

THE ACCESSORY COPULATORY ORGANS OF THE MALE STOMATOPOD.

Before I end the discussion of the phylogenetic relationship between the genera of adult Stomatopoda, I wish to call attention to the importance of figures and descriptions of the complicated structure on the first abdominal appendage of the male. If each description of a new species contained a figure of this structure, the tracing out of the genetic relationship between the species would be greatly simplified; although a knowledge of this organ would, of course, be of no help in our present undertaking, the discovery of the connections between the pelagic larvæ and the adults. Unfortunately the Malacologists have given little attention to this structure, as it cannot be studied to advantage without removing it from the body and mounting it as a microscopic object.

In the case of the Challenger specimens Mr. G. B. Haldeman has kindly done this for me, and has also made the drawings of this organ which are here given.

The endopodite of the first abdominal appendage of the male Stomatopod is furnished, on its inner edge near the tip, with a complicated grasping organ which probably serves for seizing the female, like the grasping forceps of many of the lower Crustacea and some few of the Malacostraca, although I am acquainted with no observations as to their use in the Stomatopoda. The structure has been figured by several observers, but no careful comparative description has ever been published, although it often presents characteristics of specific value, and differs conspicuously in the different genera. One of the most interesting and valuable peculiarities of the organ is that it seems to illustrate the degree of relationship between the various genera, and an exhaustive study of its modifications in the different species will be a very great aid in tracing the phylogeny and genetic relationship of the various genera and species. Unfortunately, several of the new species in the Challenger collections are represented only by female specimens, and the material is too scanty to afford an opportunity for the exhaustive study of the subject, but I am able to give, with the descriptions of several of the new species, figures and descriptions of this structure, and I hope that these descriptions will serve to incite in some one who has access to larger collections a desire to make a more thorough study of it.

The endopodite of the first abdominal appendage of the male Stomatopod consists of a large flat basal joint (Pl. I. fig. 2, A) separated by a movable transverse suture *c* from the terminal joint B, which is notched or bilobed at the tip, and thus completely or incompletely divided into an external leaflet *a*, and an internal one *b*. The latter carries on the anterior surface of its inner edge, at the line of articulation with the proximal joint, the petasma, or forceps, which consists of three portions: (1) the retinaculum or appendix interna *d*, which is rounded at its proximal end, prolonged into a long acute or subacute point distally, and with a straight internal edge which is closely set with several crowded rows of hooked spines which interlace on the middle line with those of the corresponding appendage on the opposite side of the body; (2) the