different buds, the siphons on one side, and the palpons and tentacles on the other side; afterwards all the gonodendra lie on one side (right or left, figs. 3, 4). The more the trunk becomes inflated by the hypertrophied float, the more it lies on one side of the body. On the opposite side is developed the crest of the Caravellidæ, acting the part of a sail, similar to that of the Velellidæ. As in these latter, the unilateral situation of the sail (right or left) is accidental, and is not constant in the single species; but usually in each species (as with the eyes of the Pleuronectidæ) the majority have the crest on the same side (compare Chun, **83**, p. 576). The largest siphons and palpons, and the main tentacles, lie on this side (the lophopleura), while the gonodendra develop on the opposite side (the hypopleura). Compare L. Agassiz, **36**, p. 335. The different growth of the two antimeres (or body-halves) is in some *Physaliæ* (*e.g.*, *Physalia utriculus*, **77**, Tab. xxxv. fig. 2) so striking, that the median plane of the dorsal crest lies more horizontally than vertically, and the usual ovate or pyriform shape of the float becomes triangular; the distance between the anterior stigma (on the apical pole of the main axis) and the posterior protosiphon (on its basal pole), seen from above, is in this case often scarcely half as great on the lee-side, or the hypopleura (which bears the gonodendra), than on the windward-side or the lophopleura (which bears the crest). It must be remembered, however, that the free edge of the comb-like crest is always originally the dorsal median line of the asymmetrical trunk, and the line in which the cormidia bud the ventral median line. The anterior stigma marks constantly the apical pole of the longitudinal main axis, and the mouth of the posterior protosiphon its basal pole.

Crest of the Float.—The remarkable polythalamous comb-like crest of the pneumatophore, which is usually regarded as the most striking peculiarity of this family, is developed only in the larger Caravellidæ (*Physalia* and *Caravella*); it is wanting in the smaller Arethusidæ, which, because of their much smaller size and simpler form, have usually been overlooked (*Alophota* and *Arethusa*, Pl. XXVI.). It is wanting, also, in the younger larvæ of the Caravellidæ. The crest, therefore, is a secondary organ, got by adaptation to the sailing locomotion of the hydrostatic float. Regarded from a morphological point of view, it is nothing more than a simple longitudinal fold in the dorsal median line of the trunk. It becomes divided afterwards by a number of transverse septa into a series of triangular air-chambers. These have often been compared with the chambers in the polythalamous pneumatocyst of the Disconectæ. But this comparison is only a remote analogy, not a true homology. The morphological affinity which is suggested by most authors between Physalidæ and Velellidæ does not exist at all. On the structure of the crest and its relation to the float, compare Leuckart (**81**, p. 192), L. Agassiz (**36**, p. 335, pl. xxxv.), and Chun (**83**, p. 576). The number of the primary chambers in the crest of young Caravellidæ is three or four, in the older six to eight or more. These become divided by smaller transverse septa into secondary chambers, and these again by smaller