

clear that this structure cannot have been developed from the primary interradial plates in the abactinal system of the larva; for these last remain in the apical system, just as they do in the Urchins. Sladen's observations, to say nothing of those of Lovén, render Perrier's views respecting the development of the odontophores of an *Asterias* from the primary interradial plates round the dorsocentral of the larva, absolutely untenable, and one is therefore the less disposed to accept his statements concerning *Brisinga*, of which no proof has yet been offered to his fellow-workers.

In connection with this subject he has recently advanced some theories respecting the mutual relations of a Crinoid and an Urchin which are altogether at variance with those of most other naturalists, except perhaps Ludwig. He thinks that in comparing the apical system of an Urchin with the calyx of a Crinoid, Lovén "a attribué à l'Oursin une position exactement inverse de sa position normale."¹ He regards an Urchin as a Crinoid with a large visceral mass to which the arms are fixed, as for example in *Eucalyptocrinus*;² while "la bouche serait située au point d'insertion du disque sur la tige." Under these circumstances the nervous system and ambulacral canals of an Urchin would have "exactement les mêmes rapports que ceux qui nous sont offerts par la Comatule. Il est à remarquer que précisément, en ce point, le calice de nombreux Crinoïdes pédonculés s'invagine, et présente des plaques qui ne sont pas sans analogie avec celles qui constituent la lanterne d'Aristote des Oursins et plus particulièrement des Clypéastres." This idea has since been further developed.³ The arms of a Crinoid grow at their free end, while the new ambulacral plates of an Urchin are formed round the periproct. The base of the ambulacra is thus in the peristome. "Mais alors les pièces homologues des plaques calicinales des Crinoïdes sont non pas les dix plaques du périprocte, mais bien les pièces constitutives de la lanterne d'Aristote. Quelque hardie que paraisse cette interprétation nous sommes persuadé que tout esprit non prévenu sera frappé de l'étroite ressemblance d'un Oursin régulier avec des Crinoïdes tels que le *Callicrinus* et surtout les *Eucalyptocrinus*." I fear that in this matter I cannot be said to have an "esprit non prévenu"; but it certainly appears to me somewhat rash to attempt to overthrow the generally accepted ideas respecting the mutual relations of an Urchin and a Crinoid by reference to such very highly specialised types as *Eucalyptocrinus* and *Callicrinus*. Both in this respect and in the comparison of the Crinoidal calyx to the lantern of Aristotle, I cannot help feeling that Prof. Perrier has altogether lost sight of the embryological arguments by which questions of homology are generally decided. The calyx of a Crinoid and the apical system of an Urchin or Starfish have precisely the same relations to the vaso-peritoneal apparatus of the larval Echinoderm; and until some better reason can be adduced for disregarding this relation than a more or less uncertain resemblance between

¹ *Nouv. Archiv. du Mus. d'Hist. Nat.*, 2^me sér., 1884, t. vi. p. 161.

² *Comptes rendus*, t. xcvi. p. 1450.

³ *Nouv. Archiv. du Mus. d'Hist. Nat.*, 2^me sér., 1884, t. vi. p. 161.