

present they are commonly, though not invariably, used in conjunction with siliceous sand, and are laid together side by side and strongly cemented, differing entirely in this particular from *Pilulina* and its allies.

*Botellina* resembles the straight *Hyperamminae* in external contour, but the cavity of the tube is proportionately larger, and is irregularly divided by loosely-cemented, sandy dissepiments, affording support to the otherwise somewhat slender outer walls. The rounded end has interstitial orifices; and this fact has been regarded as an indication that in the normal condition the test is sessile and erect, growing attached to stones or other bodies by the narrower end.

The affinities of *Aschemonella* are not so easily traced, for in nothing is the type so remarkable as its extreme variability of contour. Except *Saccamina* it is the only genus of the *Astrorhizidæ* which betrays any tendency to distinct segmentation, though even this is not an invariable character. Compared with allied forms, the sandy investment is exceedingly thin in proportion to the bulk of the sarcode cavities, and is composed of very fine materials with an unusually hard and compact cement.

The genus *Haliphysema* stands in some respects aloof from the remainder of the group. The test is columnar and grows attached by a spuriously segmented convex base; the walls are thin and firm, and in their minute structure resemble those of *Marsipella*, being often composed to a considerable extent of sponge-spicules.

### Sub-family 1. *Astrorhizinæ*.

#### *Astrorhiza*, Sandahl.

*Astrorhiza*, Sandahl [1857], M. Sars, Carpenter, Norman, G. O. Sars, Brady, Bütschli.  
*Hæckelina*, Bessels [1874].  
*Astrodiscus*, Schulze [1874].

Test free; depressed or fusiform. Depressed forms either sub-lenticular with angular or irregularly radiate margin, or in branching masses. Walls thick, constructed either of nearly uniform fine sand very slightly cemented, or of mud, with or without a chitinous lining. Apertures terminal; one at each end of the test in the fusiform species, and at the end of each ray or branch of the compressed forms; often more or less blocked with sand.

Little need be said of *Astrorhiza* apart from its species. The foregoing characters are sufficient for its recognition, and it is not likely to be confused with any other genus except the closely allied *Pelosina*, which, typically, consists of an undivided chamber with a single aperture. *Astrorhiza* is not known in the fossil condition.