

still growing, the four channels terminate in the single chymiferous cavity (*d*). The medusa (*i*) is so crowded in the calyche, that it is hardly possible to see its connection with the axis unless the whole horny sheath is removed (*Fig. 13^a*), and then we find that only one of the axial canals (*e*) is in direct communication with the radiating tubes (*f*), the single channel (*e*¹) of the peduncle being the medium between the two. The whole cavity of the disk is filled by the reproductive material, either eggs or spermatic particles.

From this period onward, the medusa, already recognizable as such, grows comparatively very rapidly, and, in size, soon surpasses the whole axial portion of the hydra (*Fig. 14*). The radiating tubes (*f*) become more distinct, and the outer wall increases considerably in thickness. Up to the period when the medusa has reached two thirds of its growth, the radiating tubes are simple channels (*Fig. 14, f*), but soon after this we find them sending forth, from each side, a row of blind sacs (*Fig. 19, f*), so that each canal (*e e*¹ *e*²) has a pennate appearance. In the males (*Fig. 19*) these diverticles (*f*) are most frequently opposite each other on any one channel, but in the females (*Fig. 15*) they are disposed more or less alternately (*f*) so as to correspond to the intervals among the eggs (*i*); and they project not only laterally but obliquely toward the interior, as if to form supports for the reproductive mass. Frequently the different channels of the compound axis of the reproductive hydra branch above the point of common divergence, as in *Fig. 15*, where a short branch (*e*¹) diverges from one of the main channels (*e*²), near its termination. There is considerable difference among these hydræ in regard to the age at which the diverticles of the radiating tubes of the medusæ begin to form; sometimes, in a comparatively young hydra (Pl. XXVIII. *Fig. 19*, and Pl. XXIX. *Fig. 2*), the diverticles (*f*) of the medusæ are quite long, while, in a much older hydra (Pl. XXIX. *Fig. 4, f*), the diverticles are not more than half as long; or in another (*Fig. 3*), nearly as old as the last, they are not developed at all, and the radiating tubes (*e*) are as yet simple channels. The length of some of these diverticles is remarkable, projecting, as they do (Pl. XXIX. *Fig. 2, f*), nearly half way across the reproductive mass, and also occasionally branching. In the more highly-developed male medusæ the reproductive mass is internally divided lengthwise, by a furrow (Pl. XXIX. *Fig. 2, g*), into as many lobes as there are radiating canals, and each lobe is penetrated by the diverticles from a single radiating tube. Whether the reproductive mass is covered by an internal wall, which corresponds to the innermost, or lining wall of the disk of the Hydroid-medusæ, we are not able to say, but incline to believe there is none, inasmuch as the calyces were subjected to prolonged and careful investigation. The wood-cut on the next page, representing an ideal section of *Fig. 2*, Pl. XXIX., with corresponding letters, will assist in the understanding of the relation of the