

astropyle of the latter, placed on the oral pole of the main axis, corresponds to the mouth of the shell in all *Phæogromia*. In the *Phæosphæria*, where no peculiar shell-mouth is developed, the general fundamental form of the shell is usually homaxonal or spherical, often an endospherical polyhedron, rarely ellipsoidal or spindle-shaped (with prolonged main axis), or lenticular (with shortened main axis). The bivalved *Phæoconchia* have usually either an amphitheat shell (with the same fundamental form as the *Ctenophora*), or a dipleuric, bilaterally symmetrical shell (with a dorsal and a ventral valve, a right and a left parapyle). A small number of *PHÆODARIA* (mainly *Circoporida*) are remarkable on account of the regular polyhedral form of their shell, the geometrical axes of which resemble crystalline axes and are defined by regular radial tubes; as the octahedral *Circoporus* (Pl. 117, fig. 6), the dodecahedral *Circorrhagma* (fig. 2), and the icosahedral *Circogonia* (fig. 1).

The siliceous or silicate bars, which compose the skeleton of the *PHÆODARIA*, are in the majority hollow tubes, filled up by jelly; in some other families, however, they are solid rods, as in the *NASSELLARIA* and *SPUMELLARIA*. Such usual lattice-work, composed of solid rods, occurs only in the families *Sagosphærida* (Pl. 108), *Castanelida* (Pl. 113), and *Concharida* (Pls. 123-125). A quite peculiar structure, a diatomaceous tracery of extremely fine and regular hexagonal frames, distinguishes the *Challengerida* (Pl. 99). The hollow cylindrical tubes, which are found in the other families, appear in three different forms, simple, articulate, and provided with an axial thread. Simple hollow tubes, which are neither articulate, nor provided with an axial thread, occur in the *Cannorrhaphida* (Pl. 101) *Aulacanthida* (Pl. 102-105), *Cœlodendrida* (Pl. 121, 122), and *Cœlographida* (Pl. 126-128). In all these families the hollow cylindrical tubes have a very thin wall and contain a wide cavity, filled only by jelly. The *Orosphærida* (Pl. 106, 107), differ in the reduction of the cavity, which becomes very narrow (often rudimentary or lost), whilst the walls of the tubes become extremely thickened and stratified, numerous concentric layers of silica being disposed one over the other. The hollow cylindrical tubes contain an axial filament, or a thin thread of silica, placed in its axis, in the families *Aulosphærida* (Pl. 109-111), *Cannosphærida* (Pl. 112), *Circoporida* (Pl. 114-117), and *Tuscarorida* (Pl. 100). Usually the axial filament is connected with the thin wall of the tube by numerous horizontal branches. A quite peculiar structure distinguishes the *Medusettida* (Pl. 118-120); their hollow tubes, extremely prolonged, are articulate owing to the presence of numerous, regular, equidistant transverse septa; these are pierced by a short tubule, similar to the siphon of the shells of *Nautilus*; this remarkable alveolar structure also occurs in the peripheral part of their shell-wall (and sometimes in the whole shell), numerous small polyhedral chambers or alveoles which communicate by small openings, being developed; they become easily filled with air in the dry shell (Pl. 120, figs. 11-16).