

fields of their origins were on the oral faces of the marginals. These fields were outside of a highly specialized area, were therefore more diffused and their limits are not recognizable.

As all the adambulacrals were free to move in a direction perpendicular to the oral plane, the attachment of the epineural adductors to them necessitated a series of ambulacral depressors with origins on the aboral ambulacral edges of the marginals. The adambulacral floor could be thus raised or lowered while the epineurals were closed.

Plate II, fig. 5, shows also marked muscle pits on the aboral surfaces of the seventh pair of adambulacrals of arm V, while the photomicrographs made for fig. 7 of the same plate showed but faint muscle pits on the aboral surfaces of the fifteenth pair of adambulacrals. These pits represent the places of attachment of one of a series of three adambulacral adductors for each row. It is very evident that the muscles of the peristomial ring could act as abductors of the older adambulacrals.

On younger portions of the arm the orad—aboral movement of the adambulacrals (allowing the adambulacral jaw to be advanced or retracted) was not permitted, as may be seen by an examination of the fourth and fifth arm marginals of arm II (plate III, fig. 1). The ossicles were here so slightly attached to the carbonized bed of the substratum that an attempt to find ambulacrals and aboral plates resulted in the loss of the 13th adambulacral of the lower row. Further attempt to develop this locality was immediately abandoned but the accidental removal of the single ossicle left a perfectly fresh surface, showing the semi-cylindrical groove in which movement perpendicular to the oral plane was allowed while movement along the ray was prevented. The median vertical ridges on the ambulacral faces of these younger marginals may be clearly seen. The younger and weaker ambulacral adductors were thus protected from the pull of the peristomial ring. The change in outline of cross section of the prismatic flooring pieces, while passing orad, is indicative also of change in function. The very marked increase in curvature of what were once prism angles was in part due to a demand for larger fields for origin and insertion of muscles other than those already mentioned.

FOOD CAPTURE.

That the open epineurals of ciliated food grooves had occasionally the chance to capture animals somewhat larger than the organisms making up the mass of the food, cannot be doubted. When our primitive stellerid abandoned the fixed habit and began to find a more abundant food supply in the ooze of the