

other times polygonal. From its margin small, hollow, radial spines often proceed (Pl. 101, fig. 9). In *Dictyocha* there arise from the ring two, three, four or more siliceous bars or arches, which form one or more bridges over one side of the ring; usually the little fenestrated shell thus produced assumes the form of a three-sided or four-sided pyramid, or of a little hat with three or four meshes (Pl. 101, figs. 10-14). From this *Dictyocha* (in a restricted sense) we separate the genus *Distephanus*, in which the little pyramids become truncated, so that one central apical mesh (the apical or upper ring) is surrounded by four, five, six or eight lateral meshes, the sides of the pyramid (Pl. 114, figs. 7-9). The edges of the small pyramid are formed by the same number of siliceous bars arising from the ring and alternating with the meshes. Radial spines in different numbers and arrangements arise from the corners of the two parallel rings, as well from the smaller apical as from the larger basal ring. The simple apical ring of *Distephanus* becomes divided or fenestrated in the highest developed genus of this subfamily, in *Cannopilus* (Pl. 114, figs. 10-13); each pileated piece of the skeleton exhibits here two rows of alternating lateral meshes, an upper row of smaller and a lower row of larger meshes.

The majority of Dictyochida are armed with spines or thorns, which arise in a regular manner from different points of the annular or pileated pieces. In the ancestral genus, *Mesocena*, radial spines start from the corners of the simple ring in centrifugal direction, and lie horizontally in its plane. As these primary corner-spines determine the radial composition of the more highly developed genera we call them perradial (lying in rays of the first order). In *Dictyocha* and *Distephanus* commonly (but not quite constantly) these perradial spines alternate with the ascending bars which bisect the sides of the basal ring; these bars are therefore interradian (lying in rays of the second order); consequently also the corners of the apical ring of *Distephanus* are interradian. The latter also often bear small thorns or teeth. Other teeth frequently start in centripetal direction from the lower or basal ring, on the side of the perradial spines, and frequently they are directed obliquely downwards.

In *Dictyocha* and *Distephanus* are frequently found remarkable twin pieces, composed of two pileated and reticulated skeleton pieces. These are united by their basal rings loosely in such a way that they form together a small fenestrated subspherical body; the union is strengthened by those small teeth of the basal rings, which are directed downwards and catch one into the other (Pl. 101, fig. 12; Pl. 114, fig. 8). A similar twin piece has been already observed by Stöhr in the fossil *Distephanus rotundus*, and upon this was founded this genus. Since the teeth of the two opposed basal rings, catching one into the other, seem to be specially adapted for the composition of those small double pyramids, it is probable that the latter possess a special protective function in these PHLÆODARIA, and perhaps envelop their phæodella or their flagellate spores (?). In every case these formations are very remarkable.