

ADAMBULACRALS.

VI. The exposed flat faces of the first adambulacra (mouth plates) dip strongly inward. The true oral surfaces of these plates in *Palæaster parviusculus* have similar flat faces which also dip inward. See stereogram in [C] plate III.

VII. Prof. Fisher says of the angular ridge towards the furrow, which is shown by all the adambulacra, "This strongly suggests the attachment area of the 'furrow comb' of spines * * * * such a ridge is quite characteristic of many species. It is well seen in *Astropecten*, *Psilaster*, *Persephonaster*, etc."

VIII. Dr. Raymond says of these adambulacra [B] p. 105, lines 9-11, "And each plate was provided with a cup-like pit into which the proximal end of a covering plate fitted." He then says of the *Urasterella* which he figures, [B] 106, lines 1-2; plate VI, fig. 1; that its apparent "Covering pieces" (ambulacra) "are supported by small plates with a pit on top, just as in *Protopalæaster narrawayi*." Now, in the first place, ambulacra never have their adambulacral ends fitting into cup-like pits to form ball and socket joints. There is, however, a pit or depression between each pair of plates, and this is occupied by the ambulacro-adambulacral muscle. In the second place, the adambulacra now in question do not possess "cup-like pits," but they show angular, flat or slightly depressed muscle fields. In the third place, the proximal ends of the epineurals in *P. narrawayi* not only do not "fit" these muscle fields, but they are in every case placed alternately with them. This is the only evidence that Dr. Raymond deduces from the adambulacra, and it is too widely at variance with the facts to have been carefully considered. The alternate arrangement just specified is strong evidence against Dr. Raymond's interpretation.

On giving these adambulacra additional study by means of new stereograms, I am inclined to abandon my idea that the muscle fields in question were for attachment of epineural adductors. The muscle fibers, which remain attached to them, are small and more probably served to open the "furrow combs." In our plate IX, fig. 2, much heavier bundles of muscle fibers are to be seen next the marginals and between adambulacra—note particularly the remains of the bundle between the last two adambulacra on the left. In addition to the evidence given, [A] p. 46, lines 32-37, to show that the epineurals were arranged alternately with the adambulacra, I here present fig. 1 of plate IX. There maining ends of several epineurals are to be seen in place in the left-hand row of this figure, but probably crushed in a little by the force that displaced the epineural below. In figure 2 of this plate it will be seen that the median bosses