complicated folding of the chamber layer as occurs in the very thick-walled species *Pheronema* (Pls. XLII.–XLVI.) and *Poliopogon* (Pls. XLVII.–L.). The efferent canals do not, however, by any means, always remain free from the trabecular framework which is so abundantly developed in the afferent spaces. This is very frequently illustrated, as, for example, in *Malacosaccus* (Pls. XVIII., XIX.), *Crateromorpha* (Pls. LXI.–LXIII.), *Hyalonema* (Pls. XXVII.–XLI.), *Polylophus* (Pl. LIV.), *Rossella* (Pl. LV.), and others, where a reticular lining penetrates from the subgastral trabecular space into the outermost diverticulum of the efferent canal system, without, however, at any time crossing the lumen of the efferent passages, or entering the cavity of the chambers. The gastral membrane extends smoothly over all the (excurrent) openings of the efferent canals, in the form of a sieve-like net, and thus forms the boundary of a simple gastral space, as in *Rossella* (Pl. LV.), *Pheronema* (Pls. XLII.–XLVI.), &c.; or it lines the niche-like depressions of the wall which may be of simple or complex form, as in *Malacosaccus* (Pls. XVIII., XIX.); or finally it passes through the wide excurrent openings of greatly branched efferent canals which open directly into the gastral space, and extends within them on to the terminal branches, as in *Hyalonema* (*Stylocalyx*) *depressum* (Pl. XXXVI. fig. 1) and others.

Further variations of the simple saccular form are exhibited by many Hexactinellida in the formation of a *terminal sieve plate* covering the wide opening at the extremity (*Euplectella*, Pls. I., V., *Holascus*, Pls. XV.–XVII., *Hyalonema sieboldii*, Pl. XXVII., and others). In many cases, too, the body-wall exhibits a more or less regularly arranged set of gaps, by means of which a direct communication is established between the gastral cavity and the external medium. While these gaps in the walls of *Euplectella* (Pl. I.) and *Tægeria* (Pl. VII.) are circular, and bounded by an iris-like membrane which is capable of contraction, in *Walteria* (Pl. IX.) they occur as irregularly angular meshes, like the lattice-work of a basket. Striking modifications may arise by the formation of a stalk, which is, indeed, always in the form of a simple continuation of the lower portion of the body-wall, from which, however, it often differs widely in diameter. It varies greatly in the length attained, and is more or less sharply truncated. The stalk is generally quite round and smooth, but frequently with characteristic curvature (*Caulophacus elegans*, Pl. XXV.), or prominent protuberances (*Crateromorpha murrayi*, Pl. LXIII.), and is sometimes even branched (*Sympagella nux*, Pl. XXII. fig. 4). It is either solid or tubular, generally the latter in long stalks (*Caulophacus*), and its lumen either opens into the gastral cavity, or is in communication with, and so belongs to the efferent canal system. By the expansion of the upper oscular margin many species, *e.g.*, *Rhabdocalyptus mollis* (Pl. LXIV. fig. 1) and others, acquire a funnel-like shape. A further widening and flattening leads to the formation of a flat saucer-like body, while a more unilateral growth results in an ear or shell-like form (*Euryplegma auricularis*, Pl. CII.), or even in certain circumstances in a simple perpen-