

## LABORATORY EXERCISE 15: The Abdomen

Examine the adult abdomen of a generalized insect like a stonefly (Plecoptera) or dobsonfly (Megaloptera: Corydalidae). Determine which sex you are looking at -- the male will have certain structures like claspers associated with the terminal abdominal segments, which the female will lack; on the other hand, the female stonefly abdomen will display a darker, more heavily sclerotized region toward the hind margin of the eighth sternite which may be somewhat raised and thickened, and the female dobsonfly will usually have fewer countable abdominal sternites. Make a drawing (**Drawing #26**) of the entire abdomen in lateral view; make this drawing large enough so that the structural details of the last three segments can be seen clearly. Label the cerci, paraproct, epiproct, spiracles, pleura, terga, and sterna, and number the segments from front to back. Then, trade specimens with someone who has been working on a stonefly or dobsonfly of the opposite sex. Again viewing the specimen laterally, make a diagrammatic sketch (**Drawing #27**) of the last three segments. Is there any ovipositor in this stonefly or dobsonfly taxon? Can you locate the “genital abdomen” in each sex, marked by the gonopore?

### The Ovipositor

Examine the abdomen of a female orthopteran (family Tettigoniidae, commonly known as long-horned grasshoppers, katydids and katydidn'ts) and carefully separate the major components of the ovipositor (**valvules = valves = valvulae = specialized gonapophyses**). Determine the origin (base) of each element. Make a drawing (**Drawing #28**), lateral view, of the last few segments of the abdomen, showing the detailed structure of the ovipositor and its relationship to the segmentation of the abdomen. Label the dorsal (#3), ventral (#1) and inner (#2) valves of the ovipositor, together with **coxites (valvifers)** 1 and 2; also, number the abdominal body segments in your drawing (refer to Romoser, figure 2-24; Imms, figure 10; and Gillott, figures 3.30-3.33).

Some examples of specialized ovipositor types are on demonstration; these include wasp and bee stings (Gillott's fig. 3.32) and ichneumonid wasp ovipositors, along with more traditional hemipteran (bug) types (like *Magicicada*, the 17-year “locust,” or a seed bug of the family Lygaeidae).