the structure of the lasso-cells of Hydra, with a neck and hooks at the base of the thread (*c*), or the thread may be simple (*d*). The bags of the cells themselves are slightly pear-shaped. The variety of these appendages may be appreciated by comparing those represented, *Figs.* 8, 9, 10, and 11. I have noticed an unexpected difference between these appendages in the two sexes. In the males (Pl. XIII. *Fig.* 2, *m*, and Pl. XIII[A]. *Fig.* 5, *d'*) they are much more uniform than in the females, in which they exhibit the greatest variety of appearance (Pl. XIII. *Fig.* 2, *f*). What may be the function of these singular organs I am at a loss to say; the constant difference which I have noticed among them, in the two sexes, justifies the inference that in some way or other they must be connected with the laying of the eggs and the diffusion of the spermatic particles.

I have already stated, that the sexual organs project into the main cavity, and that the eggs make their escape from that cavity outward, through the four small openings alternating with the genital pouches. When mature, the eggs rise from the stroma of the ovary like beads (Pl. XIII[A]. *Fig.* 22); they are surrounded by a chorion which forms a neck, connecting them with the walls of the genital organ. When the eggs are fully mature (*Figs.* 18 and 19), this neck breaks, and forms a large micropile above the germinative vesicle. In younger eggs (*Fig.* 20) the sacs containing the eggs are pear-shaped, and the neck slender; this grows shorter and wider (*Fig.* 21) as the eggs enlarge. The spermatic sacs (*Figs.* 16 and 17) have the same structure; the spermatic particles themselves have the form of an arrow-head, with a long, slender thread. The eyes have the usual form and structure observed among our common Discophoræ; they are short, hollow pedunceles, with a round, faceted termination (Pl. XIII[A]. *Figs.* 11, 12, *o o*, 13, 14, and 15). Occasionally two eyes are developed, side by side (*Fig.* 8, o^1 o^1), there being an eye at the termination of each fork of the radiating tube of their respective segments.

The gelatinous disk is flat, comparatively thin, and gradually tapering in its thickness, from the centre to the margin (Pl. XIII[A]. *Fig.* 2). In the central part, on the lower side, corresponding to the main cavity, it is slightly thinner than at the point from which the lower floor recedes from the disk, to form the actinostome. A magnified section, *Fig.* 3, shows that the gelatinous disk, *g*, is traversed by numerous fibres, in a vertical direction, across its whole thickness, and that the lower floor, *o*, is comparatively thin; between the two is the layer a^3, traversed by the radiating chymiferous tubes.

The generic characters of Polyclonia, I believe, consist in the peculiar mode of ramification of the arms, which are deeply divided to the base of the central cavity, and then unite, two and two, upon the lower floor of the main cavity. The strong, ramified branches of these arms, are no doubt also generic, as well as the different kinds of lobes and appendages along their soldered margins, and upon