

PHYLUM

‘Sea walnuts’/‘Comb jellies’

CTENOPHORA

TISSUE level of body org.

RADIAL Symmetry

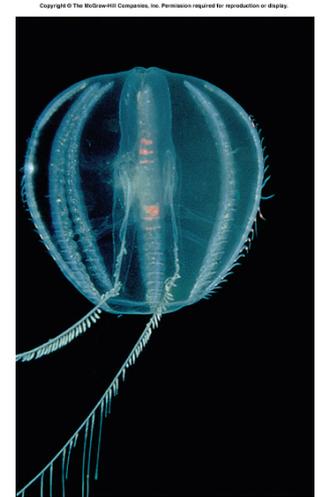
Bodies often transparent &/or luminescent

Locomotion = most are free-swimming

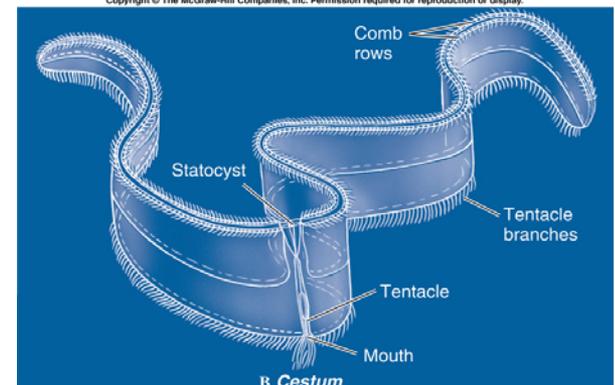
8 rows of ciliated combs
= ctenes for locomotion

Facts: Colloblasts = adhesive cells
No nematocysts of their own,
although some species gather
them from their food!

Complete digestive system – mouth to anus



A *Pleurobrachia*



B *Cestum*

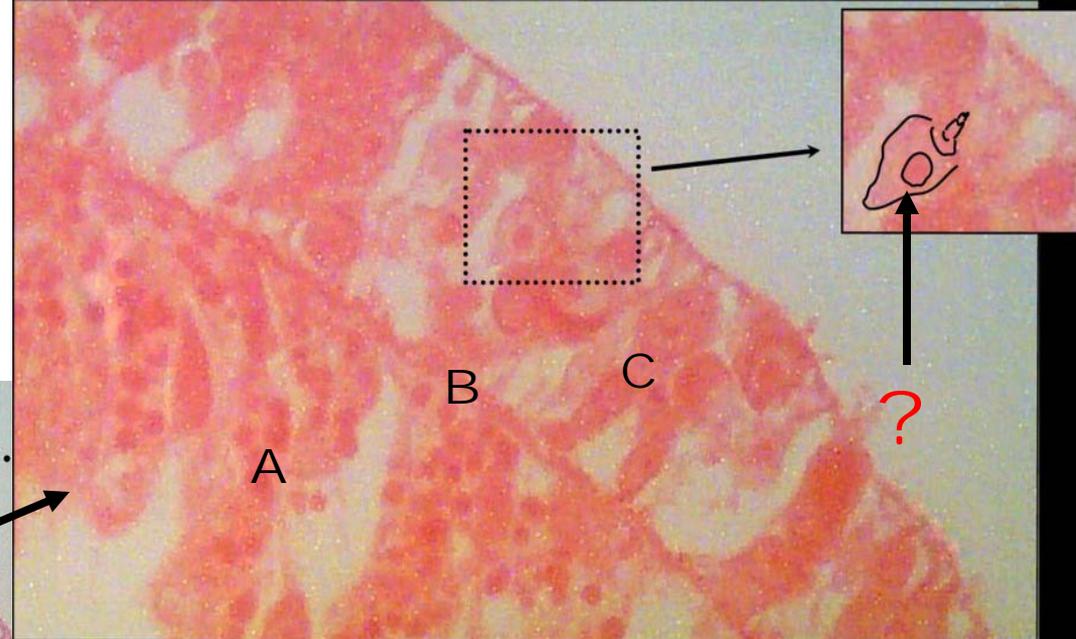
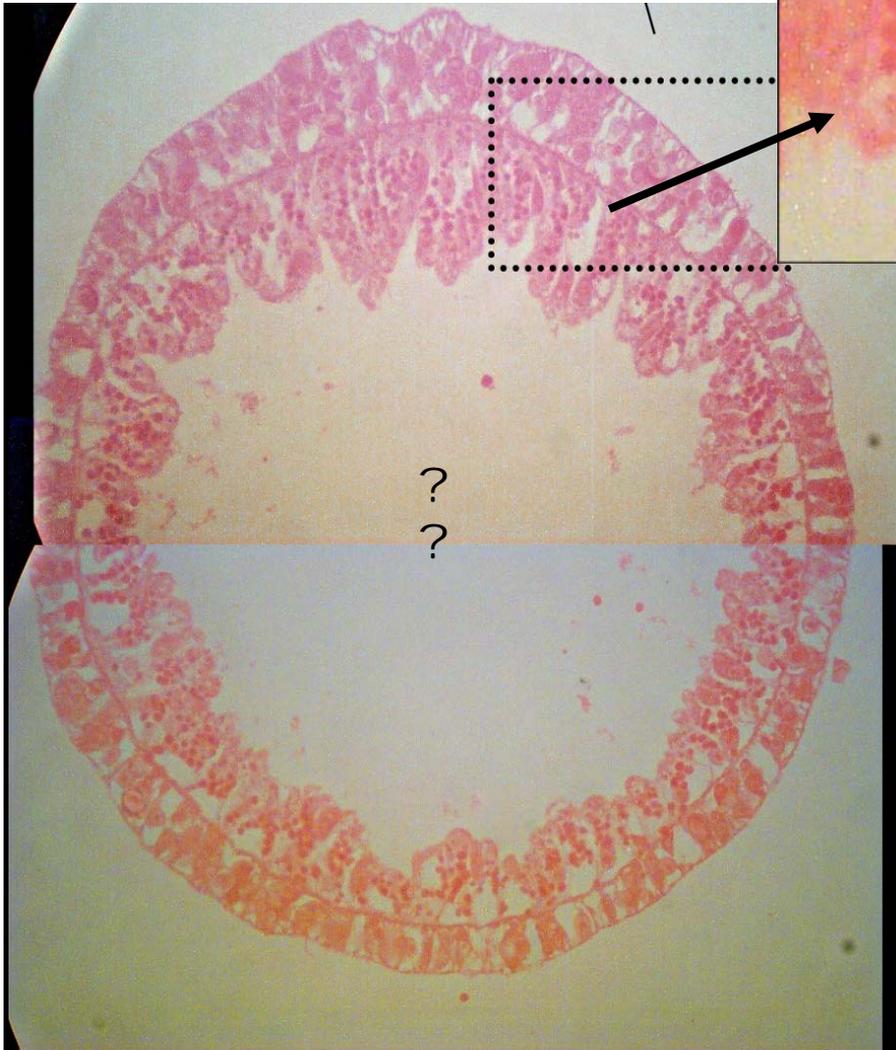
PHYLUM

CNIDARIA



- **TISSUE** level of body organization
- Middle layer = **MESOGLEA** = Acellular matrix (Just jelly!)
- Diagnostic cell type = **CNIDOCYTE**
It contains the nematocyst organelle

How many
tissue layers?



A = ?

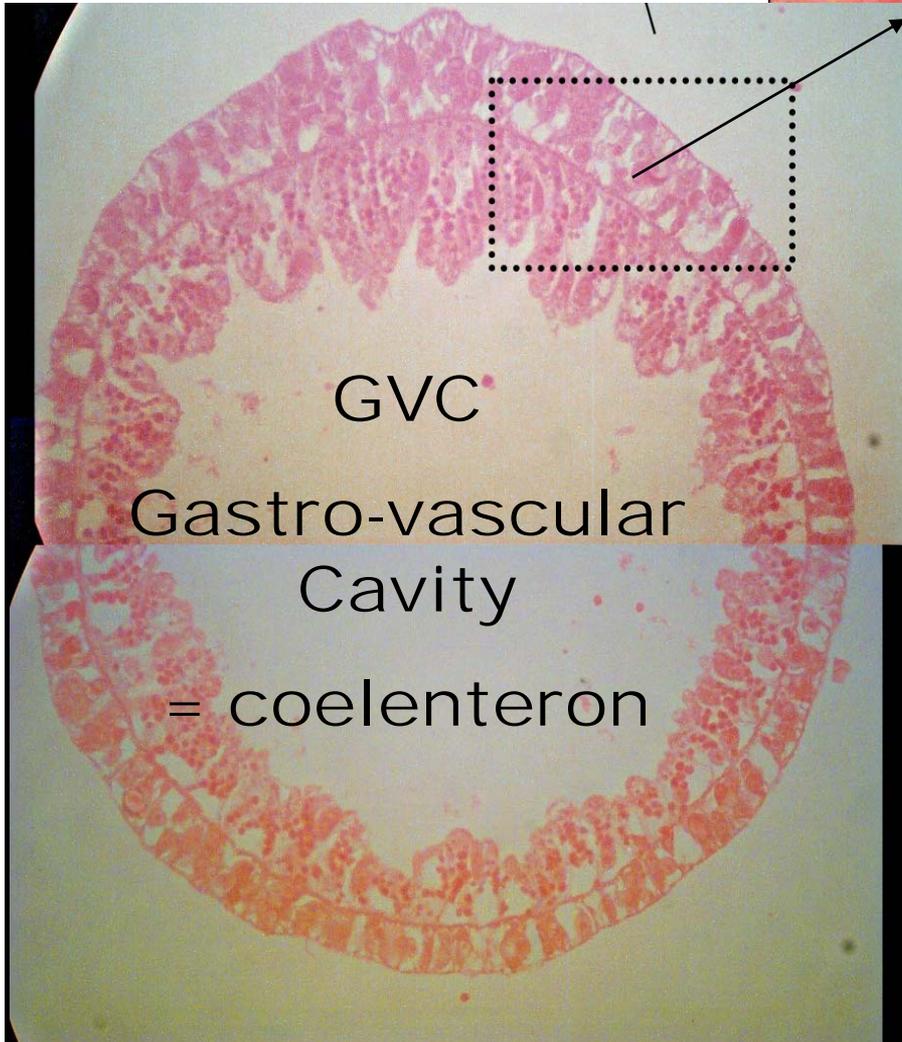
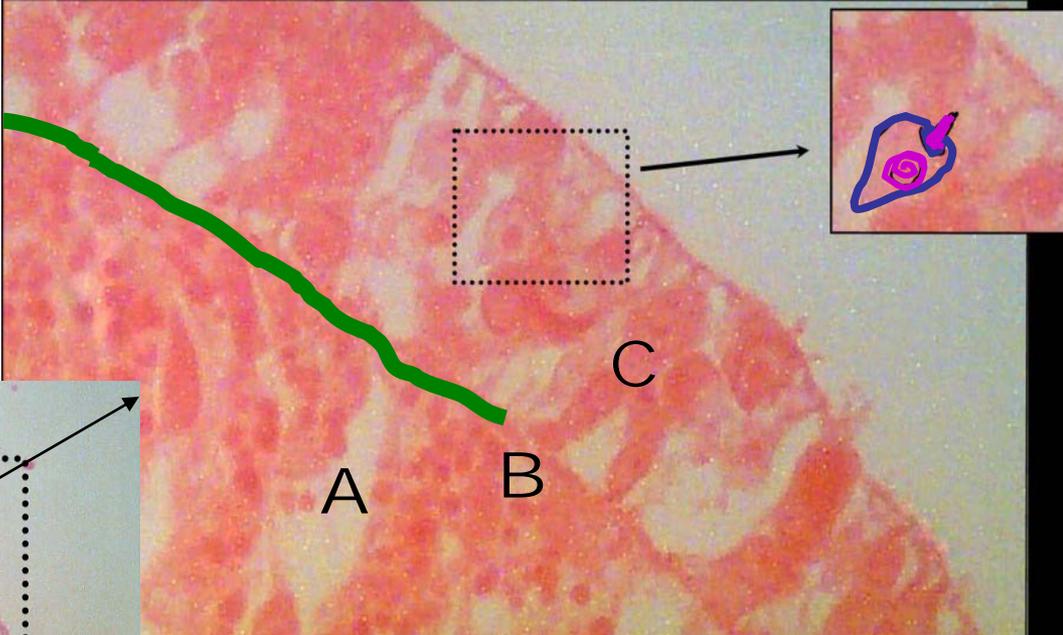
B = ?

C = ?

?? = Lumen
of what ?

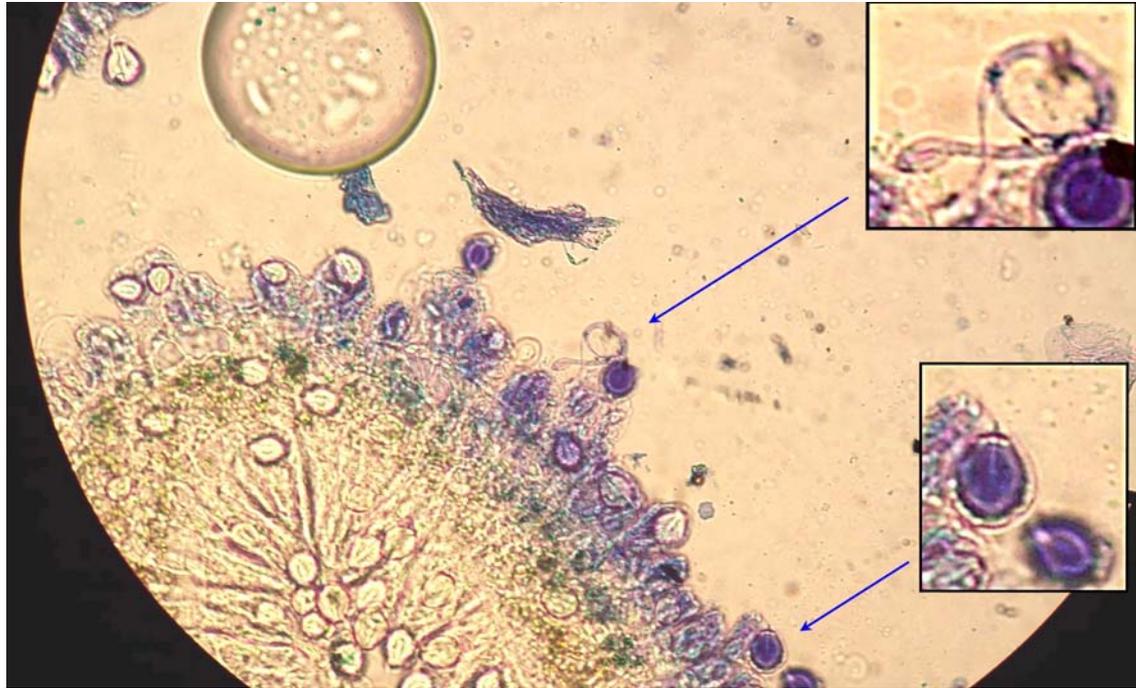
Function?

Insert: A Cnidocyte - *cell* containing a *Nematocyst - organelle* not yet triggered.

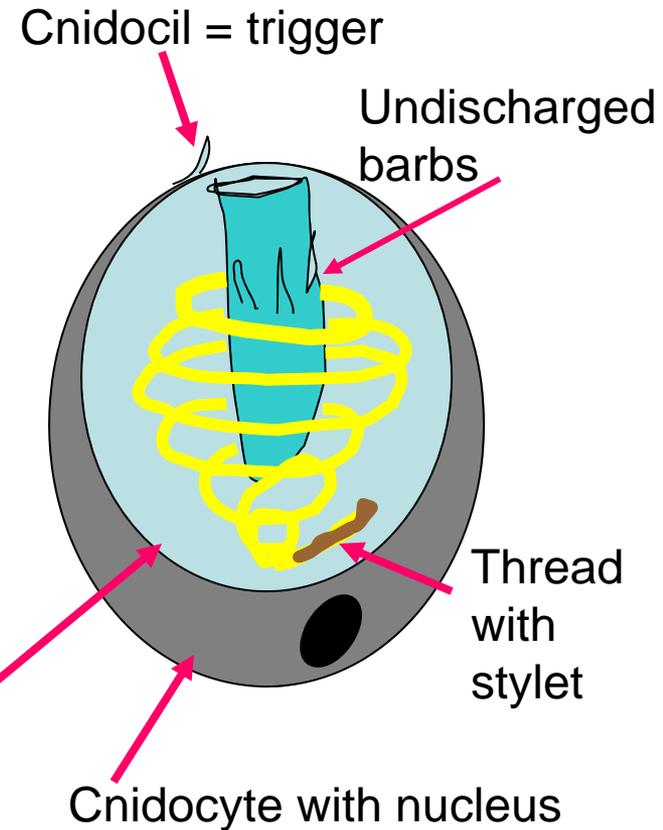


Cnidarians are **DIPLOBLASTIC**
(2 tissue layers)
C = Epidermis &
A = Gastrodermis
with B = Mesoglea in
between the two

Phylum Cnidaria



Cnidae = nematocyst



Specialized cells called cnidocytes contain capsule-like organelles called cnidae...some of which are nematocysts. (Other cnidae have other names and functions).

Nematocysts bear thread-like stinging projectiles used for anchorage, defense and prey capture.

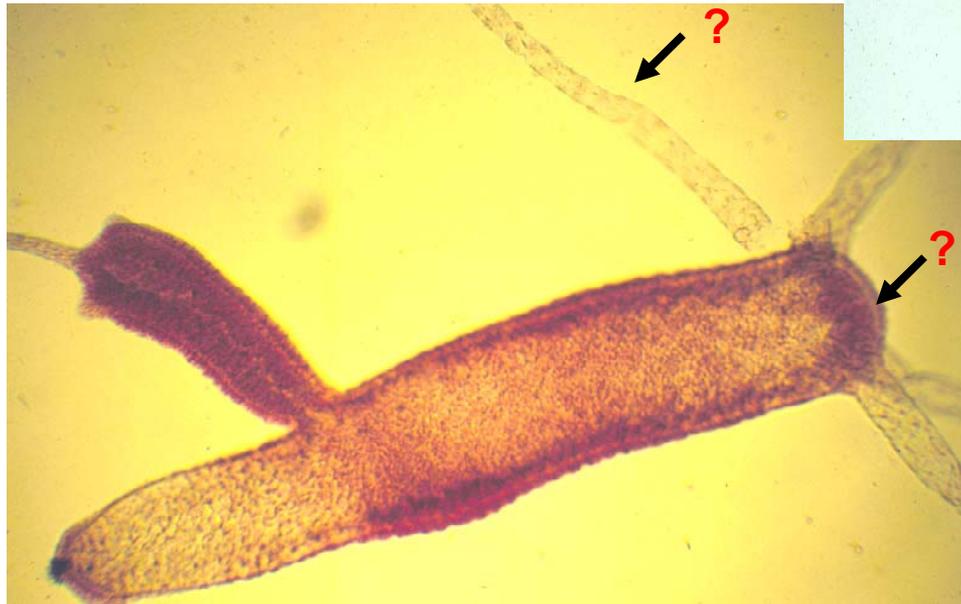
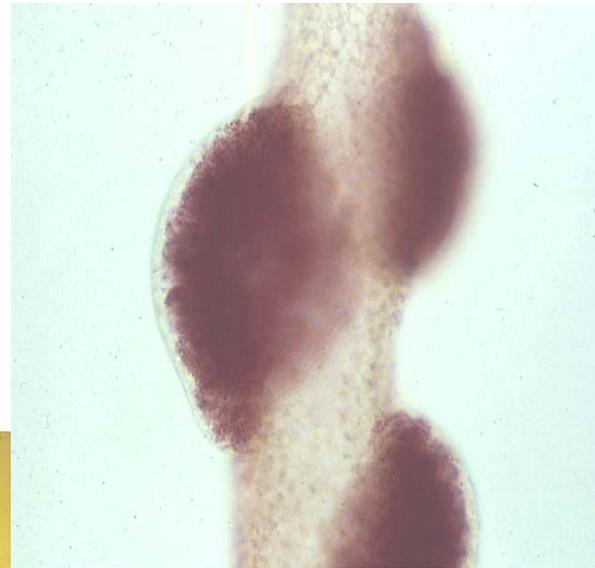
Cnidarian Life Cycles

CLASS

- **Hydrozoa** Polyp dominant
.....Medusa does exist
(Hydra is cute but odd!) Remember the Hydrocorals!
- **Scyphozoa** Medusa dominant
.....Polyp may exist
- **Cubozoa** Medusa dominant
Polyp inconspicuous or unknown
- **Staurozoa** No medusa per se but a medusa-like top exists on a polyp base
- **Anthozoa** Polyp only

Can you differentiate
between a gonad
and a bud?

Which is for sexual
reproduction?

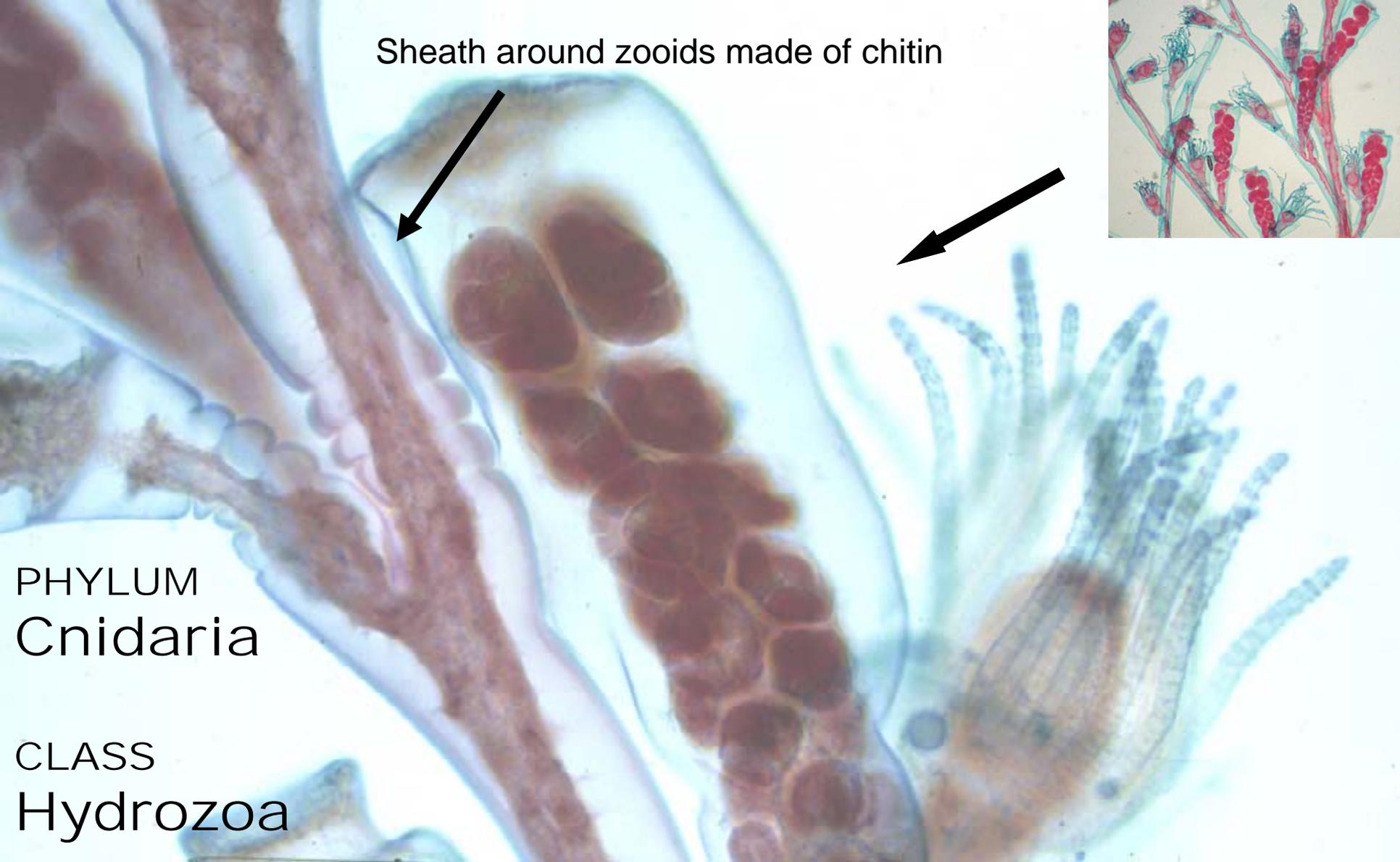


Cnidocyte-bearing tentacles, mouth & hypostome,
GVC (coelenteron) & bud [fig 2.2]

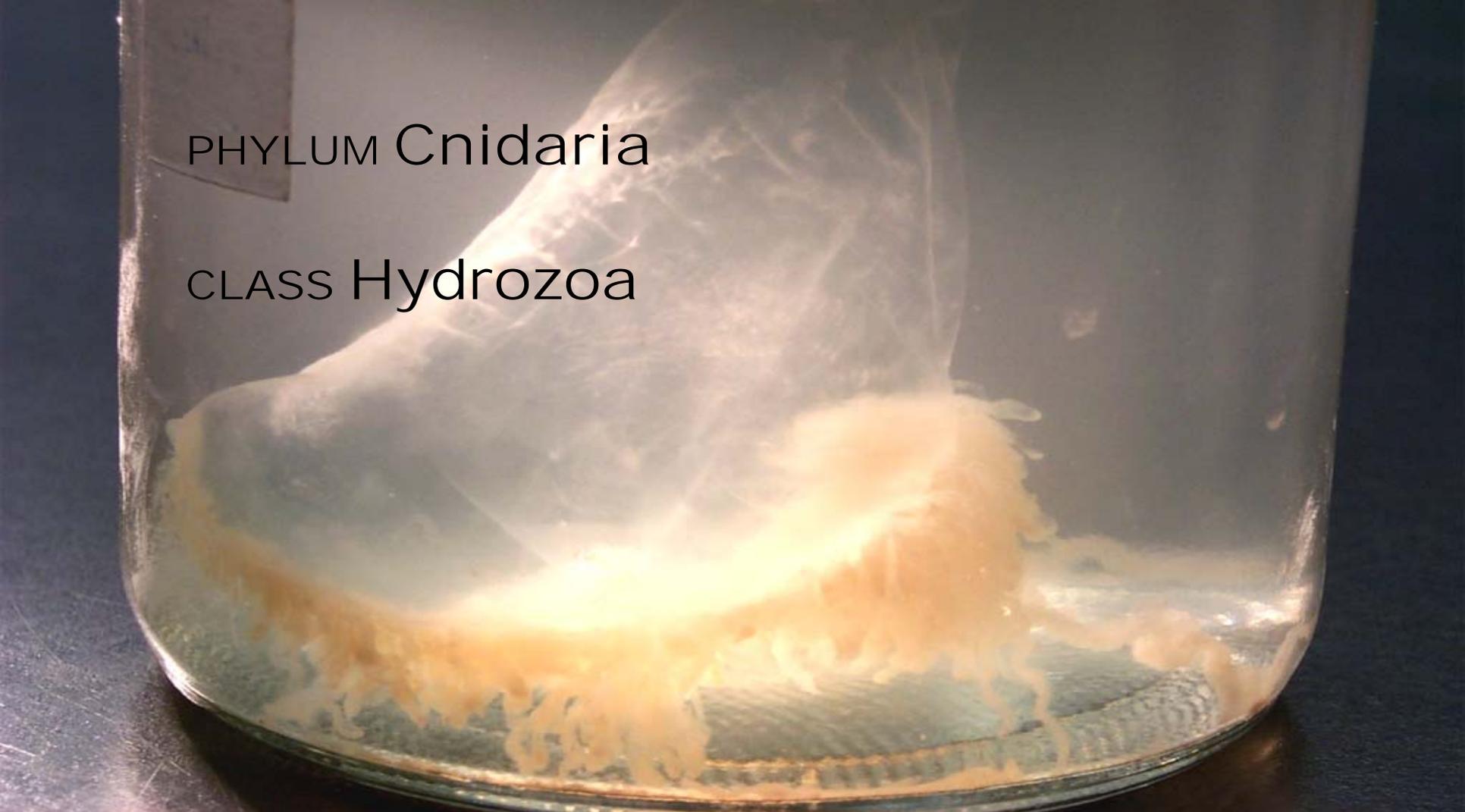


Theca
made of ?

Obelia colony slide with close-up of the some of the polyps or zooids. **Know your zooids!** Be able to name each one and give the function.



Note polymorphism [fig 2.3-6] - gastrozooids (hydranth) (with feeding tentacles) & gonozooids (gonangia) for repro



PHYLUM Cnidaria

CLASS Hydrozoa

The colony of polyp (& medusa) types in Portuguese Man-O-War demonstrate polymorphism. It is a colony of many individuals – zooids – modified for different tasks (feeding, floating, reproduction, defense etc.) **Name them**

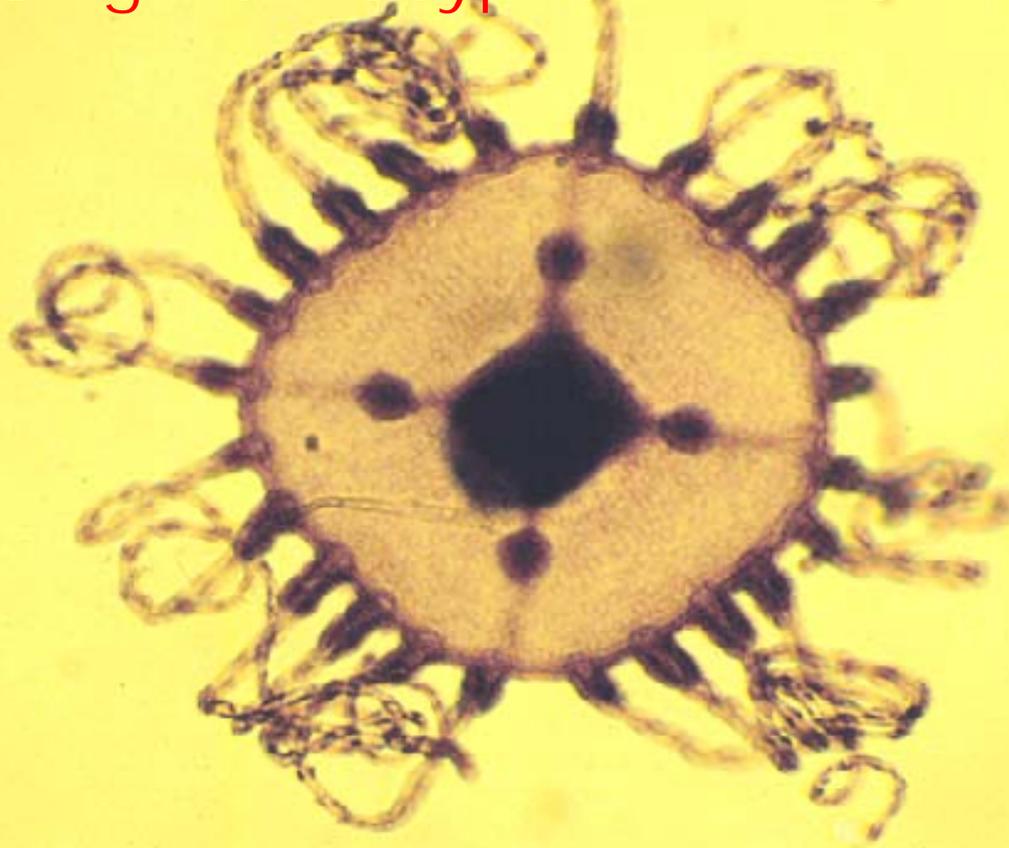


PHYLUM
Cnidaria

CLASS
Hydrozoa

CaCO_3 skeletons of a fire coral. This is a hydrozoan (not anthozoan) coral because it has both a POLYP stage (dominant = above) & a MEDUSA stage in its life cycle.

Name feature around bell of Hydrozoan medusae that is missing from Scyphozoan medusae



PHYLUM
Cnidaria

CLASS
Hydrozoa

Ventral view of a Hydrozoan Medusa [fig 2.3-7]
Note Long knobby tentacles with batteries of
nematocysts along them. (S) Statocysts are for balance

Differences between a
Scyphozoan & Hydrozoan
medusae?

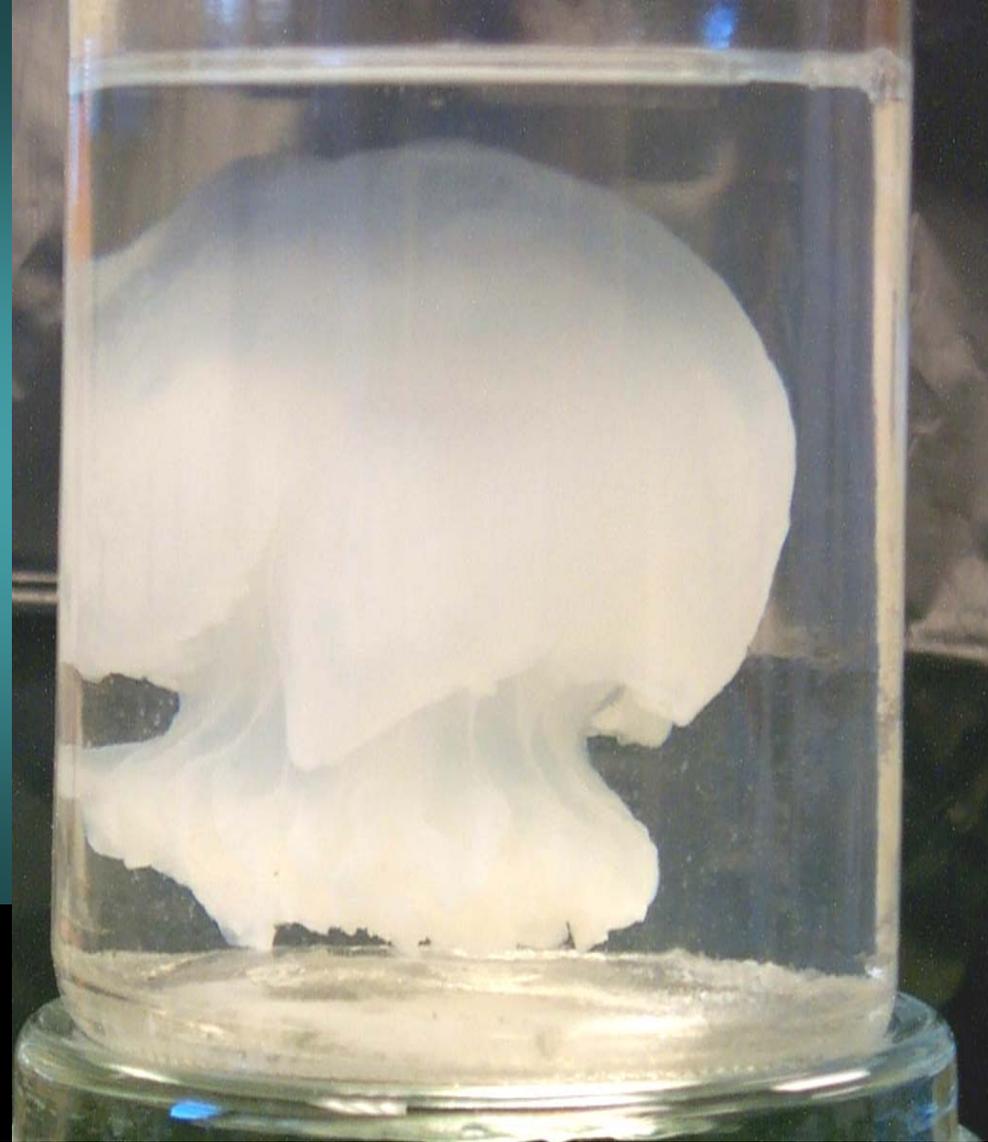
Schyphozoans

- More 'jelly' & 4 oral arms.

Hydrozoans

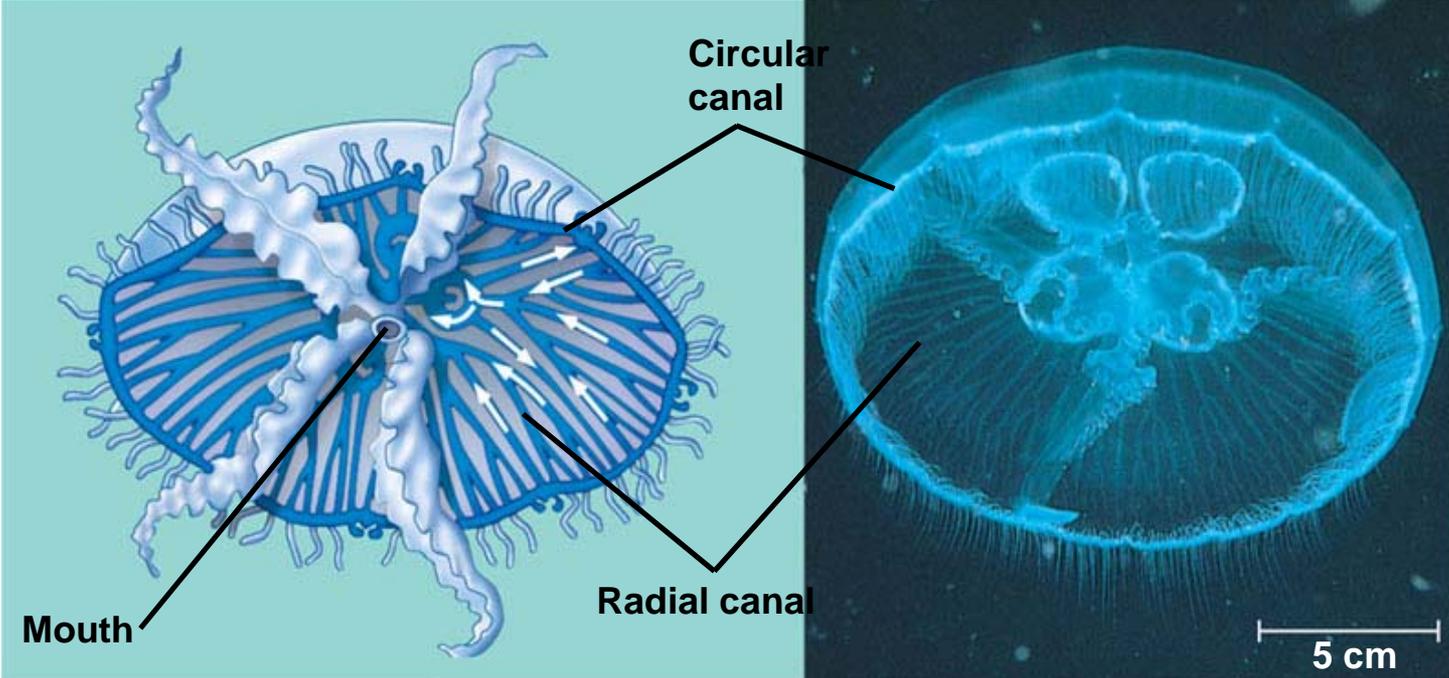
- No oral arms. Have a velum ring &
less jelly (fold up when preserved).

PHYLUM Cnidaria
CLASS Scyphozoa



Cannonball jellyfish. Note the large amount of mesoglea present in this class. MEDUSA is dominant in Scyphozoans, but polyp stage is also present at some point during their life cycle.

PHYLUM Cnidaria
CLASS Scyphozoa

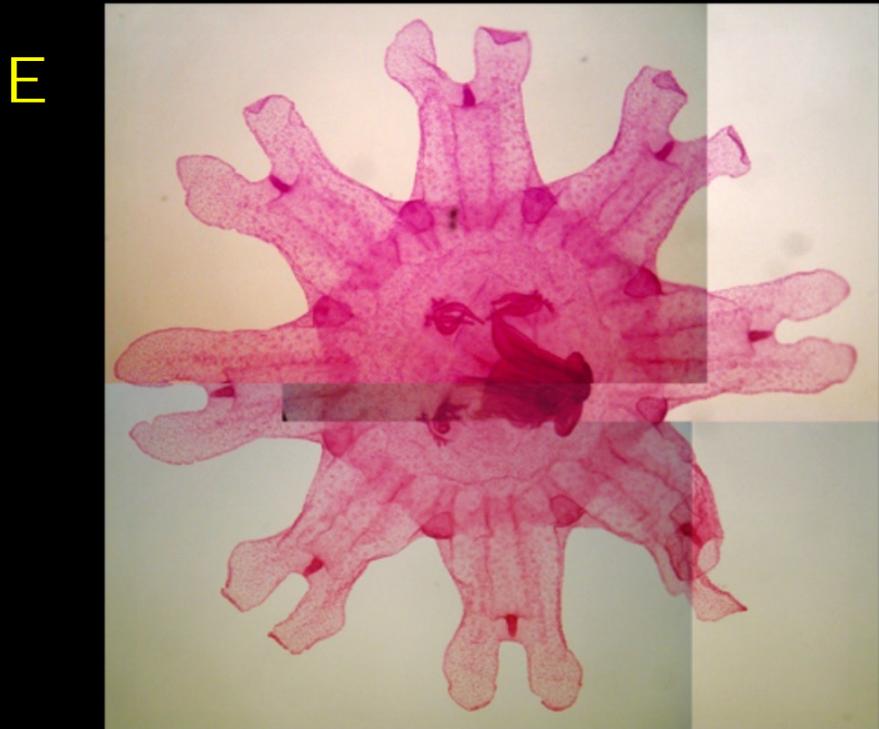
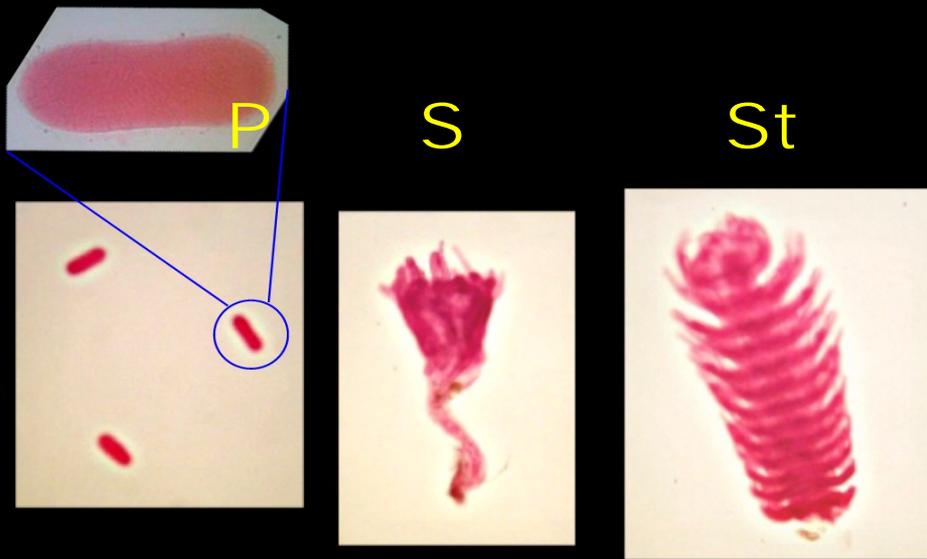


PHYLUM Cnidaria
CLASS Scyphozoa

Life Cycle Stages
2 Medusae produce gametes
Egg + sperm = zygote

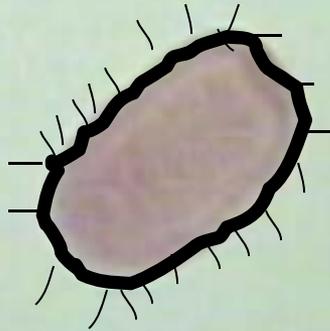
P Planula
a actinula
(only in Scyphozoa)
S Scyphistoma
St Strobila (asexual)
E Ephyra
A Adult

P a S St E A



PHYLUM
Cnidaria

CLASS
Scyphozoa



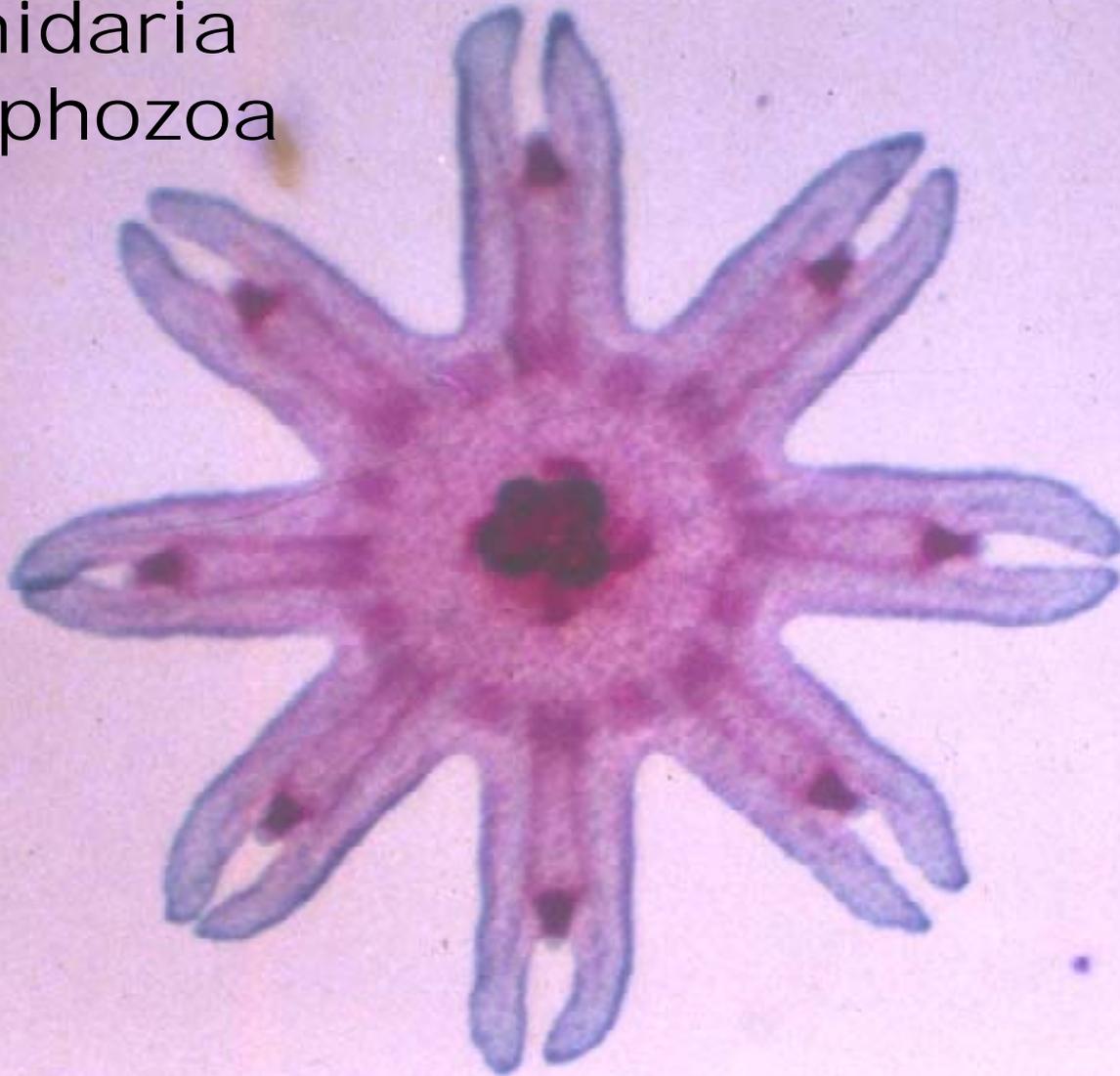
Planula = Bilaterally symmetrical, SEXUAL motile larval stage that moves away from parent to settle in a new area.

PHYLUM Cnidaria
CLASS Scyphozoa

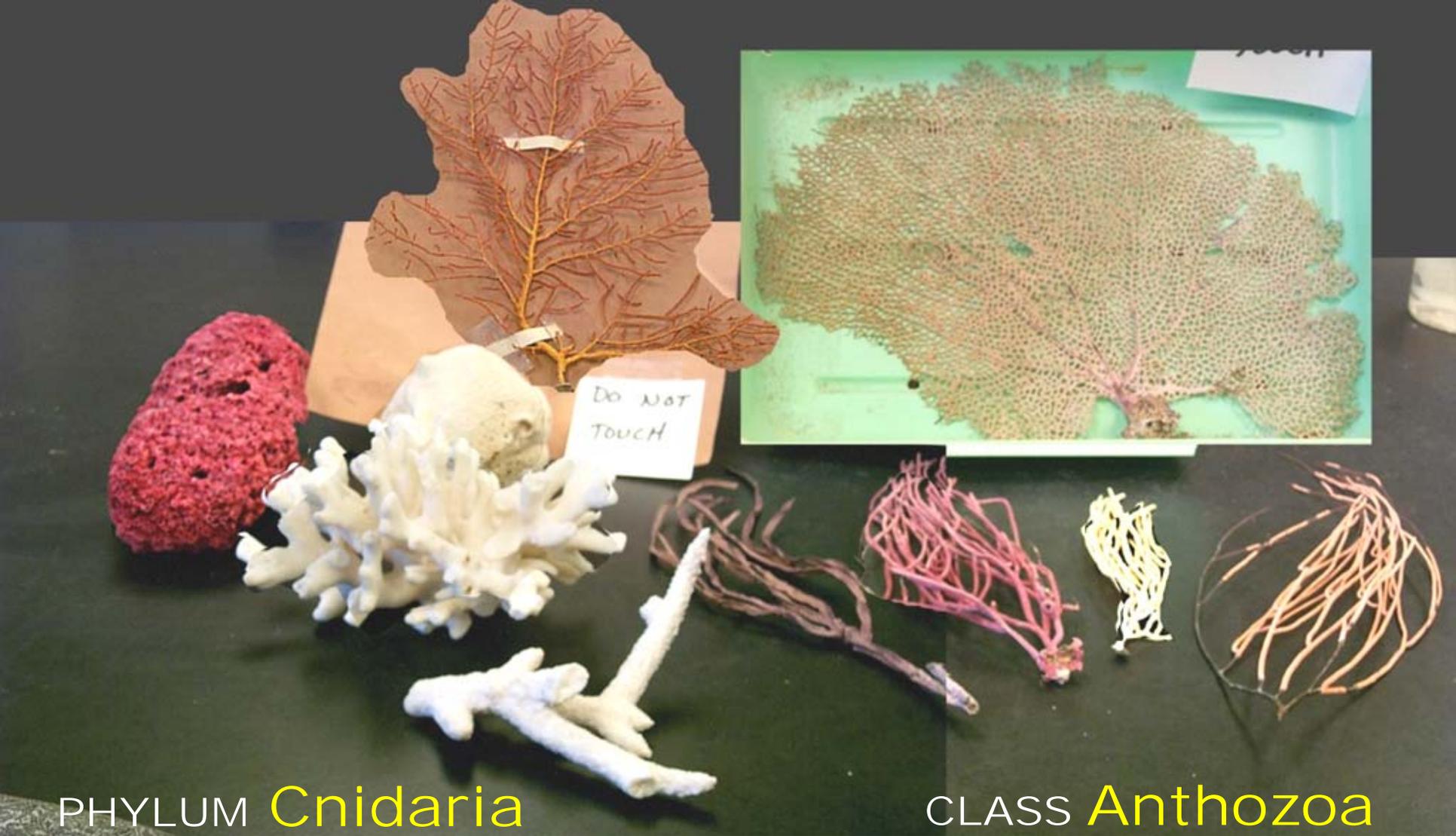


Close-up of strobila stage. Buds form from asexual reproduction and are small developing medusae

PHYLUM Cnidaria
CLASS Scyphozoa



Close-up of ephyra larva [fig 2.6-F]



PHYLUM **Cnidaria**

CLASS **Anthozoa**

Calcium-carbonate skeletons of various corals, sea fans & sea whips. All = Anthozoa: ONLY the POLYP stage is present.

PHYLUM Cnidaria
CLASS Anthozoa



Polyp stage only

Sea anemones –
each polyp lives as
an individual. They
usually ‘play nice’
but can fight

Note:
slow motion in the
‘Shapes of Life’
video????



PHYLUM
Cnidaria

CLASS
Anthozoa

Other Anthozoa polyps grow as colonies. Examples of this include sea pansies (shown here,) sea fans, sea whips, sea pens and of course corals.



Remember, ONLY the POLYP stage is present in the Anthozoa class of cnidarians.

STRETCH

Figure 46.2 Asexual reproduction of a sea anemone

