of the Siphonanthæ lies excentrically beside the apex. It arises in the former, indeed, at the place where some Medusæ (*e.g.*, *Aglaura*) form a suctorial organ of attachment. Only subsequently does this apical air-gland become greatly extended, to occupy the greater part of the original larval umbrella, so that one may in a certain sense speak of an "invagination." At any rate, the "air-sac" is originally a portion of the ectodermic epithelium of the *exumbrella*, not of the *subumbrella*. The whole pneumatophore is not a secondary medusoid person, but the modified disc of the primary medusoid larva.

The many-chambered pneumatophore of the Disconanthæ is comparable in its first beginning alone with the single-chambered pneumatophore of the Siphonanthæ; there again it is at first nothing more than an apical gas-gland, which occupies only a small area on the apex of the primary larval umbrella. This simple central chamber becomes rapidly surrounded, however, with a girdle of eight radial chambers, and around these again many concentric rings of chambers are apposed. Thus arises the characteristic octoradial, concentrically chambered air-disc of the Porpitidæ, of which the amphithect pneumatocyst of the Velellidæ represents only a secondary modification. Sometimes its margin is split into eight or sixteen radial lappets. On the upper surface the disc opens by numerous stigmata, of which the central one alone can be compared to the simple apical stigma of the Pneumatophoridæ. From the lower surface proceed numerous small air-tubules or tracheæ, which enter into the so-called "liver" or glandular central organ. I regard only the entodermic canal network of this voluminous "central organ" as "liver" (and perhaps "kidney"), and the compact exodermic parenchyma as a strongly developed gas-gland. The lower ends of the tracheæ are not closed, as is generally supposed, but open. They take off the secreted gas, and their terminal apertures correspond to the "funnel aperture of the air-flask" in the Siphonanthæ. On the other hand, the stigmata of the upper surface (or of the exumbrella) in the Disconanthæ do not serve for the reception of atmospheric air from outside (as is generally supposed), but solely for the exit of the secreted gases, and correspond to the simple apical pore of the Cystonectæ.

## AUROPHORE OR AIR-BELL.

The new deep-sea families Stephalidæ and Rhodalidæ are distinguished from all the other Siphonophoræ by the possession of a peculiar organ, belonging to the nectosome, designated the *aurophore*. Since they are in other respects peculiarly organised, they may be regarded as representing a special order, Auronectæ. The aurophore is a voluminous gas-gland, which has developed out of a medusiform swimming-bell. It lies below the large pneumatophore, in the dorsal middle line of the stem, opposite the ventral row of buds. The disc-cavity of the swimming-bell has been modified into a