and the Cystids had no such arms, and the Holopodidæ and *Edriocrinus* were stemless. None of the typical Pelmatozoa, however, are devoid of both stem and arms, with one or both of which the chambered organ seems to be correlated. A so-called pedunculate Starfish has already been described by Prof. Perrier,[1] and it was with much disappointment that I learnt from Mr. Sladen[2] that *Caulaster* is far from being the interesting type which it was at first supposed to be. I am not without hopes, however, that future morphological work upon Urchins and Starfishes may throw more light upon this question; and there is very much to be done by those who will go into the study of the Palæozoic Starfishes equipped with a knowledge of the morphology of recent Echinoderms, and will not be content with merely compiling empirical descriptions of new species.

Müller's original classification of the true or brachiate Crinoids divided them into three groups, Articulata, Tessellata, and Costata, the last including the problematical genus *Saccosoma*, which may perhaps eventually turn out to be an Ophiurid. Reference has already been made (*ante*, pp. 145–147) to the unsuitability of the Müllerian names Articulata and Tessellata for the two other principal divisions of the brachiate Crinoids. The latter is practically co-extensive with the Palæocrinoidea of Messrs. Wachsmuth and Springer.[3] These authors have gone further than Zittel and de Loriol, and have proposed to divide up the Crinoidea (understood in the widest sense) into the following orders:—(1) Blastoidea; (2) Cystoidea; (3) Palæocrinoidea; (4) Stomatocrinoidea; (5 ?) Costata. This classification, however, has been by no means generally accepted. Different as are many of the Palæocrinoids, *e.g.*, *Eucalyptocrinus*, from a Pentacrinite, others, such as the Ichthyocrinidæ, have many of the characters of a recent Crinoid; and an arrangement which elevates the difference between *Pentacrinus* and *Ichthyocrinus* to the same importance as those between *Pentacrinus*, *Pentremites*, and *Echinosphærites* respectively, appears to me to be founded on a misconception of the value of morphological characters.

On the other hand, although the definition of the Palæocrinoidea which has been given by Wachsmuth and Springer is capable of improvement in one or two respects, it is far more correct and is based upon sounder morphological principles than any definitions of the Tessellata which have been drawn up by Müller and his followers. But I cannot regard the two groups Palæocrinoidea and Stomatocrinoidea (Articulata or Neocrinoidea) as equivalent to the Blastoids and Cystids; so that while keeping the Palæocrinoids at the level of an order, I should rank the Blastoidea and Cystidea as classes, in accordance with the practice generally adopted in this country.

Prof. Chapman[4] has proposed a classification of the brachiate Crinoids which "is

[1] Sur une Astérie des grandes profondeurs de l'Atlantique, pourvue d'un pédoncule dorsal, *Comptes rendus*, t. xcv. pp. 1379–1381.

[2] The Asteroidea of H.M.S. Challenger Expedition, part ii., *Journ. Linn. Soc. Lond.* (Zool.), vol. xvii. p. 217.

[3] Revision, part ii. p. 3.

[4] A Classification of Crinoids. *Trans. Roy. Soc. Canada*, vol. i., 1883. Section iv., 1882, pp. 113–116.