

may perhaps be symbiotic Algæ, which have contracted under the influence of hardening reagents. They are uniformly distributed throughout the hyaline cells of the surface ectoderm, but have not been observed in the stomodæum nor in any portion of the entoderm. This is the only instance known to me of the probable occurrence of symbiotic Algæ in the tissues of Antipathinæ.

All the specimens examined contained a moderate number of pear-shaped spermatocapsules imbedded in the tissues of the transverse mesenteries. The stomodæum appears to be continued laterally along the free border of the transverse mesenteries, which then becomes evolute at certain points into mesenterial filaments. The rounded free margin of each mesenterial filament has, like that of other genera, the same structure as the stomodæal ectoderm.

MESENTERIAL FILAMENTS.

Considerable diversity of opinion has been expressed on the origin of the mesenterial filaments of the Anthozoa, and it will be well to review the position taken up by various investigators in view of the possible origin of these structures in Antipatharia, although embryological data are necessary before a positive conclusion can be arrived at.

The mesenterial filaments of Hexactiniæ contain a dilation at the free margin, which consists of three lobes. The median lobe (Nesseldrüsenstreif) consists chiefly of glandular cells and nematocysts, whilst the two lateral lobes (Flimmerstreifen) contain a large number of elongate and ciliated epithelial cells, which are supposed to be concerned in circulation.

In 1879 von Heider, from a study of the structure of *Cerianthus membranaceus*, came to the conclusion that the mesenterial filaments are derived from the ectoderm of the stomodæum, which becomes invaginated along the free margin of a mesentery. This view was based on the fact that the epithelial cells of the mesenterial filaments have the same character as those of the stomodæum, into which they pass without any delimitation. A year later the brothers Hertwig combated this view, and adhered to their former opinion that the mesenterial filaments are entirely of entodermal origin. They point out that the structure of the mesenterial filaments is the same in the incomplete as in the complete mesenteries, and that in the former case the filaments never come in contact with the stomodæum, and thus could not derive cells from it. They point to the fact that histological evidence is insufficient to decide a developmental point, and their observations tend to show that the ectoderm and entoderm of Actiniaria are, histologically, almost indistinguishable from each other. Wilson has shown that in Alcyonaria there are two distinct types of mesenterial filaments, which differ in structure, in development, and also in function. The filaments attached to the "dorsal" pair of mesenteries consist chiefly of elongate narrow epithelial cells, which bear strong