thing of the same structure which ends in some of the Clypeastroids in the genital openings being placed outside the genital plates.

We find that it is in the older groups, such as the Cidaridæ and Salenidæ, that the ocular plates attain their greatest development, less marked, as Lovén has pointed out, among the Spatangoids and still less conspicuous in that most recently developed of all Echinoid types, the Clypeastroids. As far as the genital plates are concerned they are by no means always connected with the genital pores, as the ocular pore is invariably connected with its plate. The genital opening has no such morphological significance in its relation to the test as the ocular pore, and is in the first place not developed in young Echinids; and furthermore these plates form a part of the coronal system at that time, and the openings of the genital system may be placed in the interambulacral area entirely outside of the genital ring, as is the case among many of the Clypeastroids, and even, as I have shown in the viviparous Cidaridæ, the greater part of the genital openings are not placed in the genital ring, thus clearly showing the want of connection between the so-called genital plates and the external opening of the genital organs in genera in which these plates attain their greatest development and in which they retain their normal shape even in the adult.

The young specimens of *Phormosoma* and *Asthenosoma*, figured on Plates XII.[a], XVIII., XVIII.[c], show some interesting points in the development of the abactinal system of the poriferous zone, of the actinal surface, and of the structure of the coronal plates, which throw considerable light on the affinities of the Echinothuridæ to other groups of the Echinoidea. I have already in the Revision of the Echini (pl. ii.[c] figs. 1, 2) figured a very small *Asthenosoma hystrix* (3·1 mm. in diameter), and called attention to the rudimentary separation between the plates of the ambulacral and interambulacral areas, to the absence of a regular abactinal system, and also of an imbricating actinal membrane. In the smallest specimen of *Phormosoma* collected by the Challenger (*Phormosoma uranus*) (Pl. XVIII.[c] fig. 12), measuring 8 mm. in diameter, the actinal membrane was already covered with plates, but plates differing in their arrangement from those of the adult, and presenting features which associate these young stages far more with the Diadematidæ proper than with the Echinothuridæ.

The actinal membrane has, as in *Centrostephanus* and *Echinothrix*, ten large buccal plates, forming a nearly closed ring round the actinostome, with an outer ring of twenty plates, ten ambulacral perforated for tentacles, and ten interambulacral plates. This same structure is still seen in a young specimen of *Phormosoma tenue* (Pl. XVIII.[c] fig. 7), measuring no less than 49 mm. in diameter, while in a specimen of *Asthenosoma gracile?* (Pl. XII.[a] fig. 6), measuring 24 mm. in diameter, the imbricating plates are already well developed, but have not as yet united with the adjoining interambulacral plates as they do in the adult. The same is the case in a young *Phormosoma luculentum*, measuring 36 mm. in diameter (Pl. XVIII.[c] fig. 4). In this stage the young Echino-