

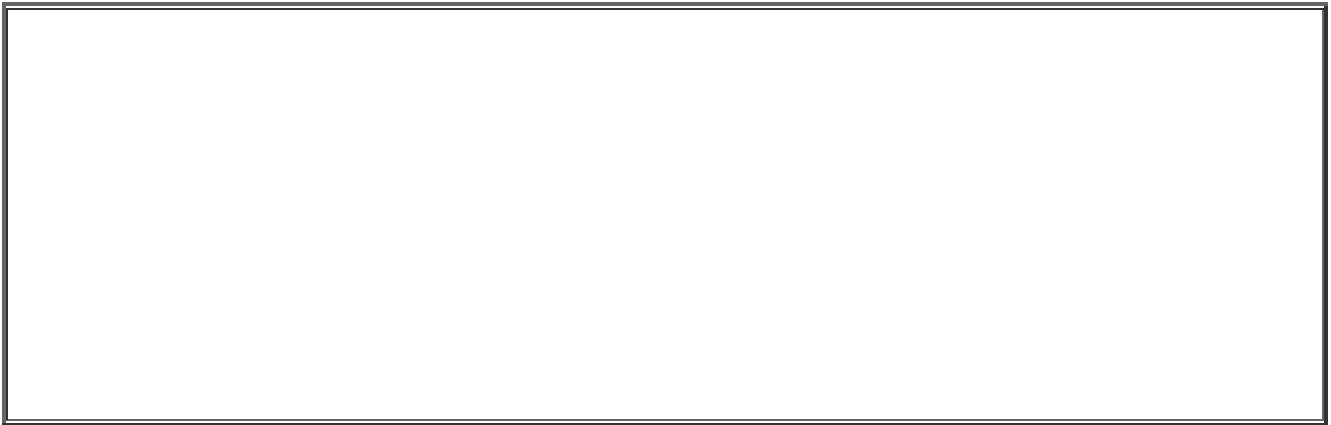
# Squid Dissection

NAME: \_\_\_\_\_ PER: \_\_\_\_\_ DATE: \_\_\_\_\_

## External Anatomy:

1. Locate the water jet. The water jet is found on the ventral side of the squid.
2. The tentacles and arms are attached to the head of the squid. Locate and compare the two.
3. Find the two large eyes on the head of the squid.
4. Locate the body, which is covered by the mantle, and fin.
5. Spread apart the tentacles and use a probe to feel inside the mouth. The jaws (or beak) can be felt inside the mouth. (At the end of the lab you may try to remove the jaws if you have time)

Sketch the external view of the squid, label all the parts that are underlined above. You may want to sketch the mouth and jaws separately. Make sure the labels are clear.



## Observations and Analysis

1. How many arms does the squid have? How many tentacles?
2. Based on the structure of the arms and the tentacles, describe how their purposes differ. What do the arms do and what do the tentacles do?
3. What is the function of the waterjet? If water shoots out the water jet to propel the squid in the water, which direction does the squid swim-head first, or foot first?
4. Name two external features that are adaptations for the squid's predatory life.
5. Name two traits that the squid shares with other mollusks.

## Internal Anatomy

Procedure: Turn the squid ventral side up. Pull the mantle up with the scissors where the water jet is, it should be loose and easy to pull up. Use scissors to cut from the water jet to the fins. Open the mantle to expose the structures inside.

1. Find the inksac, this is a small dark sac near the water jet.
2. Find the esophagus, this is best found by looking into the mouth and seeing where it leads, use a probe to poke within the mouth.
3. To find the stomach, follow the esophagus toward the posterior.
4. The anus empties into the water jet, use scissors to cut the water jet down the center so you can see the small opening of the anus.
4. Locate the gills, these are feathery structures that may be hidden under other things, there are two of them on each side.
5. Follow the gills toward the interior to find an enlarged structure at their base, this is the gill heart
6. All the way toward the fin is a whitish or yellowish structure, this is the gonad. The male gonad is generally white, the female gonad is usually more yellow to clear.
7. Find the hard point at the end of the fin and gently grips it with forceps pulling away from the squid. In this way you should be able to remove in one piece the pen.

## Observations and Analysis

Use the descriptions above to label the squid. Each of the words underlined above is represented on the drawing.

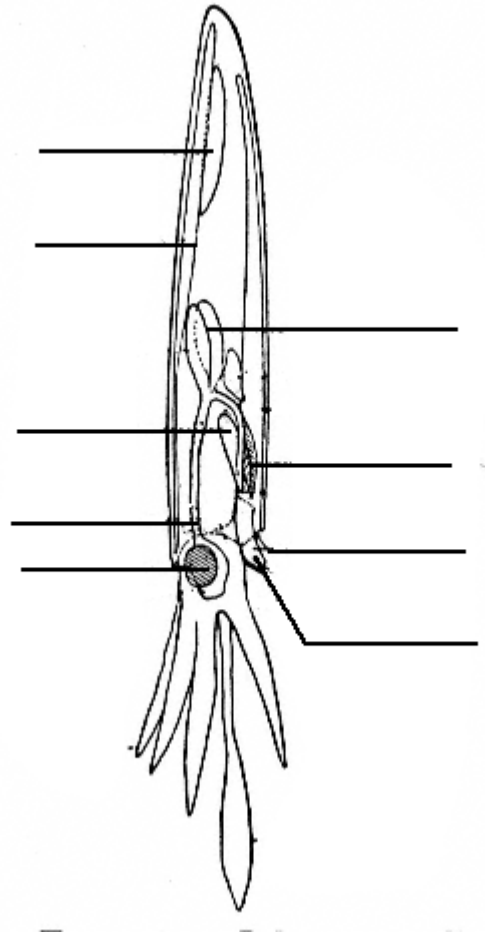
1. Is your squid is a male or female? How can you tell?

2. How many gills does the squid have?

3. Where does the ink sac empty into and what is its function?

4. What is the function of the pen?

5. How do wastes exit the squid? (be specific)



# SQUID: I EXTERNAL STRUCTURE.

ORIENTATION OF SQUID BODY FORM TO OTHER MOLLUSCS\*

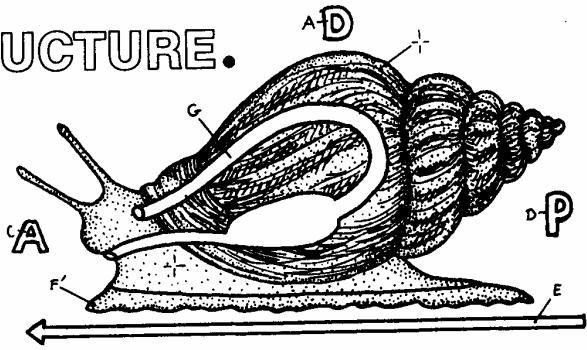
DORSAL SURFACE: A

VENTRAL SURFACE: B-V

ANTERIOR SURFACE: C-A

POSTERIOR SURFACE: D-P

LOCOMOTOR AXIS/DIRECTION OF MOVEMENT E

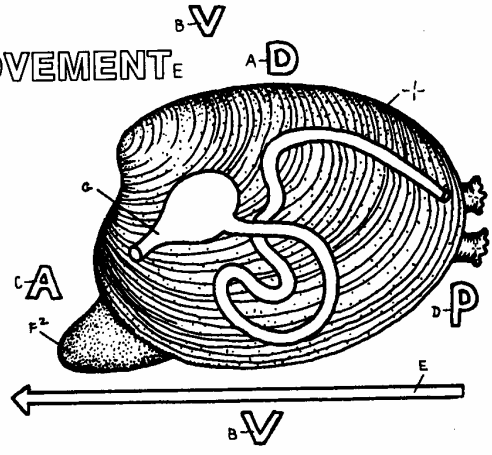


HOMOLOGOUS STRUCTURES: F

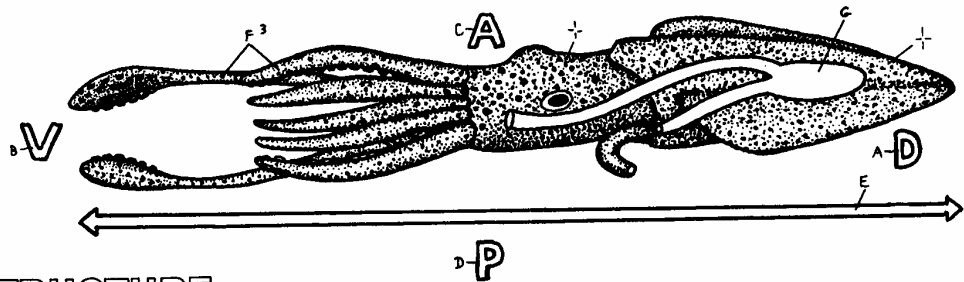
FOOT OF SNAIL: F<sup>1</sup>

FOOT OF CLAM: F<sup>2</sup>

TENTACLES/ARMS OF SQUID: F<sup>3</sup>



ORIENTATION OF DIGESTIVE TRACT: G



EXTERNAL STRUCTURE: \*

HEAD: H

EYES: I

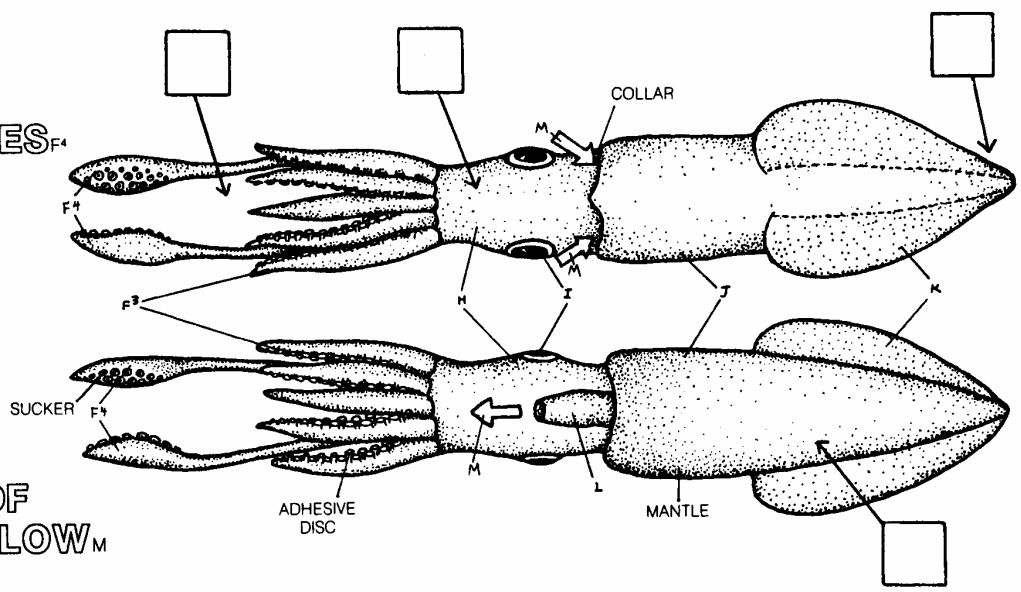
ARMS: F<sup>3</sup>/

TENTACLES: F<sup>4</sup>

BODY: J

FIN: K

SIPHON: L



PATTERN OF WATER FLOW: M

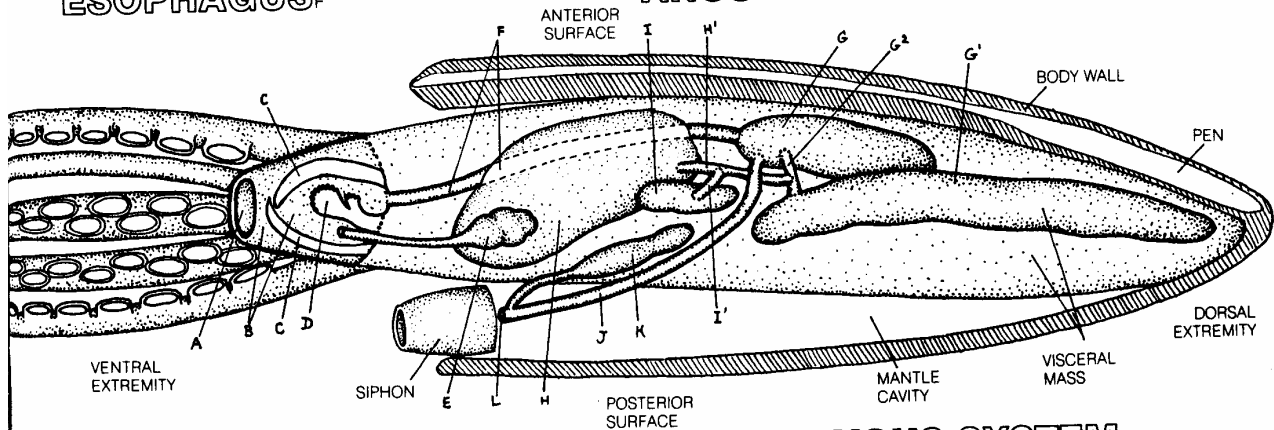
# SQUID: II INTERNAL STRUCTURE.

## DIGESTIVE SYSTEM ★

MOUTH<sub>A</sub>  
 BUCCAL CAVITY<sub>B</sub>  
 JAW<sub>C</sub>  
 RADULA<sub>D</sub>  
 SALIVARY GLAND/DUCT<sub>E</sub>  
 ESOPHAGUS<sub>F</sub>

## STOMACH:

CECUM<sub>G</sub>/DUCT<sub>G'</sub>  
 LIVER<sub>H</sub>/DUCT<sub>H'</sub>  
 PANCREAS/DUCT<sub>I</sub>  
 INTESTINE<sub>J</sub>  
 INK SAC/DUCT<sub>K</sub>  
 ANUS<sub>L</sub>

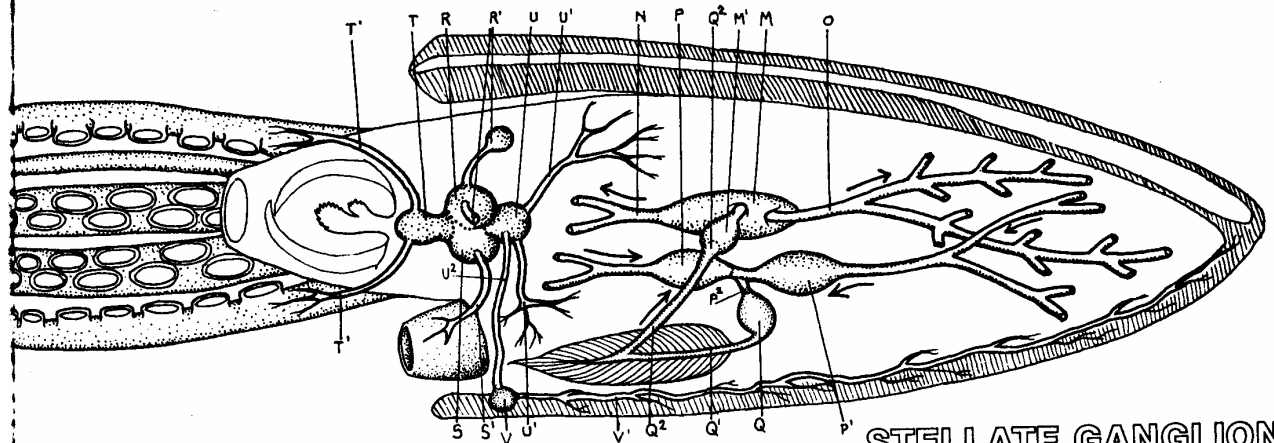


## CIRCULATORY SYSTEM ★

VENTRICLE (SYS. HEART)<sub>M</sub>  
 VENTRAL AORTA/BRS.<sub>N</sub>  
 DORSAL AORTA/BRS.<sub>O</sub>  
 VENT./DORS. VENA CAVA/TRIB.<sub>P, P'</sub>  
 LATERAL VENA CAVA<sub>P2</sub>  
 BRANCHIAL HEART<sub>Q</sub>  
 AFF. BRANCHIAL VESSEL<sub>Q'</sub>  
 EFF. BRANCHIAL VESSEL<sub>Q2</sub>  
 AURICLE (SYS. HEART)<sub>M1</sub>

## NERVOUS SYSTEM ★

BRAIN ★  
 CEREBRAL GANGLION<sub>R</sub>  
 OPTIC NERVE<sub>R'</sub>  
 PEDAL GANGLION<sub>S</sub>  
 N. TO SIPHON<sub>S'</sub>  
 BRACHIAL GANGLION<sub>T</sub>  
 N. TO TENTACLE<sub>T'</sub>  
 VISCERAL GANGLION<sub>U</sub>  
 N. TO VISCERA<sub>U'</sub>  
 CONNECTIVE<sub>U2</sub>



STELLATE GANGLION<sub>V</sub>  
 N. TO MANTLE<sub>V'</sub>

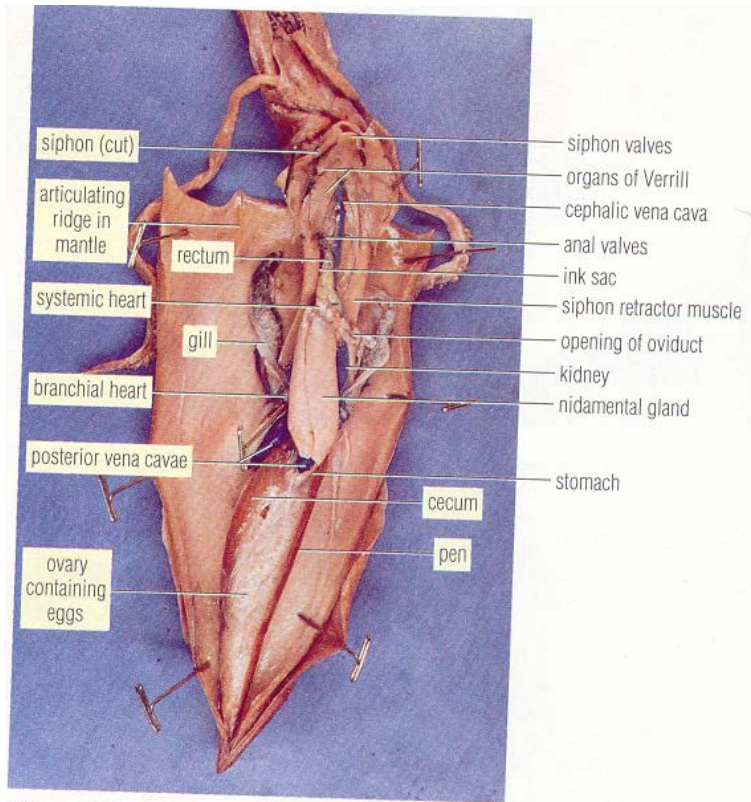


Figure 98f Internal anatomy of *Sepia*

