PHYLUM

CNIDARIA

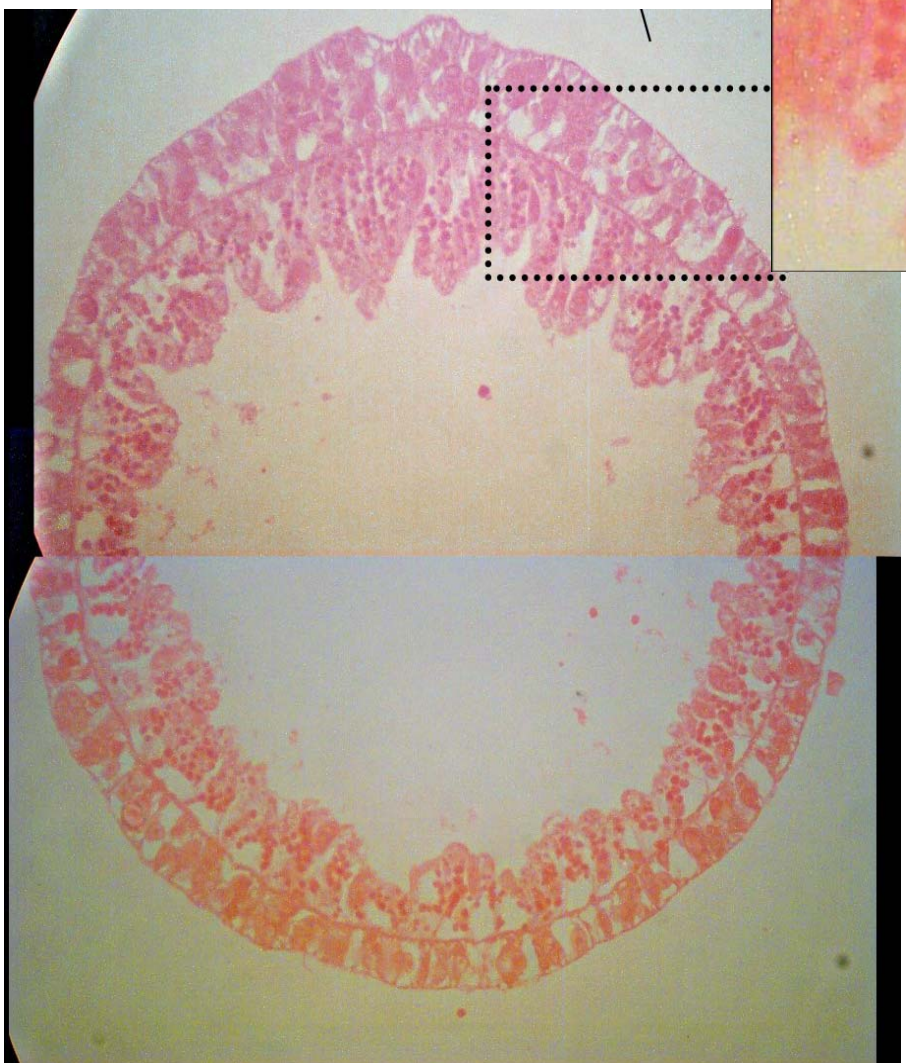
- TISSUE level of body organization

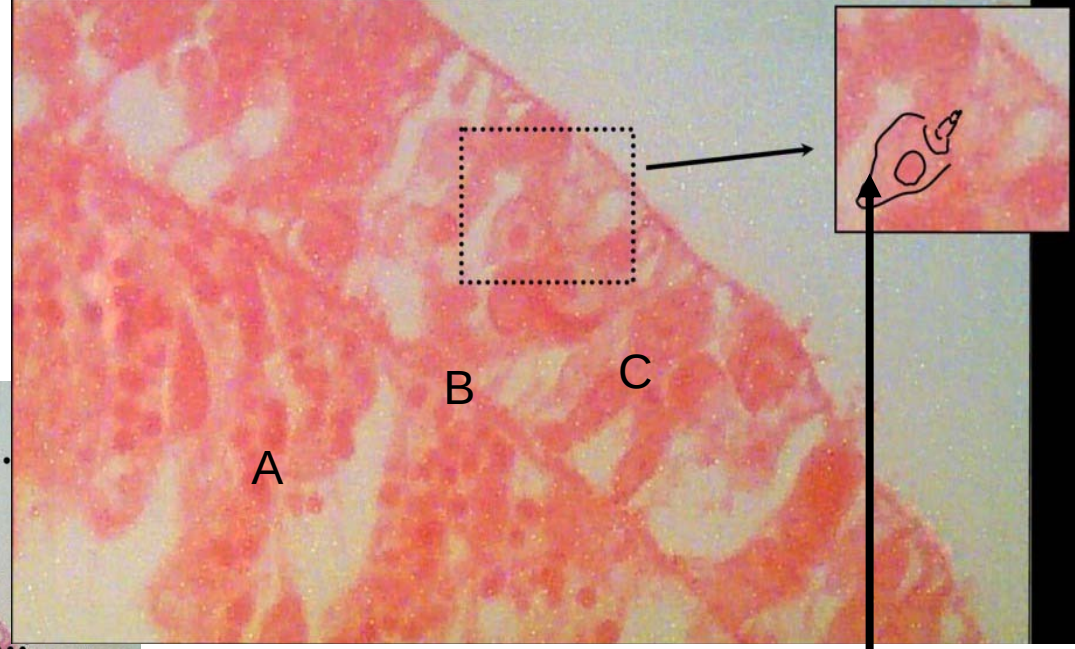
- Middle layer = MESOGLEA = Acellular matrix (Just jelly!)

- Diagnostic cell type = CNIDOCYTE

  It contains the Nematocyst organelle

Cnidocyte vs. Nematocyst





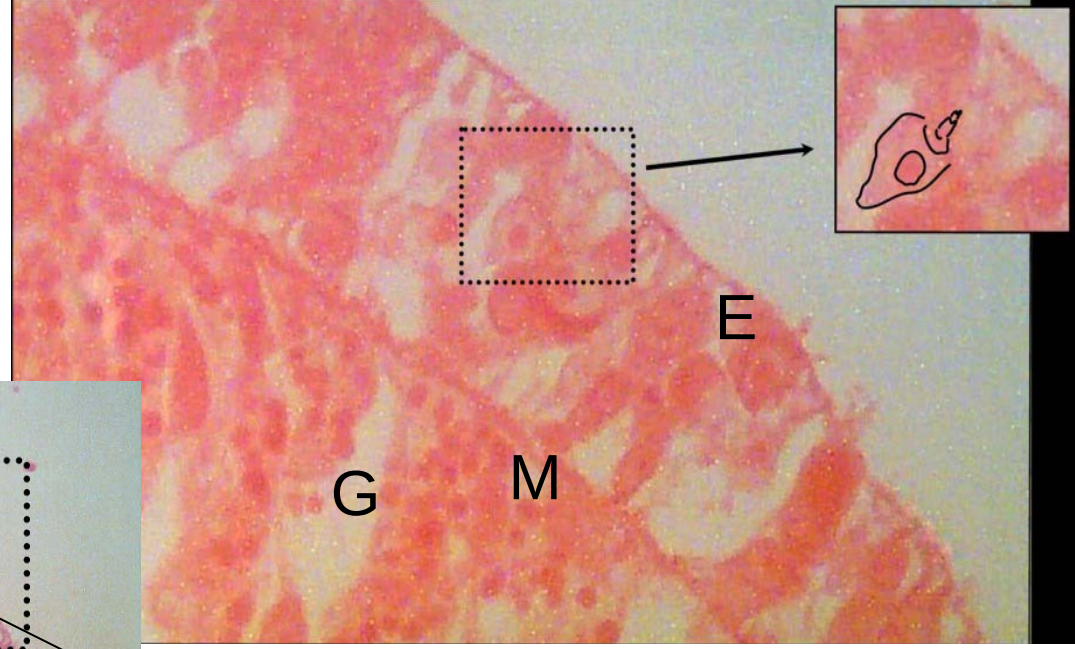
A = ?

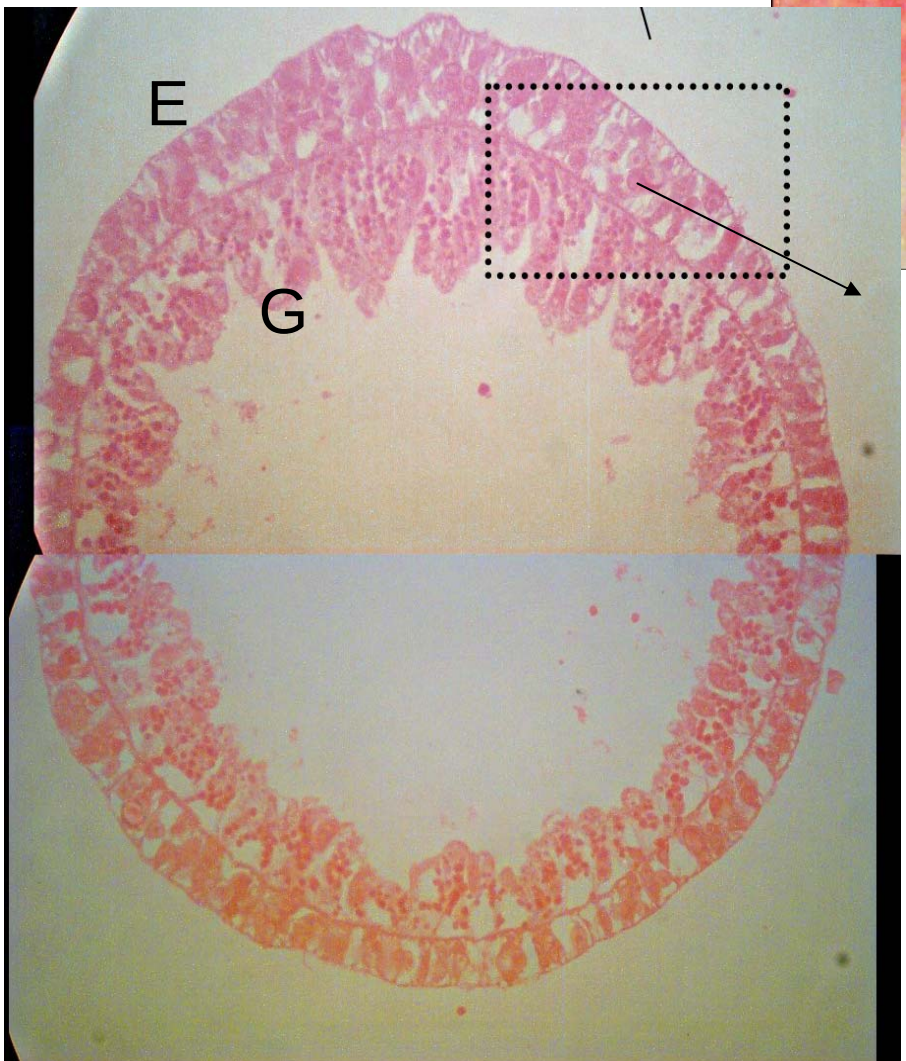
B = ?

C = ?

?

Insert: A Cnidocyte (C) – *cell* containing a Nematocyst - *organelle* not yet triggered.



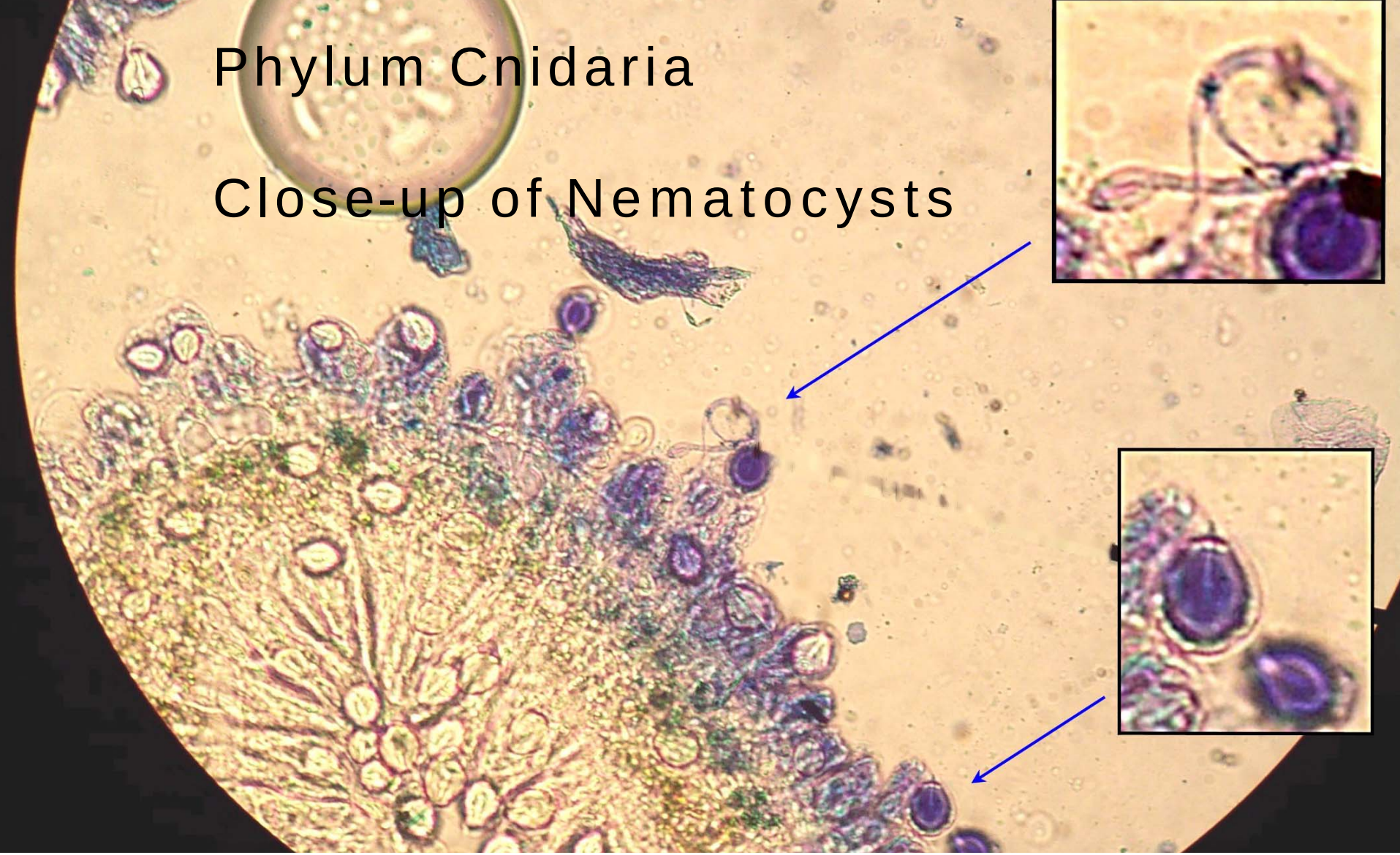


Cnidarians are
DIPLOBLASTIC

(2 tissue layers)
C = Epidermis (E) &
A = Gastrodermis (G)
with B = Mesoglea in between the two

Phylum Cnidaria

Close-up of Nematocysts



Specialized cells called cnidocytes contain nematocysts. These are used for anchorage, defense and capture of prey.

Cnidarian Life Cycles

- Hydrozoa Polyp dominant
  Medusa does exist
  (Hydra is cute but odd!)
  Remember the fire coral!
- Scyphozoa Medusa dominant
  Polyp does exist
- Anthozoa Polyp only

Do you know the difference between a bud and a gonad?

PHYLUM Cnidaria

CLASS Hydrozoa

Cnidocyte-bearing tentacles, mouth, GVC & bud (branch = asexual reproduction) [fig 2.2]

Polyp with gonads for sexual reproduction &
close-up view of the gonads [fig 2.2] (bumps)

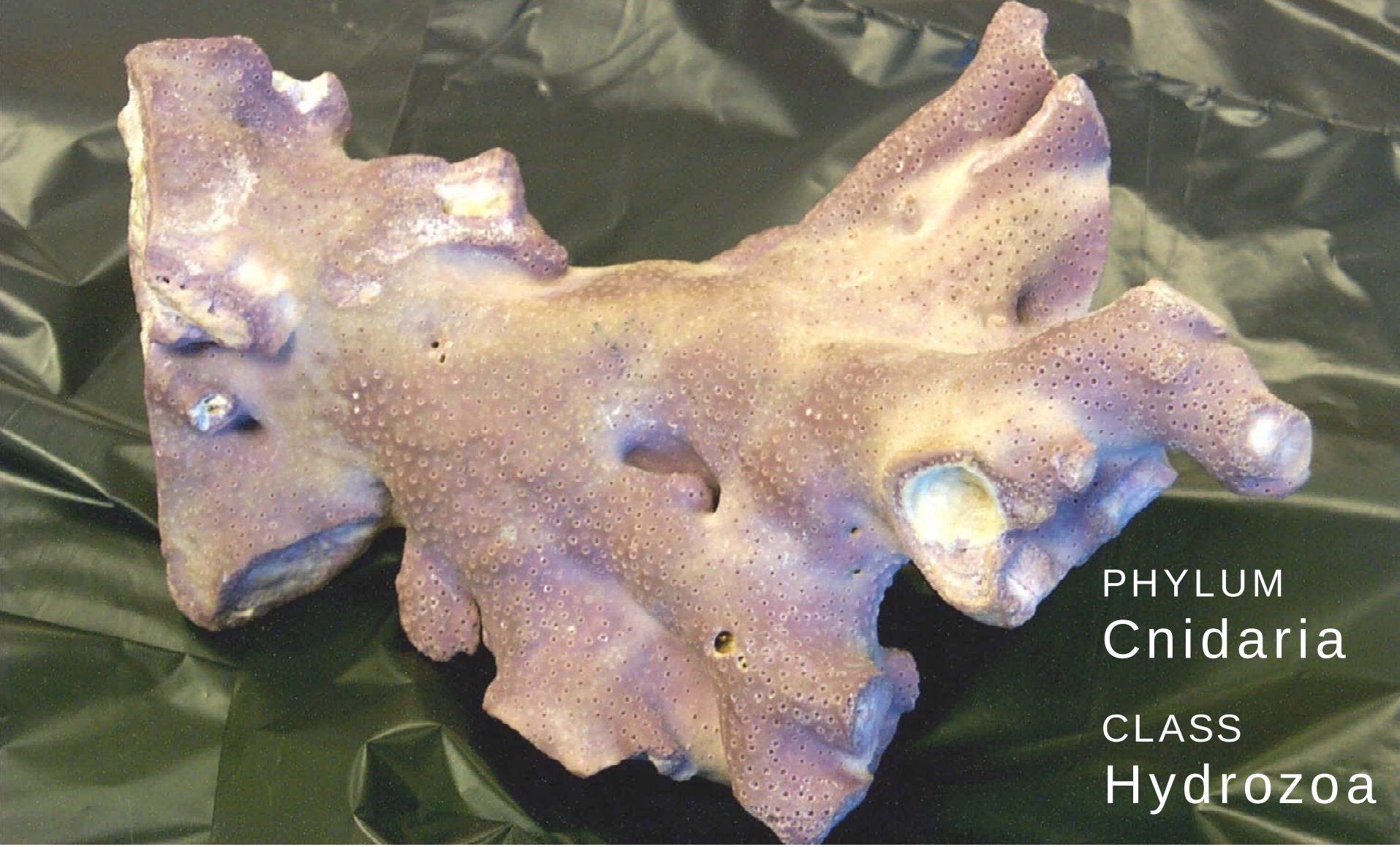
Which structure is used for what?

PHYLUM
Cnidaria

CLASS
Hydrozoa

Obelia colony slide with close-up of the some of the polyps or zooids. Note polymorphism - gastrozooids (with feeding tentacles) & gonozooids for reproduction [fig 2.3-6]

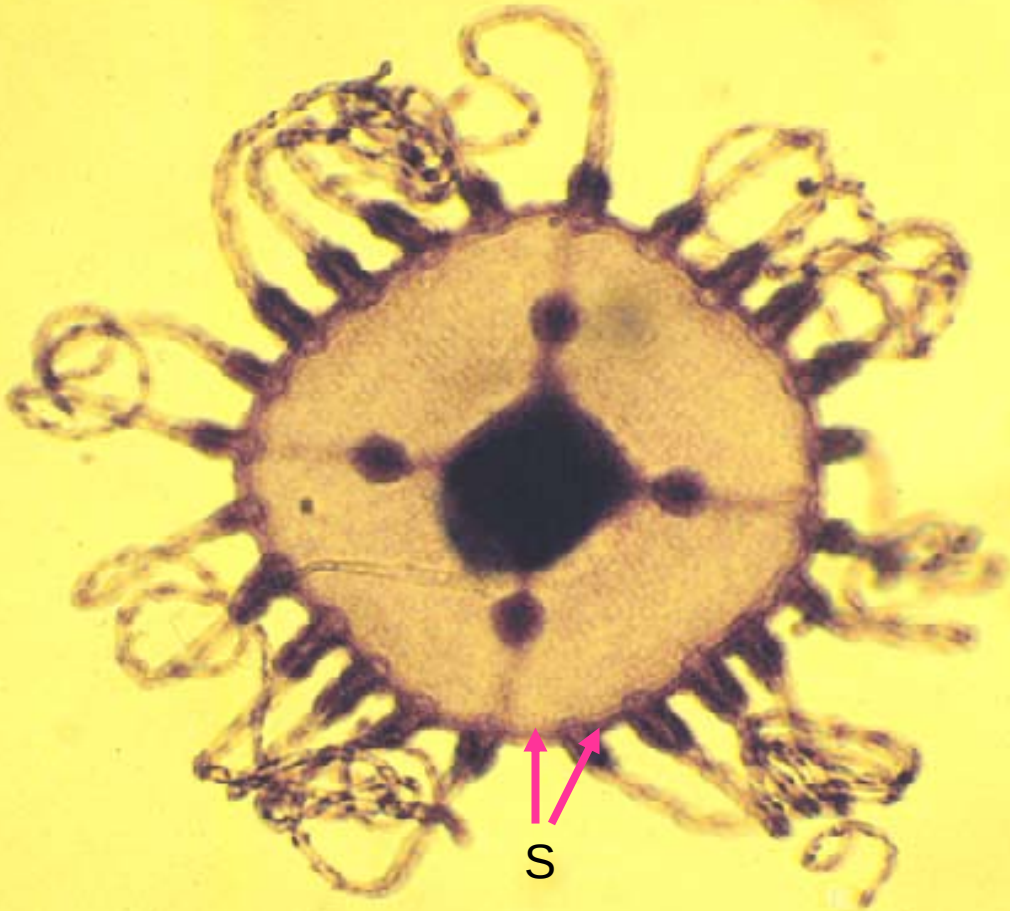
Portuguese Man-O-War is an excellent example of polymorphism. It is a colony of many individuals – again = zooids – modified for different tasks (feeding, floating, reproduction, etc.)



Calcium-carbonate skeletons of a fire coral. This is a hydrozoan (not an anthozoan corals) because it has <u>both</u> a POLYP stage (dominant = above) & a MEDUSA stage in its life cycle.

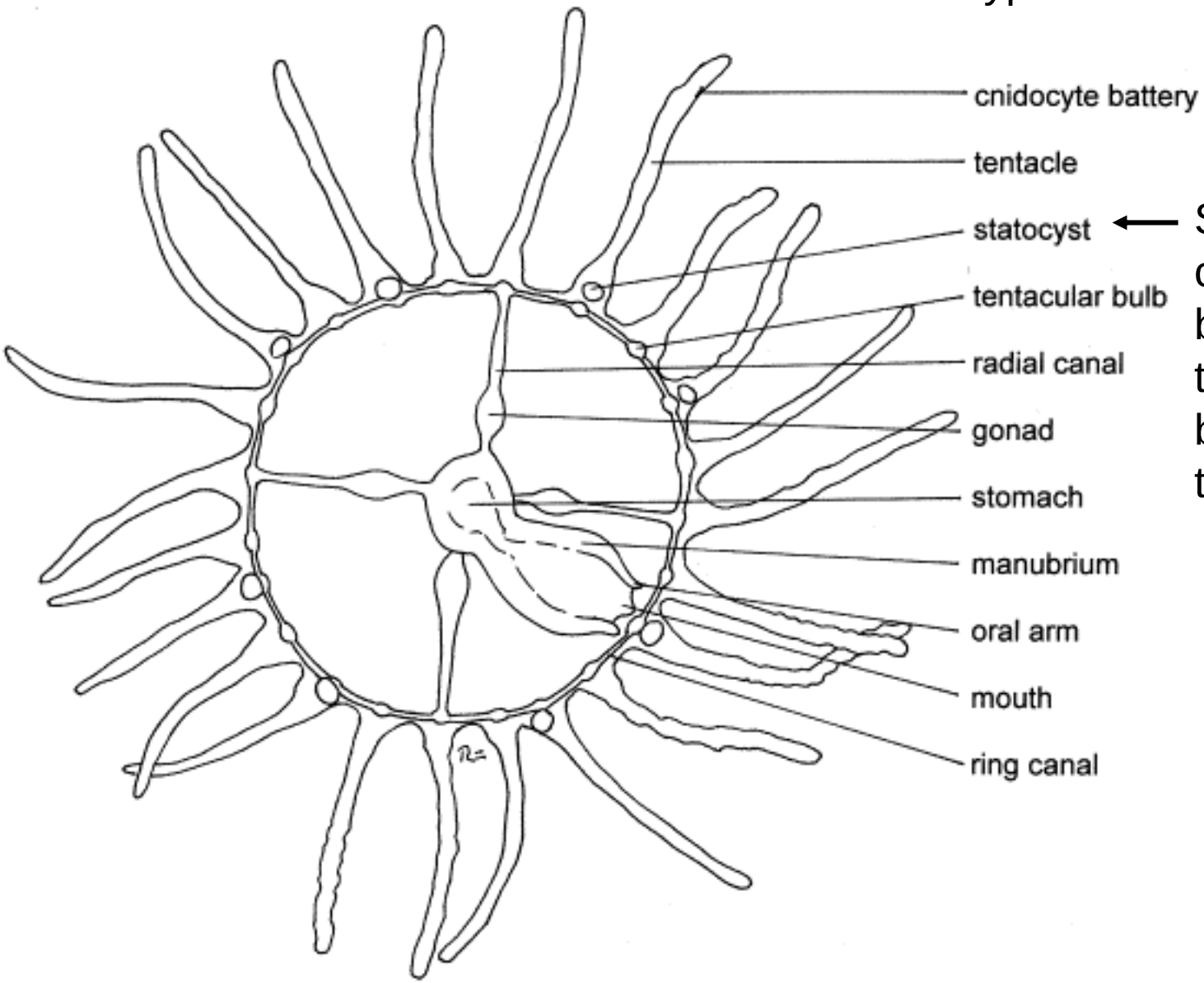
PHYLUM
Cnidaria

CLASS
Hydrozoa

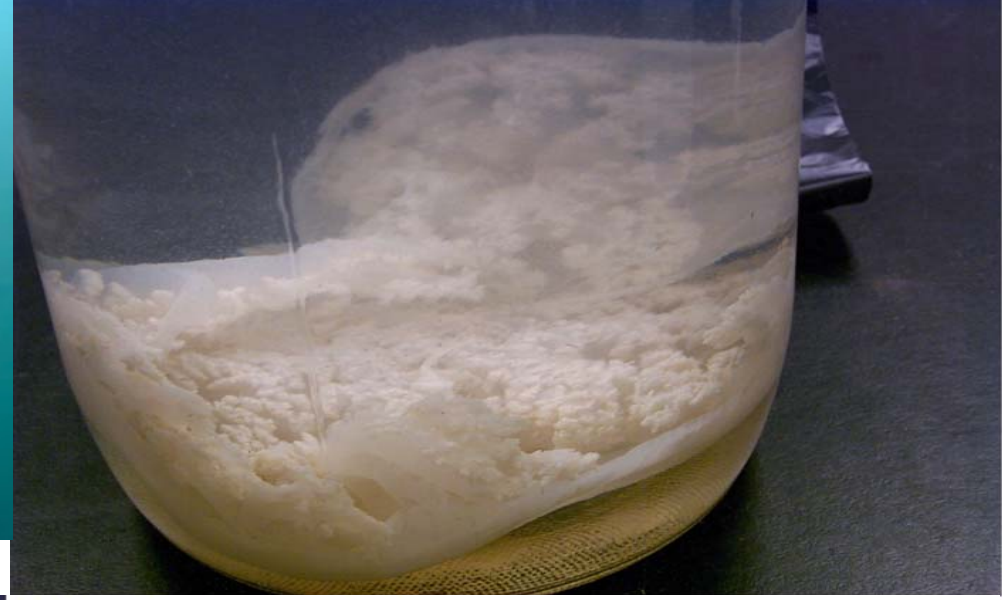


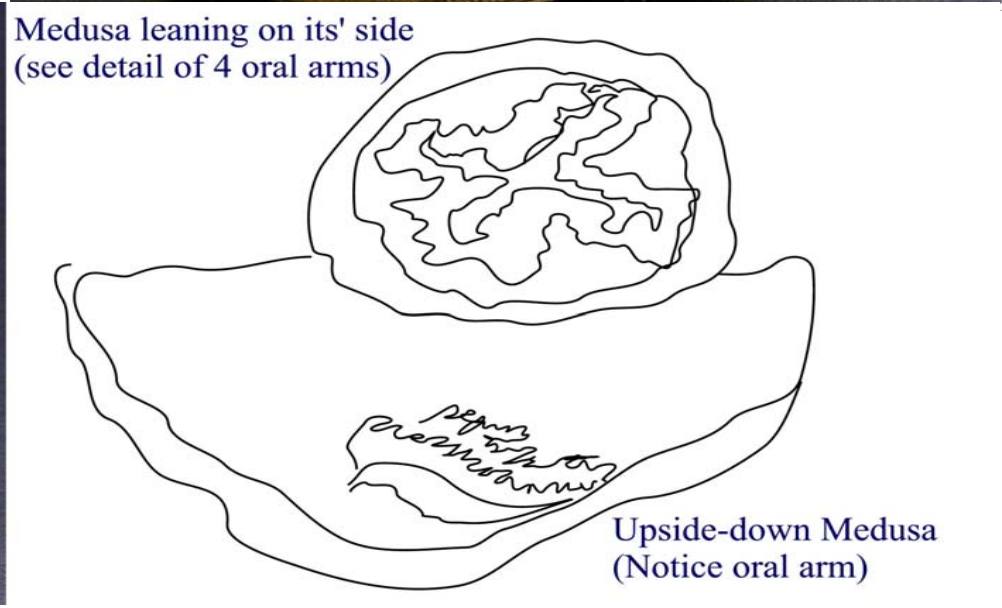
Ventral view of a Hydrozoan Medusa [fig 2.3-7]
Note Long knobby tentacles with batteries of nematocysts along them. (S) Statocysts are for balance

A Scyphozoan = A jelly!

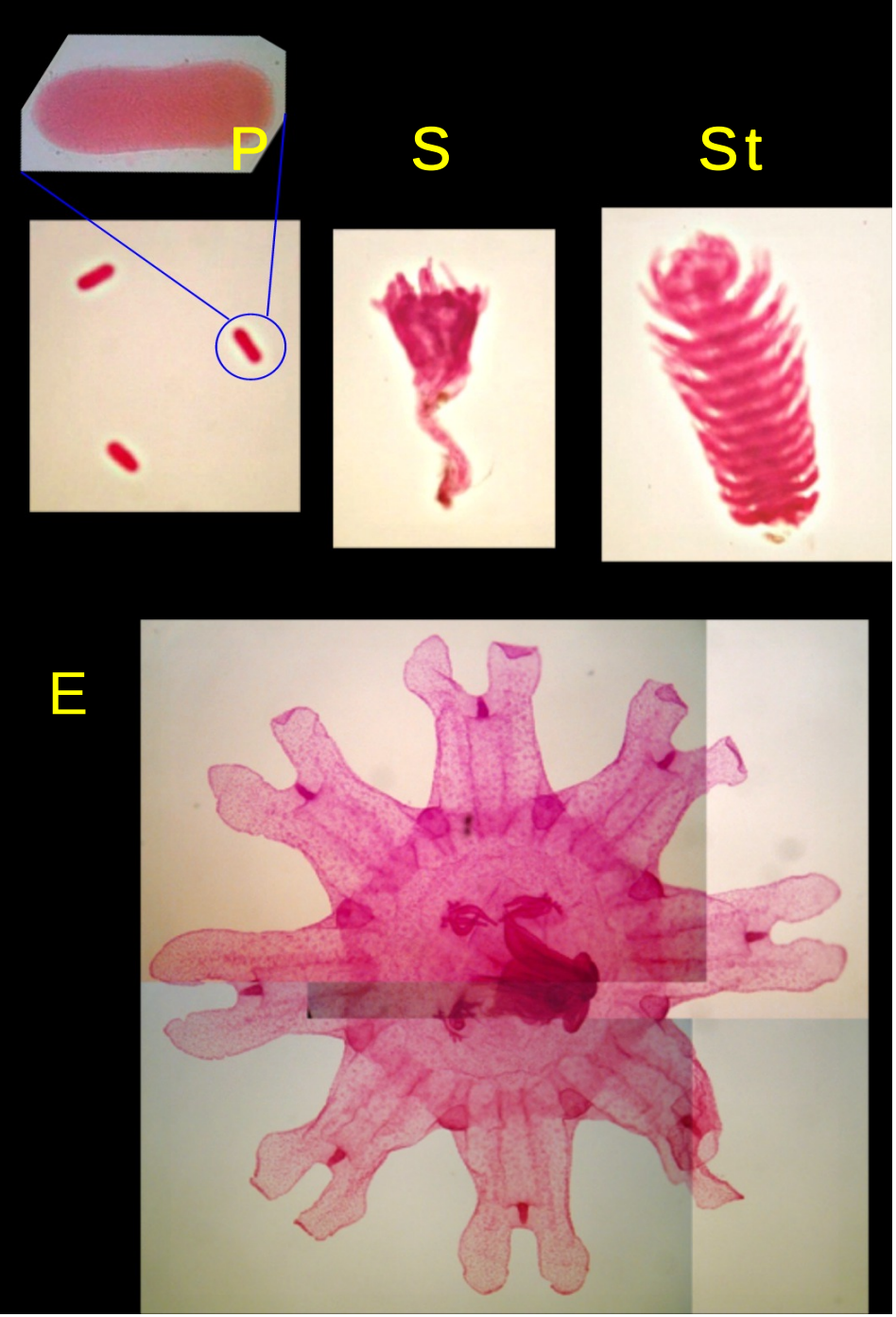


Statocysts can be at the base of the tentacles or in between them.





3 examples of 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.

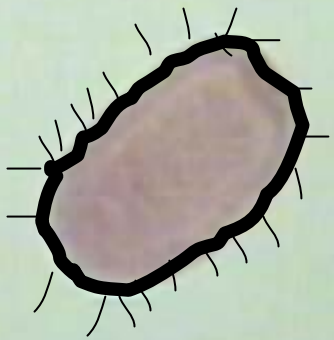


Life cycle (fig 2.6)
P A S St E A

P Planula
A Actinula (No slide)
S Scyphistoma
St Strobila
E Ephyra
A Adult

PHYLUM
Cnidaria

CLASS
Scyphozoa



Close-up of planula stage [fig 2.6-B] Bilateral motile larval stage able to move away from parent to settle in a new area.

PHYLUM
Cnidaria

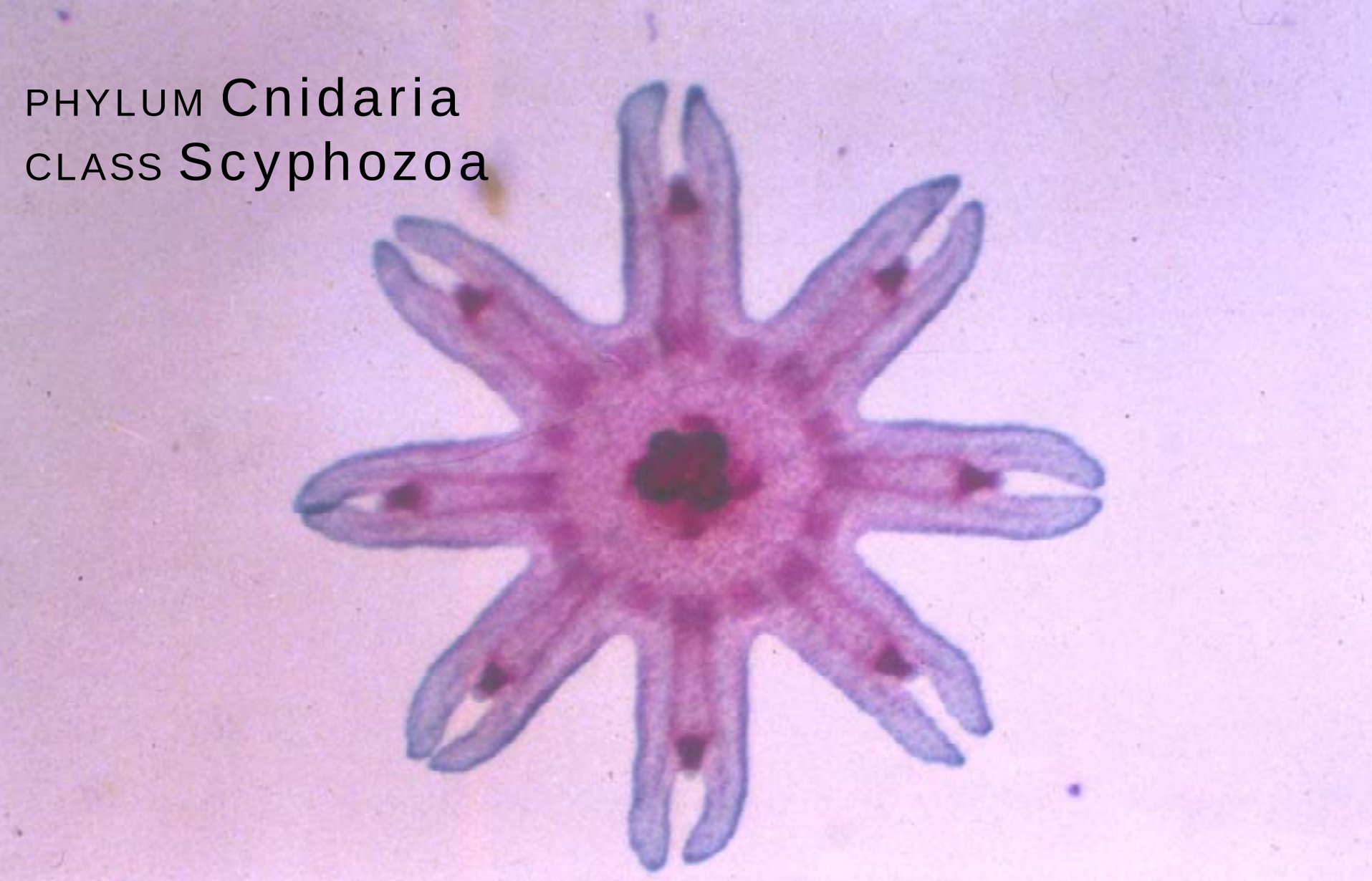
CLASS
Scyphozoa

Close-up of scyphistoma stage [fig 2.6-D]

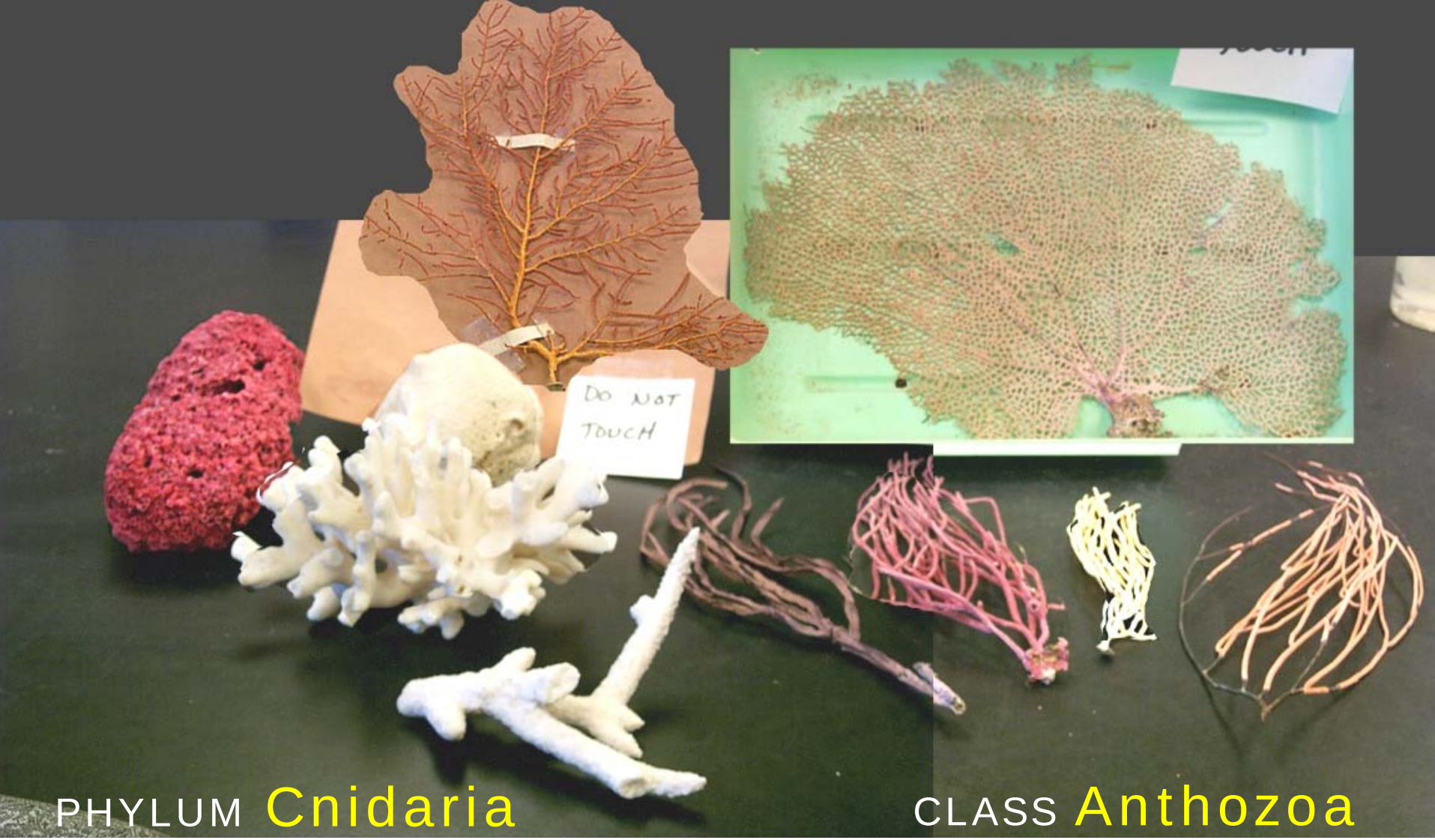
PHYLUM Cnidaria
CLASS Scyphozoa

Close-up of strobila stage.
Buds form from asexual reproduction [fig 2.6-E]

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

Note that ONLY the POLYP stage is present. In their life cycle

Remember you saw them fight in slow motion in the ‘Shapes of Life’ video????

PHYLUM
Cnidaria

CLASS
Anthozoa

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

Remember, <u>ONLY</u> the POLYP stage is present in the Anthozoa class of cnidarians.