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DEMOSPONGIAE OF MINICOY ISLAND (INDIAN OCEAN) — PART 3 ORDERS HALICHONDRIDA, HADROMERIDA, EPIPOLASIDA AND CHORISTIDA

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ABSTRACT

21 species falling under the orders Halichondrida, Hadromerida, Epipolasida and Chloristida collected from Minicoy Island are described in the present communication.

INTRODUCTION

UNDER this last part on the Demospongean fauna of Minicoy Island the orders Halichondrida, Hadromerida, Epipolasida and Chloristida are considered in detail. The total number of species falling under the aforesaid orders is 21 and the order Hadromerida forms the second largest order represented in Minicoy with 8 species.

The families Spirastrellidae and Clionidae of the order Hadromerida require special mention in this context since some species of the former and all of the latter families are capable of destroying the calcium carbonate matter so abundant in the sea. In the present collection only 4 species (*Spirastrella cuspidifera*, *S. inconstans*, *Cliona celata* and *C. vastifica*) of boring sponges are represented, but a more extensive collection might reveal the existence of several other species capable of destroying the coral reefs and the shells of economically important species of molluscs.

ORDER : HALICHONDRIDA Vosmaer

Family : *Halichondriidae* Gray

Clocalypta polymastia (Lendenfeld)

Details regarding this species are given by Thomas (1973 a).

Bubaris sp. (Fig. 1 a, b)

Material : One specimen (Reg. No. 20).

Description : This specimen was found inside the cavity made by some other sponge (probably *Cliona* spp.). Cavity about 1.5 mm in diameter and the shape of the sponge was like that of the head of a pin. The body of this sponge was found tightly fitting into the cavity and the tylostyles projecting from the surface of the sponge made it almost inextricable from the cavity of the host. The heads of the tylostyles lie burried deep in the dense felt work of strongyles found at the cortical zone (Fig. 1 a).

Spicules : (1) Tylostyles (Fig. 1 b^1) Head bent like that of a hockey-stick. Shaft conical, straight and sharply pointed. Size and shape of the head is subject to considerable variation ; axial canal well developed. Size 0.105 - 0.462 (0.260 mm) × 0.006 - 0.025 (0.016 mm). (2) Strongyles (Fig. 1 b^2) Sinuous, one end less wider than the other. With or without swelling at one end (head ?). Size 0.063 - 0.189 (0.12 mm) × 0.004 - 0.008 (0.006 mm).

Myrmekioderma granulata (Esper) (Fig. 1 c)

Myrmekioderma granulata Bergquist 1965, p. 117, fig. 27 A, B (Synonymy). Thomas 1973, p. 46, pl. 2, fig. 19 (Synonymy).

Material : One specimen (Reg. No. CMFRI — S. 92).

Description : Body suberous with a flat base. Surface ornamented with tubercles and with silt deposited in between the tubercles.

Colour : Pale yellow.

Consistency : Hard.

Oscules and pores not traceable. A well developed cortex is present, thickness 0.19 - 0.25 mm and deeply pigmented. The cortical skeleton consists of acanthoxeas arranged vertically or tangentially and at some places in bundles. The main skeleton is lax and irregular and composed of oxeas arranged in illdefined tracts. These tracts support the cortical skeleton at the peripheral parts. Spongin content is rather sparse.

Spicules : (1) Oxeas (Fig. 1 c[1]) Long, centrally angulated or even crooked. Tips gradually pointed or stair stepped. Size 0.622 - 0.943 (0.830 mm) × 0.016 - 0.029 (0.21 mm). (2) Acanthoxeas (Fig. 1 c[2]) Centrally flexed and entirely spined except at the terminal parts. Stylote forms are rarely met with. Size 0.339 - 0.49 (0.415 mm) × 0.008 - 0.012 (0.009 mm). (3) Raphides (Fig. 1 c[3]) In groups ; length 0.044 - 0.110 (0.09 mm) and with hair-like dimensions.

Distribution : Indian Ocean, Australian region, Pacific Ocean.

Family *Hymeniacidonidae* Laubenfels

Acanthella cavernosa Dendy (Fig. 1 d)

Acanthella ? stipitata var. Ridley and Dendy 1887, p. 178.

Acanthella cavernosa Dendy 1921, p. 120, pl. 7, fig. 7, pl. 17, fig. 3, Burton 1937, p. 36, pl. 6, fig. 36, Thomas 1968 (Ph. D. Thesis), Thomas 1973, p. 47, pl. 2, fig. 23, pl. 7, fig. 7.

Material : A small bit (No. CMFRI — S. 93).

Description : The bit at hand represent only a part of a whole specimen.

Colour : Pale yellow.

Consistency : Compressible.

Spicules : (1) Slender styles (Fig. 1 d[1]) Straight or slightly crooked and gradually pointed. Size 0.288 - 0.891 (0.831 mm) × 0.006 — 0.014 (0.008 mm). (2) Strongyles (Fig. 1 d[2]) One end less wider than the other and sinuous, size 0.681 - 1.55 (1,31 mm)× 0.002 - 0.015 (0.008 mm).

Distribution : Indian Ocean.

ORDER : HADROMERIDA Topsent

Family : *Spirastrellidae* Hentschel

Spirastrella cuspidifera (Lamarck) (Fig. 1 e)

Spirastrella cuspidifera Burton 1959, p. 208 (Synonymy), Thomas 1973, p. 48, pl. 2, fig. 20, pl. 8, fig. 3.

Material : One specimen (Reg. No. CMFRI — S. 96).

Description : Body finger shaped with terminal oscule. Height 50 mm and diameter 22 mm.

Colour : Pale yellow.

Consistency : Hard and incompressible.

The skeletal arrangement tallies well with that described by Dendy, 1905 for *S. vagabunda* var. *tubulodigitta* from Sri Lanka.

Spicules : (1) Tylostyles (Fig. 1 e[1]). Size 0.12 - 0.675 (0.533 mm) × 0.004 - 0.015 (0.012 mm). (2) Spirastres. Two types are noted (*a*) Slender forms (Fig. 1 e[2]) with 3-5 angulations ; spines or tubercles often arranged spirally. Semicircular forms are also noted. Size 0.008 - 0.061 mm. (*b*) Robust forms (Fig. 1 e[3]) With two bends ; spines spirally arranged. Size upto 0.035 mm.

Distribution: Red Sea, Indian Ocean, Australian region, Pacific Ocean.

Spirastrella inconustans (Dendy) (Fig. 1 f)

Spirastrella inconustans Thomas 1972, p. 339, pl. 1 fig. 1 A and B (Synonymy). Thomas 1973, p. 49, pl. 2, fig. 21, pl. 8, fig. 6 (Synonymy).

Material: One specimen (Reg. No. CMFRI — S. 97).

Description: Body partly burried in sand and with finger shaped branches arising from the upper part. Height 90 mm.

Colour: Pale yellow when dry.

Consistency: Hard and incompressible.

Spicules: (1) Tylostyles (Fig. 1 f[1]). Slightly curved and sharply pointed; head may show considerable modifications. Smaller forms are met within the surface. Size 0.122 - 0.613 (0.511 mm) × 0.003 - 0.021 (0.015 mm). (2) Spirasters (Fig. 1 f[2]) Slender with 2 - 5 blends, spines blunt or sharply pointed. Size 0.007 - 0.031 × 0.002 mm.

Distribution: Red Sea, Indian Ocean, Australian region, Pacific Ocean.

Family: *Suberitidae* Schmidt

Suberites carnosus (Johnston) (Fig. 1 g)

Halichondria carnosa Johnston 1842, p. 146, pl. 13, fig. 7, 8.

Suberites carnosus Ridley 1884, p. 465. Thomas 1973, p. 55, pl. 3, fig. 5 (Synonymy).

Material: One specimen (Reg. No. 21).

Description: Body ramose, with branches arising from a basal amorphous mass.

Colour: Pale white when dry.

Consistency: Tough and leathery.

Surface velvetty; oscules and pores not traceable.

Spicules: (1) Tylostyles (Fig. 1 g) Straight, slightly curved or even sinuous. Smaller forms are common in the surface. Size 0.11 - 0.781 (0.531 × 0.002 - 0.009) (0.005 mm).

Distribution: Cosmopolitan.

Laxosuberites cruciatus (Dendy) (Fig. 1 h)

Suberites cruciatus Dendy 1905, pl 131, pl. 5, fig. 10. Dendy 1916, p. 135. Levi 1961, p. 11, fig. 11.

Suberites cruciatus var. *depressa* Dendy 1921, p. 147.

Laxosuberites cruciatus Burton 1937, p. 14, pl. 8 fig. 47. Thomas 1968, (Ph. D. Thesis).

Material: One specimen (Reg. No. CMFRI — S. 106).

Description: Body uncrusting, area occupied 20 × 14 mm.

Colour: Pale yellow.

The cotosome is thin and highly charged with pigments. Endosome rather compact.

Main skeleton composed of bands of tylostyles running vertically to the surface where they form brushes. These bands are interconnected with scattered tylostyles. Spongin content is rather negligible.

Spicules: (1) Tylostyles (Fig. 1 h) Slightly curved and sharply pointed. Cruciate nature of head well pronounced in younger spicules. Size 0.17 - 0.413 (0.315 mm) × 0.004 - 0.009 (0.006 mm).

Distribution: Indian Ocean.

Aaptos aaptos (Schmidt) (Fig. 1 i)

Ancorina aaptos Schmidt 1864, p. 33, pl. 4, fig. 11.

Aaptos aaptos Dendy and Frederick 1924, p. 508 (Synonymy). Levi 1961; p. 10, fig. 10, Thomas 1973, p. 57, pl. 3, fig. 7, pl. 8, fig. 5 (Synonymy).

Material: One Specimen (No. CMFRI — S. 108).

Description : Body thickly encrusting, margins elevated from the substratum, outline irregular.

Colour : Pale gray.

Consistency : Hard and incompressible when dry.

Oscules slit like and scattered irregularly ; highly contractile.

Skeleton : typically radial and composed of strongyloxeas in bands and small styles in the dermal region.

Spicules : (1) Strongyloxeas (Fig. 1 i[1]) Head rarely prominent, tips sharply pointed, stair stepped or even blunt. Size 0.573 - 1.35 (1.18 mm) × 0.012 - 0.033 (0.025 mm). (2) Styles (Fig. 1 i[2]) Slightly curved and sharply pointed. Size 0.207 - 0.351 (0.261 mm) × 0.004 mm.

Distribution : Atlantic Ocean, Mediterranean Sea, Red Sea, Indian Ocean, Australian region, Pacific Ocean.

Family : *Placospongiidae* Gray

Placospongia carinata (Bowerbank) (Fig. 1 j)

Placospongia carinata Vosmaer and Vernhout 1902, p. 9, pl. 1, fig. 1-4 ; pl. 2, fig. 5 ; pl. 4, fig. 9-13 ; pl. 5, fig. 1, 5, 7-9, 11. Henchtel 1965, p. 62, pl. 7, fig. 1, Thomas 1968, Ph.D. Thesis.

Material : One specimen (No. CMFRI — S. 109).

Description : Body encrusting thickly, surface smooth and cut into polygonal plates by grooves bearing pores.

Colour : Pale yellow when alive.

Consistency : Hard.

Details regarding the skeletal arrangement and anatomy tallies well with those of the type.

Spicules : (1) Tylostyles (Fig. 1 j[1]) Straight ; tips sharply pointed ; stair stepped or even blunt. Size 0.32 - 0.79 (0.652 mm) × 0.007 - 0.017 (0.010 mm). (2) Tylostyles (cortical) (Fig. 1 j[3]) Straight and sharply pointed ; size 0.177 - 0.252 (0.213 mm) × 0.003 - 0.006 (0.005 mm). (3) Sterrospires (Fig. 1 j[4]) Cortical and axial ; size 0.067 × 0.052 mm. (4) Spirasters (Fig. 1 j[4]) (main) May exhibit considerable variations. Axis well developed and with long spines arranged spirally ; these spines may bear a crown of spinules when well developed. Size upto 0.04 mm. (5) Small spirasters (Fig. 1 j[5]) Axis zig-zag or even straight ; spines conical, small and spirally arranged. Size 0.025 × 0.005 mm. (6) Spherasters (Fig. 1 j[6]) Centrum large, with tent like-spines. Size 0.012 - 0.022 mm.

Distribution : Atlantic Ocean, Indian Ocean, Australian region, Pacific Ocean.

Family : *Clionidae* Gray

Cliona celata Grant (Fig. 1 m)

Cliona celata Topsent 1900, p. 32, pl. 1, fig. 5, 6-9, pl. 2, fig. 5A-C (Synonymy). Thomas 1973, p. 60, pl. 3, fig. 10 (Synonymy).

Material : One specimen (Reg. No. 23).

Description : Shell, probably of *Tridacna* sp., completely riddled by this sponge. Surface of the shell with holes ranging in diameter from 1-3 mm. Cavities formed inside the shell usually rounded to irregular in outline ; and with diameter varying between 1-3 mm.

Spicules : (1) Tylostyles (Fig. 1 m[1]) Slightly curved. Size 0.150 - 0.331 (0.271 mm) × 0.004 - 0.010 (0.007 mm) ; head 0.006 - 0.009 (0.008 mm) in diameter. (2) Oxeas (Fig. 1 m[2]) Smooth, hair-like and slightly curved. Size 0.1 - 120.212 mm ; very rare.

Spirasters were not seen in this specimen.

Distribution : Cosmopolitan.

Cliona vastifica Hancock (Fig. 1 l)

Cliona vastifica Hancock 1849, p. 342, pl. 15, fig. 12, Topsent 1900, pp. 56-57, pl. 2, fig. 3-9 (Synonymy), Hartman 1958, p. 16, Thomas 1973, p. 61, pl. 3, fig. 11 (Synonymy).

Material: A branch of coral infested by this sponge (Reg. No. 24).

Description: Surface of the coral with small openings ranging from 1 - 1.5 mm diameter. These openings are irregularly distributed on the surface of the coral. Cavities formed inside are small ; 1 - 1.3 mm in diameter.

Spicules: (1) Tylostyles (Fig. 1 l^1). Shaft straight or slightly curved, head spherical. Size 0.211 - 0.312 (0.262 mm) × 0.001 - 0.006 (0.004 mm). (2) Oxeas (Fig. 1 l^2) Microspined in varying degrees or even smooth ; central part with or without swelling. Stylote modifications may also be present. Size 0.048 - 0.142 (0.112 mm) × 0.002 - 0.006 (0.004 mm). (3) Spirasters (Fig. 1 l^3) With 3-5 angulations, spines prominent only at the angles. Size 0.006 - 0.016 (0.010 mm) × 0.001 - 0.002 mm. Smooth forms may also be present.

Distribution: Cosmopolitan.

ORDER : EPIPOLASIDA Sollas

Family : *Jaspidae* de Laubenfels

Prostylyssa foetida (Dendy) (Fig. 1 k)

Hymeniacidon foetida Dendy 1889, p. 87, pl. 4, fig. 5.

Prostylyssa foetida Burton 1937, p. 37, pl. 7, fig. 45 (Synonymy). Thomas 1968, (Ph. D. Thesis).

Material: One specimen (Reg. No. CMFRI — S. 119).

Description: Body, tuberous with upright branches bearing oscules at their extremities.

Colour: Pale yellow.

Consistency: Friable when dry.

Oscules terminal on branches, 1-3 mm in diameter and compound. Surface smooth and microscopically hispid.

Dermal skeleton consists of oxeas in illdefined bands ornamented with styles at their sides. Meshes polygonal or triangular. Pores one per mesh or in groups, diameter 0.21 - 0.62 mm. Main skeleton is an irregular reticulation of oxeas running towards the surface supporting the dermal skeleton. Oxeas may project out of the surface giving hispidity. Spongin is sparsely visible.

Spicules: (1) Oxeas (Fig. 1 k^1) Slightly curved and sharply pointed. Size 0.283 - 1.112 (0.623 mm) × 0.004 - 0.025 (0.015 mm). (2) Styles (Fig. 1 k^2) Slightly curved ; greatest width at the central portion. Size 0.113 - 0.227 (0.182 mm) × 0.005 - 0.011 (0.007 mm).

Distribution: Indian Ocean, Australian region.

Family : *Tethyidae* Gray

Tethya robusta Bowerbank (Fig. 1 n)

Tethya robusta Bowerbank 1873, p. 10, pl. 2, fig. 12-17, Thomas 1968, (Ph. D. Thesis) ; Thomas 1973, p. 71, pl. 3, fig. 20 (Synonymy).

Material: One specimen (Reg. No CMFRI — S. 127).

Description: Body spherical and surface tuberculated ; size 30 × 18 mm.

Colour: Dull white when dry.

Consistency: Hard, slightly compressible.

Oscules not traceable. Contex 1.3 mm thick.

Spicules: (1) Strongyloxeas (Fig. 1 n^1) Straight, tips sharply pointed, stair stepped or even blunt. Shaft fusiform with greatest width at the middle portion. Size 0.422 - 2.133 (1.287 mm) × 0.009 - 0.020 (0.018 mm). (2) Sphrasters (Fig. 1 n^2). Centrum large

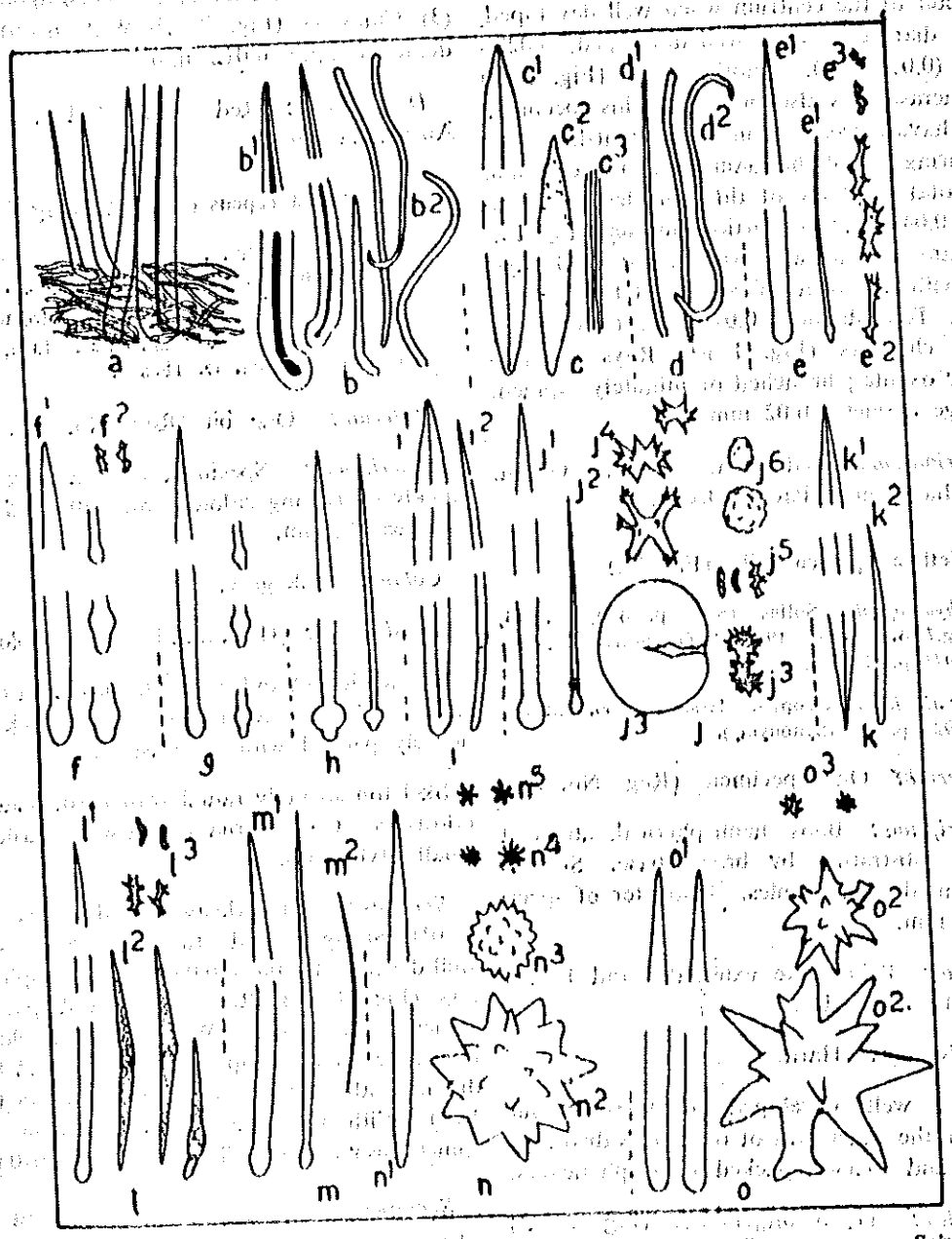

Fig. 1. a & b. *Bubaris* sp; c. *Myrmekioderma granulata*; d. *Acanthella caveruosa*; e. *Spirastrella cuspidifera*; f. *S. inconustans*; g. *Suberites carnosus*; h. *Laxosuberites cruciatus*; i. *Aaptos aaptos*; j. *Placospongia carinata*; k. *Prostylyssa foetida*; l. *Cliona vastifica*; m. *C. celata*; n. *Tethya robusta* and o. *Tethytimea repens*.

and with conical rays. Rays 1/3 to 1/2 the diameter of the centrum when well developed. Total diameter, when well developed, 0.028 - 0.088 (0.071 mm). Another type (Fig. 1 n^3) of spherasters is also present in this specimen. They have larger centrum, with tent-like rays measuring 1/5 of the diameter of the centrum. The total diameter of this spicules comes to about 0.04 mm. (3) Cortical chiasters (Fig. 1 n^5) Centrum insignificant, with about 4-10 rays; rays with a crown of spines at their extremities. Total diameter 0.012 mm. (4) Choanosomal chiasters (Fig. 1 n^4) Rays strongylote or oxeote; branched or minutely spined. Average diameter 0.02 mm.

Distribution: Red Sea, Indian Ocean, Australian region, Pacific Ocean.

Tethya japonica Sollas (Fig. 2 a)

Tethya japonica Sollas 1888, p. 430, pl. 44, fig.7-14. Thomas 1968 (Ph.D. Thesis). Thomas 1973, p. 72, pl. 3, fig. 21.

Donatia japonica Topsent 1906, p. 566. Burton, 1924, p. 1039 (Synonymy).

Material: One specimen (Reg. No. 25).

Description: Body hemispherical, attached to the substratum by broad base. Surface ornamented with conules. Diameter of specimen 16 mm.

Colour: Pale white externally and brown internally when dry.

Consistency: Hard.

Cortex well developed, thickness about 0.8 mm, the inner part of the cortex distinctly fibrous and sparsely packed with spherasters.

Spicules: (1) Strongyloxeas (Fig. 2 a^1) Fusiform, tip sharply pointed or even blunt. Size 0.211 - 1.61 (0.94 mm) × 0.004 — 0.021 (0.010 mm). Smaller forms are usually met with in between the main radial bands of larger spicules. (2) Spherasters (Fig. 2 a^2). Diameter 0.033 - 0.084 (0.061 mm). (3) Chiasters (Fig. 2 a^3) With 6 - 10 rays; diameter upto 0.012 mm.

Distribution: Red Sea, Indian Ocean, Australian region.

Tethythinea repens (Schmidt) (Fig. 1 o)

Tethya repens Schmidt 1870, p. 51, Topsent 1918, p. 574. Burton 1959, p. 215 (Synonymy).

Donatia repens Burton 1924, p. 1036 (Synonymy).

Tethythinea repens de Laubenfels 1396, p. 164. Thomas 1968 Ph. D. Thesis).

Material: One bit (Reg. No. 26).

Description: Specimen only a part of a thickly encrusting colony. Size 50 × 35 mm, thickness 13 mm.

Colour: Pale gray.

Consistency: Hard and incompressible.

Surface hispid and with silt settled on to the surface. Cortex about 0.6 mm thick and densely packed with spherasters.

Skeleton strongly radial with main bands of tylostyles. Cortex ornamented with brushes of smaller tylostyles.

Spicules: (1) Tylostyles and styles (Fig. 1 o^1) Straight and fusiform. Size, when well developed 2.00 × 0.040 mm. (2) Spherasters (Fig. 1 o^2) Rays long and pointed, sometimes branched. When well developed, rays may measure upto 0.133 mm and total diameter about 0.331 mm. (3) Chiasters (Fig. 1 o^3) With 6-12 rays; rays straight and sometimes granulated. Total diameter 0.010 mm.

Remarks: The size of spheraster in this species, is subject to considerable variation. Burton (1959) recorded spherasters reaching upto 0.6 mm in diameter.

Distribution: Atlantic Ocean, Indian Ocean, Australian region, Pacific Ocean.

ORDER : CHORISTIDA Sollas

Family : *Ancorinidae* Gray

Eclonemia acervus Bowerbank (Fig. 2 b)

Eclonemia acervus Bowerbank 1862, p. 1101, pl. 73, fig. 1. Burton 1959, p. 194. Thomas 1968, (Ph. D. Thesis).

Aacorina acervus Bergquist 1965, p. 191, fig. 13a, b.

Material : One specimen (Reg. No. CMFRI — S. 131).

Description : Body irregularly spherical; surface hispid. Silt and sand grains are often incorporated into the body.

Colour : Dark gray when dry.

Consistency : Hard and incompressible.

Oscules in groups and located in shallow depressions. Diameter of oscules may vary from 1-3 mm and often distributed in groups of 3-8; pores not traceable when dry.

Skeletal arrangement is typically radial consisting of closely packed bundles of oxeas and triaenes. The clads of triaenes are arranged at various levels in the cortex. Cortex 0.3 mm thick and deeply pigmented.

Spicules : (1) Orthotriaenes (Fig. 2 b^1) Shaft conical and straight. Size 1.509 × 0.032 mm when well developed. Clads up to 0.126 × 0.032 mm and chord 0.273 mm. (2) Anatriaenes (Fig. 2 b^2) Size shaft 2.5 × 0.008 mm and chord 0.028 mm. (3) Protriaenes (Fig. 2 b^3). Size 2.5 × 0.014 mm; clads 0.04 × 0.08 mm. (4) Oxeas (Fig. 2 b^4) Size 2.0 × 0.044 mm. (5) Microxeas (Fig. 2 b^5) Straight or slightly curved sometimes sinuous; Size 0.22 × 0.002 mm. (6) Microstrongyles (Fig. 2 b^6). Very common in the cortical region, straight with bulged central portion and minutely granulated; Size 0.016 × 0.001 mm. (7) Chiasters (Fig. 2 b^7) Rays 6-9, may or may not be tuberculated. Diameter upto 0.016 mm.

Distribution : Indian Ocean, Australian region, Pacific Ocean.

Eclonemia thielei n. sp. (Fig. 2 c)

Eclonemia sp. Thiele 1900, p. 35, pl. 2, fig. 10.

Eclonemia thielei Thomas 1968 (Ph. D. Thesis).

Material : One specimen. Examined in dry state.

Description : Body globular, attached to the substratum by broad base. Surface minutely hispid. Oscules not traceable; pores minute. Size 45 × 33 mm.

Colour : Pale brown.

Consistency : Hard and incompressible.

Skeletal arrangement agrees well with that of the type from Ternate (Thiele, 1900). Thickness of the cortex about 0.21 mm.

Spicules : (1) Orthotriaenes (Fig. 2 c^1) Shaft conical, clads slightly deflected up. Length of shaft varies from 0.17-1.9 mm and width from 0.008 - 0.029 mm. Clads upto 0.15 mm × 0.021 mm and chord 0.283 mm, when well developed. (2) Anatriaenes (Fig. 2 c^2) Size 1.7 × 0.012 mm, clads 0.028 mm and chord, 0.04 mm, when well developed. (3) Protriaenes (Fig. 2 c^3) Shaft about 1.7-0.013 mm. Clads irregular in shape; diaenes or monaenes may also be noted. Length of clads upto 0.033 mm. (4) Oxeas (Fig. 2 c^4) Size 1.85 × 0.028 mm. (5) Microxeas (Fig. 2 c^5) Cortical; size 0.289 × 0.002 mm. (6) Microstrongylyes (Fig. 2 c^6) Uniformly thick and granulated. Size 0.016 × 0.002 mm. (7) Chiasters (Fig. 2 c^7) With 5-8 rays and diameter upto 0.011 mm. Rarely represented.

Remarks : The distinguishing characters of this species are (1) smaller dimensions of spicules and (2) uniformally thick microstrongyles.

Distribution : Indian Ocean, Australian region.

Family : *Geodiidae* Gray

Geodia lindgreni (Lendenfeld) (Fig. 2 d)

Sidonops pictetl Lindgren 1897, p. 486. (non. Topsent 1897). Lindgren 1898, p. 67, pl. 18, fig.17a, b, pl. 20, fig. 6.

Sidonops lindgreni Lendenfeld 1903, p. 102.

Geodia lindgreni Thomas 1968, (Ph. D. Thesis); Thomas 1973, p. 78, pl. 4, fig. 4 (Synonymy).

Material : One Specimen (Reg. No. 27).

Description : Body irregularly tuberous and attached to the substratum by many points. Size 50 × 30 × 40 mm.

Colour : Pale white when dry.

Consistency : Hard and incompressible.

Oscules in groups in depressed areas ; pores distributed irregularly. Cortex 1-1.5 mm thick.

Spicules : (1) Orthotriaenes (Fig. 2 d^1) Clads at right angles to the shaft, long and convex. Shaft 1.132 × 0.018 mm and clads 0.32 × 0.012 mm. Clads are found just beneath the sterraster crust and subequal (2) Anatriaenes (Fig. 2 d^2) Shaft hair like ; sometimes sinuous. Size 2 × 0.008 mm, clads upto 0.025 mm and chord 0.052 mm. (3) Protriaenes (Fig 2 d^3). Often with suppressed clads, diaenes and monaenes dominate. (4) Oxeas (Fig. 2 d^4) Size upto 1.5 × 0.028 mm. (5) Styles (Fig. 2 d^5) Slighly curved, greatest width at the central part. Size 0.25 × 0.006 mm. (6) Sterrasters (Fig. 2 d^6) Oval in outline ; when well developed 0.132 × 0.112 mm. (7) Oxyasters (Fig. 2 d^7) Choanosomal, rays long and slightly roughened. Total diameter upto 0.034 mm. (8) Strongylasters (Fig. 2 d^8) Diameter upto 0.005 mm.

Distribution : Indian Ocean, Australian region.

Family : *Cranellidae* de Laubenfels

Paratetilla bacca (Selenka) (Fig. 2 e)

Paratetilla bacca Dendy 1921, p. 21 (Synonymy). Burton 1959, p. 200 (Synonymy). Bergquist 1965, p. 198, fig. 34. Thomas 1973, p. 81, pl. 4, fig. 6, pl. 8, fig. 7 (Synonymy).

Material : One Specimen (Reg. No. CMFRI — S. 139).

Description : Body spherical, surface hispid with good amount of silt settled in the surface.

Colour : Dark gray in formalin (5%).

Consistency : Fleshy when alive ; hard and incompressible on drying.

Surface excavated with poriferous pits.

Skeleton radial with a conspicuous central 'nucleus'. Oxeas and triaenes project out considerably from the surface.

Spicules : (1) Orthotriaenes (Fig. 2 e^1) These are present in the cortical zone. Shaft short and irregular ; clads long and subequal. Size clads 0.37 × 0.015 mm ; shaft 0.211 × 0.22 mm. (2) Protriaenes (Fig. 2 e^2) Shaft fusiform, clads stout and with irregular contour. Size shaft 4.1 × 0.012 mm and clads 0.076 mm. (3) Anatriaenes (Fig. 2 e^2) Younger forms 'I' shaped. Size shaft 4.34 × 0.008 mm, chord 0.046-0.058 mm. (4) Oxeas (Fig. 2 e^4) Slightly curved and sharply pointed ; sometimes stylote. Size 3.2 × 0.042 mm. (5) Microxeas Very rare ; size 0.283 × 0.003 mm. (6) Sigmaspires (Fig. 2 e^6) C or S shaped and granulated uniformly. Chord length upto 0.021 mm.

Distribution : Red Sea, Indian Ocean, Australian region, Pacific Ocean.

Family : *Kallapsidae* de Laubenfels

Lophacanthus rhabdophorus Hentschel (Fig. 2 f)

Lophacanthus rhabdophorus Hentschel 1912, p. 306, pl. 17, fig. 1, Thomas 1968, Ph. D. Thesis.

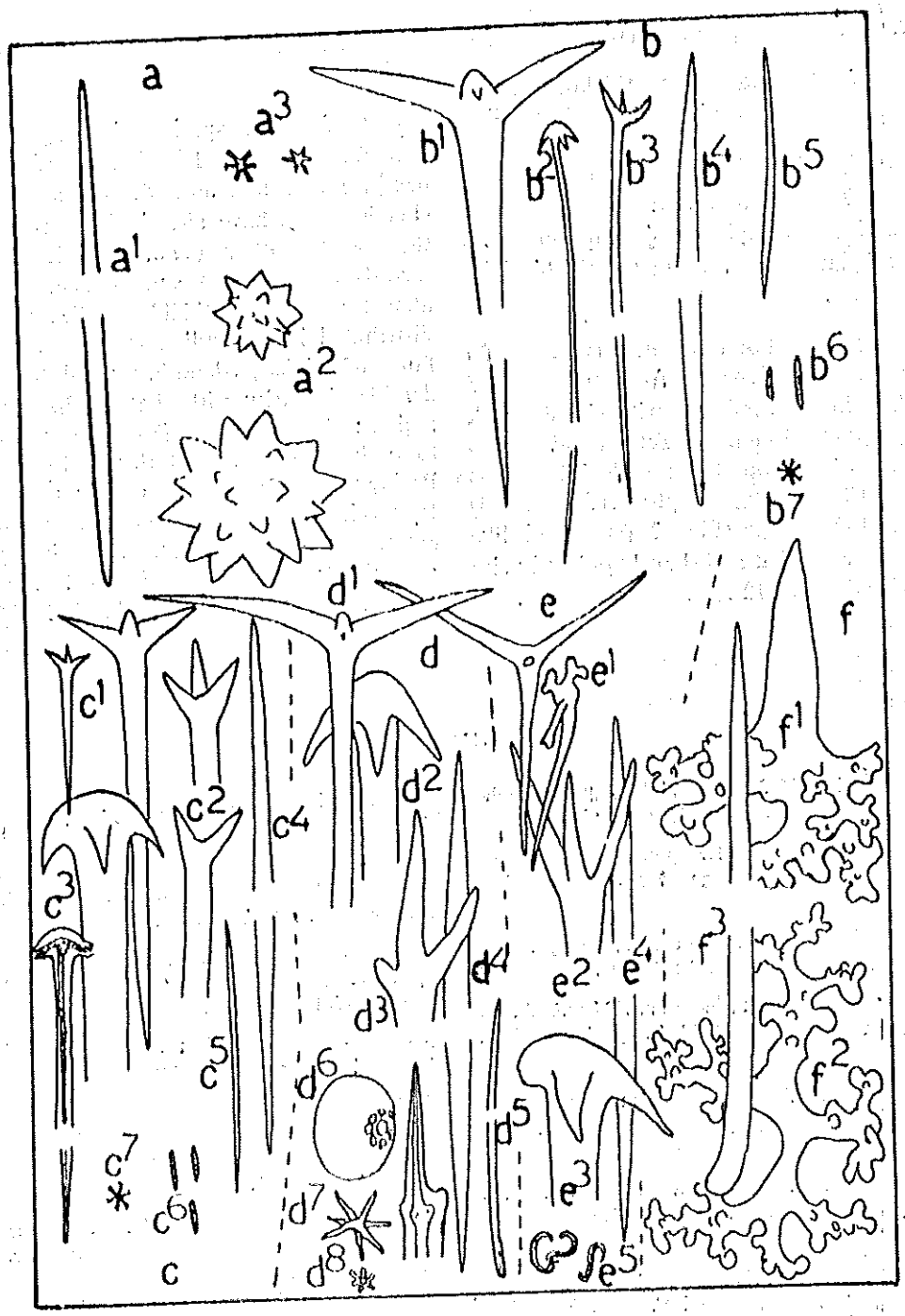

Fig. 2. a. *Tethya japonica*; b. *Ectonemia acervus*; c. *E. thielei*; d. *Geodia lindgreni*; e. *Paratetilla bacca* and f. *Lophacanthus rhabdophorus*.

Material: One specimen (Reg. No. 29).

Description: Encrusting, thickness about 1.5 mm; surface hispid. Pink when alive.

The clads of lophotriaenes interlock and form plate-like structure over the substratum. Styles and rhabdostyles projecting out from the basal plate give a characteristic hispidity to the surface.

Spicules: (1) Lophotriaenes (Fig. 2 f[1]) Shaft conical, length varies from 0.152 - 0.255 mm; clads highly ramifying with chord length reaching upto 0.19 mm. (2) Tetracrepid desmas (Fig. 2 f[2]) Arms ramifying with lobulations all over. Chord length upto 0.17 mm. (3) Styles or rhabdostyles (Fig. 2 f[3]) Head like that of a hockeystick and sharply pointed; size (average) 0.67 × 0.012 mm.

Distribution: Indian Ocean, Australian region.

Out of the 41 species of sponges recorded here from Minicoy Island, two [*Phyllospongia dendyi* Lendenfeld and *Clocalypta polymastia* (Lendenfeld)], have already been reported by the present author (Thomas, 1973 a) as new records to Indian Ocean. Except these two, almost all the identifiable species are widely distributed in the Indian Ocean. The sponge fauna of Minicoy Island in general shows considerable similarity with that of the Australian region; 33 out of 38 (86.84%) are common to both these areas. Both the Red Sea and Pacific Ocean elements are equally represented; 19 species or 50% are common to these two areas. Species common to Minicoy and Atlantic Ocean are 11 (28.94%), to Mediterranean Sea 7 (18.42%) and to Arctic 2 (5.26%).

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