PORIFERA

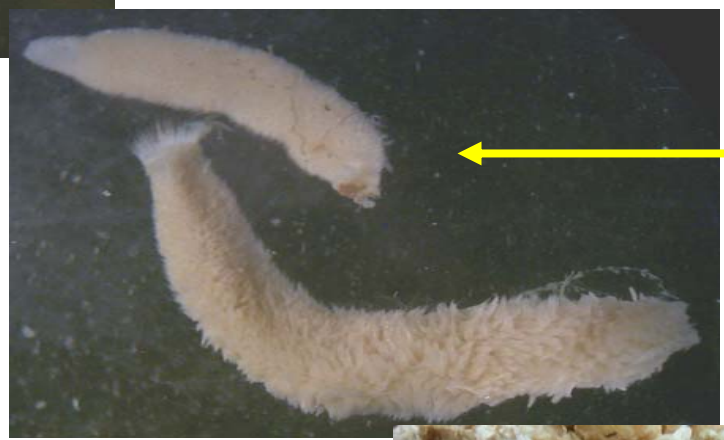
- CELLULAR level of body organization

- Middle layer = MESOHYL
  Acellular matrix - location of spicules, spongin & archeocytes

- Diagnostic cell type: CHOANOCYTE

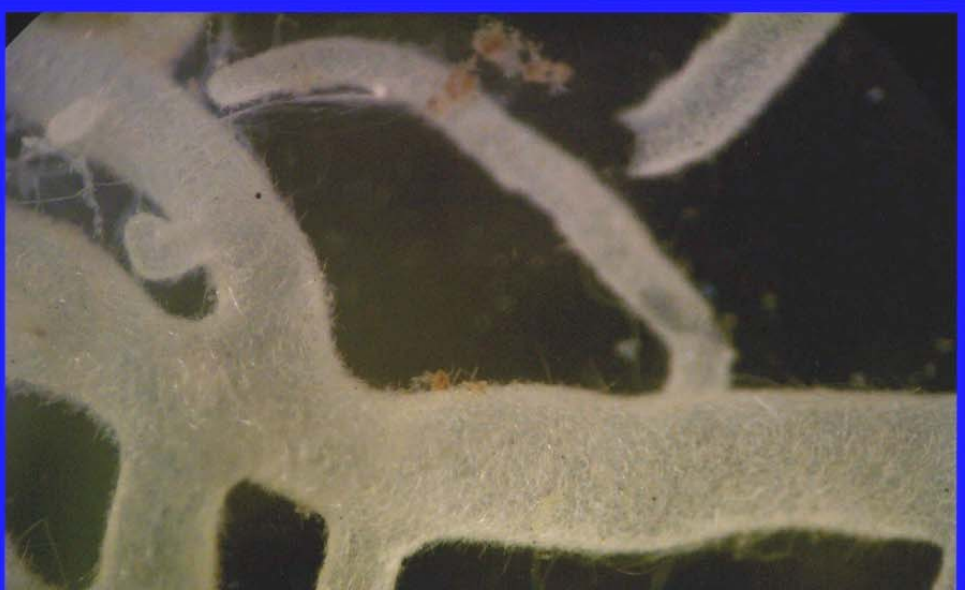
The Three TYPES of Sponges

Asconoid = smallest



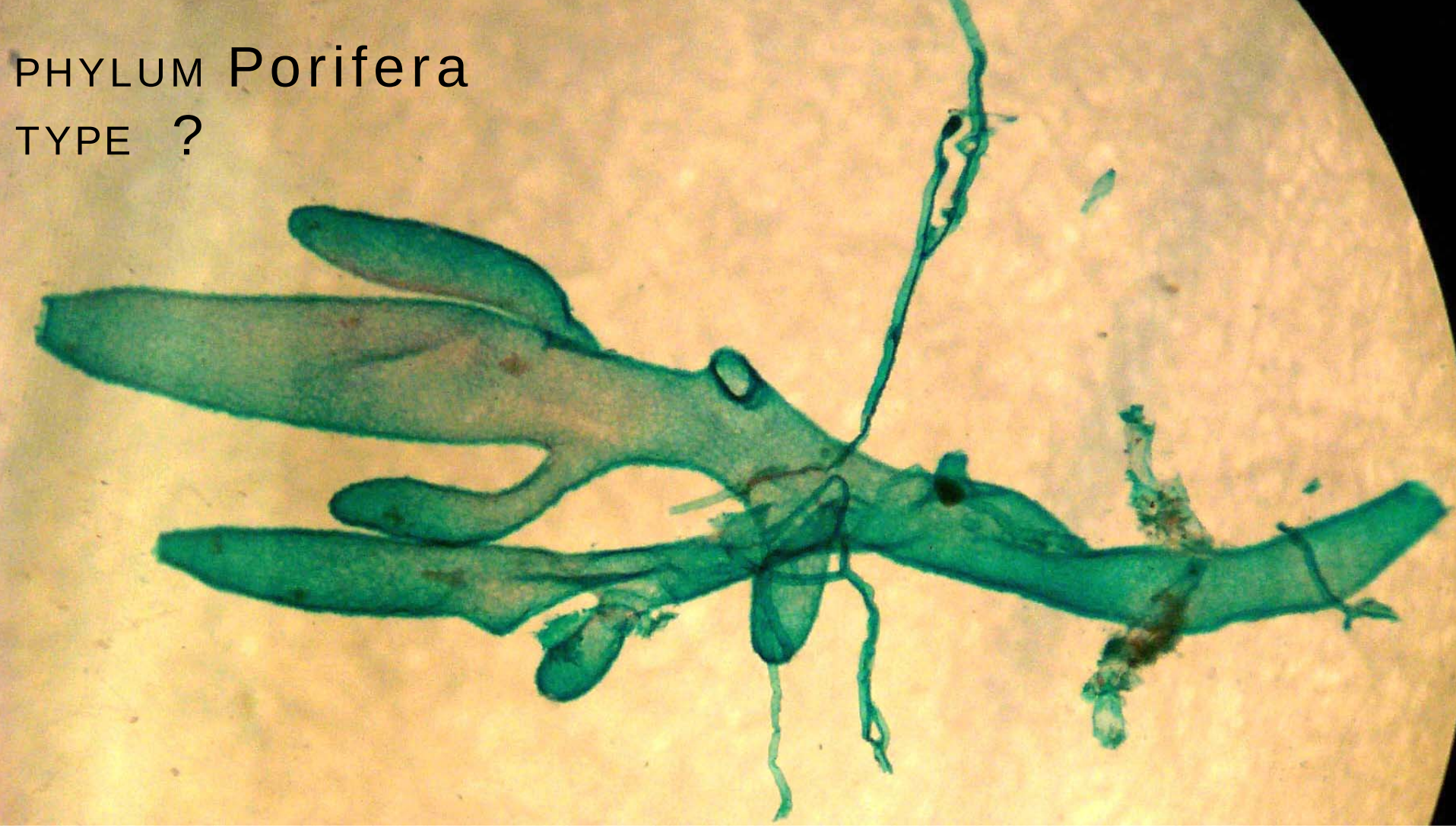
Syconoid = middle-sized

Leuconoid = Largest

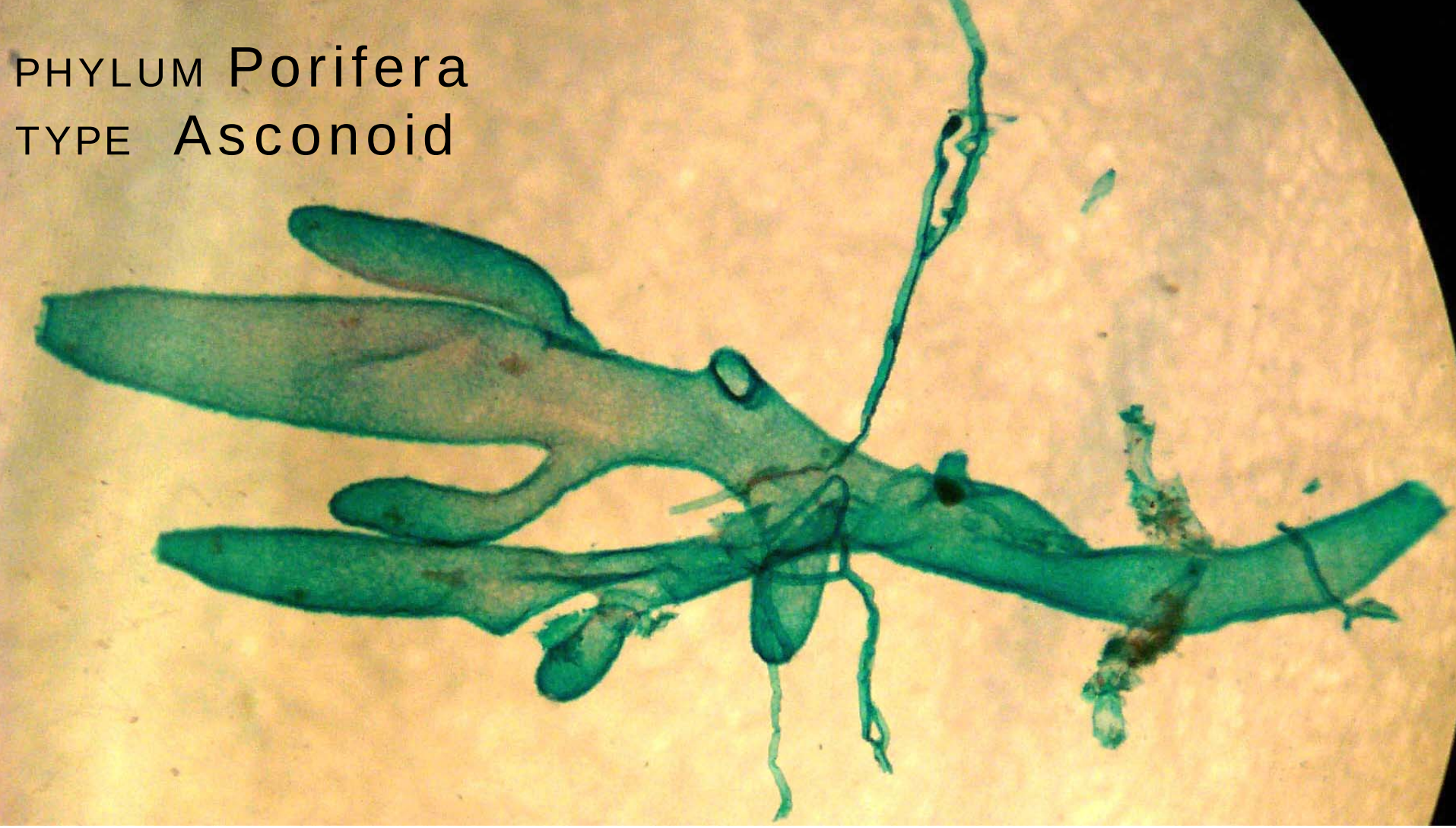


PHYLUM Porifera
TYPE Asconoid

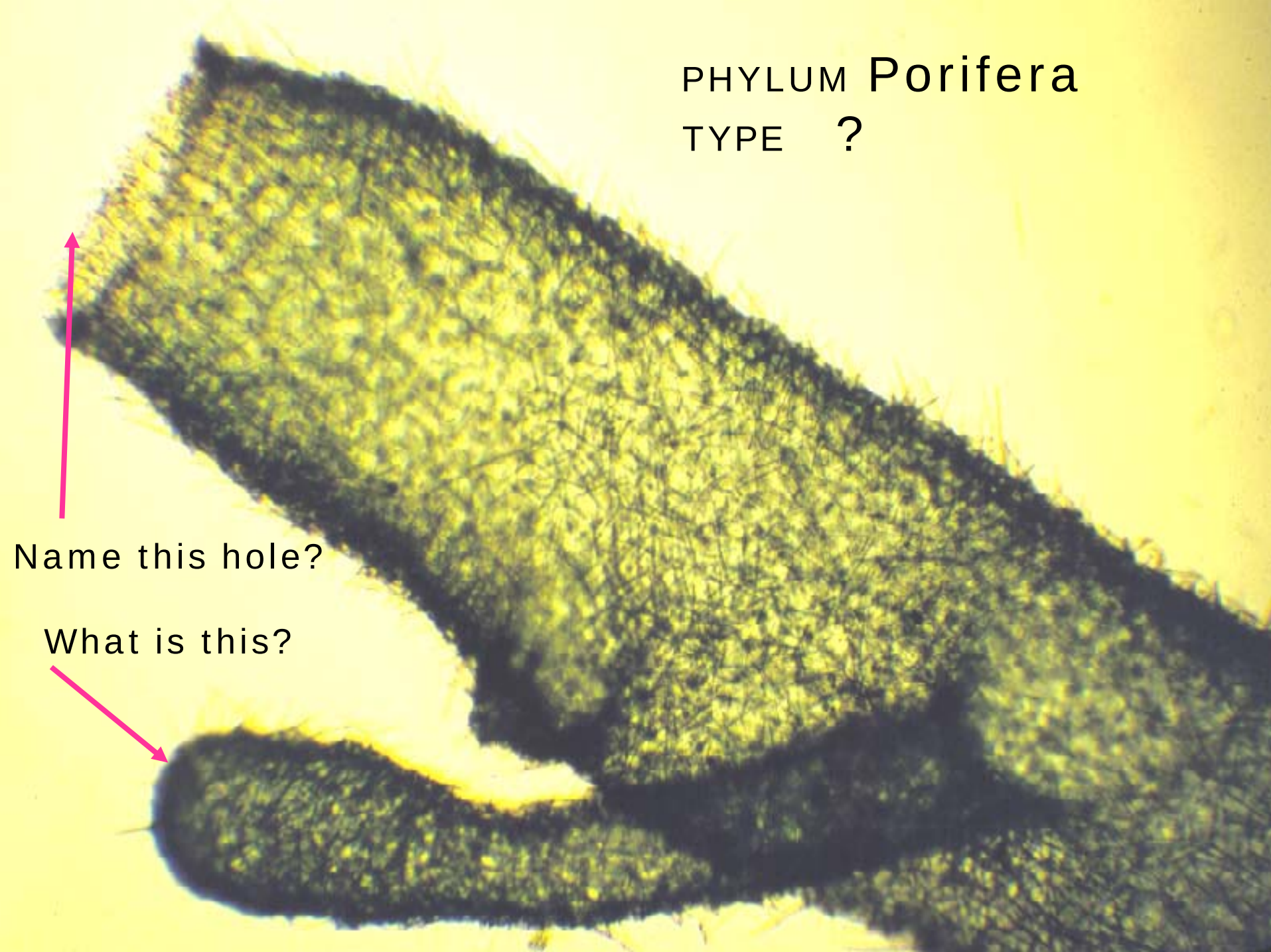
Too small to dissect in lab, you could only look at a whole specimen (as above) or prepared slides.

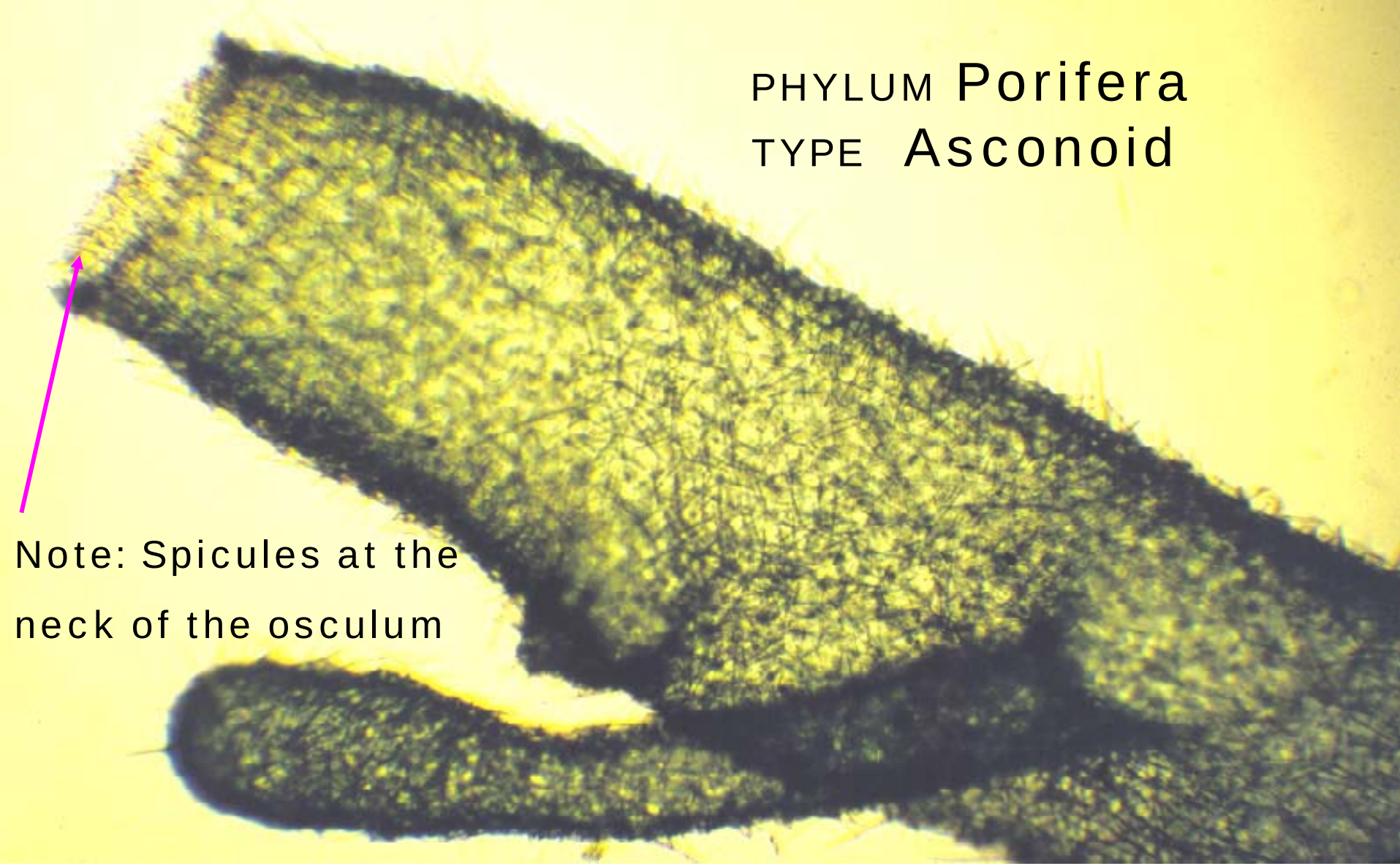


This sponge looks white in the jar, but many (not all!) of our slide specimens have been stained green so they look like green cacti! This is the smallest and simplest sponge type. Too small to dissect.



BSU – Basic Sponge Unit
It's choanocytes are located in the spongocoel.
Note the buds (asexual reproduction) and many oscula (plural of osculum). What are gemmules?


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



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

Incurrent Pores (Ostia), Porocytes and Prosopyles

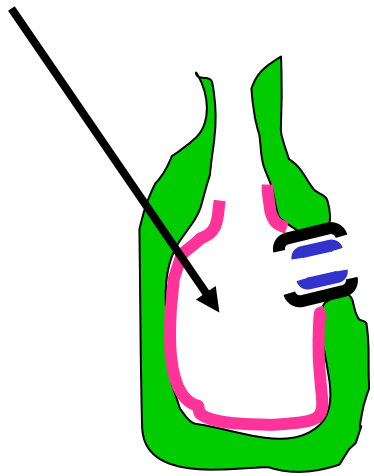
Incurrent pores or ostia are the openings through which water first enters a sponge. These can be formed by one or more cells.

The PROSPYLE is 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

Since in asconoid sponges the incurrent pore/ostium not only brings water directly into the sponge, but also into contact with the **choanocytes** (lining the **spongocoel**), it has a dual function.

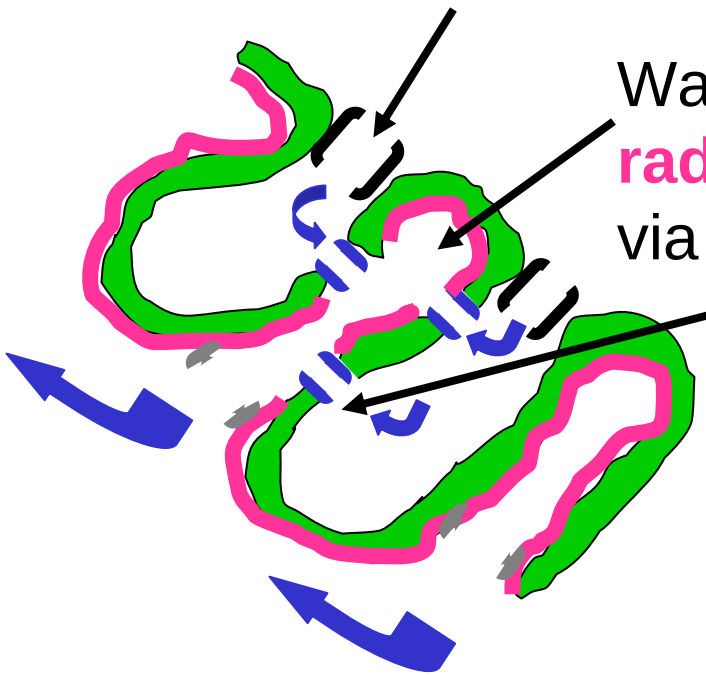


The incurrent pore/ostium is also serves as a **prosopyle.**

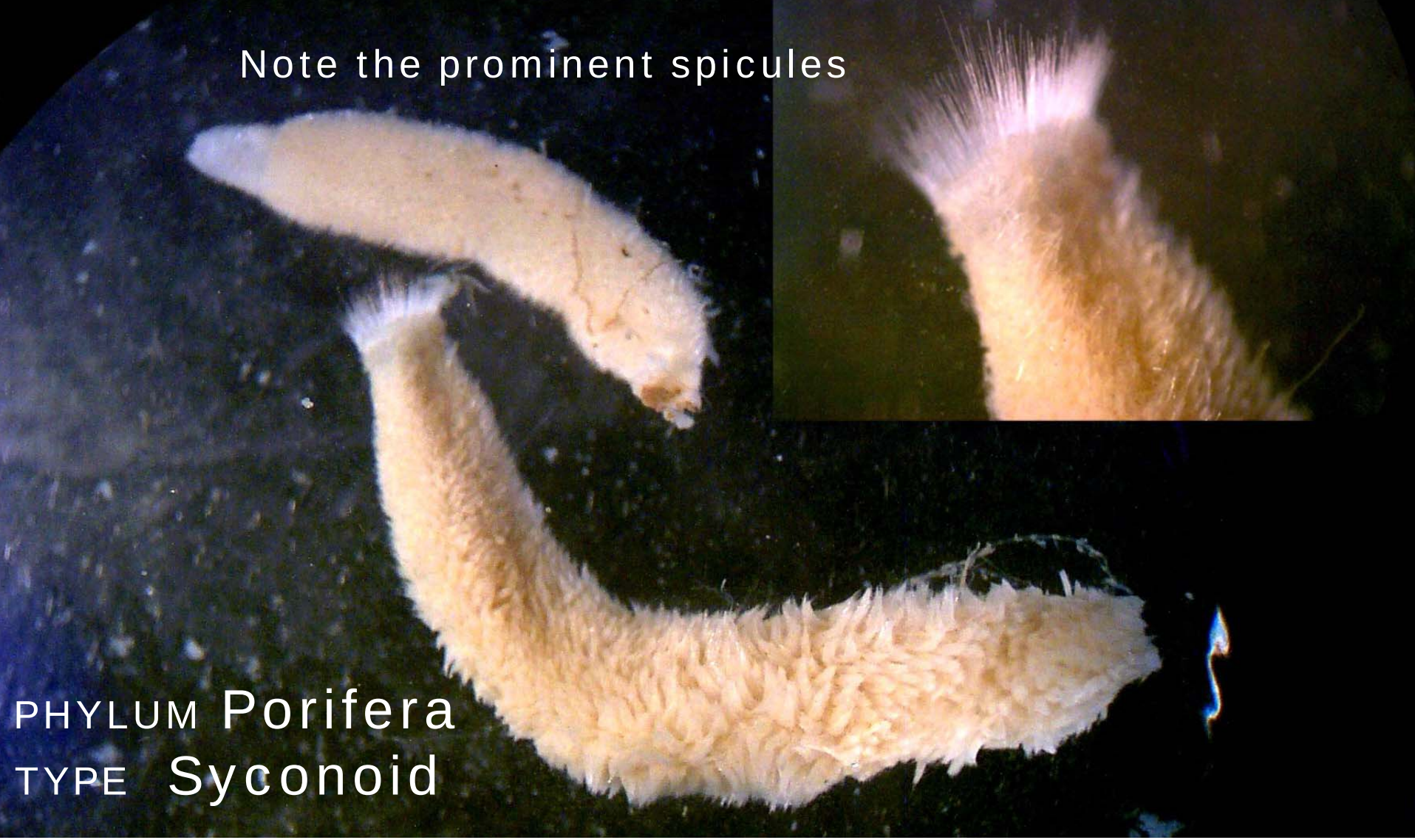
The actual opening is formed by 1 cell, the porocyte.

Syconoid Sponges

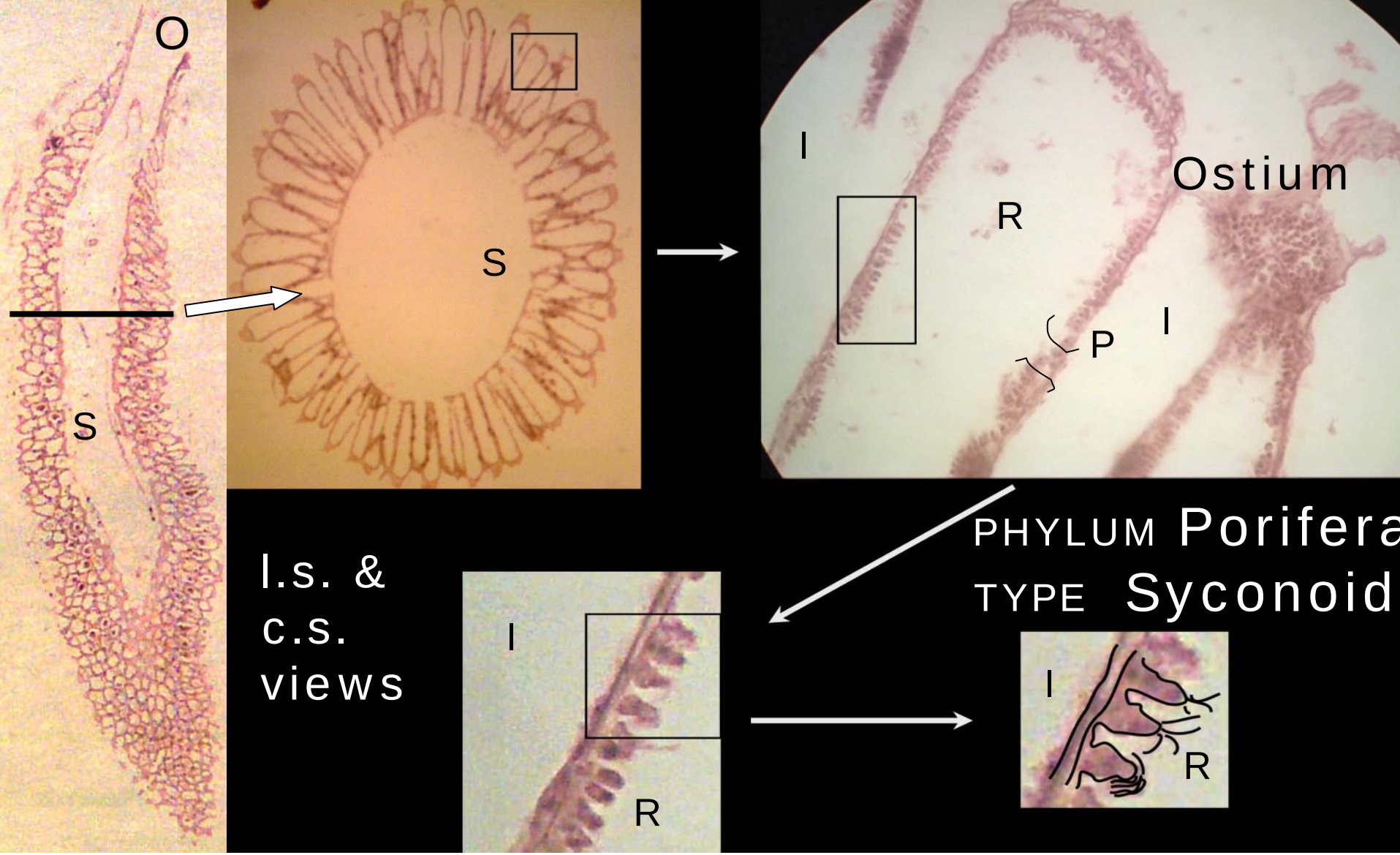
The ostia/incurrent pores in syconoid sponges are generally made of several cells. Water enters the sponge through these pores and moves into the incurrent canal.



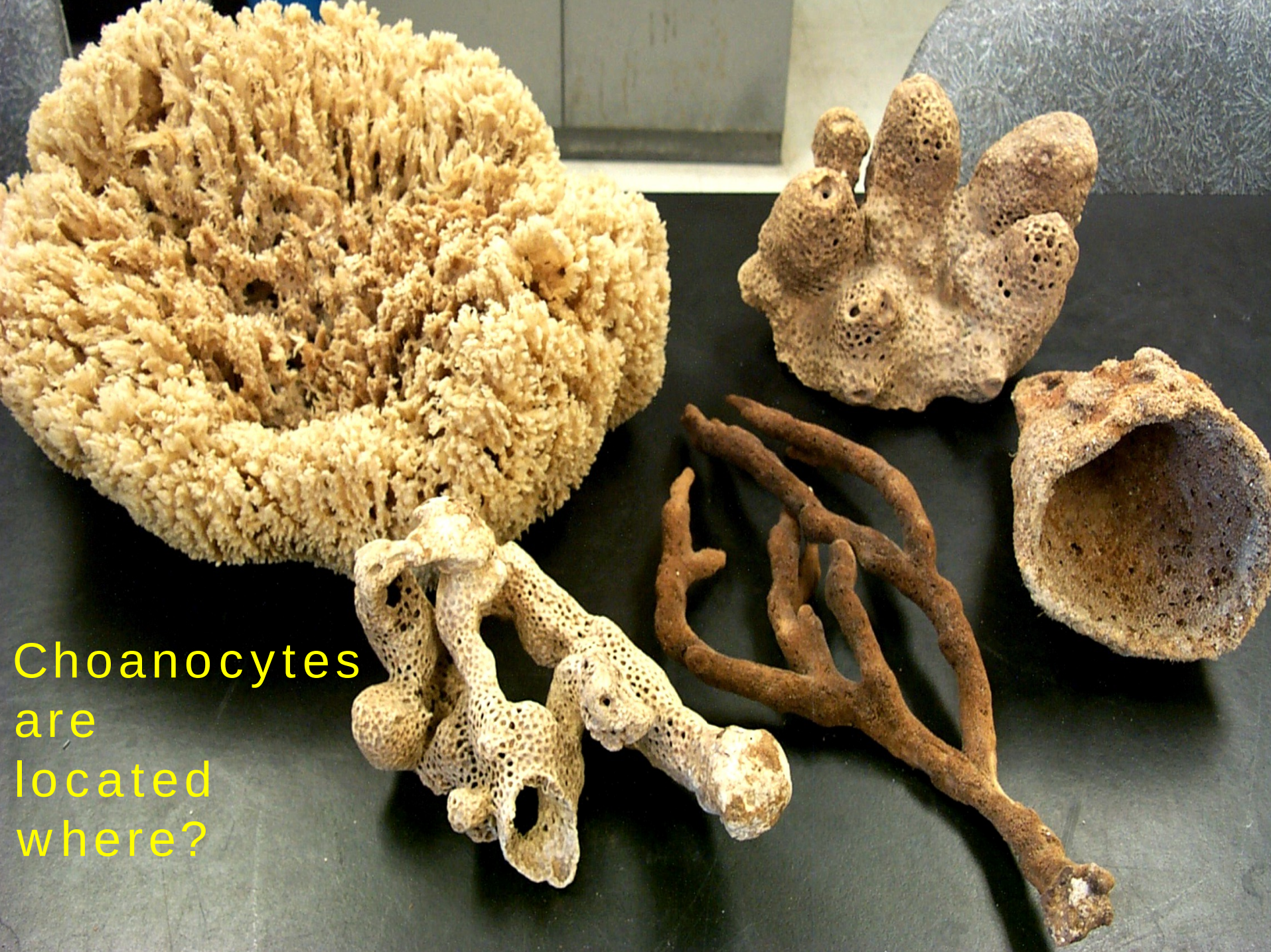
Water leaves this area to enter the **radial canal** (area of choanocytes) via the **prosopyle** – (a porocyte cell)

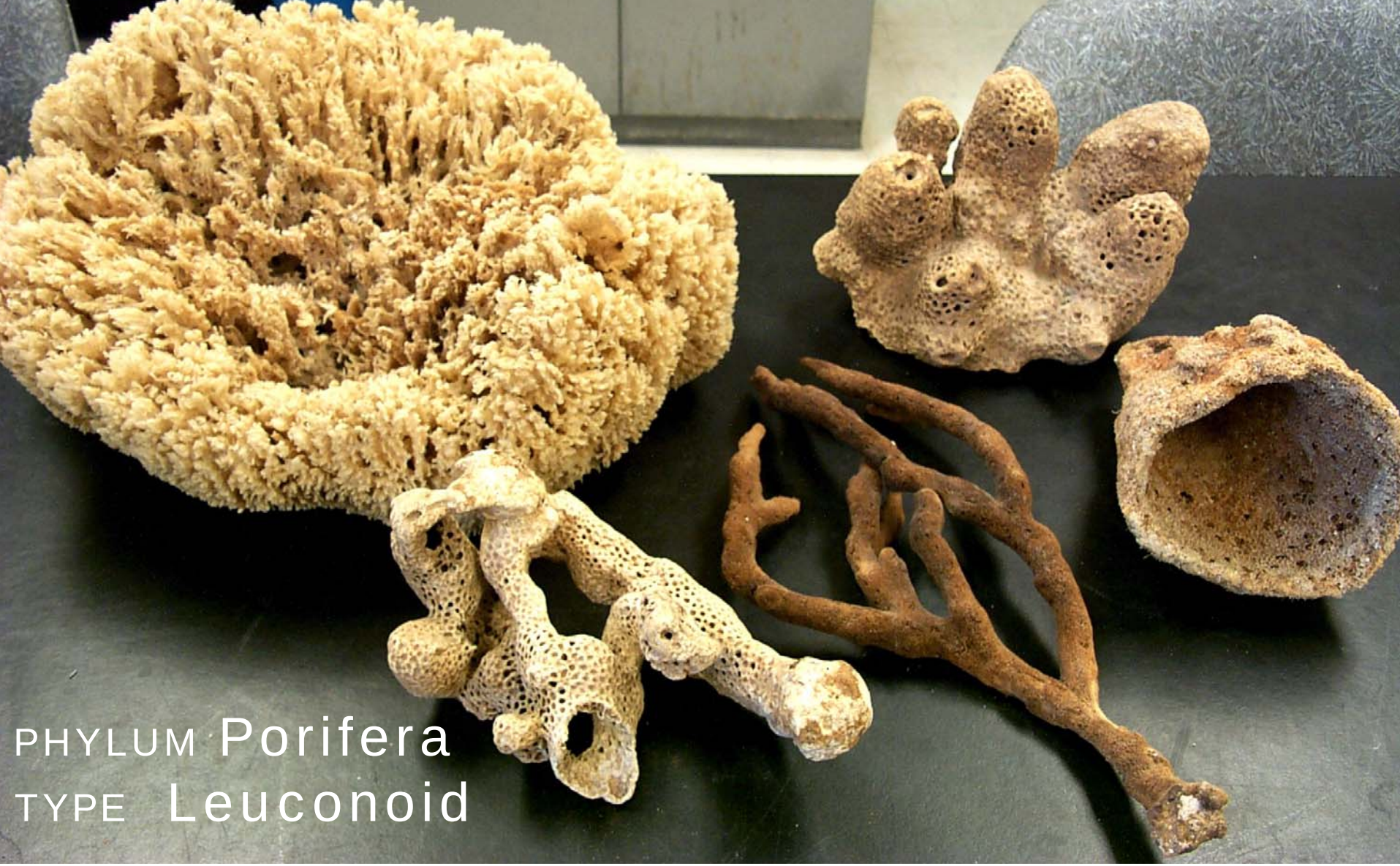


The choanocytes are located in the radial canals.
These are the ‘middle-sized’ sponges



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?

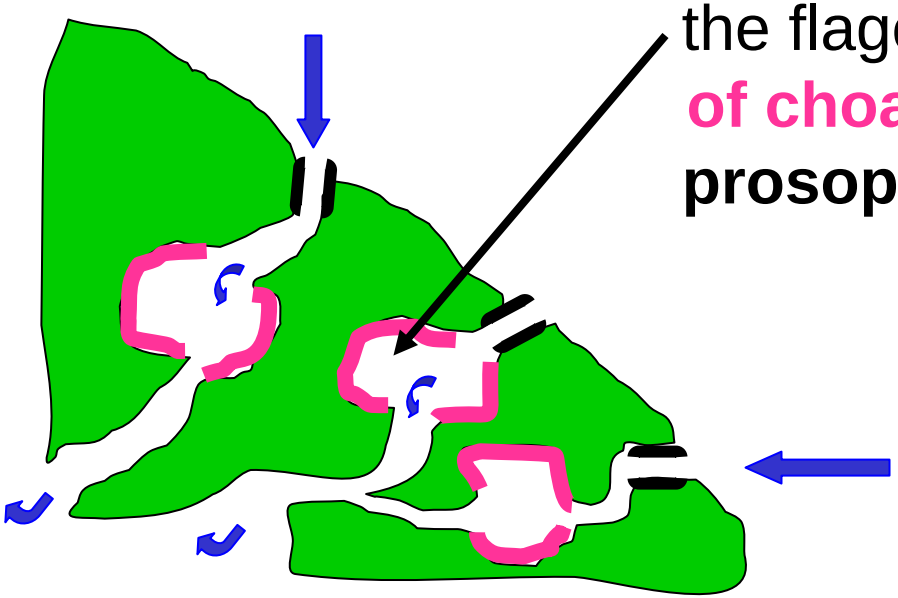


The choanocytes are located in the many flagellated chambers.

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 monoecious

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.