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I. Wissenschaftliche Mittheilungen.

1. Notice of New Hexactinellida from Sagami Bay. I.

Dr. I. Ijima, Sci. Coll., Imp. Univ., Tokyo.

eingeg. 15. August 1894.

Recent collections made of deep-sea animals in Sagami Bay brought to light a number of new, and in many cases truly magnificent, forms of *Hexactinellida*. These shall be here briefly noticed, reserving the details to a monograph now in course of preparation. For the present I proceed in the order I have studied them.

Euplectella imperialis sp. nov.

This species comes nearest to *E. aspergillum* or *E. Oweni*. In the very young state it is spindle-shaped, truncated above and showing no or only a suggestion of a bending after the manner of *E. aspergillum*. In all larger specimens, the horn-like curvature of the body is manifest. In these also, the body is broadest at the middle, except in very old and consequently very large individuals, which present a form broadest at the upper end. In cross-section, the body is normally always circular. Dimensions of a few specimens:

Spec.	Length of the portion exposed above the sea-bottom	Diameter just below the cuff	Diameter at the middle	Diameter close to the basal tuft
a	110 mm	13 mm	21 mm	9 mm
b	210 »	20 »	29 »	15 »
c	325 »	33 »	35 »	22 »
d	498 »	90 »	76 »	31 »

An arched sieve-plate and a thin cuff of varying breadths are present. The spiral ledges seen on *E. aspergillum*, are, in the present species, cut up into numerous conical, knob-like, lappet-like or irregularly shaped protuberances, which constitute a very characteristic feature. These protuberances, rather inconspicuous on young individuals, develop with age and may attain the height of 14 mm. The parietal gaps, distributed without much regularity, open in valley-like depressions between the protuberances. The longitudinal and circular beams of spicular fibres, together with oblique bands, are arranged exactly in the way as F. E. Schulze describes for *E. Oweni* (Challenger Report). As measured on a medium-sized specimen, the rectangular meshes of the body-wall average 3 mm in breadth, and the parietal gaps, about 1 mm in diameter.

The principal points peculiar to the present species, with respect to its spicules, are as follows: The spicules around the parietal gap are mostly thick-rayed hexacts with pointed or rounded ends. Those more innerly situated are considerably smaller than those in the periphery. The latter are very conspicuous stars, with conical rays 0,1—0,12 mm long and 0,04—0,05 mm broad at the base. — Diacts usually accompany the distal ray of hypodermalia at the free edge of the cuff and sometimes also at similar positions of parietal protuberances, forming a fringe of projecting needles. — In the parenchyma, large graphiohexasters, such as Schulze figures for *E. nodosa* (loc. cit.), are of common occurrence. Less frequently are the oxyhexasters (with 3—4 terminal rays) to be met with. — The basal tuft consists of pronged diacts, whose inferior terminal knob bears a wreath of 5—9 upwardly directed teeth. Smooth pentact anchors have not been found. — The fusion of parenchymal spicules seems to begin when an individual reaches the length of about 200 mm and then at the lower end of the body-wall. Even in the largest specimen before me, the upper portion shows no trace of fusion whatever.

E. imperialis was collected at depths of 200—300 fathoms, from the muddy bottom of volcanic detritus. *E. Oweni* probably never occurs in Sagami Bay.

Hyalonema reflexum sp. nov.

The somewhat laterally compressed, funnel-shaped body is very obliquely truncated and the entire zone bordering the oscular margin is reflected outwards, so that the gastral space remains as a concavity widely open towards one side. The gastral surface thus exposed is of oval outline, being longer than broad, and shows numerous round openings (up to 4 mm in diameter) of the exhalent canals. The reti-

cular pattern, distinctly visible on the dermal surface, is concealed to a great extent on the gastral, owing to the greater abundance of pinules on this side. The root-tuft is free of *Palythoa*, is laterally compressed and of silky appearance, without the twisting of fibres but showing a simple curvature in a plane perpendicular to the general gastral surface. No marginal cuff is present. — A full-grown specimen measures: body 120 mm long, 66 mm broad and 46 mm thick (at the thickest portion); the reflected portion of the gastral surface 33 mm broad on the lateral side; root-tuft 130 mm long and 6 mm by 10 mm thick.

Within the body, the root-tuft breaks up into a number of slightly diverging strands, without forming a solid columella. The root-fibres are of three kinds: 1) thick smooth fibres, the lower ends of which were always found broken off; 2) thinner pronged fibres with a two-teethed anchor at the lower end; and 3) very thin wavy fibres, with at least one end crooked in more than a semicircle. The last kind of spicules is also abundant at the basal pad, where it seems to replace the acanthophores of other *Hyalonema* species. — The pinuli are 0,2 mm high, with the arm of the basal cross 0,1 mm long. Their free ray, thickly beset with spines, presents a bushy cypress-like shape 0,04—0,05 mm broad at the middle. The dermal and the gastral pinuli differ in so far that the spines of the latter are more strongly developed and those more inferiorly situated start from the stem almost at right angles and then bend upwards, instead of being obliquely directed from the point of origin. — Macramphidiscs sparsely present, 0,117 mm long, 0,06 mm broad; umbel bell-shaped, 17-rayed, about as long as $^1/_4$ of the entire spicule. — Mesamphidiscs 0,08 mm long, 0,025 mm broad; umbel 7 or 8 rayed, somewhat longer than $^1/_3$ the entire length. — Micramphidiscs of various sizes, down to those 0,025 mm long, are very abundant. — The micro-oxyhexacts of the parenchyma are represented by numerous prickled oxyhexacts with straight arms 0,08—0,14 mm long. Together with these, there is also found an abundance of thin, smoth, spindle-like needles 0,09—0,14 mm long. — Parenchymal macrosclerae seem to offer but little characteristic points.

H. reflexum was obtained in several examples from depth of over 200 fathoms. Perhaps this species deserves to be erected into a separate new genus.

Hyalonema Owstoni sp. nov.

In form this species somewhat resembles *H. Thomsoni*. The ocular area projects in a central-cone, 13—23 mm above the margin, at

which portion the body is 13—31 mm broad and whence it narrows inferiorly to the basal pad. Entire body 50—60 mm long. The twisted root-tuft, more or less covered with *Palythoa*, is rather slender and may be as long as 400 mm. The oscular margin, unfurnished with a cuff, is blunt-edged or even entirely rounded off. The internal canals open on the slope of the oscular area by irregularly distributed, comparatively small openings. The entire external surface of the body is so very densely covered with pinuli, that it presents a compact, frosted appearance, only the denuded places showing a reticular pattern. Of the different forms of spicules, I limit myself to mentioning the following points:

Dermal pinuli 0,23 mm high; basal cross 0,08 mm broad. Their distal ray, with obliquely set, well-developed spines, is genuinely club-shaped, broadest (0,045 mm) at the lower end of the uppermost $^1/_4$. A rounded axial cone just projects out of the last whorl of spines at the upper end. — Macramphidisc resembles that of *H. Sieboldi*, 0,32 mm long, 0,13 mm broad; umbel usually 7 rayed, about $^1/_3$ as long as the entire spicule. — Mesamphidisc 0,17 mm long and 0,06 mm broad, or smaller, umbel longer than $^1/_3$ the entire spicule. — Micramphidisc as small as 0,05 mm in length and 0,025 mm in breadth. Micro-oxyhexacts abundant; arms straight, weakly rough, 0,034—0,05 mm long.

H. Owstoni seems to occur, not uncommonly, together with *H. apertum* at more than 200 fathoms depth.

Hyalonema clathratum sp. nov.

Body approximately pear-shaped, apple-size or smaller. Diameter of oscular area shorter than the greatest breadth of the body; sieve-plate more or less differentiated; oscular margin usually rounded off, sometimes with cuff-like fringe. Surface distinctly latticed in wet state, but downy or loosely frosted when dry. Root-tuft rather slender, may be as long as 345 mm; always with *Palythoa*.

The dermal pinuli resemble those of *H. Owstoni*, but decidedly more slender, being 0,26 mm high and the distal ray 0,04 mm broad at the broadest portion; basal cross 0,01 mm broad. — Macramphidisc 0,25 mm long, 0,12 mm broad; umbel shaped like that of *H. Sieboldi*, 5 or 6 rayed, about $^1/_3$ the length of the entire spicule. — Very characteristic of this species are the mesamphidiscs that abundantly occur in the dermal membrane. They are barrel-shaped, 0,09 mm long and 0,04 mm broad, or smaller, the rays of the two umbels touching at the equator. — Micramphidiscs as small as 0,0133 mm in lenght. — Micro-oxyhexacts with straight arms 0,034—0,084 mm long. Larger micro-oxyhexacts are rough, while smaller ones are smooth.

Several examples were found among *H. apertum* from depths of 300—400 fathoms.

Hyalonema pellucidum sp. nov.

This species is based on a single example, obtained at about 233 fathoms, off Sunosaki. Body 100 mm long, 90 mm broad; root-tuft rather thick, 215 mm long, with *Palythoa*.

In form and structure, the specimen closely agrees with *H. Sieboldi*, but the body is of such remarkably thin and loose texture, that the columella can be seen through. The agreement just mentioned extends to the presence of a sieve-plate, the form of pinuli, the absence of micro-oxyhexacts, the occurrence of ambuncinates, etc. However the present species is at once distinguishable by the peculiar character of amphidiscs that abundantly occur in the dermal membrane. — Macramphidisc 0,5 mm long, 0,2 mm broad; umbel shaped like Turkish fez, slightly incurved at the sides, 0,15 mm long; umbel-rays 8 in number, 0,03 mm broad, blunt-ended. — Mesamphidisc ellipsoid, 0,1 mm long and 0,05 mm broad, or smaller; the ends of the rays belonging to the two umbels alternately interpose at the equator. — Micramphidisc variously sized, down to 0,013 mm in length, of ordinary form. — Anchors of the root-tuft 5 or 6 teethed.

Tokyo, July 9th 1894.

2. Ein fliegender Copepode.

Von Dr. A. Ostroumoff, Sebastopol.

eingeg. 21. August 1894.

Das Flugvermögen unter den Crustenthieren ist, so viel mir bekannt, bis jetzt noch nicht beobachtet worden. Zum ersten Male sahen wir, Diener der Biologischen Station, mein Sohn und ich, im Juli dieses Jahres, wie die winzigen, grünen Crustenthierchen, nämlich *Pontellina mediterranea* Claus, in der Luft fliegen. Dies war während eines Überganges in der Schaluppe längs der Küste der Halbinsel von Chersones früh Morgens bei ruhigem Meer und klarem Himmel. Viele von jenen Spaltfüßlern ruhten auf dem Wasserpiegel, machten Sprünge in die Luft, beschrieben hier eine lange Curve, und fielen wiederum auf den Wasserspiegel. Solch ungewöhnliche Ortsbewegung ist allerdings durch die stark befiederten Glieder begünstigt und steht wahrscheinlich in Zusammenhang mit dem Häutungsproceß oder genauer gesagt mit dem Anfange desselben. So wissen wir, daß manche Entomostraken, z. B. solche Polyphemiden wie *Evadne*, *Pleopis*, sich auf dem Wasserspiegel mit Hilfe der Luft, welche die abgeworfenen Hüllen anhält, häuten.

Biologische Station Sebastopol.