

subject into some sort of relation with the morphological details. Owing to the wrong conclusions and the false application of terms, the general result of these works is still very unsatisfactory, and not until 1902, when *Enoch Zander* issued his excellent and most thorough treatise on the male genital organs of Lepidoptera, do we arrive at any clear and definite idea of the development of these organs, and the relationship of the various parts to each other.

We will have to confine ourselves here to a short statement of the various conclusions reached by Zander, but would heartily recommend anyone intending to occupy himself with this subject to study the work itself in detail.

In spite of the great and confusing variety of forms Zander has satisfactorily shown that the male genitalia may be traced to a single

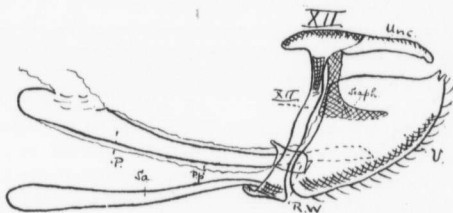


FIG. 8.—Genitalia of *Apatura iris*, side view (according to Zander).
14: 1. P., Penis; Pp., Penis pouch; R. W., Ringwall; Sa., Saccus; Unc.,
Uncus; Scaph., Scaphium; V., Valve.

common plan of construction. The abdomen of *all* Lepidoptera consists of 10 segments, representing the body segments iv-xiii. The *Segmental rings* of segments v-ix consist of a dorsal and ventral chitinous plate, the tergite and sternite respectively; in segment iv the sternite is always lacking. Segments x and xi, while often agreeing exactly with the preceding ones, are sometimes slightly modified and brought into relationship to the genital organs. In certain Geometridæ Seg. x has large hair pencils concealed in lateral pockets (Haartaschen of Poljanec); Seg. xi shows in several neotropical butterflies several enormous lateral processes arising from the posterior portion of the sternite (Rami of Stichel); several species of Bombycidæ show also an armature of chitinous hooks and processes.