

apparatus, the position of which is usually near the aboral margin and not far from the junction of the supero-marginal and infero-marginal series.

The infero-marginal plates correspond exactly in length to the superior series, but their height is distinctly greater, appearing near the middle of the ray nearly twice as great as that of the superior series. Within the interbrachial arc they form a broad border to the actinal area of the disk, but this extent on the actinal area speedily diminishes along the ray, where they are confined essentially to the lateral wall, and their curvature only conforms to the rotundity of the ray. Their surface is covered with papillæ similar to those on the superior series. At the upper margin of normally every infero-marginal plate, and close to the junction with the superior series, is a conspicuous pedicellaria, formed of three or four enlarged and modified papillæ; the apparatus being larger and more fully developed than those on the supero-marginal plates above noticed; sometimes two are present on one plate. In the interbrachial arc about a dozen plates may bear a single small, flattened, tapering, pointed spinelet immediately behind the pedicellaria, but so small that it is little more than an enlarged squamule.

The adambulacral plates are large and massive, rather longer than broad, and with a slightly convex margin towards the furrow. Their armature consists of a furrow series of nine or ten rather short, robust, subprismatic, skin-covered spinelets, equal in length, excepting the outermost at each extremity, and standing parallel to one another and erect, forming a nearly straight series. Each successive series is well-defined. On the actinal surface of the plate, behind the furrow series, is a longitudinal series of about seven shorter spinelets, well-spaced, covered with membrane, which gives them a more or less strongly fusiform appearance; and behind these again two or even three series of small papilliform, skin-covered spinelets, in which the longitudinal arrangement is often more or less disturbed and irregular in consequence of additional papillæ; the outer part of the plate being well filled. At the aboral end of the line of the second series of spinelets on the actinal surface is one large pedicellaria, formed of three or four large modified papillæ; this apparatus is present on every plate, and forms a conspicuous object.

The mouth-plates are large, elongate, prominent, and convex actinally. The outline of the united pair somewhat resembles that of a classical spear-head, in consequence of an angle at the junction of the free margin with the margin adjacent to the first true adambulacral plate. Their armature consists of a marginal series of twelve to fifteen short, erect, skin-covered spinelets on each plate, similar to, but smaller than, those on the adambulacral plates, which are nearly subequal in length, or increase very slightly as they proceed inwards. The actinal surface of the plates is covered with numerous small, low, skin-covered papillæ, which increase in size on the inner part of the plates, but become quite small and granuliform on the outer part, especially towards the margin opposite to the median suture. Though numerous these papillæ are distinctly spaced, but no order of arrangement is distinguishable.