

running out into straight terminal rays. The former vary greatly in length in the different amphidiscs, often hardly exceeding the length of the hemisphere, sometimes almost touching the opposite rays (Pl. XXVII. figs. 5, 6). The axial beam is sometimes comparatively smooth, sometimes knotted, frequently exhibiting at the middle point a cross or a ring of conspicuous knots. I have never found in the skin transitional stages between the two above described very different forms of large amphidiscs, but such intermediate structures are observed to occur in the parenchyma.

The *gastral skeleton* differs in many points from the dermal. The skin lining the principal gastral and the four large basal diverticula is not supported by pentacts, but by strands of large smooth diacts and monacts, which usually become gradually narrower towards the extremity, terminating in a sharp apex or conical point, or more rarely rounded off. The large amphidiscs, with broad, shovel-like, umbel-rays, which occurred so abundantly in the external skin, are here altogether absent; and their place is occupied by irregularly scattered, medium-sized forms with eight narrow, comparatively long rays, whose terminal portions are more nearly approximated to the axial beam (Pl. XXVII. figs. 8, 9). The length of these rays is about 0.3 mm., the breadth of the umbel 0.1 mm. The axial beam is comparatively narrow, and exhibits a few irregularly disposed tubercles, and usually, at the middle point, four cruciate strongly developed protrusions, which are probably to be regarded as traces of the abortive rays (Pl. XXVII. figs. 8, 9). The rays of the umbel resemble in general form those of the large amphidiscs in the external skin; they are, however, longer, measuring usually about a third of the whole length of the amphidisc. Originating in a short basal piece, they extend for the greater part of their length approximately parallel to the axis, or even with a slight external convexity. A comparatively large number of small amphidiscs occur like those of the dermal membrane figured on Pl. XXVII. figs. 5, 6, as also some rather larger isolated forms of similar structure, represented in fig. 4.

As in the external skin, pentact pinuli occur in abundance in the gastral membrane and in its direct continuation into the efferent passages and canals, where the lining membrane is covered with them. Compared with the dermal pinules, however, they are somewhat different in shape and less abundantly present. The basal cross lying in the limiting membrane consists of four weakly developed, and generally straight, rarely somewhat curved rays, almost twice as long as the basal rays of the dermal pinules, and beset with distally directed teeth. The ray which projects freely into the lumen and varies greatly in length, is likewise but weakly developed, and usually bears obliquely divergent, distally directed teeth.

The spicules which compose the basal collar-pad of the sponge body demand special notice. Besides the forms which have just been described in detail, structures occur in the parenchyma and in the dermal membrane of this region, which are not found else-