

A vibrant underwater scene featuring various aquatic plants. In the foreground, there is a dense carpet of bright green moss. To the left, a plant with long, thin, green stems and small, reddish-brown flowers is visible. In the center-right, a cluster of plants with broad, reddish-brown leaves is prominent. The background is dark, with a small, light-colored fish swimming near the top center. The overall lighting is bright, highlighting the colors of the plants.

Biologie des Organismes

Biologie Animale

Licence STS – BGS – 1^{re} année

The background of the slide is a photograph of an aquarium. It features a variety of aquatic plants, including tall, thin green ones and some with reddish leaves. The water is dark, and there are some small, indistinct shapes that could be animals. The overall scene is dimly lit, with some highlights on the plants.

Introduction

Porifères

Cnidaires

Platyhelminthes

Annélides

Mollusques

Bryozoaires

Arthropodes

Nématodes



Introduction

Cnidaires

Annélides

Bryozoaires

Nématodes

Porifères

Platyhelminthes

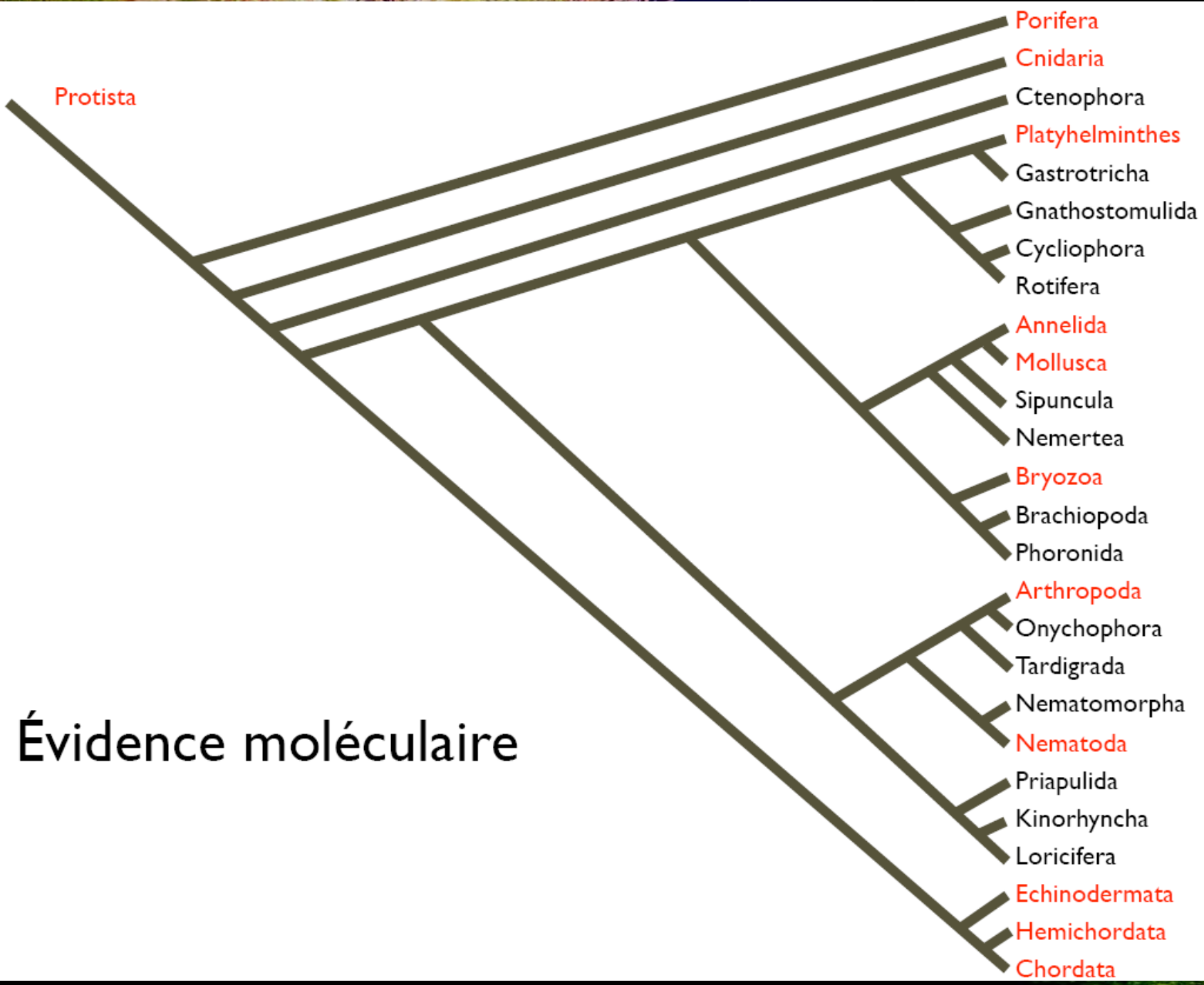
Mollusques

Arthropodes

La diversité animale

- 1,5 M regroupées en \approx 40 phylums
- Loup (*Canis lupus*)
Phylum Chordata
- Étoile de mer
Phylum Echinodermata
- Moustique
Phylum Arthropoda
- Nautilus
Phylum Mollusca
- Ver Polychète
Phylum Annelida
- Corail
Phylum Cnidaria
- Éponge
Phylum Porifera





Protista

Porifera

Cnidaria

Ctenophora

Platyhelminthes

Gastrotricha

Gnathostomulida

Cycliophora

Rotifera

Annelida

Mollusca

Sipuncula

Nemertea

Bryozoa

Brachiopoda

Phoronida

Arthropoda

Onychophora

Tardigrada

Nematomorpha

Nematoda

Priapulida

Kinorhyncha

Loricifera

Echinodermata

Hemichordata

Chordata

Évidence moléculaire

The background of the slide is a photograph of an aquarium. It features a variety of aquatic plants, including tall, thin green plants with pinkish tips, and clusters of reddish-brown plants. The water is dark, and some small fish are visible in the background. A white rectangular box is overlaid on the center of the image, containing text.

Où les trouvons-nous

- Environnement marin
- Environnement dulcicole
- Environnement terrestre

Milieu marin

- Étendu
- Ancien
- Dense
- Température tamponnée
- Pression osmotique neutre
- Oxygène rare



Milieu dulcicole

- Plus récent
- Stress osmotique
- Peu tamponné
- Microhabitats
- Oxygène rare



Milieu terrestre

- Sec
- Oxygène abondant
- Gravité plus perceptible
- Peu tamponné



Besoins et fonctions

- Nourriture
 - Eau
 - Oxygène
 - Détection des stimuli
 - Se déplacer
 - Homéostasie
 - Éliminer les déchets métaboliques
 - Se reproduire
- Respiration
 - Circulation
 - Digestion
 - Osmorégulation
 - Excrétion
 - Locomotion
 - Perception
 - Coordination

The background of the slide is a photograph of an aquarium. It features a variety of marine plants, including green and reddish-brown species, and some coral-like structures. The lighting is somewhat dim, creating a dark, underwater atmosphere.

Introduction

Porifères

Cnidaires

Platyhelminthes

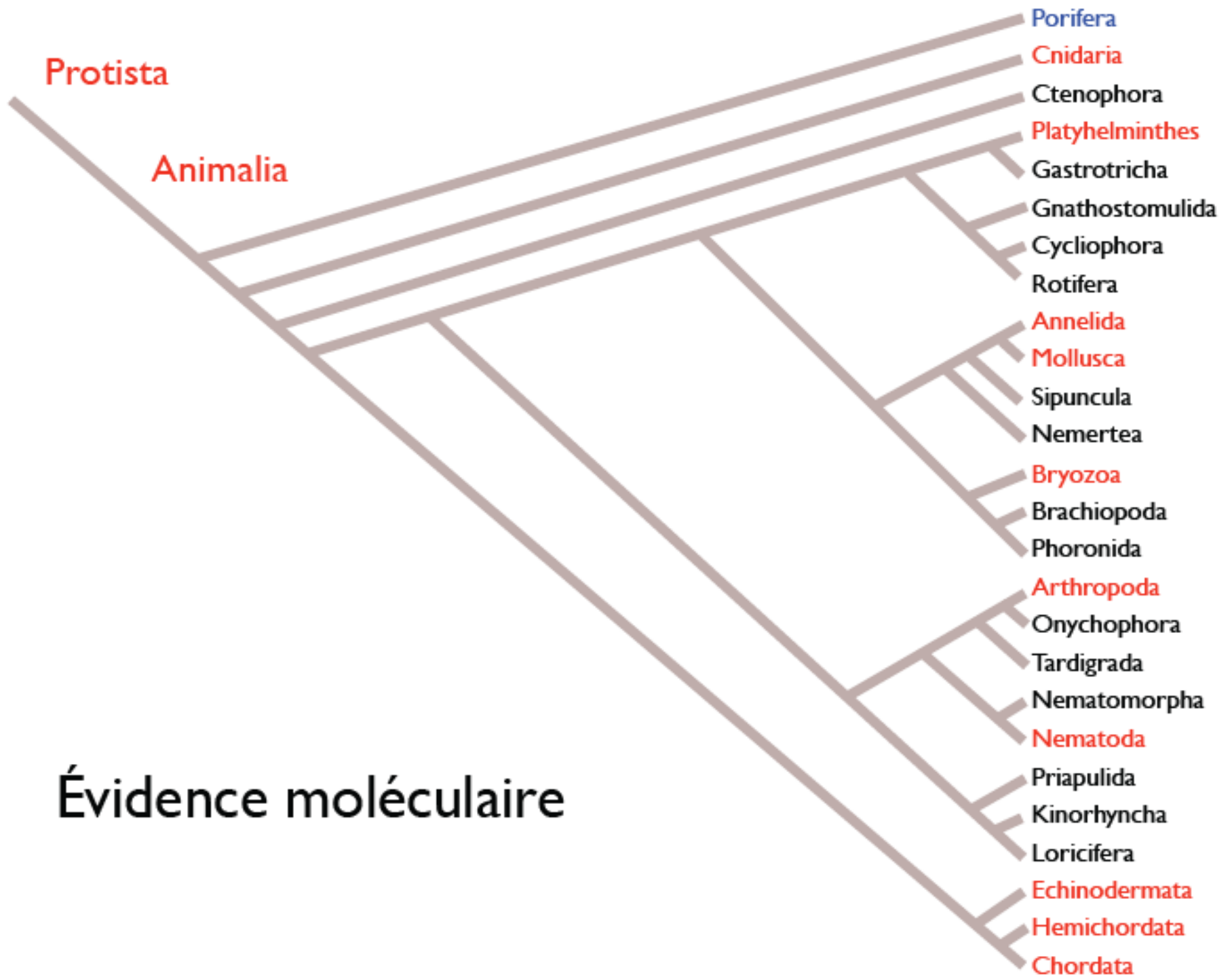
Annélides

Mollusques

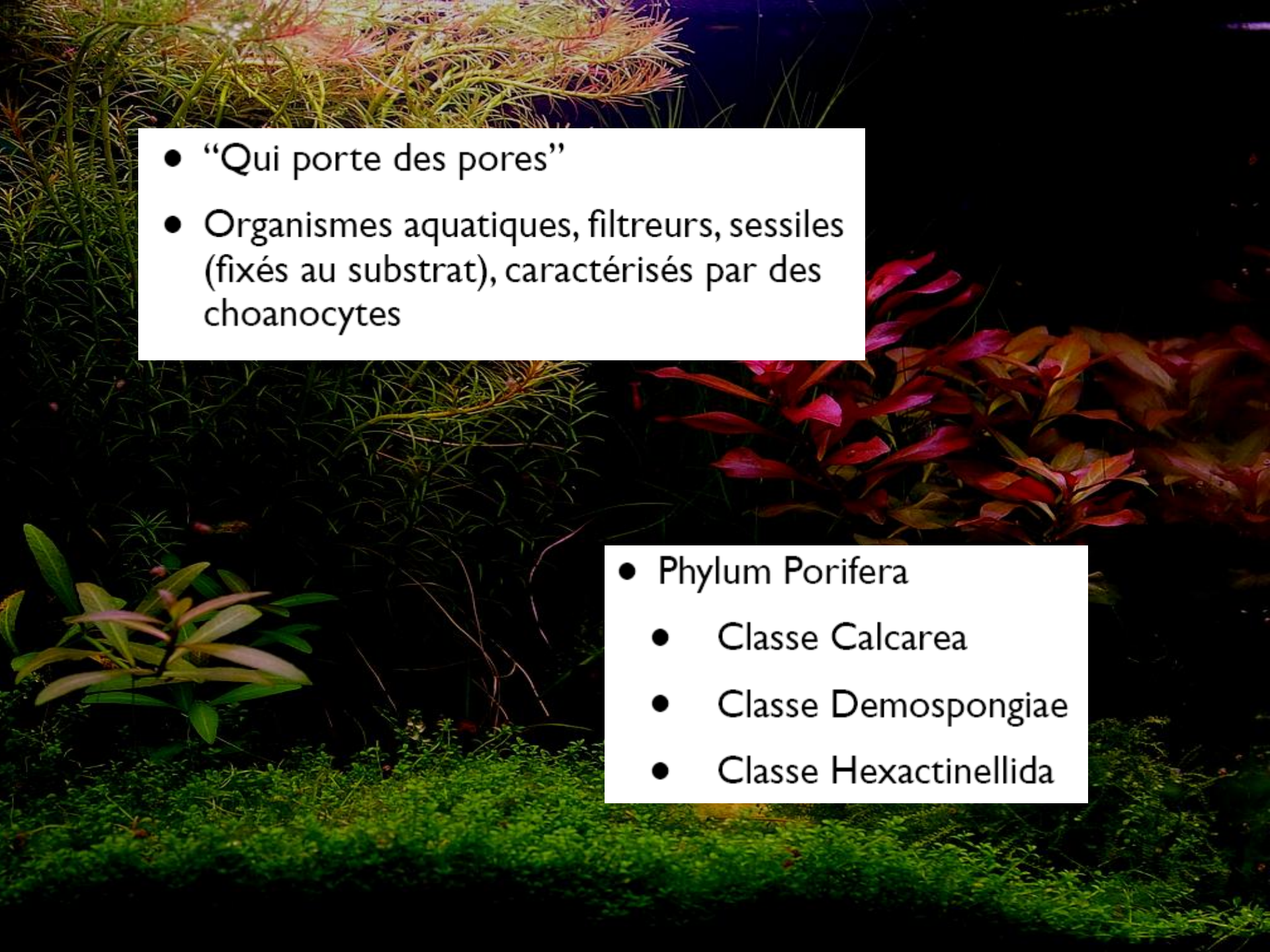
Bryozoaires

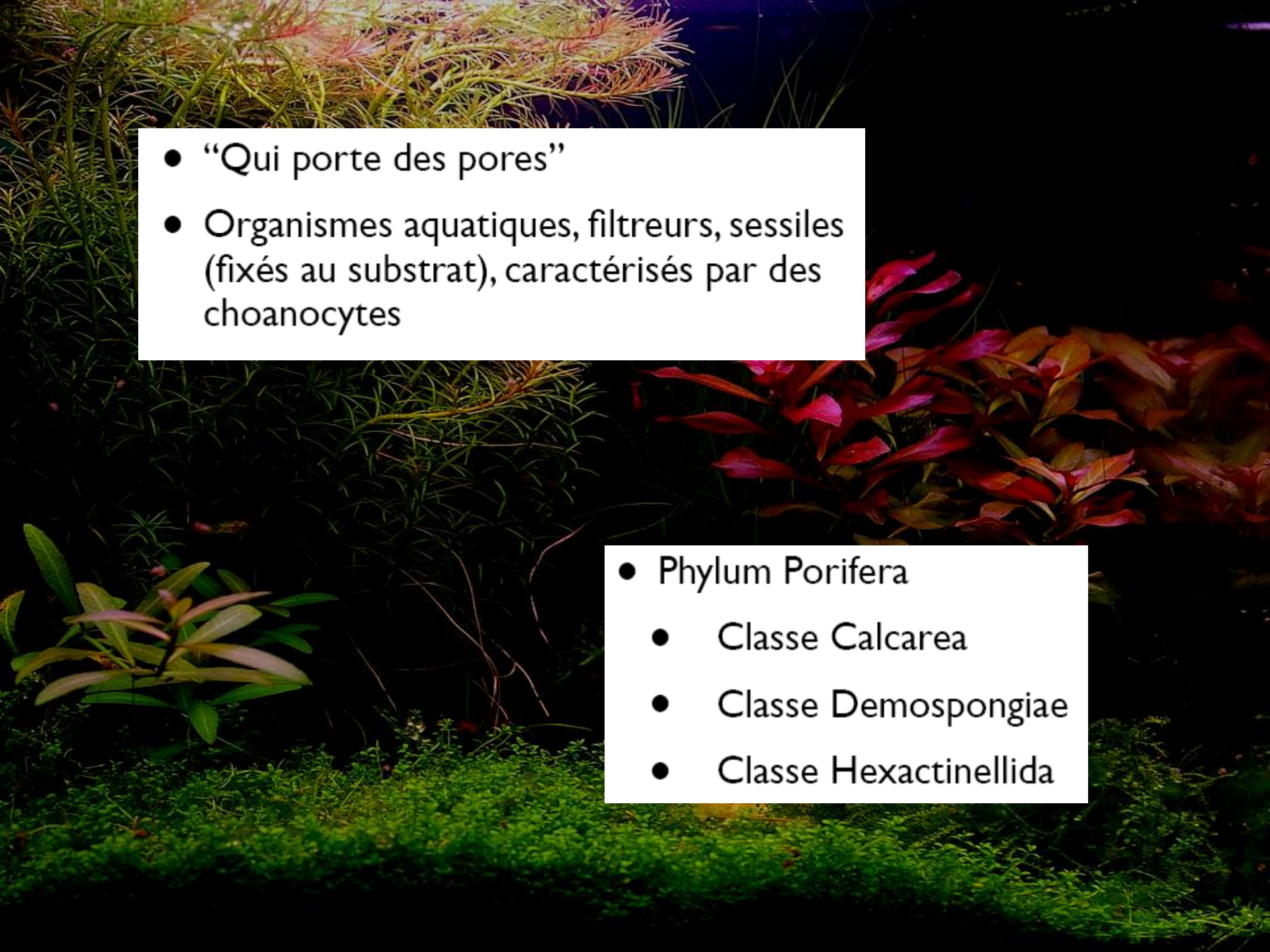
Arthropodes

Nématodes

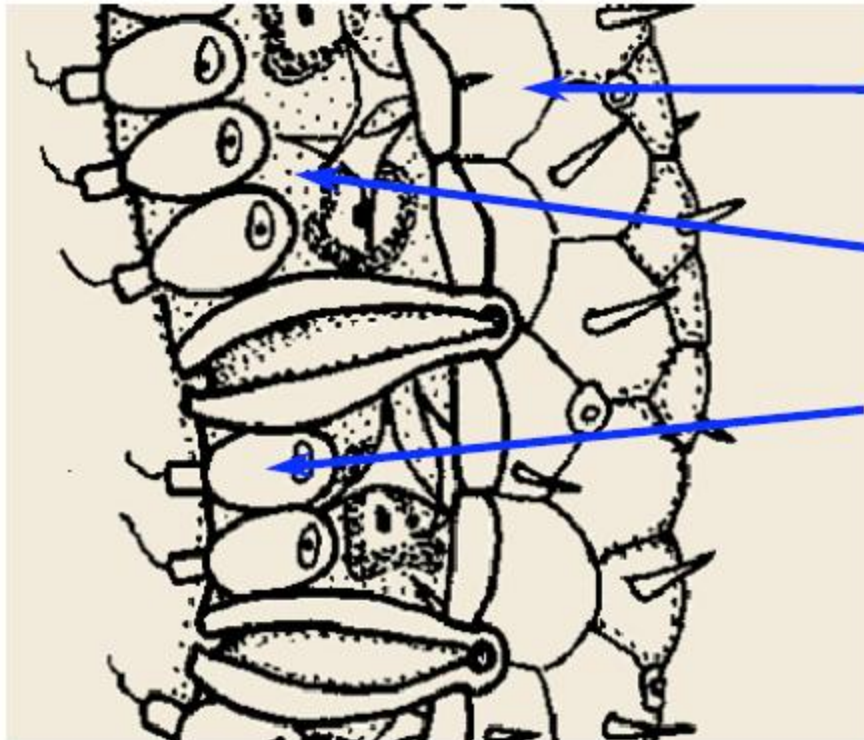


Évidence moléculaire

- 
- The background is a photograph of an aquarium. It features several types of aquatic plants: a green feathery plant at the top, a red-leaved plant on the right, and a green leafy plant at the bottom left. A white rectangular text box is overlaid on the left side of the image.
- “Qui porte des pores”
 - Organismes aquatiques, filtreurs, sessiles (fixés au substrat), caractérisés par des choanocytes

- 
- The background is a photograph of an aquarium. It features several types of aquatic plants: a green feathery plant at the top, a red-leaved plant on the right, and a green leafy plant at the bottom left. A white rectangular text box is overlaid on the right side of the image.
- Phylum Porifera
 - Classe Calcarea
 - Classe Demospongiae
 - Classe Hexactinellida

Couches de cellules

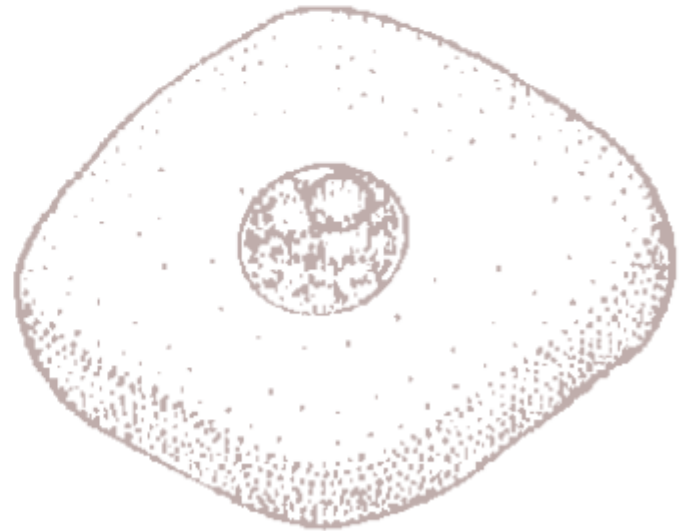


Pinacoderme

Mésoglée

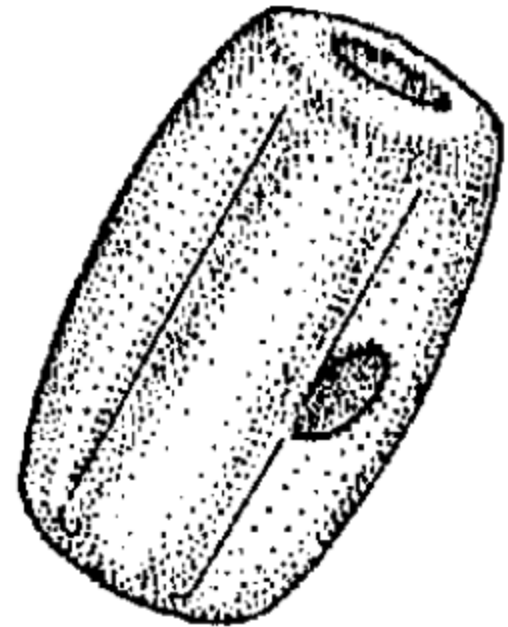
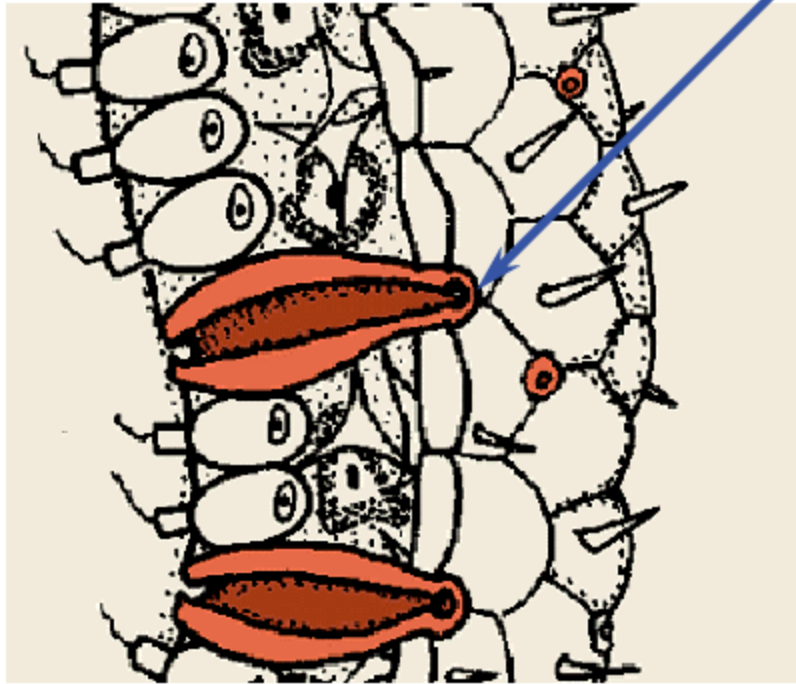
Choanoderme

Pinacocyte

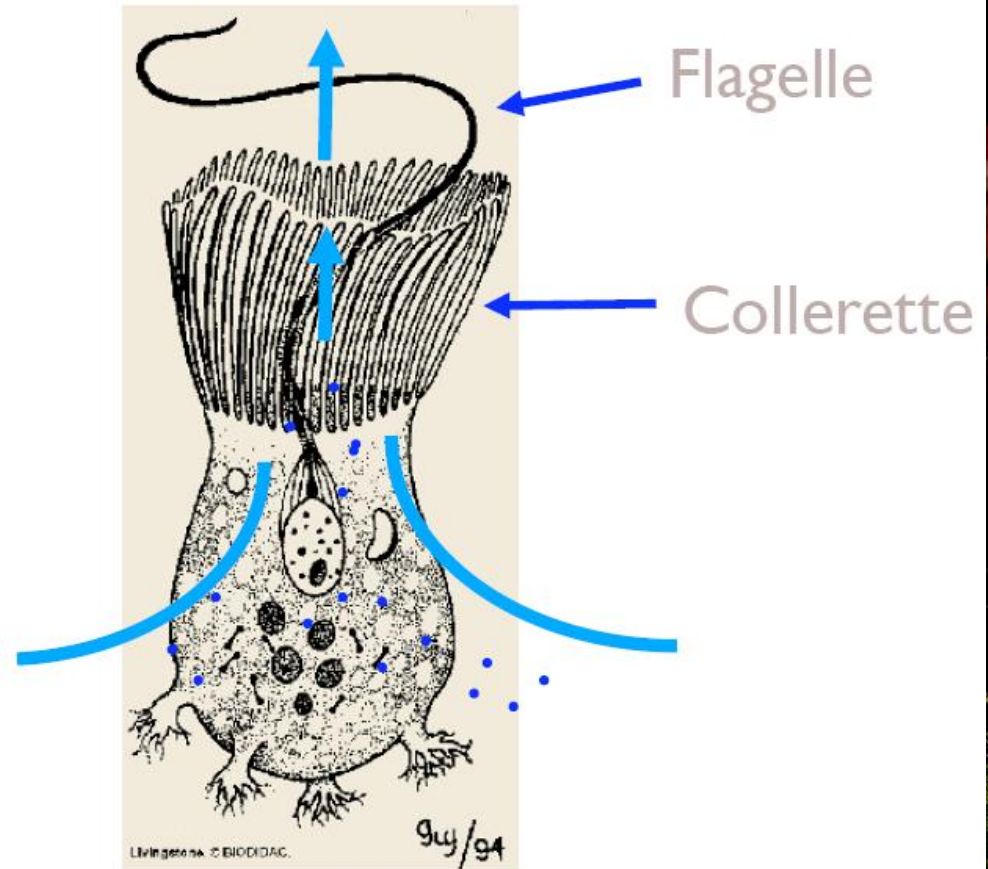
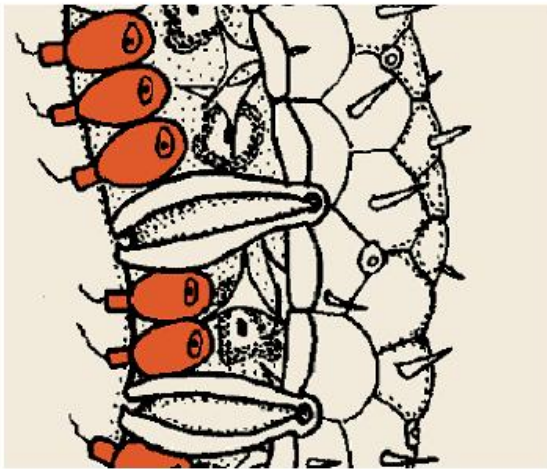


Porocyte

Ostia dermal



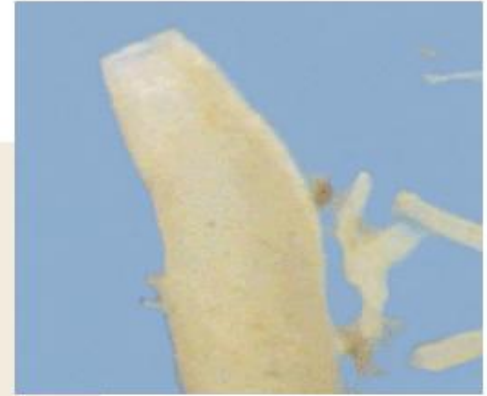
Choanocytes



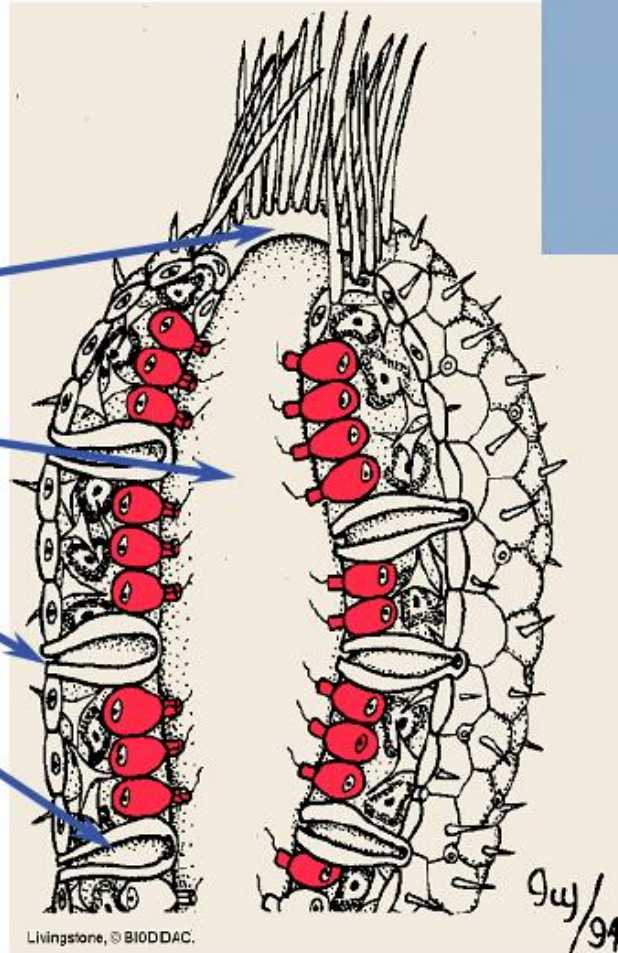
Architecture

- Asconoïde
 - “Sac dans un sac”
 - La plus simple, mais la moins efficace
- Syconoïde
- Leuconoïde
 - Plus complexe, efficace

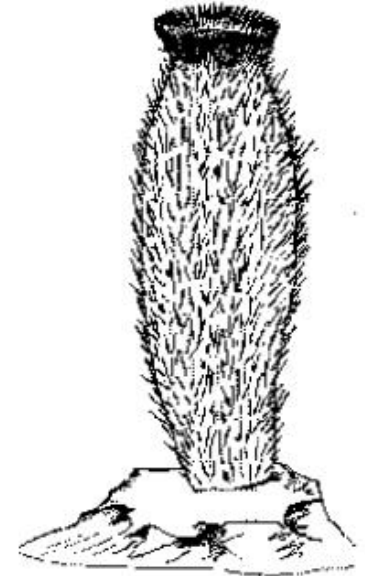
Architecture asconoïde



Osculum
Spongiocoele
Ostium
Porocyte



Livingstone, © BIODDAC.



Architecture syconoïde

Osculum

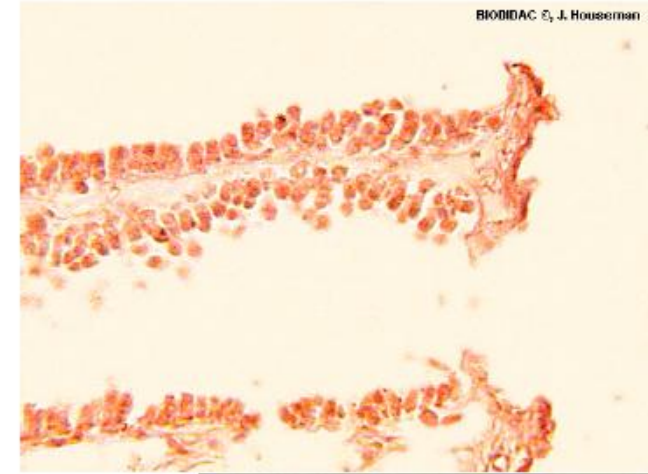
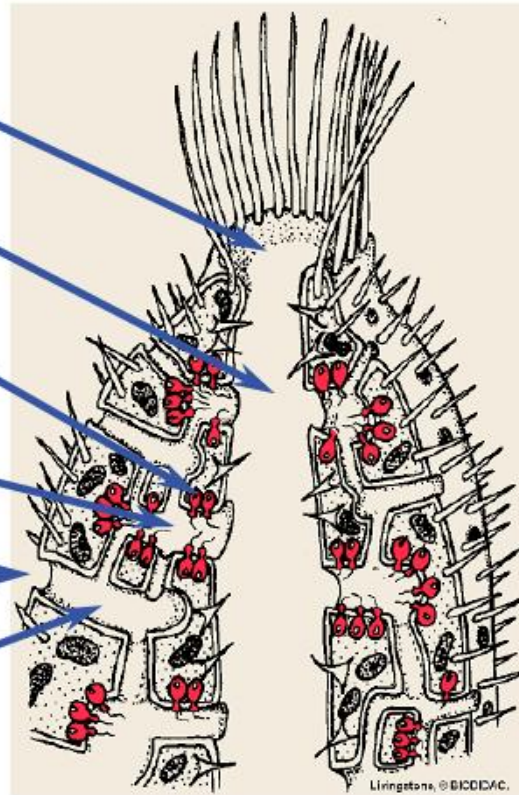
Spongiocoele

Choanocytes

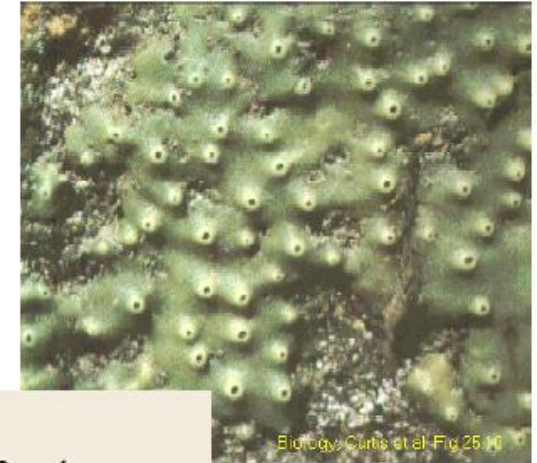
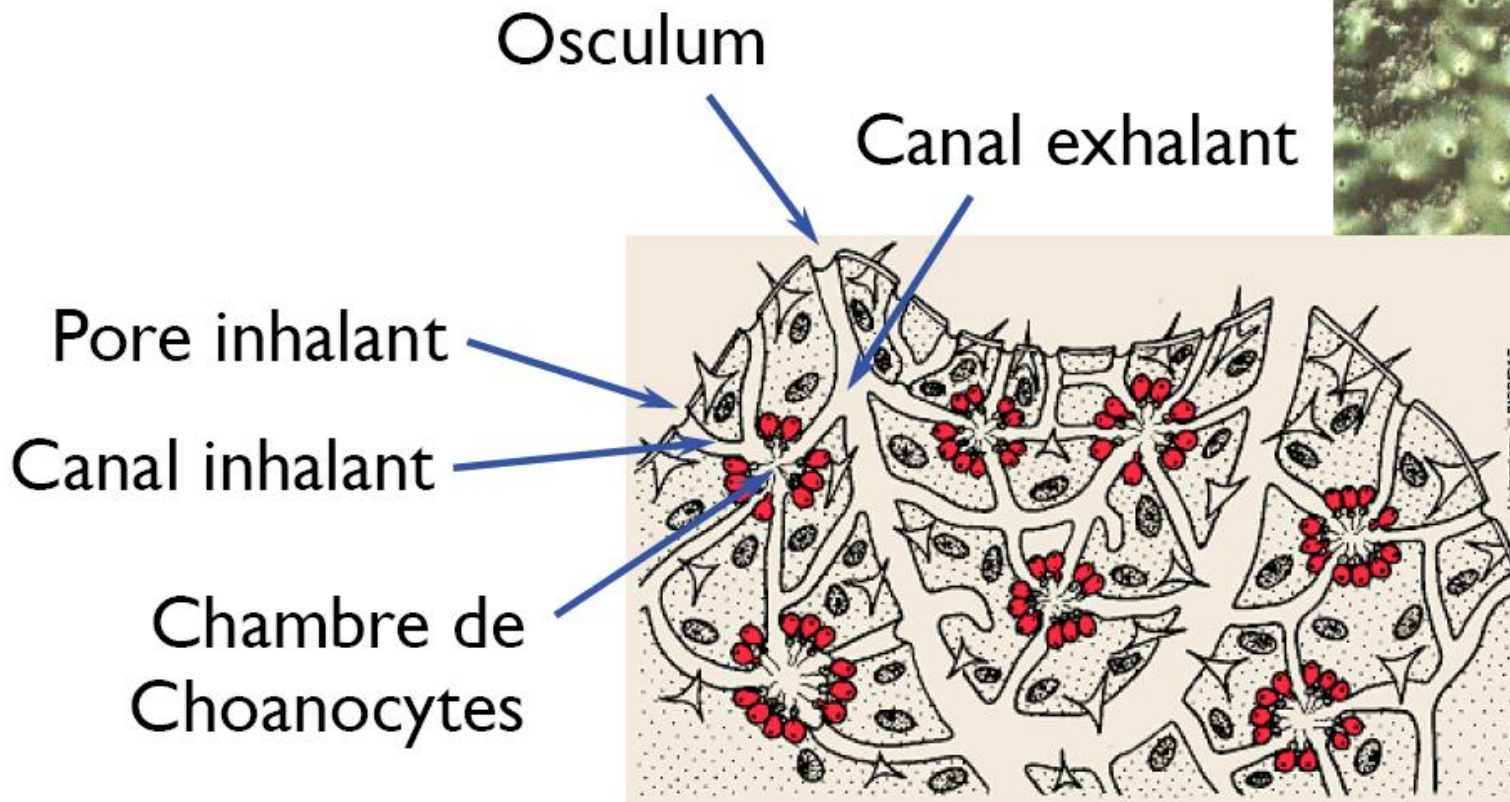
Canal radial

Pore inhalant

Canal inhalant



Architecture leuconoïde



Éponge leuconoïde: encroûtement



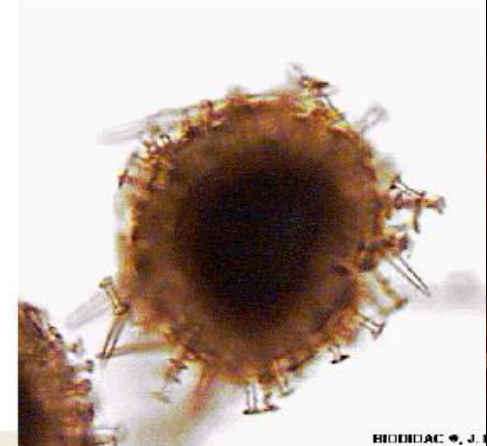
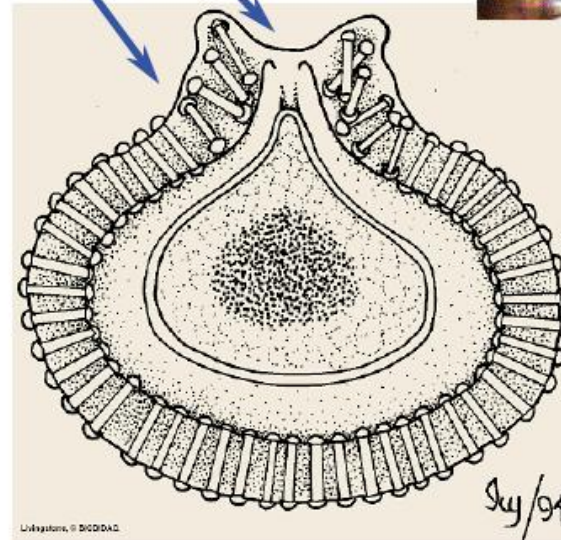
Reproduction des Porifera

- Asexuée
 - Immense capacité de régénération
 - Bourgeonnement
 - Fragmentation
 - Gemmules
- Sexuée



Micropyle

Spicule

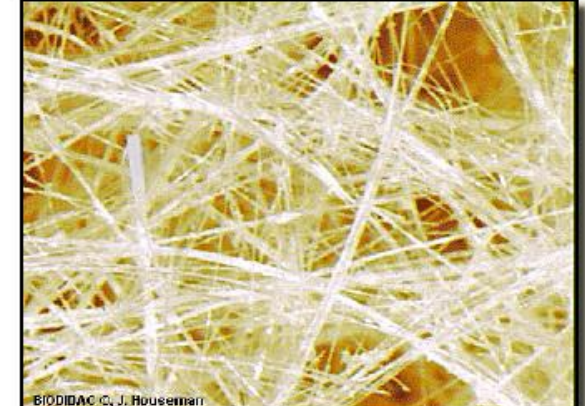
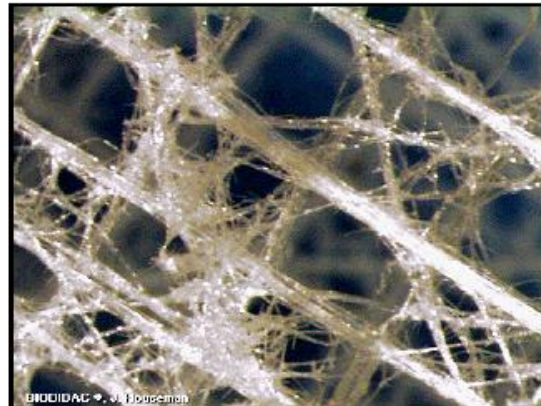
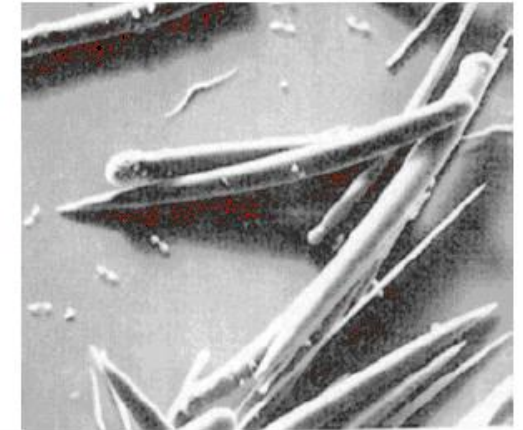
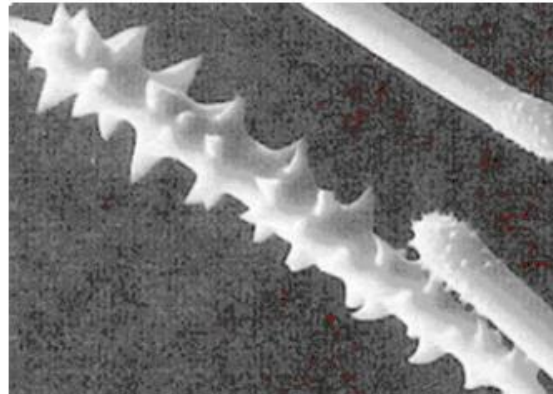
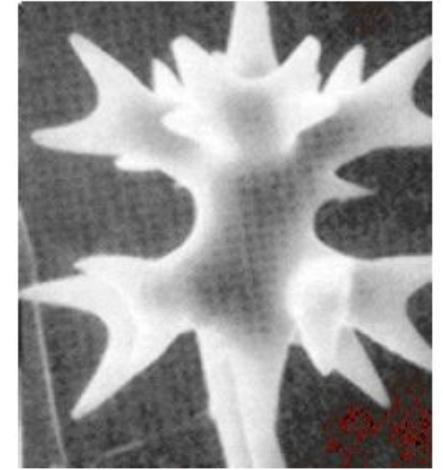


Reproduction sexuée

- Hermaphrodites = monoïques
- Gamètes produits par les amibocytes
- Protandrie: production des gamètes mâles avant les gamètes femelles
- Spermatozoïdes libérés par l'osculum
- Zygote se développe dans la mésoglée
- Larve planctonique est libérée (permet la colonisation de nouveaux sites)
 - Phototropisme positif et négatif facilite la dispersion

Défenses

- Spicules
- Composés organiques
 - Terpènes
 - Benzoquinones
 - Bromines
- Inhibiteurs de croissance des coraux



Porifera, Classe Calcarea

- *Leucetta microraphis*), une éponge calcifiée avec des spicules de carbonate de calcium
- Se retrouve dans des grottes sous-marines des Bermudes



Porifera, Classe Demospongiae

- *Tedania ignis* est commune dans les Caraïbes
- Cause des brûlures et des irritations aux contact de la peau

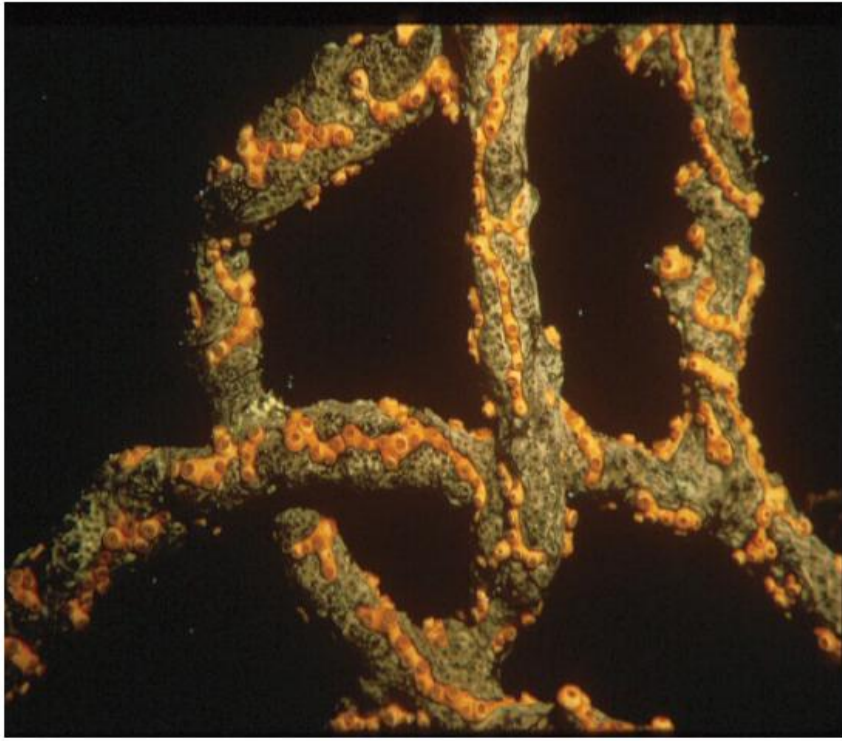


- *Aplysinia fistularis* est commune dans les Caraïbes
- Les gobies (poissons) vivent souvent dans ses tubes

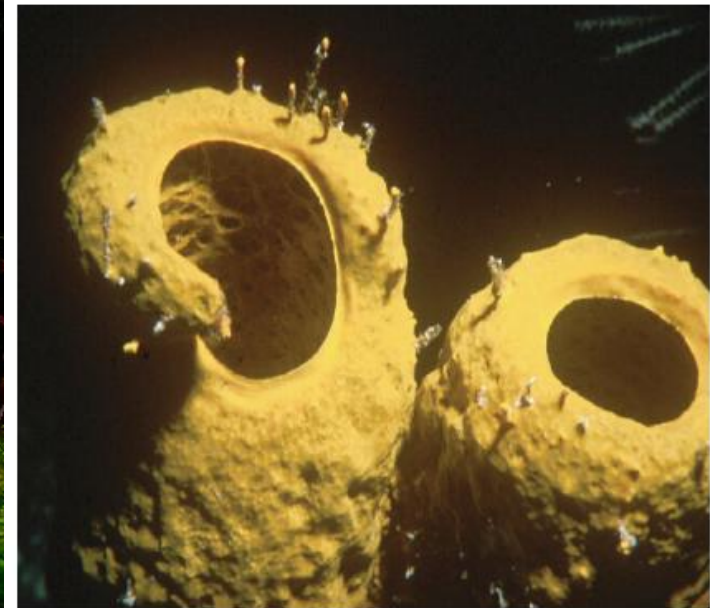


Porifera, Classe Demospongiae

- *Iotrochota birotulata* avec une croûte dorée de *Parazoanthus swifti*, des Anthozoa commensalistes

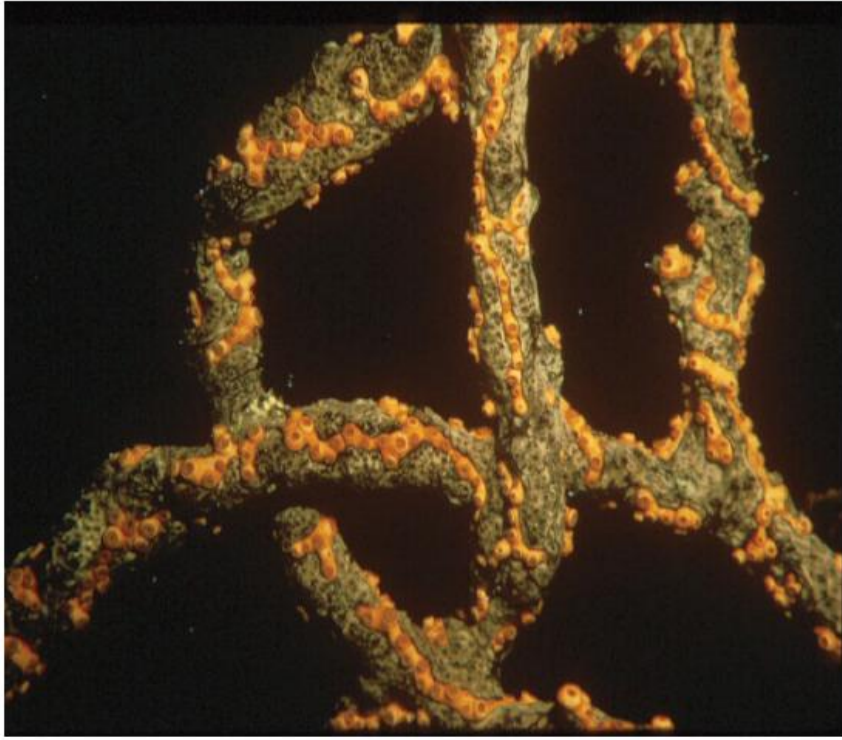


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- Les gobies (poissons) vivent souvent dans ses tubes

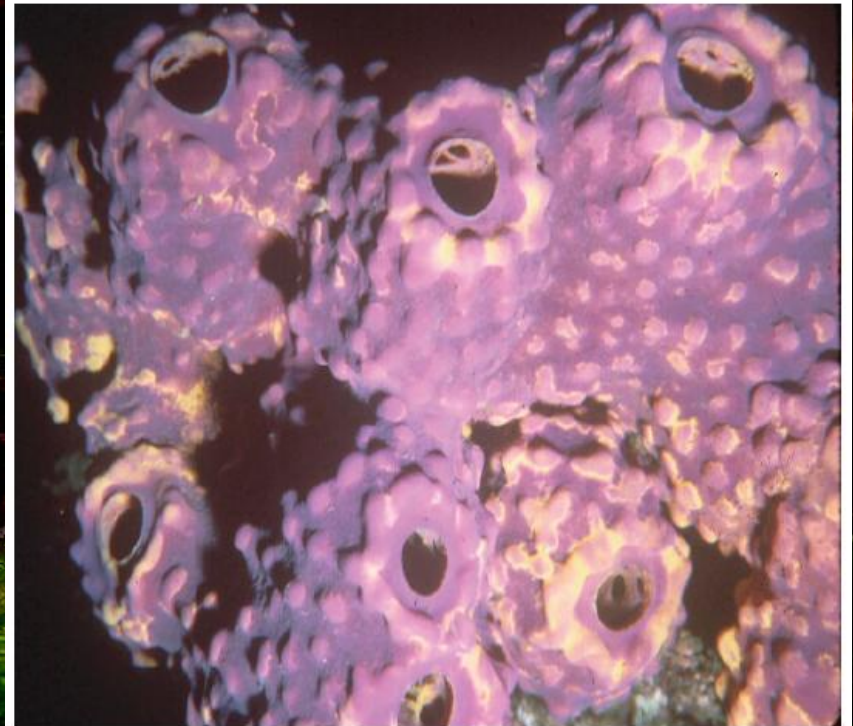


Porifera, Classe Demospongiae

- *Iotrochota birotulata* avec une croûte dorée de *Parazoanthus swifti*, des Anthozoa commensalistes



- *Pseudoceratina crassa* du Honduras
- Relâche de la teinture bleue lorsque manipulée

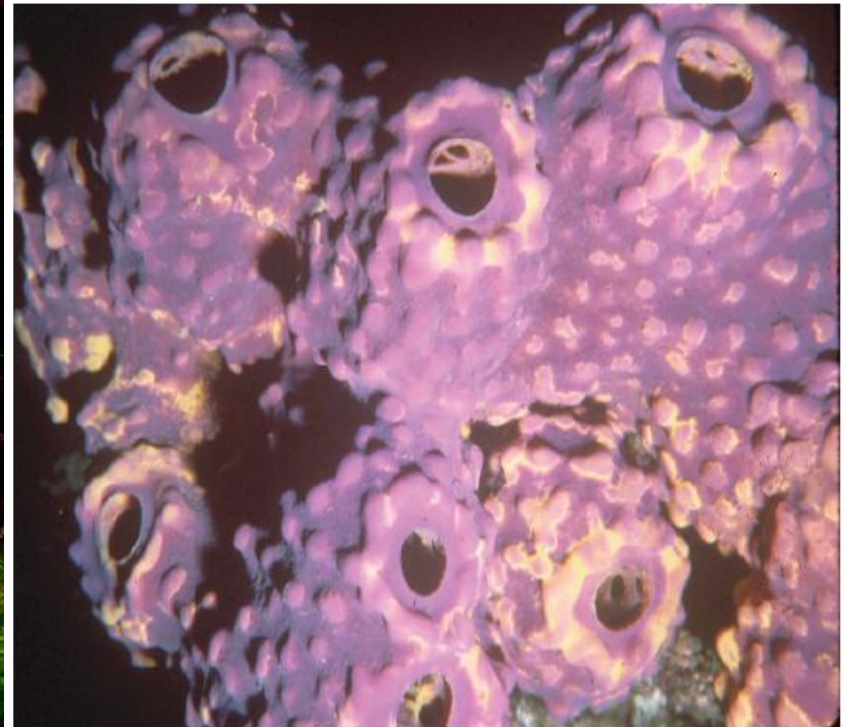


Porifera, Classe Demospongiae

- *Monanchora barbadensis* du Honduras
- Colonise les endroits morts des barrières de corail



- *Pseudoceratina crassa* du Honduras
- Relâche de la teinture bleue lorsque manipulée

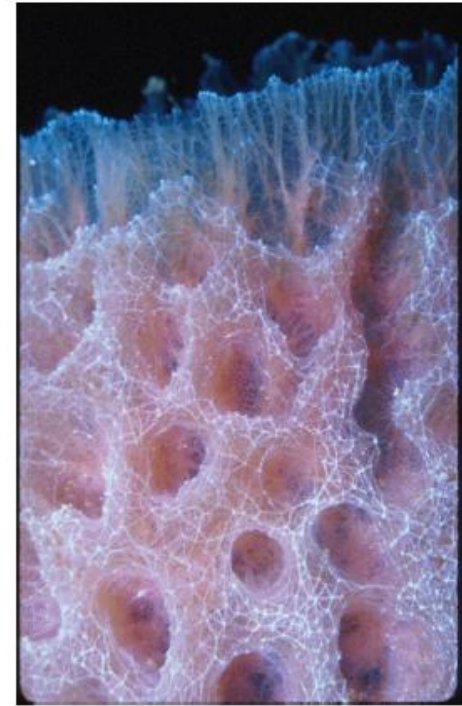


Porifera, Classe Demospongiae

- *Monanchora barbadensis* du Honduras
- Colonise les endroits morts des barrières de corail



- *Callyspongia plicifera* est commune dans les Caraïbes
- Abrite souvent des étoiles de mer



The background of the slide is a photograph of an aquarium. It features several types of aquatic plants, including tall, thin green ones and some with reddish leaves. Small fish are visible swimming in the dark water. The overall scene is dimly lit, typical of an aquarium environment.

Introduction

Cnidaires

Porifères

Platyhelminthes

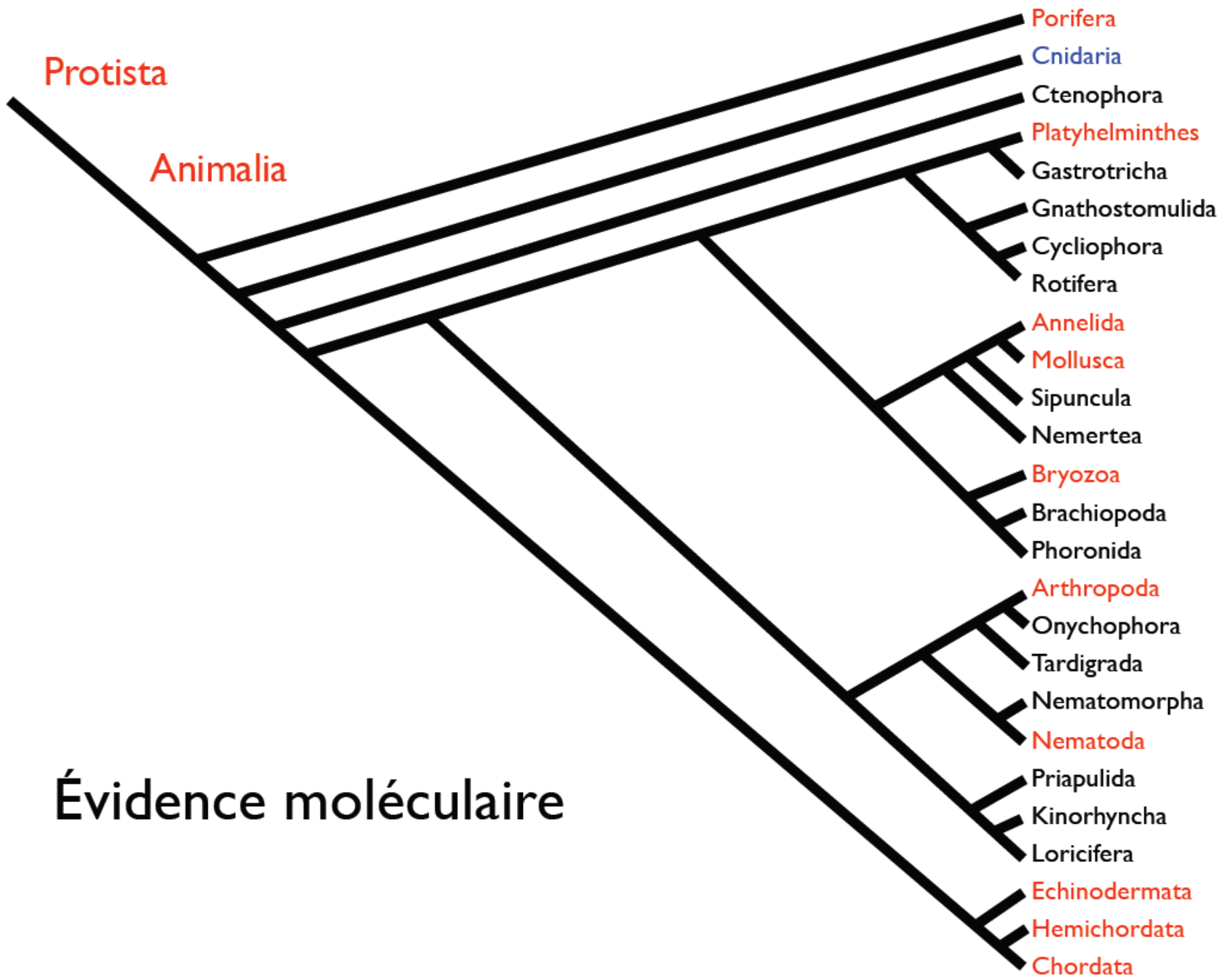
Annélides

Mollusques

Bryozoaires

Arthropodes

Nématodes

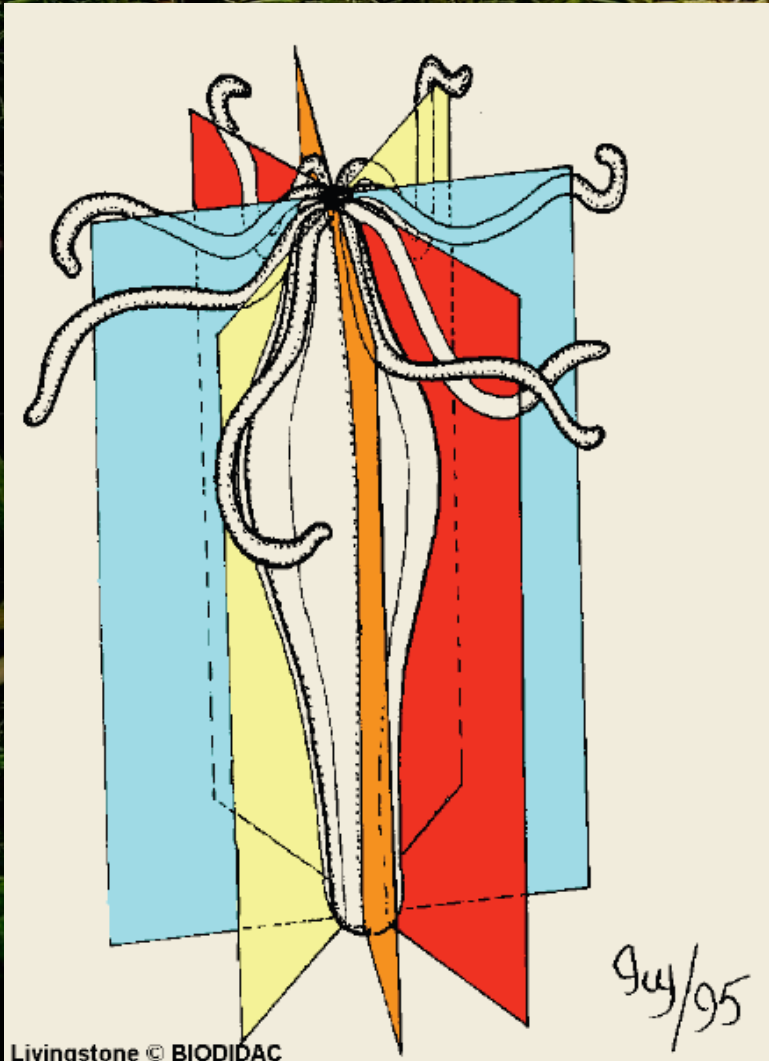


Évidence moléculaire

Phyla symétrie radiale

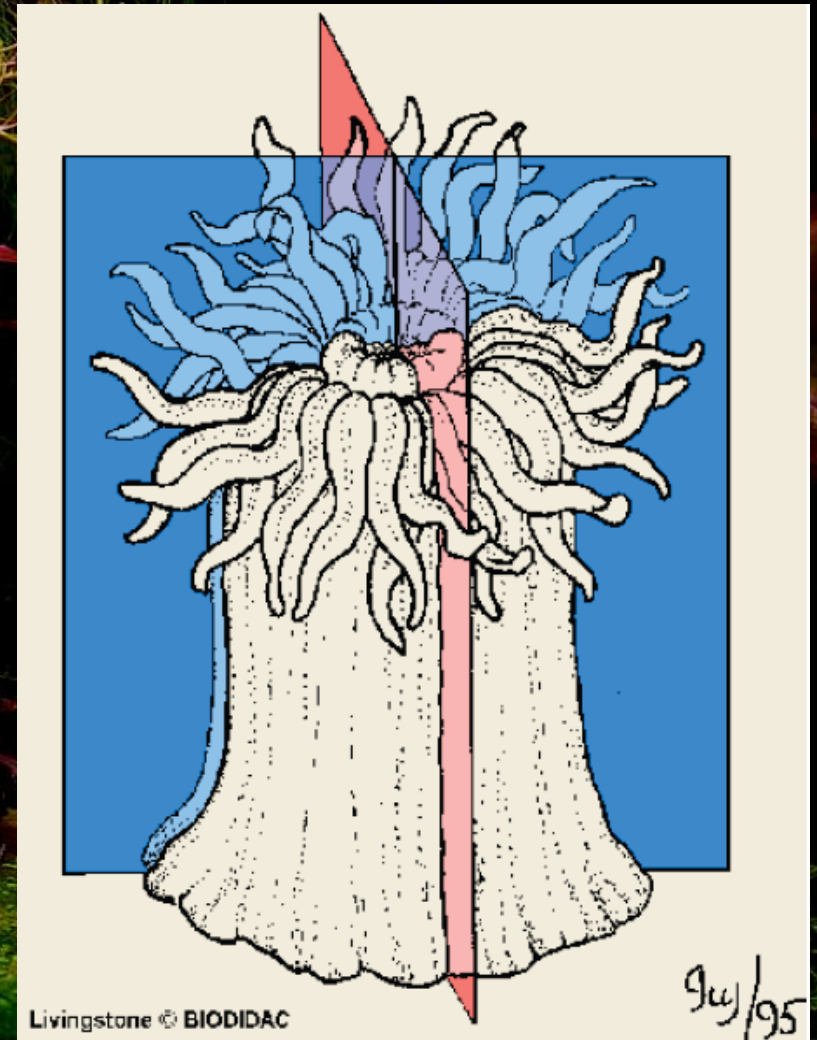


Symétrie radiale



Symétrie biradiale

- Cnidaria - Anthozoa
- Symétrie biradiale à cause de la présence des siphonoglyphes



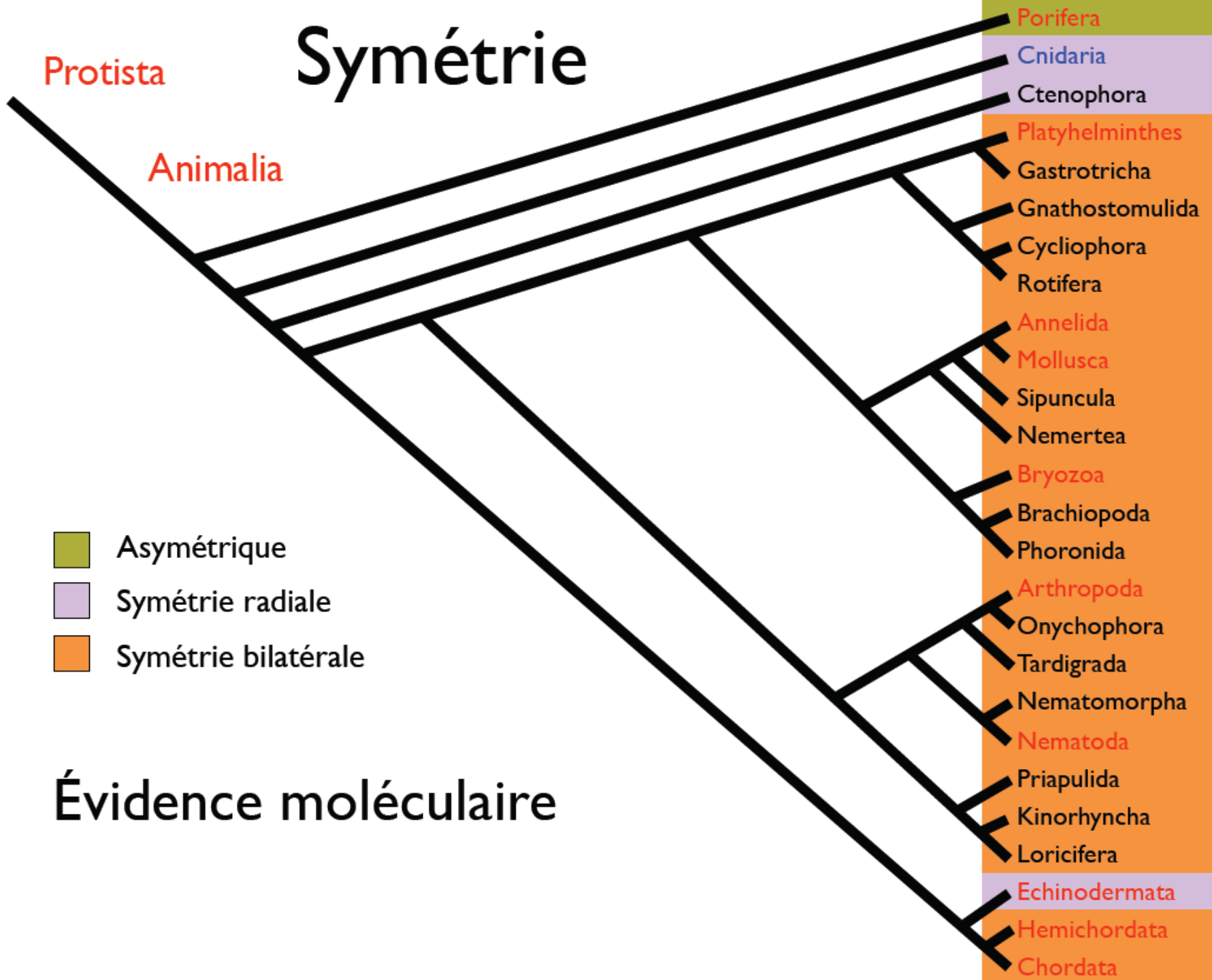
Symétrie

Protista

Animalia

- Asymétrique
- Symétrie radiale
- Symétrie bilatérale




Évidence moléculaire



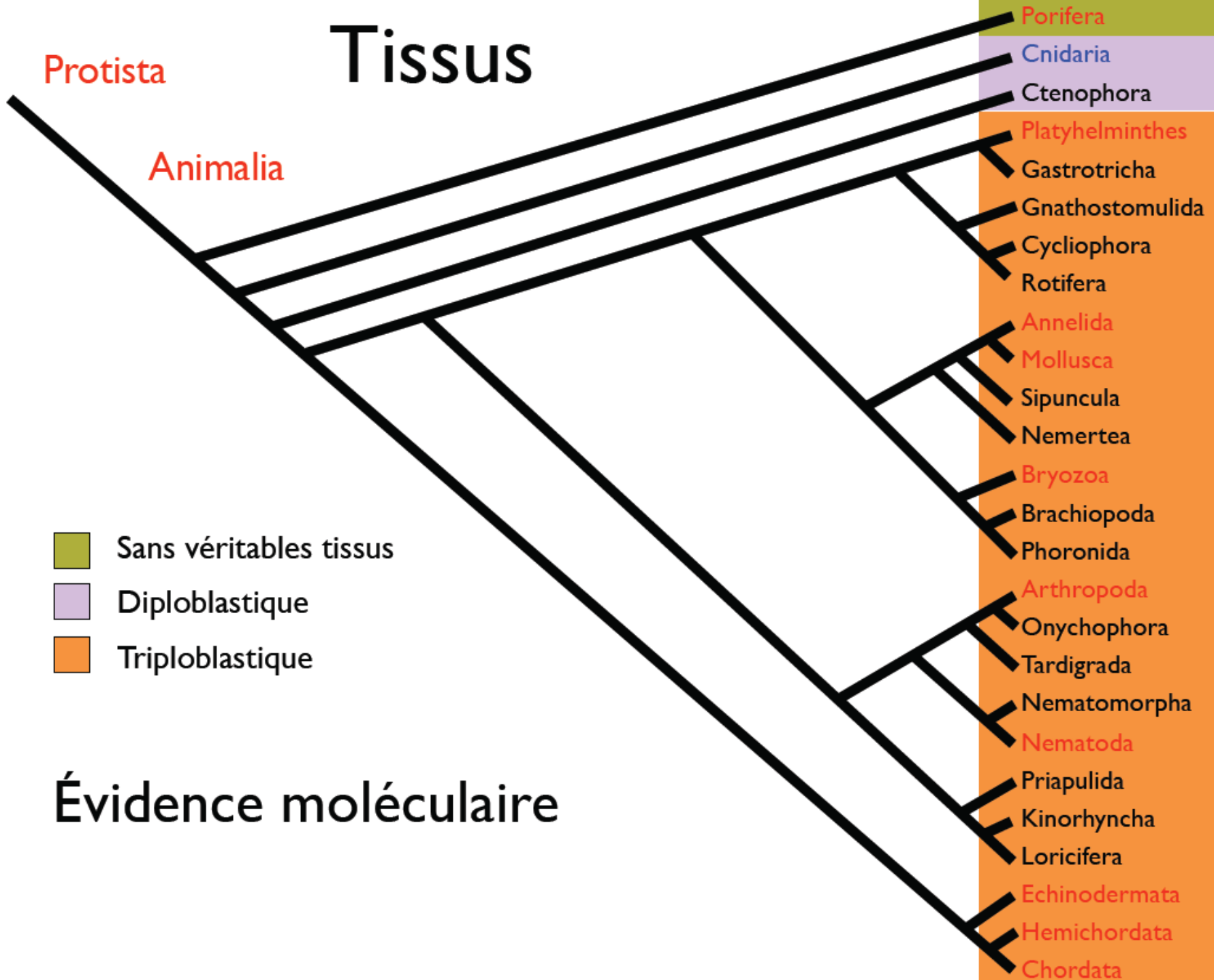
Tissus

Protista

Animalia

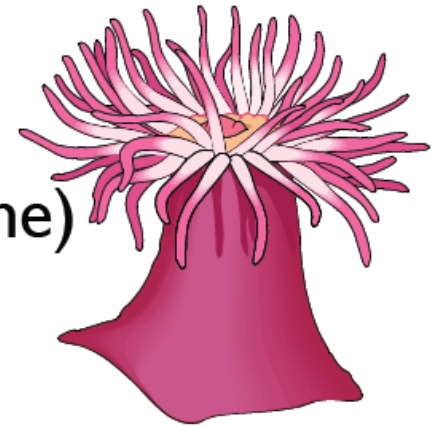
-  Sans véritables tissus
-  Diploblastique
-  Triploblastique

Évidence moléculaire



Cnidaria: quoi de neuf?

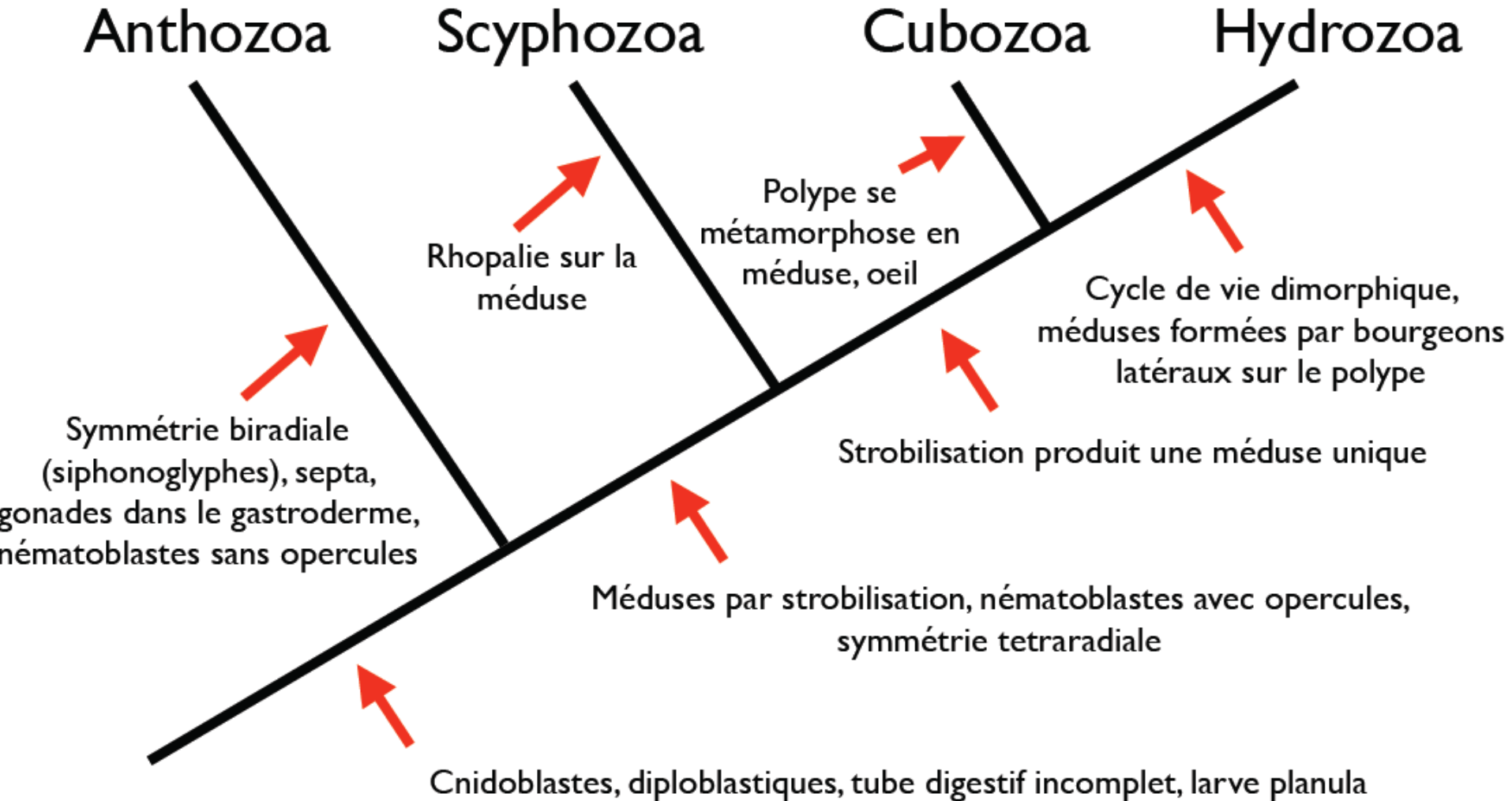
- Symétrie radiale (ou biradiale)
- Tissus
- Cellules urticantes (cnidocytes)
- Bouche entourée de tentacules
- Cycle biologique à 2 stades (dimorphe)
 - Méduse
 - Polype
- Diploblastiques
- Squelette hydrostatique



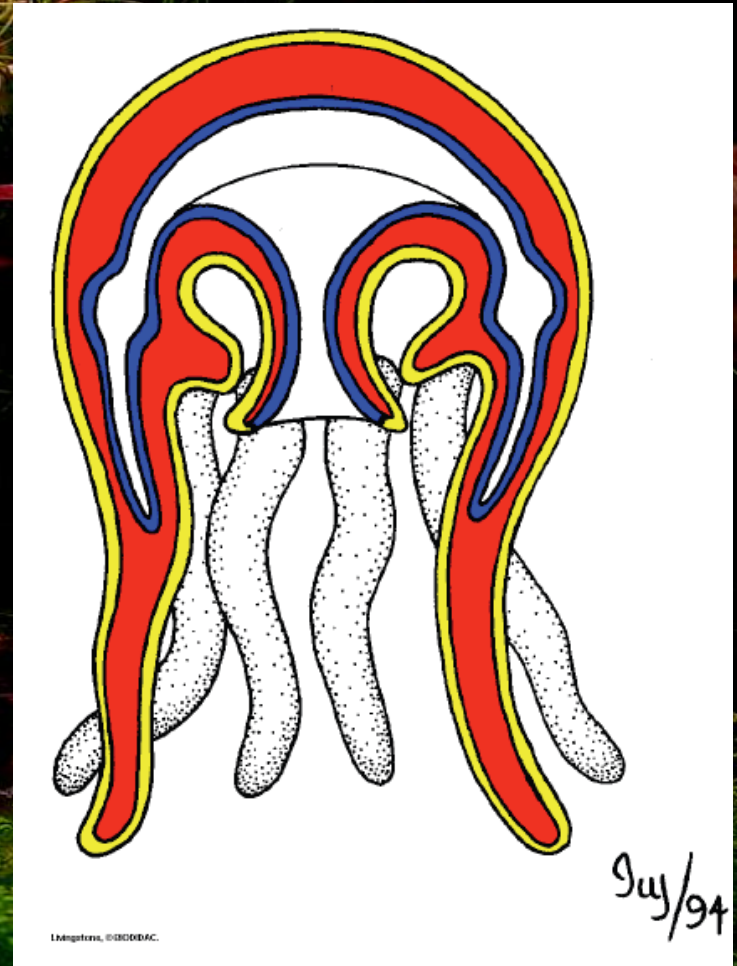
Classification

- Phylum Cnidaria
 - Classe Anthozoa (seulement polype)
 - Classe Scyphozoa (méduse domine, cnidocytes dans l'ectoderme et l'endoderme)
 - Classe Cubozoa
 - Classe Hydrozoa (polype domine, cnidocytes dans l'ectoderme)

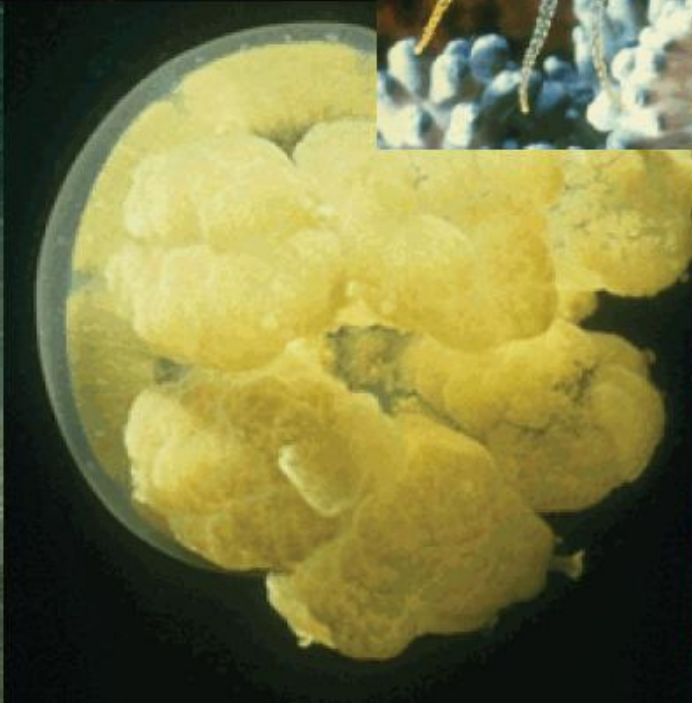
Classification



Polype et méduse

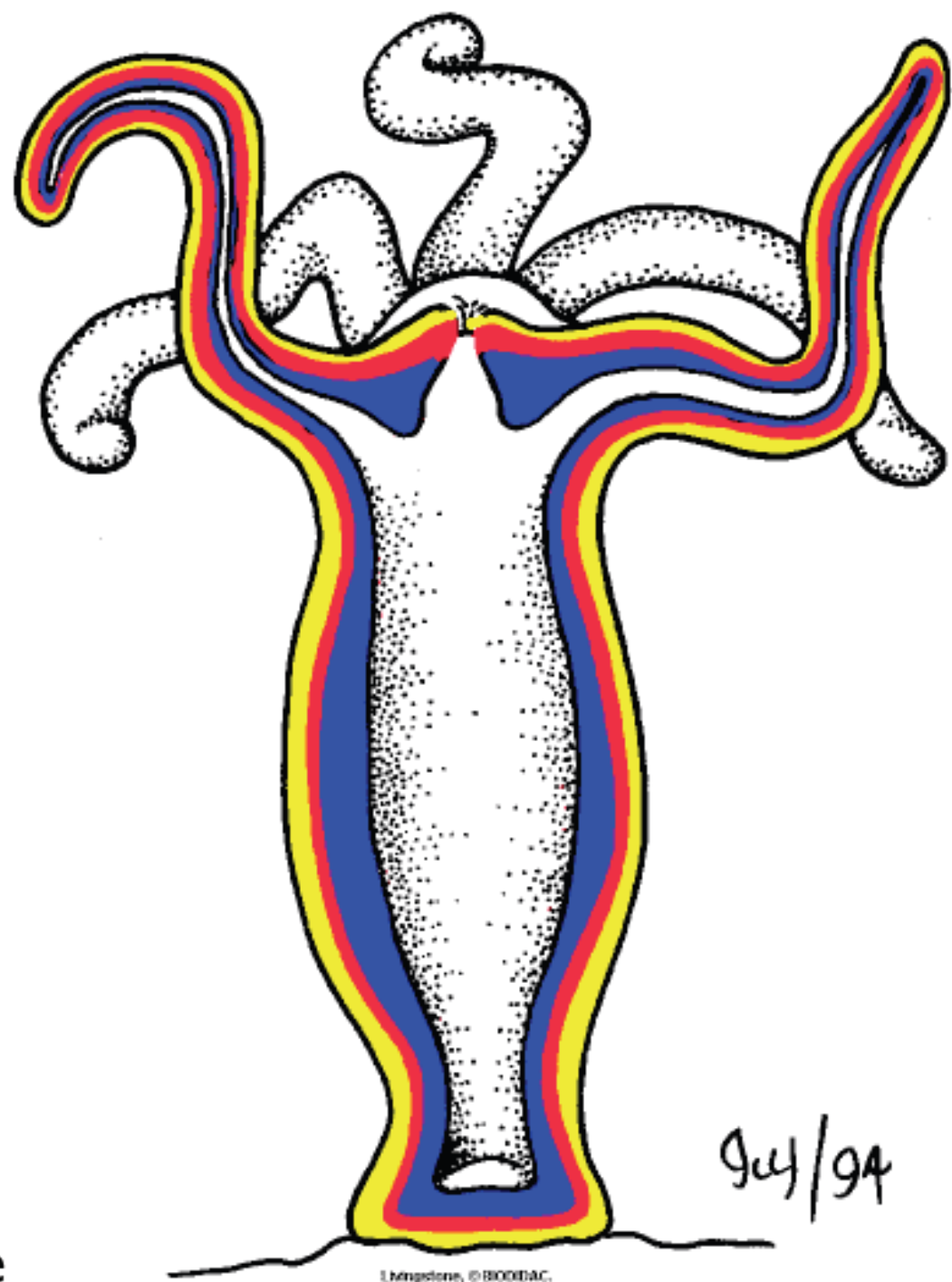
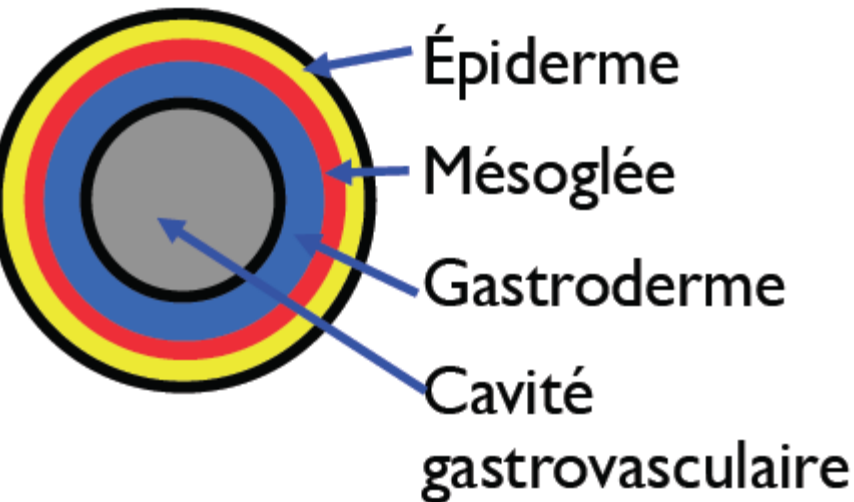


Cnidaria



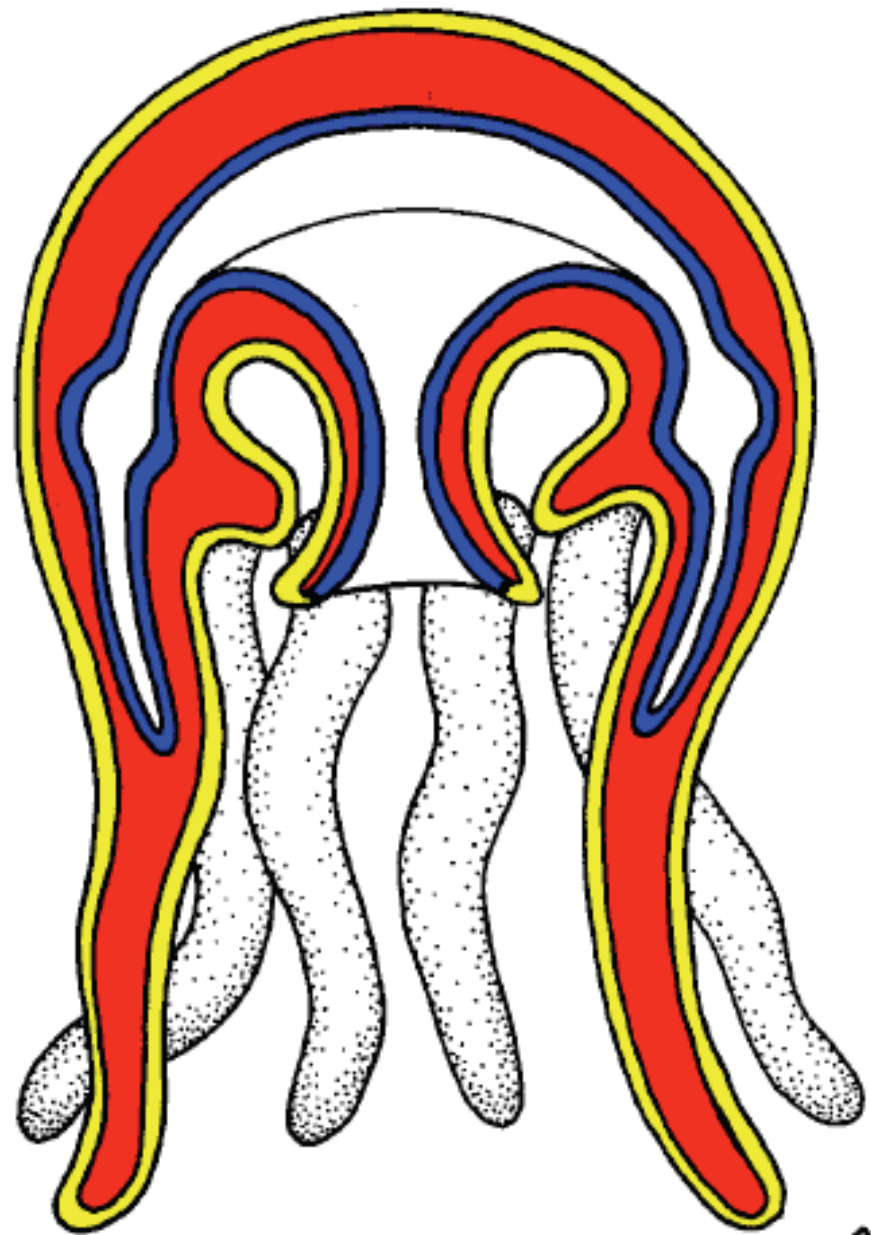
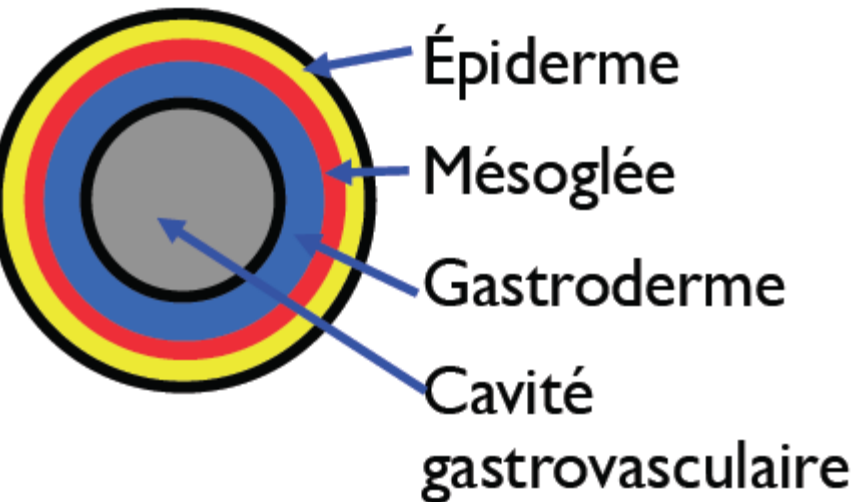
Polype

- Ectoderme
- Mésoglée
- Endoderme



Méduse

- Ectoderme
- Mésoglée
- Endoderme



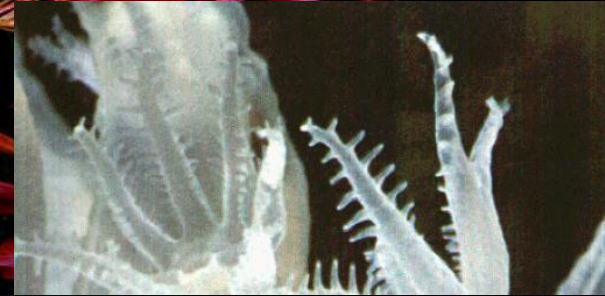
Types de polypes

- Hydre
- Hydre
- Coraux
- Anémones



Types de polypes

- Hydre
- Coraux
- Anémones



Types de polypes

- Hydre
- Coraux
- Anémones

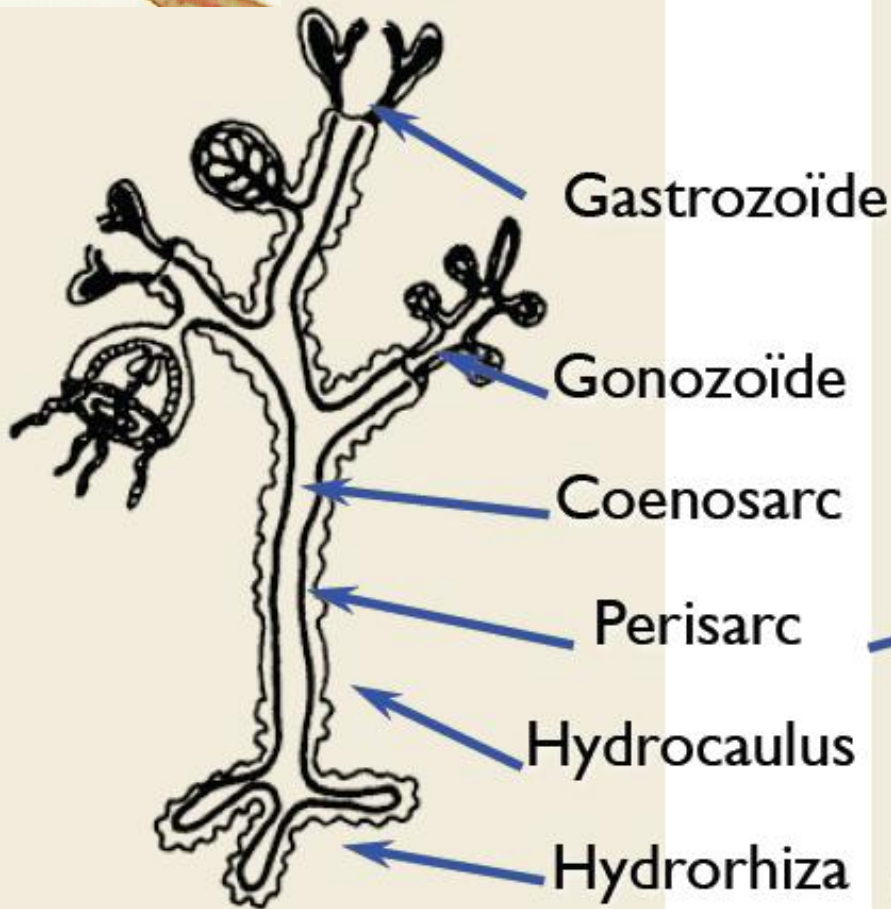


Polypes des Hydrozoa

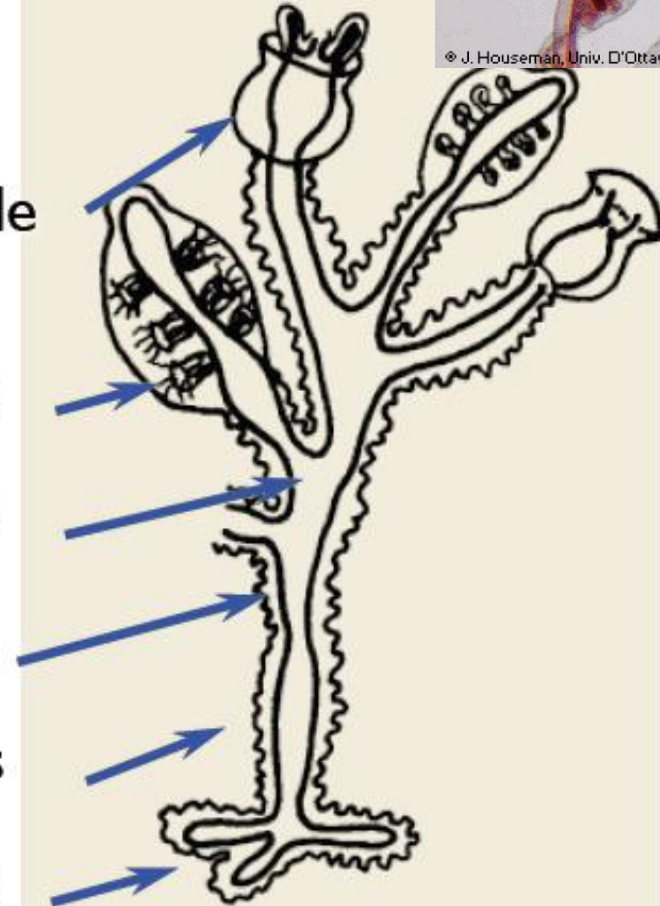


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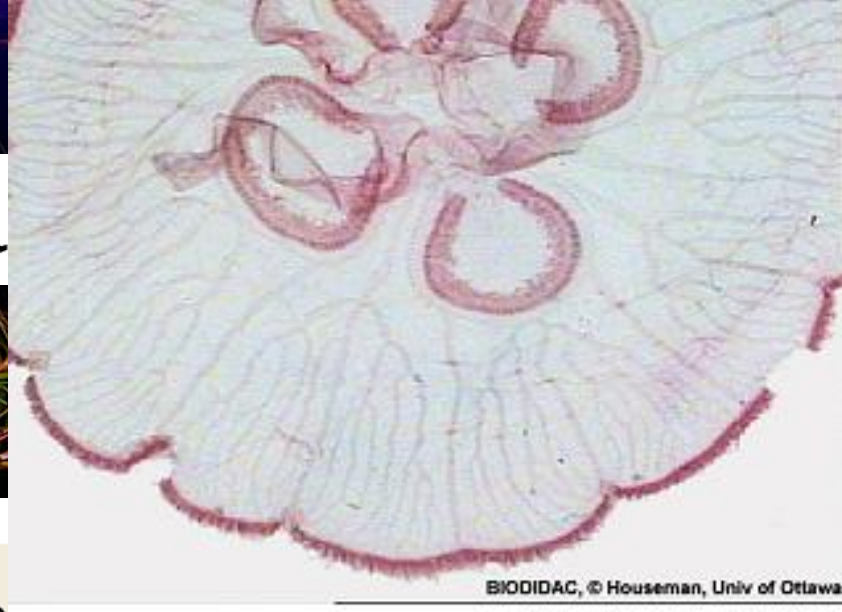
Athécate



Thécate



Méduse de Scyphozoa



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Tentacules

Gonade

Poche gastrique

Bouche

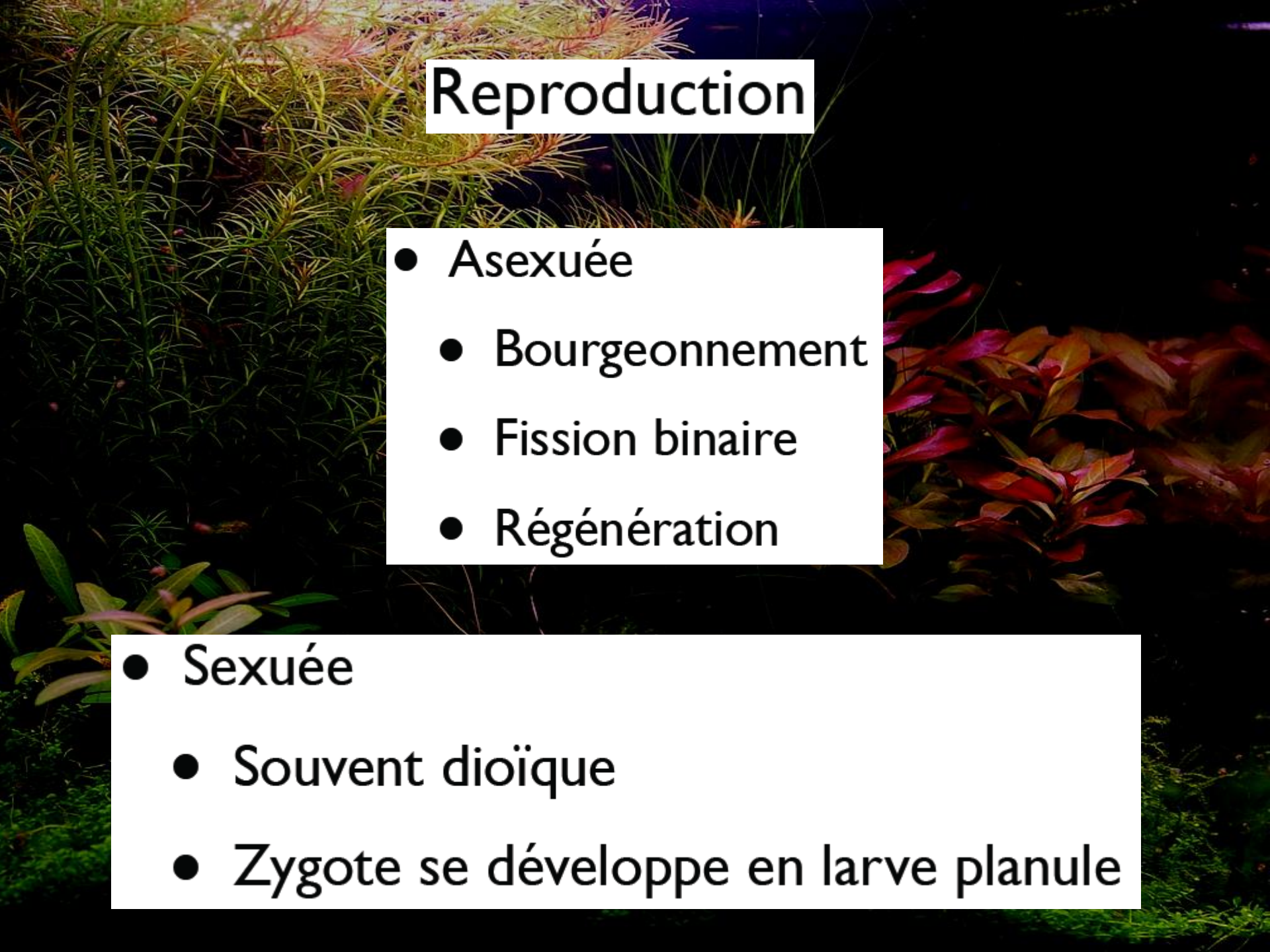
Système de canaux

Rhopalium

Bras oral



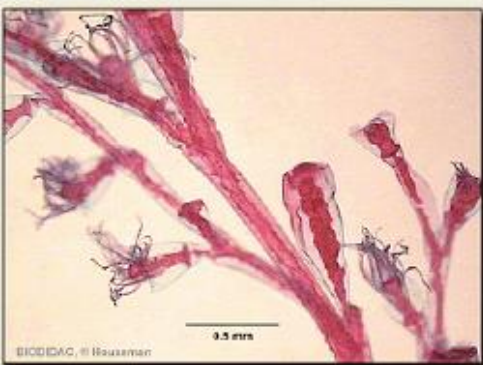
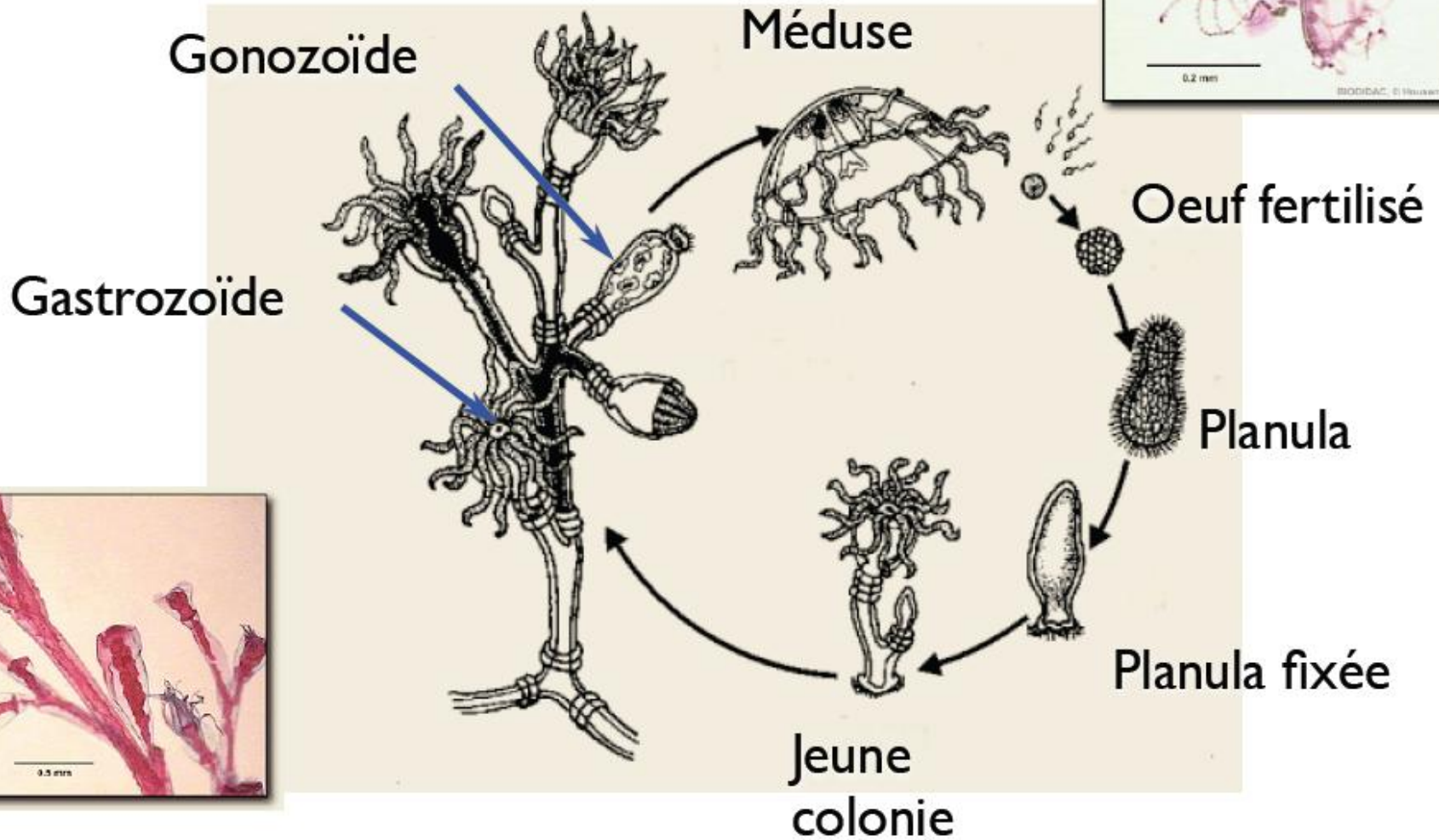
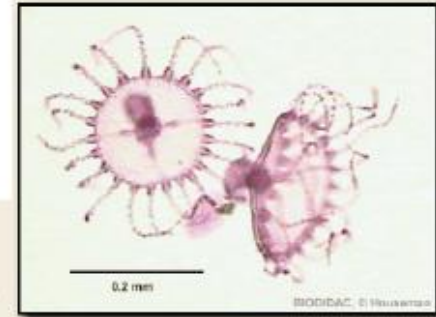
Reproduction



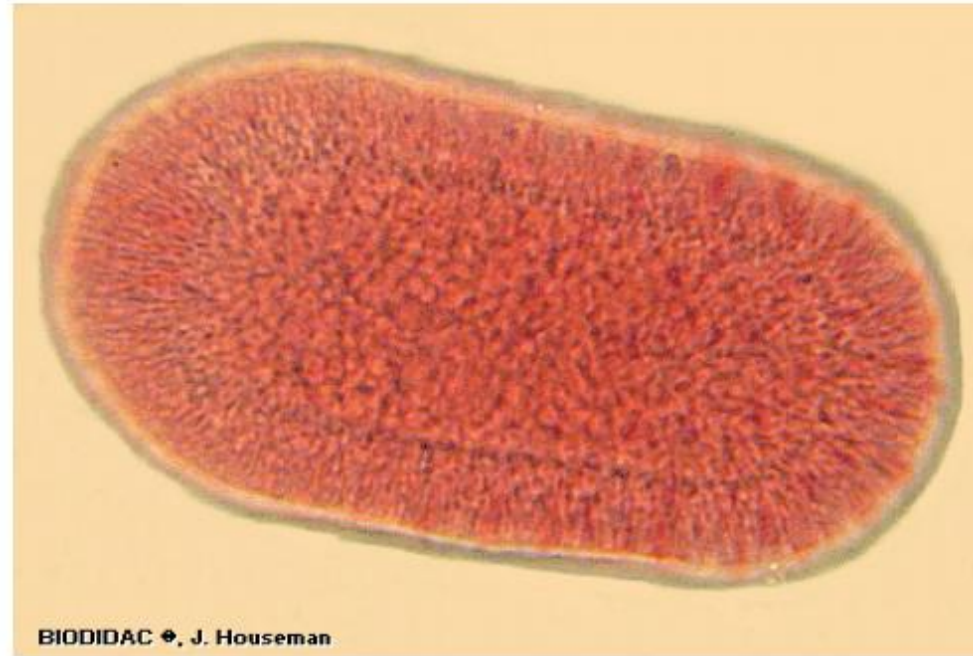
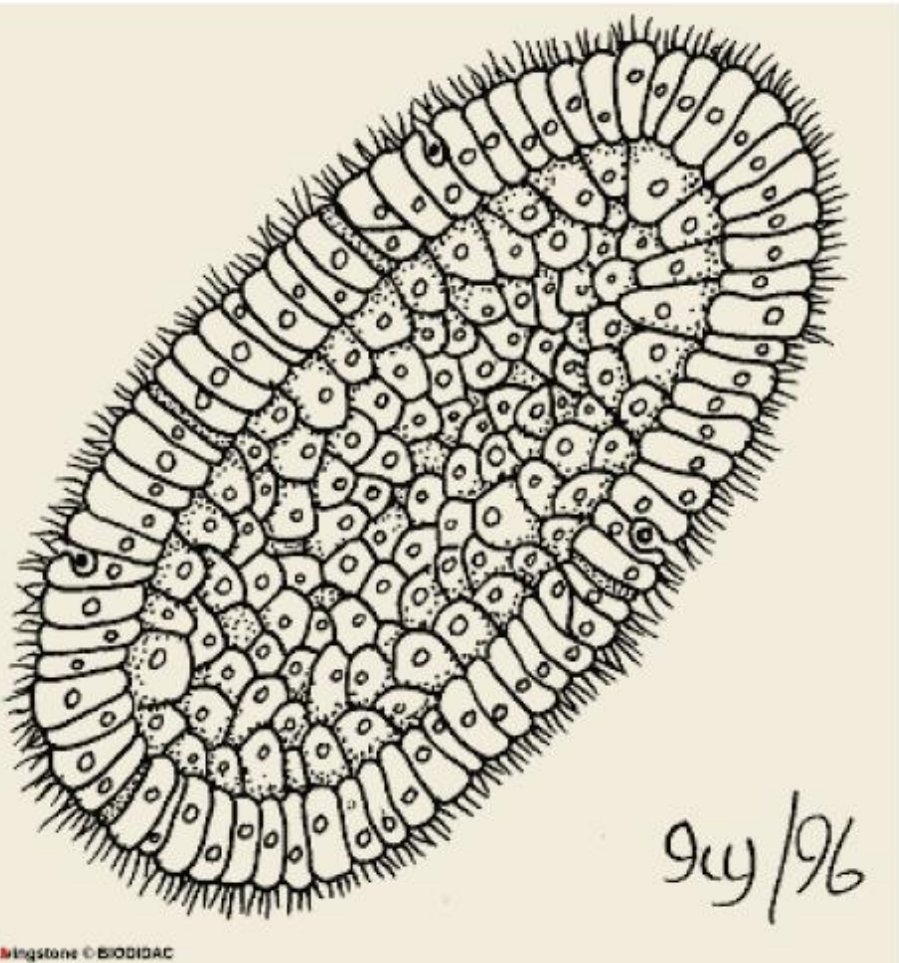
- Asexuée
 - Bourgeonnement
 - Fission binaire
 - Régénération

- Sexuée
 - Souvent dioïque
 - Zygote se développe en larve planule

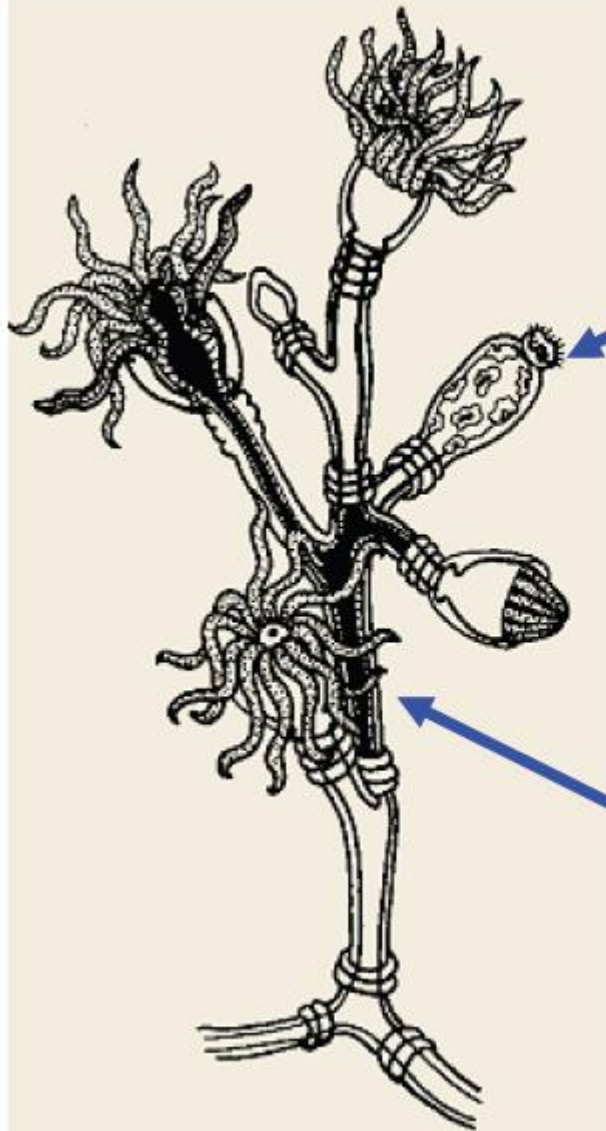
Obelia (Hydrozoa)



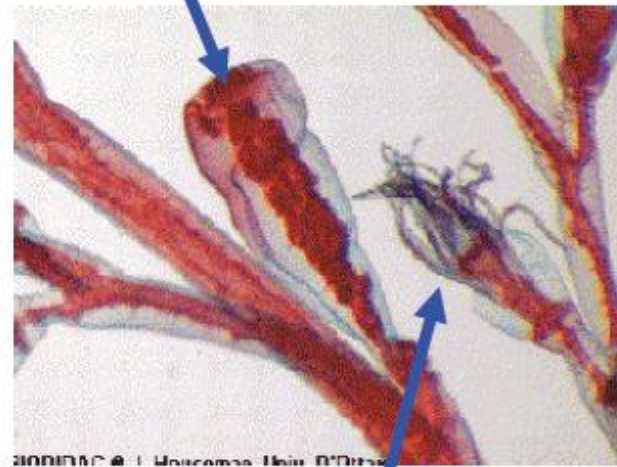
Obelia (Hydrozoa)



Obelia (Hydrozoa)



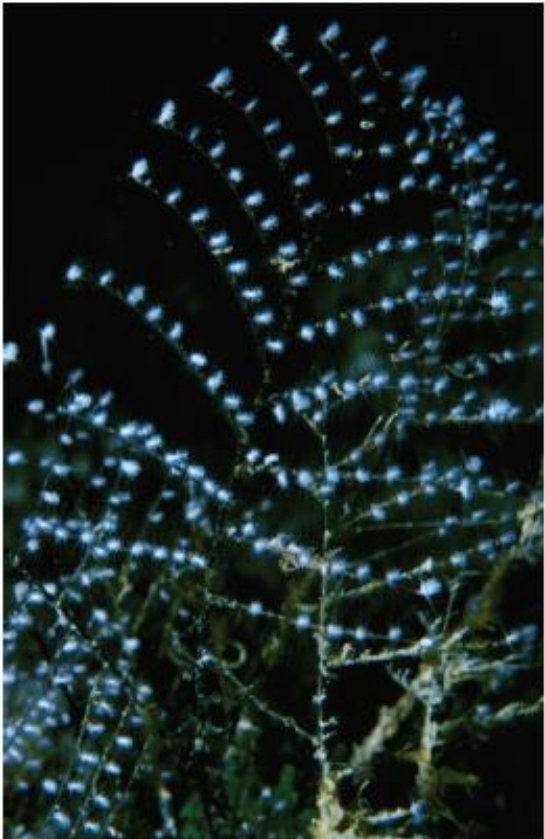
Gonozoide



Gastrozoide

Cnidaria, Classe Hydrozoa

Halocordyle disticha des Bermudes
On peut voir les polypes sur les
branches latérales



• *Millepora complanata*

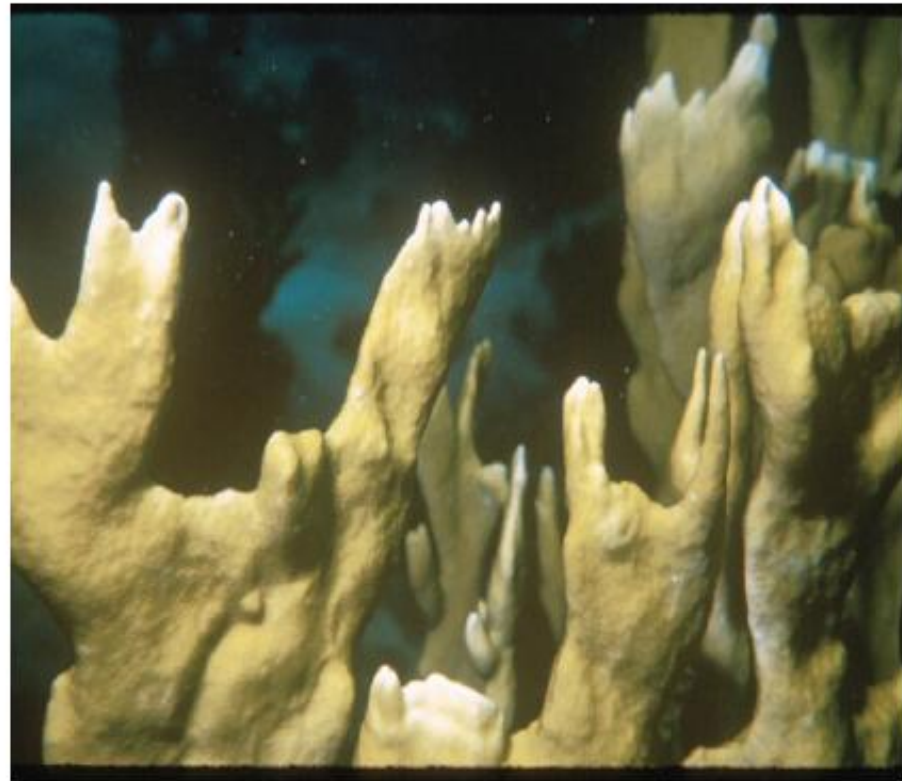


Cnidaria, Classe Hydrozoa

- *Millepora complanata* des Caraïbes
- Les polypes (poils) sont pleins de nematocystes toxiques



- *Millepora complanata*



Cnidaria, Classe Hydrozoa

- *Millepora complanata* des Caraïbes
- Les polypes (poils) sont pleins de nematocystes toxiques



- *Physalia physalia*
- Galère portugaise
- Colonies avec gastrozoïdes, gonozoïdes et dactylozoïdes
- Très toxique

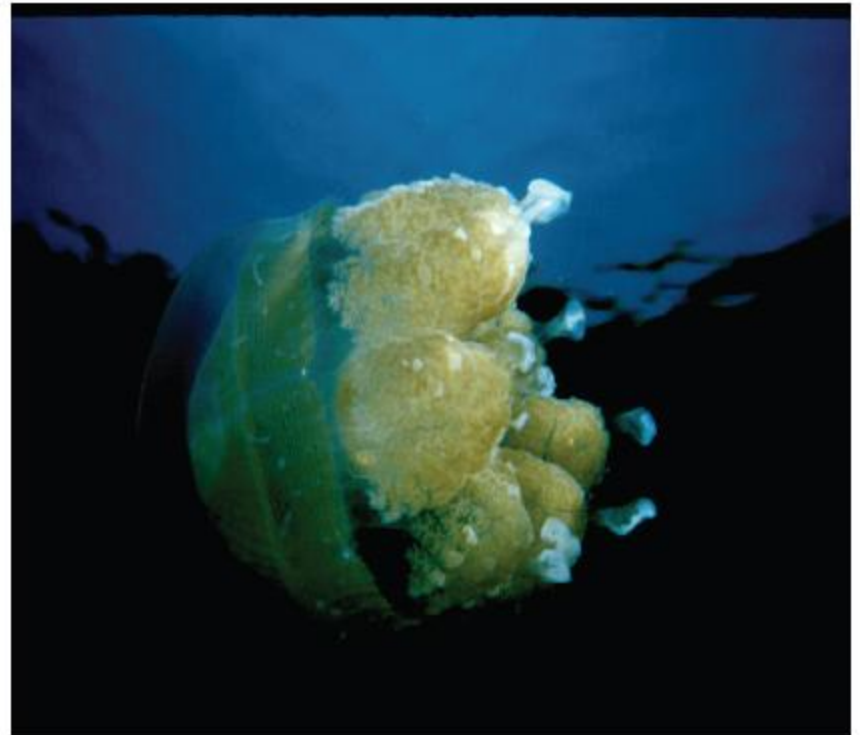


Cnidaria, Classe Scyphozoa

- *Cassiopea xamachana* des Bermudes
- 'jelly fish'



- *Mastigias*, famille Rhizostomeae
- 'jellyfish'



Cnidaria, Classe Anthozoa

- Plexuaridae



- *Tubastraea coccinea* des Caraïbes



Cnidaria, Classe Anthozoa

- *Clavularia* des îles Solomon



- *Tubastraea coccinea* des Caraïbes



Cnidaria, Classe Anthozoa

- *Clavularia* des îles Solomon



- *Arachnanthus nocturnus* des Caraïbes



The background is a photograph of an aquarium. On the left, there are green, feathery plants. In the center, there are red and purple plants. At the bottom, there is a dense layer of green moss. The water is dark, and the overall scene is lit from above, creating some highlights on the plants.

Introduction

Porifères

Cnidaires

Platyhelminthes

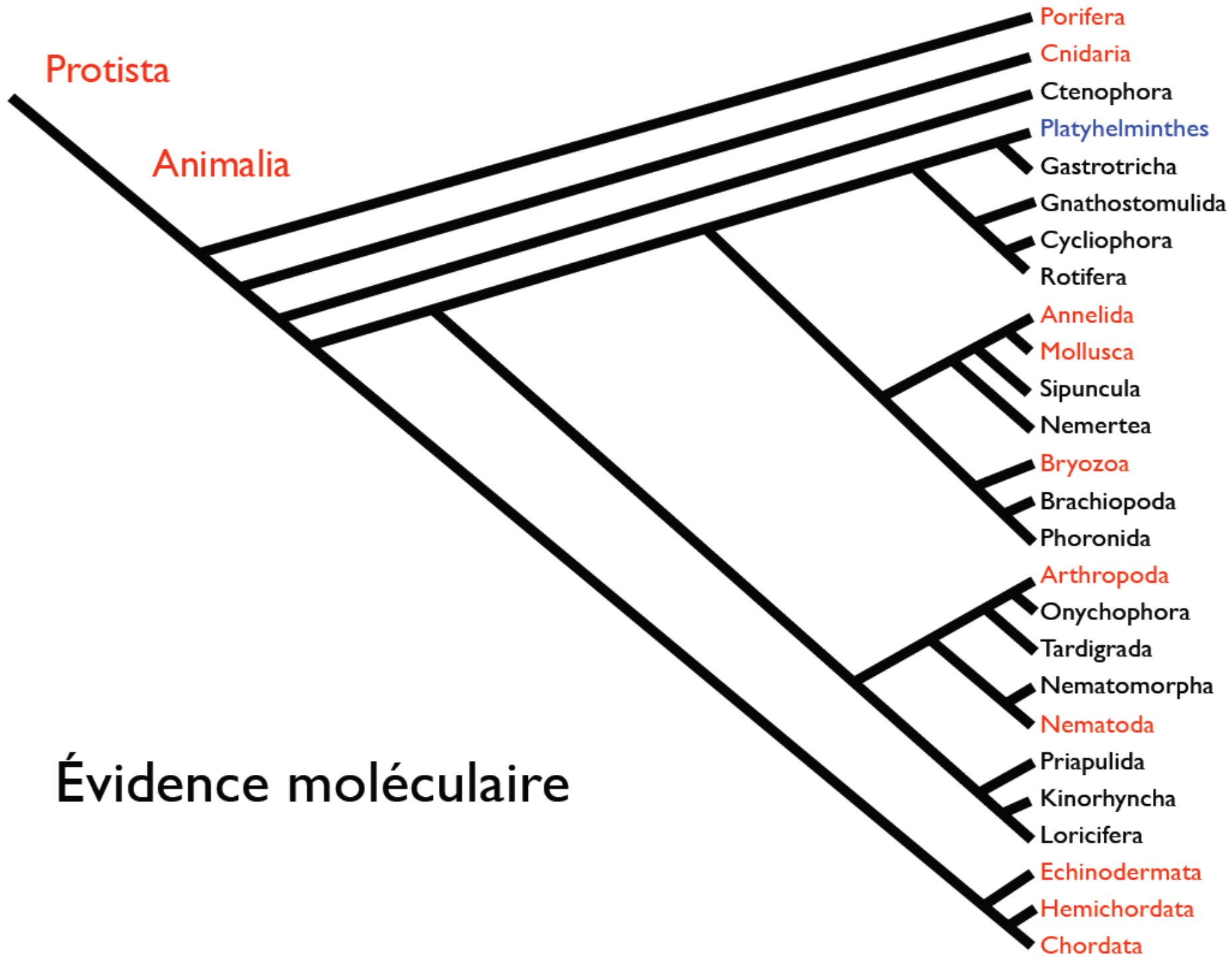
Annélides

Mollusques

Bryozoaires

Arthropodes

Nématodes

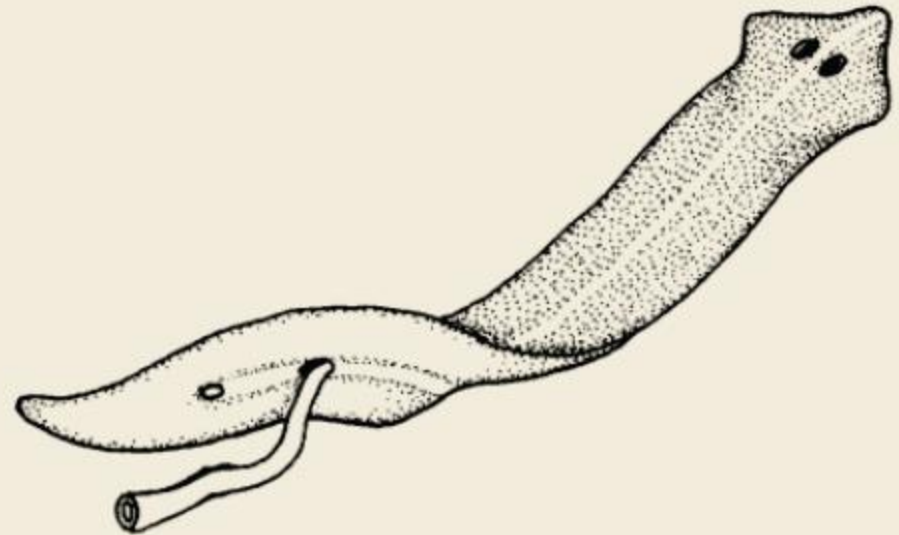


Taxinomie

- Phylum Platyhelminthes
 - Classe Turbellaria (majoritairement libres)
 - Classe Trematoda (tous parasites)
 - Classe Monogenea (tous parasites)
 - Classe Cestodoa (tous parasites)

Quoi de neuf chez les Platyhelminthes?

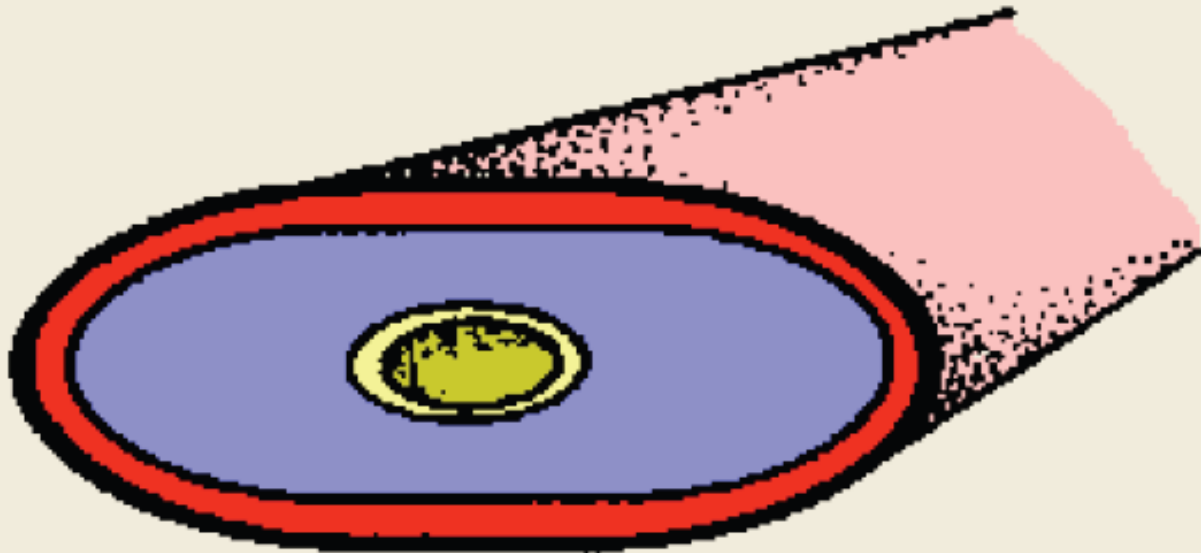
- Triploblastiques acoelomates
- Organes
- Symétrie bilatérale
- Parasitisme





Acoelomate

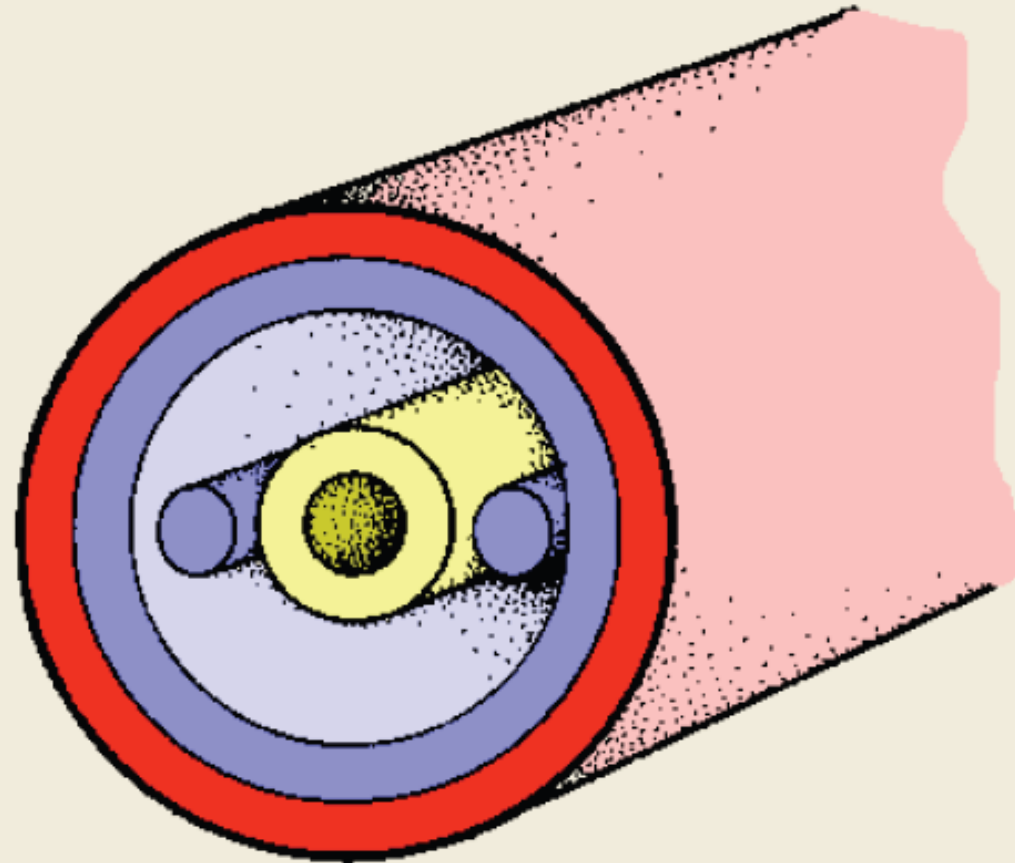
- **Ectoderme**
- **Mésoderme**
- **Endoderme**



Pseudocoelomate



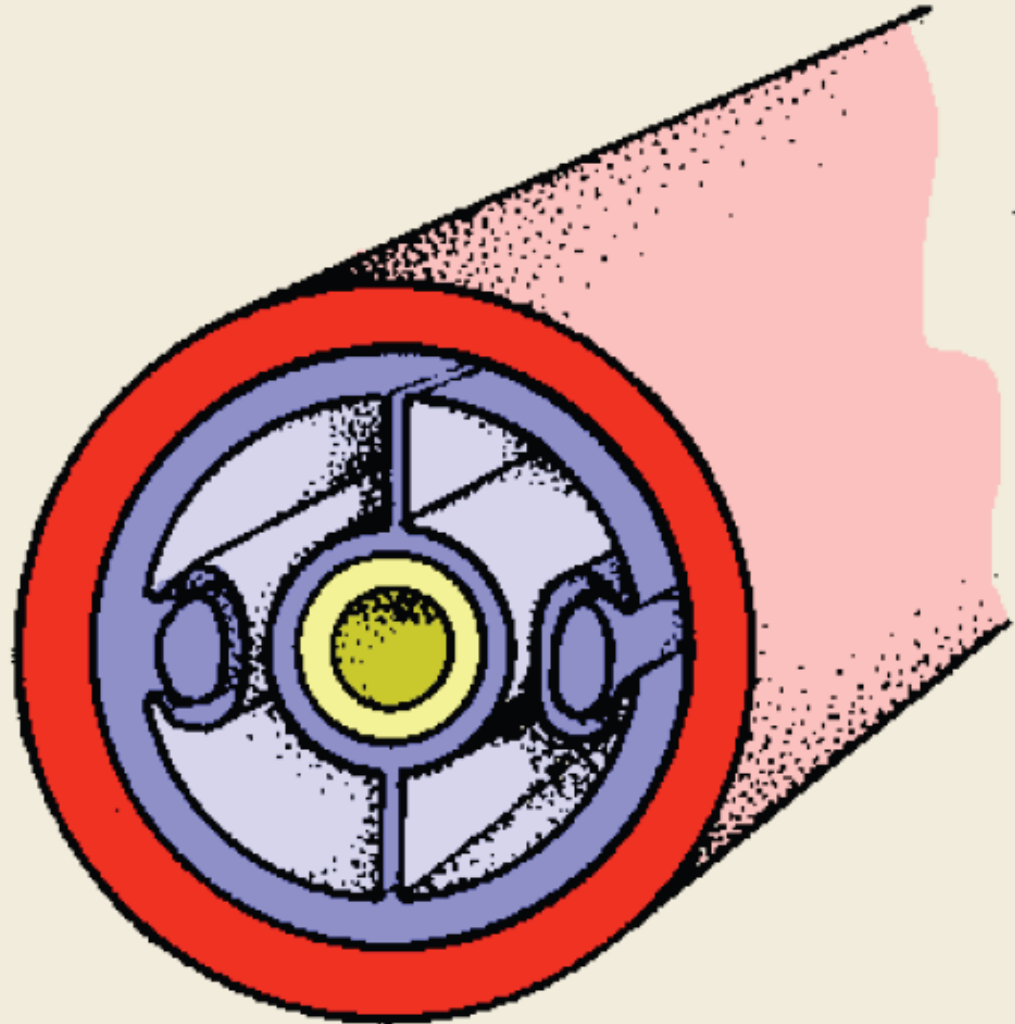
- **Ectoderme**
- **Mésoderme**
- **Endoderme**





Eucoelomate




- **Ectoderme**
- **Mésoderme**
- **Endoderme**



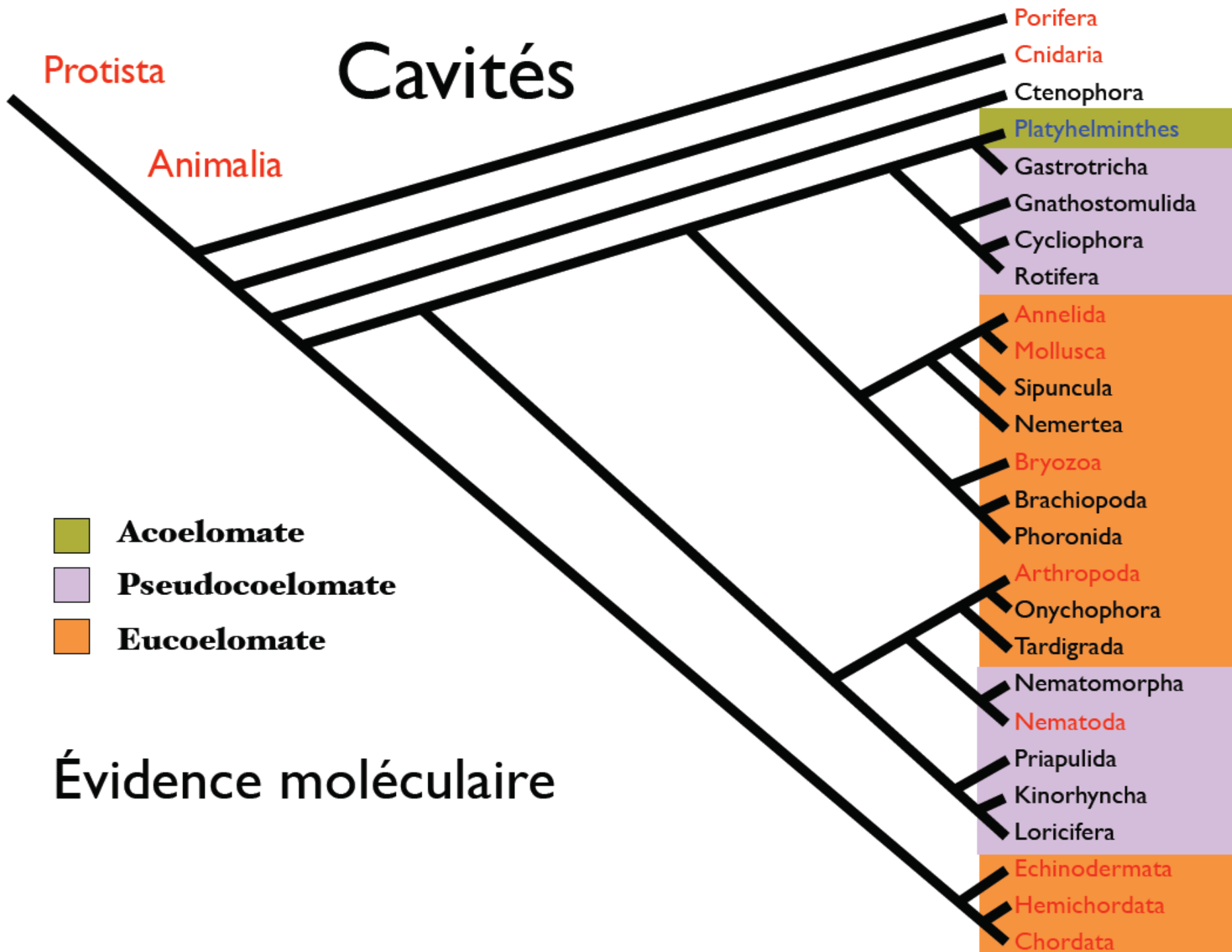
Cavités

Protista

Animalia

-  **Acoelomate**
-  **Pseudocoelomate**
-  **Eucoelomate**

Évidence moléculaire



Porifera

Cnidaria

Ctenophora

Platyhelminthes

Gastrotricha

Gnathostomulida

Cyclophora

Rotifera

Annelida

Mollusca

Sipuncula

Nemertea

Bryozoa

Brachiopoda

Phoronida

Arthropoda

Onychophora

Tardigrada

Nematomorpha

Nematoda

Priapulida

Kinorhyncha

Loricifera

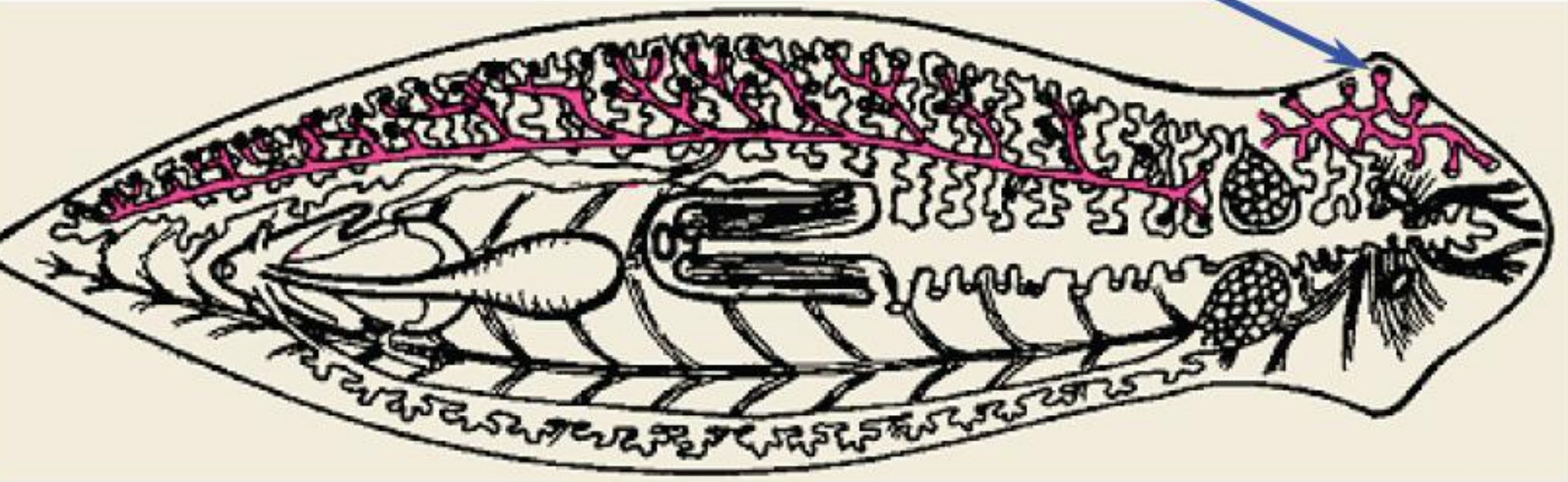
Echinodermata

Hemichordata

Chordata

Osmorégulation

Protonéphridie



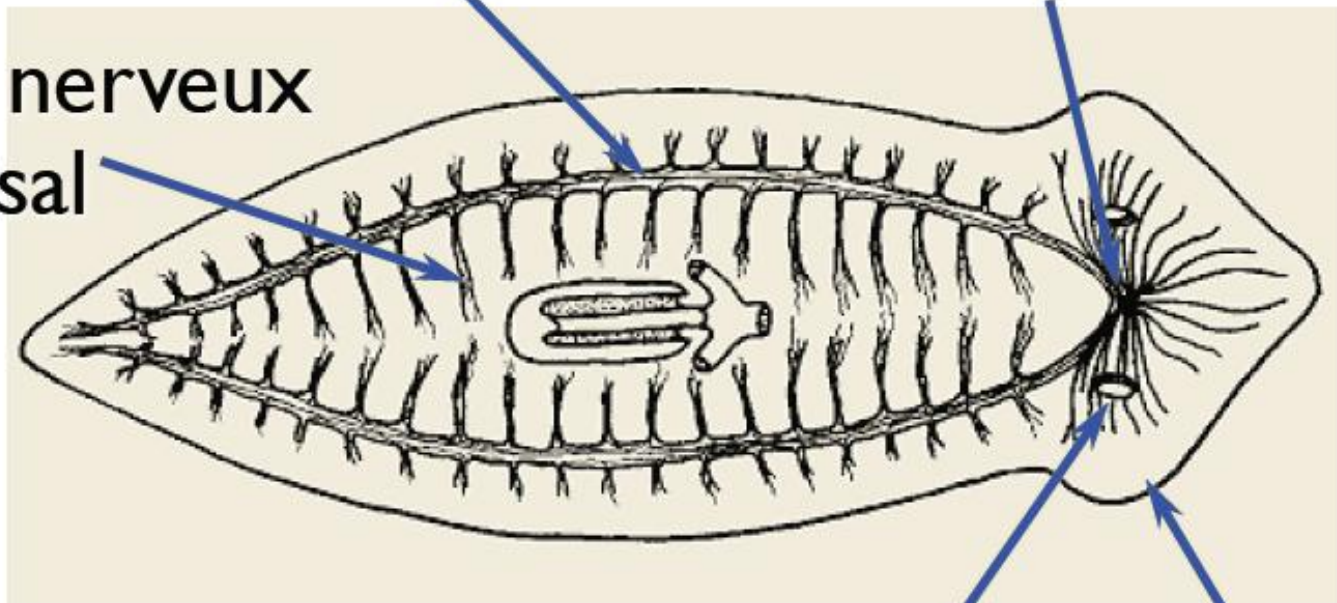
Élimination du surplus d'eau
Déchets éliminés par diffusion

Systeme nerveux

Cordon nerveux pairé

Ganglion cérébral

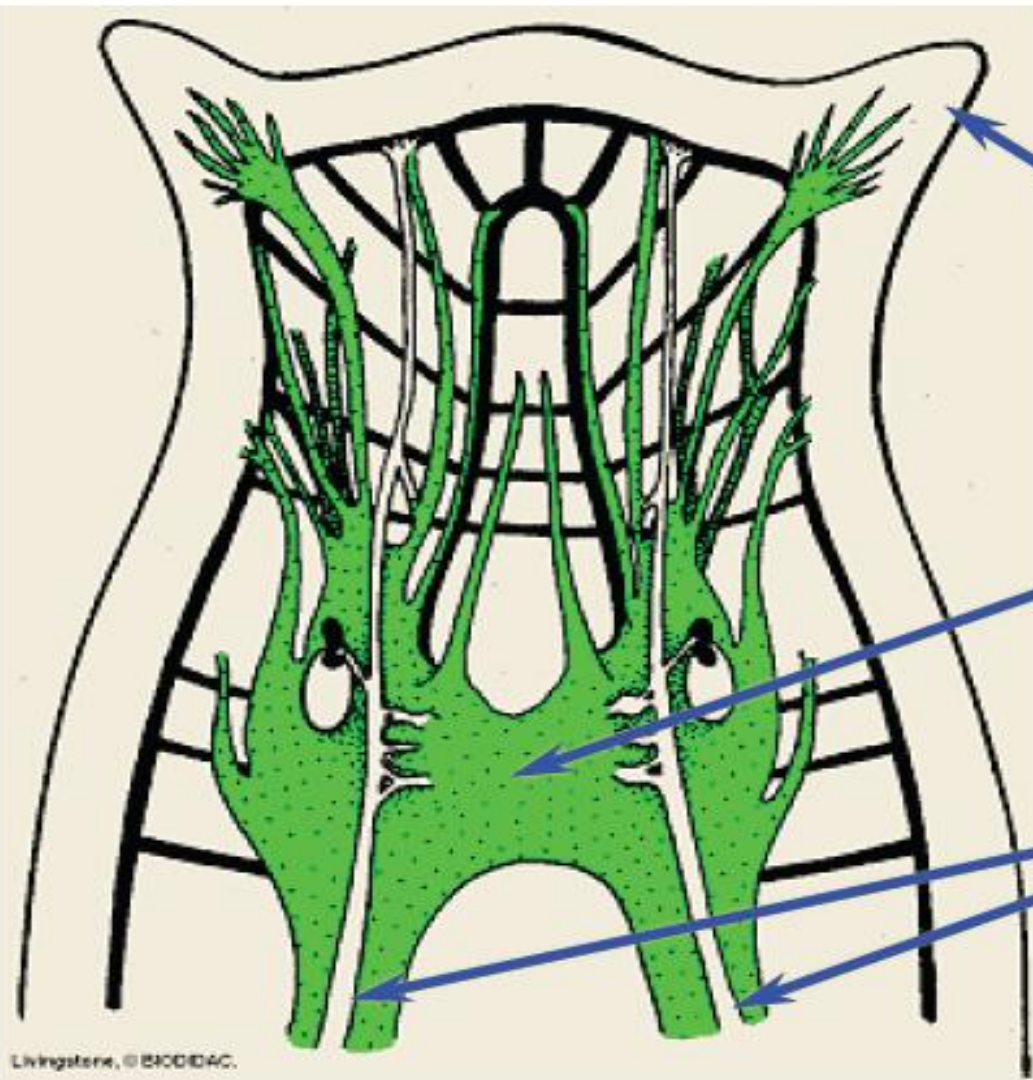
Cordon nerveux transversal



Ocelles

Auricule

Systeme nerveux

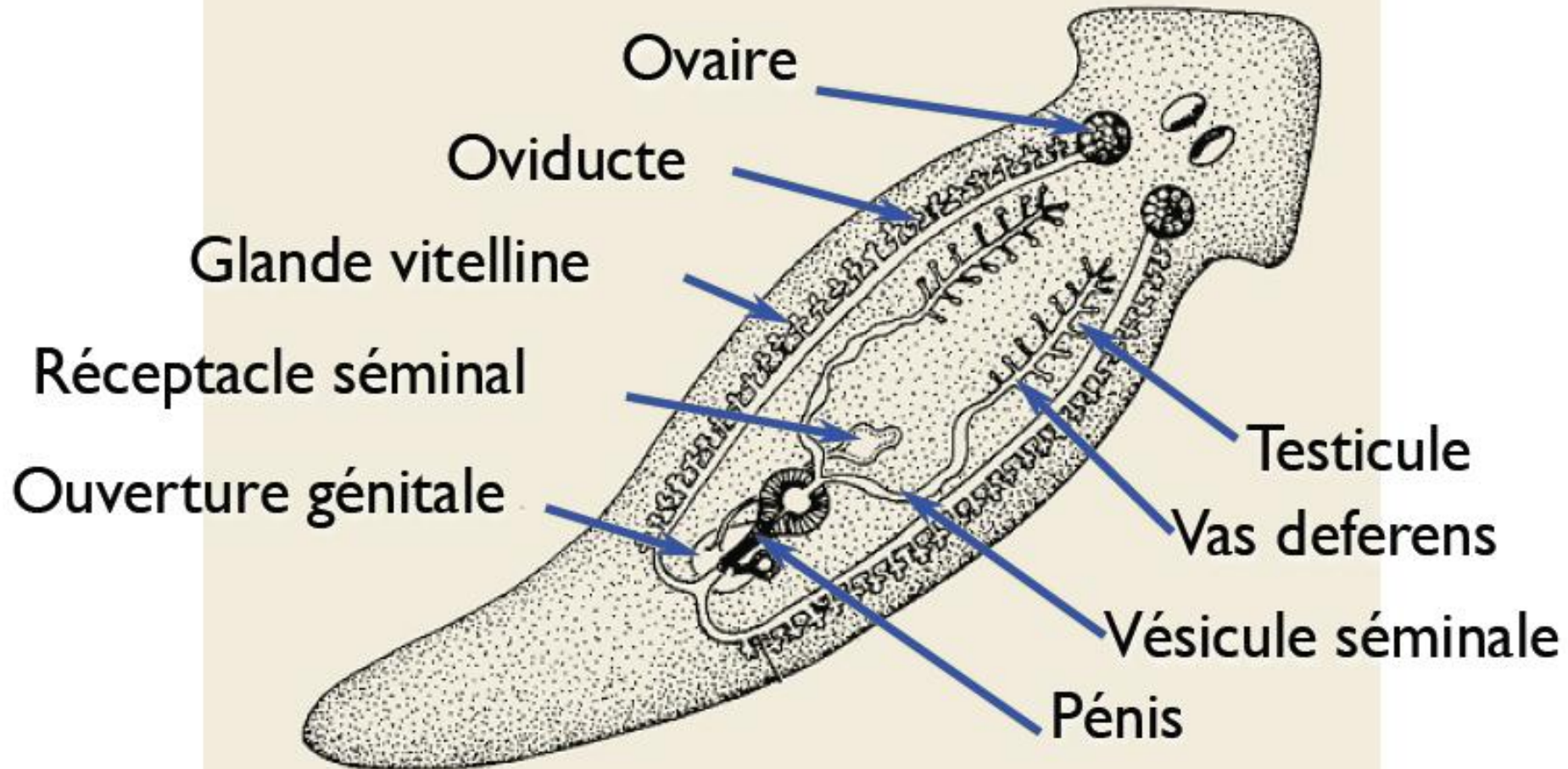


Auricule

Ganglion cérébral

Cordon nerveux
paire

Systeme reproducteur



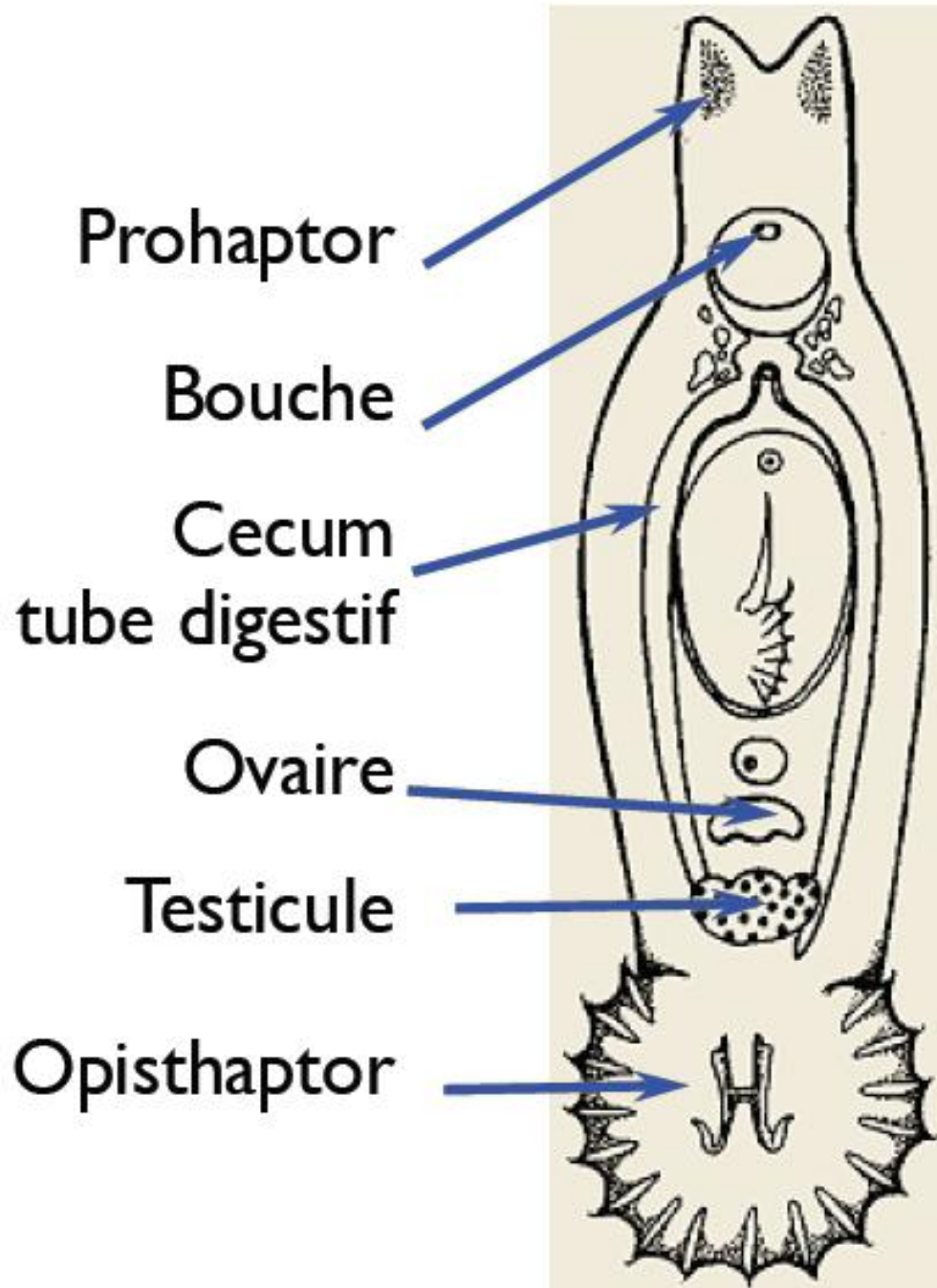
Systeme digestif



Pharynx

Diverticulum

Digestion extracellulaire et endocellulaire

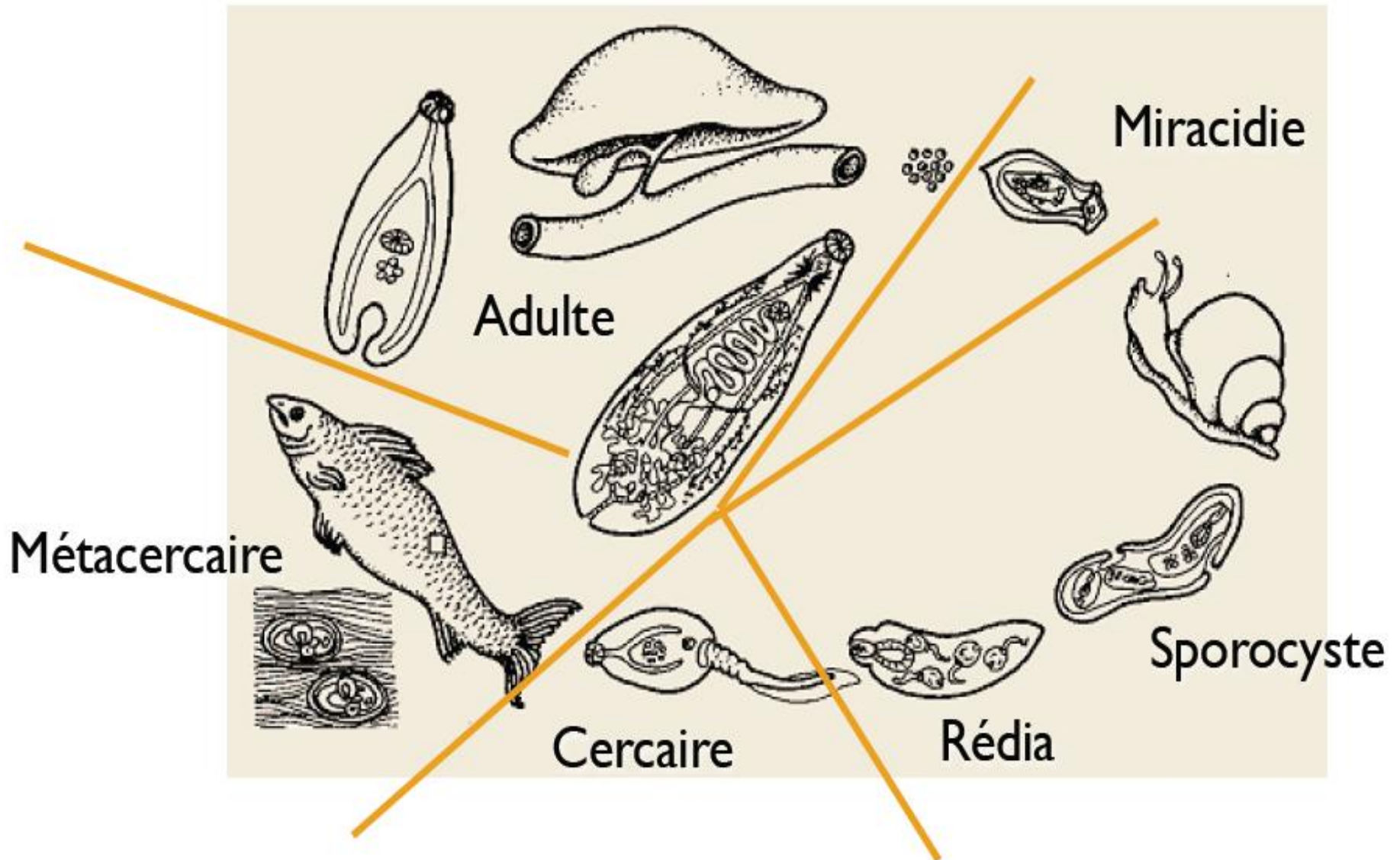


Livingstone, © BICCIDAC.

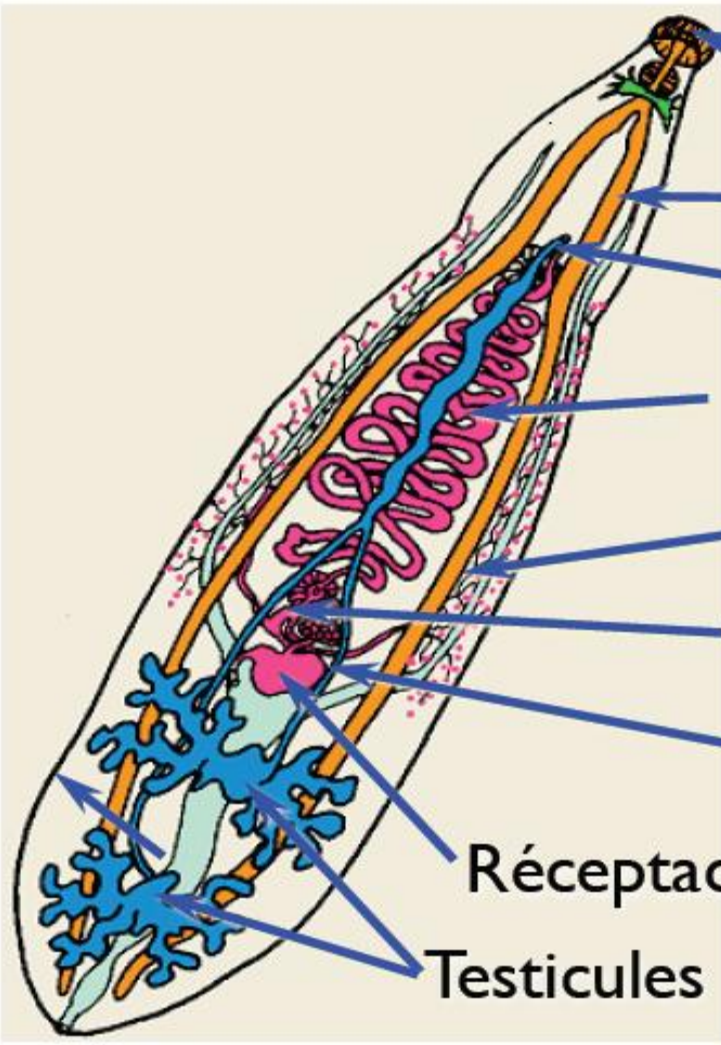


Monogenea

Clonorchis (Trematoda)



Clonorchis (Trematoda)



Bouche et ventouse

Intestin

Pore génital

Utérus contenant des oeufs

Glande vitellines

Ovaire

Spermiducte

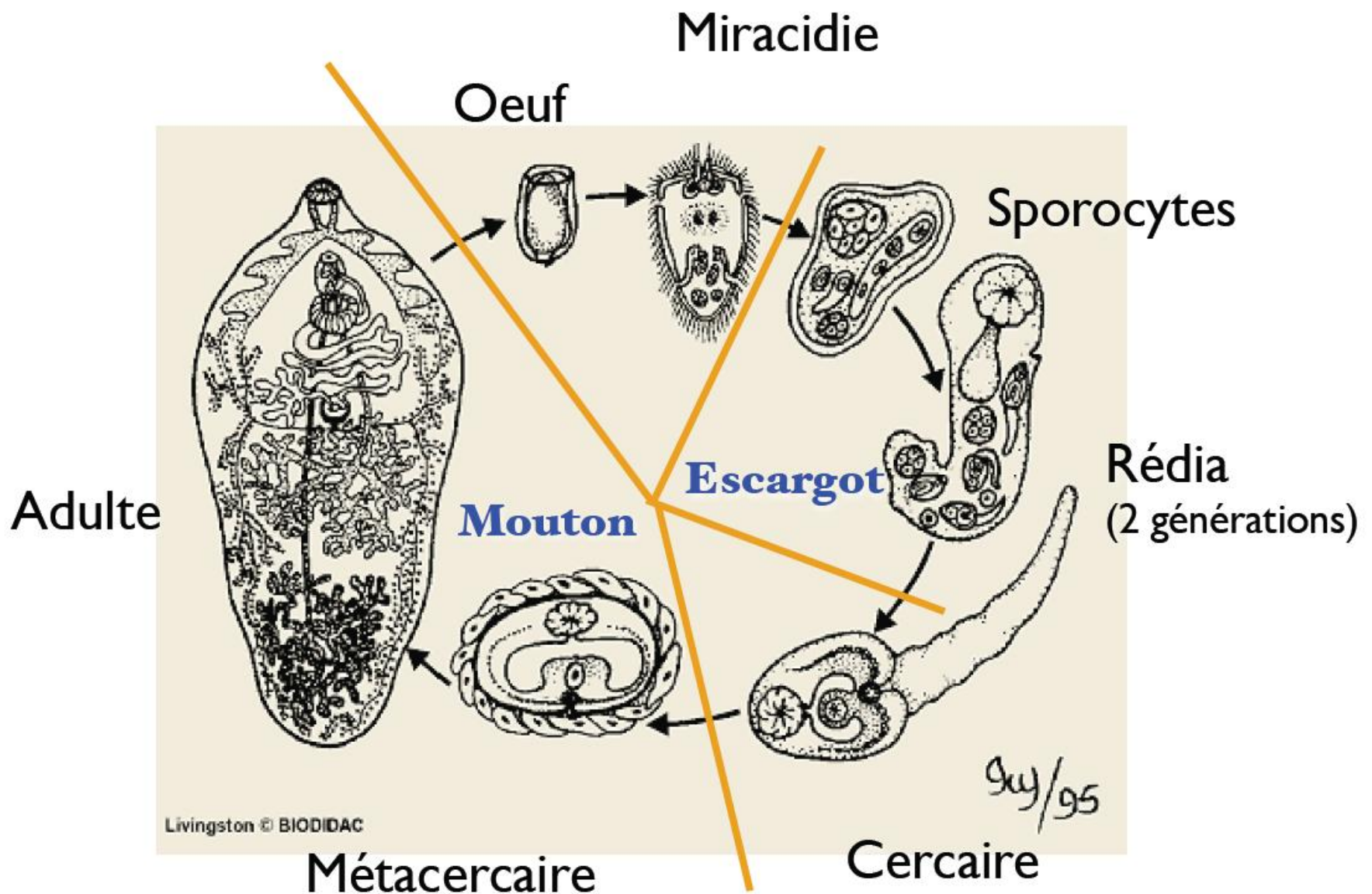
Réceptacle séminal

Testicules

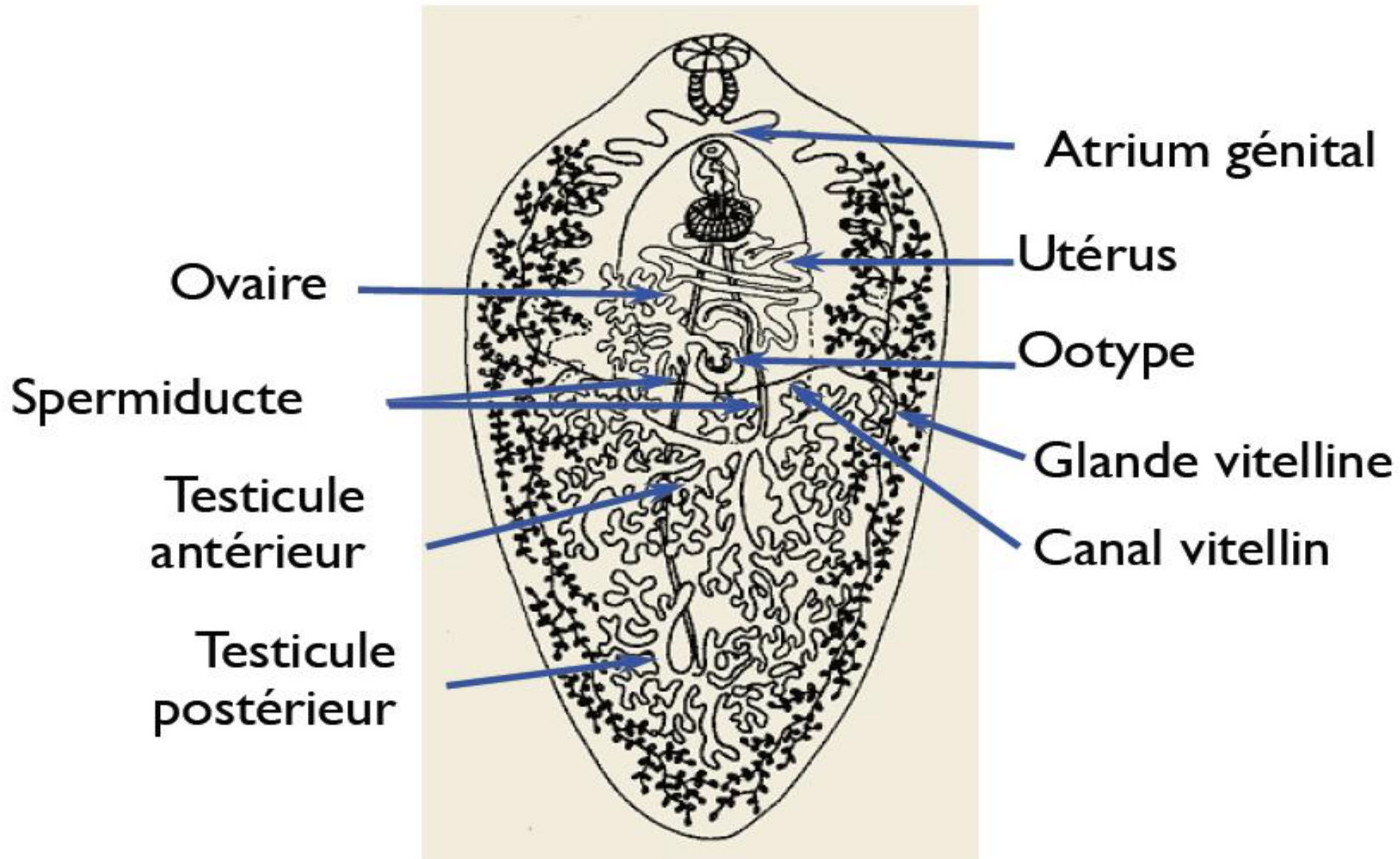
Pore excréteur



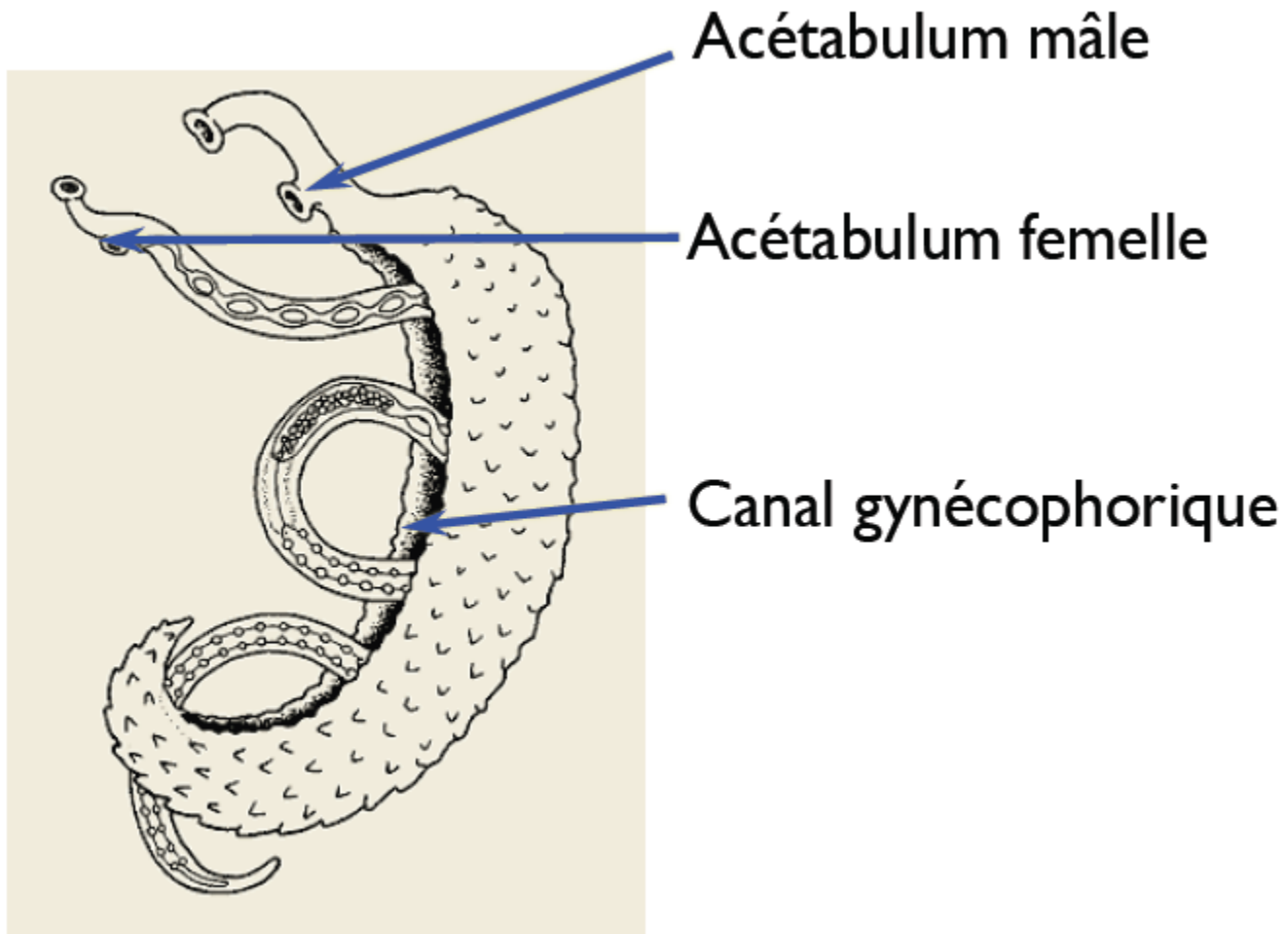
Fasciola (Trematoda)



Fasciola (Trematoda)



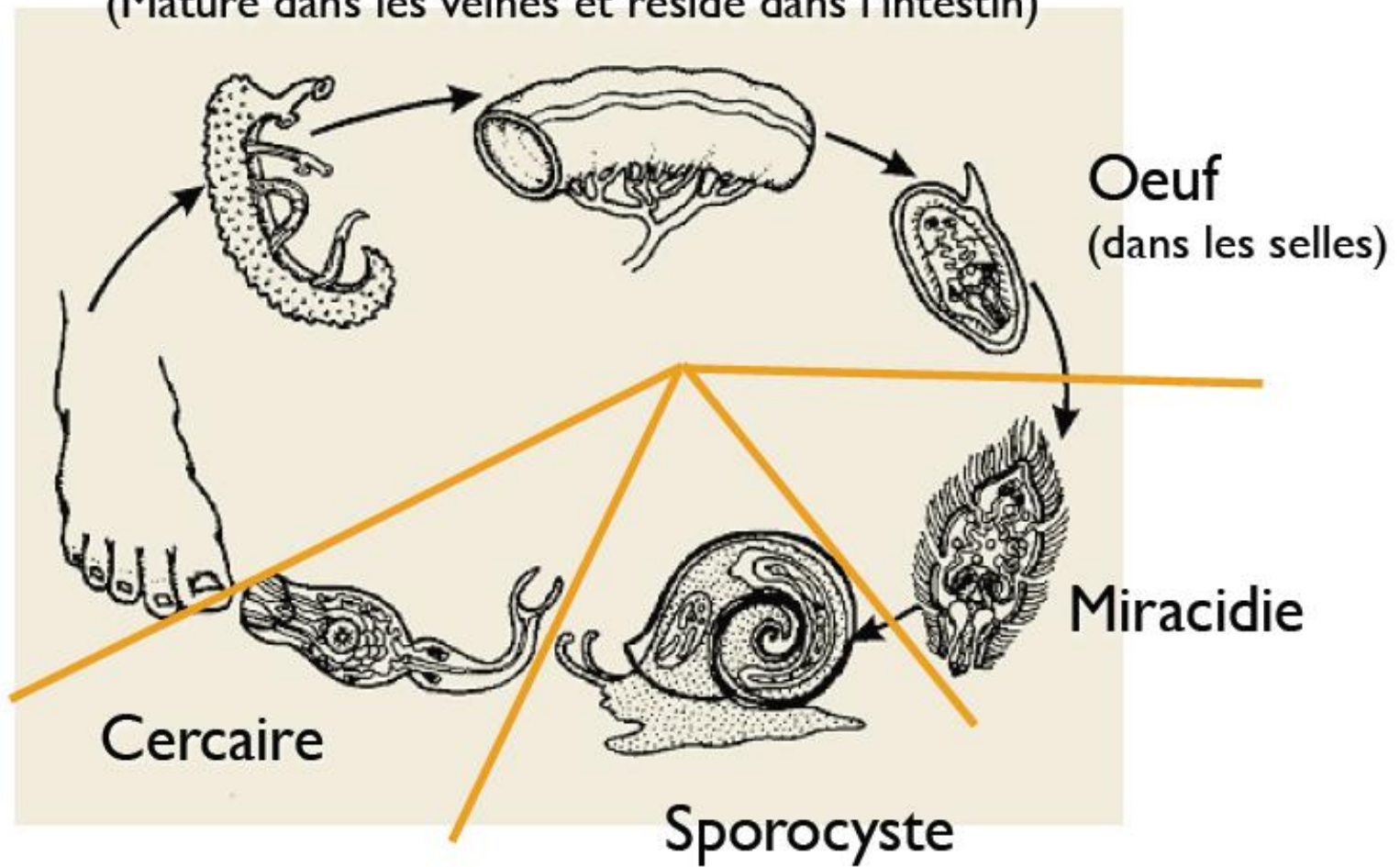
Schistosoma



Schistosoma

Adulte

(Mature dans les veines et réside dans l'intestin)



Global distribution of Schistosomiasis

Senegal

An epidemic of schistosomiasis along the Senegal river basin caused by water-resource development schemes continues unabated.

Egypt

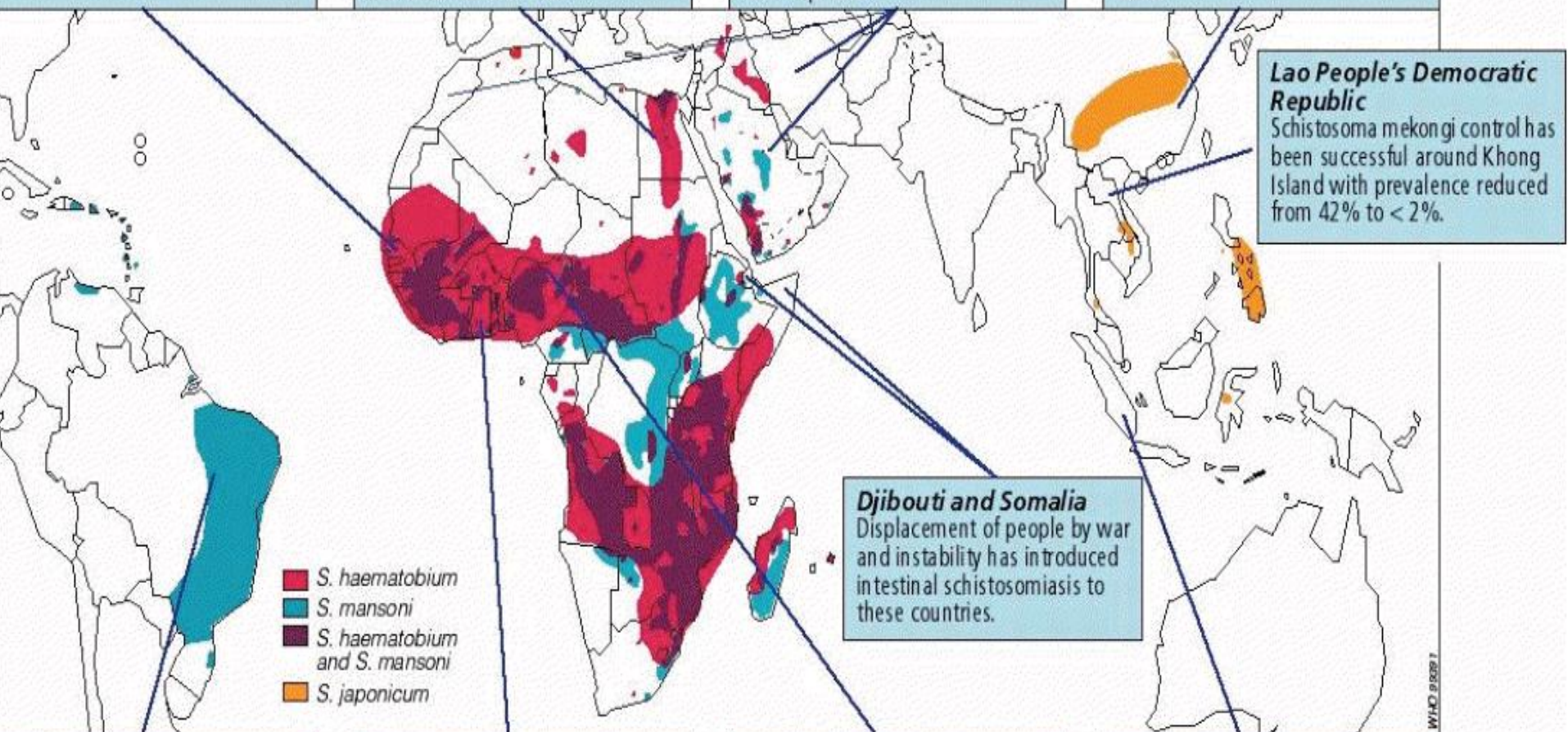
Praziquantel chemotherapy coupled to a vigorous media campaign has resulted in a significant decrease in the morbidity and prevalence of schistosomiasis infection.

Iran, Morocco, and Saudi Arabia

Schistosomiasis control has been successful in those areas with elimination of the infection contemplated.

China

Schistosoma continues to be a major public health problem in the lake and marshy regions despite successful control in other endemic areas.



North-east Brazil

Urban schistosomiasis now present in and around many major cities

Ghana

Intestinal schistosomiasis has increased due to the construction of the Akosombo Dam and other much smaller dams.

sub-Saharan Africa

More than 85% of the estimated 200 million people globally with schistosomiasis and the majority of patients with severe disease live on this continent.

Indonesia

Schistosomiasis has been controlled in the Lindu region of Sulawesi such that the prevalence of infection is lower than 2%.

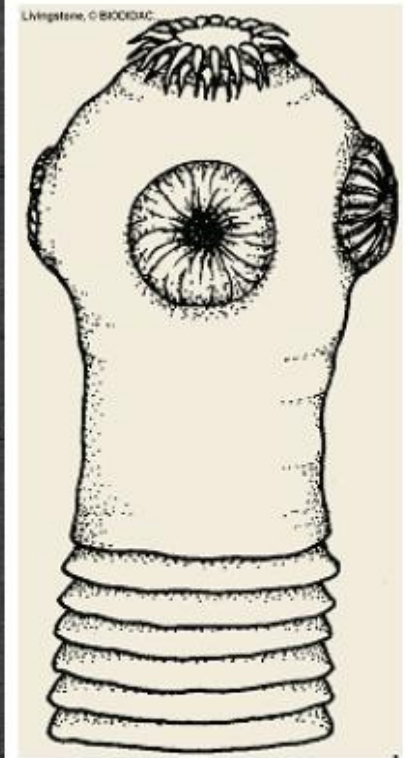
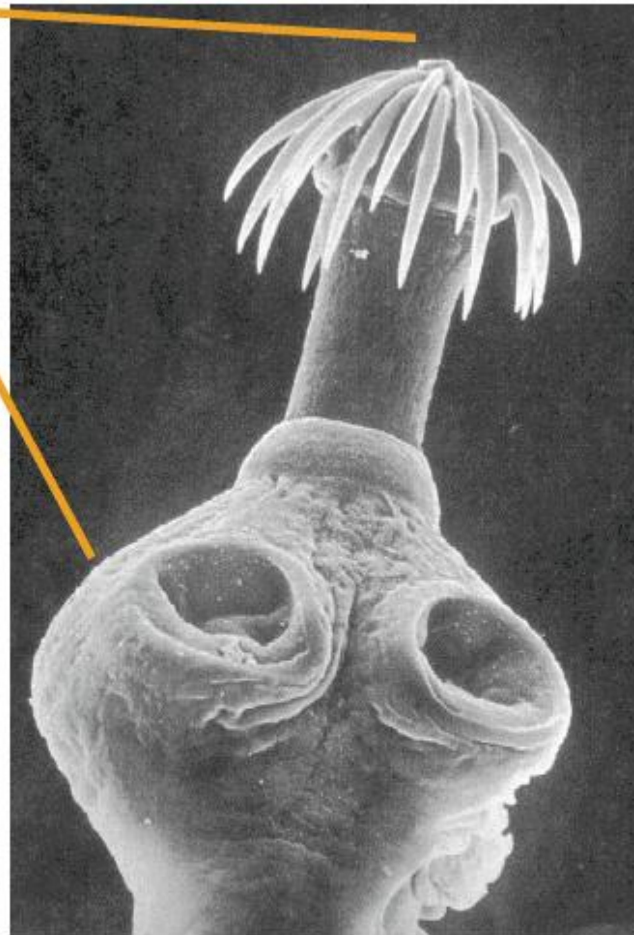
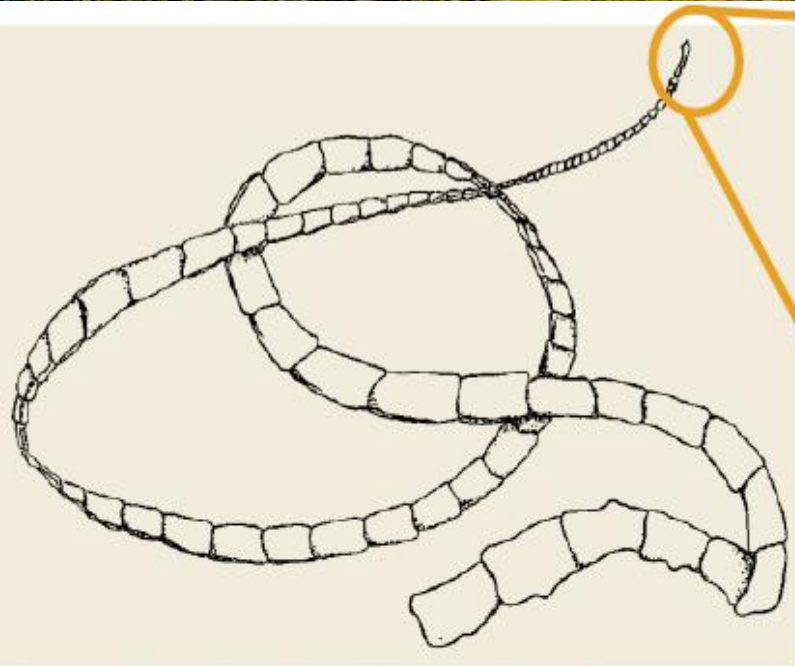
Lao People's Democratic Republic

Schistosoma mekongi control has been successful around Khong Island with prevalence reduced from 42% to < 2%.

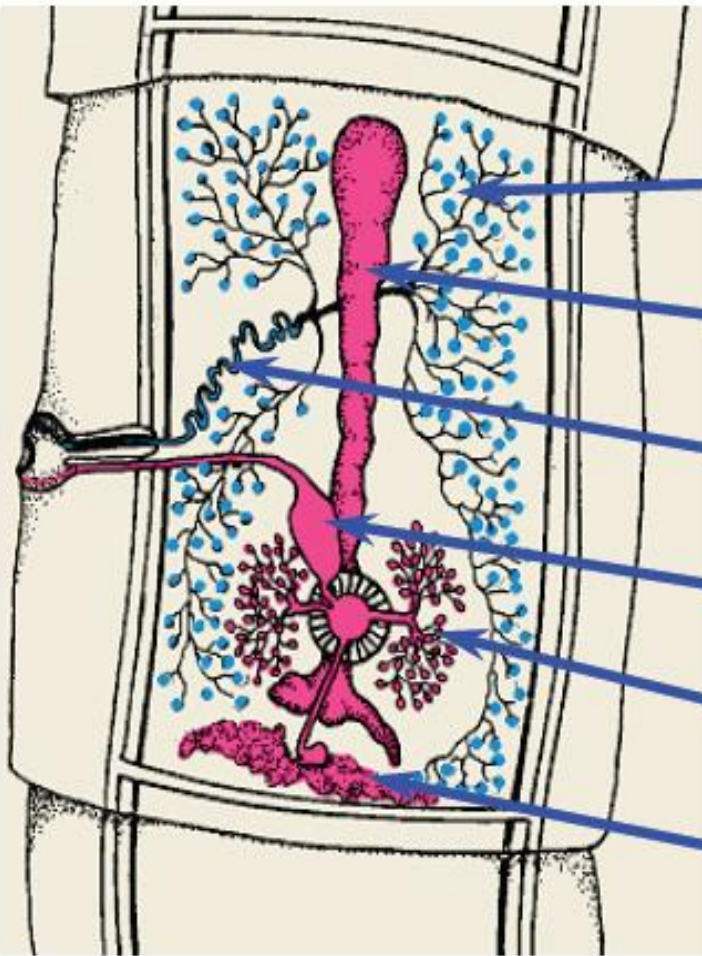
Djibouti and Somalia

Displacement of people by war and instability has introduced intestinal schistosomiasis to these countries.

Scolex (Cestoda)



Scolex (Cestoda)



Testicule

Utérus

Vas deferens

Réceptacle séminal

Ovaire

Glande vitelline

