whilst the outer is articulated and composed of hollow tangential tubes, like that of the Aulosphærida. This latter family seems to be most nearly allied to the Cannosphærida, and is perhaps derived from them by loss of the inner shell. The possession of a peculiar mouth in this inner shell brings the Cannosphærida nearer to the Phæogromia. The similar Cœlodrymida, in which also two concentric sphærical shells are connected by hollow radial beams, differ essentially in the bivalved shape of the inner shell and the simple, non-articulated, network of the outer shell.

Only a single species of Cannosphærida has been hitherto known, described and figured in 1879 by R. Hertwig as *Cœlacantha anchorata* (*loc. cit.*, p. 92, Taf. ix. fig. 2). The rich collection of the Challenger has added to it only four other species, one of which is most nearly allied to the former, whilst the others belong to a separate genus, *Cannosphæra* (Pl. 112). The inner shell is in this latter genus a solid lamella of silica, whilst in the former it is fenestrated. In all other essential points of structure both genera are scarcely different.

The inner shell is either spherical or ovate and has a diameter of 0·1 to 0·4 (usually 0·2 to 0·3 mm.). A distinct main axis is always marked by the large open mouth on its oral pole. The aboral part of the shell-cavity contains the spherical central capsule, the oral part the dark phæodium, a part of which is often prominent through the mouth (figs. 1, 2, 4). The wall of the inner shell is a very thin and transparent lamella of silica, which is structureless and solid in *Cannosphæra*, distinctly fenestrated in *Cœlacantha;* the pores of the latter are irregularly rounded and seem to possess a thickened margin.

From the surface of the inner shell arise numerous thin, tubular, radial beams (twenty to eighty or more) and connect it with the outer shell. These beams are always very thin and straight cylindrical tubules, about twice to four times as long as the diameter of the inner shell, and usually 0·001 mm. broad, or even less. Their basal end at their origin from the inner shell is more or less dilated, often funnel-shaped, so that the surface of the latter appears mammillated (figs. 2, 4). The cavity of the inner shell seems to pass over immediately into the tubular cavities of the radial beams. These latter are sometimes simple, at other times articulated or jointed by a number of transverse septa. The radial beams are covered in all the species observed either with scattered spines (fig. 5) or with verticils of anchor-threads, very thin, filiform, lateral branches which bear a spathilla with three or four recurved teeth on the distal end (figs. 2, 4).

The outer shell is either spherical or an endospherical polyhedron, the prominent nodal points of which fall into a spherical face. Its diameter is usually from 2 to 3 mm., rarely more than 3 or less than 1 mm. Its structure is the same as described for the Aulosphærida, being composed of hollow cylindrical tubes, which form a loose network and are separated at its nodal points by astral septa. The meshes of the network are