PORIFERA

- Level of body organization ?
- Middle layer = ?

  Acellular matrix = location of structural elements (spicules & spongin) & has cells moving through it = archeocytes

- Diagnostic cell type: ?

PORIFERA

- CELLULAR level of body organization

- Middle layer = MESOHYL

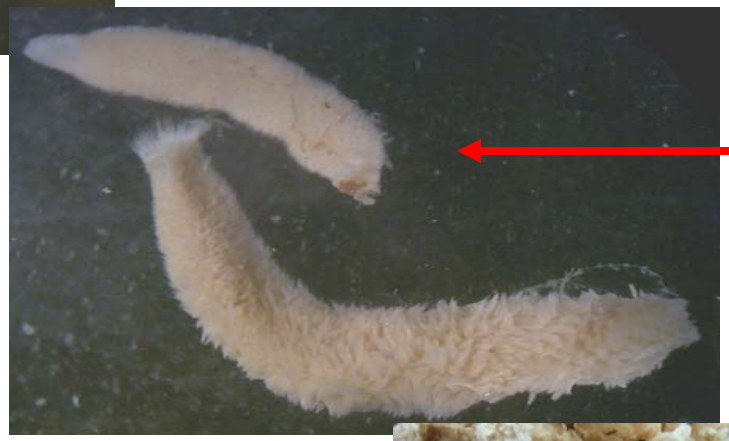
  Acellular matrix = location of structural elements (spicules & spongin) & has cells moving through it = archeocytes

- Diagnostic cell type: CHOANOCYTE

  = flagellated collar cell

The Three TYPES of Sponges

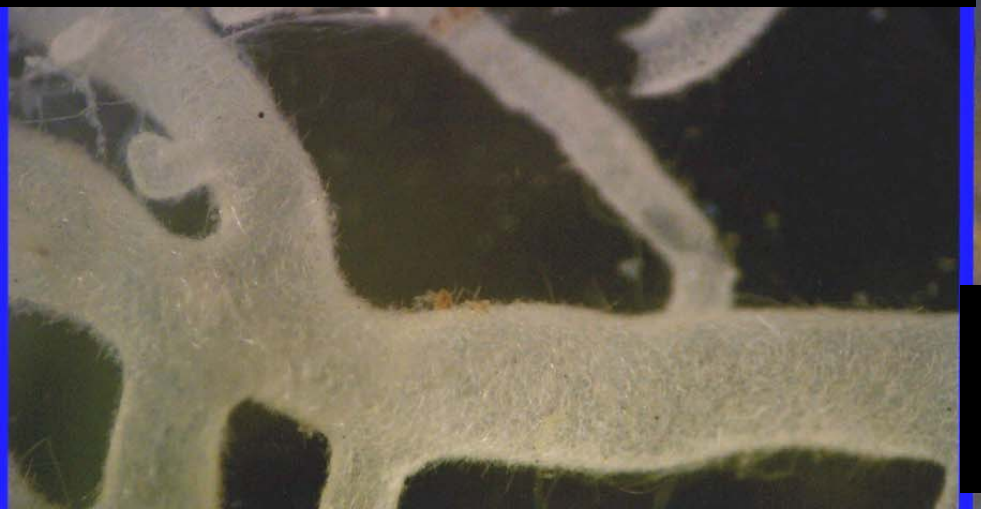
Asconoid = smallest



Syconoid = middle-sized

Leuconoid = Largest

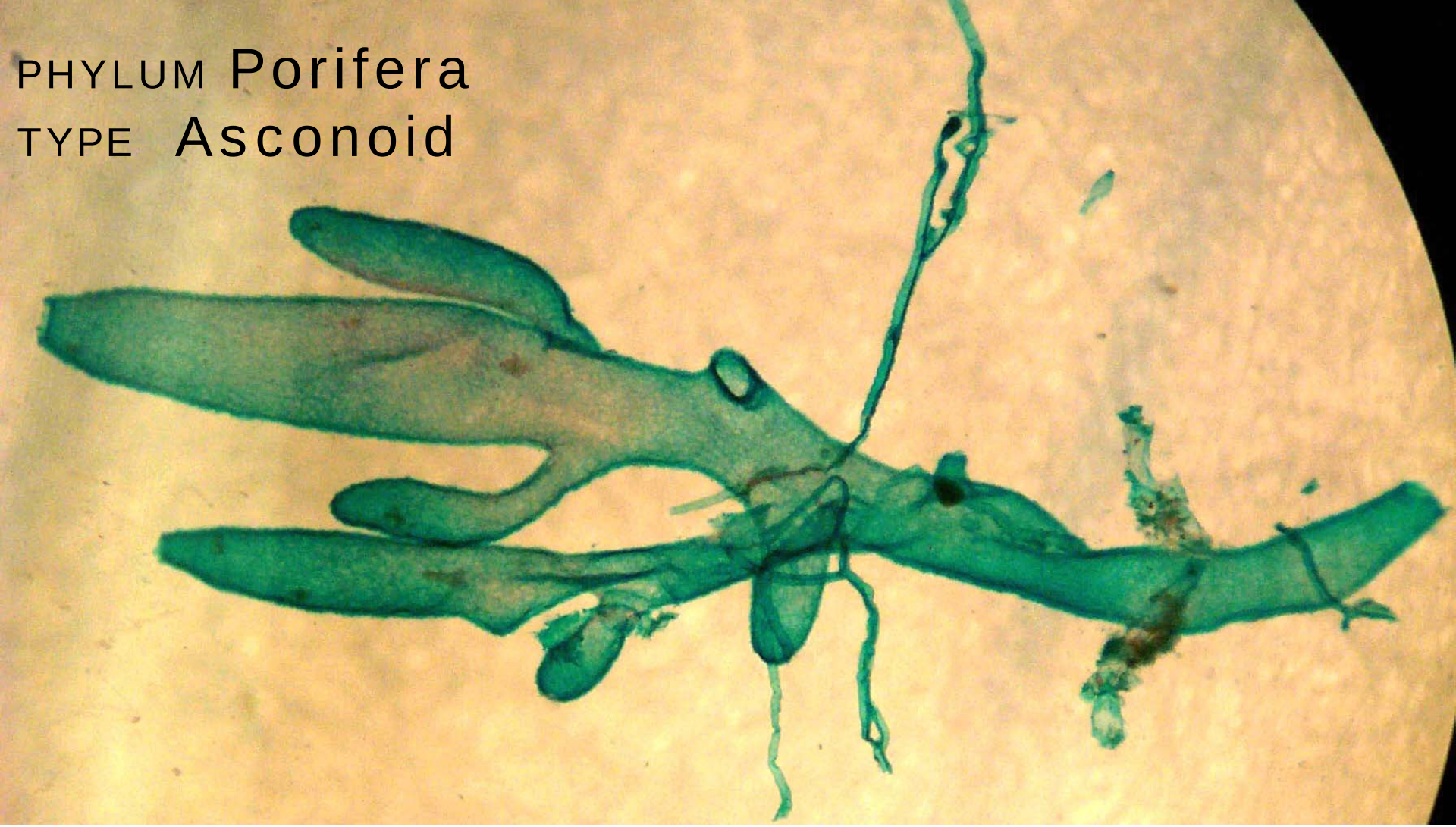
In the jar, these sponge specimens look like white or transparent plant roots.



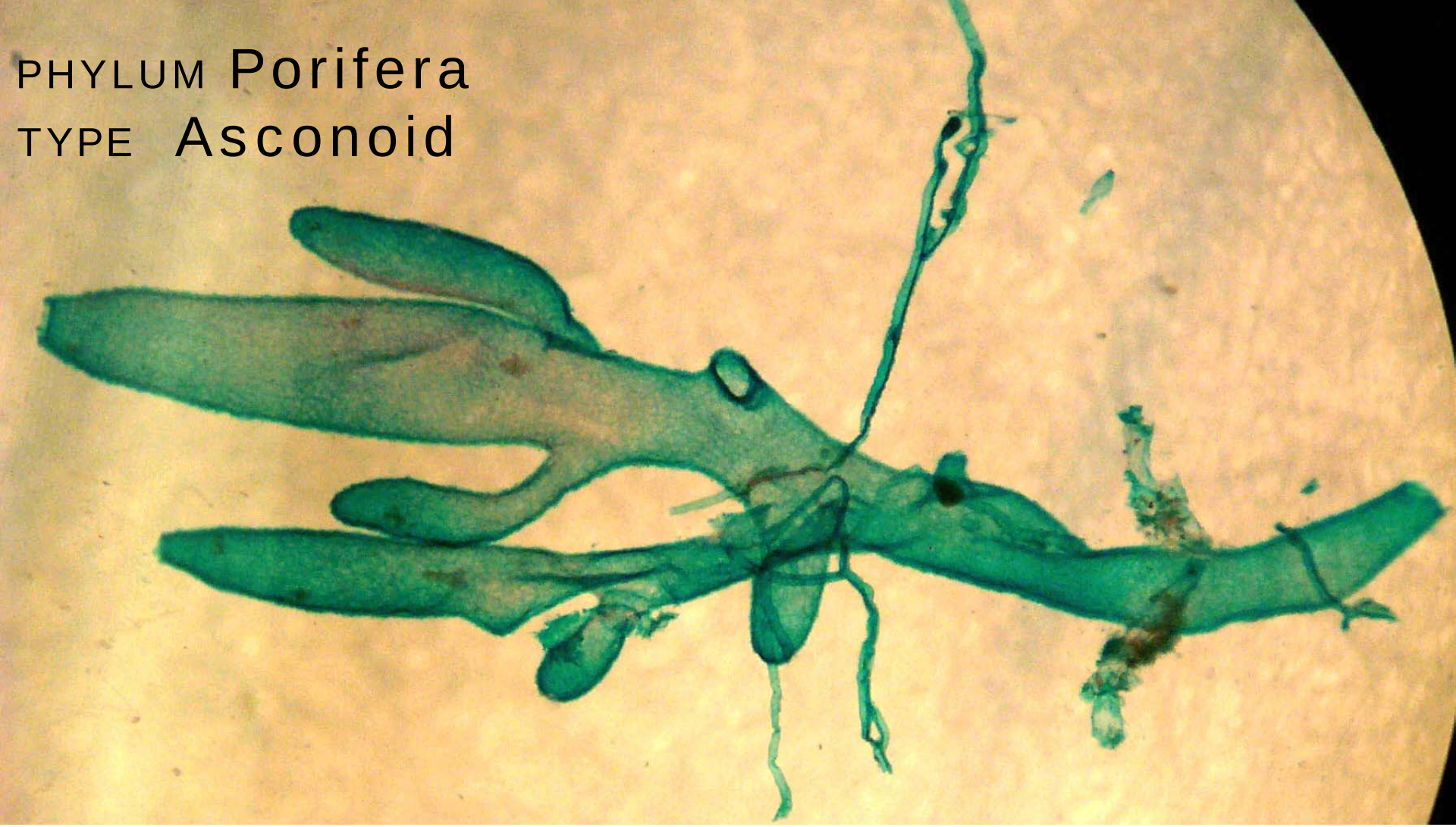
PHYLUM Porifera

TYPE ?

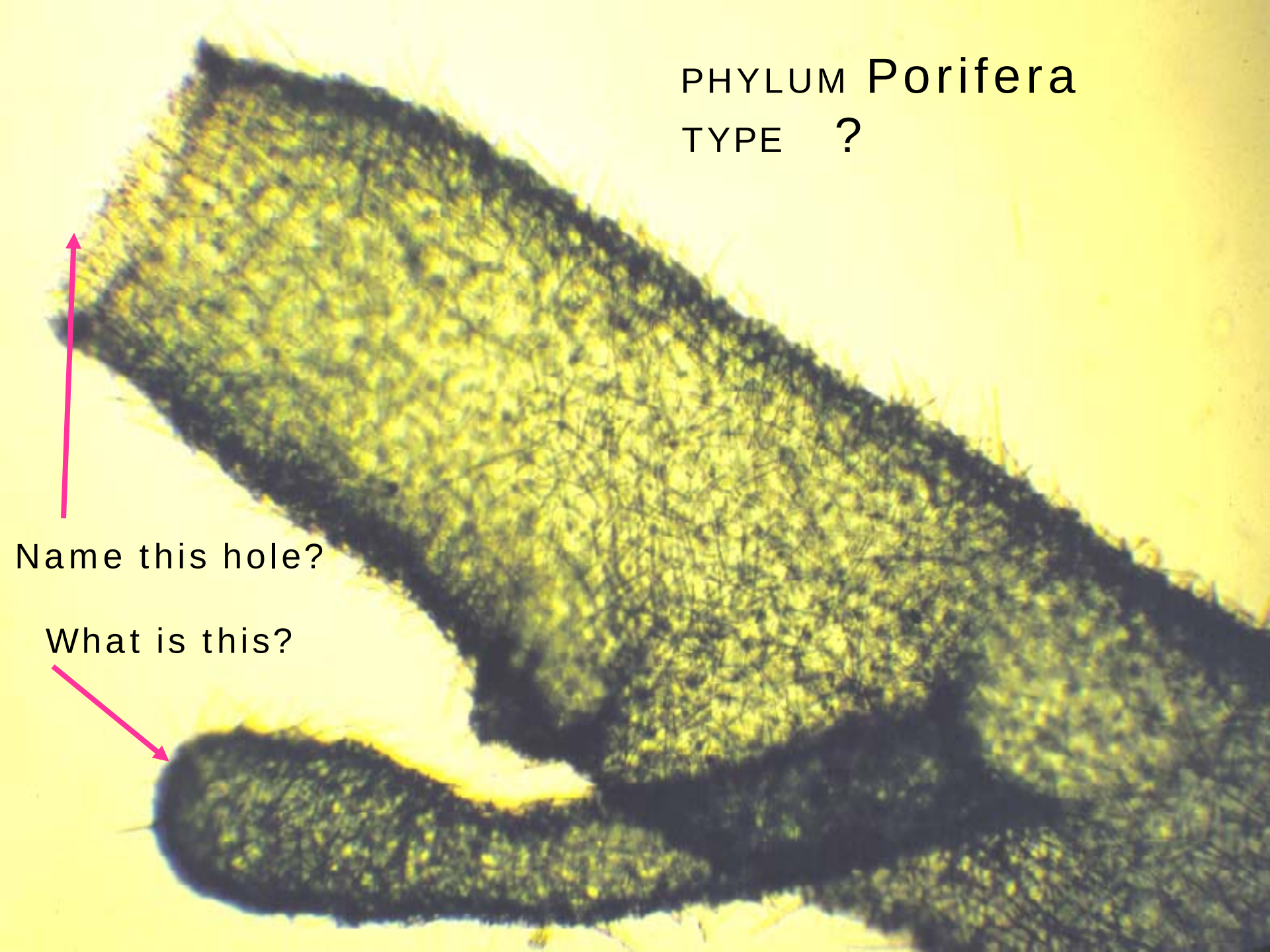
In lab you could only look at a whole specimen (as above) in a jar or at prepared slides.

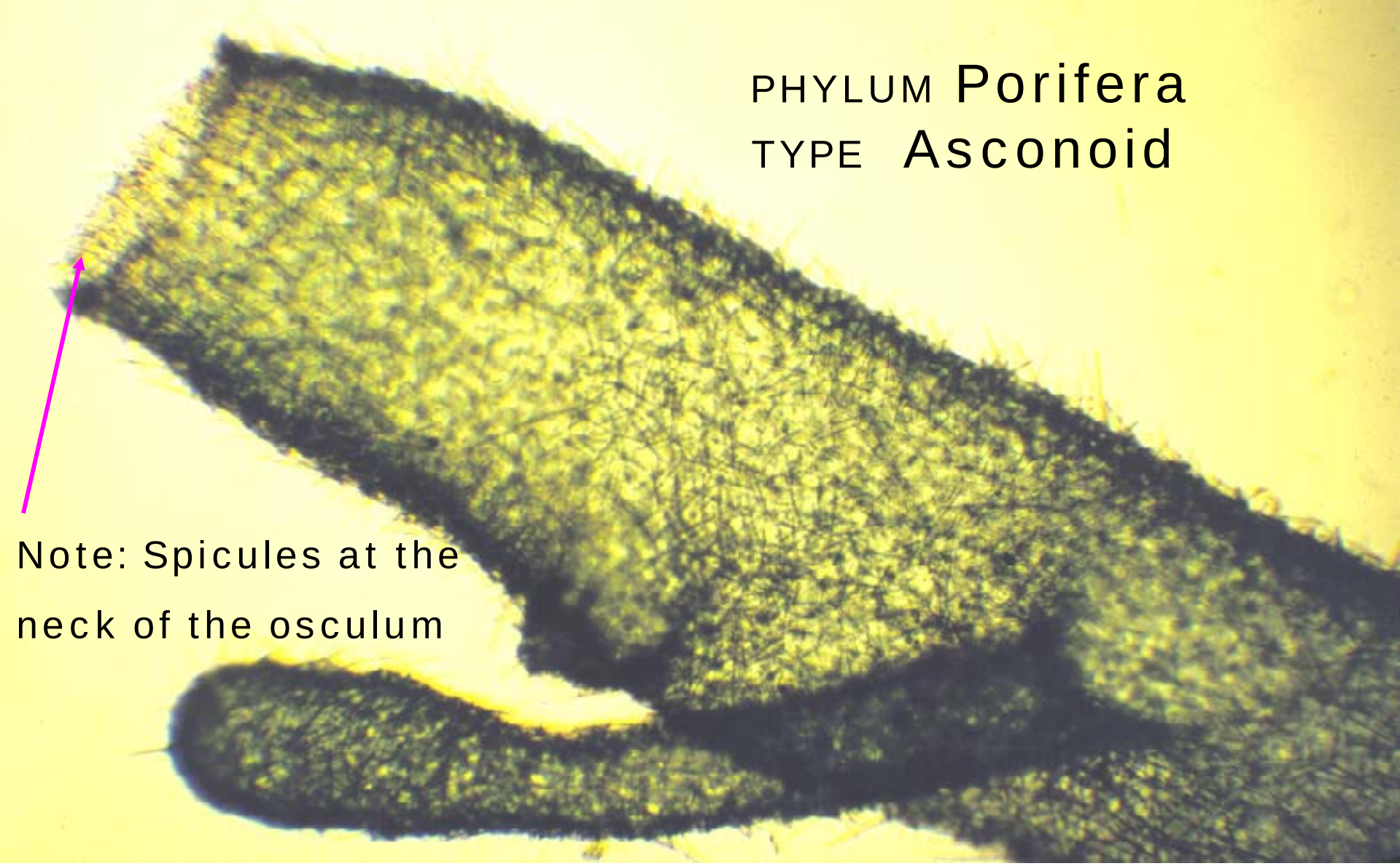


Many of our slide specimens have been stained red or green (they look like green cacti!)
This is the smallest and simplest sponge type.
They are too small to dissect.



BSU – Basic Sponge Unit. Choanocytes are located in the spongocoel. What are gemmules? Note buds for (asexual reproduction) and many oscula. (pl. of osculum).


PHYLUM Porifera
TYPE ?
Name this hole?
What is this?



Terms you need to know: spicules, spongocoel, bud & Osculum. Compare to fig 1.3-A in your lab manuals.

Incurrent Pores (Ostia), Porocytes and Prosopyles

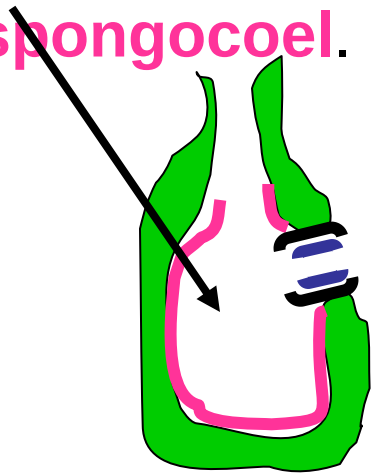
- **Incurrent pores or ostia are the openings through which water first enters a sponge. These can be formed by one or more cells.**

- **The PROSOPYLE is the name given to the entry hole/channel/pore leading into the area of choanocytes.**
- **It is formed by one donut-shaped cell, the porocyte.**

Asconoid Sponges

As an incurrent pore or ostium, this opening brings water directly into the sponge.

It also serves as a **prosopyle**, bringing **water into contact with the choanocytes** lining the **spongocoel**.



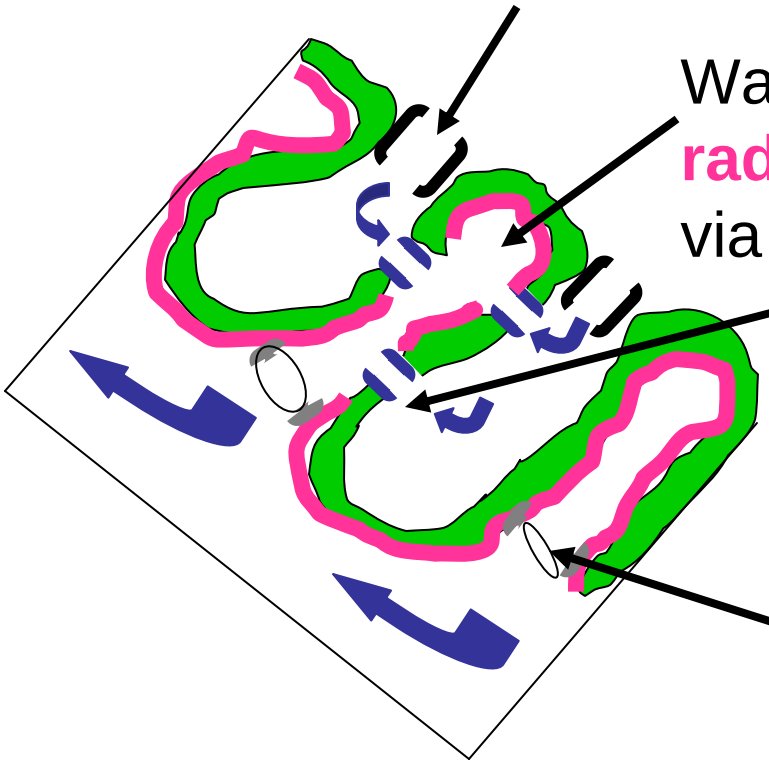
Thus it has a dual function.

Thus the incurrent pore or ostium is serves as a **prosopyle.**

The actual opening is formed by 1 cell, the porocyte.

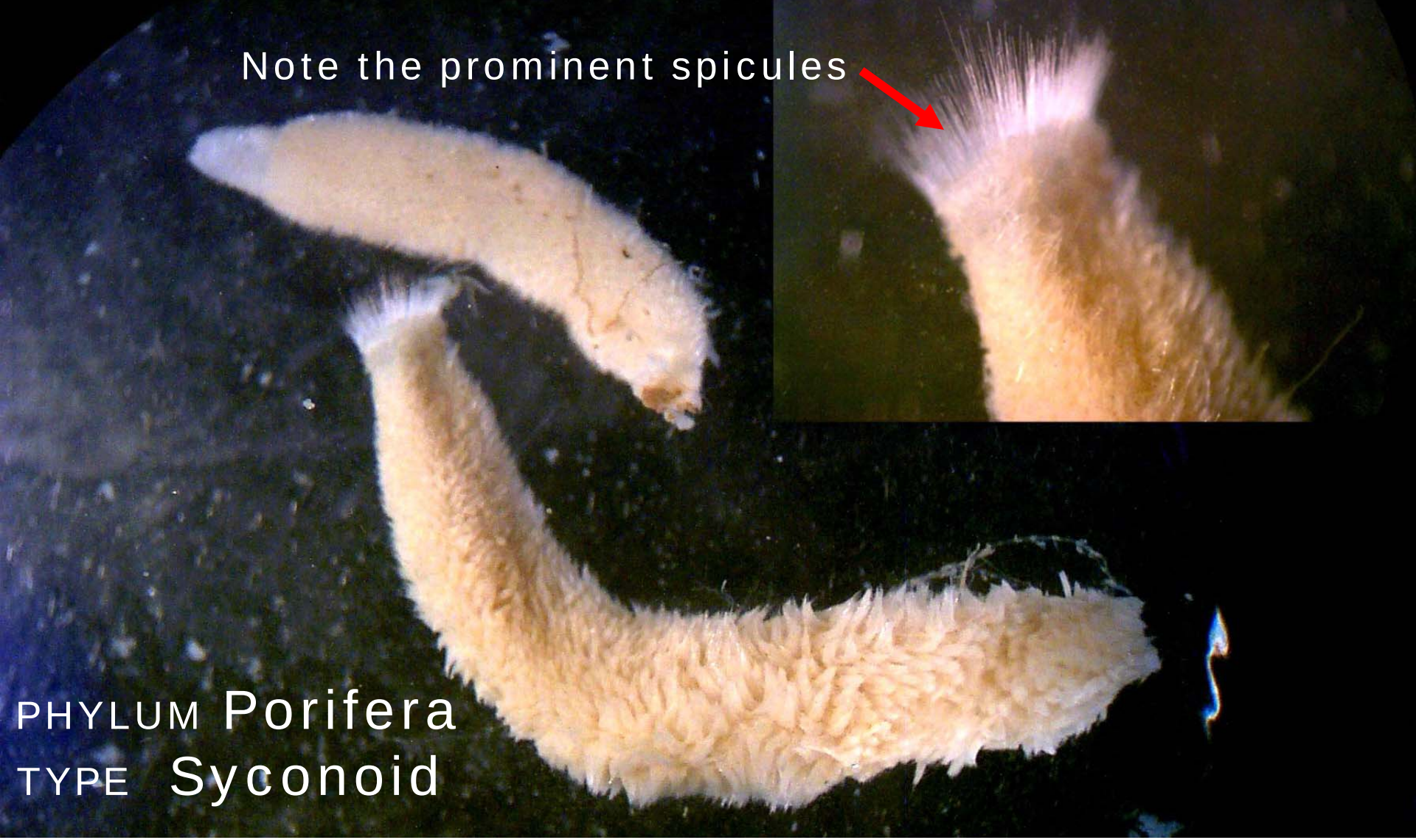
Syconoid Sponges

The ostia/incurrent pores in syconoid sponges are generally made of several cells. Water enters the sponge through these pores and moves into the incurrent canal.

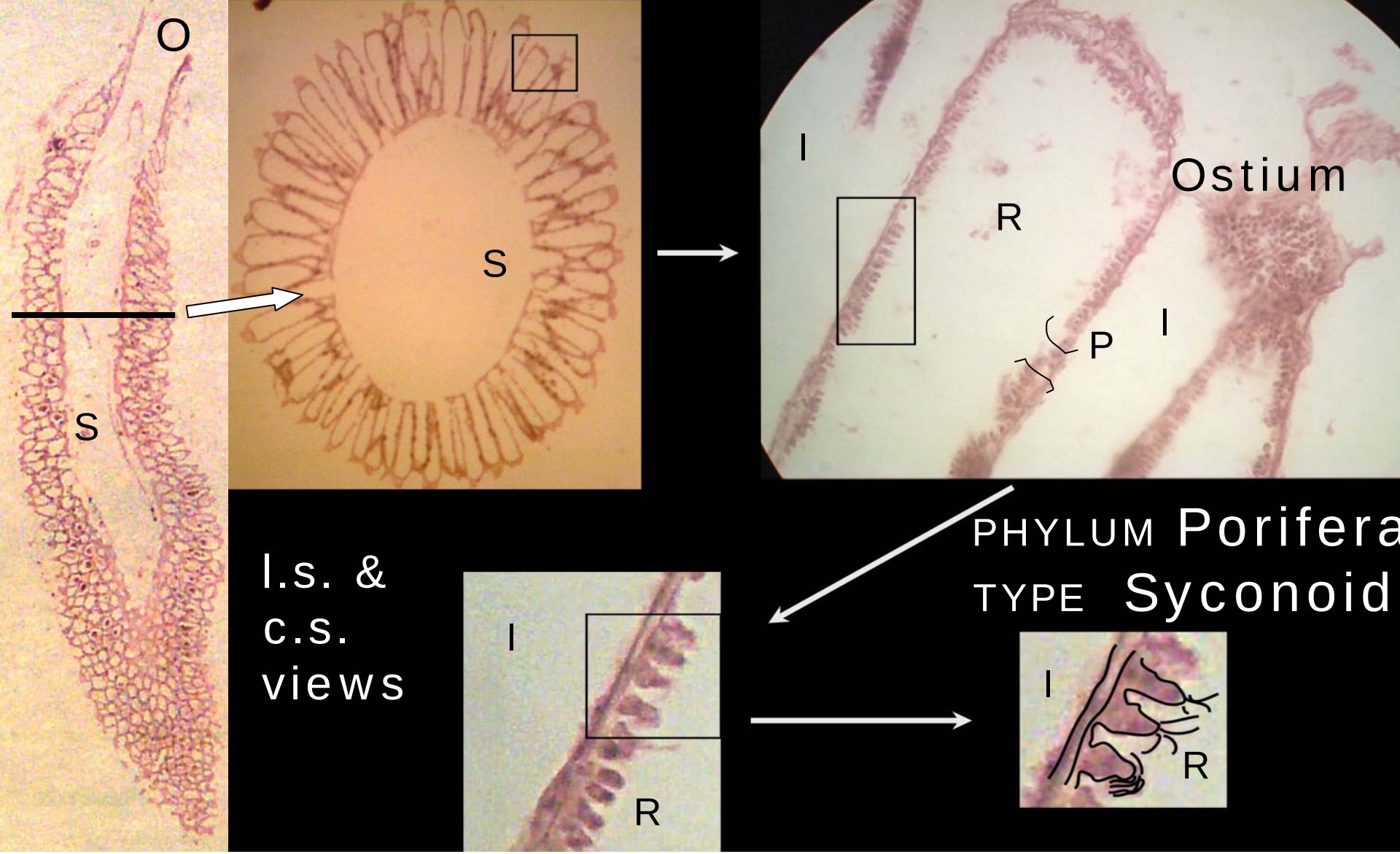


Water leaves this area to enter the **radial canal** (area of choanocytes) via the **prosopyle** – (a porocyte cell)

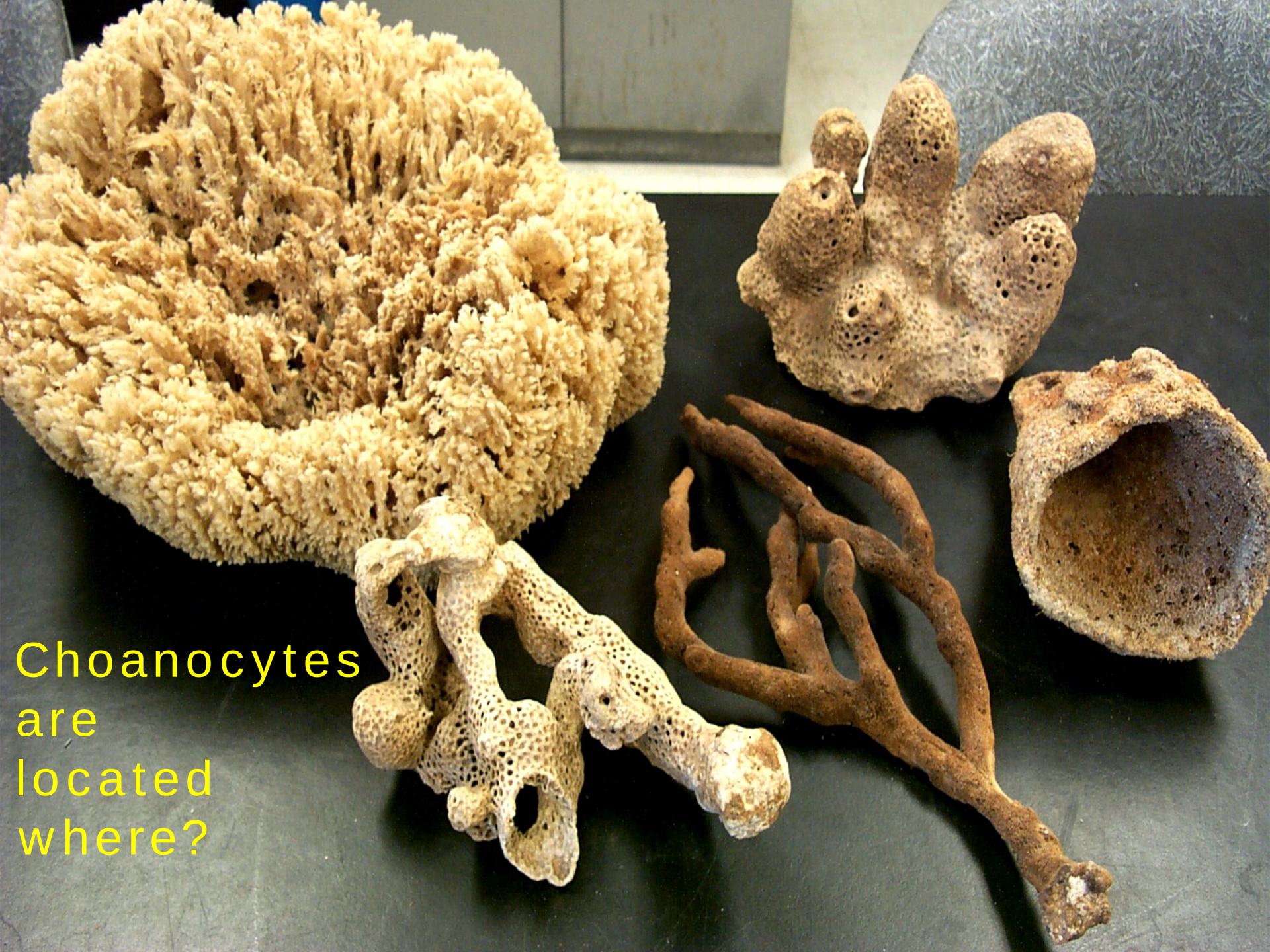
Water leaves the radial canals via a much larger pore, made by many cells = the apopyle.

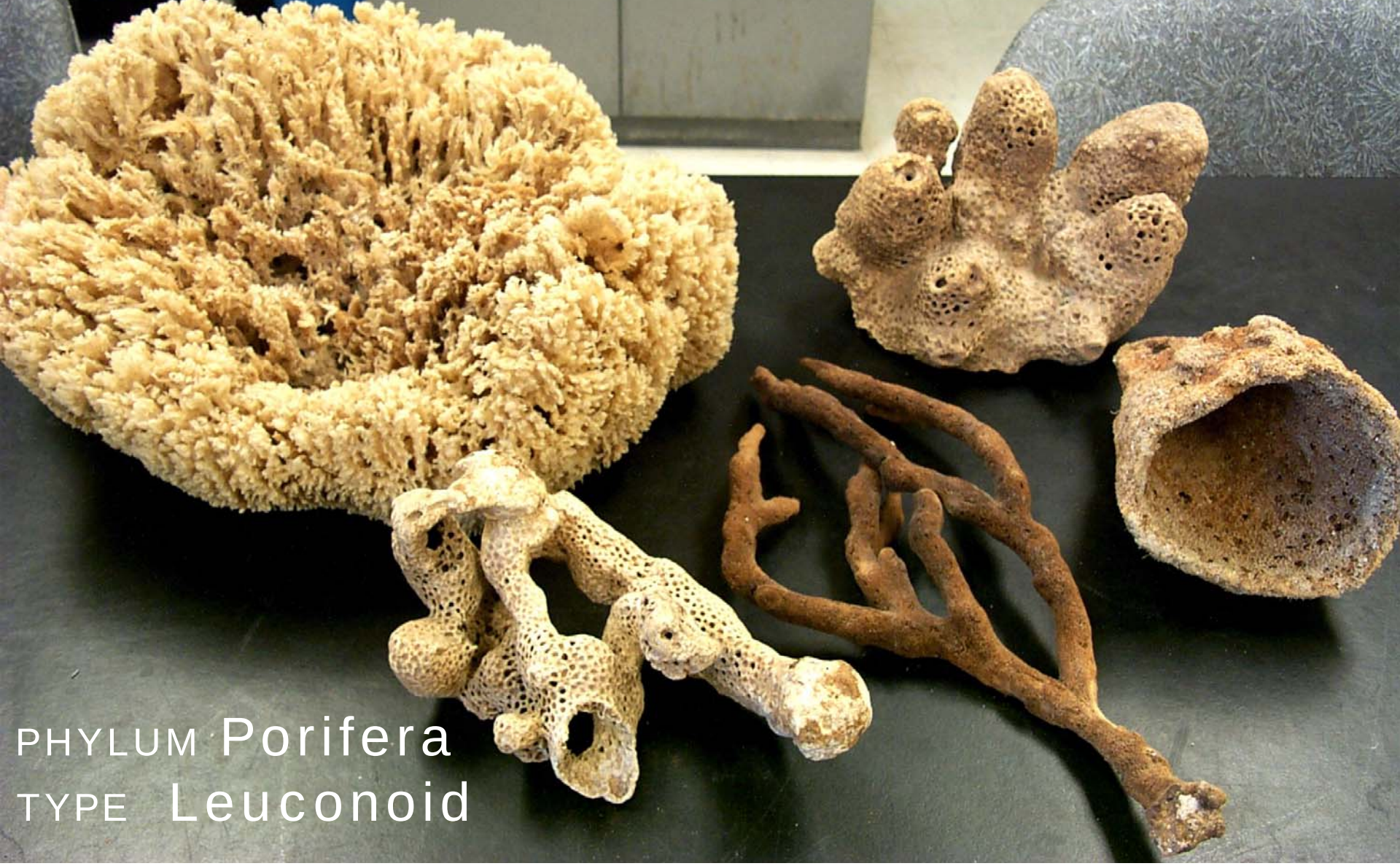


The choanocytes are located in the radial canals. These are the ‘middle-sized’ sponges.



Osculum (O) Spongocoel (S) Incurrent canal (I)
Radial canals (R) Choanocytes (C)
Water enters via the ostium - > I - > via the Prosopyle (P) (a porocyte cell type) - > radial canal - > Apopyle - > S - > O


Choanocytes
are
located
where?

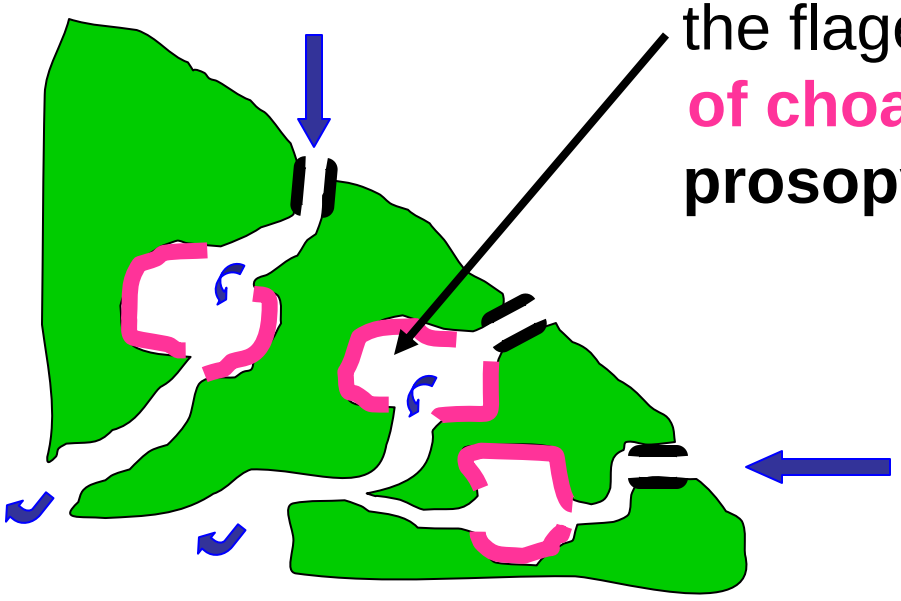


The choanocytes are located in the many flagellated chambers.

Leuconoid Sponges

The ostia (several cells) allow water to enter incurrent canals.

Water leaves these to enter the flagellated chambers **(area of choanocytes)** via the **prosopyles (porocytes)**



Sponge Reproduction

Sponges are usually monoecious but can be dioecious

ASEXUAL

Marine

- Budding
- Fragmentation
- Regeneration

Freshwater sponges

- Gemmules
- + 3 methods above

SEXUAL

- Male & female gametes are formed.

  Archeocytes become eggs

  Choanocytes filter sperm out of the water
- Fertilization is involved.
- Planktonic larvae or mini flagellated colonies are released to colonize new areas.