a note in passing. The wall consists of a loose aggregation of epithelial cells with variably polyploid nuclei. Our method of fixation (Schaudinn's, five minutes) shows a dense concentration of basophilic granules in the cytoplasm. The cells themselves are so loosely connected that they can be dissected out individually with a fine pin, and it seems unlikely that they are able to withstand much pressure from the contents of the lumen.

It has been generally understood that the proventriculus functions in some way to allow storage of liquid in the crop and to regulate the amount which passes into the midgut. This increase in efficiency at storing food in turn facilitates a greater rate of trophallaxis, which is a fundamental bond of social life in higher ants. As to the specific mode of action of this organ, Emery proposed a scheme in his original paper (1888) which to the present time has been varied upon only slightly. This scheme can be summarized as follows. The occlusory tract acts as a valve which is controlled by the muscles surrounding it and which is able to seal off completely the bulb from the crop. In the euformicines the calyx acts as an accessory valve, collapsing its walls together to prevent the flow of liquid through it. The bulb acts as a unidirectional pump with a valve on each end. As the transverse muscles contract, the adjacent walls of the bulb collapse on one another, first at the periphery and then toward the center, forcing the contents of the cavity down through the cylinder and into the midgut. At the same time the occlusory tract closes off independently and prevents flow of the bulb's contents forward into the crop. As the bulb muscles relax, the elasticity of the chitinous wall opens the cavity and creates suction, while the occlusory tract opens and allows liquid from the crop to fill the bulb. The "knob", the end of the cylinder which enters the midgut cavity, acts as a valve to prevent flow of liquid back from the midgut, since its cavity is collapsed by slight external pressure. Regurgitation is initiated by a closure of the occlusory tract (and calyx also in the euformicines) and an expansion of the pharyngeal cavity; the latter process sucks liquid forward out of the crop. This original scheme was based entirely on prepared, sectioned material.