

disposition of their spicules. In one case—Hæckel's "articulated" ("gegliedertes") tubar skeleton—the spicules, usually triradiate, lie in the walls of the radial tubes in many rows, one row behind the other, their basal ray being directed towards the dermal extremity of the tube, whilst the lateral rays diverge towards its gastric ostium; in the second case—Hæckel's "non-articulated" ("ungegliedertes") tubar skeleton—there are no transverse palisades, formed by the lateral rays of the triradiate or quadriradiate spicules (*Sycandra arctica*, H.); moreover, there are no special tubar spicules, but only tubar rays of the dermal or subdermal and subgastric triradiate or quadriradiate spicules. For instance, in *Sycilla cyathiscus* (Kalkschwämme, Bd. iii., pl. xliii. fig. 9) the subgastric quadriradiate spicules lying with their facial rays in the gastric wall, parallel to its inner surface, send their apical rays centrifugally towards the dermal surface, and these apical rays joining the centripetally directed apical rays of the corresponding subdermal quadriradiate spicules form the supporting skeleton for the radial tubes. If the question be asked, which Sycones must be considered to be more primitive, these with articulated tubar skeleton or those with unarticulated one, there can be but one answer:—these with the articulated.

The embryology of the Sycones of the type of *Sycilla cyathiscus* remains certainly still to be explored, but there are in the development of the Sycones of the second type no phases which would lead us to assume that the non-articulated form of tubar skeleton might be a primary one. On the contrary, the ontogeny of *Sycandra raphanus* shows obviously that Prof. Hæckel's conjecture that *Sycetta primitiva*, *Sycaltis conifera*, and, generally speaking, the Sycones with free radial tubes are the most primitive forms of the family, is quite in harmony with the facts of the case. Now, the tubar skeleton in the forms with free radial tubes is always articulated, and, as it is evident that a non-articulated tubar skeleton could not have been developed before the formation of a cortex which was produced by the fusion of the distal ends of the radial tubes, there can be no doubt that the articulated tubar skeleton has brought about the possibility of the formation of the non-articulated, and not *vice versa*. For the rest, this can be proved by means of anatomical comparison, there being amongst the Sycones hitherto described many intermediate stages connecting the extreme forms of these two different types. From *Sycetta primitiva*, through *Sycandra coronata* and *Sycandra raphanus*, we come to *Sycandra arctica*, the radial tubes of which, grown together in their superior part, give rise to a structure closely resembling a cortex, and it is only the form and disposition of the spicules of its skeleton which force us to regard the outer surface of this sponge as still lacking an independent cortical layer. In *Sycandra compressa*, *Sycortis lavigata*, *Sycetta strobilus*, &c., we already find specimens with a perfectly distinct cortical layer, provided with a quite independent skeleton. This latter consists certainly of spicules homologous with those in the distal end of the radial tubes of, for instance, *Sycandra arctica*, but so much modified, and having adopted such a