APPENDIX C

Dissection Guide: The Clam

Become familiar with the external organization and the digestive and respiratory systems of the mollusk. The example you will be studying is *Anodonta*, a common freshwater bivalve. Members of this class have a 2-part shell and so are called bivalves. Using the appended drawings on display in the lab, become familiar with the structures that are bolded in the text which follows.

**General Body Plan**

The first dissection shows a clam which has been opened by cutting the large **adductor muscles**, which attach to both valves and thus function to close the shell. On the inside of the shell that has been separated, note the places where the adductor muscles attach. A thin sheet of tissue, the **mantle** (most of which has been cut away) covers the animal's body and secretes the shell. On the separated valve, note the line along which the mantle was attached. The mouth is hidden under a pair of **labial palps** above the adductor muscle to the left; therefore the anterior end of the animal is to the left. On the ventral (bottom) side is the large muscular **foot**, which attaches to the shell via smaller **retractor muscles**. The foot contains portions of the digestive and reproductive organs, and also serves as an appendage for burrowing into the mud. The region dorsal to the foot is called the **visceral mass**.

**Respiratory System**

Two large sheets of tubes, the **ctenidia**, lie on either side of the foot. These function both as gills and as devices for filtering food, water enters the cavity enclosed by the mantle via an **incurrent siphon** at the posterior end of the body. The beating action of cilia on the gills create a current which draws water into the mantle cavity and through numerous tiny pores in the ctenidia. Portions of the ctenidia maybe cut away to show their tubular structure. Oxygen and carbon dioxide are exchanged in the ctenidia, which are well-supplied with blood. These tubes carry the water to a dorsal suprabranchial cavity, that leads to the **excurrent siphon** where water leaves the body.

**Digestive System**

The second dissection on display shows a clam that has been cut along the midline of the body. The food particles that are filtered from the water passing through the ctenidia are carried anteriorly by water currents and guided to the mouth by the labial palps. A short esophagus leads to the irregularly-shaped stomach, which is embedded in the greenish digestive gland (liver). From the stomach, the **intestine** extends through the pericardial cavity to the rectum, which is located dorsal to the excurrent siphon. The gonads from a yellowish mass among the loops of the intestine. Their ducts, which will not be seen here, open into the suprabranchial chamber.
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