

aboral ring to terminate in the perisome of the central part of the disk. It would be very interesting to determine the relation of this dorsal extension of the plexiform gland in those Asterids such as *Zoroaster fulgens*, which retain well-developed basal and radial plates in the centre of the disk, so as to resemble the calyx of a Crinoid.¹

It will be remembered that Prof. Perrier has noted the identity in structure between the axial organ of a Crinoid and the so-called ovoid gland of the Echinozoa. This organ is considered by Ludwig and myself to be in a close relation with the blood-vascular system, and intimately united to the oral blood-vascular ring, just as the axial organ is in the Crinoids. But Perrier believes it to be an excretory gland, unconnected with the blood-vascular system and opening to the exterior through the madreporite. Koehler's observations on the Urchins, however, tend to disprove this theory, as I have shown elsewhere.² Perrier has recently asserted that the axial organ of a Crinoid communicates with the exterior (see Appendix, Note D); but although he has described its structure as identical with that of the ovoid gland of Starfishes and Urchins, he nevertheless compares it with the madreporic or stone-canal of these types.³ He thus considers an organ which is related to the blood-vascular system of a Crinoid to be represented by a part of the water-vascular system of other Echinoderms; and he denies that the latter corresponds to the water-tubes and water-pores of a Crinoid, as is generally supposed.

The only reasons which he brings forward for this conclusion are that the walls of the axial organ in the young Crinoid are folded like those of the stone-canal in Starfishes; while it has the same position with regard to the digestive apparatus as the stone-canal of Urchins. The first reason appears to me to be of very little value, as I have pointed out elsewhere;⁴ while Perrier seems to have overlooked the fact that the second one is equally applicable to the doctrine of a general homology between the axial organ of a Crinoid and the so-called heart of an Urchin. For this structure lies in the immediate neighbourhood of the stone-canal, and Perrier himself admits that it is identical in structure with the axial organ of a Crinoid, which is certainly not the case with the stone-canal.

It is difficult to see what rational grounds Perrier has for his suggestion that a part of the water-vascular system of a Starfish or Urchin is represented by an organ which belongs to the blood-vascular system of a Crinoid, as his own observations show, though he nowhere admits that such is the case. (See Appendix, Note F.)

The chambered organ of *Comatula* is contained within the cavity of the centro-dorsal, and is covered in above by the rosette of metamorphosed basals; it is a larger structure, both relatively and absolutely, than that of a stalked Crinoid, owing to the concentration of the cirri at the top of the larval stem.

¹ See Sladen, On the Homologies of the Primary Larval Plates in the test of Brachiote Echinoderms, *Quart. Journ. Micr. Sci.*, 1884, vol. xxiv., N. S., pp. 32-34, pl. i. fig. 16.

² *Quart. Journ. Micr. Sci.*, 1883, vol. xxiii., N. S., pp. 599-609.

³ *Comptes rendus*, t. xcvi. pp. 445, 446.

⁴ *Quart. Journ. Micr. Sci.*, 1884, vol. xxiv., N. S., p. 323.