GENERAL CHARACTERISTICS OF HEMICHORDATA

Not familiar creatures to most people, hemichordates form a small phylum (only a few hundred species). Their importance for the study of vertebrate evolution, however, cannot be underestimated. The fossil record of one group of hemichordates, the graptolites, is very well known and is often used to correlate rocks.

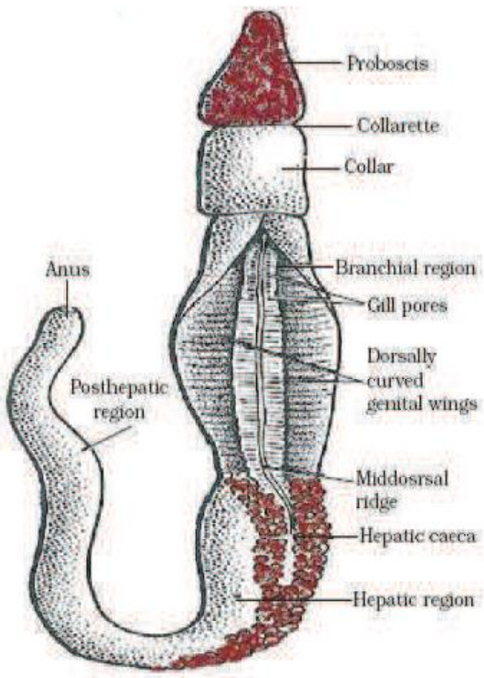

Fig: Balanoglossus (External Feature)

Hemichordata (Gr. hemi-half ; chorde-cord) till recently treated as a subphylum of the phylum Chordata is now regarded as an independent phylum of invertebrates, close to Echinodermata, Hemichordata or Acelochordata are tongue worms. It includes a small group of soft, vermiform, marine and primitive chordates, most of them live in tubes. Hemichordates are distinguished by a **tripartite** (threefold) division of the body. At the forward end of the body is a **preoral lobe**, behind this is a collar, and in the posterior side there is the word “hemichordate" means "half chordate,". They share some (but not all) of the typical chordate characteristics. The body and enterocoelous coelom are divided into three unequal regions: Proboscis, collar and trunk. Hemichordates are dioecious (i.e., males and females, although they cannot be distinguished

externally) with external fertilization and are development is indirect (i.e., there is a distinct larval form). Asexual reproduction occurs in at least some acorn worms and in most pterobranchs.

GENERAL CHARACTERS OF HEMICHORDATA

- Bilaterally symmetrical and exclusively marine, worm- like and soft bodied animals.
- Body cavity a true coelom (enterocoel).
- Body divided into three sections, Proboscis, collar and trunk. Numerous paired gill-slits are present.
- Digestive tube complete, straight or U-shaped.
- Nervous system normally diffuses, but variable and partially open circulatory system.
- Possesses Glomerulus as an excretory organ and reproduction normally sexual, sexes usually separate but few acorn worms also exhibit asexual reproduction.
- Fertilization external in sea water. Development direct or indirect with a free swimming tornaria larva. Feeds on fine particles in the water.

Etymology: - From the Greek Hemi for half and the Latin Chorda a chord.

CLASSIFICATION OF HEMICHORDATA

Phylum Hemichordata is divided into following four classes:

Class 1: Enteropneusta (Gr.enteron, gut + pneustos, breathed)

- They are solitary, free swimming or burrowing animals and are commonly called as ‘acron or tongue worm.
- They are worm like and bear many pharyngeal gill- slits.

- They possess straight alimentary canal.
- Development includes tornaria larva in some.
- They lack asexual reproduction.

Examples: *Balanoglossus*, *Spengelia*, *Protoglossus*, *Saccoglossus* etc.

Class 2: Pterobranchia (Gr. Pteron, feather + branchion gill)

- These are sessile animals, Alimentary canal U-shaped with dorsal anus.
- Proboscis shield-like and gill slits one pair or absent.
- Asexual Reproduction by budding(Sexes are separate ,one pair gonads).

Examples: *Rhobdopleura*, *Cephalodiscus* etc.

Class 3: Planctosphairoidea

- These are known only by a round transparent pelgie larva related to tornaria larva.
- The alimentary canal of larva is U-shaped.

Examples: *Planctosphairoidea*

Class 4: Graptalita

- These are fossils.
- These are extinct colonial hemichordates.
- Their tubular chitinous skeleton and colonial habits show an affinity with *Rhobdopleura*.