very peculiar, but could not be diagnosed satisfactorily from the only spirit-specimen examined. The ectodermal epithelium (*q*) contains numerous nematocysts. The muscular plate (*m*) appears thinned away on both lateral surfaces of the tentacles, but on the other hand thickened so remarkably on the inner and outer side that it projects in the form of two strong band-shaped longitudinal muscles. The external or axial longitudinal muscle springs from the pedalia, and usually occupies only the proximal third or fourth of the length of the tentacle. The inner or axial longitudinal muscle runs through the entire length of the tentacle, and is split up above into two conical root muscles (*mk*, figs. 22, 29). These invaginate the distal margin of the corresponding coronal pouch, divide it into an external velar pouch and an internal avelar pouch, diverge into the "funnel of the tentacle" (*it*), formed in this way between the velar and avelar pouches and run as the proximal margin of the coronal muscle, where they are inserted (comp. below). If the internal longitudinal muscle is strongly contracted, the tentacle appears rolled up spirally and laid in deep transverse folds (*d*). A structureless thin, but very firm, supporting plate ("lamina fulcralis," fig. 21, *z*) lies under the muscular plate (*m*) and under the supporting plate, the endodermal epithelium of the tentacle canal (*d*). The nature of the latter is very remarkable; it consists of large vesicular cells, and rises in the shape of a thick spongy cord (fig. 21, *d''*) on the abaxial side of the canal wall. This cord consists of an accumulation of very large vesicular cells, and fills like marrow nearly the half of the lumen of the tube (*ct*). It would require to be more minutely investigated in living and well-preserved animals. So would another most peculiar arrangement of the ten-tentacles; a strong, double-valved aperture lying inside the base of the tentacle immediately at the point where the tentacle roots diverge (Pl. XXII. fig. 22, *yk*). The elastic fulcral lamella is swollen there into a thick gelatinous plate containing cells, and forms two horizontal vent-valves lying above one another, by means of which the cavity of the tentacle can be completely closed. Even by strong pressure from within the tentacle cavity it was impossible to overcome the antagonism of the double valve. The cavity of the vent-hole (fig. 22, *cx*) between the distal (*yk''*) and the proximal valve (*yk'*) is nearly as high as broad.

The marginal sense clubs ("rhopalia") of *Periphylla* (Pl. XVIII. figs. 1–5; Pl. XXII. fig. 22, *or*; Pl. XXIII. 31, 32, *or*) have been already described by me in *Periphylla hyacinthina* in my System der Medusen (1879, taf. xxiii. figs. 9–12). They appear to have essentially the same formation in *Periphylla mirabilis*, and represent very composite organs of sense connected among the forms hitherto known, with the rhopalia of the Cubomedusæ on the one side and with those of the Nausithoidae on the other. As in all Peromedusæ there are only four interradial rhopalia, which lie in the radii of the septal nodes and the tæniola. They were, unfortunately, very badly preserved in the spirit-specimen examined; a complete and correct insight into their very complicated minute structure could only have been obtained by examination and special preparation of fresh rhopalia.