of the endoderm into the mesoderm, which, together with the ectoderm, exhibits an independent growth of its own ; and this results in the formation of a thick investment, known as the *cortex* (fig. 5), to the whole exterior of the

sponge. The radial tubes may branch, *Heteropegma* (fig. 4). If the branches are given off regularly, as the radial tubes were in the first plan, and if at the same time the original radial tube exchanges its flagellated for a pave­ment epithelium, a structure as shown in fig. 6 *(Polejna*

*connexiva,* Pol.) will result. This form might also be brought about by unequal growth of the gastral endoderm leading to a folding of the inner part of the sponge-wall. Very little direct evidence exists as to which of these two plans has actually been followed. Phylogenetically the transition from a simple Ascon to the most complicated Sycon can be traced step by step ; and ontogeny shows that such a Sycon form as *Grantia raphanus* passes through an Ascon phase in the course of its larval development.

Returning to the ancestral form of sponge, *Olynthus,* let us conceive the endoderm growing out into a number of approximately spherical chambers, each of which com­municates with the exterior by a prosopyle and with the paragastric cavity by a comparatively large aperture, which we may term for distinction an *apopyle*; at the same time let the endoderm lose its flagellated character and become

converted into a pavement epithelium, except in the spherical chambers. Such a form, called by Haeckel “ dyssycus,” may be more briefly named a *Rhagon* from the grape-like form of its flagellated chambers, which differ from those of a Sycon both by their form and their smaller dimensions. The Rhagon occurs as a stage in the early development of *Plakina monolopha* (Schulze) and *Reniera fertilis* (*9*) (fig. 7) ; a calcareous sponge which appears to

approach it somewhat is *Leucopsis pedunculata,* Lfd. By the folding of the wall of a Rhagon, or by its outgrowth into lobes, a complicated structure such as that of *Plakina monolopha (20)* (see fig. 26 *f*) results. This is character­ized by the chambers retaining their immediate communi­cation with the incurrent and excurrent canals, opening into the latter by the widely open apopyle and receiving the former by one or

several prosopyles. This

may be termed the *eury-*

*pylous* type of Rhagon

canal system. The fold­

ing of the sponge-wall

may be simple, as in the

example given, or too

complex to unravel. In

higher forms of sponges

*(Geodinidæ, Stellettidge)*

the chambers cease to

open abruptly into the

excurrent canals : each is

prolonged into a narrow

canal, *aphodus,* or *abitus,*

which usually directly,

sometimes after uniting

with one or more of its

fellows, opens into an

excurrent canal. The

prosopyles, now restrict­

ed to one for each chamber, may remain unchanged in character, or at the most be prolonged into very short