

again into the stomodæum at a point only slightly below the upper aperture. From the arrangement of the ectoderm cells lining this canal, Fowler thinks that a current passes through it from the upper to the lower aperture, and that the modification is probably connected with nutrition and the presence of symbiotic Algæ. The remaining six mesenteries are of the usual structure, and have no ectodermal canals. They cease at the base of the stomodæum. The six modified mesenteries have a longer course, but those numbered 4 and 9 are longest, and bear reproductive organs. In type B none of the mesenteries are modified, but all have the same relative length as in type A. Numbers 4 and 9 are, in this type also, the only ones bearing reproductive organs. Both types appear to be reproductive, and both are digestive, but type A seems to be more digestive than type B, and may indicate a partly specialised gastrozoid. On the other hand type B is more reproductive than type A; ova were only observed in a single instance in the latter type. Fowler compares the elongation of mesenteries 4 and 9 to the transverse mesenteries of Antipathidæ and to the elongate ones in Alcyonaria. In *Madrepora aspera* none of the mesenteries are specialised. The dimorphism in *Madrepora durvillei* probably indicates a partial specialisation of certain zooids into gastrozooids and others into gonozooids, but the specialisation is not complete in either case. Its tendency is evidently in the same direction as the dimorphism of the Schizopathinæ, but in the latter group the specialisation is complete, and is brought about in an entirely different manner.

In the Schizopathinæ the dimorphism consists in the formation of gastrozooids and gonozooids. This differentiation is not apparently brought about by the specialisation of separate individuals as in other cases, but by a division of one primitive zooid into three portions, a central one containing the stomodæum, and two lateral portions bearing the reproductive organs. The mode in which this is accomplished appears to be connected with an elongation in the transverse axis of the typical zooid of the Antipathidæ, and the leading steps in the process can be made out from a study of the various genera already known. The reproductive organs are in all genera of Antipathidæ confined to the transverse pair of mesenteries, which also bear the fully-developed mesenterial filaments. The sagittal mesenteries sometimes have rudimentary mesenterial filaments, but these apparently never occur on the secondary ones. In zooids with a rounded outline an inequality in the breadth of the primary mesenteries, from body-wall to stomodæum, is connected, in such types as *Cirripathes*, with an elongation of the stomodæum in the sagittal axis. The transverse sections of the cœlenteron are therefore larger, and contain the reproductive organs as somewhat hemispherical bodies applied to each side of the mesentery. In *Antipathella* the zooids are small, and in those arranged on the more delicate portions of the axis, which form the great majority, there is a slight elongation of the body axis in the direction of the skeletal axis—that is in the line of growth. By this means the previously rounded zooid becomes transformed into an oblong one, and