

distinct pouches communicating directly with the main cavity of the body and discharging their eggs into that cavity and then through the mouth; while in the *Cryptocarpæ* they consist only of folds along the course of the chymiferous tubes or upon the sides of the proboscis, and discharging their eggs immediately into the surrounding medium, but never through the main cavity and the mouth. Here, then, is a typical difference between two natural groups of the *Discophoræ* of former authors; and it is upon this ground that I would separate the *Phanerocarpæ* from the *Cryptocarpæ* as a distinct order, especially since I shall be able to show that while the latter differ in this way from the former, they at the same time agree both in structure and in mode of development with the *Hydroids* and *Siphonophoræ*, and should form with them another distinct order.

The discoveries respecting the mode of development of the *Acalephs* made during the last quarter of the present century add great weight to this distinction, for they show that while the *Phanerocarpæ* produce, either directly or through the process of a transverse division of a polypoid young, a kind of larva (the *Ephyra*), which is gradually transformed into a perfect *Medusa*, the *Cryptocarpæ* originate in alternate generations as buds from similar polypoid animals. But even if nothing was known of the mode of reproduction of the *Discophoræ* *Phanerocarpæ* and *Cryptocarpæ*, I maintain that these *Acalephs*, in their adult state, should be separated from one another on account of their structure.

The body of the *Cryptocarpæ* consists of a disk, of an umbrella or bell-shaped form, the lower layer of which, perforated in the centre, projects from the lower surface in the shape of a longer or shorter proboscis, terminating in various ways in different families. The two layers recede slightly from one another at the base of the proboscis, and form a more or less extensive central cavity, from which arise directly a larger or smaller number of narrow tubes extending to the edge of the disk, where they are united by a similar continuous, simple, circular tube, beyond which the margin of the disk is bent inward in the shape of a projecting veil, more or less closing the space beneath the disk; while from the border, formed by this inversion of the margin, arise, along the circular tube, a larger or smaller number of plain or hollow tentacles, in some families limited to the point of intersection of the radiating and circular tubes, and in others extending around the whole disk. Pigment specks appear upon the base of the tentacles of some; while in others, more complicated eye-specks or auditive vesicles occupy the position of tentacles.

In the *Phanerocarpæ*, on the contrary, the lower layer of the disk not only recedes from the upper, but thickens around the central opening into four solid pillars supporting the four angles of the digestive cavity and extending downward, in the shape of four so-called arms which surround the mouth. This peculiar structure,