

same relative increase in the size of the actinal plates of the odd ambulacrum adjoining the actinostome in all the Spatangoid genera in which there is a tendency to form a more or less distinct actinal groove. In genera allied to the Pourtalesiaæ such as *Cystechinus* and *Urechinus*, there is a similar increase in the size of the ambulacral plates round the actinostome (see Pl. XXIX.^a figs. 15-18; Pl. XXIX.^b figs. 2, 5, 6; Pl. XXX. fig. 14), but in these genera the actinostome is not vertical but only very slightly sunken below the general level of the actinal surface.

The whole group of Spatangoids to which *Pourtalesia*, *Echinocrepis*, *Cystechinus*, *Urechinus*, *Calymne*, &c., belong, are remarkable for the large size of the plates of the ambulacral areas (see Pls. XXII.^a, XXVII., XXIX.^b, XXX., XXXV.^a) compared to the size of the corresponding interambulacral plates.

In *Pourtalesia*, *Cystechinus*, *Echinocrepis* and the genera above mentioned there are nearly as many ambulacral as interambulacral plates, and with the exception of a little crowding towards the apical system and at the actinostome, the coronal plates of the two areas alternate nearly as regularly as if they belonged to the same system (see Pl. XXII.^a figs. 7, 9; Pl. XXVII. fig. 7; Pl. XXIX.^a, XXIX.^b figs. 1-4; Pl. XXX., XXXV.^a figs. 9-12, and specially the portions of the ambulacral plates with adjoining interambulacral plate of Plate XXIX.^b fig. 7; Pl. XXVIII.^a fig. 14; Pl. XXXV.^a fig. 8).

In all the Petalosticha with petaloid ambulacra, the number of ambulacral plates is large in the petaloid portion of the ambulacra, and although it decreases, and the plates become larger from the extremity of the petals towards the actinostome, especially on the actinal surface and mainly in the posterior lateral ambulacra, yet they decrease again rapidly when adjoining the actinostome, where two or three or even four ambulacral plates often correspond to a single interambulacral plate of the adjoining area.

In the Clypeastroids the same thing takes place in all those in which we have petaloid ambulacra, while it is in such genera as *Galerites*, *Discoidea*, *Hyboclypus* which have not petaloid ambulacra proper that the ambulacral plates are more uniform in size.

It is in the Ananchytidæ, Dysasteridæ, and the like among the Petalosticha that this increase in the size of the ambulacral plates takes place, and it is also among the Dysasteridæ that we find, as in the modern genera allied to *Cystechinus*, the elliptical actinostome only slightly sunken below the level of the actinal region.

All these modern Echinids, however much they resemble the Ananchytidæ and Dysasteridæ in general appearance, and in the structure of their apical system, yet differ radically in having only simple pores for the passage of the ambulacral suckers, piercing each plate near the centre, extending from the abactinal region to the few plates with double pores near the actinostome which carry the so-called gills of the Spatangoids.

In the Petalosticha it is also among the Dysasteridæ that the sunken anal groove makes its appearance in such genera as *Metaporhinus*, and among the Ananchytidæ in *Cardiaster*.