

ray of a hexact of the new outer layer is apposed, and both become enveloped in a common concentrically laminated siliceous sheath. It is obvious that in this way the older and lower portions of the tubes may gradually increase in thickness.

The thick, firm, spongy mass, which forms the pedicel on the older stocks and the flatly expanded basal plate, has had another origin. Besides the apposition of a new layer of the cubical lattice-work, we have here to deal with the interposition of numerous smaller hexacts in the already formed meshes. And while the external apposition of new layers leads in general to the regular formation of rectangular or cubical meshes, the interposition of small hexacts does not usually occur in the radial tangential direction, but at very various angles to the main strands, so that an irregular narrow meshed network results (Pl. LXXVI. fig. 2). Where the basal plate is in direct contact with the substratum, as in all other Hexactinellids fixed on a solid basis, a narrow meshed bounding plate is formed, which arises mainly by the abundant development of synapticula between the bands of spicules.

While the strands of the single-layered dictyonal network which lie parallel to the surface of the tube are cylindrical and smooth, the intersections of the net exhibit conical prominences projecting at right angles both outwards and inwards, and always beset with small tubercles or rough elevations. In the many-layered dictyonal framework, the radial beams extending between the layers, which lie parallel to one another and to the tube wall, exactly resemble the tangential beams in their cylindrical shape and in their smooth surface, while here also the prominences projecting from the outer and inner surface of the whole lattice-work are always tubercled and rough. The length of these freely projecting conical prominences varies as much as their form, and that between tolerably wide limits. They are generally straight or only slightly curved; are longer in the younger portions, especially in the single-layered framework, and shorter on the surface of the many-layered framework of the older regions. On the surface of the stalk and on its basal expansion they are either altogether absent, or represented only by small knob-like elevations.

At the points of intersection of the dictyonal framework there is a slight thickening gradually increasing with age, but this is not in any way marked off from the strand, nor different from the latter in the character of its surface.

The composition of the whole framework from separate hexacts may be most readily recognised on those specimens which have remained dead in the sea for some time and are thus macerated. The axial canals of the individual hexacts have through the dissolution of the loose inmost layers become more or less markedly widened, and are thus in their disposition and extent readily observed (Pl. LXXVI. fig. 5). In fresh specimens, however, they can usually be detected as very fine canals (Pl. LXXI. fig. 3, &c.)

The length of these axial canals is often surprising. While they usually extend only