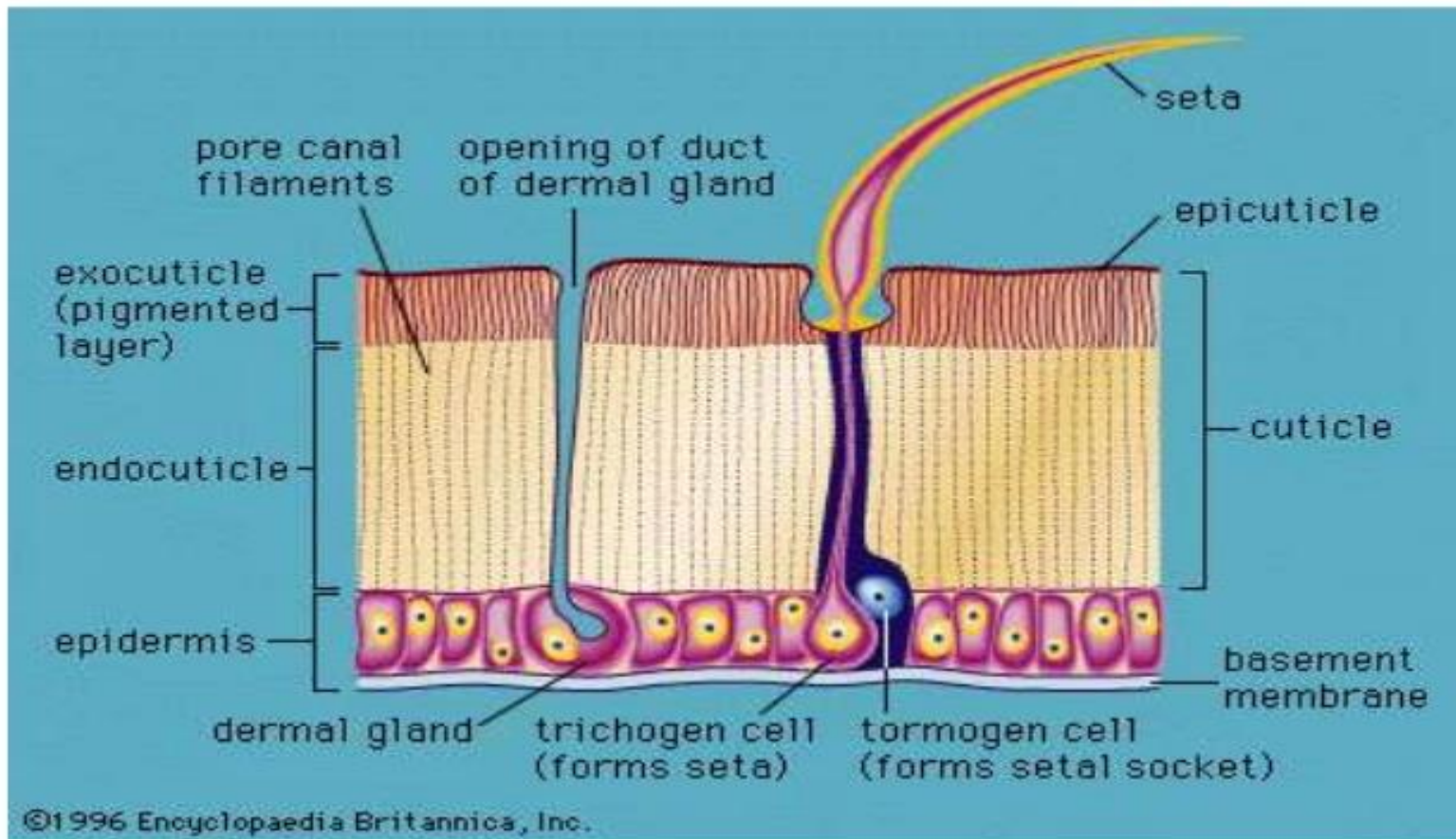


**THE INSECT
HEAD
AND
ITS
APPENDAGES**

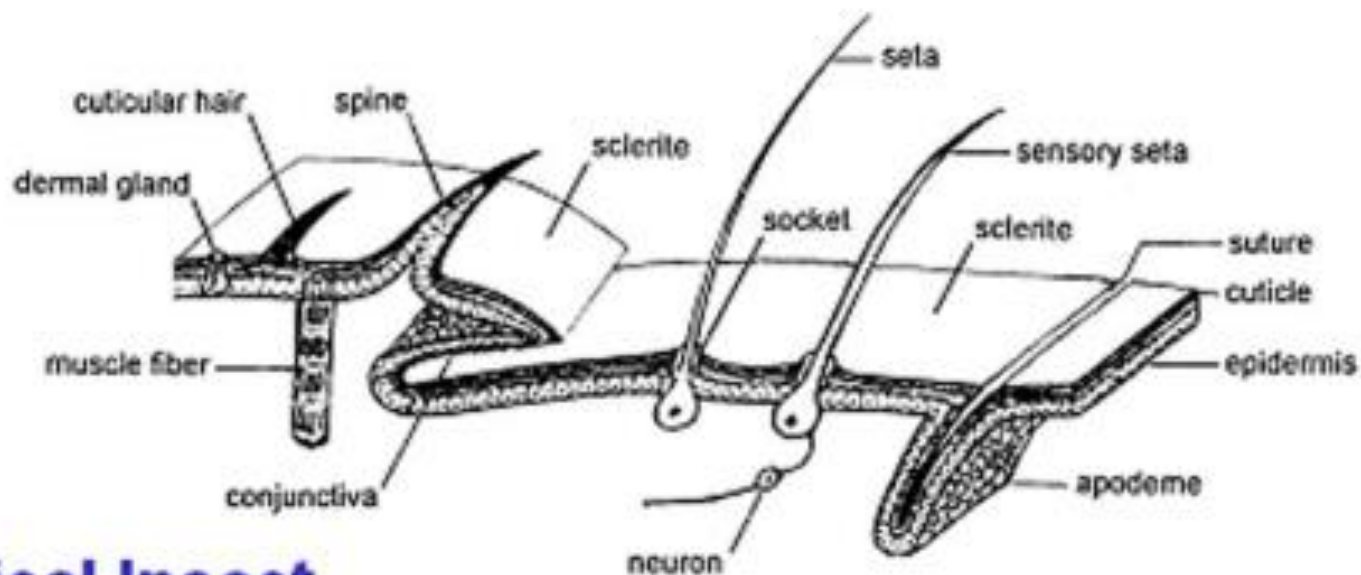


The body wall insect

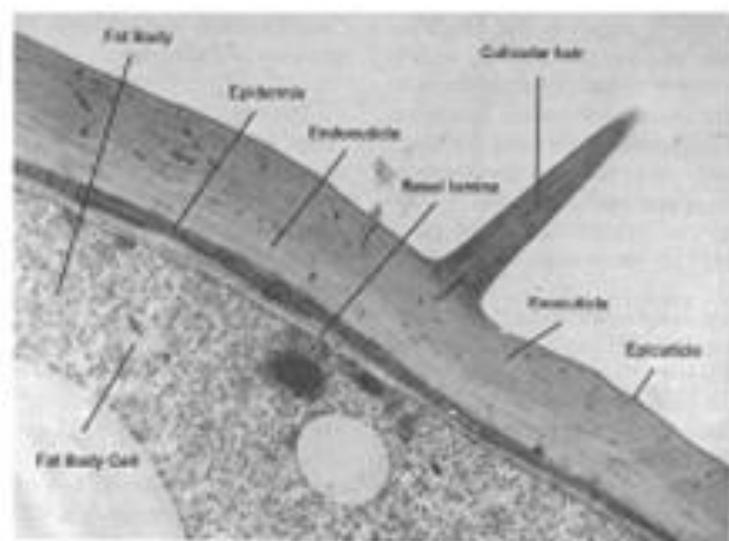
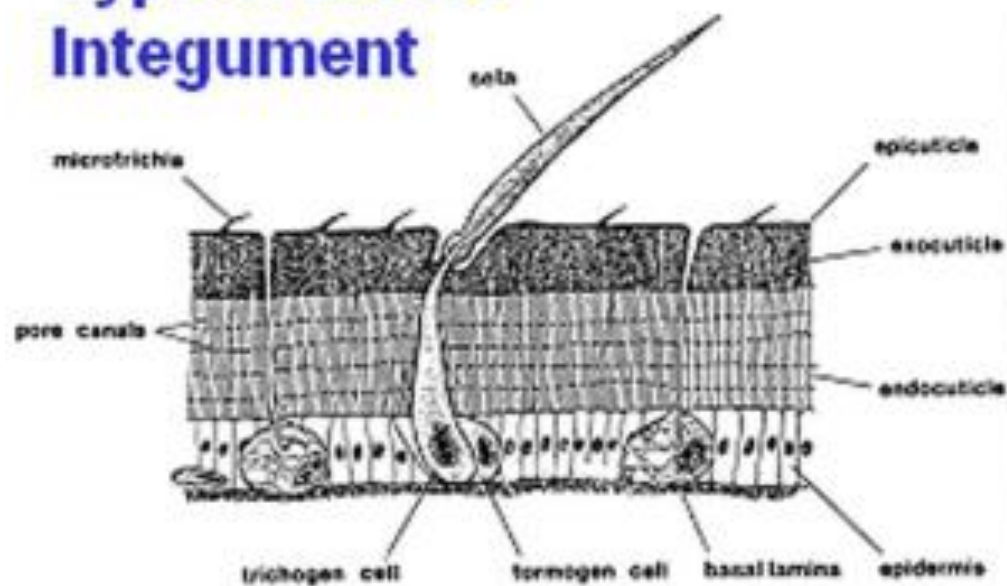


The Body appendages Articulated and non Articular

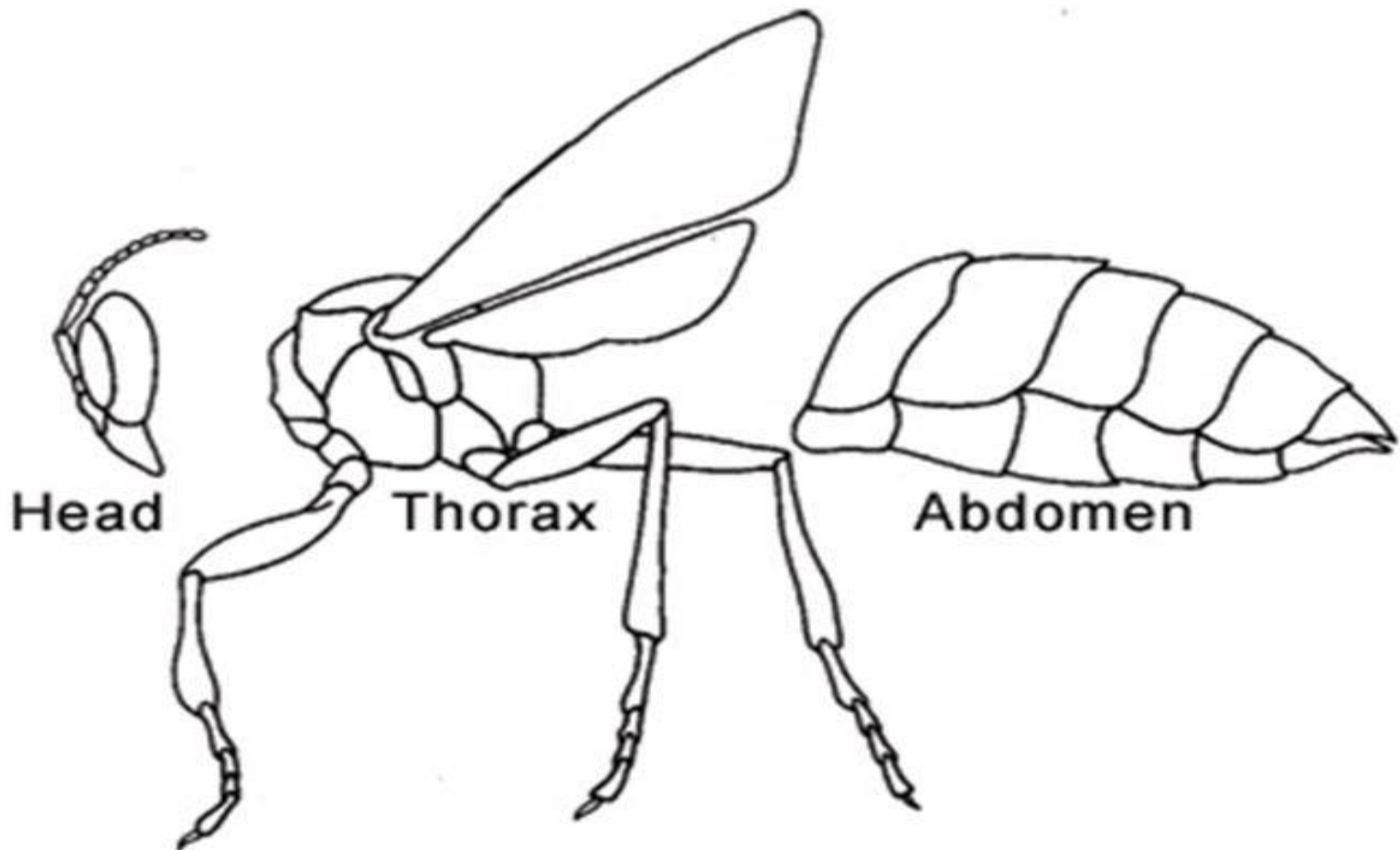
- Non articular appendages
- Cellular and non cellular



Typical Insect Integument

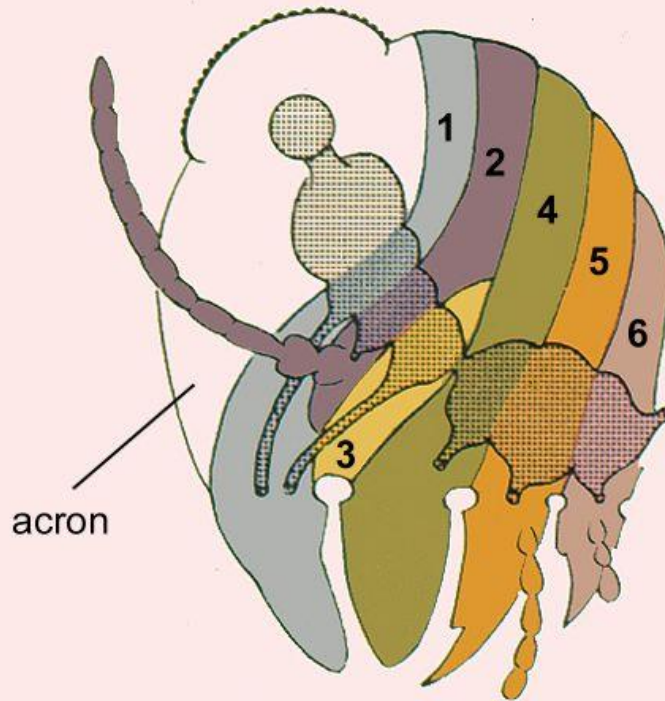


The body regions



Head Segmentation

INSECT HEAD SEGMENTATION

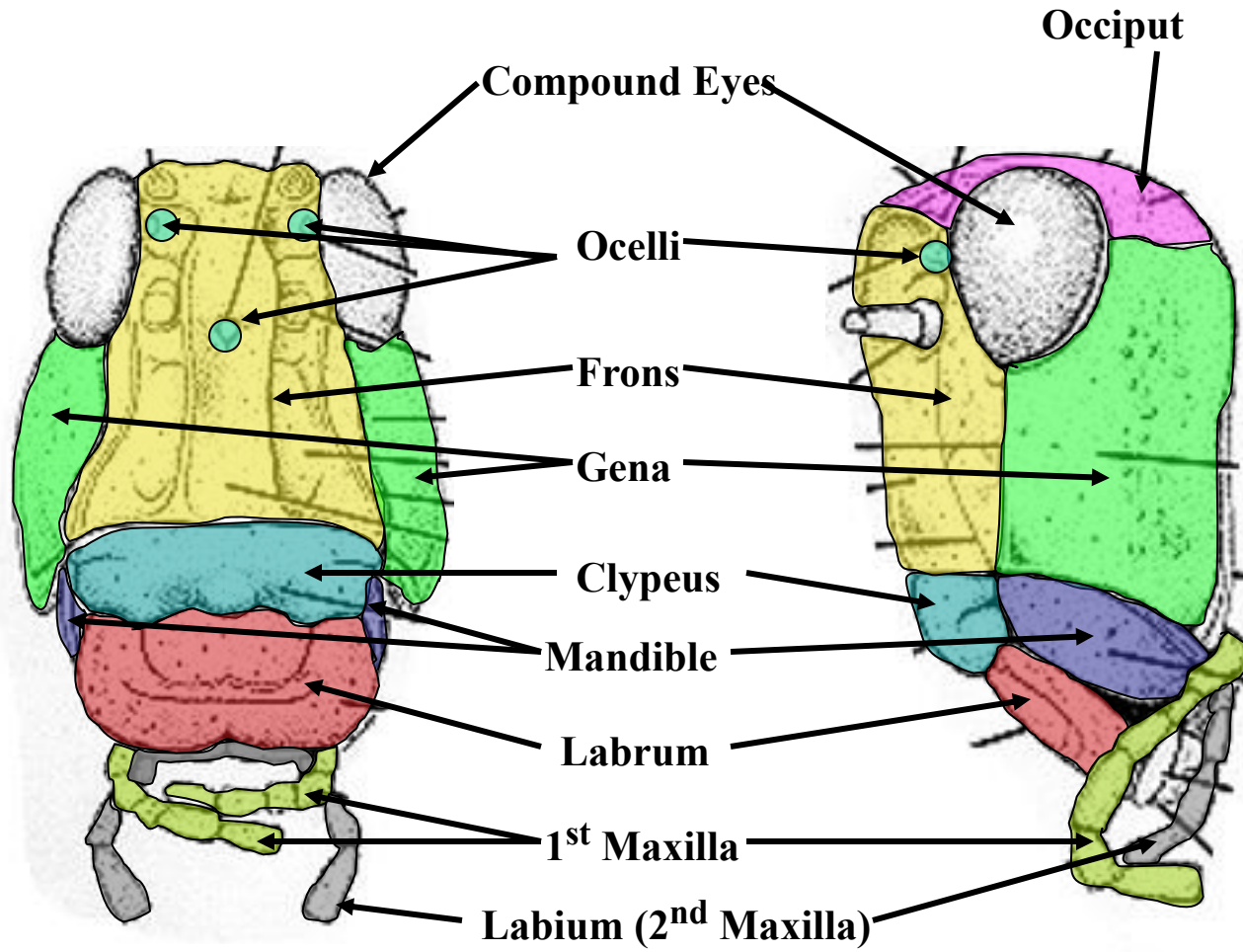


HEAD OF INSECT

Acron + 6 segments

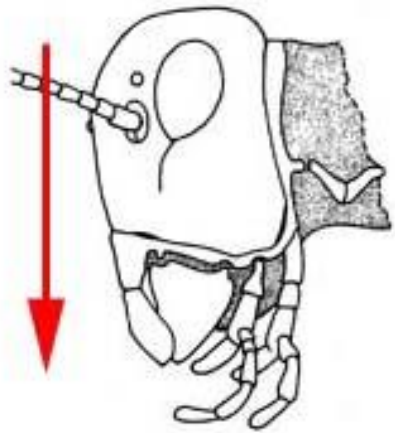
- 1 - labral
- 2 - antennal
- 3 - intercalary
- 4 - mandibular
- 5 - maxillary
- 6 - labial

Insect Head



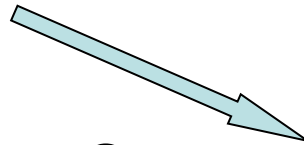
Insect Heads

3 basic types



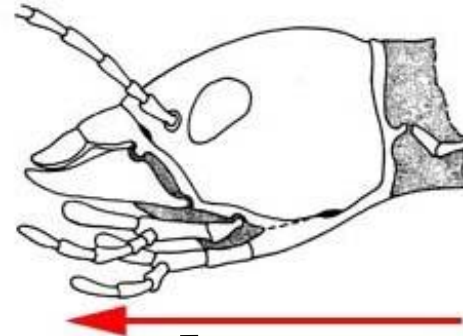
(Snodgrass, 1935)

Hypognathous



?

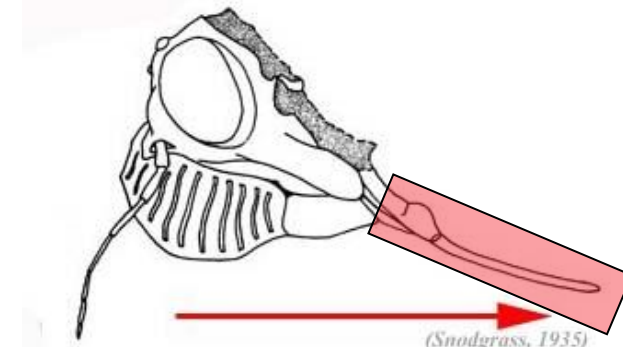
Prognathous



(Snodgrass, 1935)



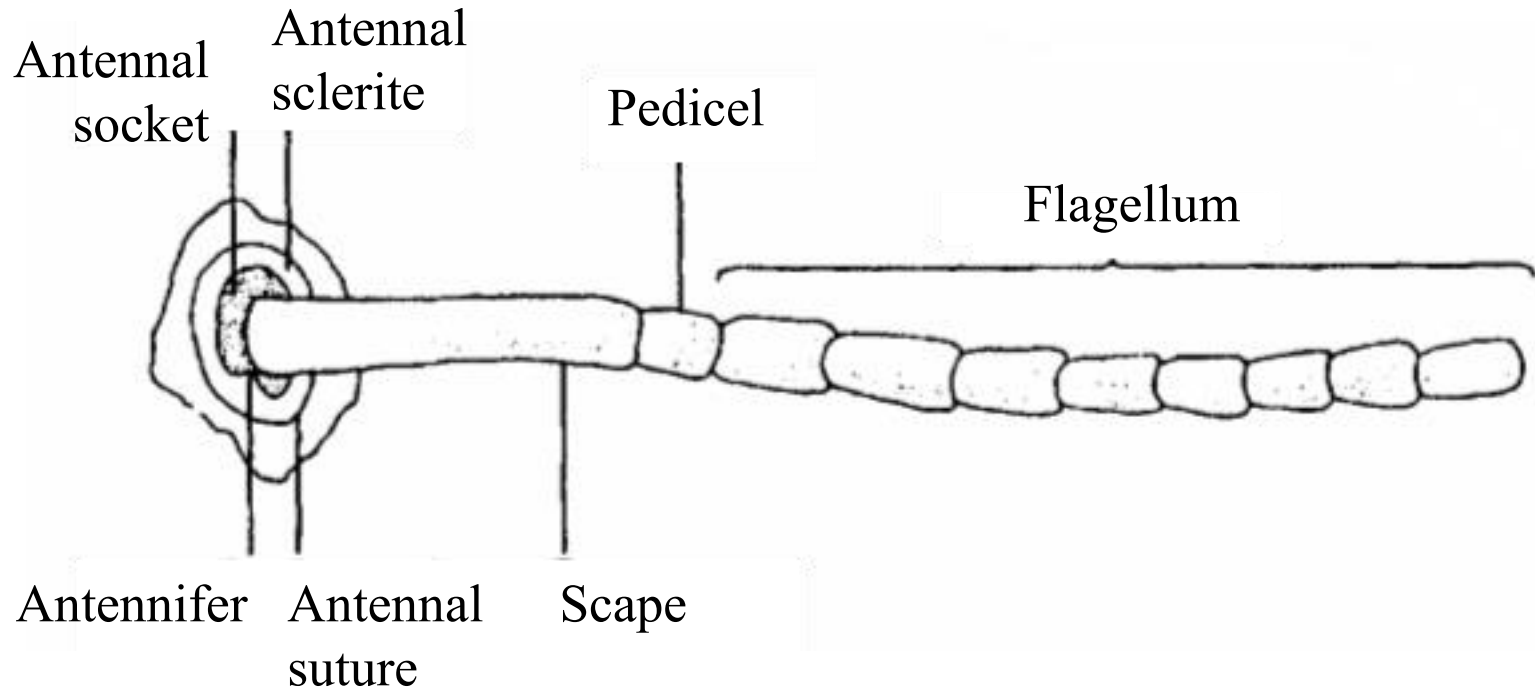
?



(Snodgrass, 1935)

Opisthorhynchous

Insect Antenna



Insect Antennae

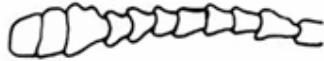
Aristate



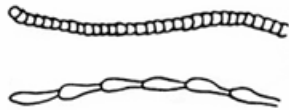
Capitate



Clavate



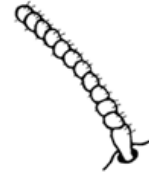
Filiform



Geniculate



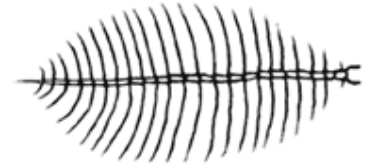
Monoliform



Pectinate



Plumose



Serrate



Insect Antennae

Aristate



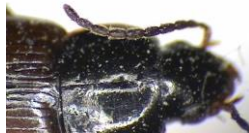
Capitate



Clavate



Filiform



Geniculate



Monoliform



Pectinate



Plumose



Serrate



Insect Heads

Evolution of Prognathy

1. Hypostomal Bridge

2. Postgenal Bridge

3. Gula

Insect Mouthparts

Labrum



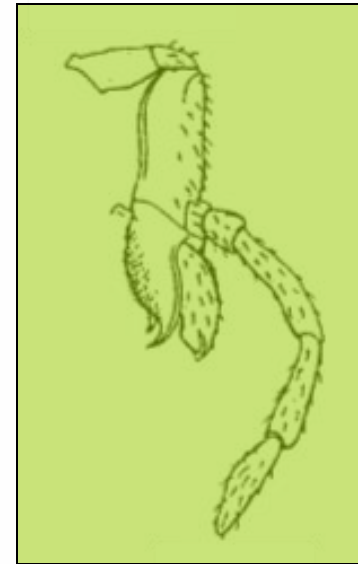
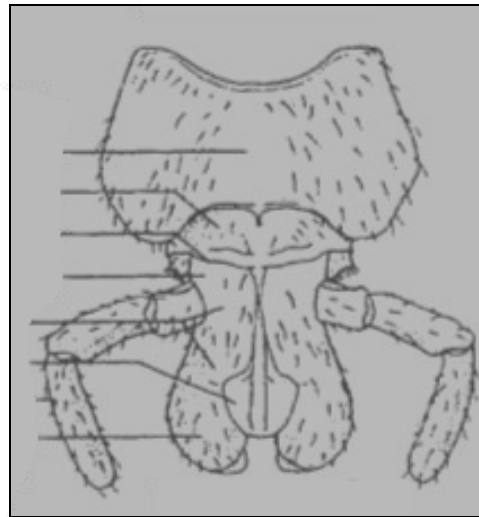
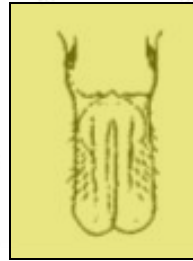
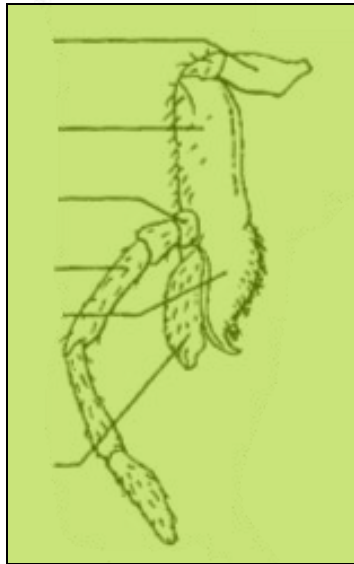
Mandible



Hypopharynx



1st Maxilla



Labium (2nd maxilla)

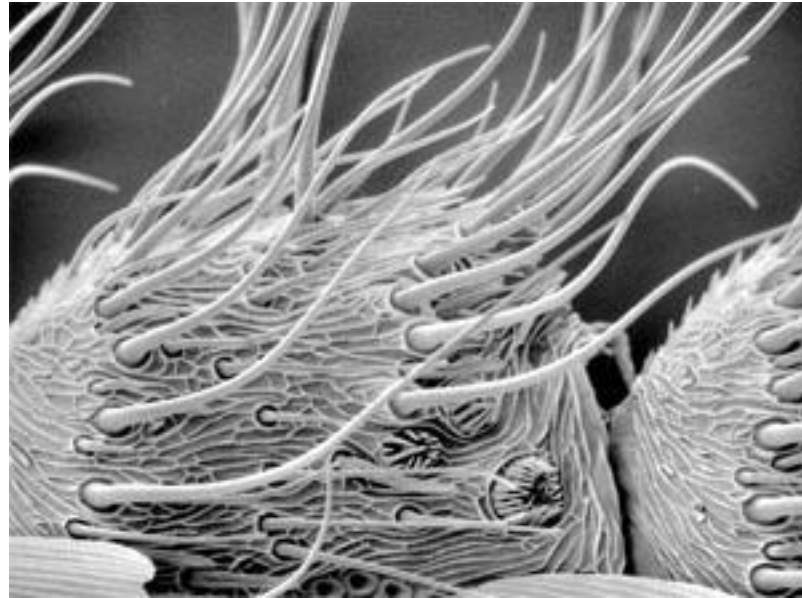
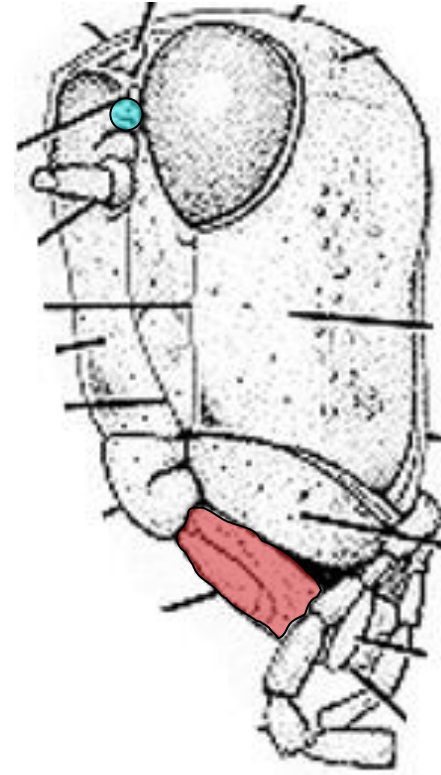
Harwood and James

Insect Mouthparts

Labrum

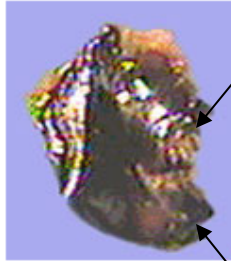
- "upper lip"

- contains chemosensory sensilla



Insect Mouthparts

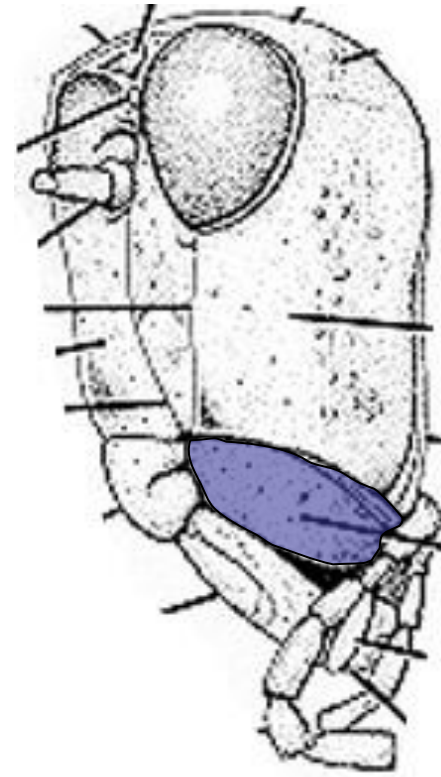
Mandible



Molar surface



Incisor surface



Herbivore



Carnivore

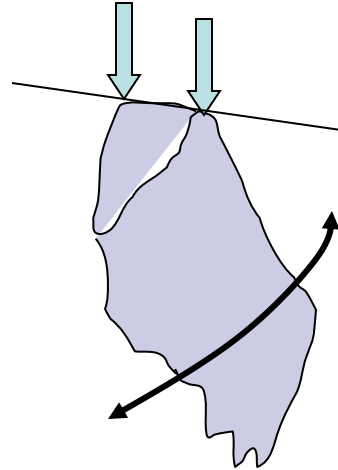
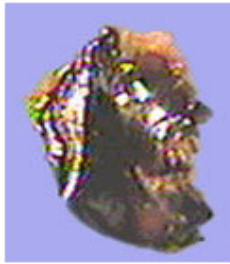


Filter feeder

Insect Mouthparts

Mandible

- in a grasshopper -a dicondylic joint



-emphasize
strength over
mobility

Insect Mouthparts

1st Maxilla

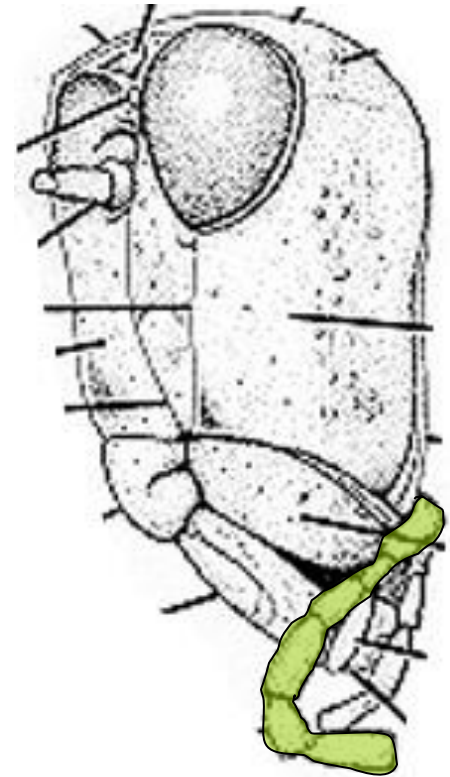
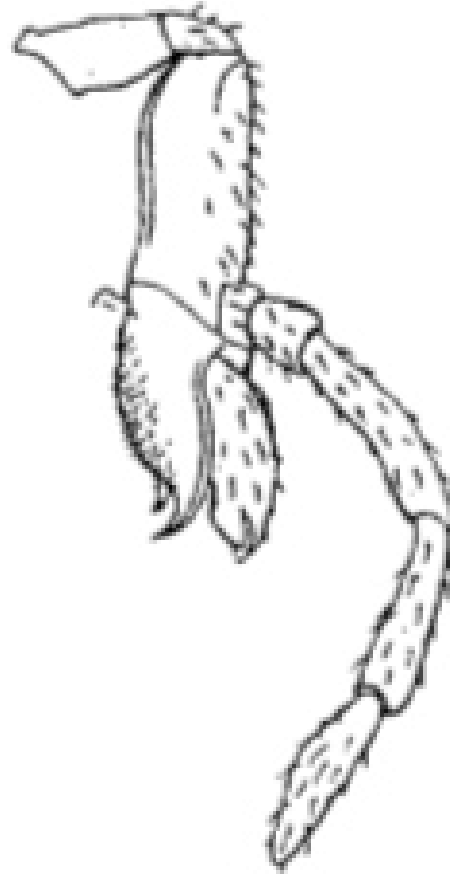
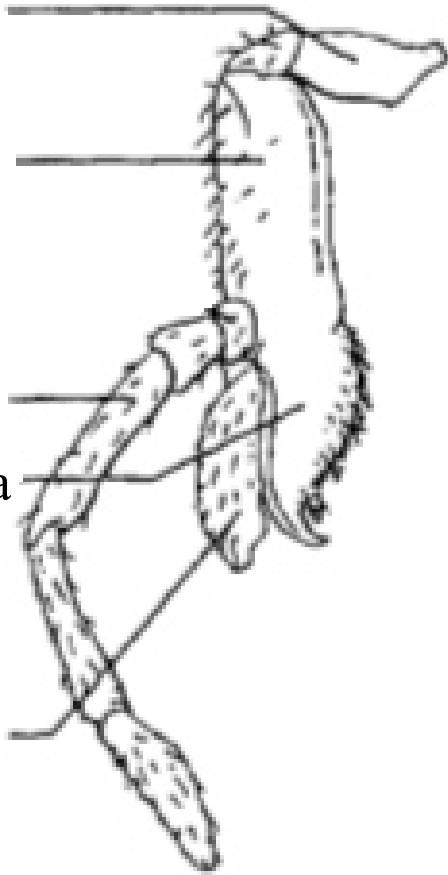
Cardo

Stipes

Palp

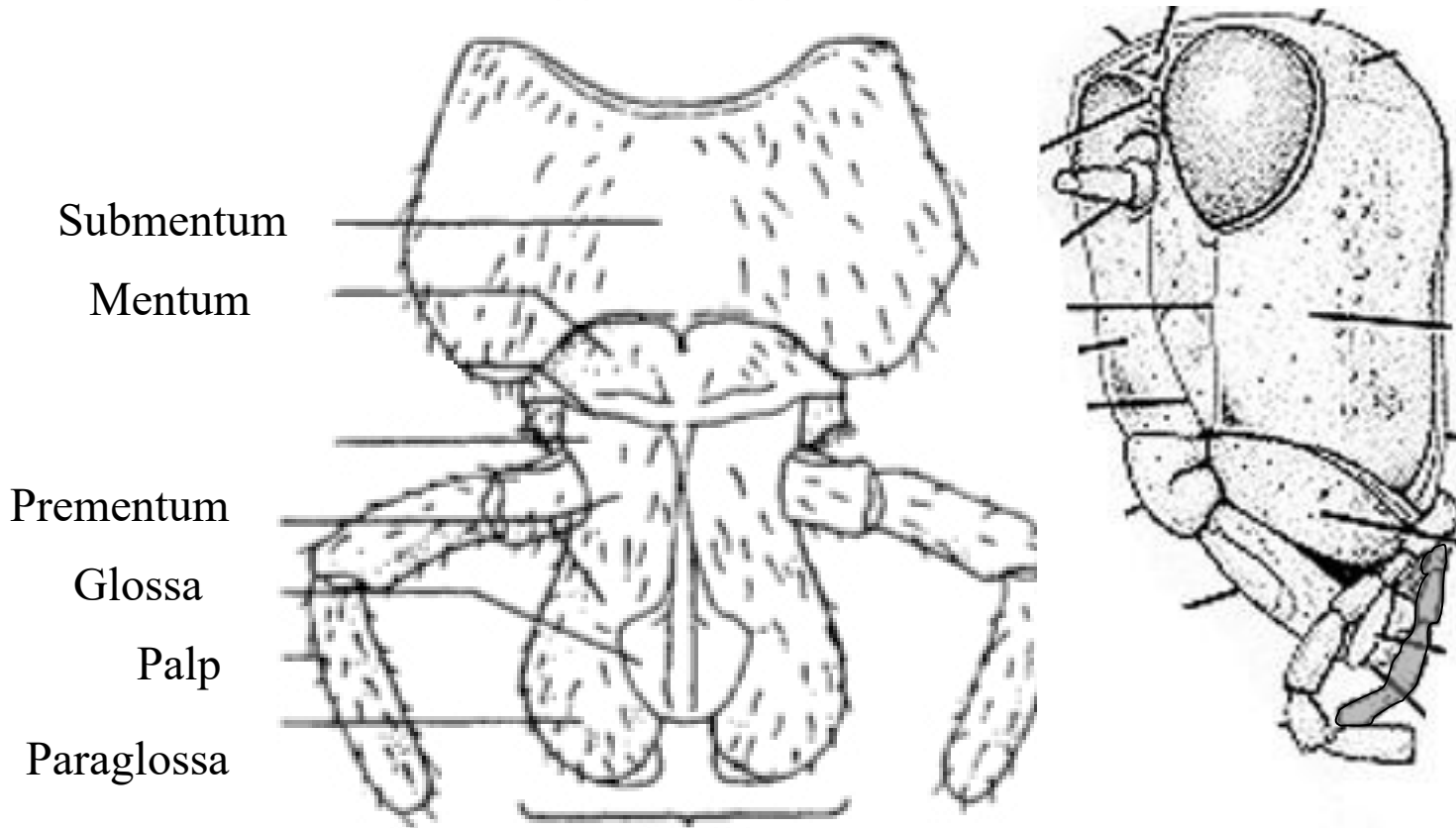
Lacinia

Galea



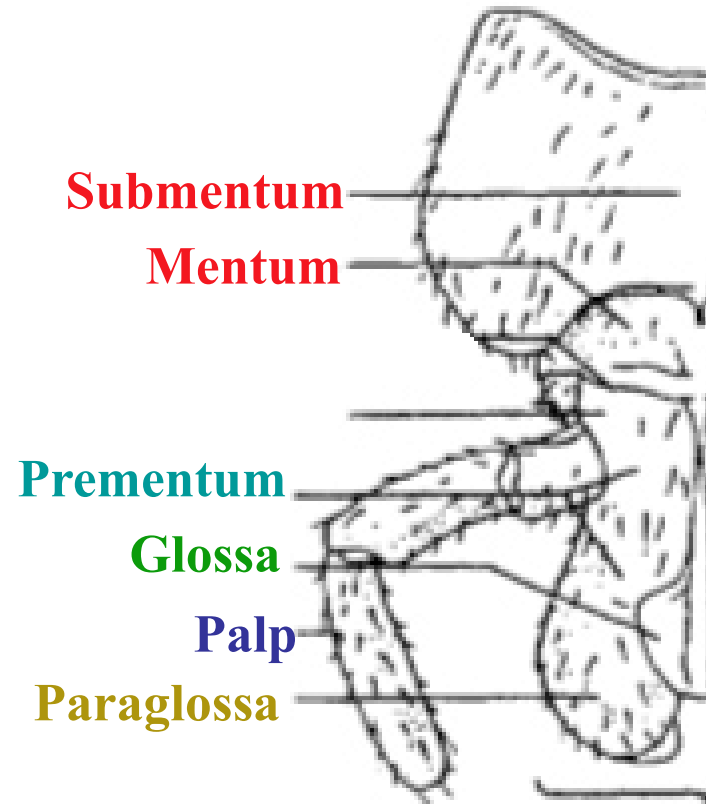
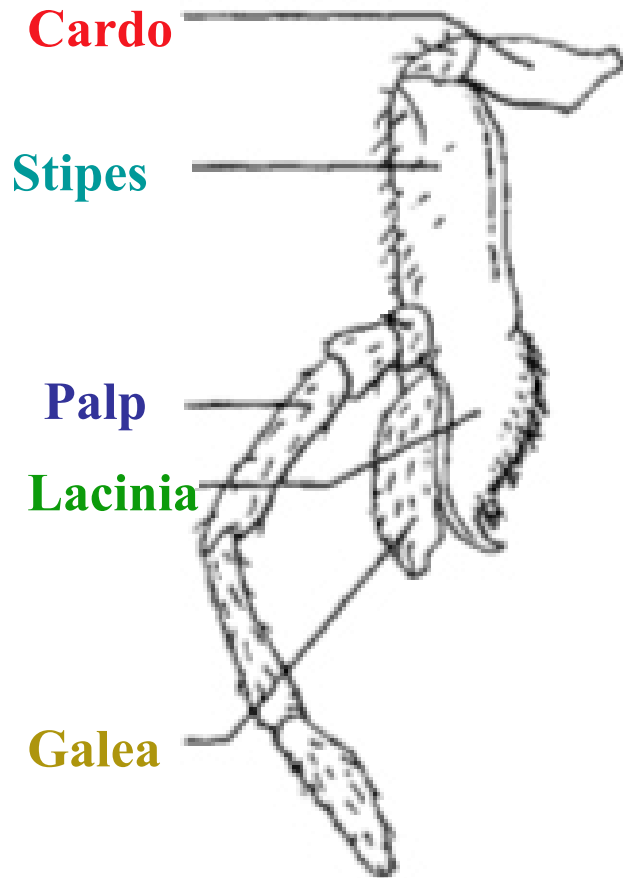
Insect Mouthparts

Labium (2nd Maxilla)

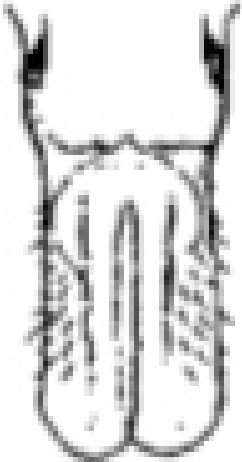
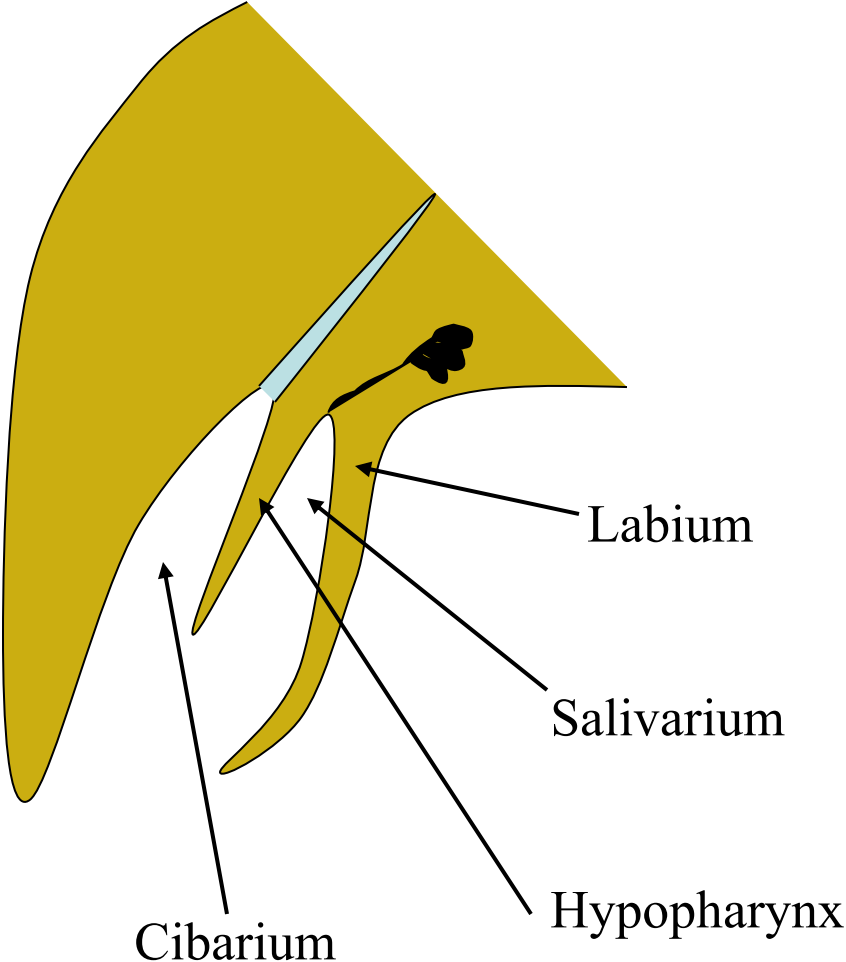


can be fused to form a
Ligula

Comparison of 1st and 2nd Maxillae

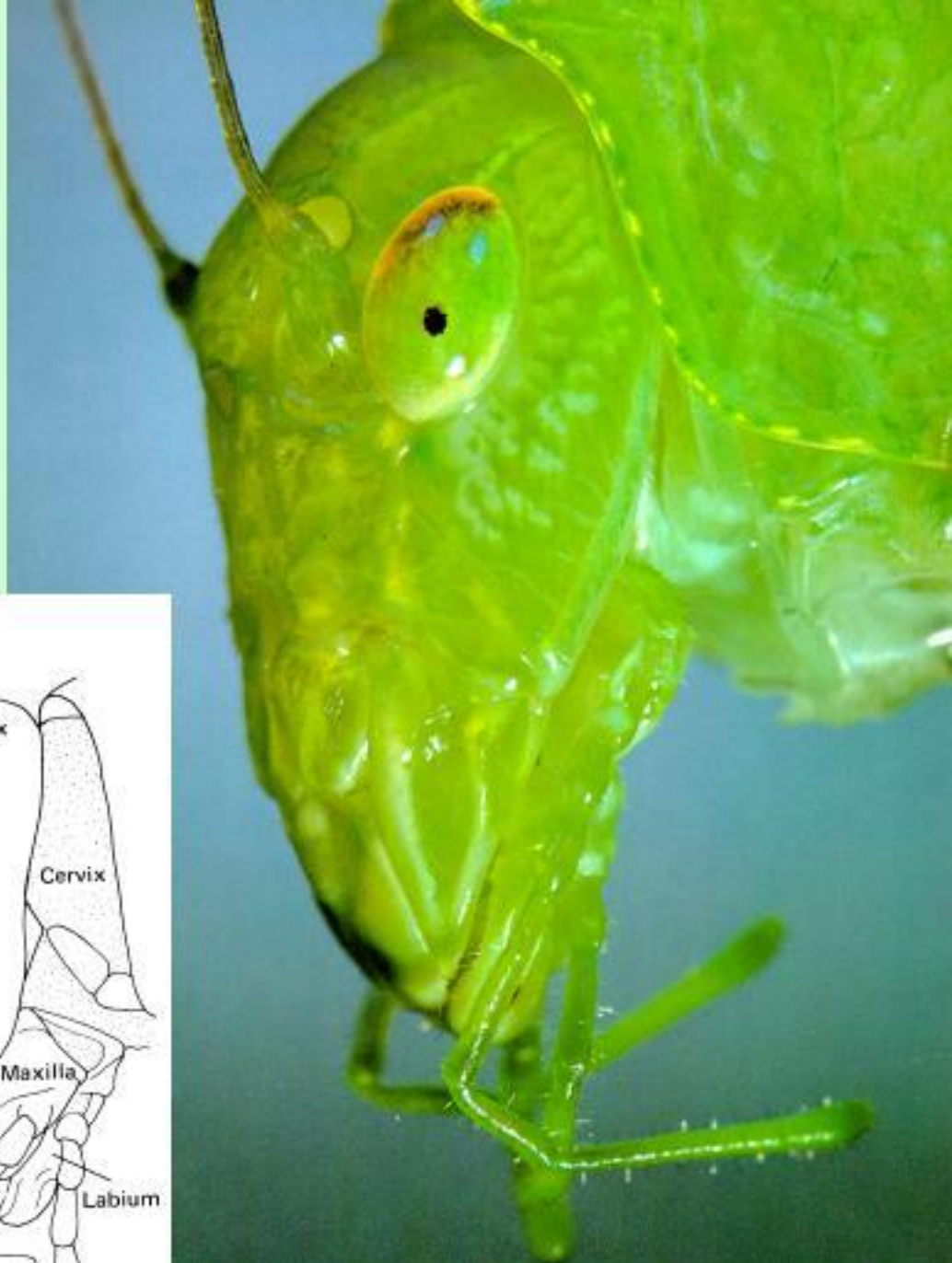
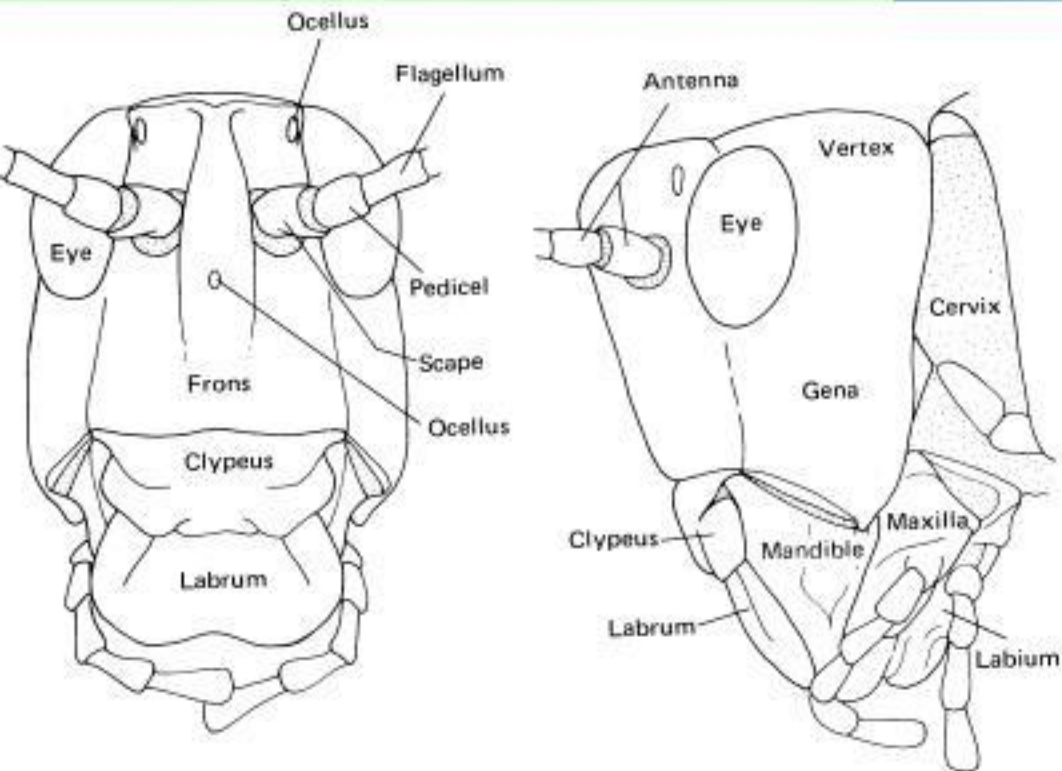


Hypopharynx



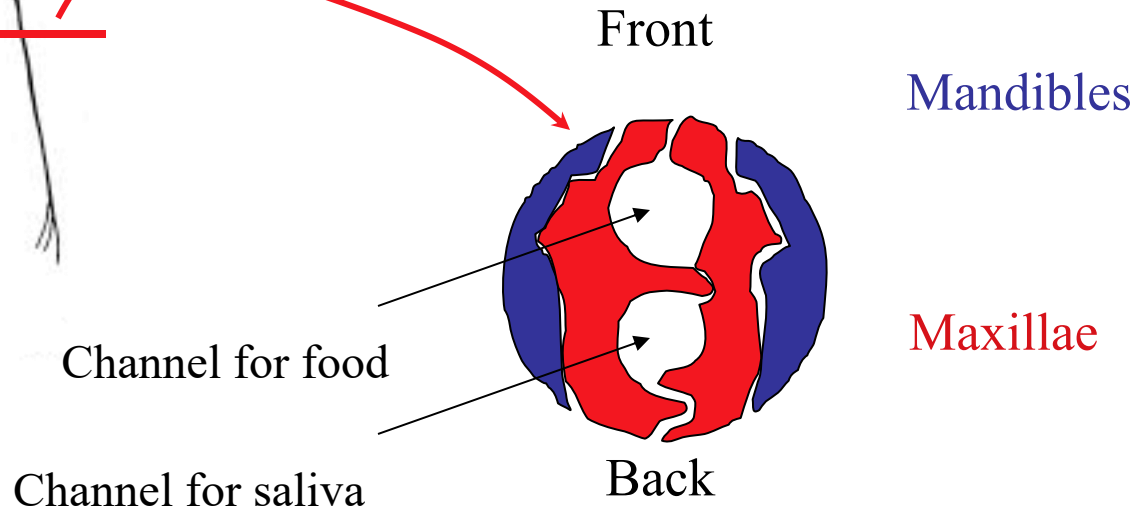
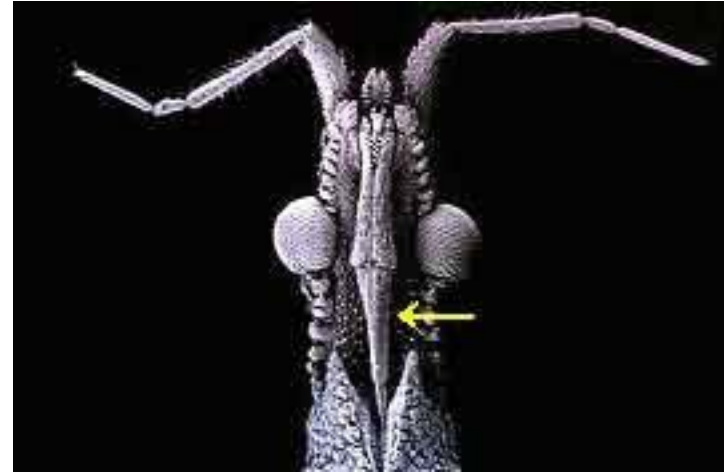
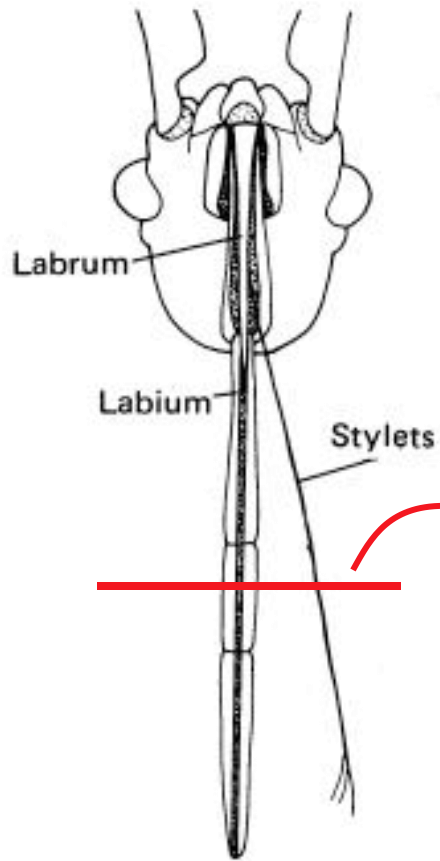
chewing mouthparts

Grasshopper (order Orthoptera, Acrididae):
mouthparts directed
downward and specialized for
processing plant materials



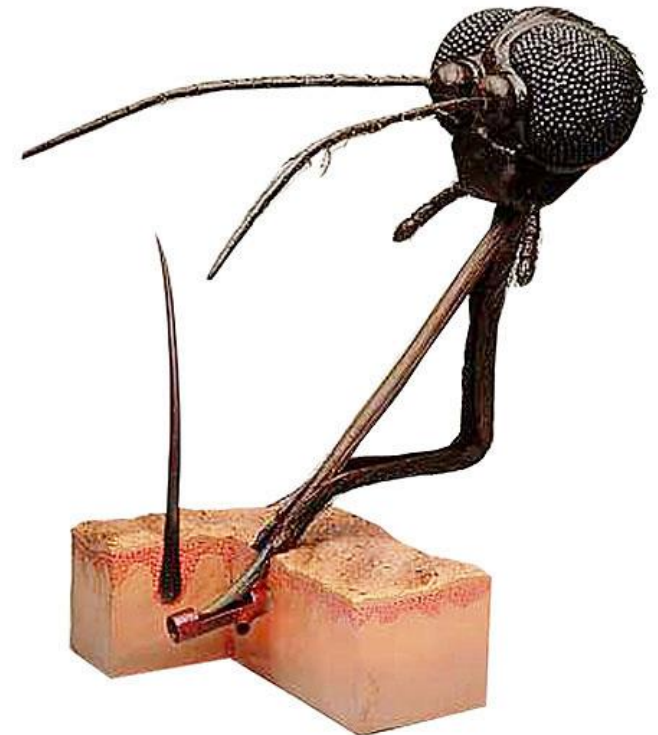
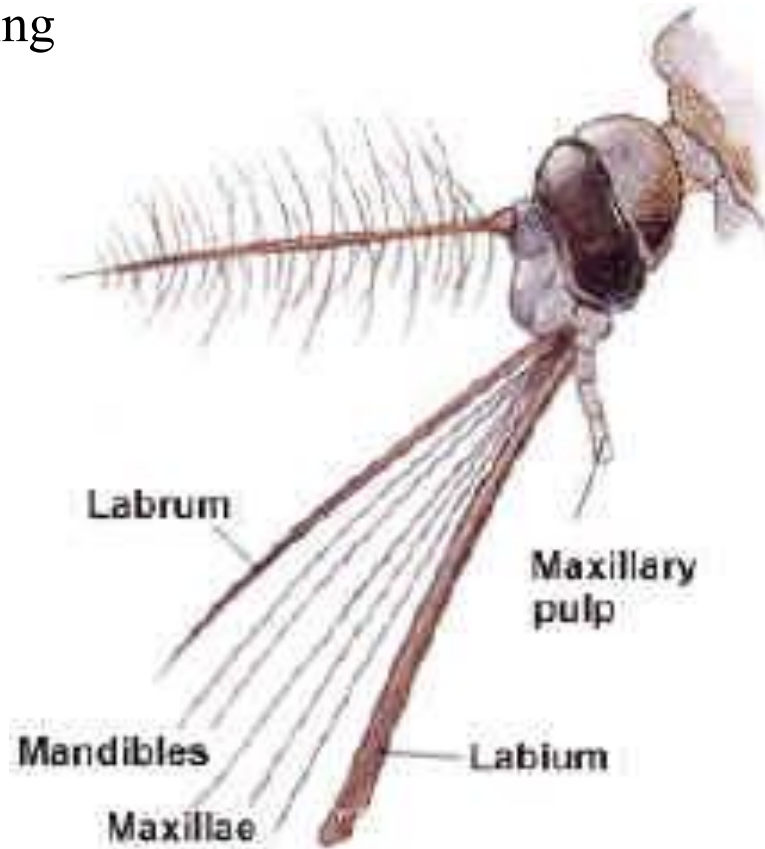
Modifications of Mouthparts

-Piercing and Sucking



Modifications of Mouthparts

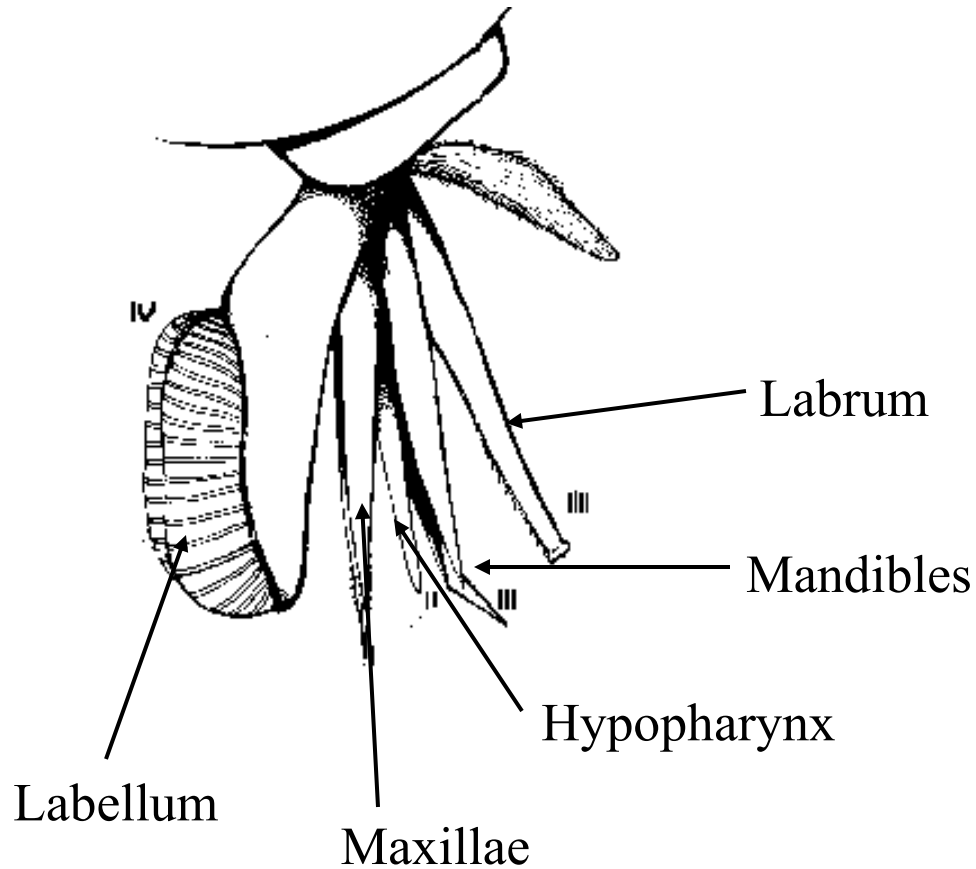
Stabbing



e.g. Mosquito

Modifications of Mouthparts

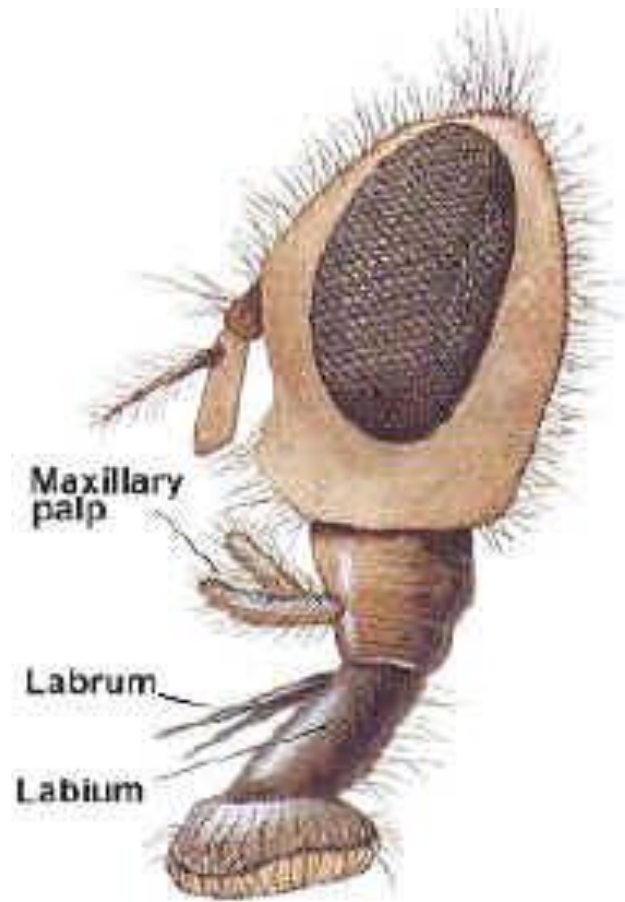
Cutting and Sponging



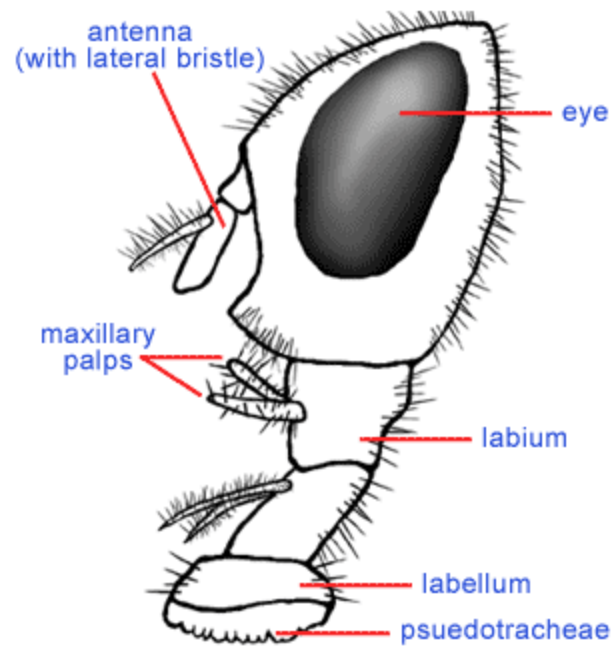
e. g. deerflies

Modifications of Mouthparts

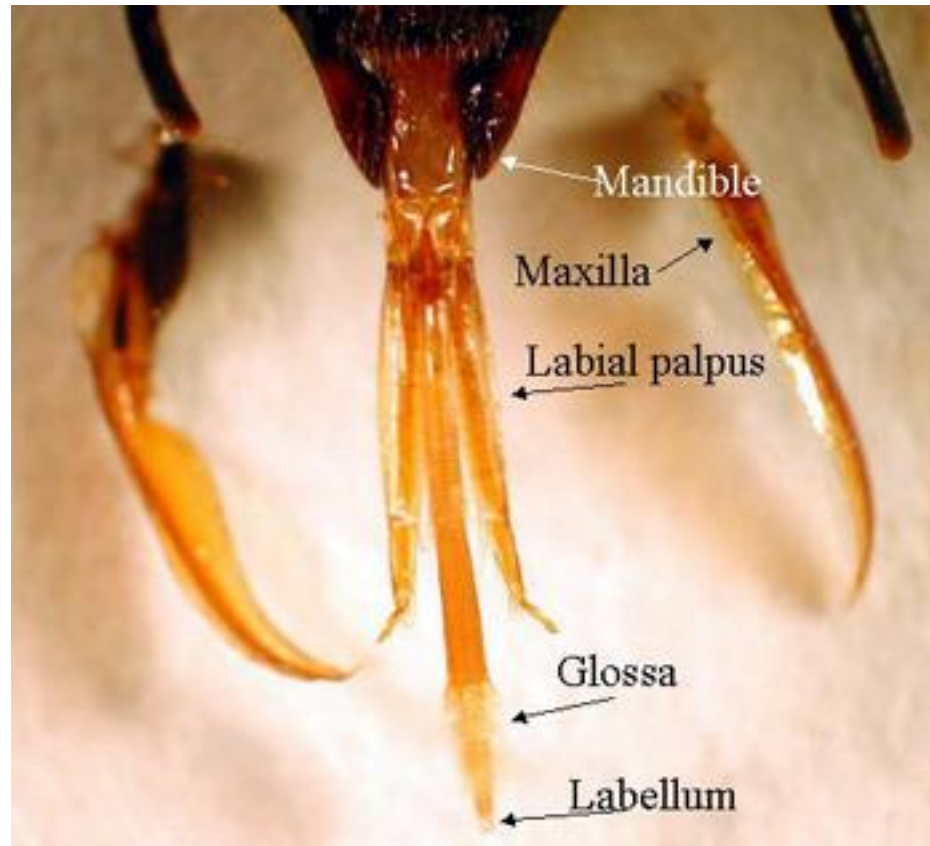
Sponging



e.g. housefly

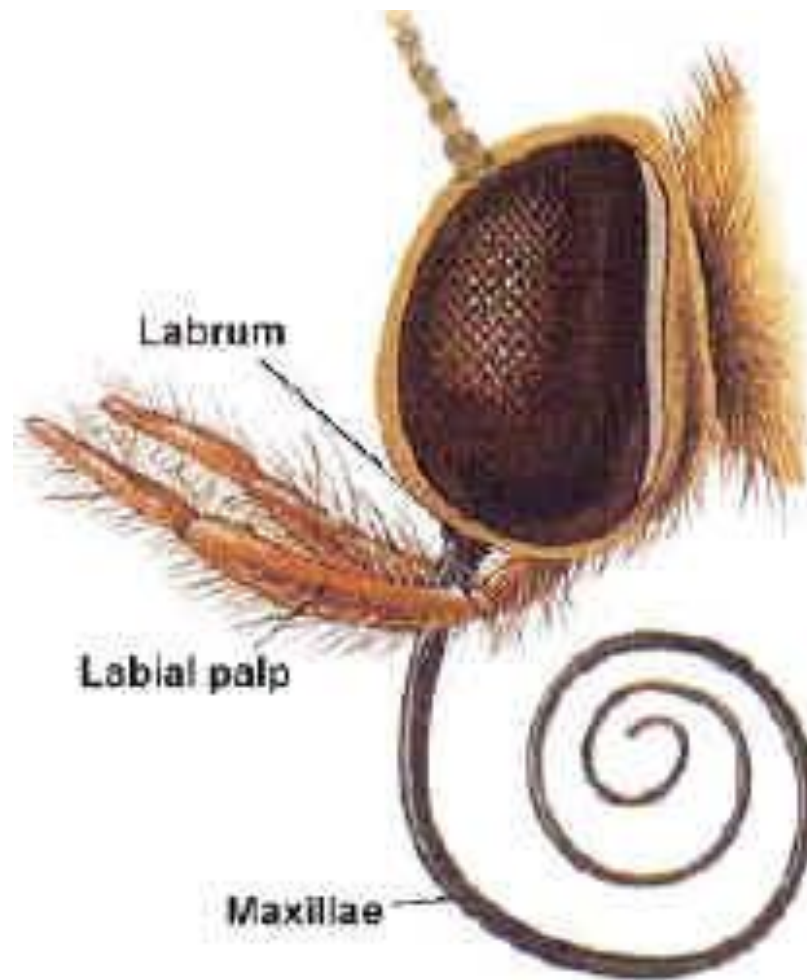


chewing lapping type



Modifications of Mouthparts

Siphoning



e.g. butterfly