Zoology Part LXXX: Report on the ANTIPATHARIA. By George Brook. Bound in Volume 32,1889.

If, however, the researches of Lacaze Duthiers should be confirmed, it appears to me that there is an important connection between the order in which the first twelve mesenteries are developed in *Actinia*, *Heliactis*, &c., and their relative importance in Antipatharia, a connection which may probably throw light on the phylogenetic relations of the two orders. If I have understood Lacaze Duthiers aright, the first twelve mesenteries in *Actinia*, &c., are developed in an order which may be explained by a reference to fig. 16. The first to be developed are numbers 3 and 10 of that figure, the second, numbers 6 and 7, the third, numbers 1 and 12, the fourth, numbers 5 and 8, the fifth (?), numbers 2 and 11, the sixth (?), numbers 4 and 9. Lacaze Duthiers does not number the mesenteries in the same order in his figures of *Actinia* as in those of *Heliactis* (*Sagartia*). Now if the order which I have indicated should prove to be the correct one, it precisely corresponds with the relative development of the mesenteries in *Leiopathes* and other Antipathidæ. Numbers 3 and 10 are in *Leiopathes* the longest, numbers 1, 6, 7, 12 next; numbers 2, 5, 8, and 11 come next; and finally, numbers 4 and 9 are the shortest of all. It is to be noted further that each of these pairs of mesenteries are stated by Lacaze Duthiers to be developed synchronously. One might suggest that on the formation of the mesenteries numbered 1, 3, 6, 7, 10, and 12, the cœlenteron is divided into six chambers, one anterior and one posterior, both of which are limited by the directive mesenteries, and four lateral chambers, two on each side of the stomodæum. At this time evidently the mesenteries which divide the lateral sections into two form a pair. The two lateral chambers become further subdivided by pairs of mesenteries which developmentally are not adjacent mesenteries, but situated on opposite sides of the stomodæum. In this way the lateral chambers become increased from two to five on each side. On such an interpretation the arrangement is bilateral, and consists of an anterior and a posterior chamber, together with five pairs of lateral ones. The anterior and posterior pairs of mesenteries consist of two adjoining members, all the others of two opposite members, that is to say, one on each side of the stomodæum. The directives come to be adjacent mesenteries, because no others are added between them. On this hypothesis it is necessary to suppose that in Actiniaria this primitive type of bilateralism has become modified in various ways according to the family. The bearing will be sufficiently evident without further discussion. The precise manner in which it is lost is shown, for instance, for *Adamsia* in the figures already referred to. It would, at any rate, aid in the explanation of the arrangement in Alcyonaria, *Edwardsia*, *Cerianthus*, *Zoanthus*, *Madracis*, &c. With regard to the Antipathidæ it would simplify the interpretation of the mesenteries in the various genera considerably. The three pairs of mesenteries first developed, viz., those termed "primary," are present in all genera. In *Cladopathes* the development of mesenteries ceases at this point. In *Antipathes*, *Antipathella*, *Aphanipathes*, &c., two other pairs are developed, but never become so important as the three primary pairs. In *Leiopathes* a further step is reached by the development of a sixth and still more rudimentary pair. Following

http://19thcenturyscience.org/HMSC/HMSC-Reports/Zool-80/README.htm