

Sexual Organisation of the Myzostomida Cysticola.

Von Willemoes Suhm¹ discovered, to his astonishment, that the individuals contained in a single cyst either resembled each other in form and size, or were very different, and concluded, though without having been able to examine the sexual organs, that in the latter case the individuals resembled *Distoma okenii*, in that one had the male organs especially developed, and the other the female organs.² I am able to state that this is really the case, that each individual is either male or female, and that in addition the two sexes are unlike in appearance, the female being usually 50–100 times as large as the male. That these forms (*Myzostoma tenuispinum*, *Myzostoma willemoesii*, *Myzostoma inflator*, *Myzostoma murrayi*) are originally descended from androgynous forms, in which the organs of one sex have become gradually abortive, is shown by the case of *Myzostoma cysticolum*, in the female of which there are rudiments of the testes, but no male generative aperture (Pl. XIII. fig. 4, t). These dioecious forms are also distinguished by the marginal position of the sexual apertures, both male and female (Pls. XIII. and XIV.), and the form of the testes in the males. In *Myzostoma willemoesii* and *Myzostoma inflator* alone, which resemble the free living forms in the possession of twenty long cirri, the testes have the typical ramified form; in all the others they are compact roundish glands occupying definite areas in the lateral part of the body.

In those forms in which the individuals inhabiting one cyst are not different in appearance, the sexual organs have a different structure; each individual is here androgynous, but differs from the free living androgynous species in that the testis is developed only on one side of the body, and there is but one male genital aperture; in *Myzostoma pentacrini*, however, there are small remnants of the other testis, but no second male aperture. The testis also, as in the dioecious forms, is a small compact gland. Since the testes of the dwarf males are fully developed on both sides, we must not regard the hermaphrodite species, *Myzostoma pentacrini* and *Myzostoma deformatior*, as transitional between the typical hermaphrodite forms and those that are dioecious, but the latter must be derived independently from the free-living forms.

More abundant materials are required before the question about the life history of the Myzostomida Cysticola can be definitely answered, but my investigations permit me to state that the following view is in all probability correct.

The male and female being found associated in a common cyst, and increasing in size with the growth of the cyst, shows that they perforate the arm-joints or pinnules of their host together. The growth of the cyst is of course caused by the presence of the parasite; the female deposits her eggs within the cyst, and the young embryos, after they

¹ Von der Challenger Expedition, Brief III., *Zeitschr. f. wiss. Zool.*, Bd. xxv., 1875, p. xxxi., and Brief VI., Bd. xxvi., 1876, p. lxxix.

² "Dass auch hier (wie bei *Distoma okenii*) das eine Thier sich namentlich für die männliche, das andere für die weibliche Thätigkeit entwickelt."