projecting inwardly from the last preserved marginals do not extend through to the aboral surfaces of the plates, but they served for attachment of the epineurals. We may still see that the 3rd and 4th marginals on the left each possessed two of these bosses though the corner ones have been nearly lost by weathering.

IX. Where adambulacra possess long vertical axes these are usually somewhat imbricated, the oral ends being tipped toward the mouth, never away from it. The broken ends of rays II to V all show this inclination. See stereogram in [C] ray V and our plate IX, figures 1 and 2. The angle of inclination is about 25°. The slight imbrication is an adaptation to secure greater flexibility in the arms and to help in thrusting the food content of the furrow toward the mouth. Such evidence cannot be lightly set aside.

EPINEURALS.

Although asserting that the "covering pieces" had their origins in the pits of the *oppositely* placed adambulacra, Dr. Raymond calls them "alternating plates" (p. 105, line 6). A study of their distal ends is of interest. The younger pieces, plate VIII, fig. 2, meet, though very irregularly, by their end faces. The furrow here is in a contracted condition, and this should have *opened* the end faces, were these ambulacra, and displayed the muscle fields of the transverse dorsal ambulacral muscles. Not the least trace of such muscles is anywhere to be seen.

The older epineurals, following the law of biogenesis, are less like primitive covering pieces and meet only by their inner edges, plate VIII, fig. 1. The fallen 8th, the covered 5th and the two shifted 3rds in this figure indicate that the meeting ends were free.

The varied imbrication of the *sides* of these pieces and the absence of traces of longitudinal muscles is also evidence against their being ambulacra.

The epineurals marked as first could by no possible means have had their distal ends bound to their opposite neighbors. To conceive these first members of a series as ambulacra is therefore wholly out of the question.

The evidence of plate IX, fig. 2, is that the epineurals were borne by the marginals. The latter plates have lost much of their original surface, but there is here and there a suggestion that they also bore large spines outside of the epineurals. For one instance note the structure of the raised central portion of the more perfectly preserved fifth marginal in plate IX, fig. 2. The only spine fragment preserved in the matrix, however, is in