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ON A NEW SPECIES OF APHRODITA.

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(Plate lxix., figs. 1-8.).

There are in this Museum a number of Polychætes formerly labelled *Aphrodita australis*, Baird[1]. The original description of this species is sufficiently general to include several allied forms. Prof. W. McIntosh,[2] however, gave a much better description, accompanied by figures, of specimens collected off Port Jackson by H.M.S. "Challenger." As he had examined Baird's type in the British Museum, we may safely take his description as a means for comparing our own worms with *A. australis*.

The animals are apparently distinct. Both possess forty-two segments, which narrow very rapidly towards the posterior extremity. Our type, an adult female, is seventy-five millimetres long; its greatest width (excluding the setæ) is in the region of the tenth, eleventh and twelfth segments, being thirty-two millimetres. The posterior fifteen segments total only nine millimetres in length. The region of greatest width is more anteriorly situated than is shown in McIntosh's figure.

The prostomium or head is very small, rounded, and completely covered by the anterior pair of elytra. The median tentacle is very short, being almost rudimentary. It is more rounded than in *A. australis*. There are two pair of simple, sessile, black eyes, the anterior pair being much larger and more darkly pigmented than the posterior. The latter are situated above and behind the former (Pl. lxix., fig. 2). The eyes are directed fowards, their appearance from the front being on Pl. lxix., fig. 3.

The first stigerous segment (peristomium) is visible dorsally on removing the elytra, as a collar-like ridge behind the prostomium. The scales of the next segment completely overlap this segment and the head. Extending forwards from below the tentacle is

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[1] Baird—Monograph of the Aphroditidæ (Journ. Linn. Soc., Zool., x., 1865, p. 176). Haswell—Mon. Australian Aphroditea (Proc. Linn. Soc. N.S. Wales, vii., 1882, p. 250).

[2] McIntosh—Polychæta (Chall. Rep., Zool., xii., 1885, p. 34).

the frontal ridge, broad above but keel-like between the palps. This ridge ends ventrally in front of the mouth, a transverse aperture on the peristomium. Behind the mouth is the longitudinally ridged lip. The parapodia of this segment are shifted forwards and lie in front of the mouth, just external to the bases of the palps.

Each palp is fairly long, measuring nine mm. in the type (Pl. lxix., fig. 1), *i.e.*, less than one-eighth of the length of the animal. In a co-type figured on Pl. lxix., fig. 2, they are relatively shorter. McIntosh does not mention their length in *A. australis* but the figures show them to be relatively longer, being more than one-fifth of the body-length. In our specimens they are rounded and tapering, the base of each showing a swollen part just laterally to the tentacle. The surface of the palp, except at the distal end, is beset with very small chitinous papillæ, the extremity of each being fine, sharp and bent towards the tip of the organ (Pl. lxix., fig. 4.)

As in other Aphroditidæ, there are several sets of bristles ; the strong laterally-situated setæ, the so-called "hairs" and dorsal "felt." The felt consists of very closely matted delicate setæ, forming a tough, dense mass, in which mud becomes entangled, giving a dirty grey appearance to it. The elytra are completely concealed by it. Iridescent setæ are very numerous along the sides of the animal. They are long, jointed, highly flexible and hairlike, and taper to a fine point. They arise from the lower part of the dorsal division of the foot (notopodium). These "hairs" are responsible for the beautiful colours characteristic of a "Sea-mouse." A pale bluish green hue predominates, but it merges into red, orange, and yellow. The colour is scarcely noticeable in very young specimens but increases with the size of the worm. The dorsal setæ are rather stiff. They arise from the upper part of the notopodium, but curve upwards and inwards, penetrate the dorsal felt, and come to lie over the dorsum, those from opposite sides almost meeting in most cases, and actually overlapping in places. They taper gradually and end in a delicate hook (Pl. lxix., fig. 2), similar to that figured for *Lœtmatonice aphroditoides*, McInt.,[3] and *Aphrodita aculeata*, Linn.[4] Longitudinal and transverse striations are fairly well marked. Their structure is thus quite different to those in *A. australis*, as figured. The bristles which project from the sides of the animal closely resemble in position and shape those of *A. aculeata.* They are

[3] McIntosh—*Loc. cit.*, p. 51.
[4] McIntosh—Mon. Brit. Annelida, Pt. ii. (Ray Soc., 1900, p. 247).

firm structures, dark brown in the adult but much lighter in colour in young specimens. They seem to be arranged in three rows on the neuropodium. The uppermost consists of two very strong, dark setæ; the next, of three or four smaller and lighter coloured ones; and the lowest, of several still smaller bristles. This division is not as well marked posteriorly, the two lower rows becoming one, the uppermost remaining fairly distinct. All of these setæ are similar in shape (Pl. xlix., fig. 8). They taper rather rapidly at the end, which is bent slightly and has a rounded extremity. There are no processes present, but longitudinal striations occur. *A. australis* has ventral setæ of two or three kinds, one ends in a rather broad point and bears minute processes, whilst the others may be either dart-shaped or else slightly hairy. There seems to be only one seta present in each peristomial neuropodium. It is short and thick, very little of it projecting beyond the foot. The next segment bears two on each side, these representing the uppermost of the three rows visible in segments situated more posteriorly. The aciculum of each division of the foot is a short, dark, slightly curved, sharp-pointed body, which does not project. The parapodia are ringed and like the ventral surface of the animal, bear numerous tubercles.

The ventral cirri are short, the majority being only two mm. long. They are rather thicker at the base than the dorsal cirri. Each tapers towards the end, becoming swollen some distance from it, so as to become rather spatulate (Pl. xlix., figs. 1, 2.) This may be caused by the preserving fluid. There is a ringed appearance externally. A strand of tissue is visible in the middle. The dorsal and ventral cirri of the peristomium are very long compared with those of other segments, and lie close behind the palps, constituting the peristomial tentacles. They are long in the next segment also, but decrease in size rapidly in succeeding segments. Near the base of each ventral cirrus there is situated a small whitish tubercle, probably representing the segmental papilla.[5]

The dorsal cirri alternate with the elytra, the peristomium bearing cirri. Excepting those which are borne on the most anterior segments and are relatively long, these organs are about nine millimetres long. They are rounded and tapering, ending in a slightly enlarged tip. Like the ventral cirri, they are ringed and possess a median strand of tissue. The peculiar net-

[5] Haswell—Note on Segmental Organs of Aphrodita (Proc. Linn. Soc. N. S. Wales, vii., 1882, p. 610).

work of fibres, mentioned by McIntosh, is also present, and in addition there may be seen a number of rather large nucleated cells, some rounded, others branched, resembling nerve cells. They are scattered throughout the organ. Both dorsal and ventral cirri bear some very minute papillæ.

As before mentioned, there are thirteen pairs of elytra, commencing on the second setigerous segment. The three or four anterior pairs are rather smaller than those succeeding. The shape is sub-circular, the scale from the fourth segment measuring seven and a half millimetres in breadth by eight in length. The scar marking the point of attachment of the peduncle connecting it with the dorsum is situated near the outer edge. The margin is entire, but there are some very small processes arranged in a row at fairly regular intervals close to the edge of the scale, there being three or four such rows near the scar. A few processes may occur on the edge itself. The whole scale is whitish, membranous and slightly iridescent ; this condition being due to the finely reticulate granulations on the upper surface. The fibrous layer connecting the two surfaces of the elytron can be distinguished under the high power, the fibres crossing each other in such a way as to form an irregular network.

The peduncle of the scale is broad, tabular, and short. It bears a number of small, almost conical capillæ with a truncate cylindrical extremity. There is a depression in the centre of the tip (Pl. xlix., figs. 5, 6). A strand of tissue is present in the stalk.

The type specimen is a ripe female dredged in five fathoms in Nelson's Bay, Port Stephens, in 1882. It contained an enormous number of ova, situated mainly in the coelome at the bases of the parapodia. These ova are spherical, averaging 0·21 mm. in diameter and are crowded with yolk granules.

Other specimens, all dredged in Port Jackson, were also examined. They varied in size from ninety mm. by twenty-nine mm. to twenty-five mm. by thirteen mm., but agree in all essentials with the above description. In one specimen the nerve cord could be seen through the epidermis. All the worms are too macerated for dissection.

I propose to name the species *Aphrodita haswelli* in honour of Professor W. A. Haswell, a Trustee of this Museum, who has kindly assisted me with specimens and literature.

The main characters of *A. haswelli* may be summed up thus :— Forty-two segments ; thirteen pairs of elytra ; very short median tentacle ; well developed palps and lateral tentacles ; four sessile eyes ; ventral setæ all alike, with somewhat pointed and slightly

curved ends; the dorsal setæ lying over the dorsum have hook-like extremities.

Attached to the ventral surface of the type were a number of organisms, mainly Foraminifera. They were abundant on some specimens and absent on others. Mr. F. Chapman, of Melbourne, kindly determined those I sent to him as *Miliolina subrotunda*, Montagu, an organism characteristic of shore lines and shallow water. There was also another foraminifer present, the test of which resembles a *Truncatulina*. At least one species of this genus[6] may at times cover its test with particles of sand loosely cemented together. This was observed on some of the worms. McIntosh[7] mentions that an arenaceous foraminifer lives parasitically on the ventral surface of *A. australis*. Possibly the same organism is referred to, though in our specimens the test is not really arenaceous, but chitinous, the sand forming an extra covering. Other animal remains also occurred, and may as well be mentioned here. A small siliceous sponge was located between two parapodia. Entangled in the felt and setæ were Foraminifera (chiefly *Textularia*); siliceous and calcareous sponges; a free living Nematode (? Enoplidæ) which was too macerated for determination; Holothurian spicules; Echinoid spines; and fragments of shells.

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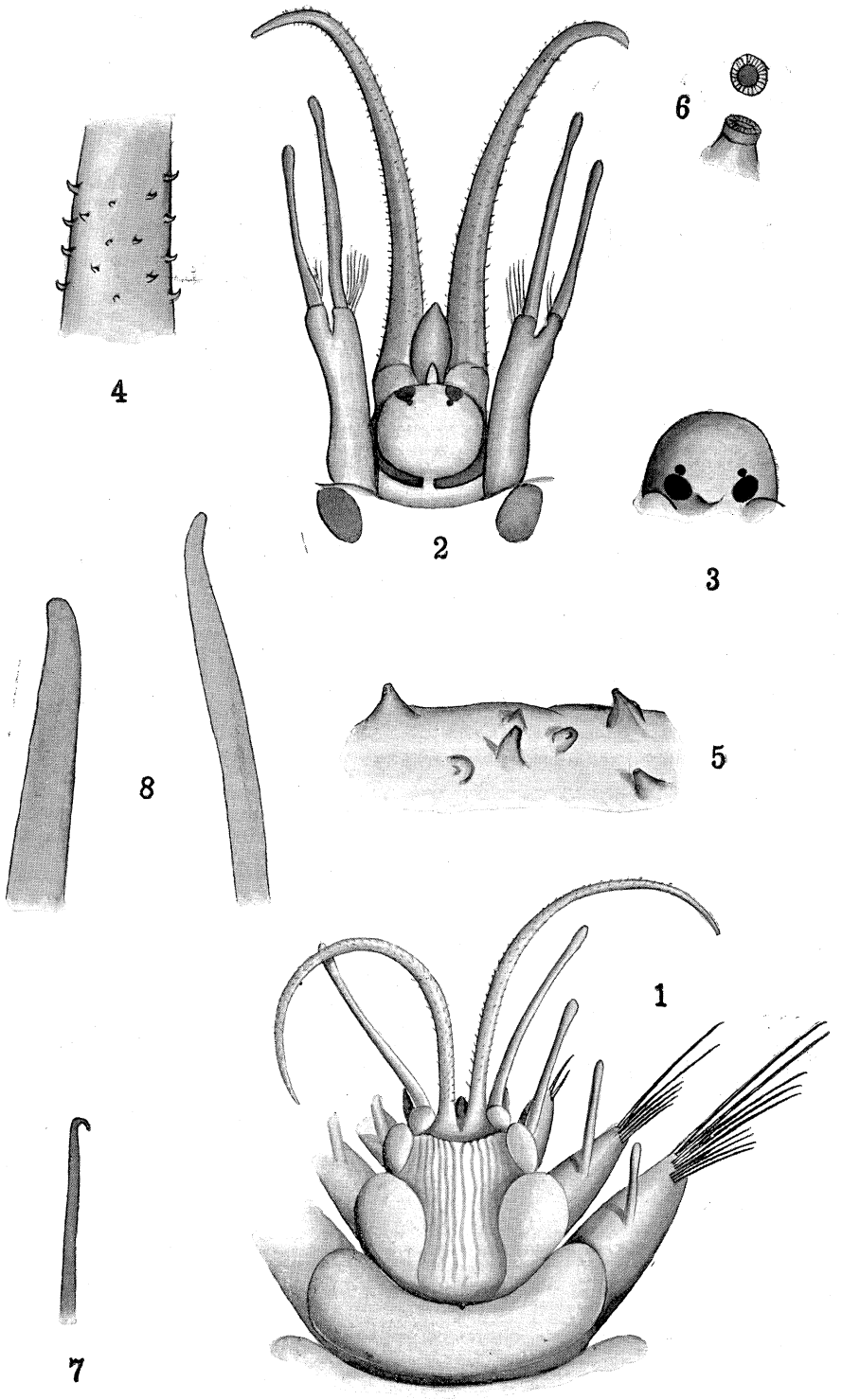
[6] Chapman—Foraminifera, 1902, p. 220.
[7] McIntosh—Chall. Rep., Zool., xiii., 1885, p. 36.

EXPLANATION OF PLATE LXIX.

APHRODITA HASWELLI, *Jnstn.*

Fig. 1. Anterior end, ventral view.
,, 2. ,, ,, dorsal ,,
,, 3. Head (front view) showing eyes.
,, 4. Portion of palp.
,, 5. Portion of stalk of elytron.
,, 6. Papilla (side and end view), from stalk of elytron.
,, 7 Tip of dorsal seta.
,, 8. Two ventral setæ.



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