

mesenteric fold somewhat similar to that of *Rhynchopygus*, but not extending like a diaphragm across the test. In *Spatagocystis*, the course of the alimentary canal (Pl. XXVI.<sup>a</sup> fig. 1) is much the same. It is however more free within the test, and not supported by so many mesenteries. The intestine also opens in the posterior part of the pouch (Pl. XXVI.<sup>a</sup> fig. 5), forming the anal system (Pl. XXVI.<sup>a</sup> fig. 6). In *Pourtalesia* proper, although the anal system is deeply sunken, there is no such pouch formed, the plates of the anal system are nearly on a level with the surface of that part of the test (Pl. XXII. fig. 14; Pl. XXII.<sup>a</sup> fig. 13; Pl. XXVIII.<sup>a</sup> fig. 6; Pl. XXXV.<sup>a</sup> fig. 13). In most of the species of *Pourtalesia* proper, the course of the alimentary canal is still less definite, although having in general the trend of the genera noticed above, as is well shown in the profile views of two specimens of *Pourtalesia hispida* (Pl. XXII. figs. 10, 11), which have the rounded alimentary canal of *Spatagocystis*<sup>1</sup> and no prominent mesenteries. The intestine is well defined in this species (Pl. XXII. fig. 14) as well as in *Spatagocystis* (Pl. XXVI.<sup>a</sup> fig. 6). Hoffman's organ is present in the Pourtalesiaë, and is well shown (Pl. XXII.<sup>a</sup> fig. 12) in *Pourtalesia laguncula*. In *Pourtalesia ceratopyga* we have again the broad alimentary canal well supported on the test by mesenteries, much broader even than we find them in *Echinocrepis*.

The actinostome of the Pourtalesiaë is elliptical, forming the large opening of the actinal groove. It is covered by a membrane strengthened by an outer row of plates (Pl. XXVIII.<sup>a</sup> fig. 9), from the centre of which leads the narrow œsophagus (Pl. XXII.<sup>a</sup> figs. 12, 15); it is not labiate as in *Schizaster* and allied genera, but the structure of the actinostome is more closely allied to that of the Spatangoid genera having the edges of the actinostome in one plane. The structure of the actinal groove is due, as is well seen in a profile view, to the enormous development of the odd anterior ambulacrum, the plates immediately adjoining the actinal edge being fully as large or larger than those of the adjoining interambulacra (Pl. XXII. figs. 15, 17; Pl. XXII.<sup>a</sup> fig. 15; Pl. XXVIII.<sup>a</sup> figs. 9, 11), while those of the anterior lateral ambulacrum are smaller and those of the posterior lateral ambulacra immediately adjoining the actinostome are extremely narrow and elongate (Pl. XXII.<sup>a</sup> figs. 2, 9; Pl. XXVIII.<sup>a</sup> fig. 10; Pl. XXXV.<sup>a</sup> fig. 10; Pl. XXVI.<sup>a</sup> figs. 2, 4). This is of course in entire opposition to the usual structure of the actinal region in Spatangoids, in which owing to the position of the actinostome coincident with the general level of the actinal region and the uniformity of the small size of the plates of the ambulacral areas immediately adjoining the actinal opening as in Plate XXXV. figs. 11, 12, and Plate XXXV.<sup>a</sup> fig. 1, and other normal Spatangoids, no such difference in the size of the ambulacral plates of the different areas exists. The first trace of this gradual increase in size of the plates of the odd ambulacral area is well shown in the genus *Cionobrissus* (Pl. XXIII. fig. 9), in which we have a slight actinal groove. We find the

<sup>1</sup> In *Cystechinus* the course of the narrow alimentary canal is more complicated (Pl. XXIX.<sup>b</sup> fig. 6), recalling somewhat the course it takes in the *Desmosticha*.