

From the observations I have made on the metamorphosis it seems clear that the Trachelifer larva sinks to the bottom when about to metamorphose, and that metamorphosis actually takes place on the sea-floor, so that the postlarval form is able at once to assume the burrowing habits of the adult phase. I have never collected the adult *Jaxea* at Lough Ine, though the bottom of the lough is ideally suited to it, since it is composed in large part of a soft muddy sand such as is frequented by the adult.

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LXXIII.—*Cucumaria tetracentriophora*, *sp. n.*, a new *Dendrochirote Holothurian* from South Africa. By S. G. HEDING, Zoological Museum, Copenhagen.

*Diagnosis.*—Medium sized dendrochirote Holothurians with ten equal tentacles and large normal tube-feet confined to the five ambulacra and to the mid-dorsal interambulacrum, and with small papulæ-like tube-feet scattered all over the four ventral and lateral interambulacra. With five large anal teeth, a solid cartilaginous-like calcareous ring without posterior processes, one polian vesicle, one stone-canal, and well-developed

respiratory trees. Calcareous deposit; in body-wall of two kinds, an outer layer of minute four-spined curved rods and an inner layer of large oval or egg-shaped knobbed plates without any spiny projection. Terminal plate of tube-feet lacking even in the large, well-developed, ventral radial tube-feet.

*Systematic Position.*—This species is very like several of the common South African species, but differs mainly in having four-spined rods in the body-wall, in having all the tentacles of equal size, in having no spiny projections on the knobbed plates, and in lacking the terminal plates of the tube-feet.

*Locality.*—South Africa.

*Type-specimen.*—In British Museum (Natural History).

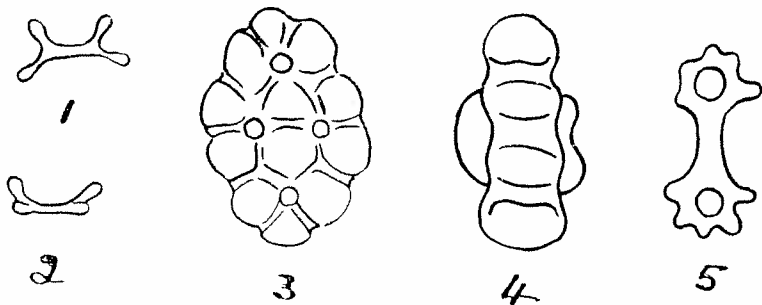
*Material.*—

South Africa, leg. Dr. P. D. Hahn (type)	6 specimens.
South Africa .....	10     "
South Africa, Bonza Bay, East London ; leg. Prof. Stephenson, 22. vii. 37 .....	2     "

*Description.*—The specimens at hand measure about 3 cm. in length, but as they are all strongly contracted the normal size of mature specimens may be about 8 cm. The colour of all the specimens except two, those from Bonza Bay, is almost uniformly yellowish white, a little darker dorsally, where there is a purple tinge. Those from Bonza Bay are steel-grey with a lot of black or blackish-purple spots. The body-wall is thick and leathery (in contracted specimens) and its surface is soft to the touch. The tube-feet are rather large and quite retractile. They form broad rows, each with four to six feet in the three ventral radii and narrow double rows in the dorsal radii. Besides, there are a number of slightly smaller tube-feet scattered over the dorsal interambulacrum. A closer examination shows, however, that there are a lot of minute papillæ, quite papulæ-like, densely spread all over the interradii. Contrary to what is the case with the large tube-feet, these papillæ are not supplied with any ampullæ, and as far as can be seen there are also no deposits in them. They are all quite retracted, but may easily be seen on the surface by means of a lens, and by removing the ring-muscle layer from the skin proper it may be seen that each of these papillæ is connected with the water-vascular system. There are ten tentacles of equal size, five large anal teeth

each with two anal papillæ, and a large cartilaginous-like calcareous ring without any posterior prolongations. The anterior processes of the radials and of the inter-radials are rather alike, and, as far as it is possible to ascertain, the radial processes have no, or at any rate only very faint, anterior incisions. The difficulty in ascertaining this is mainly due to the softness of the ring proper. There is one very large polian vesicle and one stone-canal. The gonads are long unbranched tubes.

The intestine has no muscular part, but consists of two very different characteristic parts, of which the one is smooth and longitudinally striped and the other is strongly folded transversely. The cloaca is short and the respiratory trees are large and much branched.



Figs. 1 & 2.—Four-armed rods from the outer layer of the body-wall; fig. 2 from the side.

Figs. 3 & 4.—Four-holed knobbed plates from the inner layer of the body-wall; fig. 4 from the side.

Fig. 5.—Normal rod from the walls of the tube-feet.

The calcareous deposits of the body-wall consist of two different sorts. The one form a thin but very dense layer of small, 30–40  $\mu$  long, four-armed rods. They are always slightly curved towards the arm-points (*i. e.*, the surface of the body-wall), and the arm-points, which normally are slightly distended (figs. 1 and 2), may divide, usually once but now and then two to three times. These deposits are very similar to, and may probably be regarded as homologous with, the base or primary cross of the "baskets" known from allied species. The second sort of deposits in the body-wall proper are large oval four-holed knobbed plates, normally about 80  $\mu$  long (figs. 3 & 4). The shape of these plates is very characteristic, but the variation is rather great. As said above, there are normally four holes, but in a few cases there are but three, and rather often there may be five to eight.

More frequently than the number of holes increases the knobs of the surface grow so large that the holes almost disappear, and the plate becomes nearly egg-shaped, but in no case is one end of these deposits spiny or in any way different from the other.

The deposits in the tube-feet are rather variable, but their normal shape (fig. 5) is a short thick rod with extended and perforated ends. Rather often there is more than one perforation in each end, and these rods may have somewhat branched ends. There is no terminal plate in the tube-feet.

A very interesting thing is that intermediate stages are often found between all three sorts of deposits. Such are usually found in the vicinity of the tube feet, especially of the minute papulæ-like ones present in the inter-ambulacra. These minute pedicels are normally totally devoid of calcareous deposits, and in cleared pieces of skin they are seen as round patches without deposits, surrounded by deposits which are arm-rods as well as perforated rods.

For the opportunity of studying and describing this interesting species I wish to express my most cordial thanks to Mr. Dilwyn John.

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LXXIV.—*A new Species of Solenopotes (Anoplura, Siphunculata).* By GORDON B. THOMPSON.

*Solenopotes muntiacus*, sp. n.

*Type-host.*—*Muntiacus malabaricus* Wroughton (S. Indian Barking Deer).

*Specimens examined.*—Holotype (♂), allotype (♀), and 8 ♀♀, 7 ♂♂ paratypes from the type-host, Ceylon, C.P., Mousakande, Gammaduwa, alt. 3400 ft., 9. xii. 1934 and 10. xi. 1935 (W. W. A. Phillips).

♂. Length .8 mm.. ♀. Length 1.7 mm.

*Female.*—*Head* almost twice as long as broad, bluntly pointed; lateral margins from the junction of thorax to base of antennæ almost parallel. Entire head weakly sclerotic except for two areas on either side of the anterior portion. Occiput produced triangularly on to the thorax. Dorsal setæ few: six (3. 3) on the area between the base