

Off Cebu; 100 fathoms. January 22, 1875.

Station 204. November 2, 1874. Lat.  $12^{\circ} 43' N.$ , long.  $122^{\circ} 10' E.$ ; 100 fathoms and 115 fathoms; mud.

*Astropyga.*

*Astropyga*, Gray, 1825, Ann. Phil.

*Astropyga pulvinata.*

*Cidarites pulvinata*, Lamk., 1816, Anim. sans. Vert.

*Astropyga pulvinata*, Agassiz, 1846, C. R. Ann. Sc. Nat., vol. vi.

In a young specimen of this species measuring only 19 mm. in diameter, the small size of the actinostome, 5.5 mm., is quite exceptional, as one of the principal features which distinguishes the old specimens of *Astropyga pulvinata* from *Astropyga radiata* is the proportionally large actinostome; the tubercles of the actinal surface are in this small specimen of quite uniform size in both areas, near the actinostome the large primaries appearing only near the ambitus. On the abactinal side the special features to be noticed are the crowding of the small ambulacral tubercles in the upper part of the zone and the existence of a very prominent vertical row of large primary interambulacral tubercles flanking the poriferous zone and extending well towards the abactinal area. The bare median interambulacral spaces extending from the abactinal area are well defined, and the large bright violet spots existing on each coronal plate on the outer edge of this bare area extend to the ambitus. The anal tube of this young specimen is, as in all young Diadematidæ, long, and rises prominently above the anal system. On comparing this small specimen with two smaller specimens of *Astropyga radiata* collected at the Philippines by Dr Semper we can at once distinguish the young of the two species by the different aspect of the actinal surface, which in the young of *Astropyga radiata* is somewhat convex without presenting the close uniform tuberculation of that of the young of *Astropyga pulvinata*. In the specimen of *Astropyga radiata*, measuring 15 mm. in diameter, the actinal opening measured 6 mm. In the other, measuring 12.5 mm., the actinal opening was nearly 6 mm. or larger than in the young of *Astropyga pulvinata*, measuring 19 mm. in diameter. The pentagonal outline already noticed in a small specimen of *Astropyga radiata*, measuring 36 mm. in diameter, becomes more prominent in the smaller specimens measuring 15 mm. and 12.5 mm. in diameter. It is very evident from the above that in both these species we have considerable variation in some of the characters which have thus far been employed to distinguish the two species.

Unfortunately the series of specimens at my command are not such that a comparison can be made of corresponding stages of the two species.

Station 190. September 12, 1874. Lat.  $8^{\circ} 56' S.$ , long.  $136^{\circ} 5' E.$ ; 49 fathoms; bottom temperature,  $23.9^{\circ} C.$ ; mud.