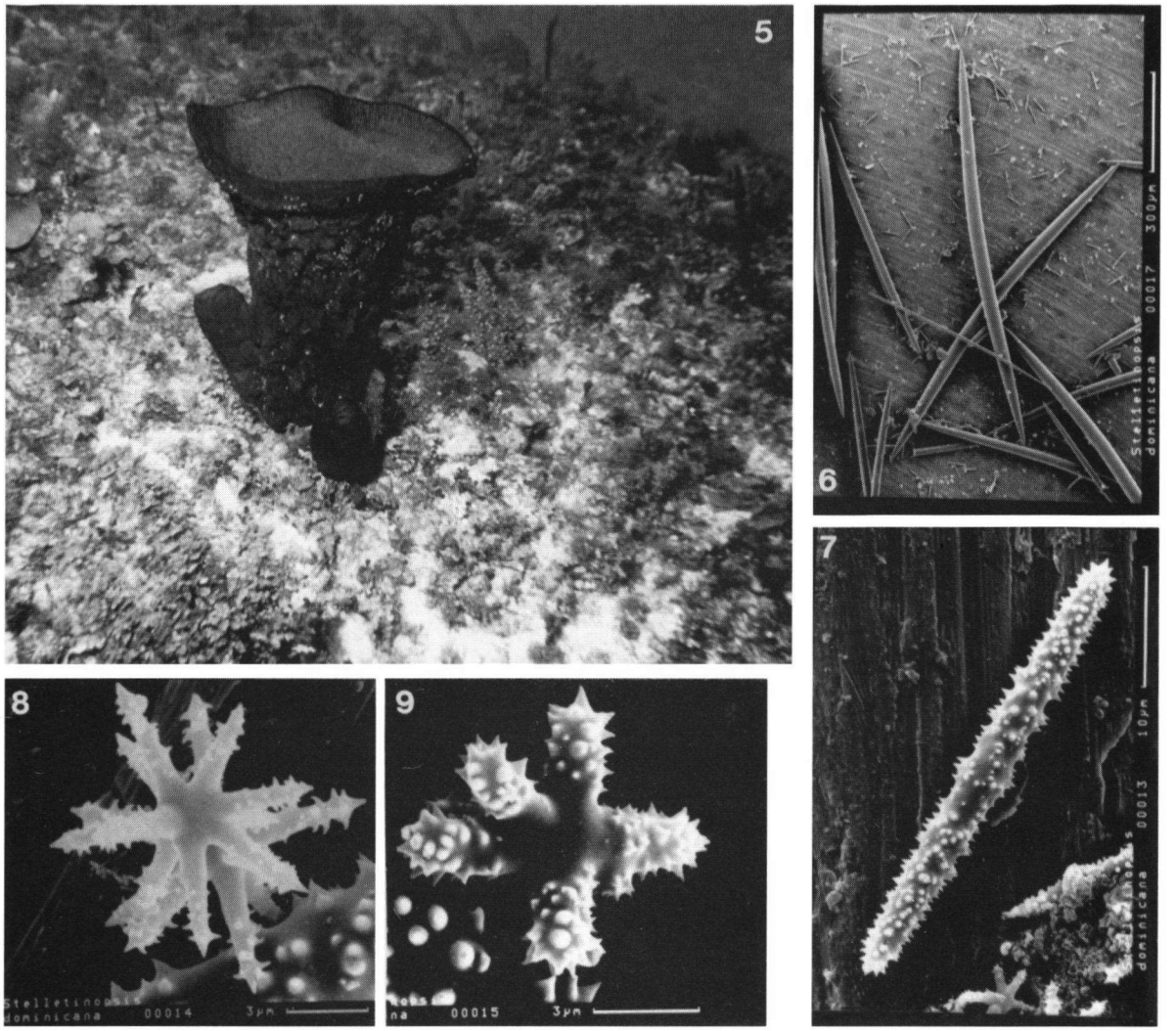
Holotype YPM 5047, Maiden Cay, Port Royal.

Order Astrophorida
Family Ancorinidae Schmidt, 1870
Genus *Stelletta* Schmidt, 1862
Stelletta kallitetilla (De Laubenfels, 1936)

MATERIAL

ZMA POR. 12876, Discovery Bay, lagoon, inside a fissure with freshwater outflow, #J102a, 24.3.1993, 1.5 m.

Genus *Melophlus* Thiele, 1899
Melophlus ruber sp. n.
Figs. 5-9



Figs. 5-9: *Melophlus ruber* n.sp., 5. habit photographed in situ. 6. oxeas and microscleres, overview; 7. acanthose microstrongyle; 8. oxyaster; 9. strongylaster.

Material

Holotype ZMA POR. 12741, Discovery Bay, blue hole near Columbus Park, #J2, 20.1.1993, 15 m.

Description

Shape and size: Dark red, vase-shaped sponge (Fig. 5), very similar in shape to *Mycale laxissima*. Consistency elastic, compressible, but difficult to tear. Surface covered with soft thorns.

Spicules: Oxeas (Fig. 6), sometimes with a forked end: 700-1475 x 20-70 μm; microspined microstrongyles to microxeas (Fig. 7): 45-65 x 4-6 μm; oxyasters (Fig. 8) to strongylasters (Fig. 9): 5-15 μm in diameter.

Skeleton: Ectosome relatively thick (ca. 1 mm), heavily pigmented, with a reticulation of fine (barely to see with the unaided eye) fibers on the surface which may in fact be an encrusting red alga. Microstrongyles and microxeas are concentrated in a layer between ectosome and choanosome. The choanosome is a dense, confused arrangement of spicules.

Ecology: shallow reef.

Etymology: ruber = red, referring to the live colour.

Remarks

The present material conforms in all skeletal

characters to the genus *Melophlus* Thiele, as redefined by Hajdu & Van Soest (1992). It shares the spiculation of oxeas, euasters and spined microrhabds, and the tangential surface skeleton of smaller sized oxeas, with the other species of *Melophlus*. This is the first record of the genus from the Atlantic. So far the genus contained two species, viz. the Indo-Malayan type species *M. sarasinorum* Thiele (1899) (with junior synonym *Stellettinopsis isis* De Laubenfels, 1954), and Western Indian Ocean *M. cherbonnieri* (Lévi, 1961 as *Stelettinopsis*). *Melophlus* is similar - and probably close - to *Penares*, but that genus has triaenes, and to *Asteropus*, but that has sanidasters in lieu of the microrhabds.

The only remotely similar species in the region with which this could be confused is *Asteropus vasiformis* Hajdu & Van Soest (1992) from Barbados. This shares the cup-shaped habit and skeletal architecture; however, this species has sanidasters and much larger euasters, while it lacks microrhabds.

Family Thrombidae Sollas, 1887
Genus *Thrombus* Sollas, 1886
Thrombus jancai Lehnert, 1998

Holotype ZMA POR. 11414, Montego Bay, Chalet Caribe, 30 m, in cave.

Family Geodiidae Gray, 1867
Genus *Geodia* Lamarck, 1815
Geodia neptuni (Sollas, 1888)

MATERIAL

ZMA POR. 12804, Discovery Bay, shelfbreak, #J9, 5.2.1993, 38m; ZMA POR. 12877, Negril, cave near surface, #J136, 15.4.1993, 0.2 m; ZMA POR. 12950, Discovery Bay, forereef, small cave at the base of pinnacle, infested with dark brown zoanthids, #J69, 9.3.1993, 33 m. Not preserved: Discovery Bay, shelfbreak, #J180, 5.5.1993, 88 m.

Geodia gibberosa (Lamarck, 1815)

MATERIAL

ZMA POR. 5745, Port Royal, coll. P. Wagenaar Hummelinck, #1680, 0.5-1 m.

Further records: GH: 68, Port Royal, mangroves.

Geodia papyracea Hechtel, 1965: 71

Holotype YPM 5045; Port Royal, mangrove boat channel.

Genus *Erylus* Gray, 1867
Erylus formosus Sollas, 1886

MATERIAL

ZMA POR. 12726, reefs in front of the mouth of the Rio Bueno, #J78, 12.3.1993, 17 m; ZMA POR. 12729, Discovery Bay, fore reef, #J76, 11.3.1993, 20 m; ZMA POR. 12743, Discovery Bay, fore reef, #J82, 17.3.1993, 30 m; ZMA POR. 12931, Discovery Bay, fore reef, #J41, 20.2.1993, 16 m.

DESCRIPTION

Shape and size: Dark brown to dark grey, almost black, massively encrusting sponge, up to 10 cm thick. Surface smooth, rough to the touch. Few oscules scattered over the surface, flush or slightly elevated. Below the thin, dark, leathery ectosome a white choanosome. Consistency firm, only slightly compressible, easily torn.

Spicules: Orthotriaenes: 300-800 x 10-18 μm, clads: 180-450 μm; oxeas: 550-1200 x 12-20 μm; elongated aspidasters, commonly with a central swelling: 110-250 x 18-45 μm, their surface is covered with small, often pentagonal "stars", exactly like the surface of the sterrasters in the genus *Geodia*; smooth, centrotylote, microxeas to microstrongyles: 45-63 x 3-5 μm; tylasters with spined rays: 15-35 μm.

REMARKS

This species can be confused in shape with *Erylus gofrilleri* Wiedenmayer (1977), which can only be separated by a harder consistency and by spicule examination (cf. below). It can also be superficially confused with the similar looking *Plakortis angulospiculatus*, which can be separated - apart from different spiculation - by a more light brown ectosome and an also brown coloured choanosome.

Erylus gofrilleri Wiedenmayer, 1977

MATERIAL

ZMA POR. 12730, Discovery Bay, fore reef, #J62, 3.3.1993, 21 m; ZMA POR. 12738, Discovery Bay, fore reef, #J58, 27.2.1993, 23 m.

REMARKS

Very similar to *E. formosus* (see remarks above), but it has a slightly harder consistency. Spiculation like that of *E. formosus*. Differences are the circular to ovoid aspidasters: 125-180 x 55-90 μm, and a bigger size range of tylasters, measuring 15-65 μm in diameter. The tylasters have a very small center and spined rays, the tyle is a concentration of spines at the end of the rays.

Erylus ministrongylus Hechtel, 1965: 72

Holotype YPM 5046, Drunkenman's Cay, under rocks in a few feet of water.

REMARKS

E. ministrongylus differs from the previously described species in having thicker aspidasters: 87-106 x 43-181 x 64-87 μm, in having small strongyloxeas: 370-551 μm, in having oxyasters instead of tylasters and in having smaller triaenes, rhabdome: 187-311 μm, cladome: 119-319 μm.

Erylus clavatus Pulitzer-Finali, 1986: 80

Holotype MSNG 47684, Jamaica, Duncans, fore reef slope, 40-45m; paratype MSNG 47685, same locality.

REMARKS

The clavate (pedunculated) shape differs from the other species, but in most other respects (skeleton, spicules) it is indistinguishable from *E. formosus*. An alleged difference would be the possession in *E. clavatus* of oxyasters in addition to tylasters, but the drawing provided by Pulitzer-Finali (his fig. 15) indicates the oxyasters are larger tylasters with few rays. Reexamination of the type specimens is necessary, but conspecificity with *E. formosus* is likely.

Order Spirophorida
Family Tetillidae Sollas, 1886
Genus *Cinachyrella* Wilson, 1925
Cinachyrella alloclada (Uliczka, 1929)

MATERIAL

ZMA POR. 12887, reefs in front of the mouth of the Pear Tree River, #J218, 3.6.1993, 12 m.

Cinachyrella kuekenthali (Uliczka, 1929)

MATERIAL

ZMA POR. 12794, Discovery Bay, blue hole near Columbus Park, #J5, 31.1.1993, 20 m; ZMA POR. 12943 (10 specimens), Discovery Bay, forereef, #J94, 23.3.1993, 34 m; Discovery Bay, forereef, #J61, 3.3.1993, 22 m; Discovery Bay, forereef, #J96, 23.3.1993, 27 m; Discovery Bay, near shelfbreak, #J118, 2.4.1993, 43 m; reefs west of the mouth of the Rio Bueno, #J127, 7.4.1993, 18 m; reefs west of the mouth of the Rio Bueno, #J134, 9.4.1993, 23 m; Discovery Bay, forereef, #J200, 29.5.1993, 33 m; Discovery Bay forereef, #J210, 2.6.1993, sediment area, 25 m; Discovery Bay, forereef, #J214, 2.6.1993, 5 m; reefs in front of the mouth of the Pear Tree River, inside cave, #J217, 3.6.1993, 25 m.

Cinachyrella spp. Pulitzer-Finali, 1986: 82 (as *Cinachyra*)

Recorded: Duncans, fore-reef slope, 35 m; Port Royal, cays, 10-25 m.

Order Chondrosida
Family Chondrillidae Schmidt, 1862
Genus *Chondrilla* Schmidt, 1862
Chondrilla nucula Schmidt, 1862
Figs. 10-11

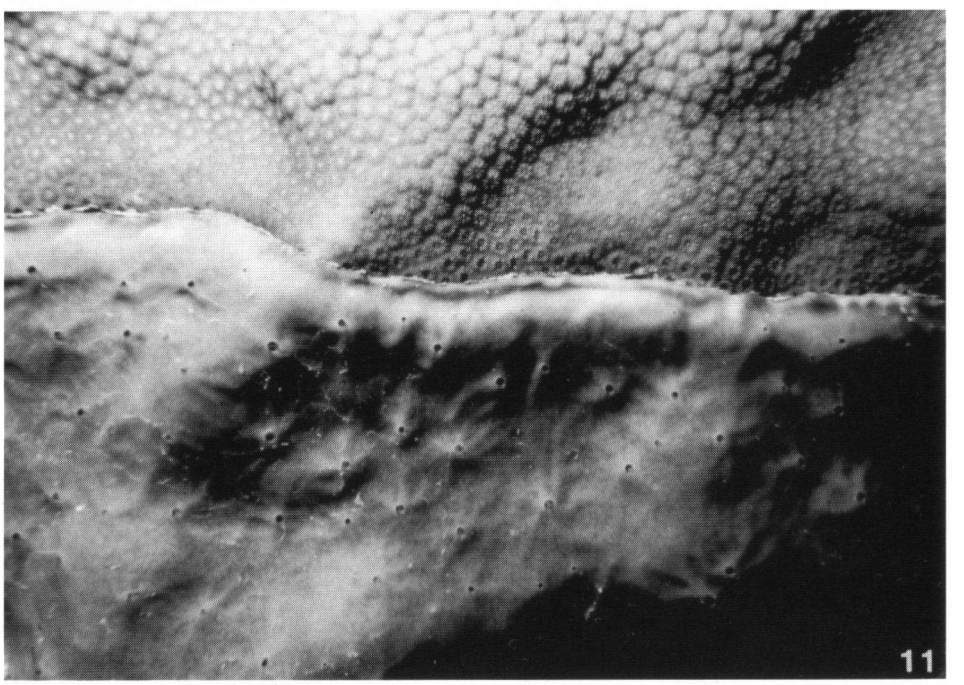
MATERIAL

ZMA POR. 12801, Discovery Bay, lagoon, #J17, 9.2.1993, 1 m.

Further records: GH: 74, PL: 99, Port Royal, cays, 10-25m, R.N. KC.15; Port Royal, wharf pilings, 1 - 6 m, R.N. PR.12.

REMARKS

As noted by Wiedenmayer (1977: 186) two distinct habits occur, which may be separated by



Figs. 10-11: *Chondrilla nucula*, 11. dark lobate form, fore reef, 7 m; 10. light, encrusting form, lagoon, 1.5 m.

colour and habitat. One growth form occurs inside the lagoon, encrusting, up to 1 cm thick to lobate on coral rubble (Fig. 10). It is dark brown with smooth surface and inconspicuous oscules. The other growth form occurs on the shallow fore reef on hard substrate and may cover larger areas than the dark brown growth form. It is thinly encrusting, yellowish brown coloured (Fig. 11). The surface is smooth and the small oscules are surrounded by star-like oscular canals. The consistency is elastic but resilient. Spicules: oxyspherasters: 10-40 μm in diameter.

Genus *Chondrosia* Nardo, 1847
Chondrosia collectrix (Schmidt, 1870)

Recorded: PL: 99, Port Royal, wharf pilings, 1-6 m.

Order Hadromerida
Family Clionidae Gray, 1867
Genus *Alectona* Carter, 1879
Alectona jamaicensis Pang, 1973: 50

Holotype YPM 8718, Discovery Bay, on *Porites furcata.*

Genus *Cliona* Grant, 1826

Cliona delitrix Pang, 1973: 28

MATERIAL

ZMA POR. 12767, Discovery Bay, fore reef, #J306, 6.7.1993, 27 m. Not preserved: Discovery Bay, fore reef, #J108, 27.3.1993, 5 m.

Further records: Holotype YPM 8715; paratypes in BMNH, SUNY-UWI, 8 specimens from Discovery Bay; PL: 96, Port Royal, cays, 10-25 m.

Cliona vermifera Hancock, 1867

MATERIAL

ZMA POR. 12835, Discovery Bay, fore reef, #J309, 7.7.1993, 9 m; ZMA POR. 12836, Discovery Bay fore reef, #J294, 17.6.1993, 29 m. Not preserved: Discovery Bay, fore reef, #J67, 4.3.1993, 15 m; Discovery Bay, fore reef, #J132, 8.4.1993, 10 m.

Further records: GH: 60, Port Royal; Pang, 1973: 12, Discovery Bay.

Cliona caribbaea Carter, 1882

MATERIAL

ZMA POR. 12870, Discovery Bay, fore reef, #J205, 1.6.1993, 9 m.

Further records: GH: 61, Port Royal (as *Cliona viridis*); Pang, 1973: 22, Discovery Bay, lagoon.

Remarks: The sponge does not seem to encrust the surface of the substrate so that only small borings in the infested rock are visible. In these papillae the greenish colour of the sponge may be recognizable.

Cliona schmidti (Ridley, 1881)

Recorded: Pang, 1973: 8, Discovery Bay and Rio Bueno.

Cliona janitrix Topsent, 1932

Recorded: Pang, 1973: 16, Discovery Bay and Rio Bueno.

Cliona lampa de Laubenfels, 1950

Recorded: Pang, 1973: 18, Discovery Bay.

Cliona peponacea Pang, 1973: 32

Holotype YPM 8719; paratypes in BMNH and SUNY-UWI, 6 specimens from Discovery Bay.

Cliona langae Pang, 1973:34

Holotype YPM 8716; paratypes in BMNH and SUNY-UWI, 8 specimens from Discovery Bay.

Cliona laticavicola Pang, 1973: 37

Holotype YPM 8720; paratypes in BMNH and SUNY-UWI, 6 specimens from Discovery Bay.

Cliona aprica Pang, 1973: 42

Holotype YPM 8722; paratypes in BMNH and SUNY-UWI, 6 specimens from Discovery Bay.

Family Spirastrellidae Ridley & Dendy, 1886
Genus *Spirastrella* Schmidt, 1868
Spirastrella coccinea (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12802, Discovery Bay, fore reef, #J44, 17.2.1993, 23 m; ZMA POR 12820, Discovery Bay, blue hole near Columbus Park, #J126, 18.2.1993, 20 m; ZMA POR. 12821, Discovery Bay, blue hole near Columbus Park, #J252, 7.6.1993, 15 m; ZMA POR. 12830, reefs in front of the mouth of the Pear Tree River, inside a cave, #J222, 3.6.1993, 25 m; ZMA POR. 12831, Discovery Bay, forereef, #J297, 28.6.1993, 12 m; ZMA POR. 12832, Discovery Bay, fore reef, #J280, 14.6.1993, 34 m; ZMA POR. 12873, Discovery Bay, fore reef, #J212, 2.6.1993, 8 m.

Further records: GH: 54, Port Royal.

REMARKS

Two growth forms of this species appear to exist, both are thinly to massively encrusting and differ mainly in colour. There is a rose-red growth

form with often white-skinned canals on the surface, all leading to a circular oscule. The second growth form is more massively encrusting, pink-coloured with irregular red spots on the surface. Spicules: tylostyles, sometimes with a blunt end, occasionally with an elevated ring just before the head, measuring 280-650 x 5-12 μm; spirasters, very variable in size and form, measuring 5-47 μm.

Genus *Anthosigmella* Topsent, 1918
Anthosigmella varians (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12792, Discovery Bay, fore reef, #J8, 5.2.1993, 40 m; ZMA POR. 12826, Discovery Bay, fore reef, #J215, 2.6.1993, 7 m; ZMA POR. 12827, Discovery Bay, forereef, #J213, 10.2.1993, 20 m; ZMA POR. 12828, Discovery Bay, fore reef, #J143, 23.4.1993, 11 m; ZMA POR. 12829, reefs in front of the mouth of the Pear Tree River, #J111, 28.3.1993, 12 m; ZMA POR. 12863, Discovery Bay, fore reef, #J39, no further data; ZMA POR. 12866, Discovery Bay, back reef, #J92, 22.3.1993, 1 m;

Further records: GH: 55, Port Royal; Pang, 1973: 48, Discovery Bay; PL: 92, Port Royal, cays, 10-25 m.

Genus *Speciospongia* Marshall, 1882
Speciospongia vesparium (Lamarck)

MATERIAL

ZMA POR. 12785, Discovery Bay, fore reef, #J73, 11.3.1993, 25 m; ZMA POR. 12900, Discovery Bay, fore reef, #J123, 6.4.1993, 30 m.

Further records: GH: 57, Port Royal; PL: 93, Port Royal, cays.

Family Placospongiidae Gray, 1867
Genus *Placospongia* Gray, 1867
Placospongia intermedia Sollas, 1888

Recorded: GH: 62 (as *P. carinata*), Port Royal and at the cays; PL: 100 (as *P. carinata*), Port Royal, wharf pylons and wall, 1-6m.

REMARKS

The usual assignment of West Indian specimens conforming to this species to *P. carinata* Bowerbank (1858) is unlikely to be realistic under any species concept other than a strict morphological one. *P. carinata* was originally described from the Indo-Pacific ("South Seas") and the synonymy of *P. intermedia* with it is based on overall similarity. We prefer to keep *P. intermedia* (originally described from the Western Atlantic) as a closely related but separate species.

Family Timeidae Topsent, 1928
Genus *Diplastrella* Topsent, 1918
Diplastrella megastellata Hechtel, 1965

MATERIAL

ZMA POR. 12839, reefs in front of the mouth of the Rio Bueno, inside a cave, #J149, 23.4.1993, 24 m. Not preserved: reefs in front of the mouth of the Pear Tree River, entrance of a cave, #J190, 21.5.1993, 27 m.

Further record: GH: 58, Port Royal.

Family Polymastiidae Gray, 1867
Genus *Polymastia* Bowerbank, 1862
Polymastia tenax Pulitzer-Finali, 1986

MATERIAL

ZMA POR. 12861, Discovery Bay, fore reef, #J115, 29.3. 1993, 15 m.

Family Suberitidae Schmidt, 1870
Genus *Suberites* Nardo, 1833
Suberites aurantiaca (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12857, Discovery Bay, blue hole near Columbus Park, #J6, 31.1.1993, 20 m; ZMA POR. 12858, Discovery Bay, blue hole near Columbus Park, #J33, 19.2.1993, 17 m; ZMA POR. 12859, Discovery Bay, fore reef, #J288, 16.6.1993, 43 m; ZMA POR. 12860, Discovery Bay, fore reef, #J312, 8.7.1993, 26 m;
ZMA POR. 5749, 5761, Kingston Harbour, inlet W of airport, 7.5.1973, coll. P. Wagenaar Hummelinck, #1677, 0-1 m.

Further records: GH: 59 (as *Terpios zeteki*), Port Royal; PL: 88 (as *Terpios zeteki*), Port Royal, mangrove, 0.2-1.5 m, and on submerged ruins, 5-10 m.

Genus *Aaptos* Gray, 1867
Aaptos lithophaga (Wiedenmayer, 1977 as *Epipolasis*)

MATERIAL

ZMA POR. 12864, Discovery Bay, back reef, #J91, 22.3. 1993, 1 m.

REMARKS

Greenish brown, thickly encrusting sponge with a smooth surface. Skeleton radiate at the surface, becoming confused with vague ascending bundles in the interior. Strongyloxeas in a wide size range, smaller concentrated in the surface palisade: 250-1240 x 4-23 μm. The species differs from other *Aaptos* species in the area in the shape (mostly definitely styles) and size (mostly much thicker) of the spicules.

The genus *Epipolasis* De Laubenfels (1936) was recently redescribed by Van Soest et al. (1990) on the basis of its type species, *E. suluensis*. This is unlike the present species in many aspects, including the possession of sinuous trichodragmata and a thoroughly confused skeleton.

Family Tethyidae Gray, 1867
Genus *Tethya* Lamarck, 1814
Tethya crypta (De Laubenfels, 1936b)

MATERIAL

ZMA POR. 12837, #J325: 18. 7. 1993, Discovery Bay, lagoon, 2 m depth.

Tethya seychellensis (Wright, 1881)

Recorded: GH: 65, Port Royal.

Tethya actinia De Laubenfels, 1950

Recorded: GH: 66, Drunkenman's Cay.

Tethya maza Selenka, 1879

MATERIAL

ZMA POR. 12747, Discovery Bay, lagoon, #J151, 28.4.1993, 0.2 m. Not preserved: Discovery Bay, lagoon, #J120, 22.3.1993, 0.5 m.
Further record: GH: 67, Port Royal.

Tethya diploderma Schmidt, 1870

Recorded: PL: 98, Port Royal, pylons and wall of wharf, 1-6 m.

Tethya sp.

Recorded: PL: 98, Port Royal, wall of wharf, 1- 6 m.

Order Agelasida
Family Agelasidae Verrill, 1907
Genus *Agelas* Duchassaing & Michelotti, 1864
Agelas clathrodes (Schmidt, 1870)

MATERIAL

ZMA POR. 12772, Discovery Bay, fore reef, #J277, 34 m; ZMA POR. 12775, Discovery Bay, fore reef, #J272, 28 m.
Further record: PL: 110, Duncans, drop-off, 35 m.

Agelas conifera (Schmidt, 1870)

MATERIAL

ZMA POR. 12774, Discovery Bay, fore reef, underside of *Agaricia agaricites*, #J291, 37 m; ZMA POR. 12778, Discovery Bay, fore reef, #J299, 28. 6. 1993, 9 m.
Further record: PL: 108, Duncans, drop-off, 35 m.

Agelas dispar Duchassaing & Michelotti, 1864

MATERIAL

ZMA POR. 12766, beach worn specimen, found near the mouth of the Pear Tree river, #J107, 27. 3. 1993; ZMA POR. 12782, Discovery Bay, shelf-break, #J12, 5.2. 1993, 40 m; ZMA POR. 12936, Discovery Bay, fore reef, #J133, 8. 4. 1993, 11 m.
Further record: PL: 107, Duncans, drop-off, 35 m.

Agelas sceptrum (Lamarck, 1815)

MATERIAL

ZMA POR. 12871, reefs in front of the mouth of the Rio Bueno, vertical wall, #J125, 7.4. 1993, 12 m, infested with *Parazoanthus* sp.

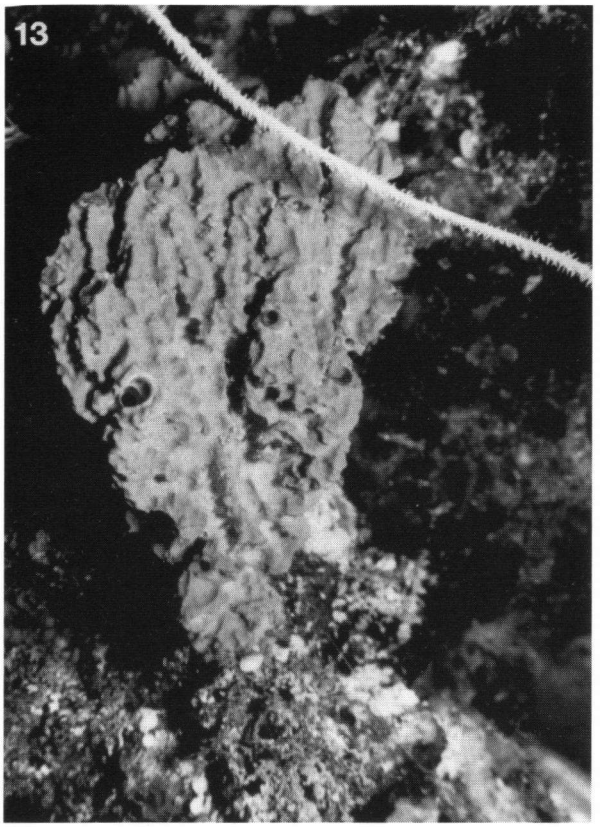
Agelas sventres Lehnert & Van Soest, 1996

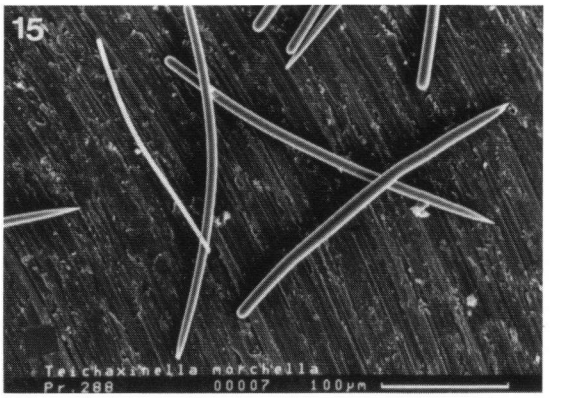
Holotype ZMA POR. 11322, Discovery Bay, vertical shelf break, #J177, 5. 5. 1993, 51 m.

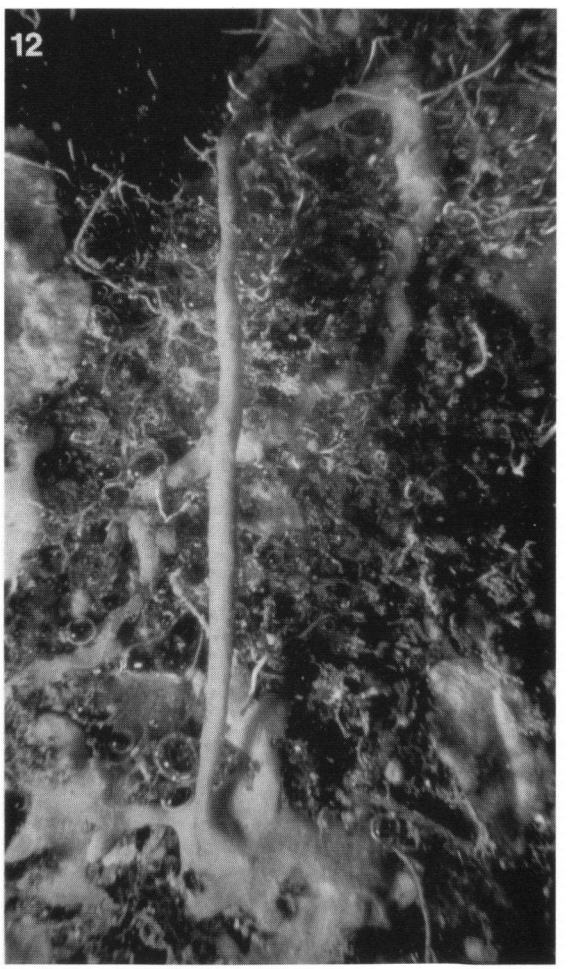
Agelas schmidti Wilson, 1902

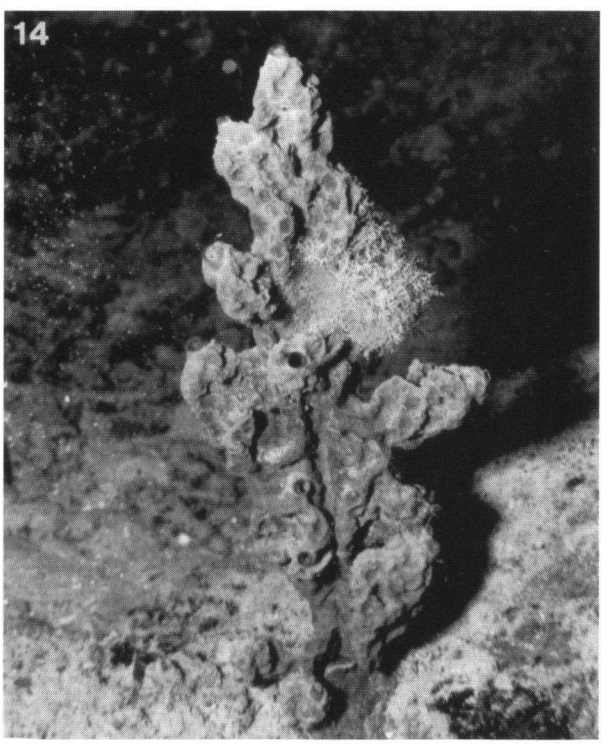
MATERIAL

ZMA POR. 12777, Discovery Bay fore reef, coral rubble,









Figs. 12-15. 12. *Agelas repens* n.sp., habit photographed in situ; 13-15. *Stylissa caribica* n.sp., 13-14. habit photographed in situ 15. spicules.

#J203, 31. 5. 1993, 16 m. Not preserved: Discovery Bay, shelf break, #J289, 16. 6. 1993, 43m depth.

Agelas sp.1, 4, 5 sensu Pulitzer-Finali, 1986: 113

Recorded: Duncans, drop-off, 35-45 m.

Agelas repens n.sp.
Fig. 12

MATERIAL

Holotype ZMA POR. 12870, reefs in front of the mouth of the Rio Bueno, ceiling of a cave, #J146, 23. 4. 1993, 23 m.

DESCRIPTION

Shape and size: Persistently thin, whip-like branches following a repent-ramose course, attaching here and there on the substrate or on each other. Branches 2-5 mm diameter, issuing from a thickly encrusting base of size 10 x 30 x 5 mm in size. Oscules small, less than a mm in size, in slight depressions, with vaguely visible depressed exhalant channels leading to them. Colour pale orange.

Spicules: the verticillated acanthostyles usual for the genus; they are quite variable in length and number of whorls: 85-200 x 6-10 μm with 11-19 whorls; juvenile growth stages of the spicules are smooth annulated or wobbly styles, often with a slight tyle subterminally.

Skeleton: Rather irregular, with little distinction in primary fibres (recognizable on the larger number of coring spicules: 0-4) and secondary fibres (coring 0-1 spicule). Fibre diameter: 15-50 μm. Echinating spicules are distributed irregularly, average distance 70-90 μm, but often quite far apart. The fibres form irregular meshes of 100-800 μm, the latter often enclosing larger canals. Many loose spicules are strewn in the choanosome.

Ecology: In caves in the fore-reef.

Etymology: The name refers to the creeping habit.

REMARKS

The species is similar in habit to *Agelas ceylonica* Dendy, 1905 from the Indian Ocean. The only other West Indian species that may approach this new species in habit is *Agelas sceptrum* which is also persistently thinly ramose without obvious elevated oscules. In fact, the material described as *Agelas sceptrum* by van Soest & Stentoft (1988) from deep water (100 m) off Barbados contains fine branches similar to that of the present species; it is likely that this material also belongs to the present species. However, typical *A. sceptrum* specimens, including Lamarck's type (cf. Topsent, 1933: pl. II fig. 5), have branches of at least 1 cm - but more frequently 2 cm - in diameter and they are erect and giving off side branches at regular intervals. They also have a characteristic punctured aspect of many non-oscular / non-poral apertures.

The new species is erected mostly on the basis of the habit, which is unique among West Indian *Agelas*. Apparently the skeletal characters of *Agelas* species are not useful for species discrimination as they exhibit a large variation within each specimen.

Family Ceratoporellidae Hartman & Goreau, 1972

Genus *Ceratoporella* Hickson, 1912

Ceratoporella nicholsoni (Hickson, 1911)

MATERIAL

ZMA POR. 11325, Discovery Bay, shelf break, vertical wall, #J160, 1.5.1993, 82 m; ZMA POR. 11326, Discovery Bay, shelf break, vertical wall, #J236, 5.6.1993, 88 m together with *Stromatospongia vermicola*; ZMA POR. 4569, coll. S. Weinberg, no further data. Not preserved: reefs in front of the mouth of the Rio Bueno, inside cave, #J87, 19.3.1993, 15 m; reefs in front of the mouth of the Rio Bueno, inside a fissure, #J124, 7.4.1993, 14 m; reefs in front of the mouth of the Rio Bueno, from the ceiling of a cave, #J145, 25 m; reefs in front of the mouth of the Pear Tree River, inside a cave, #J221, 3.6.1993, 25 m.

Further records: Hartman & Goreau, 1970: Maria Buena Bay, Rio Bueno, Discovery Bay, Runaway Bay, Tower Isle, and Robbins Bay, 10-90 m, in subreef tunnels.

Genus *Stromatospongia* Hartman, 1969

Stromatospongia vermicola Hartman, 1969

Material not preserved: several specimens from the deep fore reef slope between 40 and 45 m depth,.

Further records: Holotype YPM 6376, Runaway Bay, 31-37 m; Hartman & Goreau, 1970: Maria Buena Bay, Rio

Bueno, Discovery Bay, Runaway Bay, Tower Isle, and Salt Gut, 10-95 m, under overhanging corals.

Stromatospongia norae Hartman, 1969

MATERIAL

ZMA POR. 4572, Pear Tree Bottom, 25 m, coll. E. Newton. Not preserved: several specimens from reef caves at Runaway Bay and in front of the Rio Bueno.

Further records: Holotype YPM 7770, and paratype 6463, both from Runaway Bay, 26-34 m; Hartman & Goreau, 1970: Maria Buena Bay, Rio Bueno, Discovery Bay, Runaway Bay, Tower Isle, and Salt Gut, 8-85 m, in subreef tunnels.

Genus *Goreauiella* Hartman, 1969
Goreauiella auriculata Hartman, 1969

MATERIAL

ZMA POR. 4798, Chalet Caribe, 20 m, coll. R.P.M. Bak. Not preserved: several specimens from reef caves at Runaway Bay and in front of the mouth of the Rio Bueno.

Further records: Holotype YPM 6858, Runaway Bay, 25 m; Hartman & Goreau, 1970: Maria Buena Bay, Rio Bueno, Discovery Bay, Runaway Bay, and Salt Gut, 8-70 m, in subreef tunnels.

Genus *Hispidopetra* Hartman, 1969
Hispidopetra miniana Hartman, 1969

Recorded: Holotype YPM 6853, Discovery Bay, 55-57 m; Hartman & Goreau, 1970: Maria Buena Bay, Rio Bueno, Discovery Bay, Runaway Bay, Salt Gut, Greta Pedro Bay (S coast), 10-95 m, in subreef tunnels.

Order Halichondrida
Family Axinellidae Carter, 1875
Genus *Ptilocaulis* Carter, 1883
Ptilocaulis walpersi (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12886, Discovery Bay, fore reef, #J324, 16 m; ZMA POR. 12947, Discovery Bay, ship channel, #J262, 10 m.

Genus *Stylissa* Hallmann, 1914
Definition (modified after Hooper & Lévi, 1993): Axinellidae with irregular to confused reticulation, without clear axial condensation. Spicules are exclusively curved and rather robust styles occurring in a wide size range but in a single size category.

Stylissa caribica sp. n.
Figs. 13-15

MATERIAL

Holotype ZMA POR. 12761, Discovery Bay, LTS, #J96/32, 67 m; paratype ZMA POR. 12754, reef cave in front of the mouth of the Pear Tree River, #J188, 30 m.

DESCRIPTION

Shape and size (Fig. 13): Dark orange sponge, starts from a narrow base, broadening to the top, flattened in one dimension, up to 15 cm high. The surface is undulating, corrugate, even lamellate in places. Oscules are circular and flush with the surface. The sponge is dark brown in the dry state.

Skeleton and spicules: Thin organic ectosome without spicules. In the choanosome the styles are arranged in axinellid-plumose ascending columns often connected by short spicule tracts and so forming a confused reticulation. No clear axial condensation. The spicules are curved styles (Fig. 14), sometimes with a blunt end. Dimensions: 210 - 360 x 5-15 μm.
Ecology: on reefs.
Etymology: Named after the region where this species was found.

REMARKS

This is the first record of the genus from the Atlantic ocean. According to Hooper & Lévi (1993) the genus *Stylissa* contains only three valid species (*S. flabelliformis* (Hentschel, 1912), *S. massa* (Carter, 1889) and *S. variabilis* (Hallmann, 1914). It is likely that a fourth species, conversely known as *"Acanthella"* or *"Axinella" carteri* (Dendy, 1889), is also a member of the genus. All four are so far restricted to the Indo-west Pacific region. Apart from the geographic separation the present species differs from all other known *Stylissa* in growth form and in having smaller and narrower styles.

Genus *Pseudaxinella* Schmidt, 1875
Pseudaxinella reticulata (Ridley & Dendy, 1886)

MATERIAL

ZMA POR. 12919, Discovery Bay, near Columbus Park, #J250, 14 m.

Family Dictyonellidae Van Soest et al., 1990
Genus *Scopalina* Schmidt, 1862
Scopalina ruetzleri (Wiedenmayer, 1977)

MATERIAL

ZMA POR. 12737, Discovery Bay, lagoon, #J38, 22.2. 1993, 4 m; ZMA POR. 11289, Discovery Bay, shelfbreak, on rope, #J241, 5.6.1993, 60 m; ZMA POR. 12922, Discovery Bay, fore reef, #J211, 2.6.1993, 7 m; ZMA POR. 12932, Discovery Bay, fore reef, #J110, 27.3.1993, 10 m; ZMA POR. 12935, Discovery Bay, fore reef, #J209, 2.6. 1993, 23 m.

Further record: PL: 118 (as *Ulosa*), Port Royal, cays, 10-25 m.

Scopalina hispida (Hechtel, 1965: 51, as *Ulosa*)

Holotype YPM 5043, common on mangrove roots near Port Royal.

Family Desmoxyidae Hallman, 1917
Genus *Myrmekioderma* Ehlers, 1870
Myrmekioderma rea (De Laubenfels, 1934)

MATERIAL

ZMA POR. 12927, Discovery Bay, blue hole, #J265, 15 m; ZMA POR. 12939, Discovery Bay, fore reef, #J228, 33 m; ZMA POR. 12940, Discovery Bay, blue hole near Columbus Park, #J36, 20 m.

Myrmekioderma styx De Laubenfels, 1953

MATERIAL

ZMA POR. 12865, Discovery Bay, fore reef inside a small cave at the base of a pinnacle, #J72, 35 m; ZMA POR. 12938, Discovery Bay, fore reef, inside a small cave several hundred meters west of #J72, #J273, 31 m.

Genus *Didiscus* Dendy, 1922
Didiscus oxeata Hechtel, 1983

MATERIAL

ZMA POR. 12917, reefs in front of the mouth of the Rio Bueno, inside cave, #J149b, 23.4.1993, 24 m; ZMA POR. 12930, reefs in front of the mouth of the Pear Tree River, #J113, 28.3.1993, 35 m.

Genus *Julavis* De Laubenfels, 1936
Julavis jamaicensis Van Soest & Lehnert, 1997

Holotype ZMA POR. 11520, Montego Bay, off Chalet Caribe, 20 m.

Family Halichondriidae Vosmaer, 1887
Genus Halichondria Fleming, 1828
Halichondria magniconulosa Hechtel, 1965: 53

Holotype YPM 5039, Rasta's wreck, Port Royal.

Halichondria melanodocia de Laubenfels, 1936

Recorded: GH: 52, on pilings and mangrove roots near Port Royal; PL: 115, Port Royal, wharf pilings, 1-6 m, and mangrove, 0.5 m.

Genus *Aponastra* Topsent, 1927
Aponastra modesta Pulitzer-Finali, 1986: 101

Holotype: MSNG 47688, Port Royal, submerged ruins, 5-7 m. This is considered a junior synonym of *Halichondria melanodocia* by Van Soest et al., 1990.

Genus *Topsentia* Berg, 1899
Topsentia ophirhaphidites (De Laubenfels, 1934)

MATERIAL

ZMA POR. 12918, reefs in front of the mouth of the Pear Tree River, inside cave, #J223, 3.6.1993, 25 m.

Order Poecilosclerida
Suborder Microcionina Hajdu et al., 1994
Family Iophonidae Burton, 1929
Genus *Acarnus* Gray, 1867
Acarnus nicoleae Van Soest et. al., 1991

Recorded: GH: 40 (as *Acanthacarnus souriei*), Drunkenman's Cay, coral rock.

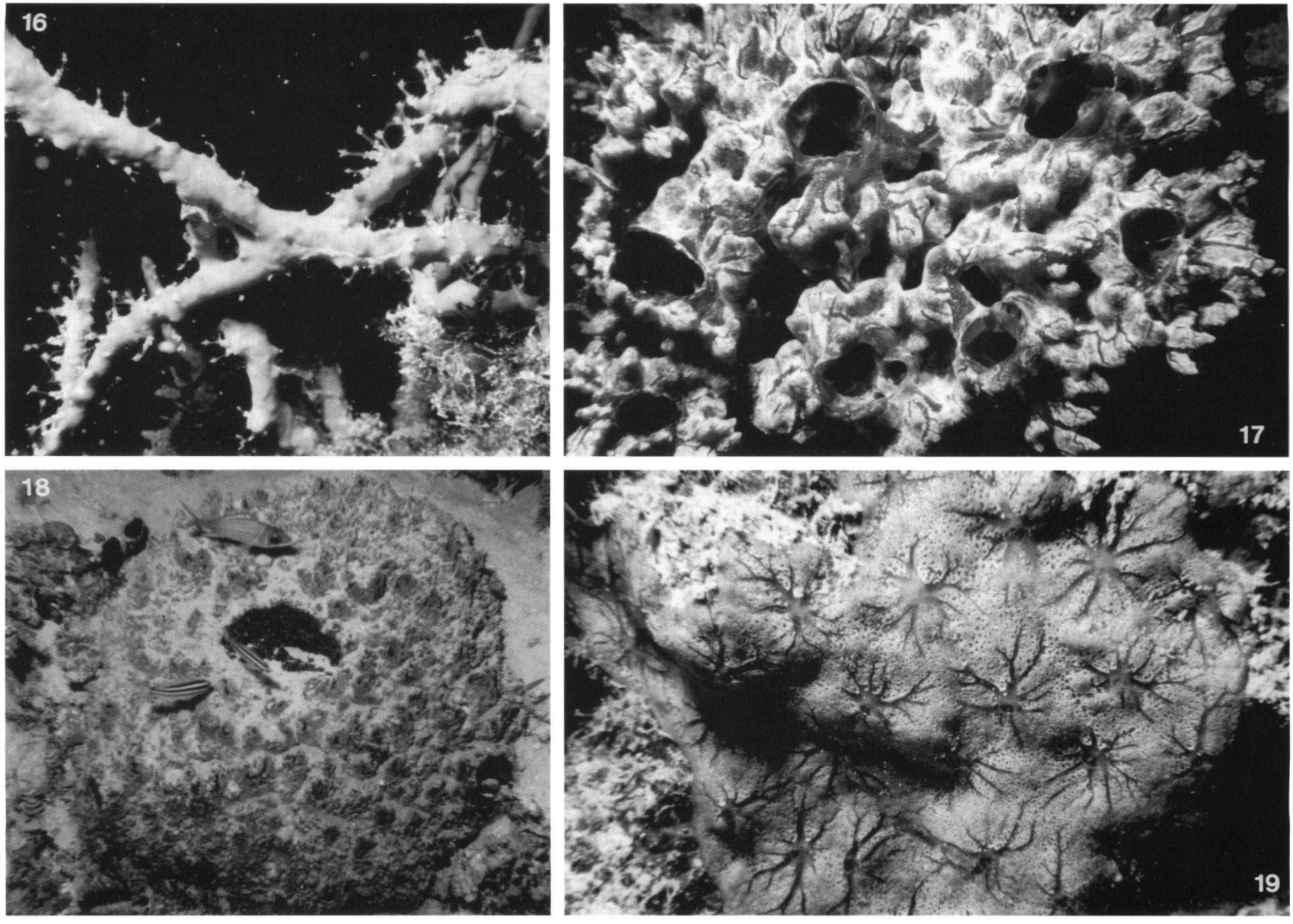


Fig. 16-19. Habits of sponges in situ, 16. *Clathria (Thalysias) virgultosa*, habit infested by hydroid polyps; 17. *Monanchora arbuscula*, lobate growth form; 18. *Biemna cribaria*, barrel-shaped specimen; 19 *Haliclona* sp., with star-shaped oscules.

Family Microcionidae Carter, 1875
Genus *Clathria* Schmidt, 1862
Clathria (Microciona) calla (De Laubenfels, 1934)

MATERIAL

ZMA POR. 12878, Discovery Bay, fore reef, #J182, 19.5.1993, 20 m; ZMA POR. 12884, Discovery Bay, fore reef, pinnacle, on sea whip (*Elisella* sp.), #J302a, 2.7.1993, 33 m.

Clathria (Microciona) simpsoni Van Soest, 1984

Recorded: PL: 150, Port Royal, submerged ruins, 5-10 m. This species is generally considered a junior synonym of *Clathria echinata* (Alcolado, 1984).

Clathria (Thalysias) virgultosa (Lamarck, 1814)
Fig. 16.

MATERIAL

ZMA POR. 12845, Discovery Bay, fore reef, infested by hydroid polyps, #J181, 19.5.1993, 25 m.

REMARKS

Hooper (1996) demonstrated that the West Indian species formerly known as *C. juniperina* (Lamarck) should in fact be named *C. virgultosa*, because *C. juniperina* is an Indo-Pacific species. The present material is an orange-red branching sponge. Surface smooth. Spicules: Large ectosomal subtylostyles: 250-320 x 4-8 μm, small ectosomal subtylostyles: 120-180 x 2-3 μm, large choanosomal styles: 230-310 x 8-10 μm, echinating acanthostyles: 45-65 x 5-7 μm, small toxas: 10-80 μm, large rhaphidiform toxas: 150-280 μm, and palmate isochelae, concentrated at the surface: 10-15 μm.

Clathria (Thalysias) schoenus (De Laubenfels, 1936)

MATERIAL

ZMA POR. 12844, Discovery Bay, blue hole near ship channel, #J269, 9.6.1993, 15 m.

Clathria (Thalysias) raraechelae (Van Soest, 1984)

MATERIAL

ZMA POR. 12888, Discovery Bay, fore reef, #J208, 2.6. 1993, 33 m, overgrowing a *Madracis decactis*.
Further record: PL: 151, Port Royal, cays, 10-25 m.

Clathria (Thalysias) microchela (Hechtel, 1965: 41)

Holotype YPM 5040, Rasta's wreck, common on shells and pilings at Port Royal.

Clathria (Thalysias) rarispinosa (Hechtel, 1965: 42)

Holotype YPM 5041, Rasta's wreck, incrusting on pilings and mussel shells at Port Royal.

Genus *Artemisina* Vosmaer, 1885
Artemisina melana Van Soest, 1984

MATERIAL

ZMA POR. 12768, Discovery Bay, fore reef, pinnacle, on sea whip (*Ellisella* sp.), #J302b, 2.7.1993, 33 m.

Genus *Pandaros* Duchassaing & Michelotti, 1864
Pandaros acanthifolium Duchassaing & Michelotti, 1864

Recorded: GH: 44, as holotype of *Thalyseurypon conulosa*, YPM 5042, off Maiden Cay, in about 10 feet of water.

Family Raspailiidae Hentschel, 1923
Genus *Ectyoplasia* Topsent, 1930
Ectyoplasia ferox (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12795 & 12843, Discovery Bay, fore reef, #J15, 8.2.1993, 12 m; ZMA POR. 12869, Discovery Bay, back reef, underside of dead coral, #J101, 24.3.1993, 1.5 m; ZMA POR. 12881, Discovery Bay, fore reef, #J206, 2.6. 1993, 39 m; ZMA POR. 12964, Discovery Bay, fore reef, #J40, 20.2.1993, 20 m; ZMA POR. 12965, Discovery Bay, fore reef, #J131, 8.4.1993, 10 m; ZMA POR. 12966, Discovery Bay, fore reef, #J139, 17.4.1993, 14 m; ZMA POR. 12967, Discovery Bay, fore reef, #J187, 20.5.1993, 21 m.

Further record: PL: 105, Duncans, fore reef slope, 35-40 m.

Genus *Echinodictyum* Ridley, 1881
Echinodictyum lugubre (Duchassaing & Michelotti, 1864)

Recorded: PL: 106, Port Royal, submerged ruins, 5-10 m. This is generally considered a junior synonym of *E. pennatum* (Duchassaing & Michelotti, 1864).

Suborder Myxillina Hajdu et al., 1994
Family Desmacididae Schmidt, 1870
Genus *Desmapsamma* Burton, 1934
Desmapsamma anchorata (Carter, 1882)

MATERIAL

ZMA POR. 12789, Discovery Bay, lagoon near ship channel, #J53, 26.2.1993, 8 m; ZMA POR. 12815, Discovery Bay, fore reef near ship channel, #J229, 39 m; ZMA POR. 12833, Discovery Bay, ship channel, #J260, 8.6.1993, 10 m; ZMA POR. 12834, Discovery Bay, ship channel, #J116, 1.4.1993, 12 m; ZMA POR. 12925, Discovery Bay, blue hole near Columbus Park, #J245, 7.6.1993, 25 m.

Further record: GH: 21, Port Royal; PL: 138, Port Royal, wharf pilings, 1-6 m, and submerged ruins, 5-10 m.

Genus *Holopsamma* Carter, 1885
Holopsamma helwigi De Laubenfels, 1936

Recorded: PL: 147, Port Royal, cays, 10-25m. This is possibly a heavily sanded specimen of *Desmapsamma anchorata.*

Family Myxillidae
Genus *Myxilla* Schmidt, 1862
Myxilla mucronata Pulitzer-Finali, 1986: 145

Holotype MSNG 47702, Port Royal, wharf pilings, 1-6 m, and submerged ruins, 5-10 m.

Genus *Iotrochota* Ridley, 1884
Iotrochota birotulata (Higgin, 1877)

MATERIAL

ZMA POR. 12793, Discovery Bay, fore reef, #J11, 5.2. 1993, 12 m; ZMA POR. 12872, reefs in front of the mouth of the Rio Bueno, #J129, 7.4.1993, 10 m.

Further records: GH: 24, Port Royal; PL: 139, Port Royal, cays, 10-25 m, and wharf pilings, 1-6 m; Duncans, fore reef slope, 40-45 m.

Family Crambeidae Lévi, 1963
Genus *Monanchora* Carter, 1883
Monanchora arbuscula (Duchassaing & Michelotti, 1864)
Fig. 17.

MATERIAL

ZMA POR. 12727, reefs in front of the mouth of the Pear Tree River, #J112, 28.3.1993, 32 m; ZMA POR. 12732, Discovery Bay, blue hole near ship channel, #J263, 9.6. 1993, 15 m; ZMA POR. 12735, reefs in front of the mouth of the Pear Tree River, #J219, 3.6.1993, 30 m; ZMA POR. 12739, Discovery Bay, fore reef, #J195, 28.5.1993, 34 m; ZMA POR. 12769, Discovery Bay, shelfbreak, #J230, 4.6.1993, 40 m.

Further record: PL: 142, (as *M. barbadensis*), Port Royal, cays, 10-25 m.

REMARKS

This is a variable species. The habit ranges from small thin, red encrustations on worm tubes with smooth surface to dark red sponges with whitish spots, massively encrusting or elevated, flattened masses with a strongly lamellated surface, no oscules apparent. Consistency tough, somewhat elastic. Spicules vary from thick styles to tylostyles: 100-280 x 4-8 μm, and thin subtylostyles to tylostyles: 150-270 x 2-3 μm. Microscleres include isochelae: 15-27 μm, and sigmata (reduced sigmatose chelae after van Soest, 1984): 8-12μm. The microscleres were very rare, sometimes absent in specimens from deeper water and were very abundant in J230 and J263. This could be an ecological adaptation to more abundant gastropods inside the lagoon, feeding on sponges. In J230 no sigmas were present and megascleres were true tylostyles. See also Van Soest et al. (1996) for further discussion of this species.

Family Tedaniidae Ridley & Dendy, 1886
Genus *Tedania* Gray, 1867
Tedania ignis (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12803, Discovery Bay, lagoon, #J42, 17.2. 1993, 0.3 m; ZMA POR. 12811, Discovery Bay, lagoon, #J150, 28.4.1993, 0.2 m; ZMA POR. 12822, Discovery Bay, fore reef, on a rope, #J63, 3.3.1993, 4 m; ZMA POR.

12823, Discovery Bay, blue hole near Colum-bus Park, from rope, #J257, 7.6.1993, 0.1 m; ZMA POR. 12883, Discovery Bay, 15 m; ZMA POR. 12924, Discovery Bay, lagoon, #J105, 26.3.1993, 0.3 m. Not preserved: Discovery Bay, blue hole near Columbus Park, #J23, 10.2.1993, 2 m; Discovery Bay, fore reef, #J61, 3.3.1993, 22 m; Discovery Bay, lagoon, #J135, 13.4.1993, 7 m.

Further records: GH: 37, Port Royal; PL: 147, Duncans, drop-off, 40-45 m, and wharf, 1-6 m; Port Royal, mangrove, 0.5-1 m, and cays, 10-25 m.

Family Coelosphaeridae Hentschel, 1923
Genus *Lissodendoryx* Topsent, 1892
Lissodendoryx isodictyalis (Carter, 1882)

Recorded: GH: 38, Drunkenman's Cay, turtle grass bed, 1 m.

Family Anchinoidae Topsent, 1928
Genus *Phorbas* Duchassaing & Michelotti, 1864
Phorbas amaranthus Duchassaing & Michelotti, 1864: 33

MATERIAL

ZMA POR. 12841, Pear Tree Bottom, #J220: 3. 6. 1993, 20 m; ZMA POR. 12842, Discovery Bay, fore reef, #J298, 28.6.1993, 12 m; ZMA POR. 12880, Discovery Bay, fore reef, #J144, 22.4.1993, 9 m.

Suborder Mycalina Hajdu et al., 1994
Family Mycalidae Lundbeck, 1905
Genus *Mycale* Gray, 1867
Mycale laevis (Carter, 1881)

MATERIAL

ZMA POR. 12882, Discovery Bay, #J206.

Further records: GH: 46, Port Royal; PL: 125, Port Royal, on pilings of wharf, 1-6 m and on submerged ruins, 5-10 m; including PL: 133, as holotype MSNG 47698 of *Oxymycale strongylata*, Port Royal, cays, 10-25 m.

REMARKS

Normally yellow to orange sponge, but occasionally it is white.

Mycale laxissima (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12776, Discovery Bay fore reef, #J47, 24.2. 1993, 22 m; ZMA ZMA POR. 12850, Discovery Bay fore reef, #J46, 24.2.1993, 28 m; POR. 12851, Discovery Bay, blue hole near Columbus Park, #J3, 20.1.1993, 16 m; ZMA POR. 12896, Discovery Bay fore reef, #J249, 7.6.1993, 23 m; ZMA POR. 12945, Discovery Bay, fore reef, #J155, 30.4.1993, 20 m; ZMA POR. 5192, Runaway Bay, 33.5 m, coll. H.M. Reiswig, 14.8.1969. Not preserved: Discovery Bay, fore reef, #J48, 24.2.1993, 16 m; reefs in front of the mouth of the Rio Bueno, below overhang, #J315, 13.7. 1993, 25 m.

Further record: PL: 119, Port Royal, cays, 10-25 m.

Mycale angulosa (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12920, Discovery Bay, blue hole near Columbus Park, #J258, 7.6.1993, 0.2 m, attached to rope.

Further records: GH: 48, Port Royal; PL: 130, Port Royal, on pilings of wharf, 1-6 m, and on submerged ruins, 5-10 m.

REMARKS

Massively encrusting to ramose, blue sponge. Branches with irregular outline, surface smooth. Consisten-cy tough, elastic. Mycalostyles: 230-320 x 3-7 μm, large anisochelae: 38-54 μm, small anisochelae: 15-25 μm, isochelae: 10-12 μm large sigmata: 60-78 μm, small thin sigmata: 15-24 μm, toxas: 30-75 μm, rhaphides: 25-50 μm.

Mycale mucifluens Pulitzer-Finali, 1986: 121

Holotype MSNG 47695, paratype: MSNG 47696, Port Royal, cays, 10-25 m, R.N. KC.32 & LP.62. This may very well be a somewhat atypical form of *M. laxissima.*

Mycale microsigmatosa Arndt, 1927

Recorded: GH: 47, Port Royal, on mangrove roots and on turtle grass; PL:124, Port Royal, mangrove, 0.2-1.5 m.

Mycale jamaicensis Pulitzer-Finali, 1986: 125

Holotype MSNG 47697, Duncans, fore reef slope, 35 m.

Family Desmacellidae Ridley & Dendy, 1886
Genus *Biemna* Gray, 1867
Biemna caribea Pulitzer-Finali, 1986

MATERIAL

ZMA POR. 12871, Discovery Bay, lagoon, #J119, 2.4 1993, 0.5 m, on *Thalassia* leaf.

Biemna cribaria (Alcolado & Gotera, 1986)
Fig. 18
Neofibularia cribaria Alcolado & Gotera, 1986: 3, figs. 3 & 5A.
Biemna oxeata Van Soest & Stentoft, 1988:118, fig. 58

MATERIAL

ZMA POR. 12745, 12770, reefs in front of the mouth of the Pear Tree River, #J88, 21.3.1993, 20 m.

DESCRIPTION

Shape and size (Fig. 16): Ochre coloured big, almost barrel-shaped sponge (about 30 cm in diameter, height unknown), biggest part buried in sediment, surface finely conulose, supported by spicule tracts, rough to the touch, lamellated. Many oscules scattered over the surface. Consistency firm, elastic, easy to cut.

Spicules: Oxeas to strongyles, with mammiform or multiple telescoped endings: 300-550 x 8-12μm, large sigmata: 50-77 μm, small sigmata: 20-26 μm, trichodragmas in two distinct size categories, large: 50-80 μm, small: 10-20 μm.

Skeleton: The ectosome is charged with sediment, and megascleres arranged tangentially in confusion. Choanosome cavernous, with radially halichondroid, plumose polyspicular tracts with spongin, sometimes connected by paucispicular tracts with abundant rhaphides. In between large quantities of sigmata and brushes of rhaphids.

REMARKS

Comparison with a slide of Alco-lado & Gotera's type of *Neofibularia cribaria* and the type material of *Biemna oxeata* Van Soest & Stentoft (1988) (ZMA POR. 5420) revealed that these are conspecific with the present barrel-shaped specimen. The presence of two size categories of trichodragmas was confirmed for all specimens. Alcolado & Gotera's name has priority. The species is assigned to *Biemna* rather than to *Neofibularia* based on the plumose-halichondroid arrangement of the megascleres.

Genus *Neofibularia* Hechtel, 1965
Neofibularia nolitangere (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12799, Discovery Bay, fore reef, #J43, 17.2. 1993, 22 m; ZMA POR. 12951, Discovery Bay, blue hole near Columbus Park, #J59, 2.3.1993, 3 m.
Further records: GH: 23 (as *N. massa*), Port Royal; PL: 137, Port Royal, cays, 10-15 m.

Family Hamacanthidae Hentschel, 1923
Merlia normani Kirkpatrick, 1908

Recorded: Hartman & Goreau, 1970: reef W of Rio Bueno harbour and Discovery Bay, 25-75 m

Order Haplosclerida
Family Chalinidae Gray, 1867
Genus *Haliclona* Grant, 1835
Haliclona tubifera (George & Wilson, 1919)

Recorded: GH: 20, (as *H. hogarthi*), Port Royal; PL: 160 (as *H. hogarthi*), Port Royal, mangrove, 0-1.5 m.

Haliclona implexiformis (Hechtel, 1965: 27, as *Adocia*)

MATERIAL

ZMA POR. 5754, Kingston Harbour, 7.5.1973, 0-1 m
Further record: Holotype YPM 5034, Port Royal, mangrove boat channel.

Haliclona albifragilis (Hechtel, 1965: 26 as *Adocia*)

Holotype YPM 5035, Drunkenman's Cay, under rocks at the cays, in a few feet of water.

Haliclona spec.
Fig. 19

MATERIAL

ZMA POR. 12963, reefs in front of the mouth of the Rio Bueno, below overhang, #J314, 13.7.1993, 20 m.

DESCRIPTION

Shape and size: Orange-yellow, encrusting sponge.

Surface covered with numerous star-like branched canals leading to an osculum. Consistency very soft, slimy.

Spiculation: Oxeas to styles, 120-165 x 2-5 μm, arranged in an ill-defined reticulation of single spicules or paucispicular tracts.

REMARKS

This matches exactly "*Rhaphidophlus venosus*" pictured in Humann (1993: 51). Because of its spiculation of diactines without any microscleres it is not a *Rhaphidophlus* but belongs to the order Haplosclerida. It is an undescribed species and for its description we refer to a forthcoming publication.

Haliclona coerulea (Hechtel, 1965: 30 as *Sigmadocia*)

MATERIAL

ZMA POR. 12895, Discovery Bay, lagoon, #J90, 22.3.1993, 1.5 m; ZMA POR. 12889, Discovery Bay, lagoon, #J99, 24.3.1993, 1 m. Not preserved: Discovery Bay, lagoon, fissure with freshwater outflow, #J102a, 24.3.1993, 1.5 m.

Further record: Holotype YPM 5037, Port Royal, Rasta's wreck.

Haliclona piscaderaensis (Van Soest, 1980)

MATERIAL

ZMA POR. 12874, Discovery Bay, blue hole near Columbus Park, #J26, 18.2.1993, 20 m; ZMA POR. 12961, Discovery Bay, lagoon, #J104, 25.3.1993, below algae, 1 m; ZMA POR. 12962, Discovery Bay, lagoon, #J103, 25.3.1993, 1.5 m.

Family Niphatidae van Soest, 1980

Genus *Amphimedon* Duchassaing & Michelotti, 1864

Amphimedon complanata (Duchassaing, 1850)

MATERIAL

ZMA POR. 12753, Discovery Bay, fissure in fore reef, #J207, 2.6.1993, 16 m.

REMARKS

Brown, massively encusting sponge. Surface covered with connected ridges and deep depressions in between, causing a net-like appearence. Mesh size of the ridges 1-2 mm. Oscules slightly raised, scattered over the surface. Consistency firm, only slightly compressible. Dry specimens are dark brown and hard.

Spicules and skeleton: thin strongyles, 75-110 x 1-3 μm, coring the spongin fibres. Uncored fibres also common. Spongin dominating, fibers 30-75 μm in diameter, connecting fibres 15-30 μm. More or less rectangular meshes, meshsize, 50-250 μm. The regular network of spongin-fibres, the thin spicules coring the fibres in small numbers resembles the skeleton of *Callyspongia*, but the characteristic double surface network is lacking.

Amphimedon compressa Duchassaing & Michelotti, 1864

MATERIAL

ZMA POR. 12790, Discovery Bay, forereef, #J18, 9.2.1993, 19 m; POR. 12941, Discovery Bay, blue hole near Columbus Park, #J244, 7.6.1993, 25 m; ZMA POR. 12942, Discovery Bay, lagoon, eastern margin, #J192, 26.5.1993, 3 m; ZMA.

Further records: GH: 18 (as *Haliclona rubens*), Port Royal; PL: 168, Port Royal, cays, 10-25 m; Duncans, drop-off, 35 m.

Amphimedon erina (De Laubenfels, 1936)

MATERIAL

ZMA POR. 12838, 12879, Discovery Bay, lagoon, fissure with freshwater outflow, #J4, 21.1.1993, 1 m; ZMA POR. 12904, Discovery Bay, lagoon, fissure with freshwater outflow, #J100, 24.3.1993, 1 m.

Further records: GH: 19 (as *Haliclona erina* and *Haliclona doria*), Port Royal.

Amphimedon caribica (Pulitzer-Finali, 1986)

MATERIAL

ZMA POR. 12910, reefs in front of the mouth of the Rio Bueno, below overhang, #J316, 13.7.1993, 25 m depth.

Amphimedon viridis Duchassaing & Michelotti, 1864

Recorded: PL: 167, Port Royal, submerged ruins, 7 m.

Genus *Niphates* Duchassaing & Michelotti, 1864
Niphates erecta Duchassaing & Michelotti, 1864

MATERIAL

ZMA POR. 12891, Discovery Bay, blue hole near ship channel, #J270, 9.6.1993, 15 m; ZMA POR. 12946, Discovery Bay, blue hole near Columbus Park, #J247, 7.6.1993, 20 m.

Further records: GH: 25 (as *Gelliodes areolata*), Port Royal; PL: 161, Port Royal, submerged ruins, 5-10 m, cays, 10-25 m, and wharf, 1-6 m.

REMARKS

Van Soest (1980) reported that most specimens lack the sigmata, but they are abundant in the present material.

Niphates digitalis (Lamarck, 1814)

MATERIAL

ZMA POR. 12813, Discovery Bay, blue hole near Columbus Park, #J29, 19.2.1993, 15 m; ZMA POR. 12867, Discovery Bay, blue hole near Columbus Park, #J20, 10.2.1993, 2 m. Not preserved: Discovery Bay, blue hole near Columbus Park, #J34, 19.2.1993.

Further record: PL: 162, Port Royal, cays, 10-25 m.

Family Callyspongiidae De Laubenfels, 1936
Genus *Callyspongia* Duchassaing & Michelotti, 1864
Callyspongia fallax Duchassaing & Michelotti, 1864

MATERIAL

ZMA POR. 12922, Discovery Bay, fore reef, #J141, 22.4.1993, 12 m; ZMA POR. 12937, Discovery Bay, blue hole near Columbus Park, #J266, 9.6.1993, 15 m.

Further records: GH: 31, Port Royal; PL: 172, Port Royal, cays, 10 m.

Callyspongia strongylophora Hartman, 1955

MATERIAL

ZMA POR. 12806, Discovery Bay, blue hole near Columbus Park, #J7, 31.1.1993, 20 m depth.

Callyspongia pallida Hechtel, 1965: 36

Holotype YPM 5038, sea wall of police post, Port Royal in several feet of water.

Callyspongia plicifera (Lamarck, 1814)

MATERIAL

ZMA POR. 12840, Discovery Bay, fore reef, #J13, 5.2. 1993, 15 m.

Further records: GH: 34, Port Royal; PL: 171, Port Royal, cays, 10-25 m.

Callyspongia armigera (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12928, Discovery Bay fore reef, #J142, 23.4. 1993, 10 m.

Further record: GH: 32, Port Royal.

Family Petrosiidae van Soest, 1980
Genus *Xestospongia* De Laubenfels, 1932
Xestospongia muta (Schmidt, 1870)

MATERIAL

ZMA POR. 12862, Discovery Bay, blue hole near Columbus Park, #J1, 20.1.1993, 15 m; ZMA POR. 12916, reefs in front of the mouth of the Rio Bueno, from the ceiling of a cave, #J147, 23.4.1993, 25 m.

Xestospongia subtriangularis (Duchassaing, 1850)

MATERIAL

ZMA POR. 12728, Discovery Bay, blue hole near Columbus Park, #J25, 18.2.1993, 20 m; ZMA POR. 12949, Discovery Bay, lagoon, #J152, 28.4.1993, 7 m.

Further records: PL: 154, Duncans, drop-off, 35 m; Kingston, cays, 10-25 m; Port Royal, wharf pilings, 1-6 m.

Xestospongia carbonaria (Lamarck, 1814)

MATERIAL

ZMA POR. 12948, Discovery Bay, lagoon, between *Thalassia* seagrass, #J98, 24.3.1993, 0.3 m; ZMA POR. 12923, Discovery Bay, lagoon, between *Thalassia* seagrass, #J106, 26.3.1993, 1 m.

Further records: GH: 26 (as *Adocia carbonaria*), Port Royal; PL: 159 (*as Pellina carbonaria*), Port Royal, wharf pilings, 1-6 m.

REMARKS

Massively encrusting to lobate, black sponge. Surface smooth, occasionally with short fistules with an oscule on top. Consistency brittle, easily broken. Ectosome a multilayered unispicular reticulation. Choanosome a dense, confused unispicular reticulation. Oxeas to strongyles: 140-250 x 5-11 μm.

Xestospongia caminata Pulitzer-Finali, 1986: 157

Holotype MSNG 47705, paratype MSNG 47704, Port Royal, cays, 10-25 m. This species needs to be redescribed, as it is presently unrecognizable.

Genus *Petrosia* Vosmaer, 1885
Petrosia pellasarca (De Laubenfels, 1934)

MATERIAL

POR. 12731, Discovery Bay, fore reef, #J83, 17.3.1993, 31 m; ZMA POR. 12755, reefs in front of the mouth of the Pear Tree River, #J114, 28.3.1993, 20 m; ZMA POR. 12758, Discovery Bay, fore reef, #J300, 2.7.1993, 30 m; ZMA POR. 12759, Discovery Bay, fore reef, #J283, 15.6.1993, 32 m; ZMA POR. 12875, Discovery Bay, fore reef, #J56, 28.2.1993, 20 m.

Petrosia weinbergi Van Soest, 1980

MATERIAL

ZMA POR. 12746, reefs in front of the mouth of the Pear Tree River, #J89, 21.3.1993, 20 m; ZMA POR. 12756, reefs in front of the mouth of the Rio Bueno, inside cave, #J148, 23.4.1993, 23 m.

Petrosia massiva Lehnert & Van Soest, 1996

MATERIAL

ZMA POR. 12893, Discovery Bay, blue hole near Columbus Park, #J256, 7.6.1993, 18 m.

Genus *Cribrochalina* Schmidt, 1870
Cribrochalina vasculum (Lamarck, 1814)

Recorded: PL: 168, Duncans, drop-off, 40-45m.

Family Phloeodictyidae Carter, 1882
Genus *Aka* De Laubenfels, 1936
Aka siphona (De Laubenfels, 1949)

MATERIAL

ZMA POR. 12921, Discovery Bay, fore reef, #J122, 6.4. 1993, 28 m.

Aka coralliphaga (Rützler, 1971)

MATERIAL

ZMA POR. 12797, Discovery Bay, fore reef, in a *Montastrea annularis*, #J60, 3.3.1993, 25 m; ZMA POR. 12853, reefs in front of the mouth of the Rio Bueno, #J80, 12.3.1993, 25 m; ZMA POR. 12855, 12856, Discovery Bay, reefs in front of the mouth of the Rio Bueno, #J77, 12.3.1993, 30 m; ZMA POR. 12854, reefs in front of the mouth of the Rio Bueno, #J86, 19.3.1993, 24 m.

Aka brevitubulata (Pang, 1973: 56, as *Siphonodictyon*)

Holotype YPM 8717, paratypes BMNH and SUNY-UWI, 7 specimens from Discovery Bay.

Further record: PL: 165, Duncans, drop-off, 30-40 m.

Aka xamaycaensis (Pulitzer-Finali, 1986: 164, as *Siphonodictyon*)
Holotype MSNG 47707, Duncans, 40-45 m.

Genus *Aka* De Laubenfels, 1936/*Metschnikowia* Grimm, 1890
Aka/Metschnikowia sp. sensu Kobluk & Van Soest, 1989

MATERIAL

Reefs in front of the mouth of the Pear Tree River, #J191, 21.5.1993, 26 m.

REMARKS

Very pale orange, almost transparent, thinly encrusting sponge on the underside of a *Mycetophyllia lamarckiana*. Spiculation: acanthoxeas 100-125 x 2-3 µm. Confused reticulation of single spicules or short tracts, embedded in spongin. This is similar to Kobluk & Van Soest's record from Bonaire. The systematic assignment is problematic; it will be addressed in a separate paper.

Genus *Oceanapia* Norman, 1869
Oceanapia bartschi (De Laubenfels, 1934)

MATERIAL

ZMA POR. 12763, Discovery Bay, blue hole near Columbus Park, #J248, 7.6.1993, 5 m; ZMA POR. 12848, Discovery Bay, shelfbreak, #J68, 5.3.1993, 40 m; ZMA POR. 12849, Discovery Bay fore reef, vertical wall, #J49, 24.2.1993, 28 m.

Further records: PL: 158, Duncans, 40-45 m.

DESCRIPTION

Shape and size: Black tube-shaped sponge. Surface covered with numerous paper-thin, closed fistules, 1-3 cm long. Apical end surrounded by a paper-thin rim. Consistency firm, somewhat elastic but easy to tear or cut. Yellow choanosome.

Spicules and skeleton: Strongyles or rare oxeas: 155-280 x 4-10 µm. Confused reticulation of single spicules or vague tracts. Choanosome: Irregularly arranged spicule tracts enclosed in spongin, 50-180 µm in diameter and many loose spicules in between. J248 is an encrusting sponge.

Oceanapia fistulosa (Bowerbank, 1873)

Recorded: PL: 158, Duncans, 40-45 m.

Oceanapia nodosa (George & Wilson, 1919)

Recorded: GH: 29 (holotype YPM 5036 of *Pellina coeliformis*), mangrove, Port Royal. It frequently grows on the surface of *Geodia gibberosa*.

Genus *Calyx* Vosmaer, 1885
Calyx podatypa (De Laubenfels, 1934)

MATERIAL

ZMA POR. 12885, Discovery Bay, smaller blue hole in front of the Marine laboratory, #J317, 14.7.1993, 6 m; ZMA POR. 12906, Discovery Bay, lagoon, fissure with freshwater outflow, #J93, 22.3.1993; ZMA POR. 12929, Discovery Bay, fore reef, #J183, 20.5.1993, 22 m.

Order Dictyoceratida
Family Spongiidae Gray, 1867
Genus *Spongia* Linnaeus, 1759
Spongia obscura Hyatt, 1877

Material not preserved: Discovery Bay, fore reef, #J51, 26.2.1993, 20 m.

REMARKS

Black, massive sponge. Oscules scattered over and flush with the surface or conical, thin walled elevations. Surface smooth or finely conulose. Dry specimens are greyish outside and have a brown choanosome. Skeleton: The organic ectosome is supported by a reticulation of very thin, clear spongin fibres: 8-20 µm in diameter, mesh size: 25-200 µm. The choanosome consists of an irregular reticulation of thicker, yellow spongin fibres, primaries, commonly free from inclusions or only slightly cored: 45-150 µm in diameter, secondaries: 20-40 µm, mesh size: 25-900 µm.

Genus *Hyattella* Lendenfeld, 1889
Hyattella cavernosa (Pallas, 1766)

MATERIAL

ZMA POR 12764, Discovery Bay, fore reef, #J327d, 11.7.1993, 18 m; ZMA POR. 12765, Discovery Bay, lagoon, #J326, 16.7.1993, 2 m; ZMA POR. 12764, Discovery Bay, fore reef, fissure, #J224, 3.6.1993, 23 m.

Family Thorectidae Bergquist, 1980
Genus *Smenospongia* Wiedenmayer, 1977
Smenospongia conulosa Pulitzer-Finali, 1986

MATERIAL

ZMA POR. 12748, Discovery Bay, fore reef, #J292, 16.6.1993, 16 m; ZMA POR. 12749, Discovery Bay, fore reef, #J196, 28.5.1993, 18 m.

REMARKS

Clusters of olive-green, volcano-shaped cones, 4-8 cm high with a contractile osculum at the top of each cone. The surface of the cones is conulose, between these conules numerous ostia are present. The acute cones, 2-3 mm high, are often connected by ridges, giving the sponge a reticulate surface pattern. The consistency is spongy, elastic, compressible. The habitus is similar to *Verongula rigida*. Skeleton: The fibres are yellow-orange coloured, laminated, uncored. Fibres are not distinguishable as primaries and secondaries: 15-65 μm in diameter. Mesh size: 50-500 μm.

Smenospongia aurea (Hyatt, 1875)

MATERIAL

ZMA POR. 12734, Discovery Bay, fore reef, #J226, 4.6.1993, 15 m; ZMA POR. 12760, Discovery Bay, forereef, #J198, 29.5.1993, 28 m. Not preserved: Discovery Bay, forereef, #J225, 3.6.1993, 20 m.

Genus *Hyrtios* Duchassaing & Michelotti, 1864
Hyrtios violaceus (Duchassaing & Michelotti, 1864)

Recorded: GH: 11 (as *Oligoceras hemorrhages*), Port Royal.

Hyrtios tubulatus sp. n.
Figs. 20-21.

MATERIAL

Holotype ZMA POR. 12762, Discovery Bay, blue hole near Columbus Park, #J35, 19.2.1993, 5 m.

DESCRIPTION

Shape and size (Figs. 20-21): Dark grey, tube-shaped sponge, up to 20 cm high and 6 cm in diameter (now broken into two pieces). Vent 1.5 cm diameter, wall 0.5 cm thick. Surface strongly ribbed, conulose, annulated. Rare apertures of 1-3 mm in diameter are scattered over the surface. Fragile in dried condition.

Skeleton: Primary fibres: 90-250 μm in diameter, secondaries: 25-90 μm. All fibres are heavily cored with foreign material, predominantly small-sized (20 μm) sand grains and a minority of broken spicules. Meshes variable with smaller meshed parts separated by larger spaces, size 75-800 μm. No data on soft parts are available as the specimen was dried upon collection.
Ecology: sandy lagoon.
Etymology: Named after its shape.

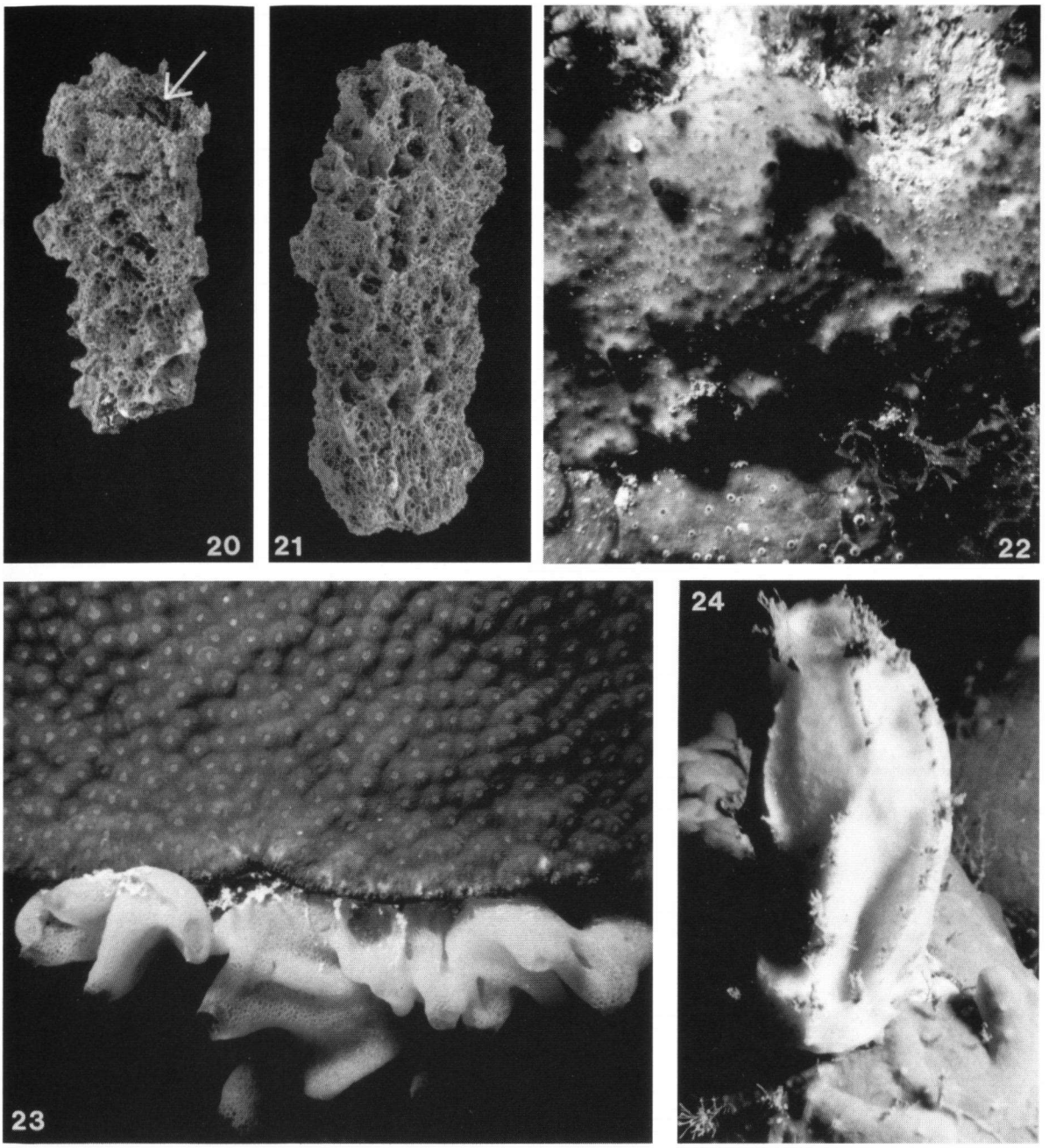
REMARKS

Four other *Hyrtios* species have been recorded from the West Indian region, viz. *H. proteus* Duchassaing & Michelotti (1864), *H. violaceus* (Duchassaing & Michelotti, 1864, as *Acamas*), *H. spongeliformis* (Wilson, 1902 as *Cacospongia*), and *H. caracasensis* (Carter, 1882 as *Hircinia*). *H. proteus* is a pitch-black, coarsely conulose, cake-shaped mass with very thick fibres, entirely filled with foreign material (cf. redescription in Van Soest, 1978). *H. violaceus* is a brown-purple lobate sponge with finer conules and fibres similar to our new species, but differing in the persistently heavy coring of both primaries and secondaries. *H. spongeliformis* is similar in most respects to *H. violaceus*, but has ramose habit; it is uncertain whether it is specifically distinct from *H. violaceus*. *H. caracasensis* is again a coarsely conulose lobate sponge, differing from *H. proteus* in the light coring of the fibres and the fasciculated primaries. From all these species, *H. tubulatus* differs in the tube-shape and the peculiarly ribbed-annulated surface. These features stand out so distinctly from the other species of *Hyrtios* that the new species is erected with confidence, despite lack of information on the soft parts. In coring of the fibres, it approaches *H. proteus*, in thickness of the fibres and size of the meshes, it is more similar to *H. violaceus*.

Family Ircinidae Gray, 1867
Genus *Ircinia* Nardo, 1833
Ircinia felix (Duchassaing & Michelotti, 1864)
Fig. 22

MATERIAL

ZMA POR. 12773, Discovery Bay, fore reef, #J202, 31.5.1993, 26 m; ZMA POR. 12805, Discovery Bay, fore reef, #J67, 4.3.1993, 15 m; ZMA POR. 12899, Discovery Bay, fore reef, #J275, 14.6.1993, 37 m; Lehnert collection,



Figs. 20-24. 20-21. *Hyrtios tubulatus* n.sp., two fragments of dry holotype, ZMA POR. 12762; 22. *Ircinia felix*, sheet form, photographed in situ; 23.*Clathrina primordialis*, habit photographed in situ; 24. *Leucetta* aff. *floridana*, habit photographed in situ.

Discovery Bay, forereef, #J154, 29.4.1993, 20 m; Lehnert collection, Discovery Bay, fore reef, #J140, 22.4.1993, 18 m.

Further record: GH: 8 (as *I. fasciculata*), Port Royal.

Remarks

Typical specimens are of hemisperical shape, oscules surrounded by a violet coloured ring. Surface brown with whitish grey areas and finely

conulose. Oscules scattered over the surface, often grouped together. Consistency tough, very compressible, but difficult to cut or tear. Primary fibres: 240-500 μm in diameter, 1000-2000 μm apart, secondaries 20-100 μm in diameter. All fibres cored with foreign material, the secondaries less than the primaries. Very long flexuous filaments, at least up to 1700 μm long, 4-8 μm in diameter, with terminal rounded head.

The specimens J67, J140, J202, J275 are unusual with respect to the fact that they are thin, leathery encrustations (Fig. 18) which cover up to 0.06 m^2. Although they cover relatively large areas, they were never observed to grow up to the typical massive or hemispherical shape of normal *I. felix*. However, for the time being the differences are regarded too small to separate them on the species level.

Ircinia strobilina (Lamarck, 1816)

MATERIAL

ZMA POR. 12788, Discovery Bay, fore reef, #J74, 11.3. 1993, 21 m. Not preserved: Discovery Bay, fore reef, #J199, 29.5.1993, 35 m.

Further records: GH: 10, Port Royal; PL: 178, Port Royal, cays, 10-25 m.

Order Dendroceratida
Family Darwinellidae Merejkowski, 1879
Genus *Igernella* Topsent, 1905
Igernella notabilis (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12898, Discovery Bay, fore reef, pinnacle, #J301, 2.7.1993, 25 m; ZMA POR. 12905, reefs west of the mouth of the Rio Bueno, #J130, 7.4.1993, 4 m.
Further record: PL: 181, Duncans, drop-off, 40-45 m.

REMARKS

Pink coloured, massively encrusting sponge, occasionally with clusters of low tubes, 3-5 cm high. Surface finely conulose, with the ends of branched spongin fibres supporting the conules. Consistency elastic, compressible, slimy. Areas of inhalant pores at the surface, pores 70-150 μm in diameter. Skeleton: yellow spongin fibres, cored by foreign material, primaries: 50-250 μm in diameter, secondaries: 30-80 μm, cored more slightly than the primaries or free from foreign inclusions. Mesh size: 75-1800μm. Spongin diactines: ca. 2000 x 20-40 μm, spongin triactines with rays: 500-1200 x 18-36μm in diameter, spongin tetractines with rays: 500-750 x 18-30 μm in diameter. The ectosome is a thin organic layer, sometimes supported by foreign spicules.

The present specimens deviate from most previously described specimens in the possession of spongin tetractines. However, these were described recently for *I. notabilis* by Uriz & Maldonado (1996).

Genus *Darwinella* Schulze, 1865
Darwinella rosacea Hechtel, 1965: 17

Holotype YPM 5032, Port Royal, mangrove boat channel.

Family Dysideidae Gray, 1867
Genus *Dysidea* Johnston, 1842
Dysidea janiae (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12847, Discovery Bay, lagoon, #J54, 26.2. 1993, 8 m; ZMA POR. 12892, Discovery Bay, blue hole near Columbus Park, #J254, 7.6.1993, 12 m; ZMA POR. 12902, Discovery Bay, blue hole near ship channel, #J268, 9.6.1993, 15 m. Additionally several specimens from lost fish-traps from the blue hole from Discovery Bay; these were not preserved.

Dysidea fragilis (Montagu, 1818)

Recorded: GH: 14, Port Royal.

Dysidea etheria De Laubenfels, 1936.

Material not preserved, Discovery Bay, blue hole near Columbus Park, #J31, 19.2.1993, 8 m.

Order Verongida
Family Aplysinidae Carter, 1875
Genus *Aplysina* Nardo, 1833
Aplysina fistularis (Pallas, 1766)

MATERIAL

ZMA POR. 12798, Discovery Bay, blue hole near Columbus Park, #J28, 18.2.1993, 15 m. Not preserved: Discovery Bay, fore reef, #J287, 16.6.1993, 43 m.

Further record: GH: 12 (as Verongia), Port Royal.

Aplysina lacunosa (Pallas, 1766)

MATERIAL

ZMA POR. 12890, #J193, 28.5.1993, Discovery Bay, fore reef, 16 m; ZMA POR. 12926, Discovery Bay, lagoon, #J153, 28.4.1993, 2 m; ZMA POR. 12903, Discovery Bay, fore reef, #J201, 19.5.1993, 25 m; ZMA PR. 12912, Discovery Bay, blue hole near ship channel, #J267, 9.6.1993, 15 m, overgrown by a red encrusting sponge; ZMA POR. 12926, Discovery Bay, lagoon, *Thalassia* field, #J153, 28.4. 93, 2 m; ZMA POR. 3884, Calamar Cruise, Stat. 475, no further data. Not preserved: Discovery Bay, fore reef, #J313, 8.7.1993, 26 m.

Further records: PL: 182, Port Royal, submerged ruins, 5-10 m; Duncans, drop-off, 35 m; Port Royal, cays, 10-25 m.

Aplysina cauliformis (Carter, 1882)

MATERIAL

ZMA POR. 12907, Discovery Bay, ship channel, #J261, 8.6.1993, 10 m; ZMA POR. 12944, Discovery Bay, fore reef, #J323, 17.7.1993, 15 m.

Further record: GH: 13 (as *Verongia longissima*), Port Royal.

Aplysina archeri (Higgin, 1875)

MATERIAL

ZMA POR. 12846, Discovery Bay, shelf break, #J10, 5.2.1993, 40 m.

Further record: PL: 183, Duncans, drop-off, 35 m.

Genus *Verongula* Verrill, 1907

Verongula gigantea (Hyatt, 1875)

MATERIAL

ZMA POR. 12868, Discovery Bay, fore reef, #J14, 5.2.1993, 20 m; ZMA POR. 12897, Discovery Bay, fore reef, #J197, 28.5.1993, 23 m.

REMARKS

Big, yellowish green-coloured barrel-shaped sponge with thin (1-2 cm thick) walls. Up to 0.5 m in height and diameter. The surface is made up by a structure of net-like elevated ridges. The consistency is flexible, elastic. Oscules are scattered over the surface of the inner walls of the barrel. The choanosome is yellow.

Fibres: Yellow to orange-yellow, lamellate, pithed spongin fibers, 150-250 μm in diameter and 30-60% pith.

Verongula rigida (Esper, 1794)

MATERIAL

ZMA POR. 12915, Discovery Bay, fore reef, #J227, 4.6. 1993, 12 m.

Further record: GH: 16 (as *Ianthella ardis*), Port Royal.

Family Aplysinellidae Bergquist, 1980

Genus *Aiolochroia* Wiedenmayer, 1977

Aiolochroia crassa Wiedenmayer, 1977

MATERIAL

ZMA POR. 11350, Discovery Bay, shelfbreak, #J176, 5.5.1993, 65 m; ZMA POR. 12787, Discovery Bay, blue hole near Columbus Park, #J19, 10.2.1993, 2 m; ZMA POR. 12796, reefs in front of the mouth of the Rio Bueno, overgrown by a *Spirastrella coccinea*, #J79, 12.3.1993, 18 m; ZMA POR. 12901, Discovery Bay, forereef, overgrown by a *Desmapsamma anchorata*, #J184, 20.5.1993, 23 m; ZMA POR. 12913, Discovery Bay, blue hole near Columbus Park, #J251, 7.6.1993, 15 m; ZMA POR. 12933, Discovery Bay, fore reef, overgrown by a *Desmapsamma anchorata*, #J194, 28.5.1993, 22 m; ZMA POR. 12934, Discovery Bay, fore reef, #J97: 23.3.1993, 25 m Not preserved: Discovery Bay, forereef, #J198, 29.5.1993, 28 m; halfway between Discovery Bay and the mouth of the Pear Tree River, overgrown by *Spirastrella coccinea*, #J243, 6.6.1993, 20 m; Discovery Bay, fore reef, #J290, 16.6.1993, 28 m; Discovery Bay, fore reef, overgrown by a *Spirastrella coccinea*, #J75, 11.3.1993, 25 m.

Further records: PL: 186 (as *Pseudoceratina*), Duncans, drop-off, 35-45 m; Port Royal, wharf pilings, 1-6 m.

Class Calcarea

Subclass Calcinea

Order Clathrinida

Family Clathrinidae Minchin, 1898

Genus *Clathrina* Gray, 1867

Clathrina primordialis (Haeckel, 1872)
Fig. 23

MATERIAL

ZMA POR. 12742, Discovery Bay, fore reef, inside small cave, #J70, 9.3.1993, 32 m; ZMA POR. 12751, Discovery Bay, fore reef, underside *Montastrea annularis*, #J320, 16.7. 1993, 35 m; ZMA POR. 12752, Discovery Bay, fore reef, #J279, 14.6.1993, 34 m.

REMARKS

Bright yellow trelliswork of ascon tubes, 3-6 cm high, only found on the undersides of platy corals. Spiculation: exclusively triactines. In naming this *primordialis* rather than the customary *coriacea* or *canariensis* we follow Klautau et al., 1994.

Family Leucettidae Borojevic, 1968
Genus *Leucetta* Haeckel, 1872
Leucetta aff. **floridana** (Haeckel, 1872)
Fig. 24

MATERIAL

ZMA POR. 12744, reefs in front of the mouth of the Rio Bueno, #J85, 19.3.1993, 22 m.

DESCRIPTION

Shape and size: White tube-shaped sponge, up to 15 cm high. Biggest diameter in the middle, base and top somewhat narrower. Apical opening surrounded by a thin spicule crown. Surface rough, calcareous spicules sting the skin upon touching.

Spiculation: Tri- and tetractines. Triactines divided clearly into giant triactines with rays: 600-1500 x 40-150 µm, and small ones, with rays: ca. 150 x 12 µm. Not reported from *L. floridana* , but abundantly present are tetractines of similar size and shape as the triactines, as well as a category of atrial tetractines, with the apical ray sticking into the canals, rays: 110-200 x 8 µm. The presence of the giant triactines visible to the naked eye is so characteristic, that conspecificity with Haeckel's (1872) and De Laubenfels' (1950) material from Florida and Bermuda seems likely.

Leucetta imberbis (Duchassaing & Michelotti, 1864)

MATERIAL

ZMA POR. 12740, Discovery Bay, blue hole near Columbus Park, #J27, 18.2.1993, 25 m. Not preserved: Discovery Bay, blue hole near Columbus Park, #J32?, 19.2.1993, 10 m.

REMARKS

Smaller, but similar to the previous species. Spiculation: larger and smaller triactines, rays of the larger: 300-550 x 35-50 µm, of the smaller: 40-140 x 8-10 µm; tetractines in two categories, one similar to the triactines, with the fourth ray often rudimentary, the other with long apical ray: 120-320 x 8 µm, sticking into the canals.

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