peristalsis than from power of independent movement. The base of each tubule is dilated as a small spherical ampulla (Fig. 9). Usually several ampullae are associated and have a common aperture into the basal vesicle (Fig. 9); the groups of ampullae are irregularly arranged on the vesicle. Numerous tracheae ramify over the vesicle and among the bases of the tubules. The linear arrangement of malpighian tubules in *Forficula auricularia* (Henson, 1946) is undoubtedly correlated with the smaller number of tubules in that species (five to each basal vesicle). In *F. auricularia*, Bordas (1897) describes 8 to 10 or 12 tubules in two groups and Lhoste (1941) says there are 8 to 10. Henson points out that Bordas is incorrect. It is also difficult to reconcile Lhoste's describtion with his figure showing a single group of 4 tubules, but he may have been dealing with a nymph.

Distally a tubule shows the typical structure—large epithelial cells with a faint striated border, resting on a basement membrane. The cell walls are somewhat indistinct, but the number of nuclei varies from 3 to 5 (Fig. 13). Henson (1946) shows that the malpighian tubules of *Forficula auricularia* have two rows of cells. In the material of *Anisolabis littorea* examined here, the tubules are solid proximally; a plug of cellular material containing distinct nuclei fills the lumen and projects into the ampulla. The whole tubule is ensheathed in a light connective tissue coat which, typically, surrounds the tubules in pairs basally (Figs. 12, 13). Palm (1946) describes the malpighian tubules of *F. auricularia* as being slender and smooth, having "a very thin tunica peritonealis" and lacking muscular elements; there is no peristalsis.

The ampulla wall consists of a cubical epithelium surrounded by a light muscle sheath invested by a delicate connective tissue (Fig. 11). The epithelial cells around the mouth of the tubule are very tall, forming a frill (Fig. 11). The wall of the basal vesicle is similar to that of an ampulla, except that the muscularis and connective tissue are both much thicker. The vesicles open on the most anterior portion of the proctodaeum—the narrow ring of cubical cells with the thick intima. Each vesicle aperture is surrounded by three folds, two in front and one behind. Both sides of the first fold and the outer surfaces of the other two are covered with a thick cuticular intima (Figs. 9, 10). This is very prominent under phase contrast. Henson (1946) describes a single "valvular" fold behind the vesicle apertures in *Forficula auricularia.*

In *Anisolabis littorea* the malpighian tubules are undoubtedly attached to the proctodaeal tissue of the alimentary canal. However, there is no evidence that they are of ectodermal origin nor, on the other hand, that they arose from endodermal or undifferentiated tissue and migrated to their present position. In the absence of embryological studies, speculation would be fruitless.

The Pylorus and Anterior Intestine

The pylorus is not distinguishable externally and as mentioned above, the pyloric sphincter commences almost immediately behind the malpighian tubules. It forms a large and powerful structure and may be divided into two sections. The first is that described above. The columnar epithelium is thrown into low, irregular transverse and longitudinal ridges, the degree of folding depending entirely upon the state of contraction of the sphincter. The epithelial cells are apparently not as tall as Lhoste (1941) and Henson (1946) would indicate for *Forficula auricularia.* In the second section the epithelium is raised to six distinct longitudinal flat-topped ridges, which arise as a result of the concentration of the disordered ridges of the first section. The epithelial cells on the tops of the ridges are tall and invested with a thick intima covered with backwardly directed teeth,