

ART. XXXIV.—*Notes on New Zealand Sponges: Fourth Paper.*

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[*Read before the Wellington Philosophical Society, 16th February, 1898.*]

Plates XXXI. and XXXII.

CLASS CALCAREA.

Order HETEROCŒLA, Poléjaeff.

Family I. LEUCASCIDÆ, Dendy. (See "Synopsis of the Australian Calcarea Heterocœla," published by Royal Society of Victoria, 1892.)

Genus *Leucascus*, Dendy.*Leucascus simplex*, Dendy, *loc. cit.*

This interesting sponge occurs between the tide-marks in Cook Strait. It is readily distinguishable from the Ascons, in company with which it is often found, by the comparatively smooth non-reticulated surface. Dr. Dendy says, "All the spicules are alike, except that some exhibit an incipient apical ray." I have found quadriradiate spicules constantly present, the apical rays being thin and thorn-like, 0.07 mm. long and about 0.003 mm. thick, curved slightly, and protruding generally into the flagellated chambers, although occasionally they protrude into the larger exhalant canals.

Family II. SYCETTIDÆ, Dendy, *loc. cit.*Genus *Sycon*.

Radial chambers not intercommunicating. Articulate tubar skeleton. The distal end of the chambers provided each with a tuft of oxeote spicules.

Sycon pedicellatum, n. sp. Plate XXXI., figs. Ia., Ib., and Plate XXXII., fig. I.

Sponge tubular, narrowly pyriform in shape, carried on a hollow pedicel, which is connected with a branching stolon, from which three to a dozen sponges may spring. Height of sponge and pedicel from 5 cm. to 8 cm.; greatest breadth of sponge, 1 cm. to 1.5 cm. Oscule provided with an inconspicuous fringe of oxea.

Spicules :—

Oxea : (a.) Oxea of the peristome : These are very slender, and are slightly curved. Length, 1.7 mm.; breadth, 0.005 mm. (b.) Large oxea of the parenchyma : These resemble the oxea of the peristome, except in size. They are comparatively

large, 0.36 mm. \times 0.01 mm. They enter sparingly into the wall of the radial tubes. They often reach from the gastral wall, and they project from the outer surface of the sponge, entering, in their distal portion, into the composition of the dermal cones. They taper evenly to a sharp point at either end. (c.) Oxea of the dermal cones: These are slender spicules, twisted after the fashion of many "mortar spicules." Size, 0.12 mm. \times 0.003 mm. (d.) Oxea of stolon: These are straight or slightly curved, and sharp-pointed. They echinate the surface freely.

Triradiate spicules: These are all sagittal. They may or may not be slightly irregular. (a.) Subgastral: Paired rays short and slightly curved towards the basal ray, 0.03 mm.; basal ray, 0.17 mm. \times 0.008 mm. The paired rays are almost at right angles to the basal ray. (b.) Parenchymal: Paired rays sometimes nearly as long as basal ray, making an angle of about 120° with it. These spicules also enter into the composition of the distal cones. (c.) Triradiates of stolon, like the gastral triradiates, but often having the tips of the paired rays strongly recurved.

Quadriradiates: These occur in the gastral cortex and in the stolon. They are all sagittal. The angle made by the paired rays with the basal ray may be from 90° to about 145°. Basal ray, 0.14 mm.; oral ray, 0.13 mm.; apical ray, 0.1 mm. Greatest breadth, 0.005 mm.

All the spicules of this sponge are very graceful and slender. The flagellated chambers are hexagonal in section, and the intercanals triangular.

In spiculation this sponge resembles *Sycon carteri*, Dendy, from which, however, it differs in the more slender character of all its spicules, in the shape and size of the oxea of the distal cones, and in the presence of the parenchymal oxea. To a less extent it resembles Haeckel's *Sycandra ampulla*, from which, however, it is quite distinct. Colour, brownish-white.

Locality: Whangaruru and adjacent coast of North Auckland, between the tide-marks.

NOTE.—Since this description was in type I have found the sponge in a much finer form at Plimmerton, in Cook Strait.

Sycon ornatum, n. sp. Plate XXXI., figs. IIa., IIb., and Plate XXXII., fig. II.

Sponge solitary, tubular, generally broader near the base than above; about 15 cm. in height, from a quarter to half of the height being made by a narrow spicular funnel, provided at its mouth with a delicate peristome and, occasionally, with a thin spicular veil. To the naked eye the body of the sponge is hispid in appearance, from the oxea of the distal cones. This appearance is not noticeable in the funnel, although the funnel

is provided with fine oxea. The radial tubes are hexagonal in section, the intercanals quadrangular.

Spicules :—

Oxea of the peristome : Long, slender, slightly curved, very finely pointed at each end ; 0.64 mm. \times 0.005 mm.

Oxea of the distal cones : These are of three kinds—a long spicule, 0.72 mm. \times 0.018 mm. ; a shorter one much more numerous than the first, 0.25 mm. \times 0.01 mm. ; and a very slender spicule, 0.25 mm. \times 0.003 mm. The spicules of all three kinds are straight, or nearly so. The oxea that are scattered over the surface of the funnel are mainly of the two latter kinds.

Triradiates of the parenchyma : These are sagittal, the oral rays making an angle of about 110° with the basal ray. Length of basal ray, 0.1 mm. to 0.14 mm. ; of oral rays, 0.06 mm. to 0.1 mm. Oral rays slightly curved towards each other, or straight. Thickness, 0.01 mm. Spicules of similar shape, but about twice as large, and with the oral rays straight or slightly curved towards the basal rays, are found in the funnel.

Subgastral triradiates : Sagittal, oral rays slightly curved towards the basal ray, which is about 0.16 mm. long. Occasionally a fourth ray is developed.

Gastral quadriradiates : Basal ray, 0.16 mm. \times 0.015 mm. ; oral rays, 0.1 mm. \times 0.01 mm. ; apical ray, 0.07 mm. \times 0.015 mm. This ray is slightly blunt, furnishing the only instance of any but a sharp-pointed ray in this sponge. It is directed upwards, at an angle of about 130° with the basal ray, and is only very slightly curved. Similar spicules, but about twice as large, are found in the funnel.

Locality : Cook Strait, between tide-marks.

EXPLANATION OF PLATES XXXI. AND XXXII.

PLATE XXXI.

- Ia. *Sycon pedicellatum*, enlarged.
 Ib. " section showing arrangement of skeleton.
 IIa. *Sycon ornatum*, natural size.
 IIb. " section showing arrangement of skeleton.

PLATE XXXII.

I. Spicules of *Sycon pedicellatum*.

- a. Oxeote of parenchyma.
 b. " peristome.
 c. Small oxeote of distal cones.
 d, d, d, d. Parenchymal triradiate spicules.
 e, e, e. Subgastral triradiate spicules.
 f. Rare subgastral spicule with incipient fourth ray.
 g. Triradiate spicule from stolon.
 h, h, h. Gastral quadriradiate spicules ; a. r., apical ray.
 i, i. Quadriradiate spicules from pedicel.

PLATE XXXII.—continued.

II. Spicules of *Sycon ornatum*.

- a. Large oxeote of distal cones.
- b. Oxeote of peristome.
- c, c. Ordinary oxea of distal cones.
- d, d. Slender oxea of distal cones.
- e, e, e. Parenchymal triradiate spicules.
- f, f. Subgastral triradiate spicules.
- g. Subgastral spicule with incipient fourth ray.
- h. Triradiate spicule from funnel.
- i, i. Gastral quadriradiate spicules.
- k, k. Quadriradiate spicules from base of funnel.

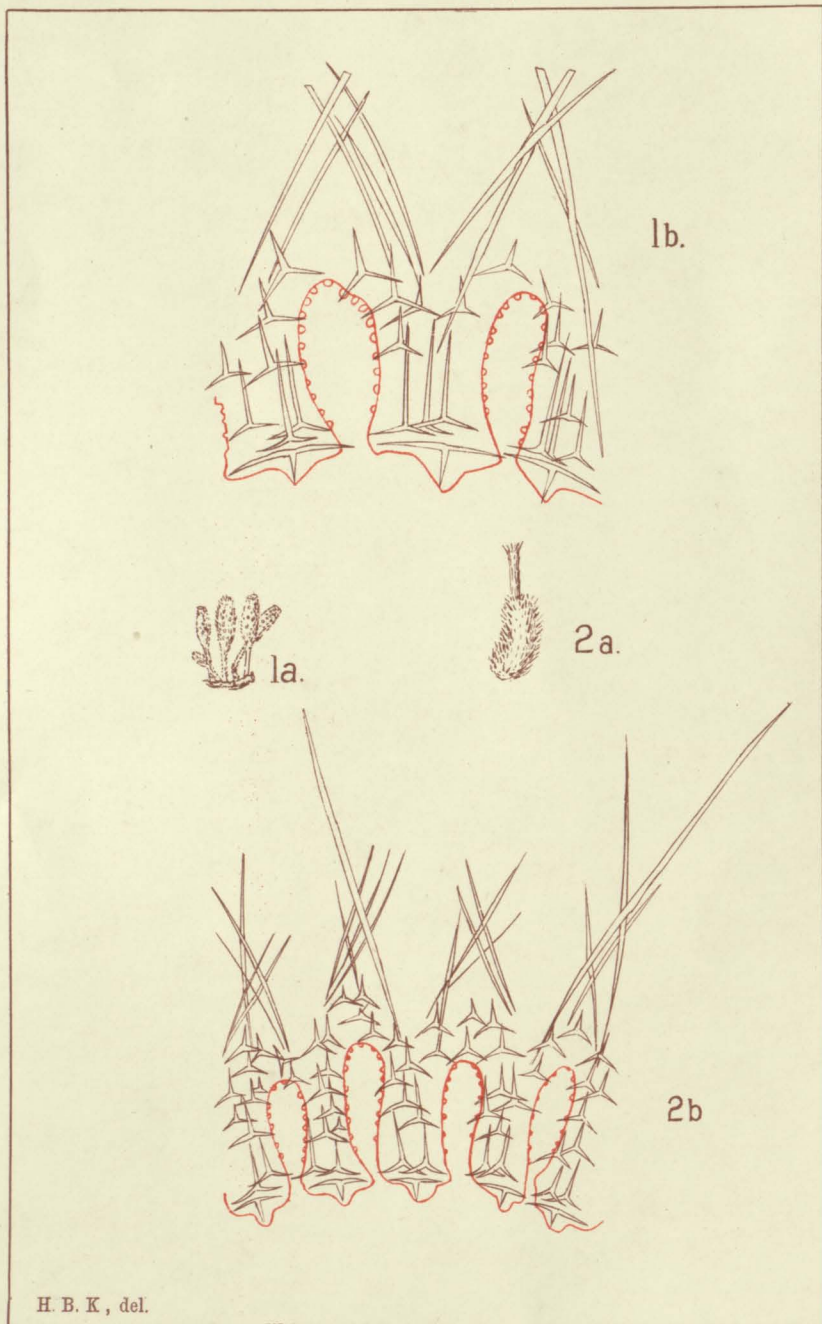
ART. XXXV.—On the Sponges described in Dieffenbach's "New Zealand."

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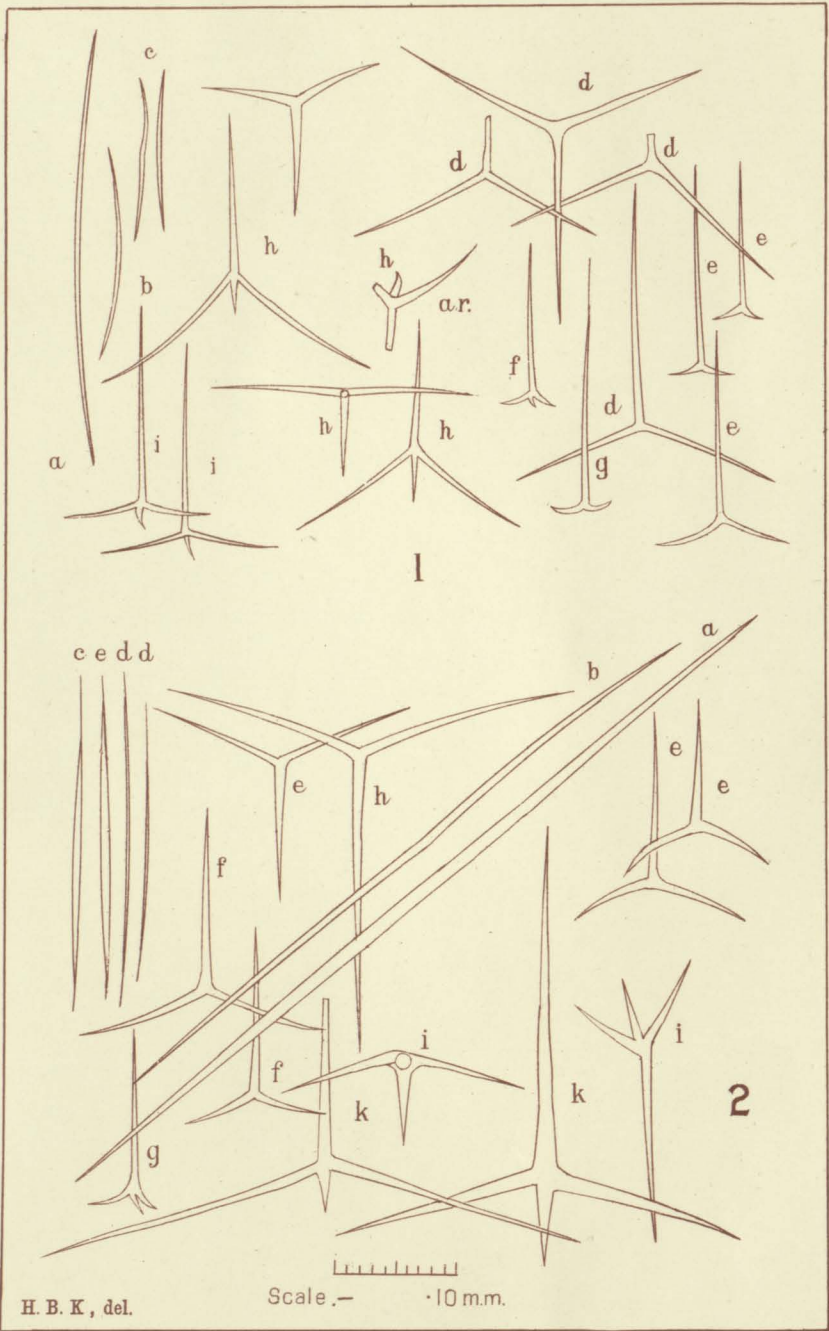
[Read before the Philosophical Institute of Canterbury, 3rd November, 1897.]

Plates XXXIII. and XXXIV.

Some years ago my friend Mr. H. B. Kirk, M.A., called my attention to the fact that certain sponges had been described by Gray in Dieffenbach's "Travels in New Zealand," published in 1843. The descriptions of that period being quite insufficient for purposes of identification, and it being a matter of some interest to know what these sponges really were, I applied to my friend Mr. R. Kirkpatrick, in charge of the sponges at the British Museum, for further light on the subject. Mr. Kirkpatrick most kindly instituted a search for the original types, and fortunately succeeded in finding them. I desire to express my deep sense of gratitude to Mr. Kirkpatrick for his trouble, and also to the keeper of the Zoological Department for his kindness in permitting the specimens to be forwarded to me here in New Zealand. Thus after a lapse of more than half a century the actual specimens collected by Dr. Sinclair in the early days of the settlement of the colony have again found their way to New Zealand, and it is possible to redescribe them in the light of modern knowledge. Whether or not the specimens sent are only portions of the originals I do not know, but at any rate they are quite sufficient to make a specific description easy. They will be deposited in the Canterbury Museum, Christchurch, where



I. SYCON PEDICELLATUM. 2. S. ORNATUM



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