

Euformicinae), under which Emery grouped seven of the twelve formicine tribes recognized by him, and including *Camponotus*, the proventriculus is divided into four distinct parts: the *calyx*, the *occlusory tract* ("valve" of Emery), the *bulb*, and the *cylinder* (pl. 5; A, B, C, D). The calyx is composed of four strap-like, chitinous rods, or *sepals*, which extend anteriorly from the body of the proventriculus to capture part of the posterior wall of the crop. It acts like a collapsible funnel which can be closed by the combined action of its intrinsic muscles and the posterior ring muscles of the crop. Seen in cross-section, each sepal is morphologically differentiated into two zones (plate 6, fig. A), which represent two successive phases of secretion by the underlying epithelial cells. The inner area is composed of closely approximated chitinous hairs, which lend it a finely and evenly striated appearance. The outer zone also appears striate, but coarsely and unevenly so, and it is not composed of independent hairs. This area incloses medially the *sepal canal*, which is to be distinguished from the lateral solid *wings* of the sepal. The canal opens through a narrow slit to the calyx cavity; this slit is a cross section of the longitudinal cleft which extends the full length of the sepal. It is guarded by fine, loosely interdigitating chitinous hairs (collectively designated as the *filter*), which are actually structural hairs of the inner area of the sepal that have been separated from one another. The canal narrows gradually in the anterior end of the sepal and finally ends blindly; it does not extend into the cavity of the crop. The bulk of the calyx wall is made up of epithelium, designated according to position as *sepalary* or *intersepalary*. Externally the wall is limited by a layer of striated muscle, one to two fibers thick, which attaches to the sepals themselves. Between the points of

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EXPLANATION OF PLATE 6

Fig. A, cross section of the calyx at approximately the level of transection shown in plate 6. Fig. B, cross section of the occlusory tract at slightly above the level of transection shown in plate 6. Filt., sepal filter; sep. canl, sepal canal; epth., intersepalary epithelium; sep. epth., sepalary epithelium; c. mcl., circular muscle fibers; l. mcl., longitudinal muscle fibers. (360X)