

diagnosis: "Dictyocha, e familia Bacillariorum. Lorica simplex univalvis silicea, laxe reticulata aut stellulata" (*loc. cit.*). In my Monograph (1862, p. 271), I placed it in the class Radiolaria, supposing that it might be a simple form of Acanthodesmida, having found only isolated siliceous pieces. Afterwards (in 1879) Richard Hertwig observed the entire living body, and demonstrated that the hollow siliceous pieces are scattered in great numbers around a tripylean central capsule, which exhibits all the essential characters of PHLÆODARIA (Organismus d. Radiol., 1879, p. 89). Hertwig describes the position of the numerous siliceous pieces in the surface of the extracapsular jelly-sphere so densely aggregated, that they touch one another and produce the appearance of a reticulated sphere. In two specimens, which I observed living (Pl. 101, fig. 10), and in numerous complete specimens which I found in the collection of the Challenger, the number of the siliceous pieces was much smaller, and they were scattered irregularly in the surface of the alveolate jelly-sphere, being separated by wide and unequal intervals. The regular position seems to be that the basal rings lie tangentially in the spherical surface of the calymma, whilst the bars of the reticulum are directed outwards, and the apical spine radially in centrifugal direction. Very often two pieces are united by their basal rings in such a manner that they form a little spheroidal fenestrated body (as in *Distephanus*, Stöhr; compare p. 1550). The characteristic reticular skeleton-pieces of *Dictyocha* must be derived from *Mesocena*; from its simple siliceous ring (on one side of its plane), arise two, three, or four (rarely more) bars, which become united to a loose framework (with two, three, or four meshes). When this network assumes the form of a truncated pyramid (with a central mesh on the apex), *Dictyocha* passes over into *Distephanus*. From the corners of the original basal ring several radial spines usually arise in a centrifugal direction, and on the sides of these sometimes small teeth or thorns also run in a centripetal direction. The number of the meshes and the separating rods is usually four, more rarely two or three. The hollow rods are very thin, either cylindrical or prismatic. As the ascending rods alternate regularly with the corner-spines of the basal ring, we may call the latter perradial, the former interradial. Ehrenberg has distinguished in his genus *Dictyocha* not less than fifty species, thirty-five living and twenty-five fossil (ten species both living and fossil). The greater part of these cannot be retained, as they are only slight varieties or abnormalities of single pieces of the skeleton, such as very frequently occur associated with the common regular forms in one and the same individual. Such abnormal species are, e.g., *Dictyocha abnormis*, *Dictyocha binoculus*, *Dictyocha bipartita*, *Dictyocha haliomma*, *Dictyocha hexathyra*, *Dictyocha septenaria*, &c. One species (*Dictyocha splendens*), is the fenestrated calcareous body of a Holothurian. Of some other species Ehrenberg has only given the name, but neither a description nor a figure (e.g., *Dictyocha borealis*, *Dictyocha cenostephania*, *Dictyocha compos*, *Dictyocha coronata*, *Dictyocha socialis*, *Dictyocha specillum*). A number of other species must be placed in the genera *Distephanus* and *Cannopilus*, so that only eight of his species of true *Dictyocha* remain.