

pallial, posterior apertures are surrounded by a common ring of tentacles; the anal aperture is prolonged in a short siphon; the branchial aperture has a large internal valve; finally, there is a very large anterior pair of labial palps, and a small posterior pair.

In *Cuspidaria* the characteristics are different and very special. There are four separate pairs of apertures on the branchial partition; the two pallial posterior orifices are prolonged by siphons united throughout all their length; the labial palps are all much reduced.

We may therefore classify the three genera as follows:—

- I. Apertures of the branchial partition arranged in groups.
  1. Two groups of apertures on each side. . . . . *Poromya*.
  2. Three groups of apertures on each side. . . . . *Silenia*.
- II. Separate apertures, to the number of four pairs. . . . . *Cuspidaria*.

For the first two genera we may employ the family name created by Dall, Poromyidæ; for the third we must form a special family, Cuspidariidæ, taken from the same author.

B. *Phylogeny*.—We have seen that a “branchial” partition pierced with apertures, so that the two pallial chambers communicate with each other, is a common characteristic of the three genera we have been considering. But, if we compare them with each other, we shall easily discover different successive stages of retrogression in the branchial apparatus.

In *Lyonsiella*, a genus belonging to the group Anatinacea (*sensu latiore*), the gills are also united to the mantle along their entire length, to each other behind the foot, and to the division between the two siphons. They thus form two great pallial chambers, corresponding exactly to the two chambers of the Septibranchia. Here, then, we have the starting-point of the strange arrangement which characterises this latter group.

But in *Lyonsiella abyssicola* (see Pl. II. fig. 10) the structure of the gills is preserved, and the branchial lamellæ cover the partition from the anterior adductor to the division between the siphons.

The first stage of reduction is seen in *Poromya*, in which the partition has already become muscular, but has retained two groups of lamellæ on each side (Pl. III. fig. 7).

The reduction is still greater in “*Silenia*,” in which the plates have disappeared, and only form the lips on each side of the apertures in the three pairs of groups (Pl. III. fig. 10).

The reduction is extreme in *Cuspidaria*, in which there are only four pairs of