Elphidium / Polystomella

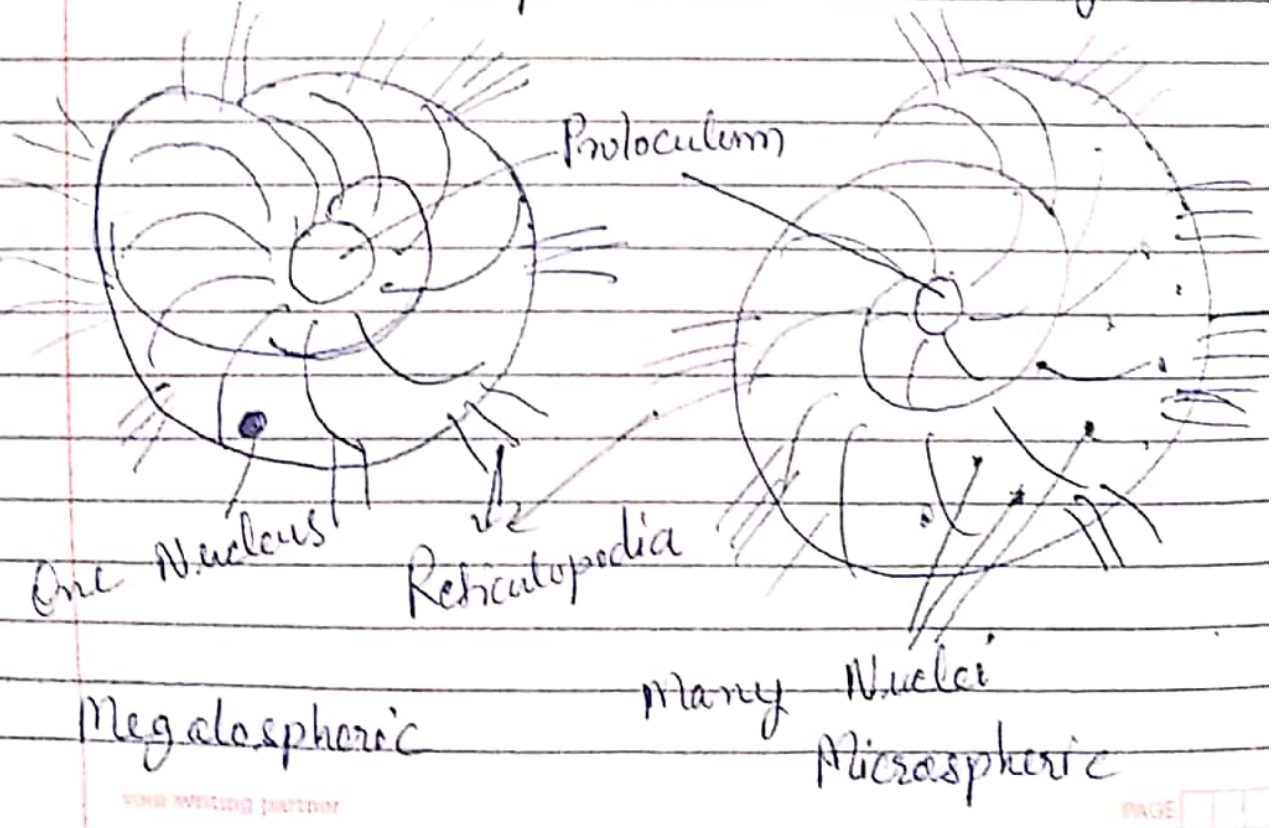
Classification

Phylum — Protozoa
Class — Rhizopoda
Order — Foraminifera
Genus — Elphidium

It is a unicellular protozoa whose body is covered by shell (biconvex)

Habit and Habitat — Elphidium is a marine animal found abundantly on the bottom of the sea creeping on the sea weeds

Structure — Its body is covered by a hard and translucent shell which mainly is made up of $CaCO_3$. Shell is biconvex and multi-locular and perforated. Chambers of the shell are V-shaped laid down serially and



arranged in a flat spiral in which each whorl of chambers overlap the previous whorl. Due to this overlapping only the last chamber is visible from outside The chambers of the shell originate from the initial central chamber, proloculum which may be small or large in size. Chambers are interconnected thru minute pores and to exterior cytoplasmic extensions comes out thru these pores present on the outer whorl.
A thin layer of cytoplasm present outside the shell is called outer cytoplasm and that present inside the shell is called inner cytoplasm which contains nucleus (one in case of megalospheres and many in case of microspheres) and all other organelles. cytoplasm is not differentiated into ecto and endoplasm
Rhizopodia — These are fine thread like cytoplasmic extensions coming out from the pores on the shell This type of pseudopodia is called Reticulopodia These are locomotary in function and often form feeding nets for catching diatoms on which animals feed.
Dimorphism — means this animal has two morphologies (1) Megalospheric in which there is a large proloculum, a large single nucleus and is relatively small in size
(2) Microspheric in which there is a small proloculum, many small nuclei and is large in size. However most common form is megalospheric form.
Locomotion — Elphidium creeps slowly on sea weeds with the help of its reticulopodia.

Nutrition – is holozoic i.e like animals it feeds on other plants or animals like diatoms, algae other protozoa and microcrustaceans. The rhizopodia secretes mucus on its surface to entangle the food particles. It also contains some chemicals to paralyze the prey. This entangled and paralyzed food is then enclosed in a food vacuole

Reproduction and life cycle – Sexual reprodn occurs in megalospheric forms where flagellated gametes are produced inside individual and set free in water. Fusion takes place in water by chance meeting and (syngamy) to produce zygote which develop into microspheric form.

The microspheric forms produce amoebulae by asexual fission (a small amount of cytoplasm collects around each nucleus). It grows to become a megalospheric form

Thus its life cycle exhibits alternation of generation