

Rhizostomidæ proper, Leptobrachidæ, Cassiopeidæ, Cepheidæ, Polyclonidæ, and Favonidæ, all of which are held together, as a sub-order, by the structural peculiarities mentioned above. Some of these families have already been pointed out as natural groups by Tilesius, in his interesting paper on Cassiopeæ, published in the *Nova Acta Academiæ Naturæ Curiosorum*, Vol. XV. In this paper the learned author makes, however, several statements which cannot be correct, and must be distrusted by every one familiar with the structure of the Acalephs. He states, for instance, that water is expelled through the eight respiratory ventricles; but what he calls respiratory ventricles are the closed sacs formed by the genital pouches, which have no communication whatsoever with the main cavity of the body of these animals. Water, therefore, can only fill these cavities, and be moved in and out by the contractions and expansions of the genital pouches, which shut the cavities below them from all communication with the main cavity. He also affirms that a luminous gas is exhaled from the decomposed water, through the eight branchial tubes and the marginal vesicles. I suppose that, under the name of marginal vesicles, he alludes to the eyes, but I am at a loss to see how they can, in any way, contribute to the decomposition of the water and the emission of a luminous gas.

Our remarks upon the polystomy of the Rhizostomes lead, naturally, to some further considerations upon the opinions which have, at different times, been expressed, with respect to the position and the absence of the oral aperture among Acalephs. Péron and LeSueur have, in their classification of these animals, one division which they call "Agastriques," some of which have been called "Astomes" by Cuvier, and which they suppose to have neither central cavity, nor mouth, nor peduncle, nor tentacles. In modern times, no Medusæ have been observed exhibiting such characteristics. The genera referred to this division by Péron and LeSueur were, no doubt, founded upon imperfect specimens. The others, which are called "Gastriques," are divided into Monostomes and Polystomes; the Polystomes being all those which have distinct genital sacs, inserted above large openings of the lower floor, formed by the thinning of that floor and its inversion into the main cavity, or its eversion in the shape of a pendant sac below it. These openings Péron and LeSueur have mistaken for mouths, and they have overlooked, in some of them, the real oral aperture. This is, for instance, the case in *Aurelia*, which is characterized as having four mouths, by which can be meant only the four large funnels below the genital sacs, while the mouth, between the four arms, has not been observed by them.