Anatomy of Silkworm *Bombyx mori* L.

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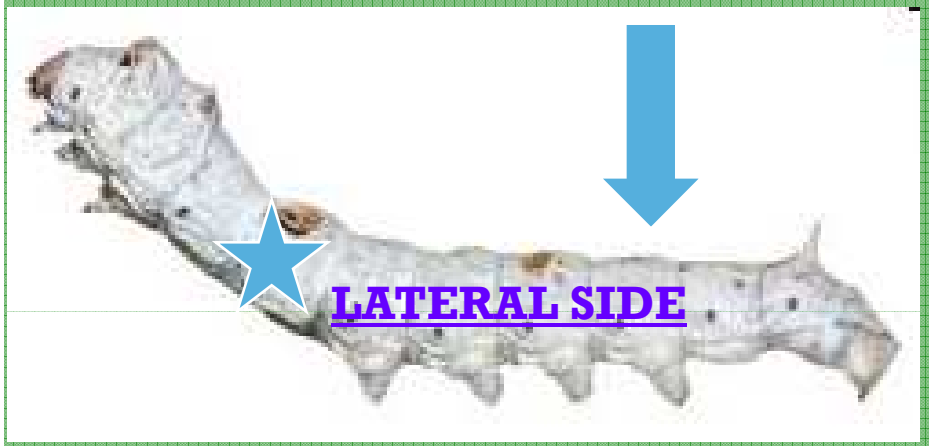
ANATOMY

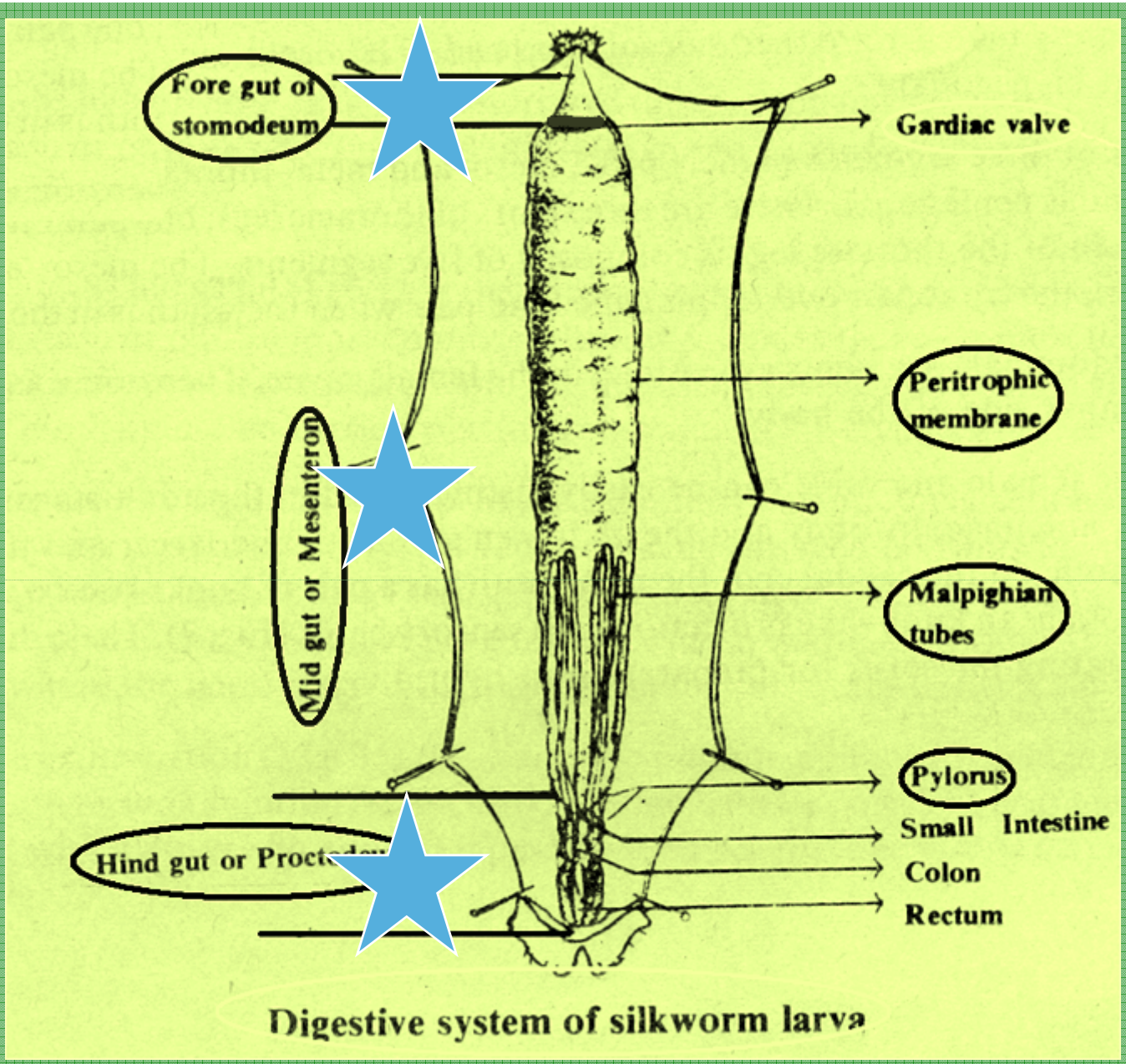
The branch of science concerned with the bodily structure of humans, animals, Insects and other organisms, especially as revealed by dissection.

Overall Morphology and Anatomy of Silkworm Larva

Bombyx mori major organs and tissues under skin

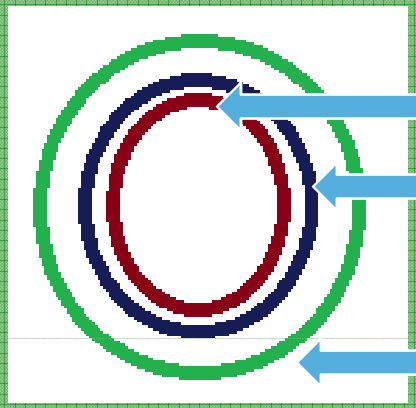


- Dorsal vessel
- Muscles
- Fat bodies
- Alimentary canal
- Tracheae
- Gonads
- Silk glands
- Endocrine glands
- Nerve chord *etc.*,



Digestive system of silkworm larva

Alimentary Canal - Has three layers

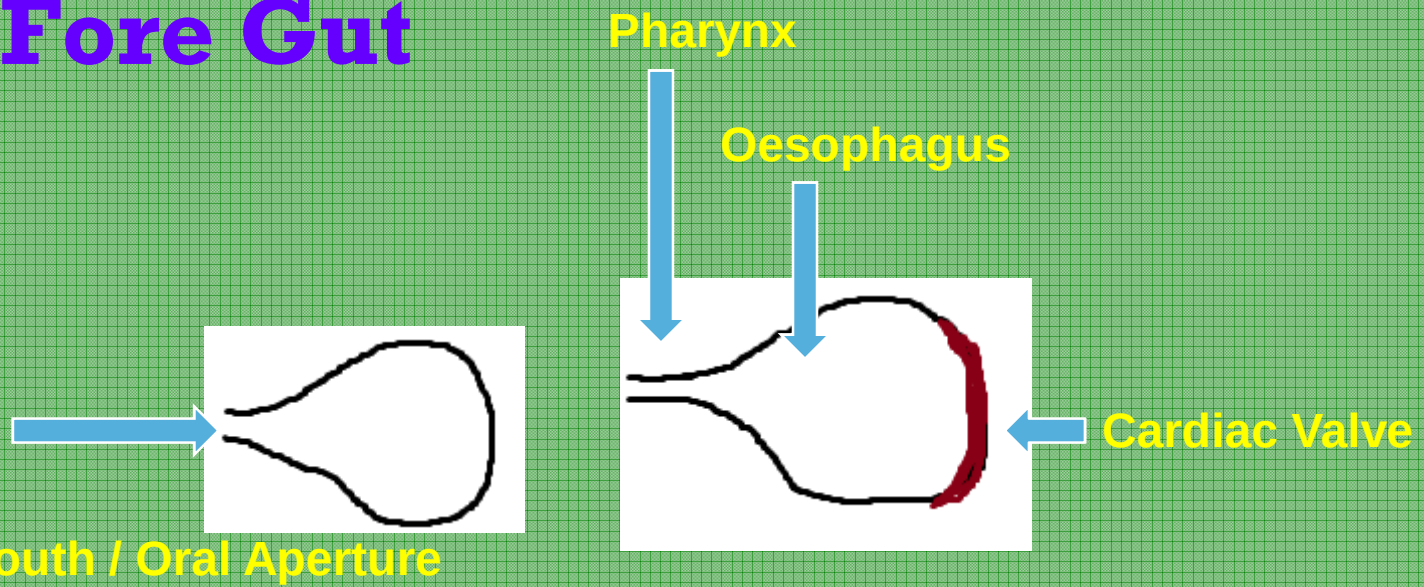


Inner Tunica Intima

Middle Epithelial

Outer Muscular

Fore Gut



The fore gut has a inner chitinous lining protects mechanical damage due to food particles

Mid Gut

- **Digestion and Absorption**

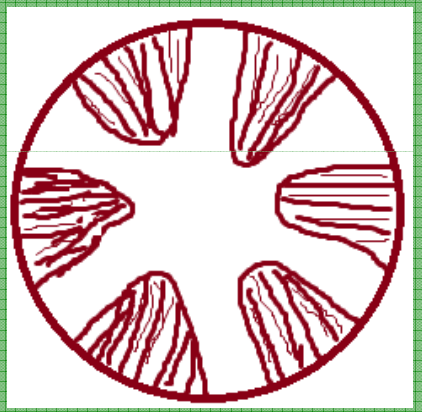
Goblet Cells at midgut Epithelium Secretes digestive Fluid

Cylindrical cells absorb digested food

- **Inner peritrophic membrane in the mid-gut generally protects the mid-gut epithelium**

Hindgut

- Consists **Small Intestine, Colon and Rectum.**
- **Pylorus Valve** guards and regulates the passage of digested food



The hind gut have a chitinous lining protects mechanical damage due to food particles

Rectum has six muscles (Rectal Pads). The faecal matter is pressed in the rectum and expelled from the anus as faecal pellets bearing haxagonal marks.

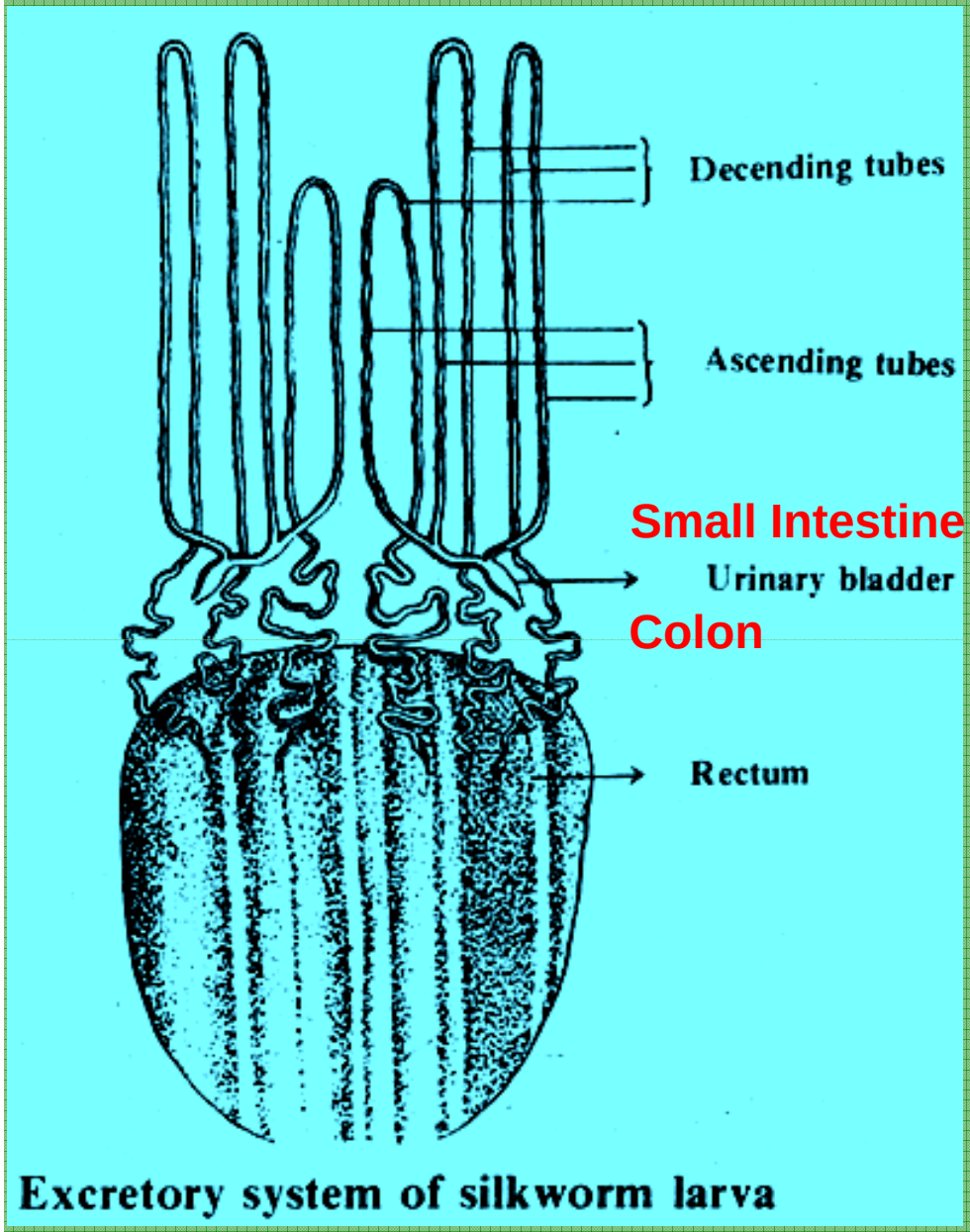
Silkworm Excreta With Hexagonal Shape

EXCRETORY SYSTEM

EXCRETORY SYSTEM

Malpighian Tubules (white colour)

EXCRETORY SYSTEM continued



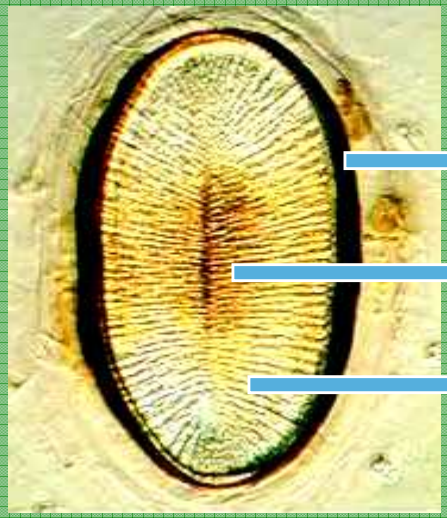
Excretory system of silkworm larva

Malpighian Tubules picks up ammonium ions from aemolymph and converts as uric acid; releases in to rectum

RESPIRATORY SYSTEM

Silkworm External Morphology showing SPIRACLES

SPIRACLE ENLARGED



RESPIRATORY SYSTEM SHOWING THE TRACHEAL DISTRIBUTION

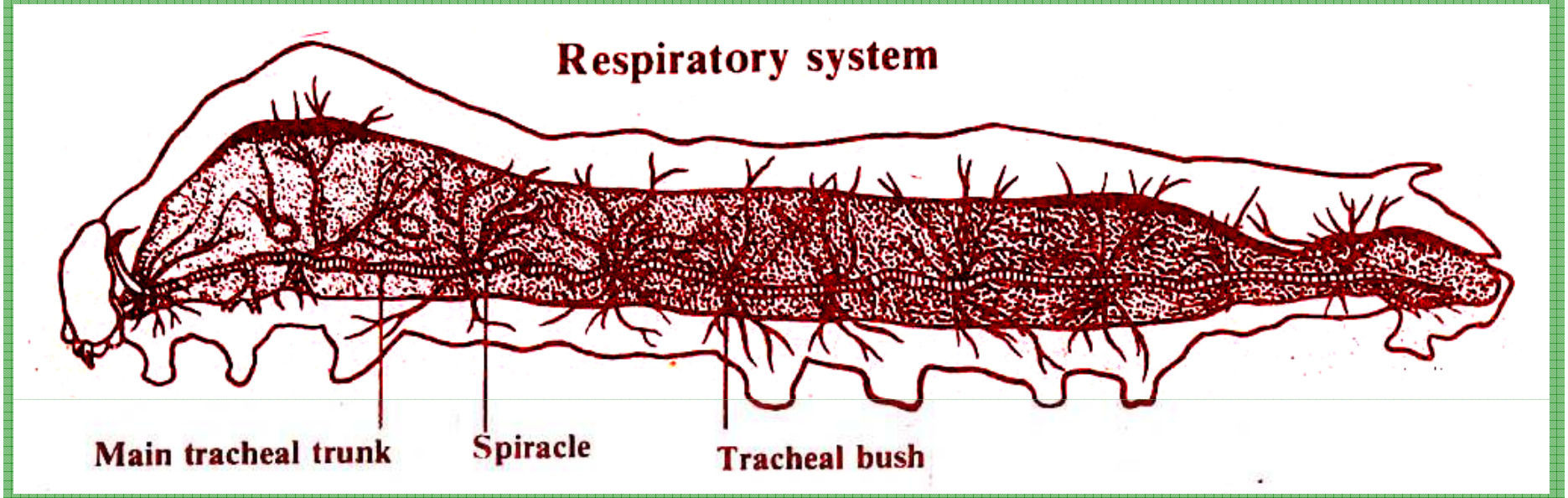
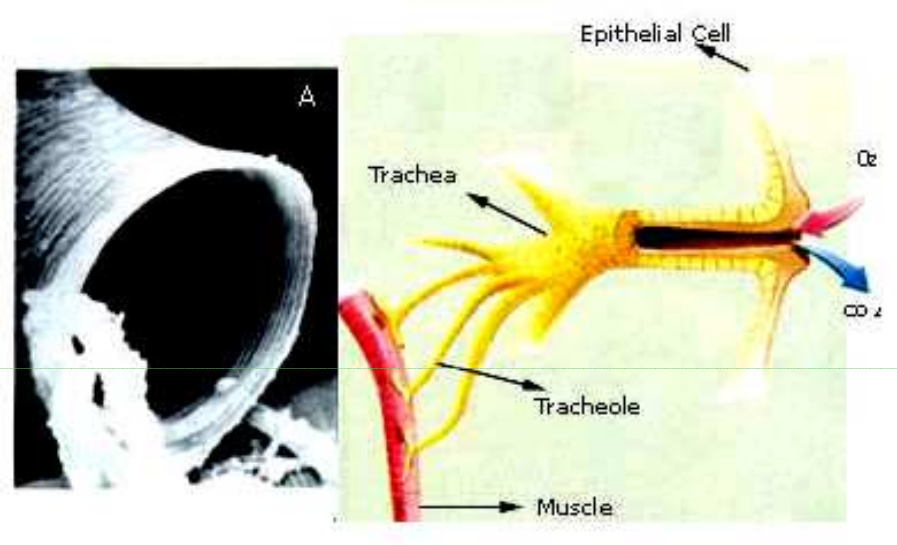
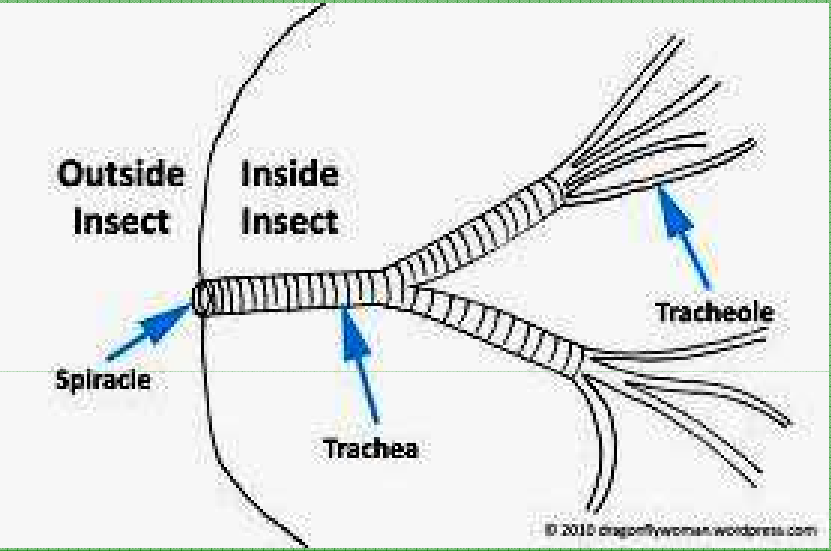


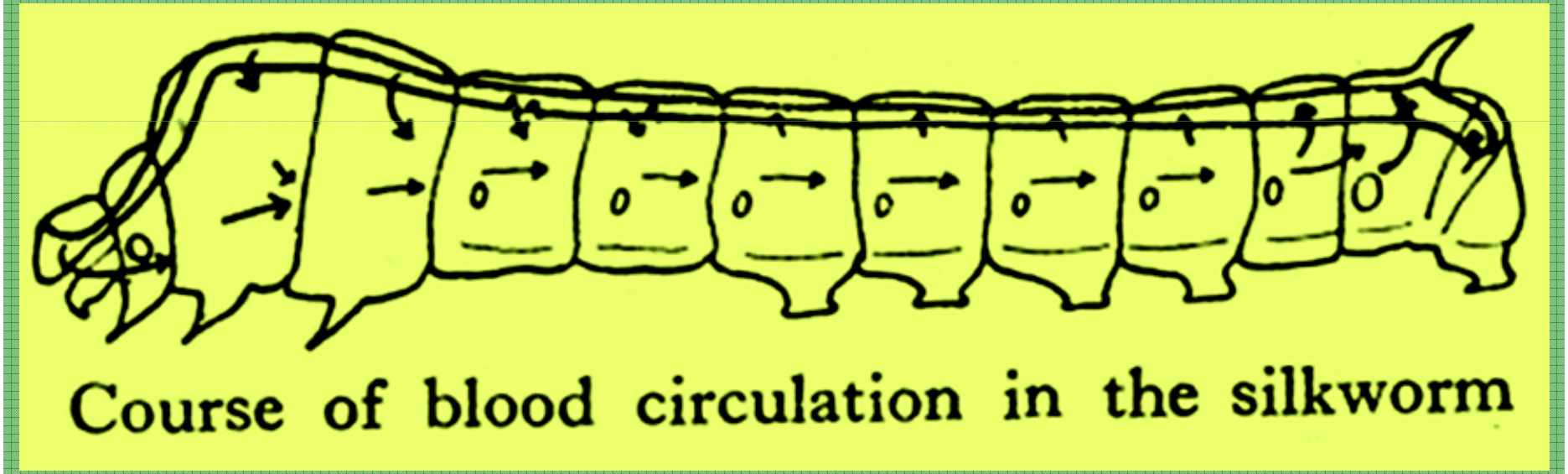
Diagram showing the distribution of trechea and movement of gas





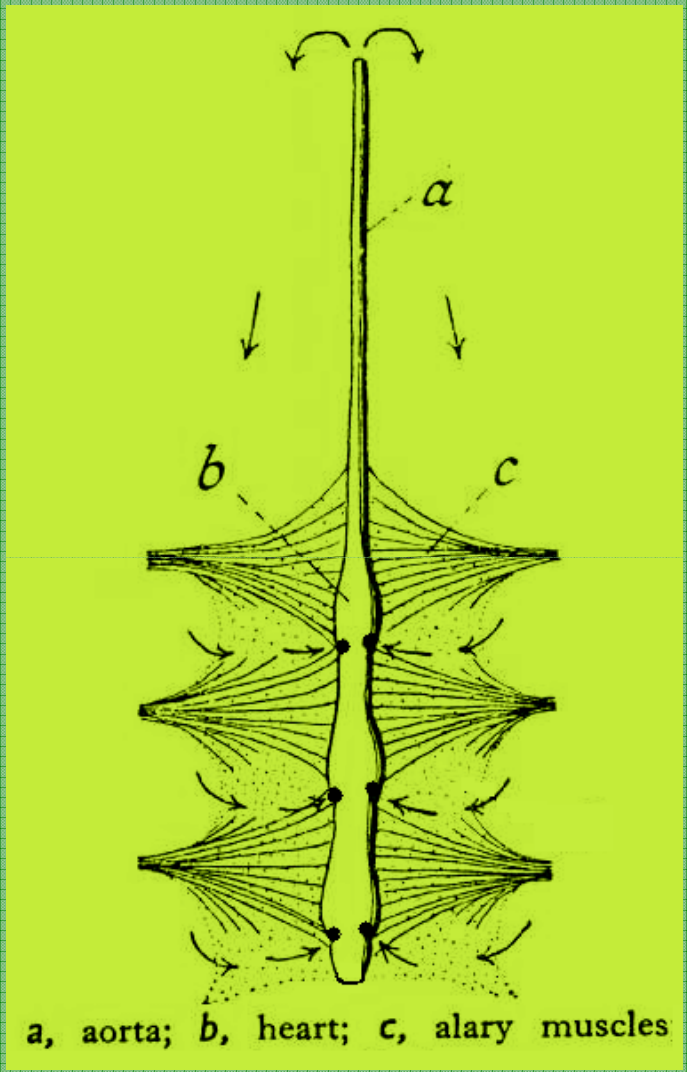
CIRCULATORY SYSTEM

Dorsal Blood Vessel (Gray Colour)

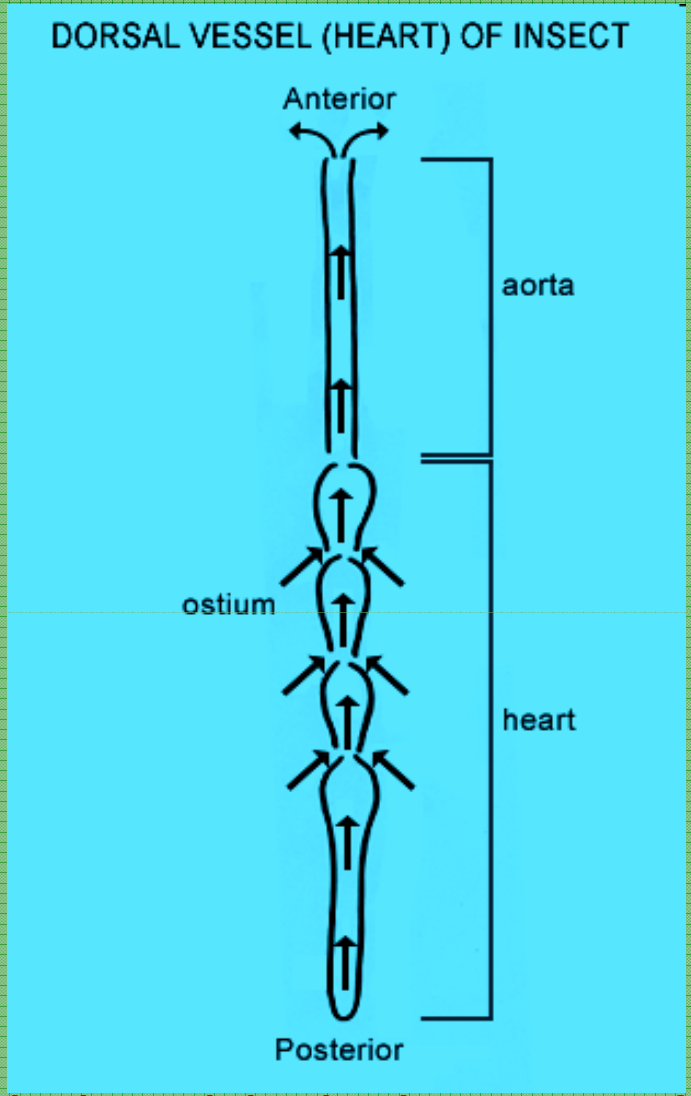


Course of blood circulation in the silkworm

Heart and Aorta with alary muscles

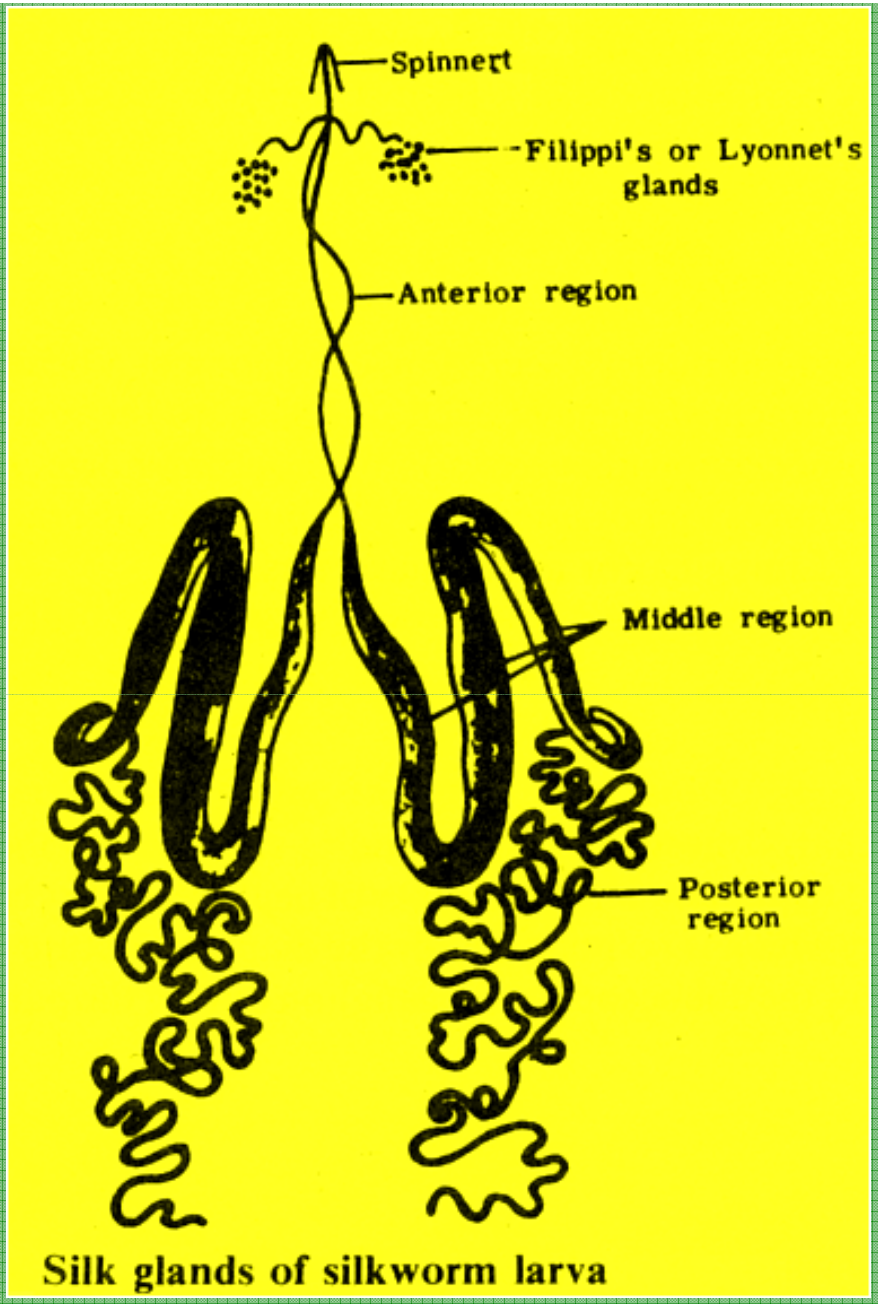


a, aorta; b, heart; c, alary muscles

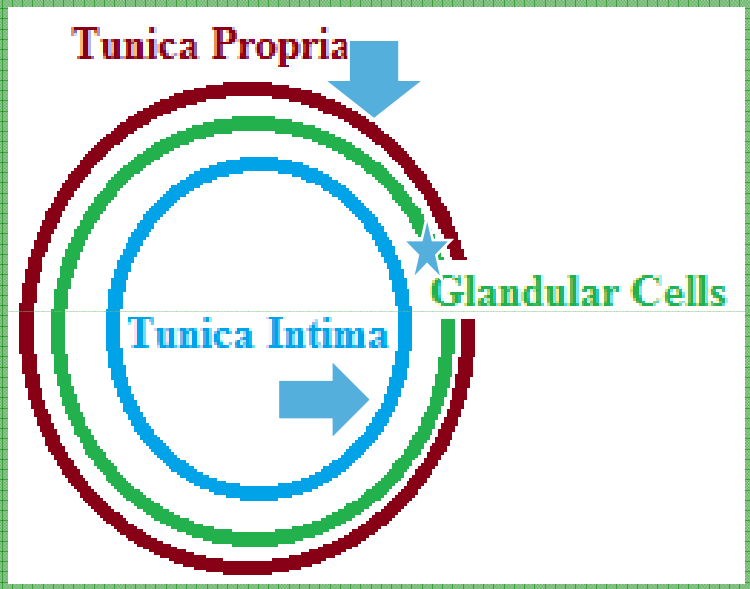


Dorsal Blood Vessel showing the movement of blood

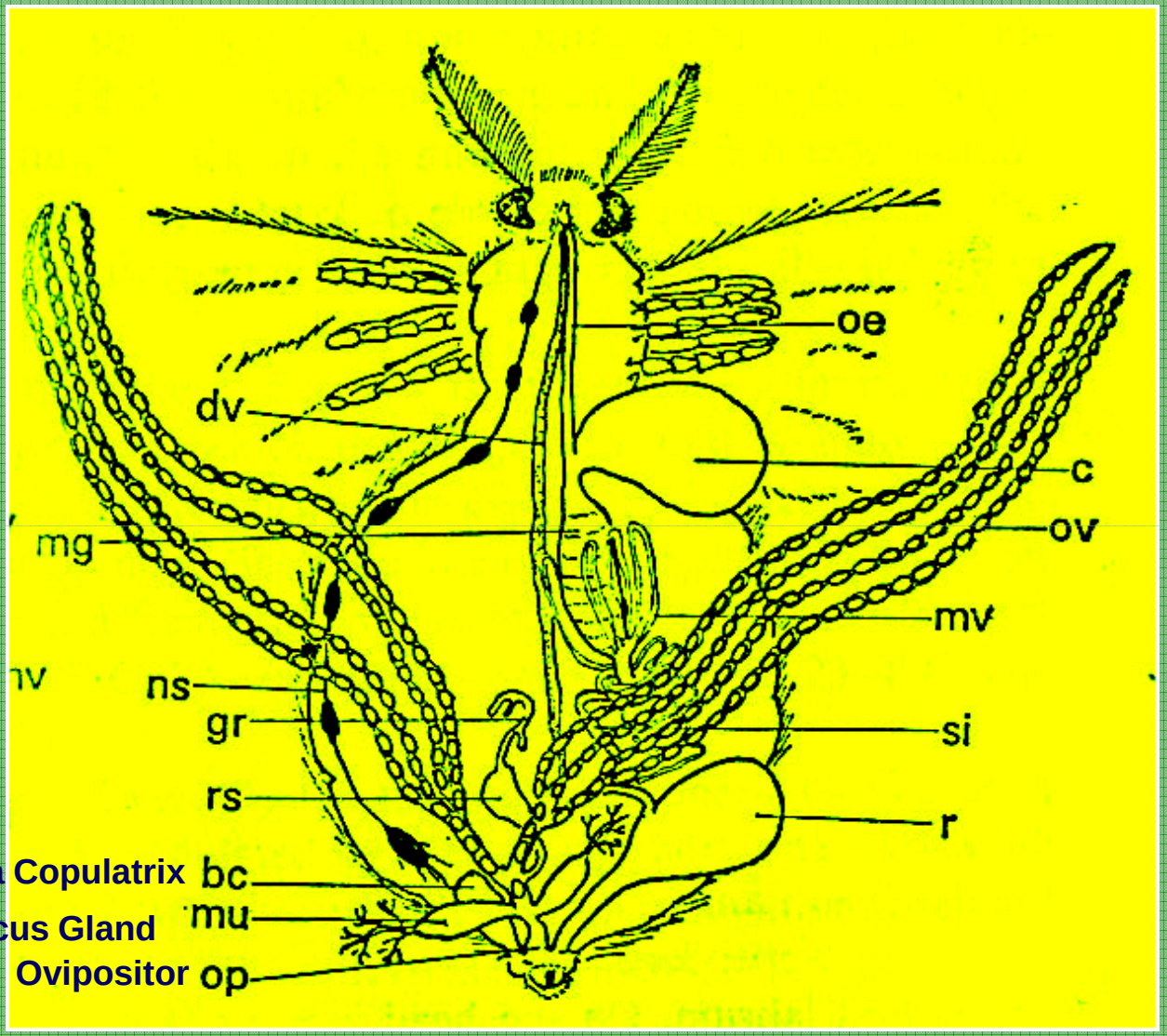
SILK GLANDS



Silk glands of silkworm larva



OVERALL FEMALE REPRODUCTIVE SYSTEM

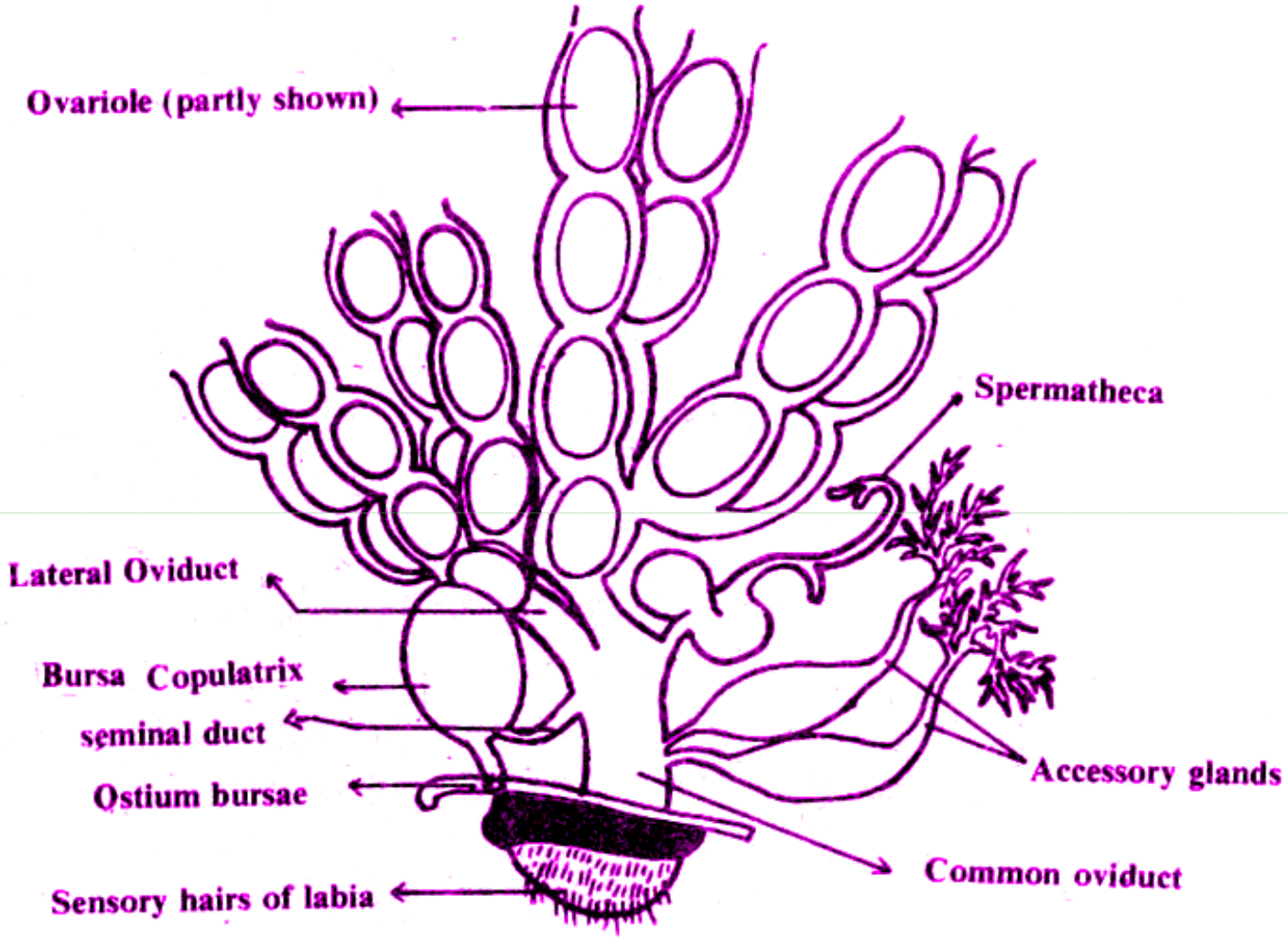


Bursa Copulatrix

Mucus Gland

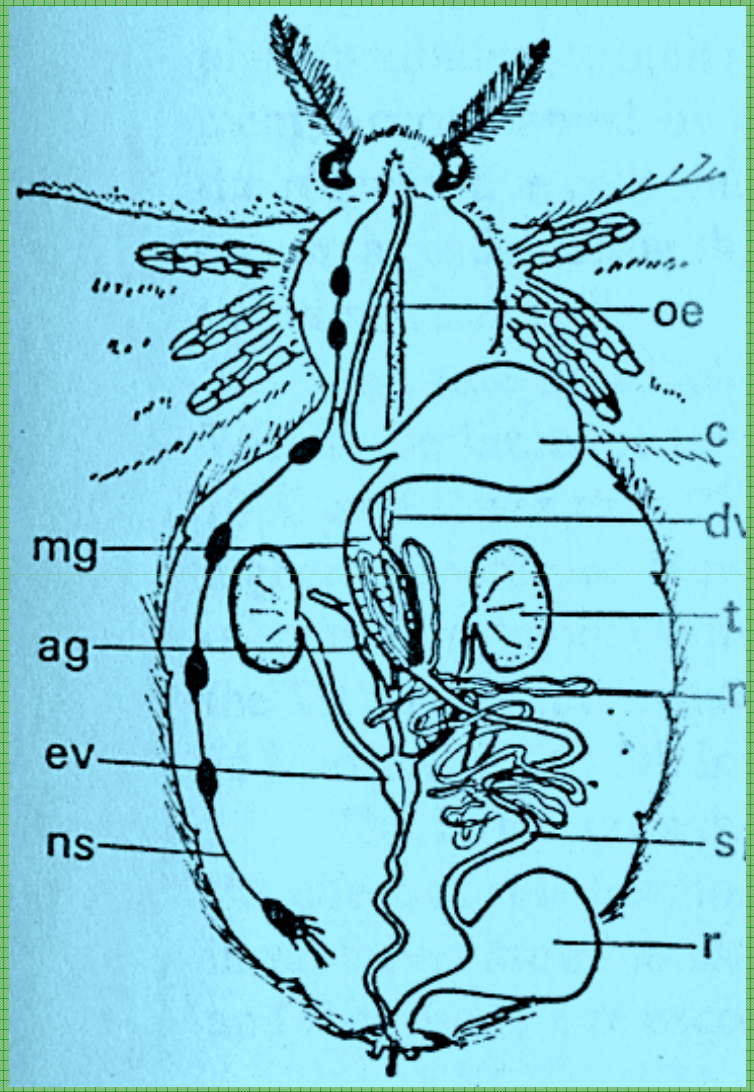
Ovipositor

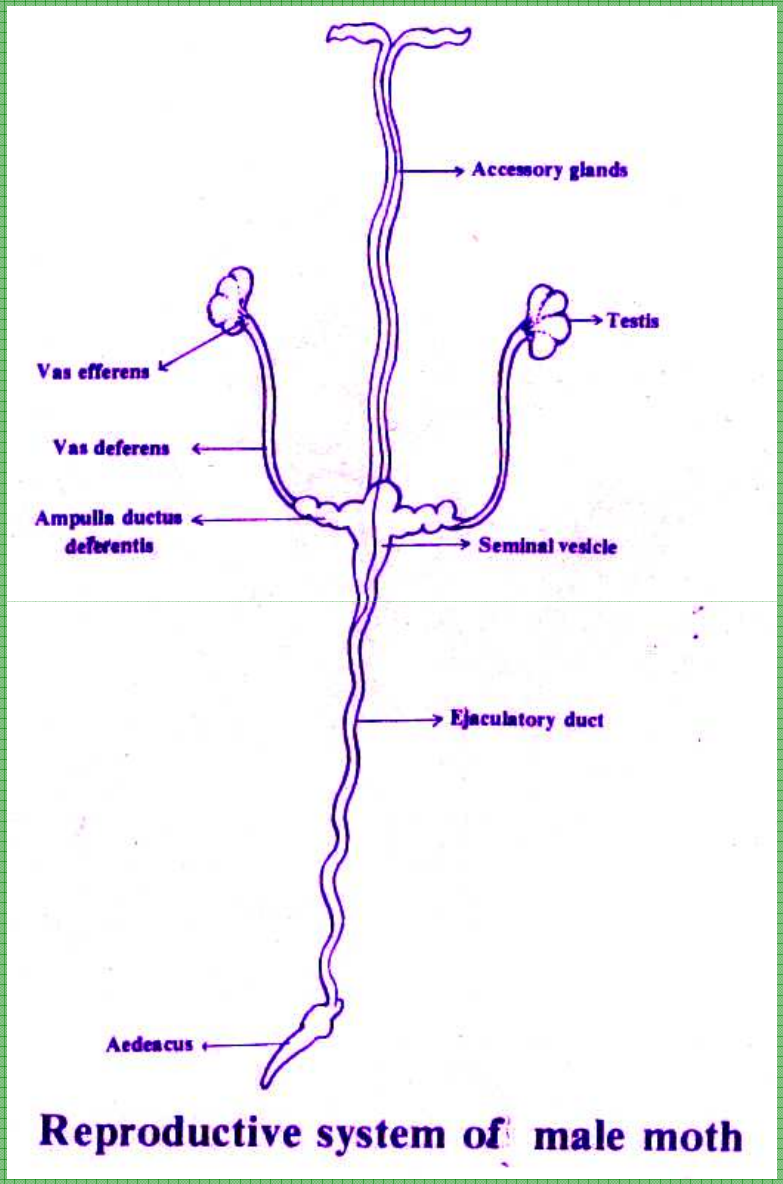
FEMALE REPRODUCTIVE SYSTEM ENLARGED



Reproductive system of female moth

MALE REPRODUCTIVE SYSTEM





Reproductive system of male moth

NERVOUS SYSTEM

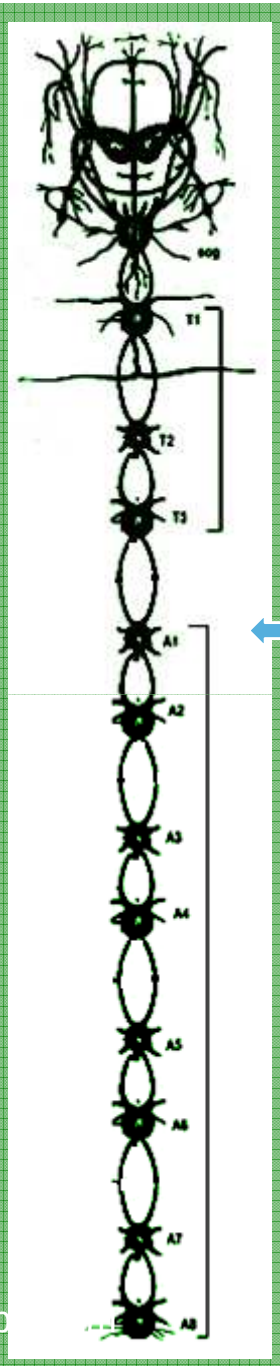
NS of silkworm can be studied under three sub divisions as

1. CENTRAL Nervous System

2. VISCERAL Nervous System

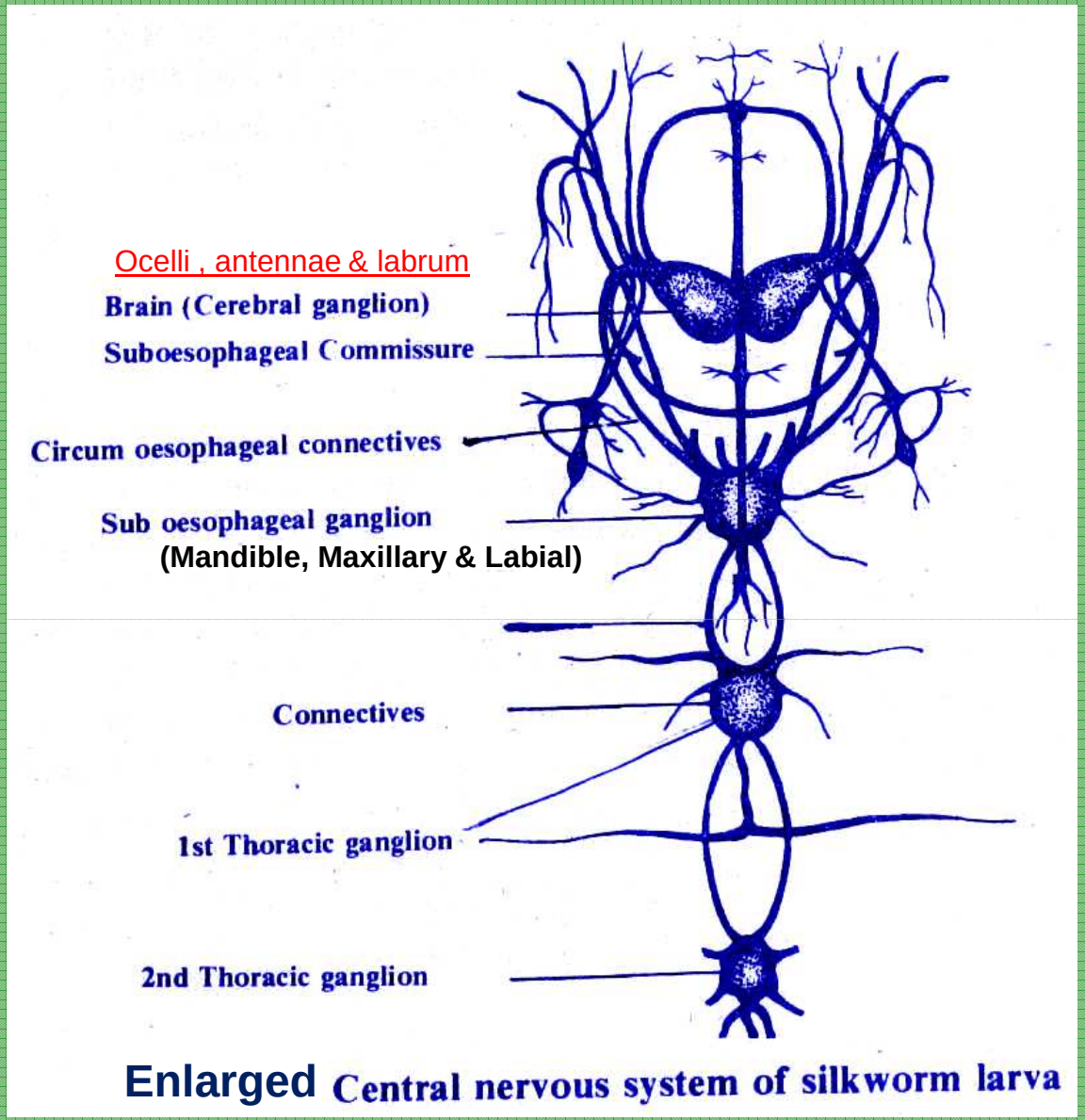
3. PERIPHERAL Nervous System

Ganglion is a mass of Neurons



CENTRAL Nervous System

Ganglion



Enlarged Central nervous system of silkworm larva

Acknowledgements
to

1. Sericulture Manual II, FAO, Rome, 1987.
2. The Principles of Insect Physiology by V B Wiggelesworth 1972.
3. The silkworm – A Laboratory Tool by Y Tazima 1979.
4. Internet.