

CHAPTER FOUR

COELENTERATA:

PHYLUM CNIDARIA

PHYLUM CTENOPHORA

- CLASSIFICATION**
- CHARACTERISTICS**
- ECONOMIC IMPORTANCE**



SUPER PHYLUM COELENTERATA

- These are animals with definite shape; radial symmetry.
- They have tissues; tissues formation start from here.
- They are therefore, eumatozoans.
- They have organ formation.
- They have sensory organs.
- They have 2 types; cnidaria and ctenophora

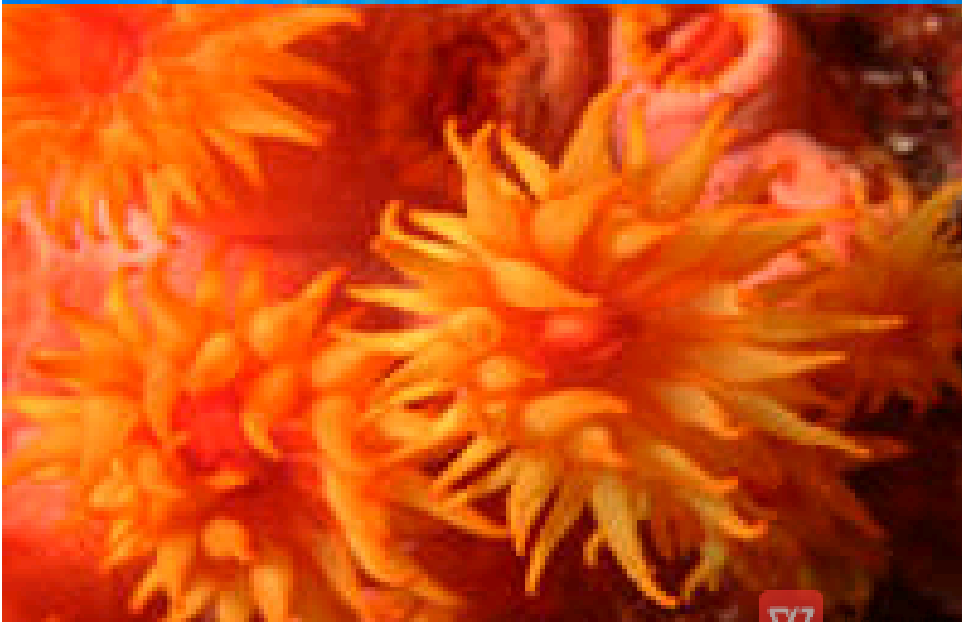


- They are above poriferans in the hierarchical order of development.
- They have double-cell layered tissues, and referred to as diploblastic organisms.
- An outer ectodermis and inner endodermal layers, with a gelly mesogloea in the middle.
- The organisms have a central lumen called coelenteron in which water gathers before being sieved for food substances. Its also, referred to as gastrovascular cavity.



- They have **circu-moral tentacles** around their mouth-part.
- Possess special cells in the ectodermal layer called **cnidocytes**.
- These contain stinging organelles (**nematocysts**);
- They are polymorphic; polyps & medusoids.
- **Polyps are benthic or solitary while medusoids are pelagic.**
- They undergo asexual (buddings) & sexual reproductions.

Some cnidarians



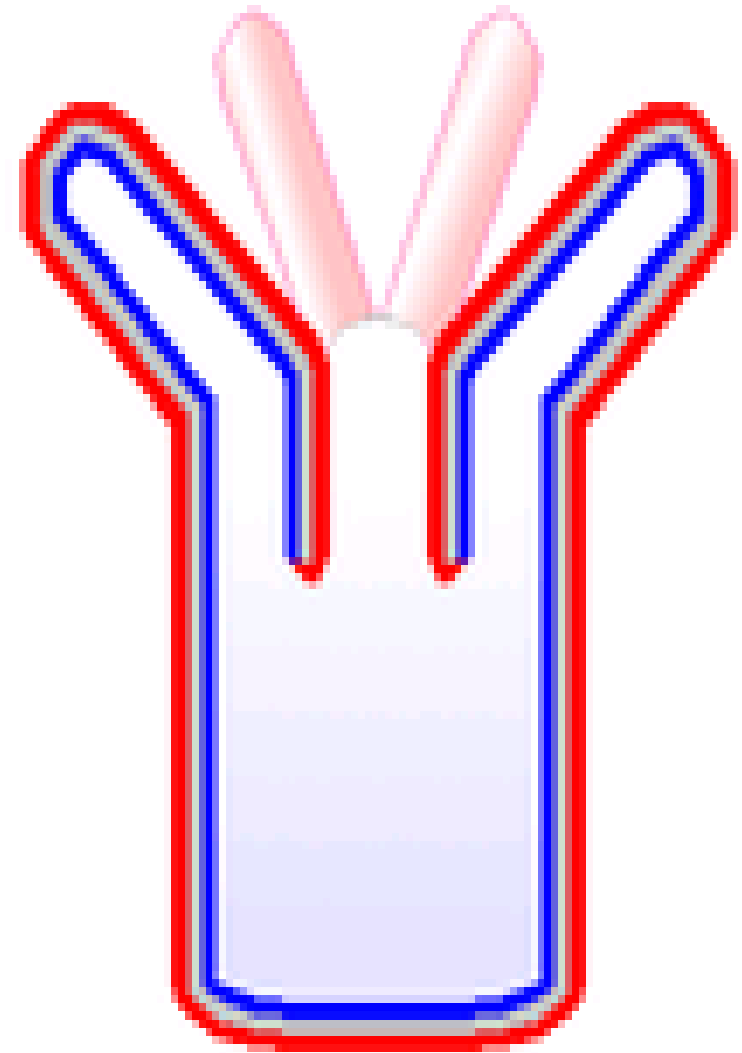
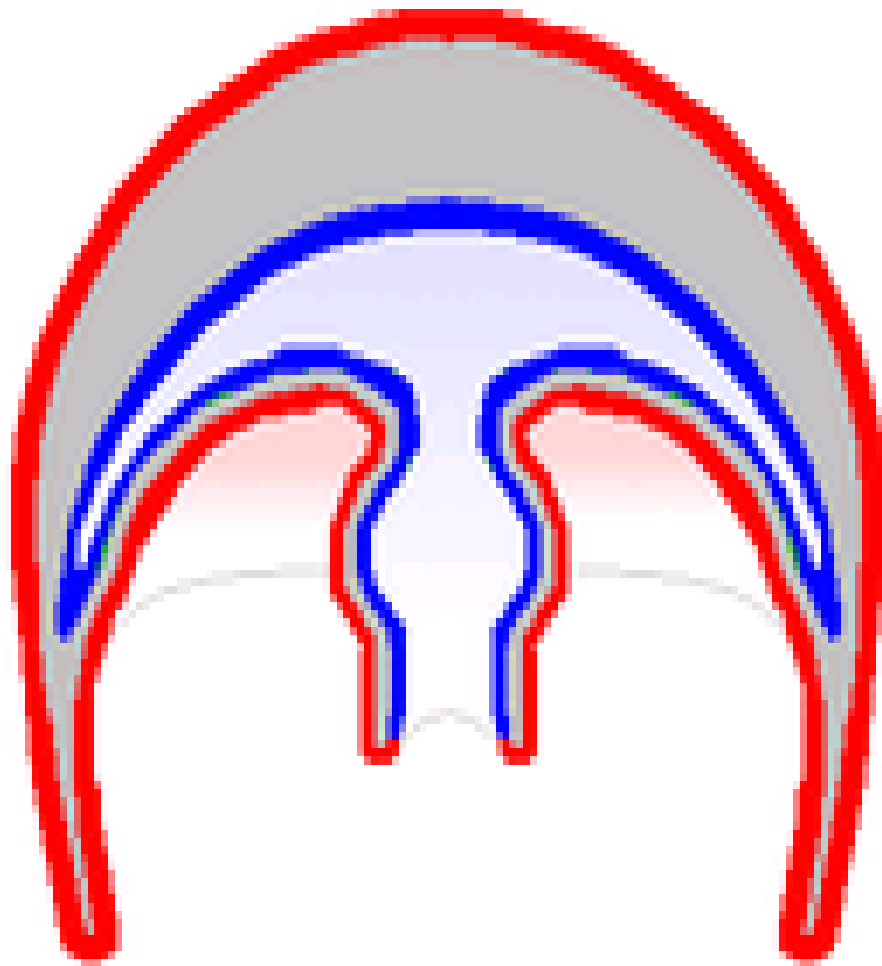
TISSUES

They are diploblastic;

- outer ectoderm layer with 5 types of cells,
- a middle gelly mesogloea that contains food materials , skeletal substances and amoeboid cells,
- an inner endodermal layer (**gastrodermis**) with 4 cell types.



medusoid and polyp stages

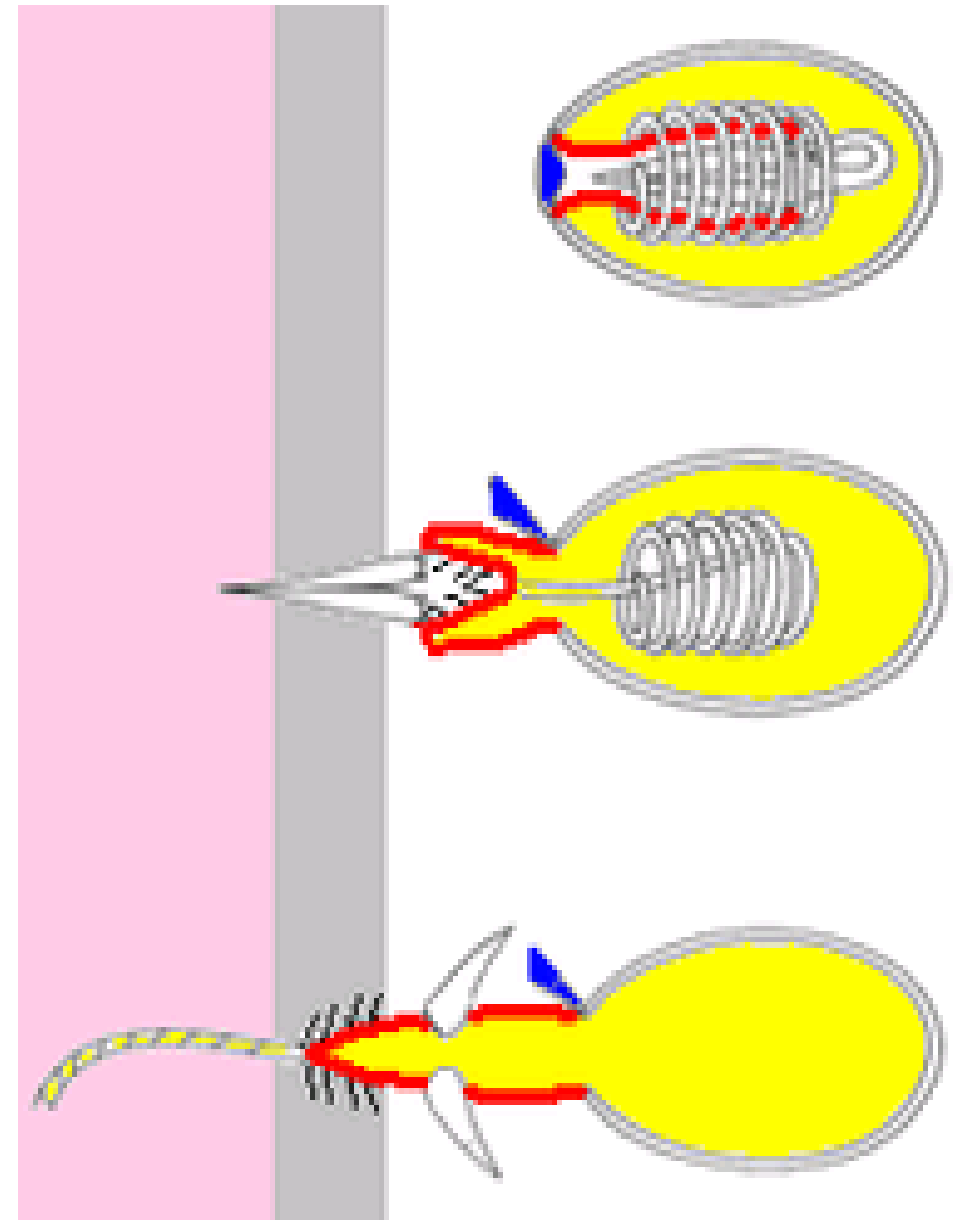


- ECTODERMAL CELL LAYERS;
epithelio-muscular cells,
interstitial cells, cnidocytes,
mucous gland cells, nerve cell
(sensory cell)
- ENDODERMAL LAYER CELLS;
gland cells, mucous secreting
cells, nutritive muscle cells,

nematocysts

nematocysts are
also referred to
as **cnidae**.

- 3 types of cnidae;
- Nematocysts
proper
- Spirocysts
- ptychocysts



classification

- Kingdom – Animalia
- Subkingdom - Metazoa
- 2 Branch - Parazoa & Eumatozoa
- Grade - Bilateria & Radiata
- Super-phylum – Coelenterata
- Phylum- Cnidaria & Ctenophora



Phylum Cnidaria

- Has 4 Classes; Anthozoa, Hydrozoa, Scyphozoa & Cubozoa
- Anthozoa has 3 subclasses and 15 orders.
- Hydrozoa has no subclass but 9 orders.
- Scyphozoa has no subclass but 4 orders



1. Class Anthozoa

- Has **3 subclasses**; Zoantharia , Ceriantipatheria & Alcyonaria (octocorallia). Has 6000 sp. Mostly hydroids.
- **Zoantharia** also known as **Hexacorallia** or hard corals has **5 orders**; Zoanthinaria, Actinaria, Scleractinia, Corallimorpharia, Ptychoactiaria. Eg. *Taelia* (sea anemones), *Acroponema*,



- **Alcyonaria** is also referred to as Octocorallia or horny corals has 8 Orders ;
Stolonifera, Gastraxonacea, Telestacea, Protoalcyonaria, Gorgonacea, Alcyonacea, Coenothecalia, Penantulacea.

Eg. *Tubiposa, Gorgonia, Alcyonia*, etc.

- **Ceriantipatheria**; thorny corals has 2 Orders; Antipatharia & Ceriantharia.

Eg. *Cerianthes, Antipathes, Stichopathes*

2. Class HYDROZOA

Has no subclass but has **9 Orders**;
Thecata, Athecata, Actinulida,
Limnomedusae, Trachylina,
Millesporina, Siphonophora,
Chondrophora, Stylosterina. It has
2700 species. They are polymorphic

3. Class CUBOZOA

Has no subclass but **1 Order**;
Cubomedusae



4. Class Scyphozoa ;

Has no subclass **4 Orders;**

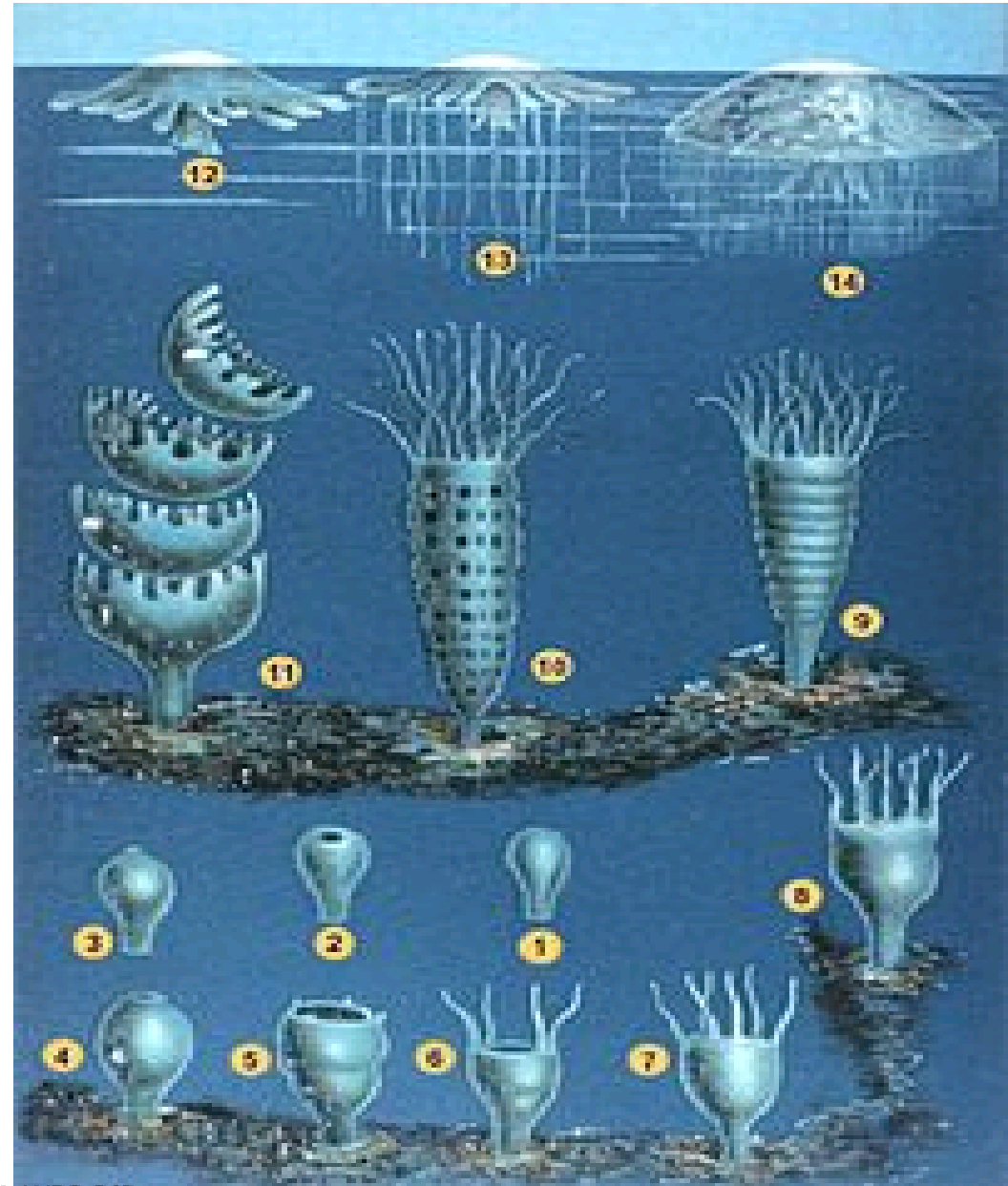
Caronatae, Rhizostomeae,

Stauromedusae, Semaestomeae.

Eg. *Aurelia (jellyfish)*, *Cassiopeia*,
Rhizostoma, *Cyanea*, etc.

There are 200 species. medusoid stage is prominent

Life cycle of aurelia



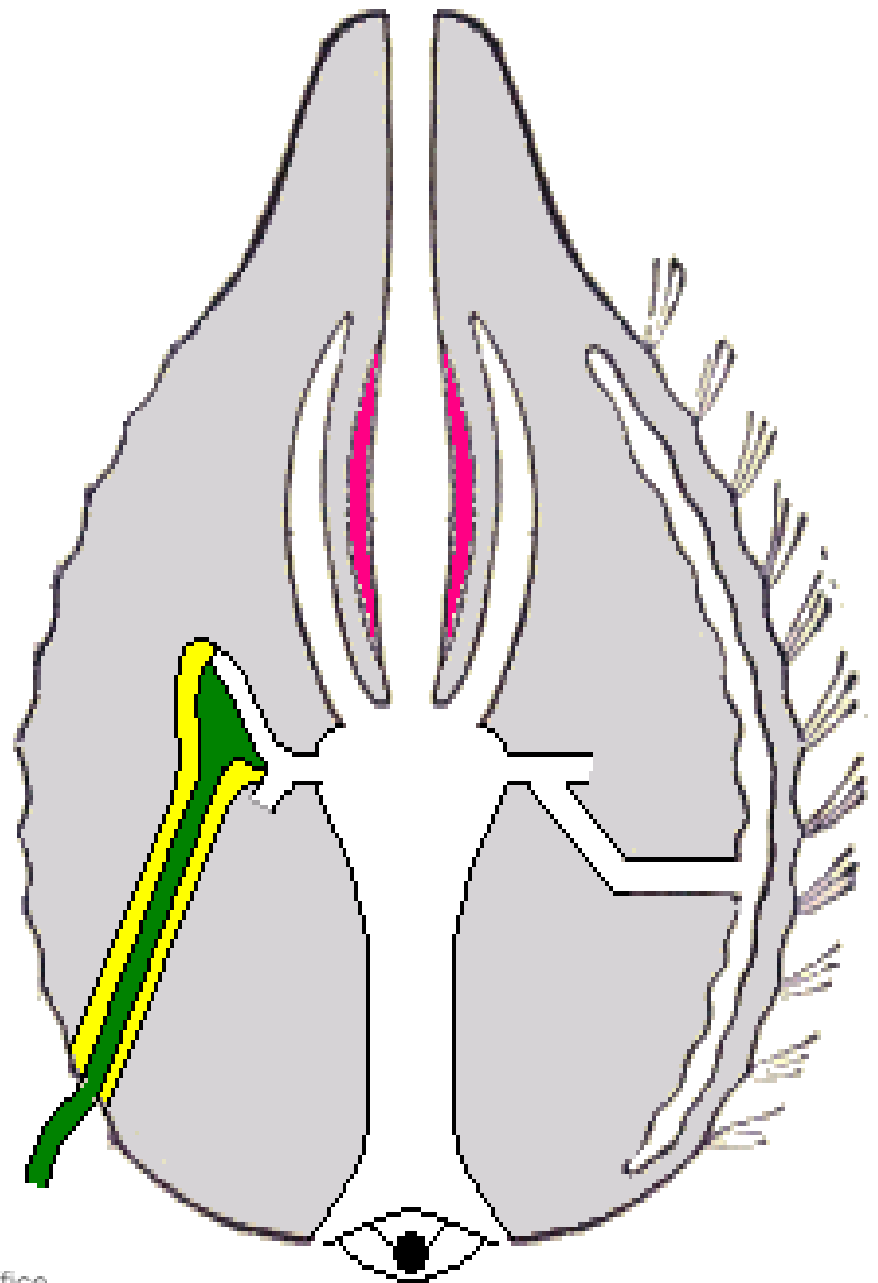
Sea anemones (Anthozoans)



PHYLUM CTENOPHORA

- This phylum contains less than 100 species.
- They are all marines
- They approach bilateral symmetry.
- They have 8 rows of comb-like plates that are used for locomotion.
- Most are free- swimmers with few being benthic
- They have 2 pair of tentacular sheath

- Surfaces of the 8 plates are fused.
- And have glue like cells called COLLOBLAST.
- They have complex gastro-vascular system; stomach, pharynx, pouches and canals.



- Animals have nerve nets system; nerve cells (ocelli) and balancing cells (statocysts)
- They are monoecious; have both testis and ovaries.
- Sperms are shed into water, etc.
- Animals are transparent and give lights in the dark

classification

- Phylum Ctenophora has 2 Classes; Tentaculata & Nuda
- Class Nuda has 1 Order; Beroidea
- Class tentaculata has 6 Orders; Lobata, Cessida, Ganishida, Plactyctida, Thalassocalycida.
- Eg. Pleurobranchia, Mnemiopsis, Cestum and Haeckelia



Colony of ctenophorans



Economic importance

- They are ferocious feeders; can be used to control larval bloom.
- They filter salts from the sea, and deposit them on coral reefs, eg.
Zooxanthella
- Feeding on zooplankton cause fishes to leave continental shelf into deeper sea.
- Dried corals are used as vases.
- Have protective symbiotic relations with hermit crabs

