unilateral development along the dorsal side of the trunk, the peculiar form and the strange character of this family. Nevertheless the young larvæ (*Cystonula*, Pl. XXVI. fig. 1) are not essentially different from those of other Cystonectæ (*e.g.*, *Cystalia*, Pl. XXII. figs. 1–5). The float is here a relatively small ovate or ellipsoidal vesicle in the apical part of the primary medusome, connected by the inflated pedicle (α) with the basal protosiphon ($s\alpha$). The stigma on its apical pole (po) is the permanent opening of invagination, from which the simple pneumatosac (or the inner float-wall) depends freely into the pneumatocodon (or the outer float-wall). Chun tells us that the float of these young larvæ has a complete radial structure ("ein völlig radialer gebauter ovaler Luftsack," **83**, p. 559); but I have never found in the Physalidæ (neither the youngest larvæ, nor older forms) any trace of radial structure; they possess neither the eight radial bunches of hypocystic villi which are found in the Epibulidæ (Pl. XXII. figs. 6–8), the Salacidæ (Pl. XXV. figs. 2, 3), and the Rhizophysidæ (Pl. XXIV. figs. 1–5), nor the corona of radial septa and pouches which is obvious in most Physonectæ. The pneumatosac of all Physalidæ lies freely in the voluminous cavity of the large pneumatocodon, and is connected with the latter only at the apical pole, by the sphincter of the stigma. The pericystic cavity, therefore, is as simple as in the Cystalidæ, Athoridæ, and Apolemidæ. The outer wall of the float is very thick and muscular, with an outer layer of strong, parallel, longitudinal fibres and an inner layer of circular ring-fibres. By compressing the float voluntarily, the animal can extrude the included air through the apical stigma, and sink down. After a short time has elapsed it can rise again, secreting a great mass of gas by the pneumadenia, and filling the float. I often observed this process repeated, in December 1866, off the Canary Islands. The lamellar pneumadenia, or the glandular "air-plate" ("Luftplatte," Chun, **83**, p. 569), which corresponds to the endocystic tapetum of the other Cystonectæ (p. 309), is a thin distal layer of exodermal glandular cylinder-cells, placed originally in the basal portion of the pneumatosac. It grows afterwards more towards the ventral side and extends forwards. It has a diameter of 4 mm. in a float 20 mm. in diameter. But in the adult *Caravella maxima* it reaches 100 to 150 mm. in diameter, and occupies nearly the ventral half of the pneumatophore.

Asymmetry of the Corm.—The fundamental form of the bilateral corm is in all mature Physalidæ more or less asymmetrical, either the left or the right side being more developed and organised differently from the opposite side. This asymmetry is less expressed in the crestless Arethusidæ (*Alophota*, *Arethusa*); it is much more prominent in the crest-bearing Caravellidæ (*Physalia*, *Caravella*). But the young monogastric larva (*Cystonula*, Pl. XXVI. fig. 1) is monaxonial, and only the tentacle arising from the ventral median line marks the bilateral symmetry. As soon as the budding of the secondary cormidia on the ventral side of the primary medusome commences, the subvertical axis of the latter becomes more and more inclined, and finally subhorizontal. The first trace of the asymmetrical development is then marked by the situation of the