

The pores penetrating the outer continuous sheet of the mesostereom are directed perpendicularly toward the suture lines between the plates, but incline more or less obliquely downward. They apparently widen in a direction parallel to the inter-lamellar spaces in passing through the outer sheet of the mesostereom, since, in strongly weathered specimens showing the inter-lamellar spaces (Plate III), the latter frequently appear interrupted by transverse partitions a short distance below the outer continuous sheet of the mesostereom. At the center of each thecal plate there is a space, at least a millimeter wide, within which no trace of the vertical lamellæ appears.

14. *Sections across the anal pyramid and the transverse apical food-groove.*—A cross-section of the anal pyramid of *Comarocystites* shows that the lower margin of the pyramid plates fits into a groove extending along the lower part of the proximal margin of the bordering thecal plates. The upper part of this proximal margin rises sufficiently to admit of the presence of some substance for opening the anal passage on the relaxation of the muscles holding the anal plates shut from within the thecal cavity.

The mouth, or opening into the interior of the thecal cavity, is scarcely a millimeter in diameter, and is located at the posterior end of the suture between the two anterior peristomial plates (a, a, in the text diagrams). In form this opening varies from nearly circular to more or less elliptical, with the longer diameter parallel to the direction of the transverse apical food-groove. From this mouth the lateral primary rays of the food-groove system diverge in opposite directions in such a manner as to produce a slightly curved transverse continuous groove across the apical end of the theca, with the convex side of the groove directed toward the front. This transverse food-groove, between the bases of the arm pairs, is frequently exposed, but the central mouth opening is rarely seen. Cross-sections perpendicular to the length of the transverse apical food-groove in one specimen indicate that the lower part of the posterior peristomial plates, projects slightly beneath the adjoining part of the anterior peristomial plates, especially toward the lateral extremities of this food-groove. To what extent this feature is present in other specimens is unknown.

15. *The arms of Comarocystites punctatus.*—Each pair of arms is supported by a single nodular stereom protuberance, but each protuberance is supplied with two more or less divergent facets (see facet 1, in fig. 1B on plate II.) for the attachment of the arms. Each end of the transverse apical food-groove, on coming in contact with the adjoining protuberance, bifurcates, each branch of the food-groove, together with its covering-plates, extending to one of the arm bases, and then rising along the adoral side of the first brachial.

Arms are known only in the case of two specimens, one found and figured by E. Billings, the other found and figured by Sir James