

for long were considered as the dorsal and ventral portions of this segment, prove on examination of pupal stages to be but secondary processes. The true segment wall remains mostly membranous, and is usually concealed within the xii segment. Sometimes, however, the anal cone projects, and in such cases the secondary processes are usually absent, and either the dorsal portion (*Heliothis*, *Catocala*), or the ventral (*Hadena*, *Nonagria*) is more strongly chitinized. The *Uncus* usually has the form of a single ventrally-inclined hook, but may be bifid or even replaced by several processes or hooks. The *Scaphium* shows a similar degree of variation, and is often lacking in *Rhopalocera*, *Noctuidæ*, etc.

The *Valves* are enormously developed lateral appendages, which are always hinged to the postsegmental margin of the xii segment. Usually symmetrical, they show in several instances (*Nisoniades*, *Pterophoridae*) marked asymmetry, and are furnished on their inner concave side with all manner of hooks and bristles. They originate at a late larval period in the so-called genital pouch, an ektodermal invagination of the xii ventral membrane. At the bottom of this pouch two conical mounds undergo division, forming two lateral warts, the embryonic *Valves*, and two centrally placed ones, which afterwards unite to form the embryonic *Penis*.

During the pupation stage, owing to the disintegration of the genital pouch, the *Valves* come to lie on the surface, while the *Penis* remains at the base of a small secondary depression, the commencement of the so-called *Penis pouch* (*Penistasche*). The remaining development takes place during the pupal period. The *Penis pouch*, which is possibly identical with the *Penis sheath* of Poljanec, possesses generally, as seen from behind, a funnel-shaped appearance, narrowing to a fine tube, which enters the abdomen for a considerable distance. The narrowing may be gradual, but in most instances the transition is sudden, and at the point where the pouch enters the body a so-called *Ringwall* (*Penisfunnel* of Jordan) arises, a hollow cone-like structure, either strongly chitinized all round, thus forming a *Ring*, or else chitinized only ventrally, giving the appearance of a groove (*Sella* of Stichel). The outer wall may show a considerable armature of hooks, etc., which in some cases becomes quite complicated, leading Poljanec into the error of supposing that "*inner valves*" existed. (*Pygaera pigra*, *Psodos coracina*).

Closely fitted into the *Penis pouch* we find the *Penis* proper; the proximal portion is merely membranaceous, but the distal end projects out of the *Ringwall* as a strongly chitinized tube, which is of varying shape