

this seems to confirm my opinion that the centradenia is not only a hepatic and a renal, but at the same time a gas-secreting gland.

*Canal System.*—The system of gastral vessels or entodermal canals is in the *Disconectæ* very different from that of all the other Siphonophoræ (or the Siphonanthæ); it is far more complicated and exhibits from the beginning quite a different type; it is originally octoradial, determined by eight primary perradial gastral canals, which arise from the periphery of the base of the stomach and correspond to the eight subumbrellar radial canals of a common octoradial Medusa (*Trachynema*, *Pectyllis*). This regular, strictly octoradial type is retained through life in the central part of the canal system of all *Discalidæ* and *Porpitiidæ*, whilst in the amphithect *Velellidæ* it is found only in early stages, and afterwards becomes bilaterally modified, according to the different growth of the two horizontal cruciate axes. No trace of this octoradial canal system is found in the trunk of any other Siphonophoræ; but a similar type is apparently marked by the octoradial structure of the pneumatosaccus in many *Physonectæ*.

The peculiar development of the gastro-canals in the umbrella of the *Disconectæ* is produced, firstly, by the voluminous expansion of the pneumatophore and the invagination of the exumbrella connected with it; and secondly, by the development of the centradenia between the latter and the subumbrella. The following eight parts of the canal system may be distinguished in the most highly developed *Disconectæ*, as we ascend from the central siphon to the top of the pneumatophore:—(1) The system of subumbrellar radial canals (originally eight), arising from the fundus of the stomach, and running horizontally and centrifugally or ascending in the subumbrella towards the margin of the umbrella; they usually form a complicated network of dichotomously branched radial canals. (2) The marginal canal, which connects the distal ends of the latter; it is placed in the true margin of the umbrella, and corresponds to the circular canal of the *Hydromedusæ*. (3) The system of renal canals or white excretory vessels, containing green crystals of guanin; it is formed by a network of branches of the subumbrellar canals, which is placed usually in the basal or inferior part of the centradenia. (4) The system of hepatic canals or brown pigment vessels; it is formed by the apical or superior part of the canal network in the centradenia, in the surface of which it forms a regular octoradial "liver-star." (5) The system of exumbrellar or pallial radial canals (originally eight); these run centripetally and more or less horizontally in the exumbrella towards the centre of the pneumatophore, where they are united by a small ring, surrounding the apical stigma ("mantle-star"); they may be compared to the eight radial pouches of the pneumatophore in many Siphonanthæ. (6) The system of gonostylic cavities, or the gastral cavities of the polyps which bear the gonophores (palpons in the *Discalidæ*, siphons in the *Porpitiidæ* and *Velellidæ*); they arise as simple subumbrellar diverticula from the inferior branches of the centradenial system. (7) The canal system of each single gonophore, composed of four radial canals and a connecting ring-canal,