

PERIPATUS

The genus peripatus was first established in 1826 by Guilding who regarded it as mollusc due to slug like appearance. As an arthropod it was first established by Moseley in 1874 on the basis of the trachea.

Distribution:

It was subsequently obtained from other parts of neotropical region and from South Africa and Australia. There are about 70 species which are distributed in geographical region.

Few species has also reported from Assam and Burma.

Habit and Habitat:

Peripatus is small, nocturnal, terrestrial shy creature live in the dark, moist place under rocks, stones, logs etc. Because of light avoiding habit they are rarely seen.

According to Hutton they suck the juice of plants which they have struck on with their skin. The animal is carnivorous and predaceous.

External feature:

Body is cylindrical and vermiform. Body is segmented but not very clear. Anterior part is called head which bear 3 pairs of appendages → a pair of simple eye and a vertically placed mouth.

Each leg terminate in a pair of claws. Skin has waxy texture and the colour is more darker from the dorsal surface and reddish in colour from the ventral surface.

Mouth is surrounded by large number of papillae ^{and setae} ~~for~~ ^{sense} of which is almost fused to form a dorsal ventral and lateral lips. Within the buccal cavity there are two jaws which are short ~~strong~~ ^{muscular} ~~structure~~ ^{armed} with a pair of cutting blades. are placed on each side of the mouth. In the median line of

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buccal cavity is placed thick muscular tongue attached to dorsal wall of mouth. The tongue bears rows of small chitinous teeth. The salivary gland opens at the end of oral papillae. The Anus is at the posterior end of the body and the genital opening on ventral surface just in front of the anus.

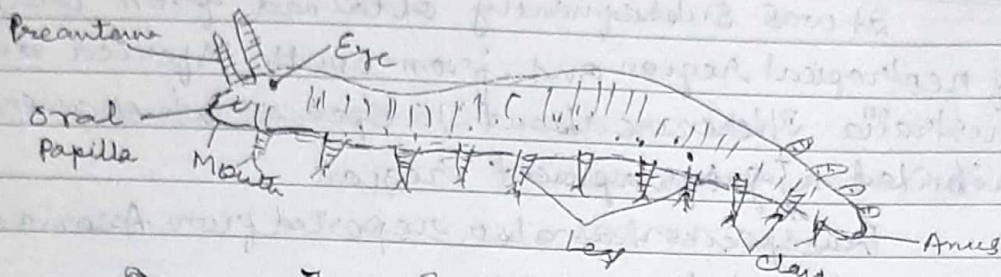


Fig - Peripatus (External features)

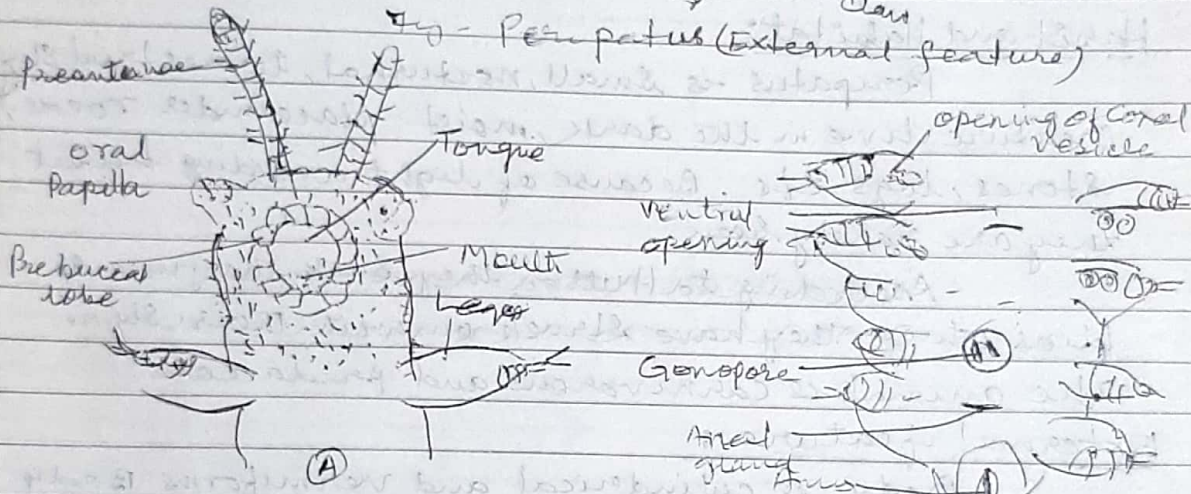


Fig Peripatus - ventral view (A) Anterior view (B) Posterior view (C)

Body wall: - Body consists of thin cuticle, spines, jaws and claws as special development of setae. 2 layers of epidermis. Beneath the epidermis is muscular tissue layers which is composed of circular and longitudinal muscle. Lower most layer is coelomic epithelium. The body wall is dermomyocardium.

Digestive System:

Digestive system consists of -

- 1) Mouth: - It is situated on ventral surface of the body open posteriorly in small pharynx which communicates with small narrow oesophagus.

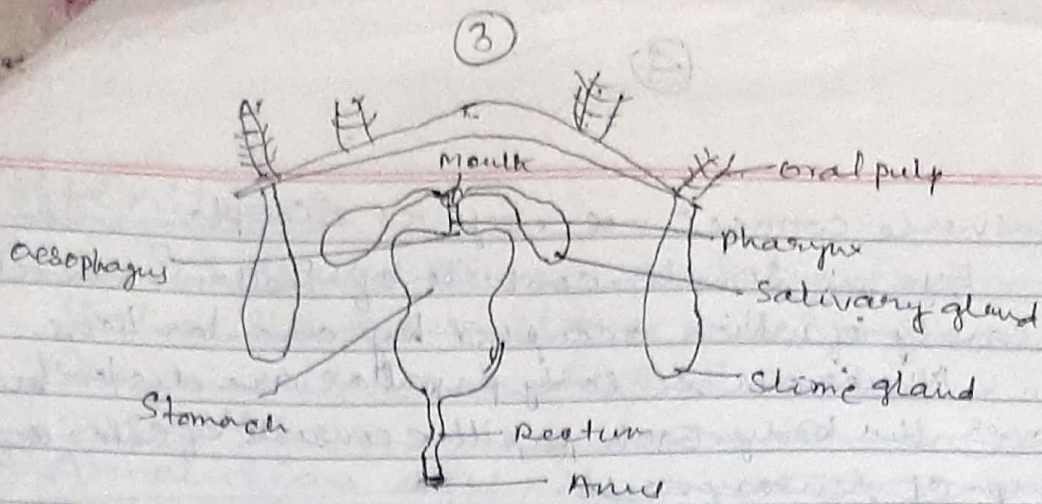
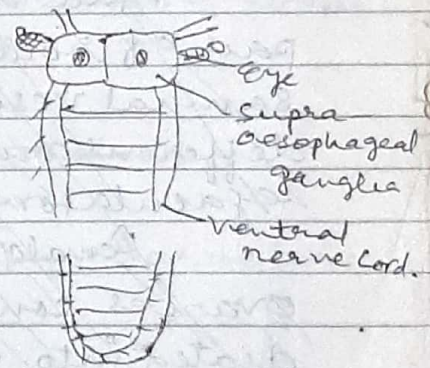
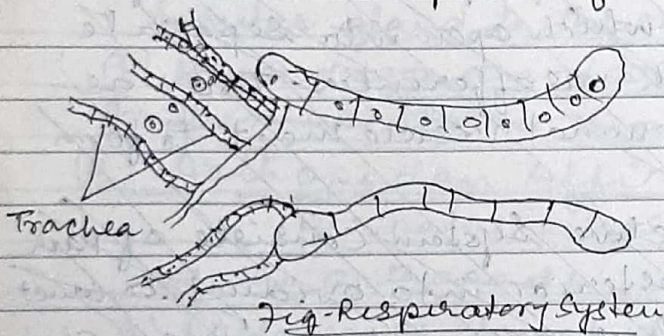


Fig - Alimentary Canal of Peripatus.

- i) Oesophagus open into dilated stomach.
- ii) Stomach is largest part of alimentary canal which open into anus through rectus. Intestine is absent.
- v) Salivary glands open into buccal cavity.

Respiratory system :-

They have air tube called trachea, which open by means of spiracles scattered irregularly on the various part of body.



Blood vascular system :-

consists of dorsal tubular heart with paired ostia leading into pericardium. Heart extends from head to tail. Body cavity is called haemocoel.

Nervous System :-

Consists of brain and pair of longitudinal nerve cords, peripheral nerves and sense organs. Brain is constituted by a pair of supra-oesophageal ganglia. A pair of circumoesophageal connective unite the brain with ventral nerve cord. Two ventral nerve cord extends up to anus. Two cords are connected by

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transverse connectives. Eye is simple.

Eye is simple, consists of hollow vesicles, the cavity of which occupied by circular lens.

Numerous sensory papillae are distributed all over the body. Each papillae consists of setae and group of sensory cells.

Excretory System:-

Excretory system is carried mainly by nephridia. A typical nephridium consists of a long ciliated funnel, a coiled duct and a contractile bladder ^{called} vesicle.

Anal gland is a pair of gland open close to the anus of unknown function.

Reproductive System

Sexes are separate and gonads are paired and ciliated but the genital opening is single.

Male reproductive organ consists of a pair of round testes which open into separate seminal vesicle through vas efferentia. Two vas-defferens arise from seminal vesicle meet to form ejaculatory duct.

Female reproductive system consists of pair ovaries continue posterior into oviduct. Oviduct dilated into uterus which open into median chamber called vagina.

Eggs are large and full of yolk (Telolecithal) Fertilization is internal. Young ones fully developed at the time of birth. A female may produce 30 to 40 young ones in a year. Segmentation is peculiar and leads to formation of solid gastrula.

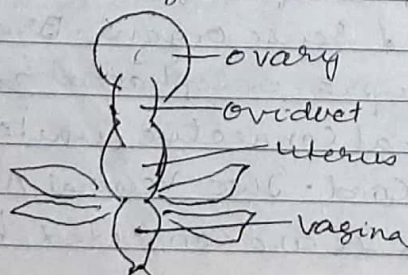


Fig. Female

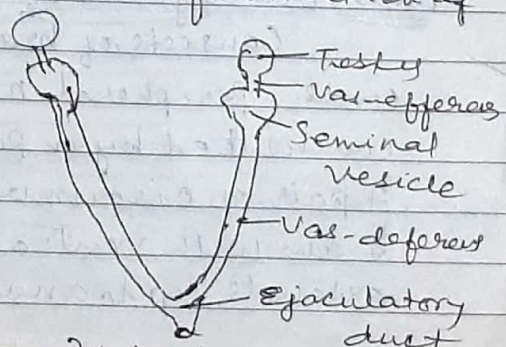


Fig. Male reproductive

Affinities:

The detailed study of peripatus have now confirmed that it shows resemblance with 3 major phylum. -
 i) The annelidian, ii) the arthropoda and iii) the mollusca.

(A) Annelidian Affinity: -

Annelidian structures of peripatus are the following:

- a) The body is soft elongated and cylindrical in the annelids.
- b) The cuticle is non-chitinous.
- c) The segmentation is more or less similar.
- d) The presence of paired nephridia in almost every segments of the body.
- e) The structure of the eyes is similar to the polychaetes.
- f) Coxal gland and slime glands correspond to the similar gland to the chaetopoda.
- g) Appendages are hollow.
- h) The muscular is similar to annelids.

(B) Arthropodan Affinity: -

Peripatus passes the following characters of the arthropods.

- a) Presence of clawed appendages.
- b) ~~The legs have definite musculature.~~
- c) The head bears paired appendages.
- d) The heart is tubular with paired ostium.
- e) Body cavity is haemocoel.
- f) Mandible with teeth like edge.
- g) Brain is large and similar to arthropods.
- h) Respiration by trachea.
- i) ~~Presence of salivary gland~~ presence of salivary gland.

(C) Molluscan affinity: -

- a) Slug like appearance.
 - b) Ladder like nervous system similar to chitin.
- But molluscan affinity is only superficial.

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and in no other anatomical detail peripatus resembles mollusca and hence its relationship with molluscan was discarded.

Conclusion :

The similarity of peripatus with annelids and arthropods suggest that it is midway between the two phylum and hence it was regarded as connecting link.

But the arthropodan characters of peripatus such as the presence of trachea, haemocoel, salivary gland etc definitely outweigh the annelidian affinities and therefore peripatus has been placed under the phylum Arthropoda.

