

the tubular siphon is always very extensible and contractile, provided with strong longitudinal and circular muscles. The entoderm of the stomach usually bears very numerous and small hepatic villi, containing pigment-granules and clear glandular vacuoles; rarely the hepatic glands are arranged into eight or sixteen longitudinal series, and form coloured "liver-ridges," as in *Linophysa*. The distal mouth is always very dilatible, and may be expanded in the form of a large circular suctorial disc (Pl. XXIII. fig. 5; Pl. XXIV. fig. 1).

*Tentacles*.—The long tubular tentacle which arises from the base of each siphon, on its superior or dorsal side, is rarely a simple, unbranched filament, similar to that of *Apoemia*, as in *Linophysa* (40, Taf. i. fig. 1). In all other known genera it is beset with a series of numerous equidistant tentilla or unilateral branches. These tentilla exhibit in the various genera of Rhizophysidæ similar differences in form and structure to those seen in the Agalmidæ among the Physonectæ, although a true cnidosac (as in the latter) is not developed. The tentilla are simple tubular filaments, with a unilateral series of cnidocysts, in *Aurophysa* and *Nectophysa* (Pl. XXIII. figs. 1–6); usually the axial or ventral side of the tentillum is beset with several rows of sensitive palpoblasts (fig. 6, *tw*), the abaxial or dorsal side with some series of spherical cnidoblasts (fig. 6, *kc*). The genera *Cannophysa* and *Pneumophysa* are distinguished by trifid tentilla (Pl. XXIV. figs. 8, 9); their distal end bears an odd terminal vesicle (fig. 9, *ta*) and two paired lateral horns (fig. 9, *tc*); these are armed in different ways with cnidonodes or roundish groups of spherical cnidocysts. *Rhizophysa*, finally, is distinguished by the compound structure of the tentacles which bear two, three, or more different kinds of tentilla; these are partly simple, partly trifid or branched; and usually there are scattered between them a small number of very large and remarkable appendages, first described in the Mediterranean *Rhizophysa filiformis* by Gegenbaur (7, Taf. xviii. figs. 7–9). They are flat, palmate, or hand-shaped leaves, dichotomously branched at the free distal margin, each branch provided with a spherical cnidocyst. In the similar Atlantic *Rhizophysa planostoma* (Péron), I observed in December 1866 similar but larger appendages, which bore in the middle of their upper or outer side a large purple ocellus; a pigment-ring with a strongly refracting globule in the centre. I suppose that this globule is a lens, and the ocellus a true eye.

*Gonostyles*.—Each cormidium of the Rhizophysidæ bears usually a single, clustered and monoclinic gonodendron only; this is attached to the node of the stem, immediately beyond the basal insertion of the siphon, in the ordinate cormidia of the Cannophysidæ (Pl. XXIV.); whilst it is attached to the internodes of the stem, between the siphons, in the loose cormidia of the Linophysidæ, where usually the siphons and gonodendra alternate regularly, in equal numbers (Pl. XXIII. figs. 1–3); but sometimes the number of gonodendra is augmented (in *Rhizophysa*), so that a variable number of gonostyles (two to four or more) arises from the internode between every two siphons; in some species