

The family Rhizophysidæ comprises all Cystonectæ polygastricæ with a long tubular stem, bearing numerous monogastric cormidia. The trunk of the corm is a prolonged and very contractile tube, as in the succeeding Salacidæ; but the cormidia of these latter are polygastric. Many different species, and mainly deep-sea forms of gigantic size, seem to belong to this interesting family; but only a few species have been described hitherto with sufficient accuracy. All species have been united up to this time in a single genus, *Rhizophysa*.

The oldest known form of Rhizophysidæ is the Mediterranean *Rhizophysa filiformis*, described as early as 1775 by the first author on Siphonophoræ, Forskål, under the name *Physophora filiformis* (11, p. 120, Tab. xxxiii. fig. F). A similar species from the Atlantic was figured in 1807 by Péron and Lesueur under the name *Rhizophysa planostoma* (14, pl. xxix. fig. 3). A third species of the same genus was observed in 1827 by Mertens in the Northern Pacific, and described by Brandt in 1835 as *Epibulia mertensii* (25, p. 33). Unfortunately Mertens' excellent figure, drawn from life and exhibiting distinctly the characters of the genus *Rhizophysa*, has never been published. Brandt established for these forms the family Rhizophysidæ (*loc. cit.*, p. 33).

The first accurate anatomical description was that given in 1854 by Gegenbaur of the Mediterranean *Rhizophysa filiformis* (7, p. 324; 10, p. 78). It was afterwards supplemented by Huxley (9, p. 90), Fewkes (41, p. 292), and especially by Chun (47, p. 404; 48, p. 529; 86, p. 1169). Two new genera of this family, *Cannophysa* and *Nectophysa* (Pls. XXIII., XXIV.), were observed by me in 1866 off the Canary Islands. Two other genera, *Aurophysa* and *Linophysa*, both inhabiting the deep sea, were described in 1878 by Studer as species of *Rhizophysa* (40, p. 4, Taf. i.).

*Truncus*.—The common stem of the corm is in all Rhizophysidæ a very long and slender cylindrical tube; its contractility is so great that, in the expanded state, it may be ten to twenty times as long as in the contracted state (compare Pl. XXIII. figs. 1–3 and Pl. XXIV. figs. 1–3). At the same time it is so sensitive that a slight touching of the stem is sufficient to effect suddenly its strongest contraction. The wall of the tubular trunk is rather thick, with a thin layer of circular muscles arising from the entoderm, and a thick layer of longitudinal muscles arising from the exoderm; the latter are arranged, as usual, in parallel bundles along the radial folds of the fulcrum, which separates the two layers. The exoderm is often coloured yellowish, rose, or brown.

*Cormidia*.—The numerous cormidia, which arise from the long tubular stem of the corm, exhibit in the Rhizophysidæ (as in the Agalmidæ) a double shape and arrangement, according to which two subfamilies may be separated, the Cannophysidæ and Nectophysidæ. The Cannophysidæ (Pl. XXIV.) possess ordinate cormidia, which are separated by long, free, and naked internodes of equal length (similar to those of the Stephanomidæ); each cormidium is composed of a siphon, a tentacle, and a gonostyle;