to be open at both ends, since they are easily and constantly filled by air when dried. Their length is usually between 0·2 and 0·3 mm., rarely less than 0·15 or more than 0·5; their diameter is always less than 0·001, usually less than 0·0005.

The large radial tubes of the Aulacanthida constitute the most characteristic structures of this family, and are always so placed that their inner or proximal ends are in loose contact with the outer surface of their central capsule (upon which they rest), whilst their outer or distal ends are more or less prominent over the spherical surface of the calymma. Their position, therefore, is rather loose and movable, since they are fixed only by the consistence of the jelly of the surrounding calymma, and on the surface of the latter by the covering veil or the mantle of tangential needles (compare Pl. **102**, fig. 1; Pl. **103**, fig. 1; Pl. **104**, fig. 1). Their number seems never to be fixed, and is probably very variable in different species. I found, in 1859, in the common *Aulacantha scolymantha*, the number varying from thirty to one hundred and fifty (*loc. cit.*, p. 264). So also in *Aulographis pandora*, *Aulospathis variabilis*, and some other common species, numerous specimens of which I could compare, I found their number very variable, being in one and the same species sometimes only from ten to twenty, at other times from fifty to eighty, and sometimes even from one hundred to one hundred and fifty or more. Perhaps the number increases with the age and the increasing size of the calymma.

The radial tubes are always cylindrical (circular in transverse section), never angular or prismatic. Usually they are straight, more rarely slightly curved (Pl. **105**, figs. 1, 2; Pl. **101**, fig. 6). The cylinders are usually more or less tapering towards both ends, sometimes even spindle-shaped; the inner or proximal end is always simple and rounded, often slightly swollen or inflated, and ovate; the outer or distal end is often thickened, club-shaped, and exhibits the greatest variety in form and ramification. The length of the radial tubes is usually from 1 to 3 mm., rarely less than 0·8, or more than 3·2; their diameter is usually between 0·02 and 0·03, rarely less than 0·01 or more than 0·05. The smallest radial tubes are found in *Aulactinium*, the largest in *Aulospathis*.

The siliceous wall of the cylindrical radial tubes is usually very thin, fragile, and perfectly structureless. Only in a few species, mainly of *Aulographis*, does the wall become very thick and composed of concentric cylindrical layers (Pl. **105**, figs. 6–11). Their cavity is wide and simple, and filled up by jelly (not by sarcode, as I supposed in my first description). The simple cavity of the tubes, though not smaller than in the radial tubes of the Aulosphærida, Circoporida and Tuscarorida, never contains the characteristic axial filament with its branches, which is constantly found in the latter families. According to the description of R. Hertwig, the tubes are perfectly closed and have no opening. I suppose, however, that a small opening always exists in the centre of the rounded base, and perhaps a second on the distal apex. Otherwise the circumstance that the entire and well-preserved tubes become easily and constantly filled