

radiated arrangement, the anterior and posterior sides can be fully ascertained. But there may be a compensation for this identity of the anterior and posterior sides in the prominence of the lateral parts of the body.

The parts already mentioned in a general way are not the only ones which have reference to the bilateral arrangement. The tentacles also arise on opposite sides, in two sacs extending inward in an obliquely vertical direction, and reaching a point about as far from the actinal pole as the point from which the tentacles issue is from the abactinal pole. These sacs stand in the interambulacral space between the lateral rows of flappers, with their proximal surface near the fork of the main trunks of the chymiferous tubes,¹ which also branch in opposite directions in the transverse diameter of the body. The disposition of this complicated system is, therefore, also bilateral: two main trunks penetrating symmetrically right and left from the funnel, and branching in such a manner as to reach on each side, with four arms, the four vertical rows of locomotive flappers, and giving on each side also two branches to the base of the tentacles.² The chymiferous cavity is full of fluid, which is in constant movement by the agency of vibratory cilia, and also under the influence of a regular pulsation of the whole system in the two halves of the body, so alternating in their contraction and dilatation, that at one time the fluid moves to a considerable extent from one side to the other, and next returns by the contraction of the opposite side through the same tubes in the opposite direction, presenting something similar to what exists in *Salpa* under different combinations. There is really a regular circulation through the large axial

¹ To facilitate comparisons with the paper of Milne-Edwards on the gastro-vascular apparatus of the Ctenophora, I would remark, that he calls *ventricule chylifère* the axial chymiferous cavity, which I have called *funnel*; *troncs périgastriques supérieurs*, what I have called *main trunks and forks* of the chymiferous system; *vaisseaux costaux*, what I have called *ambulacral tubes*; *vaisseau périgastrique inférieur superficiel*, what I have called *interambulacral or tentacular tube*; *vaisseau périgastrique inférieur profond*, what I have called *stomachal or celiac tube*. I would also take this opportunity to state, that the description of the chymiferous system of *Cestum*, published by Milne-Edwards, has convinced me that this genus really constitutes a distinct sub-order, as I suspected; for the course of the lateral ambulacral tubes is quite peculiar, and they are destitute of locomotive flappers.

Milne-Edwards is explicit upon that point. I am, however, still inclined to question the absence of celiac tubes, which exist in all the Ctenophora I have examined, and I have seen as many as seven species of this order: the figures of Milne-Edwards are drawn in a position in which the celiac tubes would be covered by the interambulacral tubes, and might therefore be overlooked. Neither Eschscholtz nor Mertens represents celiac tubes in the species of *Cestum* which he has described.

² There are certainly two parallel interambulacral tubes to each tentacular apparatus, as I have represented them in the *Memoirs of the American Academy*, Pl. III. *Fig. 8*; and Milne-Edwards must be mistaken in representing only one. In a view like that published by him only one tube is visible; but, facing the trend of the tentacular sockets, both tubes are brought into sight.