

supradorsal membrane, situated over the centre of the disc and opening directly into the dorsal cavity, to which it affords a common means of ingress and egress; it is named the *oscular orifice*. This aperture may be closed by five more or less regular fan-like valves, or simply by a number of webbed or papillose spinelets. A number of small apertures open into the nidamental cavity on the actinal surface of the starfish, an aperture being situated at the base of each of the long actino-lateral spines and close up to the adambulacral plate. There is consequently an opening into the cavity on each side of the furrow corresponding to each segment of the ray; hence these are spoken of as *segmental apertures*. The openings are guarded and can be closed by a small spinelet or papilla articulated on the adambulacral plate, and termed the *aperture-papilla*. In some genera these appendages are partially hidden in the actinal membrane, and are free on one side only; in others they are perfectly free, and covered with a more or less expansive investing membrane of their own. The long spines articulated on the body-frame close to the adambulacral plates, which form the lateral or marginal web in *Pteraster*, and support the whole actinal floor in *Hymenaster*, are designated the *actino-lateral spines*. Finally, in the armature of the mouth-plates distinction is made between (1) *mouth-spines proper*, which are situated upon the horizontal margins of the plates, and are usually directed over the actinostome; and (2) the *secondary* or *superficial mouth-spines*, which are borne upon the surface of the plate, and usually stand perpendicular to its plane—these latter spinelets being also frequently larger and more robust than the mouth-spines proper.

Synopsis of the Genera included in the Family PTERASTERIDÆ.

- A. A supradorsal membrane present. With actino-lateral spines. With segmental apertures. Form disco-pentagonal, rays slightly produced. Abactinal spinelets long, forming highly developed pedicellated paxillæ PTERASTERINÆ.
- a. Armature of the adambulacral plates forming transverse combs. Spines united by web.
- α. Supradorsal membrane with muscular fibrous bands. Actino-lateral spines forming a free independent lateral fringe; not merged in the actinal floor.
- α. Muscular bands not reticulated. Membrane usually containing spicules *Pteraster*.
- β. Muscular bands regularly reticulated. No spicules in the membrane *Retaster*.
- b. No muscular fibrous bands in the supradorsal membrane. Actino-lateral spines merged in the actinal floor. No lateral fringe.
- α. Paxillæ-spinelets (fifteen to thirty), long and hair-like, protruding freely through the membrane. Adambulacral armature partly horizontal in disposition. One pair of secondary mouth-spines; united by web to the mouth-spine series *Marsipaster*.
- β. Paxillæ-spinelets (five or six), short, robust, not protruding. Adambulacral armature perpendicular in disposition.