

above the auditory club; of these the unpaired (lower) eye looks inwards, the two paired (upper) eyes outwards.

The nervous system of *Periphylla*, like that of all the Peromedusæ, is at present unknown, and, unfortunately, in spite of repeated efforts, I was unable to make it out from the single spirit-specimen examined. It requires fresh researches on living and specially-prepared material. But considering the high stage of differentiation and perfection to which the formation both of the muscular system and of the sense organs of our highly developed Medusa has attained, we may assume that the nervous system is also fully developed. This supposition is further justifiable from the fact that the closely-allied Cubomedusæ have a highly developed nervous system with centralised nerve ring, and that the organs of sense show many analogies in the two orders. A nerve ring probably runs in the coronal furrow as an important central organ, in immediate connection with the four interradial sense clubs. A second nerve ring perhaps exists at the margin of the coronal muscle, and possibly a third at the oral margin or the palatine ring. From the large size of this Medusa, these important conditions might be explained by examination of more perfectly preserved *Periphylla* treated with osmium and other such reagents.

The subumbrellar cavity ("antrum," Pl. XIX. fig. 6; Pl. XX. fig. 8; Pl. XXI. figs. 12-19) in our *Periphylla*, as in all Peromedusæ, is divided into two distinct sections, the distal simple coronal cavity and the proximal quadrilocular funnel cavity, the palatine ring forming the boundary of the two. The distal (lower or oral) coronal cavity of the umbrella ("antrum coronare," fig. 19, *hc*) is simple, shaped on the whole like a hemisphere or truncated cone, and enclosed round by the corona of the umbrella; it is 7 cm. in height by 12 cm. in diameter, opens below to the outside by the opening of the umbrella and contains the œsophagus in its centre. The upper boundary of the coronal cavity against the funnel cavity is formed by the palatine ring ("annulus palatinus," *wp*). I give this name to the important subumbrellar boundary ring between the œsophagus and the coronal sinus, in whose plane the four perradial palatine nodes are inserted into the wall of the sinus. Four wide horizontal openings, the funnel openings ("ostia infundibularia," fig. 18, *if*), leading from the coronal opening of the umbrella into the four interradial funnel cavities (*ii*), are placed between the four palatine nodes.

The funnel cavities ("infundibula") are conical ectodermal invaginations of the subumbrella into the central stomach. They correspond completely to the "funnel cavities" of the Lucernaridæ, but are much more strongly developed, and play a much more important part. Whilst in *Pericolpa* and *Peripalma* they only reach the boundary of the central stomach and basal stomach (as far as the pyloric ring), in *Pericrypta* and *Periphylla* they completely hollow out the conical tæniola and also pass above into the basal stomach as far as its conical point, where the cæcal ends of their cones touch in the subumbrellar centre of the umbrella cone. Each infundibulum represents a sub-regular cone 3 cm. high and 4 cm. in diameter at the base, and is divided by the horizontal boundary