pedicellariæ of *Asthenosoma grubii* (Pl. XLII. fig. 9) are very similar to those of *Astropyga* (Revis. Echini, pl. xxiv. fig. 40). Of the globular-headed short-stemmed pedicellariæ, however, some differ totally from those of that group; they are remarkable for the great width of the base and of the upper extremities of the valves (Pl. XLII. fig. 8, *Asthenosoma grubii*). An interior and an exterior view of the valve of a similar pedicellaria of *Phormosoma luculentum* is given on Plate XLIV. figs. 25, 26, while, on the contrary, the general structure of the long-headed pedicellariæ of *Phormosoma* (Pl. XLIV. figs. 19, 20, *Phormosoma tenue*) closely resembles that of the same kind of pedicellariæ in *Centrostephanus* (Revis. Echini, pl. xxiv. fig. 37), which are remarkable for the large open meshwork structure of the central part of the valve (Pl. XLIV. fig. 19, *Phormosoma tenue*, and Pl. XLIV. fig. 36, *Asthenosoma grubii*). These vary greatly in size on different parts of the test. This open reticulation is indicated in some of the Echinidæ, but is quite apparent in *Pseudoboletia* (Pl. XLIV. fig. 39).

The rods which support these pedicellariæ are uniform in structure, they resemble the rods of the pedicellariæ of the Diadematidæ; they all have a slight constriction at the head (Pl. XLIV. figs. 24, 28, 31, 32).

The Echinothuridæ also have (Pl. XLIV. fig. 34) short-stemmed globular pedicellariæ, resembling closely the abactinal pedicellariæ of *Aspidodiadema*, but with coarser toothed valvular edges. In addition to the remarkable long-pronged pedicellariæ, figured by Thomson as characteristic of the group, we have also remarkable bottle-shaped didactyle pedicellariæ, which are perhaps only modifications of the former (Pl. XLIV. figs. 21, 22, *Phormosoma tenue*). They are at once distinguished by their regular reticulation, the small size of the base, the broad fan-like expansion of the extremity, with the raised edges, forming a deep triangular space at the upper end of the valve. This bottle-shaped pedicellaria is only a modification of the ordinary type of pedicellariæ in which the terminal edge becomes raised to form a spoon-shaped valve. Another modification of it is formed by the gigantic pedicellariæ (Pl. XLIV. fig. 29, 29′), in which this cup-like cavity extends along the shank connecting it with the base (see also Pl. XLIII. fig. 1).

Asthenosoma.

***Asthenosoma*, Grube, 1867, Jahresb. der Schles. Ges. f. Vat. Cult.**

**Asthenosoma grubii* (Pls. XV., XVI., XVII., XXXVIII. figs. 1, 2, 4; Pl. XLII. figs. 8, 9; Pl. XLIII. fig. 2; Pl. XLIV. figs. 32–36).

***Asthenosoma Grubei*, A. Agassiz, 1879, Proc. Am. Acad., vol. xiv. p. 200.**

This is a pentagonal species with rounded corners (Pl. XV. fig. 1, Pl. XVI. fig. 1), quite flattened when in alcohol (Pl. XV. fig. 2), with nearly vertical ambitus. Thickly covered on the actinal side (Pl. XVI. fig. 1) with curved, hollow, primary radioles, which