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SOME SHALLOW-WATER SPONGES FROM HONG KONG

香港的一些浅水海绵

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ABSTRACT

A small collection of shallow-water sponges from Hong Kong, comprising thirteen species, is systematically recorded. Seven new species are described and figured: *Acanthella hispida, Agelas robusta, Neofibularia chinensis, Cribochalina chinensis, Callyspongia globosa, Callyspongia orieminens, Siphonochalina flexa.*

摘 要

从香港浅水海域所采得的海绵样品中，共录得13个种，对其中7个新种作了描述和图解：*Acanthella hispida*, *Agelas robusta*, *Neofibularia chinensis*, *Cribochalina chinensis*, *Callyspongia globosa*. *Callyspongia orieminens*, *Siphonochalina flexa.*

INTRODUCTION

A small collection of shallow-water sponges from Hong Kong has been entrusted to me for study. Although consisting of a quite limited number of specimens, the collection is interesting because it comes from an area very little known as far as sponges are concerned.

A few fragmented specimens, belonging to the genera *Halichondria, Siphonochalina* and *Reniera*, have not been included in the following description because insufficient material has not permitted identification.

Colours indicated as: C.C. followed by a number refer to the plates of Séguy's "Code universel des couleurs".

In order to facilitate present and future reference, each specimen has received a number (R.N. HGK. . .) which refers to my own files and collections. Type material has been deposited at the Museum of Natural History of Genoa (hereinafter indicated as MSNG) where it has received the catalogue number of that institution.

DEMOSPONGIAE
TETRACTINOMORPHA
HADROMERIDA
TETHYIDAE

Tethya japonica Sollas

Tethya japonica Sollas, 1888: 430.

R.N. HGK. 3. Depth 20 m, 30 May 1980.

The specimen, now contracted, was more or less spherical, about 25 mm in diameter. According to field notes it was red in life; received in formalin, it was still bright orange red; transferred to alcohol, it has now a dull light orange colour (C.C.190). The consistency (in alcohol) is tough. The surface is strongly tuberculated. *Spicules.* 1), Strongyloxeas of all sizes from 420 x 10 μ to 1620 x 28 μ. 2), Spherasters reaching a diameter of 56 μ when fully developed, all with regularly oxeate rays. The ratio of ray to center is about 0.5; 3), Tylasters with a diameter of 9.3 – 14.7 μ, very abundant. They have a small center and about 10 thick rays.

Tethya japonica appears to be well characterized by 1), Spherasters with rays shorter than the diameter of the center; 2), micrasters exclusively in the form of tylasters. The colour in life of this species has never been recorded, preserved specimens having been described as light grey, yellowish, greyish white. The present sample reveals that the colour of the living sponge, red to orange red, is the same as that of *Tethya aurantium* (Pallas) (*sensu strictu*, cf. Pulitzer-Finali, 1978:20). It thus appears that the only diagnostic difference between the two species is that in the former the micrasters are exclusively tylasters.

Originally described from the Philippines, *Tethya japonica*, as recorded, has a wide Indo-pacific distribution, from Zanzibar to New Zealand. It has been reported also from Brazil.

AXINELLIDA
AXINELLIDAE

Acanthella hispida sp. n.

Plate 1; Figure 1.

R.N. HGK. 6. Long Ke Wan, depth 8 m, 27 April 1980.

Holotype: MSNG C.E. 46757

The specimen is 3 cm high and 4 cm broad, growing from a restricted base and expanding in a branching, foliaceous manner. Preserved in alcohol, its consistency is tough, elastic, cartilaginous; the colour is a dull light orange brown. The surface is discontinuously hispid. The skeleton consists of a strong axis, branching tree-like, made of ascending closely packed and interwoven spicules, hispidated by long styles implanted in it by about half of their length, directed more or less perpendicularly toward the surface, often projecting beyond it. There is no extra-axial spiculation.

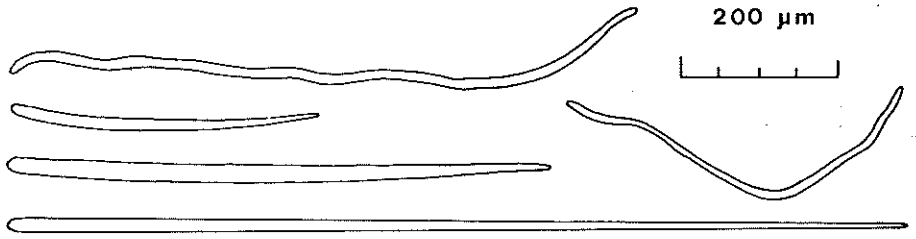

Figure 1. Spicules of *Acanthella hispida* sp. n.

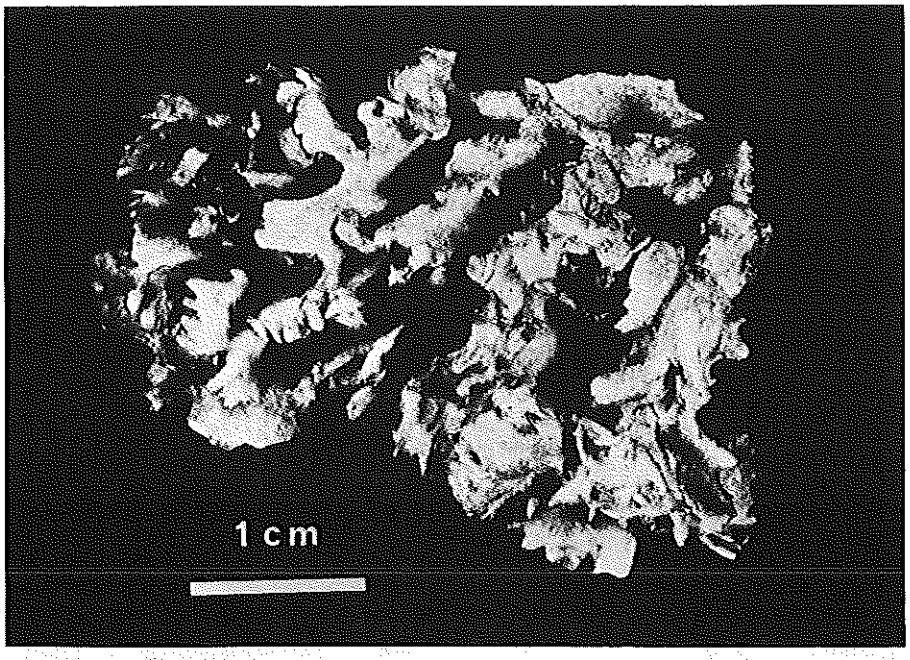

Plate 1. *Acanthella hispida* sp. n. The largest fragment of the holotype.

Spicules. 1), Styles straight or slightly curved, measuring from 220 x 8 μ to 1100 x 17 μ. 2), Vermiculate rhabds with strongylate ends, measuring 500–1000 x 6–14 μ.

It is possible that, when the types of the several *Acanthella* which Thiele (1898: 53) recorded from Japan are redescribed, the present species may fall into synonymy with one of them. They are *A. vulgata, A. aculeata, A. insignis* and *A. simplex*. Indeed, their spiculation is hardly distinguishable from that of the present specimen. But Thiele gave no information as to the skeletal structure of his specimens, an omission which led Bergquist (1970: 18) to transfer them to *Phakellia.*

AGELASIDAE

Agelas robusta sp. n.

Plate 2; Figure 2.

R.N. HGK. 5, HGK. 11.
Holotype (HGK. 11): MSNG C.E. 46752
Paratype (HGK. 5): MSNG C.E. 46753

HGK. 11 is a roundish fragment, about 6 x 3 cm in diameter, of an apparently massive sponge. The consistency is tough and resilient; the colour is a dull orange (C.C.193) which also tinges the preservative alcohol. HGK. 5 is part of an encrusting sponge, 5 mm thick. In alcohol, its consistency is softly resilient, its colour a dull yellowish brown. Both specimens have a clathrous structure, with closely-set perforations passing through the entire sponge, roundish or oval, 2 to 5 mm wide.

The skeleton consists of a reticulation of pale spongin fibres 38–80 μ thick, abundantly echinated by acanthostyles, forming irregular meshes. Some connective, thinner

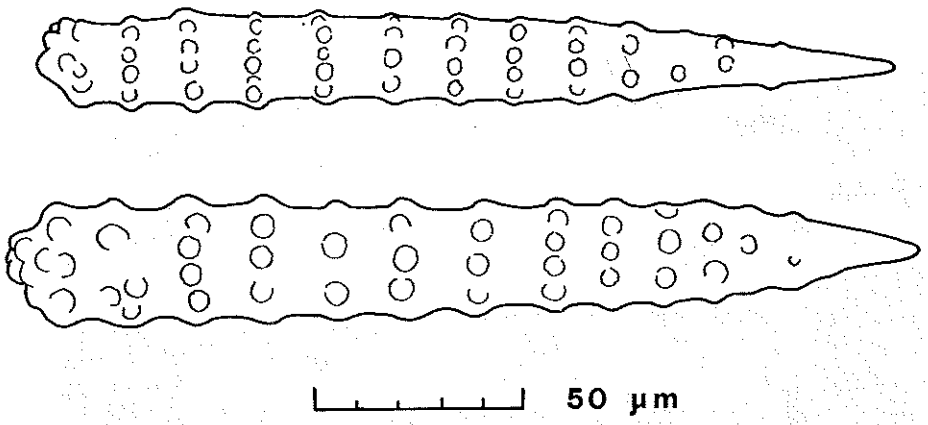

Figure 2. Spicules of *Agelas robusta* sp. n.

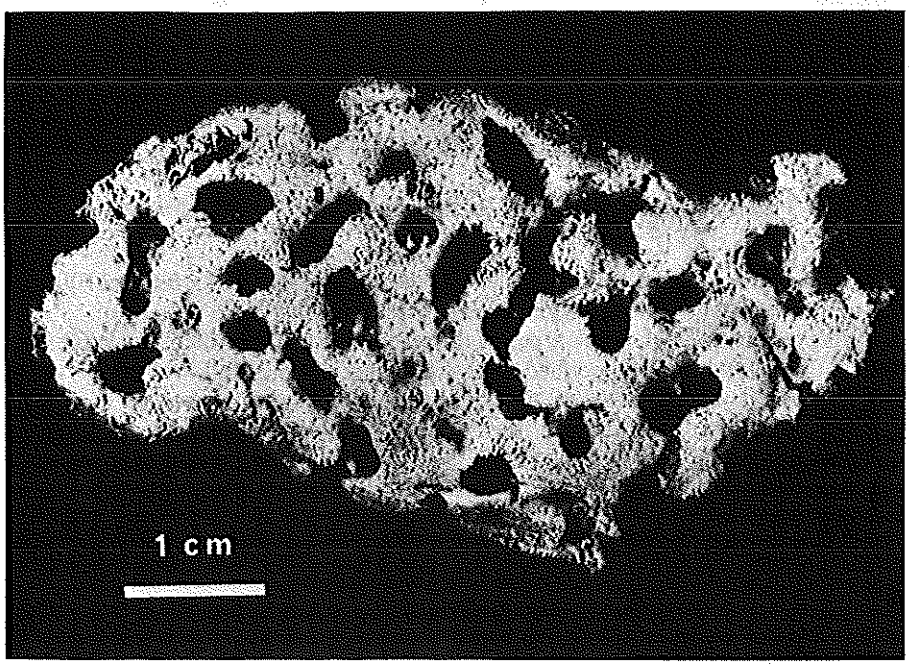

Plate 2. *Agelas robusta* sp. n. The holotype.

fibres and some which are flattened and fenestrated may be devoid of echinating spicules. *Spicules*. Acanthostyles verticillated, 170–250 x 14–30 µ (spines included), with generally 11–12 whorls of short, blunt spines or tubercles.

Agelas robusta is set apart from the known species of the genus by the very stout character of its acanthostyles.

The genus *Agelas* has been rarely recorded from the Pacific Ocean and was known only from a comparatively limited area: Moluccas, Micronesia and New Caledonia.

CERACTINOMORPHA
POECILOSCLERIDA
MYCALIDAE

Mycale phillipensis (Dendy)

Esperella phillipensis Dendy, 1896: 15.

R.N. HGK. 15. Depth 3–7 m.

The specimen is a shapeless fragment from which it may be only surmised that the sponge was irregularly massive or thickly incrusting. The consistency is firm, moderately resilient, fibrous. The colour, in alcohol, is light brown. The surface is uneven, glabrous; oscules are not observable. The ectosome is not separable and there is no differentiated dermal skeleton. The supporting frame consists of ascending polyspicular fibres branching and anastomosing, with no apparent spongin.

Spicules. 1), Subtylostyles straight, fusiform, measuring 240–300 x 3–10.5 μ. For the most part they are 8–9 μ thick; the much thinner ones dubiously belong to a separate category, as many intermediates are present. 2), Anisochelas 16–27 μ, not abundant. 3), Sigmas C- or S-shaped, with a chord of 32–48 μ, 1.5–2.7 μ thick, abundant.

The spiculation of this fragment agrees sufficiently with that of *Mycale phillipensis* to justify an identification. This species, originally described from S.E. Australia, has also been recorded from Amboina by Topsent (1897: 459) and from Viet Nam by Lindgren (1897: 482).

BIEMNIDAE

Biemna fistulosa (Topsent)

Desmacella peachi var. *fistulosa* Topsent, 1897: 462.

R.N. HGK. 12, HGK. 23. Long Ke Wan, 28 April 1980.

The specimens are fragmented, shapeless. The colour in alcohol is light greyish brown, the consistency is inelastic, friable. The surface is smooth, the ectosome is not separable. A few recognizable oscules are 1 to 2 mm wide. The skeleton consists of spicules in confusion. *Spicules.* 1), Styles slightly curved, 300–340 x 7–11 μ. 2), Sigmas mostly C-shaped, a few contort, not separable into categories, with a chord of 13–48 μ. 3), Microxeas straight, 94–108 x 2.5 μ. 4), Microxeas straight, 29–34 x 1 μ. 5), Raphides straight, about 90 μ long. 6), Commas sinuous, 27–31 μ, very rare.

In spite of the inadequacy of the available material (no fistules are present) this identification with Topsent's species is made with confidence, as there is perfect agreement with regard to spicule types and sizes.

Topsent did not observe commas when he first described this species, but ascertained their presence later (Topsent, 1913: 51). Burton (1937: 25) did not mention them. They are present, though very rare, in the material herein examined.

Originally described from the Bay of Amboina, this species has been recorded by Burton from the Gulf of Mannar.

ESPERIOPSIDAE

Neofibularia chinensis sp. n.

Plate 3; Figure 3.

R.N. HGK. 24. Long Ke Wan, April 1980.

Holotype: MSNG C.E. 46754

The specimen consists of two flattened lobes joined at the base, size 17 x 12 x 27 mm. Oscules are about 3 mm wide. The consistency, in alcohol, is softly resilient, the colour middle brown. The sponge is for the most part macerated, reduced to a horny skeleton. This is rather regular, with main fibres oriented toward the surface, about 50 μ

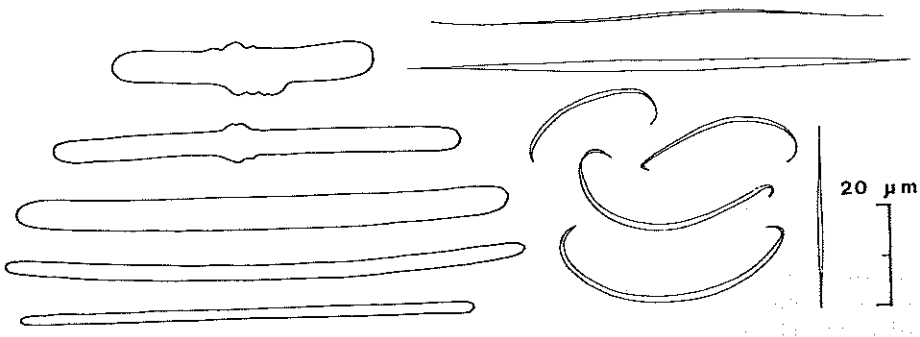

Figure 3. Spicules of *Neofibularia chinensis* sp. n.

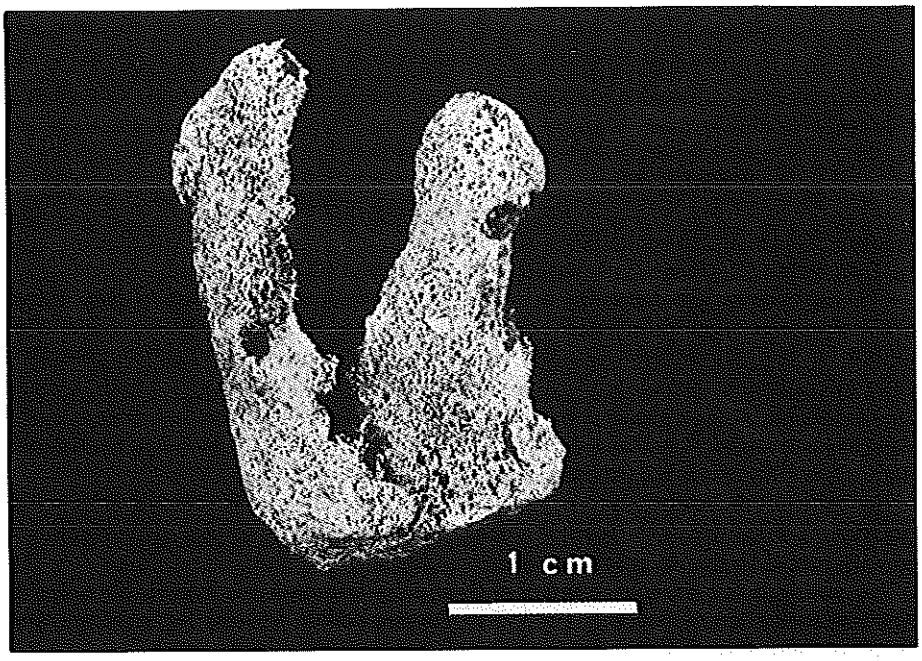

Plate 3. *Neofibularia chinensis* sp. n. The holotype.

thick and connectives about 25µ thick, forming meshes about 300µ wide. The fibres have an uneven outline, are pale-amber coloured and embedded by strongyles in a variable number, one to five in a row. At the surface, the reticulation becomes tangential and denser, with fibres of the same thickness, main ones running irregularly, meshes about 150µ wide formed by the connectives.

Spicules. 1), Strongyles straight or very slightly curved. Their length varies between 50 and 112µ, their thickness between 3 and 7µ but, as a rule, not in a proportional way. The shortest and thickest ones are very often centrotylote, the tyle being irregular. 2), Sigmas, very rare in the preparations. They may be tentatively regarded as belonging to two categories: one with a chord of 40–45µ and one with a chord of 27–32µ. 3), Microxeas straight and slender, measuring 95 x 2µ. 4), Microxeas straight and slender,

33–36 μ long, less than 1 μ thick. 5), Raphides about 90 μ long, less than 1 μ thick.

Field notes do not mention whether this specimen was irritating to the skin as are the other three known species of the genus: *N. nolitangere* (Duchassaing and Michelotti, 1864), *N. mordens* Hartman (1967) and *N. irata* Wilkinson (1978), recorded respectively from the western tropical Atlantic, from south Australia and from the Great Barrier Reef of Australia.

TEDANIIDAE

Tedania anhelans (Lieberkühn)

Halichondria anhelans Lieberkühn, 1859: 521.

R.N. HGK. 1, HGK. 16, HGK. 17. Depth 8 m.

The specimens consist of shapeless fragments of friable consistency, buff coloured (in formalin). They are identifiable from their spiculation.

Spicules. 1), Styles straight or gently curved, slightly fusiform, measuring 215–240 x 8–10.5 μ. 2), Tylotes straight, 190–205 x 4 μ, heads microspined. 3), Onychaetes only slightly asymmetric, 140–155 μ long and about 1.4 μ thick.

This common species has a cosmopolitan distribution in warm and temperate seas.

HAPLOSCLERIDA

HALICLONIDAE

Cribochalina chinensis sp. n.

Plate 4; Figure 4.

R.N. HGK. 2. Peng Chau, depth 20 m, 3 May 1980.

Holotype: MSNG C.E. 46751

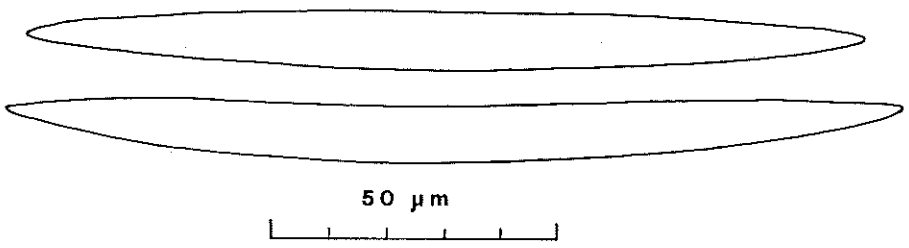

Figure 4. Spicules of *Cribochalina chinensis* sp. n.

The sponge consists of elongate, slender, solid cylinders sparingly branching and anastomosing, up to 14 cm long, 6 mm thick, tapering to very thin tips. The base is not recognizable: probably the sponge was attached to the substrate by more than one point. Preserved in formalin and now in alcohol, the specimen is macerated; its colour is cream, the consistency resilient. Numerous oscules, 1.5–2 mm wide, are arranged in a longitudinal row on only one side of the branches. The colour of the living sponge has been recorded as bright orange. The skeleton consists of a reticulation of clear spongin fibres in which oxeas are embedded. Conspicuous main fibres run lengthwise in the middle of the branches; they are about 100 μ thick and may be fasciculated; they are densely packed with spicules. Secondary fibres curve outwards towards the periphery in a plumose manner. They are about 50 μ thick and contain 2 to 6 spicules in a row. Reaching the surface they terminate with a tuft of oxeas embedded in the fibre by part of their length.

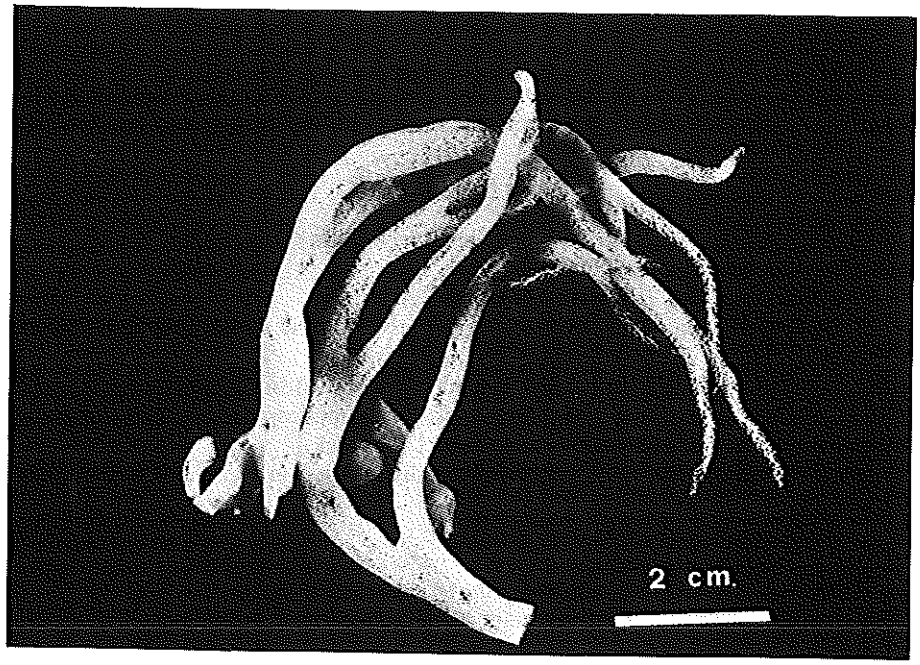

Plate 4. *Cribochalina chinensis* sp. n. The holotype.

These secondary fibres are connected at rather regular intervals by transverse ones a little thinner and with fewer spicules, thus forming a network with meshes 160–270 μ wide. *Spicules*. Oxeas straight or slightly curved, fusiform, 125–145 x 8–9.5 μ.

This specimen is similar, in many ways, to *Chalina amoyensis* Brøndsted (1929: 224) recorded from Amoy. However, the oxeas of Brøndsted's specimen are stouter and shorter (84–108 x 10–11 μ), suggesting a specific differentiation.

Callyspongia globosa sp. n.
Plate 5; Figure 5.

R.N. HGK. 9.
Holotype: MSNG C.E. 46755

The specimen is small, massive-lobate, apparently entire, measuring 4 x 3 x 2 cm. 3 to 6 mm-wide oscules open at the top of the lobes. The colour in alcohol is light greyish brown; the consistency is resilient. The surface appears uniform, but is microscopically somewhat ridged, as the ends of the ascending fibres of the choanosome, joining the nodes of the superficial main reticulation, are slightly elevated. The ectosome is not separable. The choanosomal skeleton consists of a reticulation of clear spongin fibres cored by oxeas, the main ones about 100 μ thick, the connective ones 27–54 μ thick. The meshes are very irregular in shape and in size. The fibres are almost entirely occupied by parallel aligned spicules. The dermal skeleton is a tangential reticulation of plurispicular fibres about 50 μ thick forming irregular meshes 130–220 μ wide. Within these meshes there is a secondary reticulation of paucispicular tracts (1 to 4

spicules in a row) cemented by clear spongin, forming meshes 80–110 μ wide.
Spicules. Oxeas slightly curved, measuring 90–105 x 5.2–6.7 μ.

This specimen has much in common with *Chalina pulvinatus* Lindgren (1897: 481) from Java. But it lacks the superficial tufts of oxeas which characterize the latter.

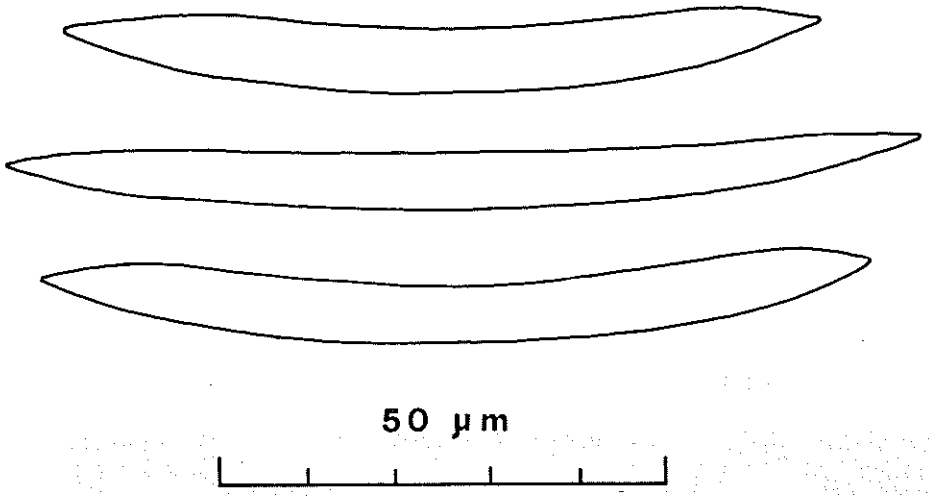

Figure 5. Spicules of *Callyspongia globosa* sp. n.

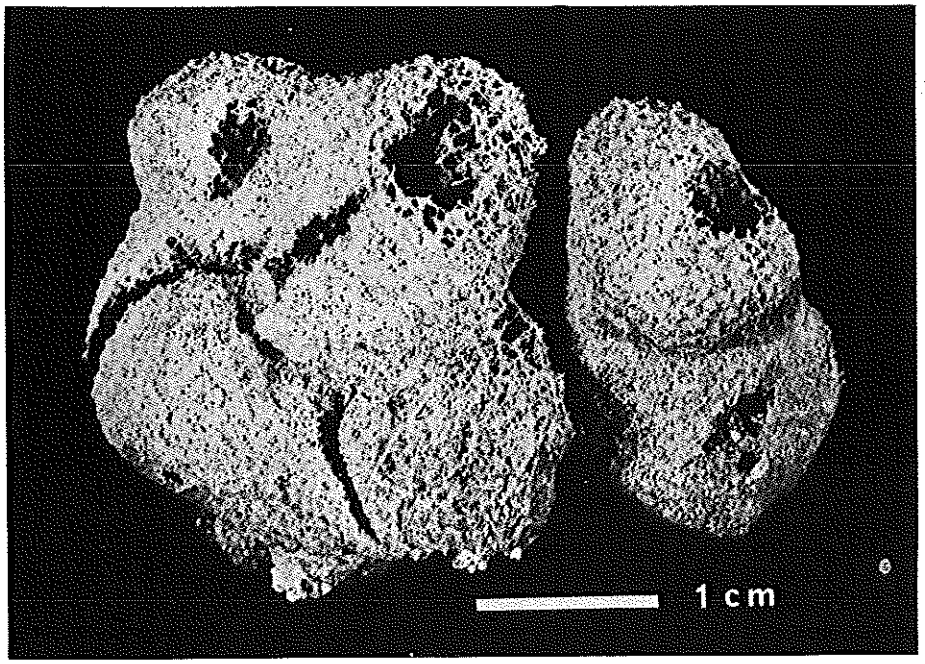

Plate 5. *Callyspongia globosa* sp. n. The holotype.

Callyspongia orieminens sp. n.
Plate 6; Figure 6.

R.N. HGK. 10. Long Ke Wan, April 1980.
Holotype: MSNG C.E. 46756
The specimen is irregularly massive, compressed, measuring about 6 x 3 x 1.5 cm. In alcohol, the consistency is resilient, the colour a light brown. The surface is conulose,

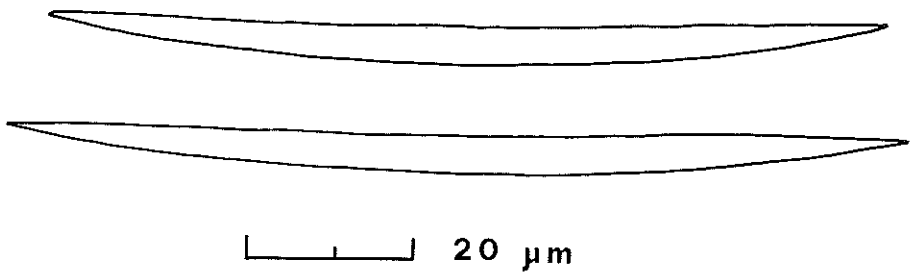

Figure 6. Spicules of *Callyspongia orieminens* sp. n.

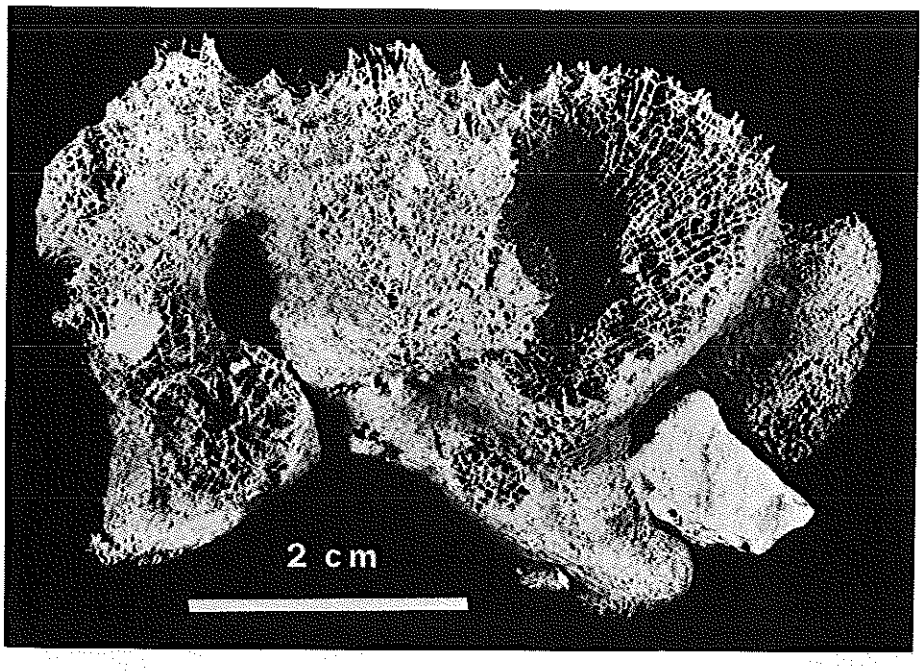

Plate 6. *Callyspongia orieminens* sp. n. The holotype.

with conules about 1 mm high and 2 mm apart. The ectosome is not separable. There are three oscules 3 to 5 mm wide in a line, on the upper border, with an elevated rim about 3 mm high. The choanosomal skeleton consists of a very regular network of clear spongin fibres cored by oxeas. The principal fibres, about 80 µ thick, ascend towards the surface; the connective ones, of about the same thickness, are for the most part

perpendicular to the former, thus forming meshes, 450–700 μ wide, chiefly rectangular or quadrangular. All these fibres are entirely packed with spicules. The dermal skeleton is differentiated, consisting of a tangential reticulation of spongin fibres entirely packed by spicules, 90–140 μ thick, forming irregular meshes 350–500 μ wide. Within these meshes there is a secondary, much finer network of uni– or paucispicular fibres 10–16 μ thick forming irregular meshes 80–130 μ wide. There are some fibres intermediate in thickness and spicule-content, but they do not form a definite pattern. *Spicules.* Oxeas slightly curved, slender, measuring 100–115 x 4 μ.

Siphonochalina flexa sp. n.

Plate 7; Figure 7.

R.N. HGK. 22. Hoi Ha Wan, April 1980.
Holotype: MSNG C.E. 46758

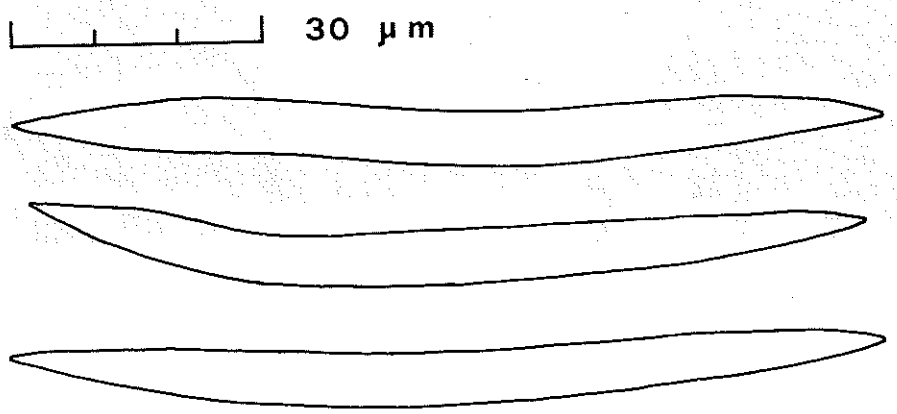

Figure 7. Spicules of *Siphonochalina flexa* sp. n.

The specimen measures 9 x 4 x 3.5 cm and is irregularly plurilobate. The surface is uneven, with minute irregular conules and tubercles. The oscules, on top of the lobes, leading to deep cavities, are about 5 mm wide. The consistency is softly resilient; the colour, in alcohol, is light brown. The choanosomal skeleton consists of clear spongin fibres cored by oxeas. The fibres have a rather tortuous course and form a close but irregular network. The main fibres, not uniform in thickness, are oriented toward the surface; they contain a variable number of spicules which often fill almost entirely the fibre. Their diameter is 80–100 μ. The connective fibres, with a diameter of 20–40 μ, are cored by fewer spicules and often consist of only one line of oxeas enveloped by scarce spongin. The meshes of this network are irregular in shape and in size, 80–350 μ wide. At the surface, the skeleton consists of a closer tangential network. The main fibres, almost entirely filled by spicules, 50–80 μ thick, form a reticulation without a definite pattern, the meshes being 300–900 μ wide. The connectives are paucispicular, 20–40 μ thick, often consisting of single oxeas not quite longitudinally arranged, bound by scarce spongin. The meshes thus formed are 100–250 μ wide.
Spicules. Oxeas moderately curved, 100–110 x 5–7 μ. Their curvature is often uneven, slightly bent at one extremity; many are slightly sinuous.

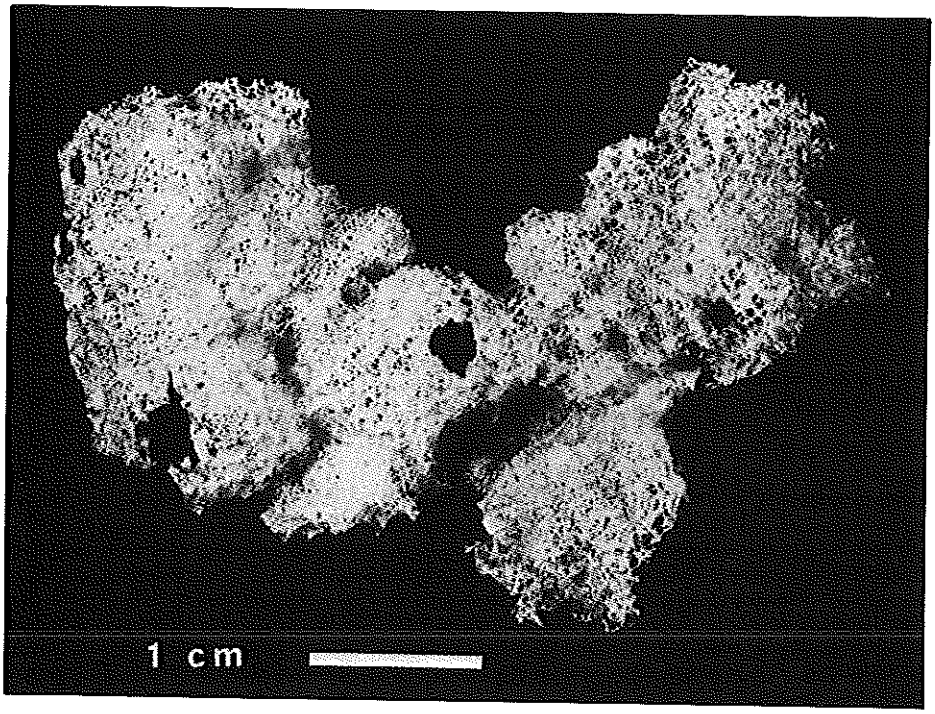

Plate 7. *Siphonochalina flexa* sp. n. Fragment of the holotype.

RENIERIDAE

Reniera baeri (Wilson)

Reniera implexa var. *baeri* Wilson, 1925: 398.

R.N. HGK. 4.

From a restricted common base many processes arise, fundamentally tubular but more or less irregularly flattened, widening distally. Each process has a vent up to 1 cm wide at the top. The sponge is 7.5 cm high, 9 cm broad and 2.5 cm thick. The consistency is soft, weak and fragile (in alcohol). The colour is greenish brown (about C.C. 338). The surface is glabrous. The skeleton consists of main tracts of one to two spicules in front connected transversally by mostly single spicules. There is some transparent spongin at the nodes. There is no dermal skeletal differentiation.

Spicules. Oxeas very slightly curved, with short, sharp points, measuring 113–143 x 5–8 μ.

This species is known from Cape Town and from the Philippines.

Gellius toxius Topsent

Gellius toxius Topsent, 1897: 470.

R.N. HGK. 21. Tolo Channel, depth 2 m, 24 April 1980.

The available material consists of small fragments from which it may be surmised that the sponge was cushion-shaped or thickly encrusting. The consistency (in alcohol) is moderately compressible and fragile. The colour is dirty white to buff. The surface is smooth; no oscules are observable; the ectosome is not separable. The main skeleton is a very regular isodictyal reticulation with triangular meshes and scarce transparent

spongin at the nodes. There is no dermal differentiation of the skeleton.
Spicules. 1), Oxeas slightly curved, sometimes straight, with short sharp points. They measure 180–216 x 6–12 μ. Some thinner ones, down to 3 μ in diameter, are present. 2), Toxas not abundant, having a chord of 19–108 μ, up to 4 μ thick. The larger ones are slightly double-bent and asymmetrical.

This specimen is remarkable for the peculiar (slight) deformation of its toxas. This feature has not been observed in previously recorded specimens.

The recorded distribution of *Gellius toxius* is from the Red Sea, the Amirante Isles and Malaysia. Burton's identification (1934) of "erect, tubular sponges . . . black" from the Great Barrier Reef of Australia with this species requires confirmation.

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