

fig. 5). Their length is usually between 0·1 and 0·2 mm., rarely less than 0·08, or more than 0·24 mm.; their diameter usually between 0·003 to 0·005, sometimes only 0·002 or less, at other times 0·006 or more. In several species the tangential tubes are thinner in the middle part, and thickened towards the two ends (Pl. 109, figs. 3, 4). Each tube consists of a thin cylindrical wall of silex, and of a jelly-mass filling up its cavity; in its axis runs a very thin, straight or slightly curved thread of silica, the axial filament.

The arrangement of the tangential tubes, which originally, in the simplest Aulosphærida, lie tangentially in the spherical face of a simple lattice-sphere, exhibits various secondary modifications, leading to various interesting generic forms. Two genera only, *Aularia* (with triangular meshes, Pl. 111, fig. 2) and *Aulonia* (with polygonal meshes, Pl. 111, fig. 1) possess a smooth, perfectly simple lattice-sphere, and may therefore be regarded as the ancestral genera of the two subfamilies. Two other corresponding genera, the common *Aulosphæra* (Pl. 109) and the rarer *Aulastrum* (Pl. 111, fig. 3), differ from the former in the development of radial spines at the nodal points of the simple lattice-sphere. *Aulophacus* may be developed from *Aulosphæra* by shortening, *Aulatractus*, however, by prolongation of the vertical main axis (Pl. 111, figs. 6, 7). In two genera, *Auloplegma* and *Aulodictyum*, the latticed wall of the spherical shell becomes thickened and spongy, an irregular framework being formed by tubes connected in different directions (Pl. 111, fig. 8). The most remarkable and the most elegant form, however, of the whole family is represented by *Aulosцена* (Pl. 110). The entire surface of the spherical lattice-shell is here covered with numerous regular or subregular pyramids, or tent-shaped elevations. Usually each pyramid is six-sided, and surrounded by six other six-sided pyramids, their bases being separated by six triangular meshes, which lie in the spherical face. A similar elegant form is developed among the Sagosphærida in the genera *Sagosцена*, *Sagenosцена* and *Sagoplegma* (Pl. 108, fig. 1). The structure of *Aulosцена*, however, is usually more regular, and in the top of each pyramid a radial tube arises.

The junction of the cylindrical tubes at the nodal points of the network is very remarkable. *Aularia*, the simplest form of the family, exhibits at each nodal point the union of six tangential tubes (Pl. 111, fig. 2); their ends are so pointed and truncated that they are connected in the form of a regular six-radiate star; the conical end of each tube is separated from, and at the same time closely connected with, the adjacent conical ends of the two neighbouring tubes by a thin septum, the astral or sutural septum. The six astral septa compose together a six-radiate star, and in the centre of this star the six axial filaments of the tubes are united. Their central union is surrounded by a small, double-contoured circle, and this circle seems to be the perimeter of a small and flat cavity on the inside of the star, which we call shortly the "nodal cavity" ("die kleine Vertiefung" according to Hertwig, *loc. cit.*, p. 90). The nodal cavity of *Aularia* probably possesses a central opening on its inside and six small surrounding pores, which