

III. The absence of granular ornamentation on the exposed faces of the arm marginals is about equal in transverse width to the area which would be covered with the opened epineurals. Dr. Raymond, [B] p. 106, lines 42-43, cites this peculiarity as evidence that supero-marginals must have rested over these. In [C] I have published stereograms of three different regions from the undoubted oral surface of *Palæaster niagarensis*, Hall, which show the same smooth surfaces, and Prof. Fisher writes me that naked areas on these plates "are especially numerous in the *Goniasteridae*, in the genera *Tosia*, *Goniaster*, *Pseudarchaster*, *Plinthaster*." The evidence here is at least no stronger for an aboral than an oral surface.

IV. Dr. Raymond, [B] p. 106, lines 38 and 42, calls the exposed surface of the marginals "truncated" and "flat." We have seen that this is far from being the condition of the inter-radials and in [A] plate II, figures 3 and 4, we may see that it does not accurately describe the arm marginals. The first of these has a fairly well rounded surface, while the second to the fifth possess well marked angles a little orad of the centre of the plates. That these plates were convex on transverse vertical section is also seen in figures 5 and 7 of this plate—note particularly the right-hand side of figure 7.

Photomicrographs made under gum possess a flat lighting that is sometimes very deceptive. My study of such, like the one used in figure 2 of the plate just referred to, led me also to call these plates flat and deny them re-entrant angles for the oral longitudinal muscles. If now we will examine in [A] plate III, fig. 4, the marginals numbered from 2 to 7, we shall see these plates in normal lighting and their appearance is very decidedly that of original free surfaces and against both Dr. Raymond's descriptive terms and his deduction therefrom—that these surfaces were produced by intimate contact with a series of supero-marginals. Many forms, both living and fossil, show a more decided oral flattening of these plates than that revealed in this figure.

V. In our present plate IX, fig. 1, the right hand marginals 5 and 6 are fairly well preserved and the fields of their common flexor clearly outlined both by form and also by the blackened remains of some of their muscle fibers. Such large bundles of flexors would occur only on arm surfaces.

Of the five items given by the marginals the third is of little value and is only included because it formed a part of Dr. Raymond's evidence against an "oral side up" decision. Item IV, when the real facts are given, is for such a decision, and items I, II and V are of a most positive and unequivocal character.