a stemless Urchin and a highly specialised Palæocrinoid, I think that most naturalists will be inclined to regard the mouth of an Urchin as representing that of a Crinoid, and not the point of attachment between the stem and the body.

If this last view be correct, it follows, as Perrier points out, that "le dos des Astéries correspondrait à la region buccale des Oursins et non à leur region anale," which not even Ludwig would assert. Two years ago Perrier described a small Starfish which had been dredged by the "Travailleur," and was distinguished by the possession of a small dorsal appendage comparable to the stem of a Crinoid.[1] He stated that "quelques caractères des Astéries dont nous avons à parler ici paraissent indiquer que l'appendice dorsal dont elles sont munies est bien réellement l'homologue du pédoncule des Crinoïdes." He named the type *Caulaster*, and added that it is allied to *Ctenodiscus*. "Il existe chez ces derniers un léger tubercule qui nous paraît homologue de l'appendice dorsal des *Caulaster*, et peut-être en pourrait-on rapprocher un bouton saillant qui, chez les *Astropecten*, occupe la place où se trouve l'anus chez les autres Étoiles de mer." Sladen subsequently pointed out that a central epiproctal prominence of this kind is very general in the family Astropectinidæ.[2] It is "frequently developed into an elongate tubular prolongation" in the subfamily Porcellanasteridæ. He doubted the affinity of *Caulaster* with *Ctenodiscus*, and was inclined to regard it as a young *Porcellanaster*. More recently Danielssen and Koren[3] have described a new genus *Ilyaster*, in which a disk of 30 mm. diameter bears an epiproctal process 8 mm. long and covered with paxillæ, as in the Astropectinidæ described by Sladen. They agree with Perrier in regarding it as homologous with the stem of a Crinoid; and it would appear that Agassiz is of the same opinion.[4] It may be that this view of the case is the right one; but it could only be satisfactorily proved to be so by the demonstration that the cavity of the epiproctal prolongation is derived from the right vaso-peritoneal tube. For it is a diverticulum of this division of the primitive body-cavity of *Comatula* which extends backwards and has the joints of the larval stem developed in its walls. Future observations upon the early larval stages of the Astropectinidæ would throw much light upon this question. Perrier's *Caulaster* appears to be the youngest known form possessing this curious appendage, and some of the plates of the primitive calycular system are still visible. "À la base de l'appendice dorsal, se trouvent en effet quatre grandes plaques calcaires, disposées en croix et portant chacune un petit piquant; ces plaques sont à peu pres orientées *dans la direction des bras;* une cinquième plaque, alterne avec deux d'entre elles et opposée à la plaque madréporique, fait évidemment partie du même cycle; cinq autres plaques plus petites viennent se placer dans les angles laissés libres par les cinq plaques de la première rangée. On ne peut manquer d'être frappé

[1] *Comptes rendus*, t. xcv. p. 1379.

[2] *Journ. Linn. Soc. Lond.* (Zool.), vol. xvii. p. 214.

[3] Den Norske Nordhavs-Expedition, xi.; Zoologie. Asteroidea, p. 101, pl. vii. fig. 16, 1884.

[4] Reports on the Results of Dredging by the U.S. Coast Survey steamer "Blake"; Report on the Echini, *Mem. Mus. Comp. Zoöl.*, vol. x., 1883, No. 7, p. 17.