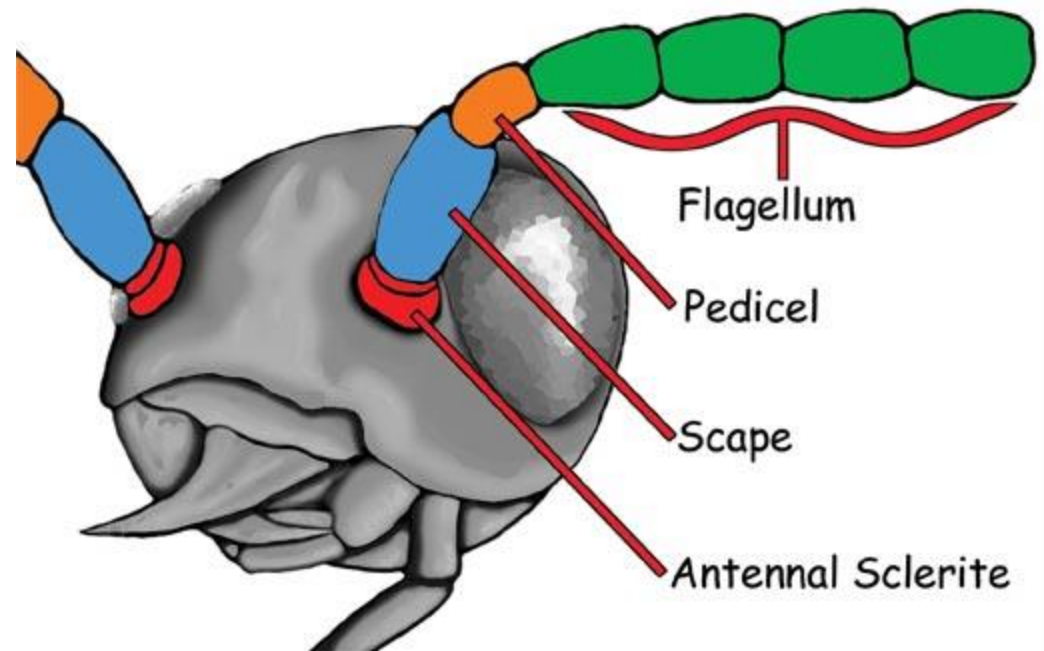


# Insect Antenna & its Modifications



- ❖ uniramous (unbranched), segmented and mobile structures
- ❖ basally fixed in to deep antennal socket (antennifer)
- ❖ Antennal socket is provided with an antennal suture
- ❖ The base of socket is connected to the edge of the socket by an articulatory membrane For free movement of antennae

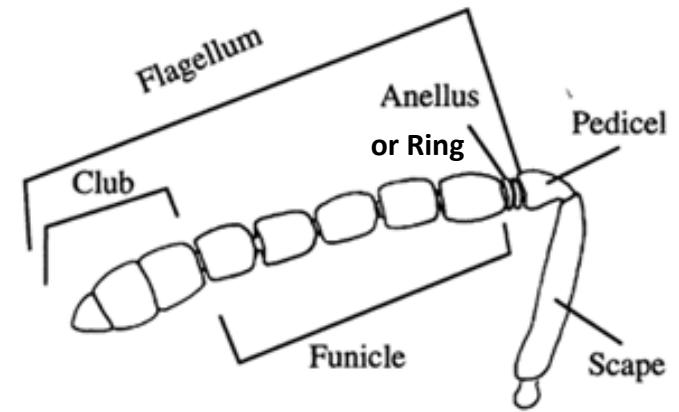


# Exceptions

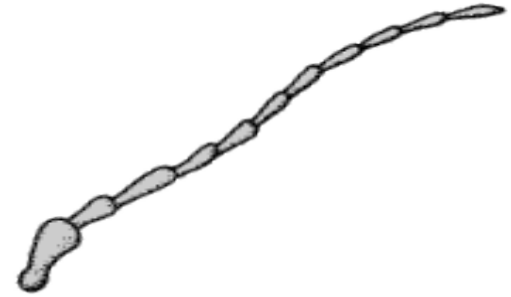
- ❖ Absent in Protura and Class Arachnida and 2 Pairs in Crustacea
- ❖ In Chalcidoids, Flagellum is divided into basal Ring, middle Funicle and upper Club
- ❖ In Collembola & Diplura, Antennae are muscular, Hence Segmented type
- ❖ Johnstons organs are absent in Collembola & Diplura

# Functions

- ❖ sense organ responding to touch, smell, odour, humidity, temperature & air currents or wind speed.
- ❖ Jhonston's organ on pedicel -auditory organ responding to sound and measuring the speed of air currents.
- ❖ Help the mandibles for holding prey and for mastication of food material
- ❖ Helps in sexual dimorphism
- ❖ Useful for clasping the female during copulation
- ❖ Aid in respiration by forming an air funnel in aquatic insects.



# FILIFORM (thread-like)



The segments of flagellum are of same thickness and thread-like.

Example :

Grass hopper



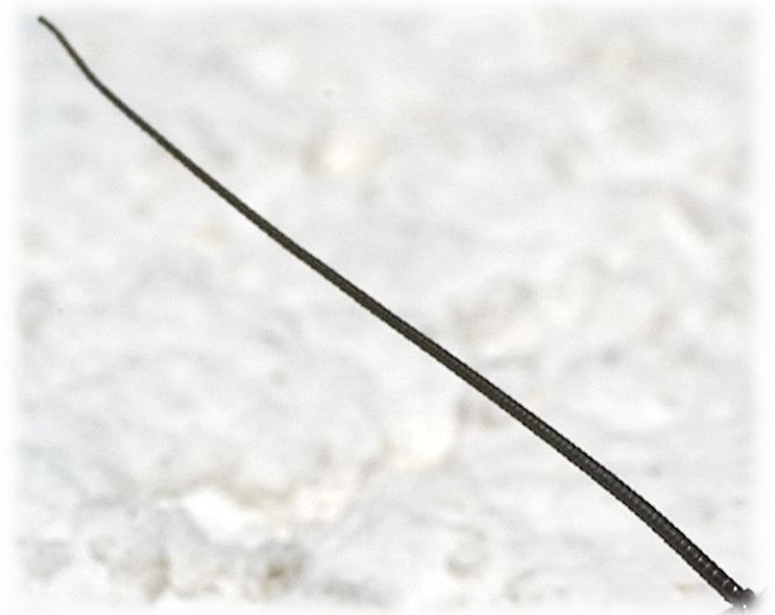


# SETACEOUS (whip-like)



The segments of flagellum are taper towards apex.

Example : Dragon fly, Cockroach



# MONILIFORM (bead-like)



The segments of flagellum are globular and bead-like with clear constrictions.

Example : Termites



# PECTINATE (comb)



The segments of flagellum have long stiff projections on one side.

Example :

Female Arctiid moths



# BIPECTINATE (Double comb)



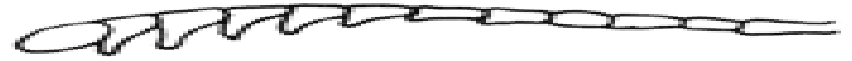
The segments of flagellum have long stiff projections on both sides.

Example : Male Lymantrids, Mulberry silk moth





# SERRATE OR DENTATE (tooth-like)

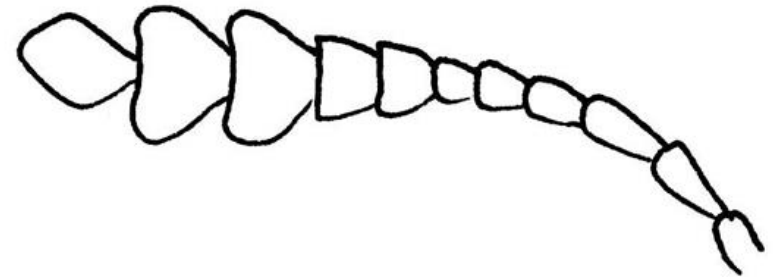


The segments of flagellum have tooth-like projections on one side.

Example : Pulse Beetles



# CLAVATE (club-like)

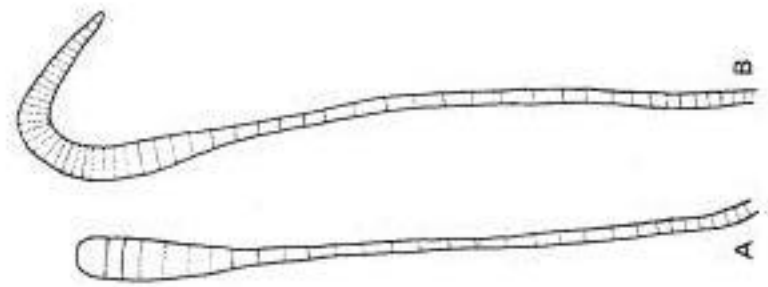


The segments of flagellum are gradually broaden towards apex.

Example :Butterfly



# Clavate with Hook



The segments of flagellum are gradually broaden towards apex structure with a terminal hook like curve

Example : Skipper Butterfly



# CAPITATE (knob-like)



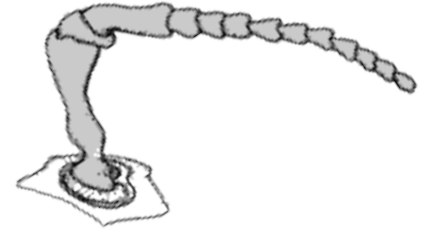
The segments of flagellum Suddenly thickened to form a knob-like structure.

Example : Red Flour Beetle





# GENICULATE (elbow-like)

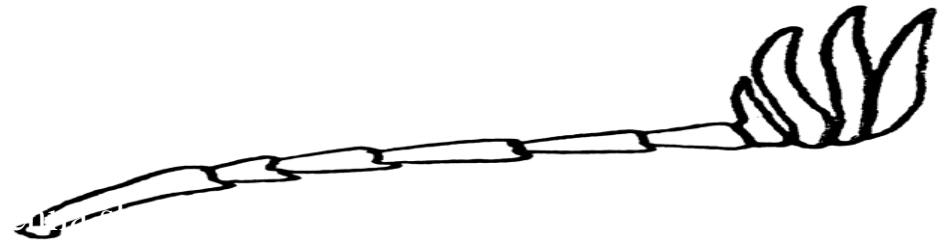


In these the scape is very long and flagellum forms a sharp bend like a flexed arm.

Example : Ant, Honey bee



# LAMMELLATE (Plate-like)



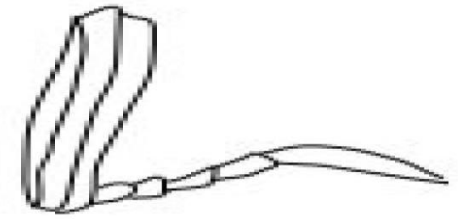
The terminal segment of flagellum are extended into leaf-like plates on one side.

Example : Rhinoceros beetle

Dung roller



# FLABELLATE (tongue-like)



The segments of flagellum are produced into long and thick tongue-like projections.

Example : Male stylopid





# PLUMOSE (feather-like)



The segments of flagellum have thick whorls of long hairs.

Example : Male mosquito



Male (Plumose)





# PILOSE (hairy)



The segments of flagellum have very thin whorls of hairs .

Example :Female mosquito



Female (Pilose)



# ARISTATE (arista-like)

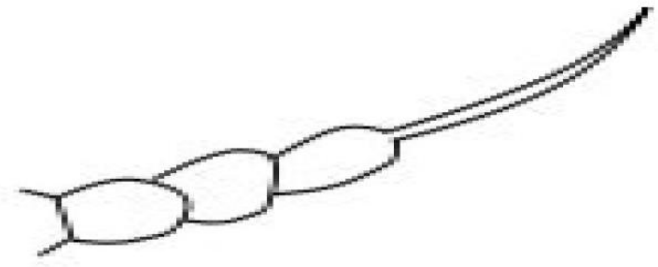


The segments of flagellum form an arista or bristle like structure on dorsal surface

Example : House fly



# STYLATE (styliform)



The flagellum forms a long unsegmented , terminal hair.

Example : Robber fly

