

Animal Diversity

Body Plans

Taxa

Kingdom

Phylum

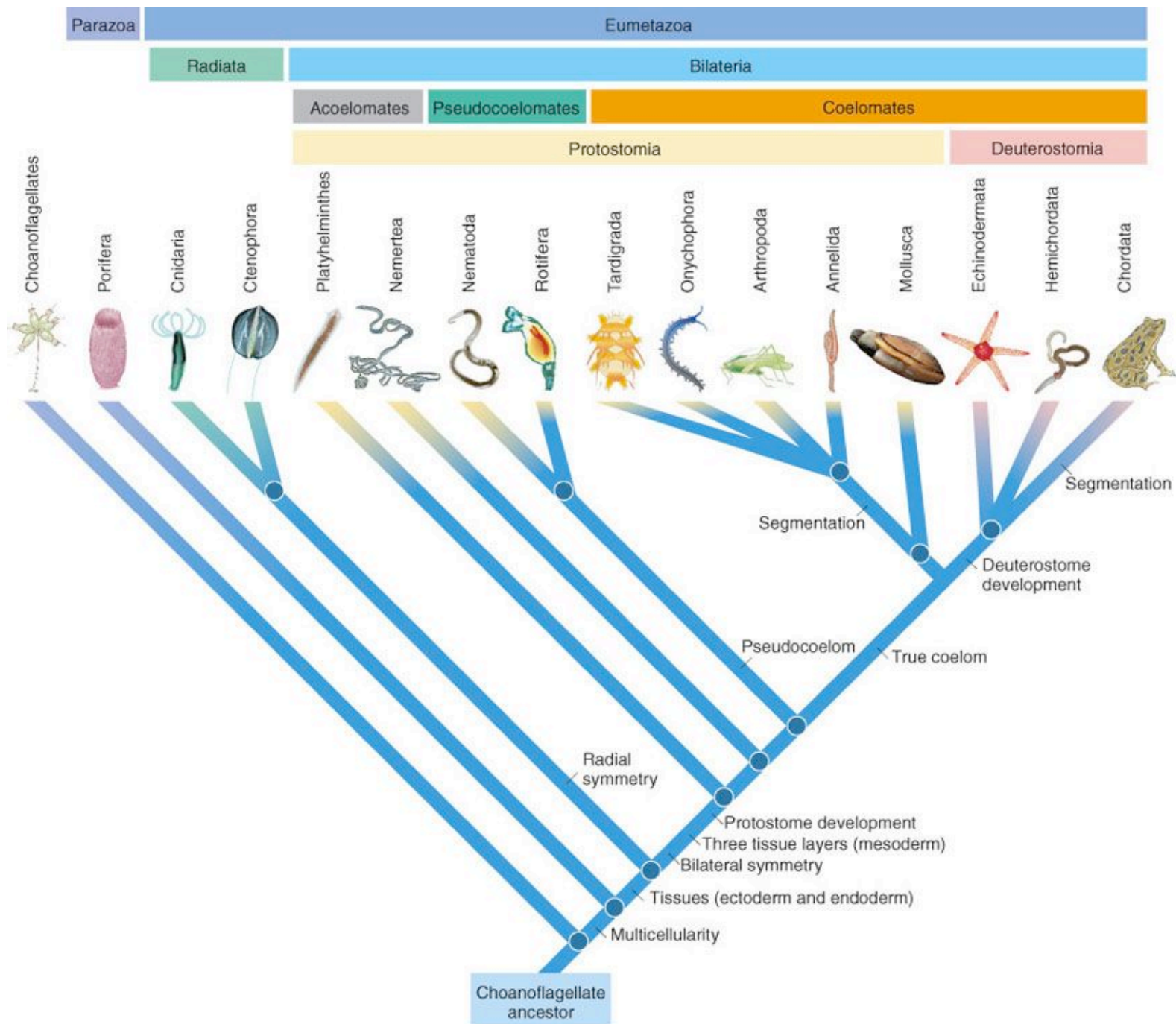
Class

Order

Family

Genus

Species



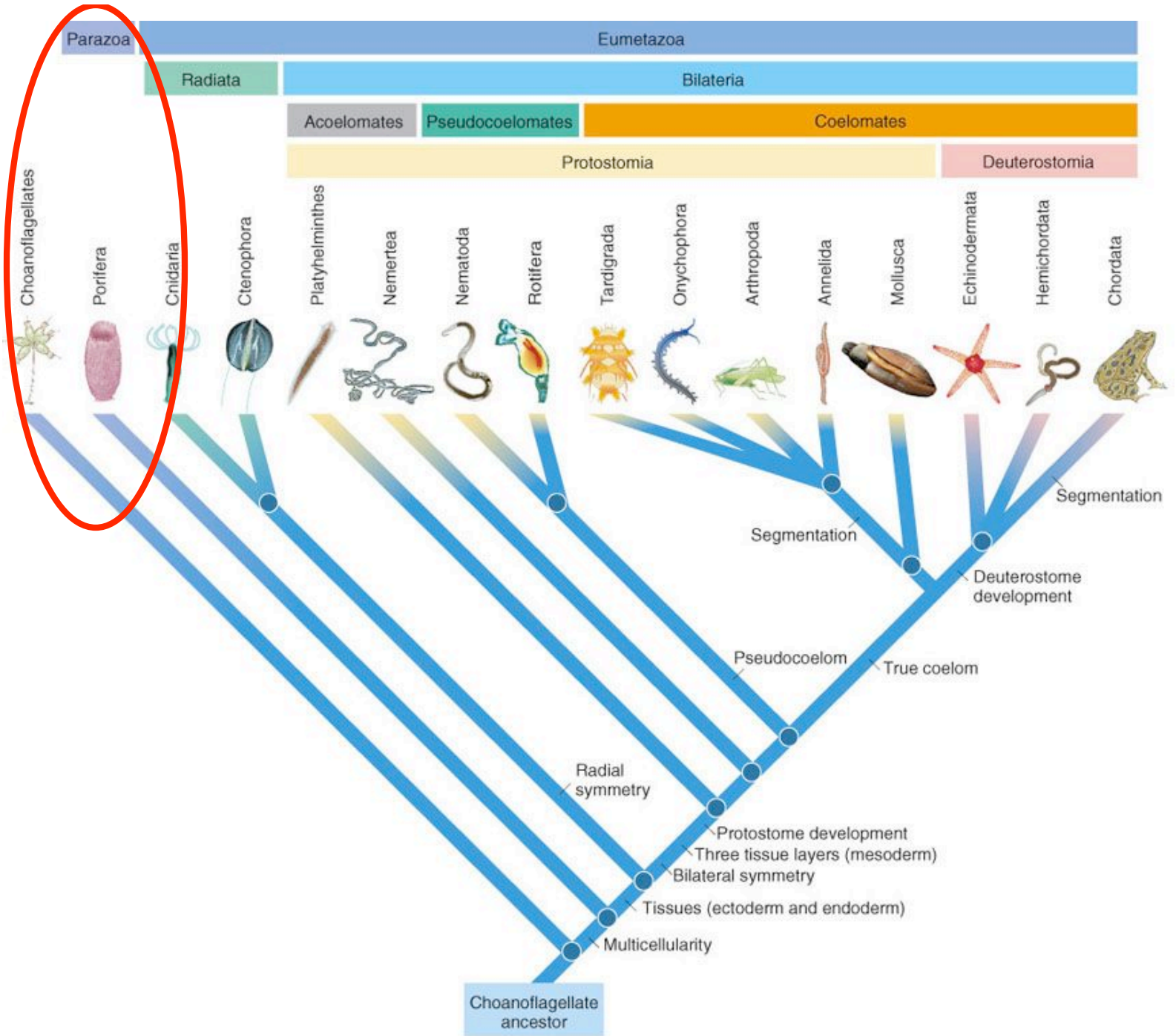
What Defines an Animal??

Heterotrophs

Multicellular

**Locomotion (mostly, at some
life stage)**

Specialized tissues (mostly)

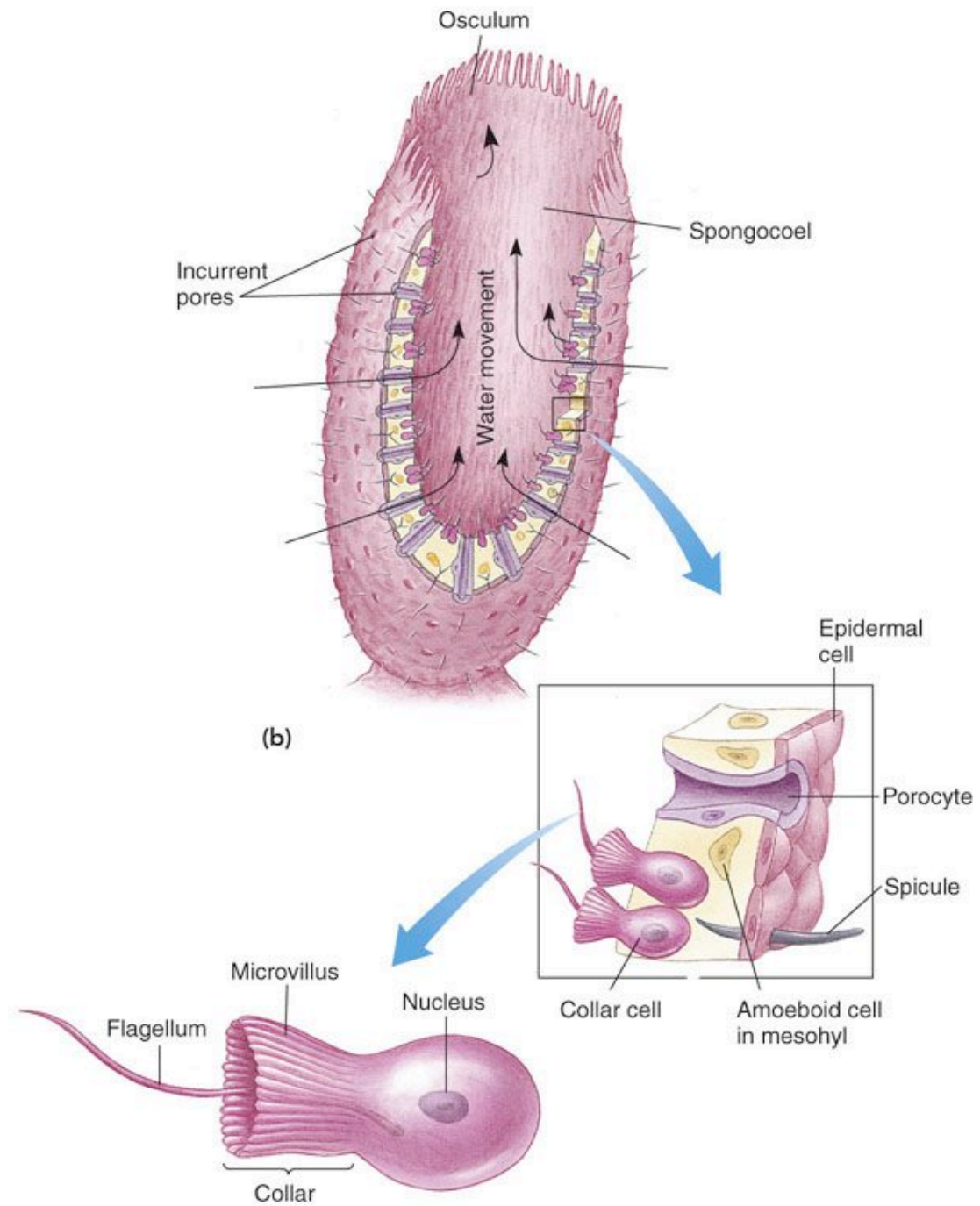


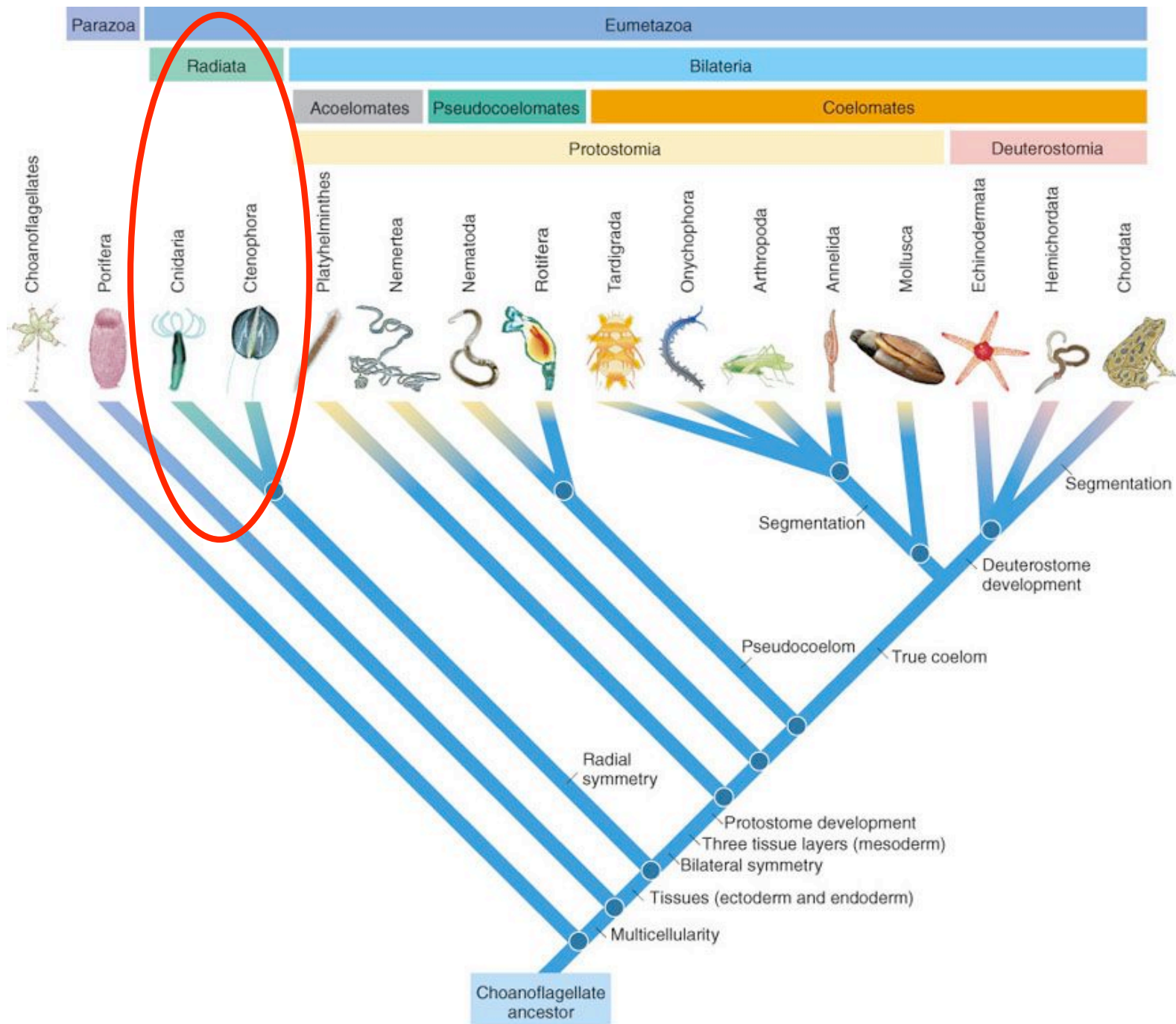
The Parazoa -

**Example, phylum porifera
(=Sponges)**

**No symmetry, little evidence of
tissue specialization**

Mobile larvae





The Radiata -

Two putative Phyla

- Cnidaria & Ctenophora

Radially Symmetric

Two Tissue layers

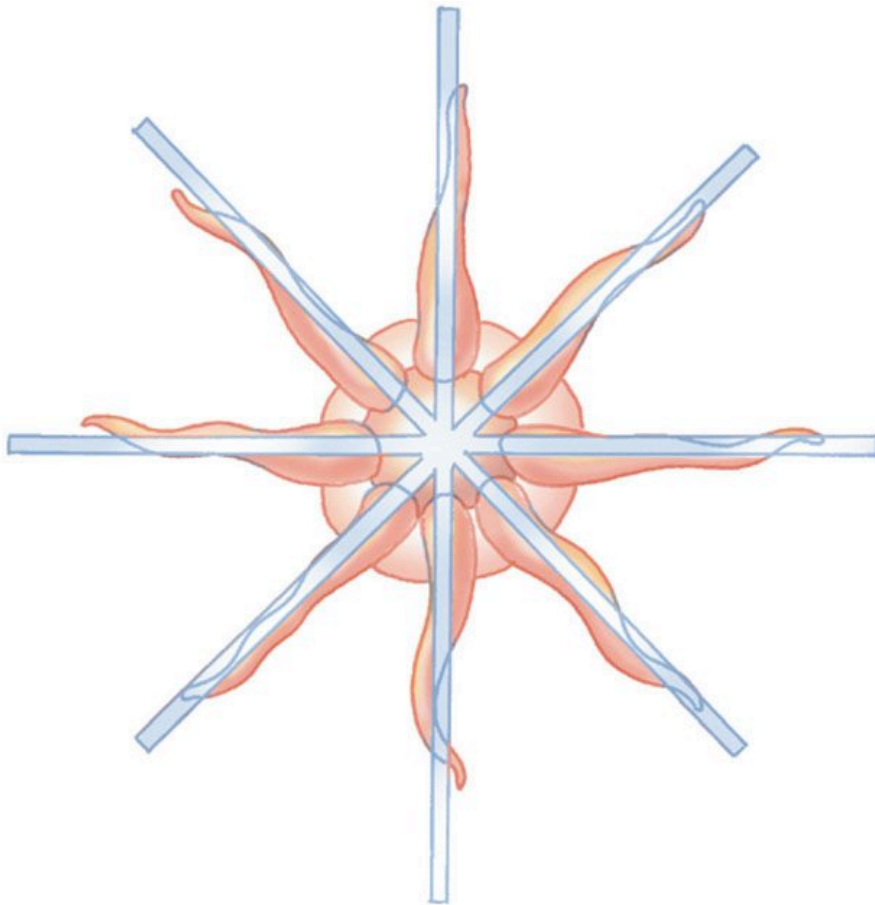
**Single body cavity, one
opening**

Specialized tissues

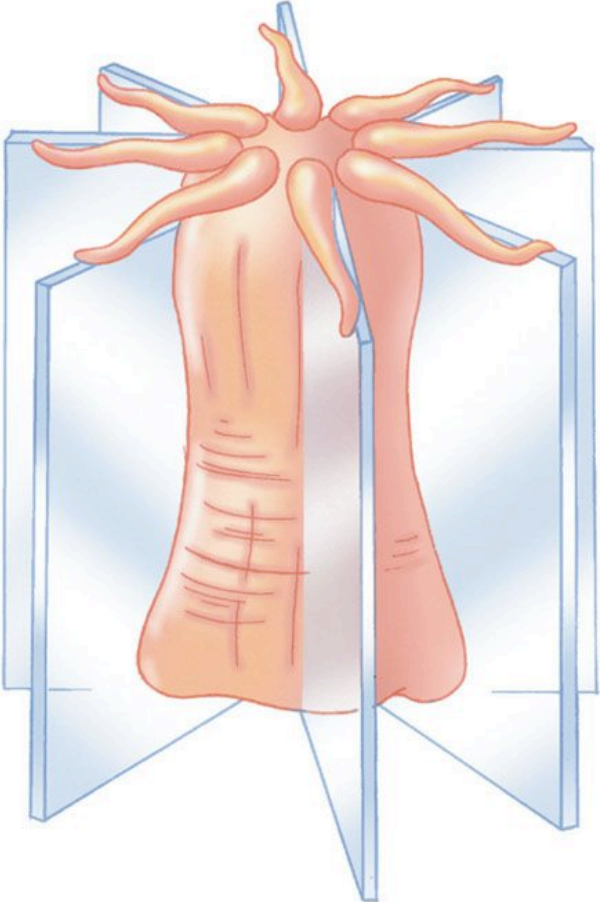
Primitive nerve net

Radially Symmetric - like a wheel....

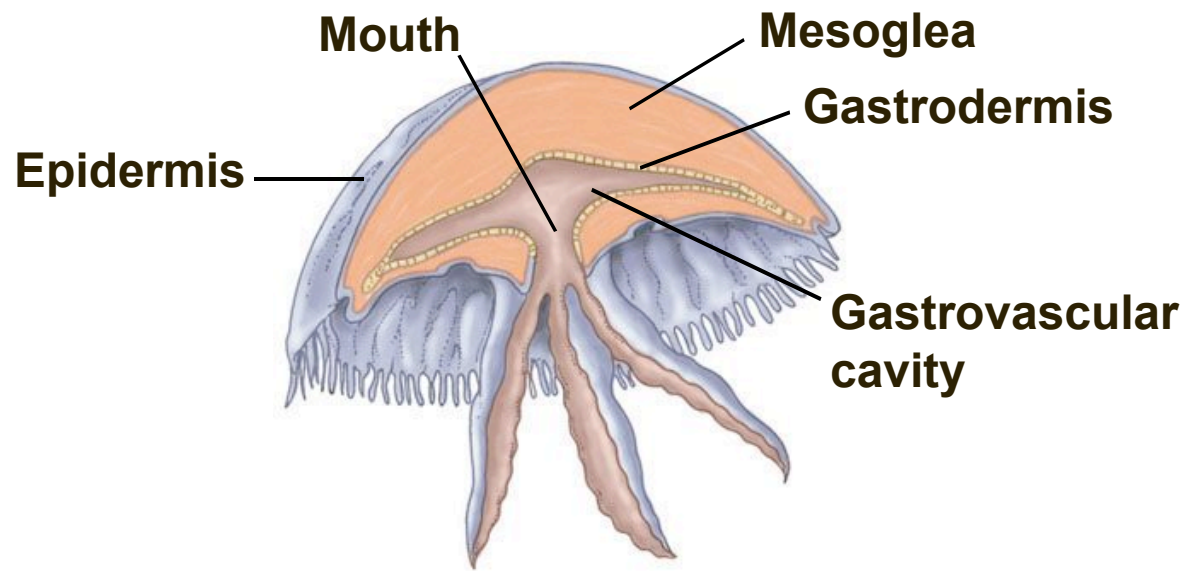
Two Tissue layers



Radial symmetry (top view)



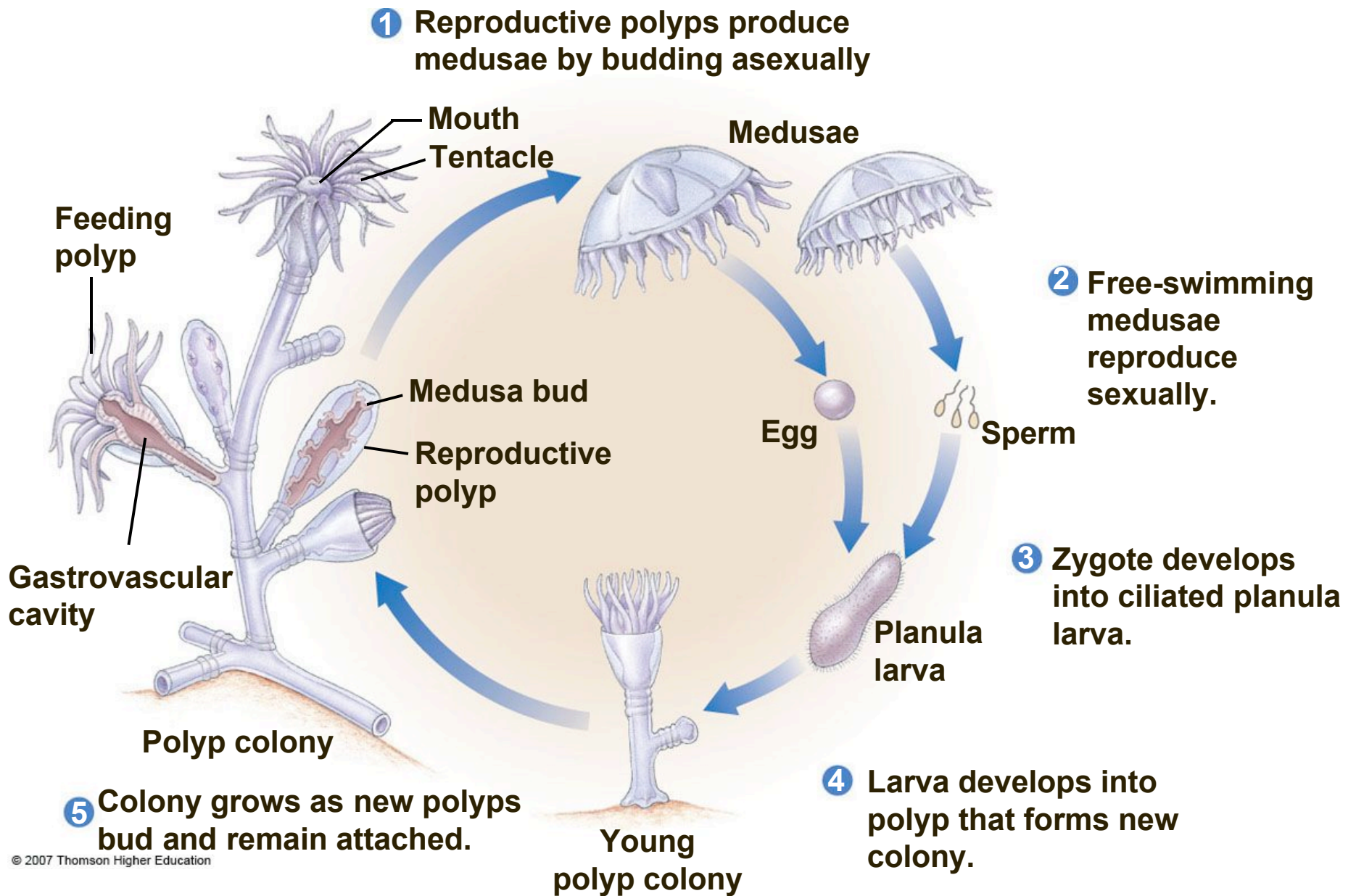
Radial symmetry (side view)



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Class Scyphozoa (medusa)

Fig. 29-10b, p. 633



(b) Life cycle of Obelia.

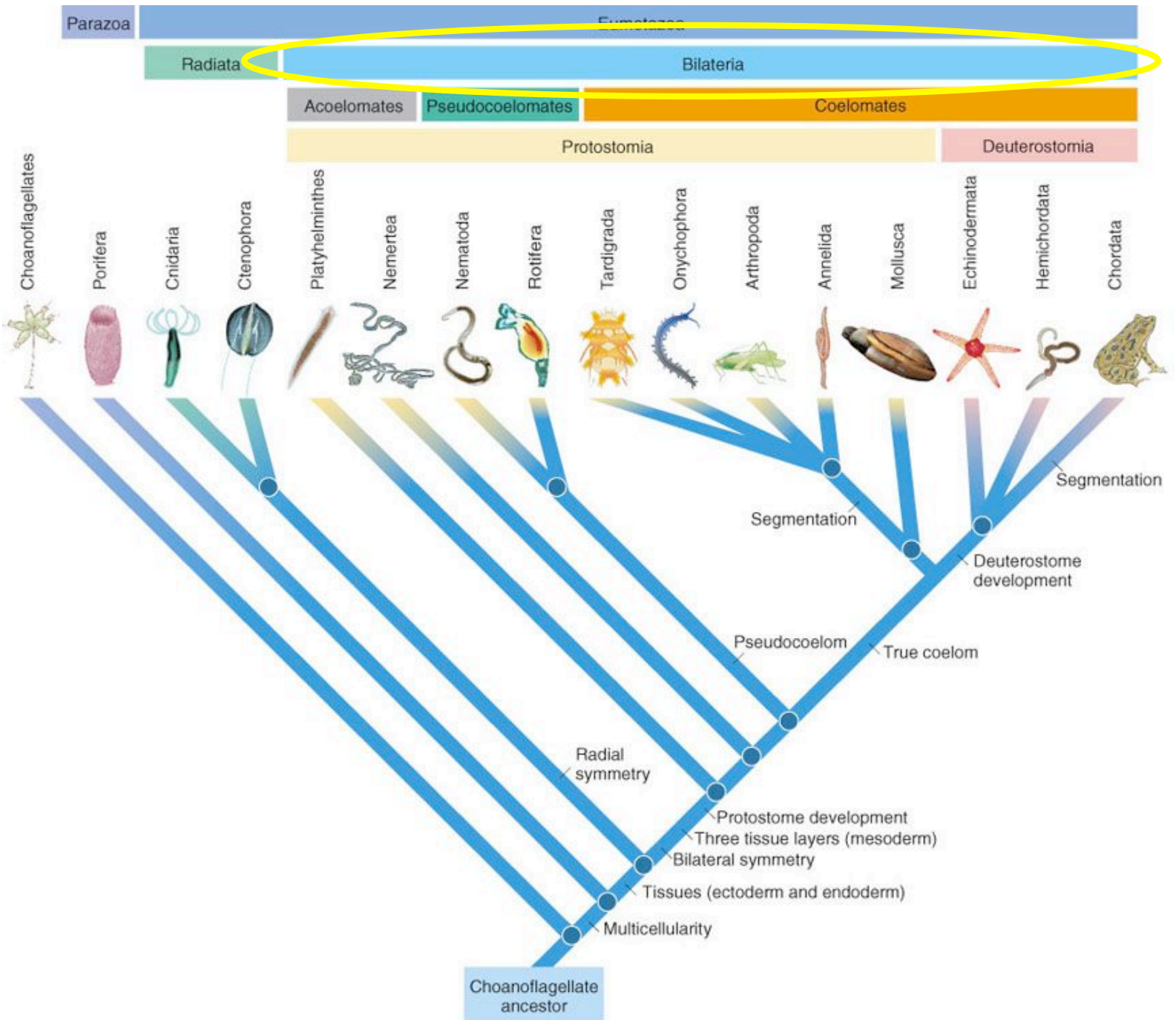
Common examples of radiata include

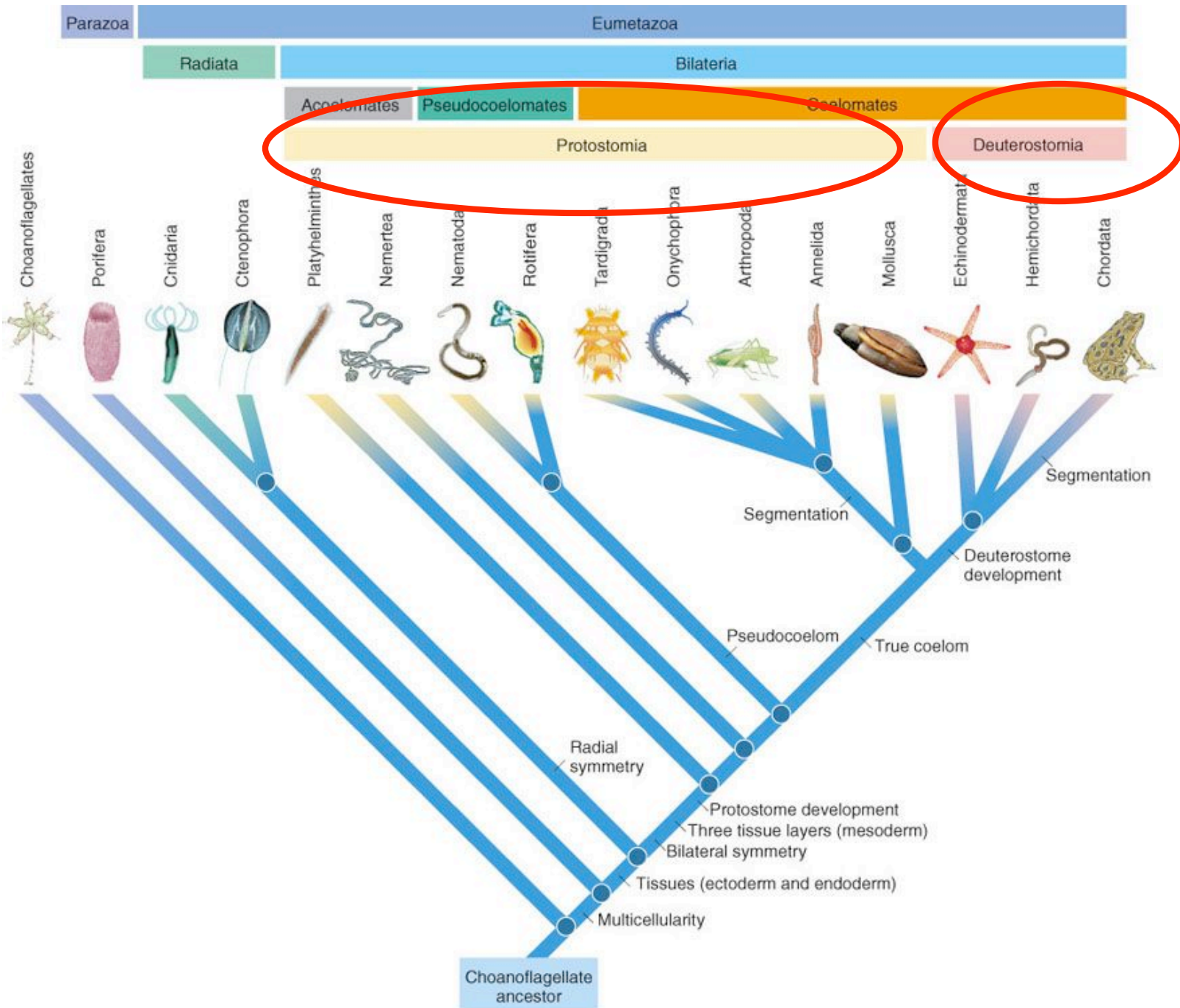
Hydras

Corals

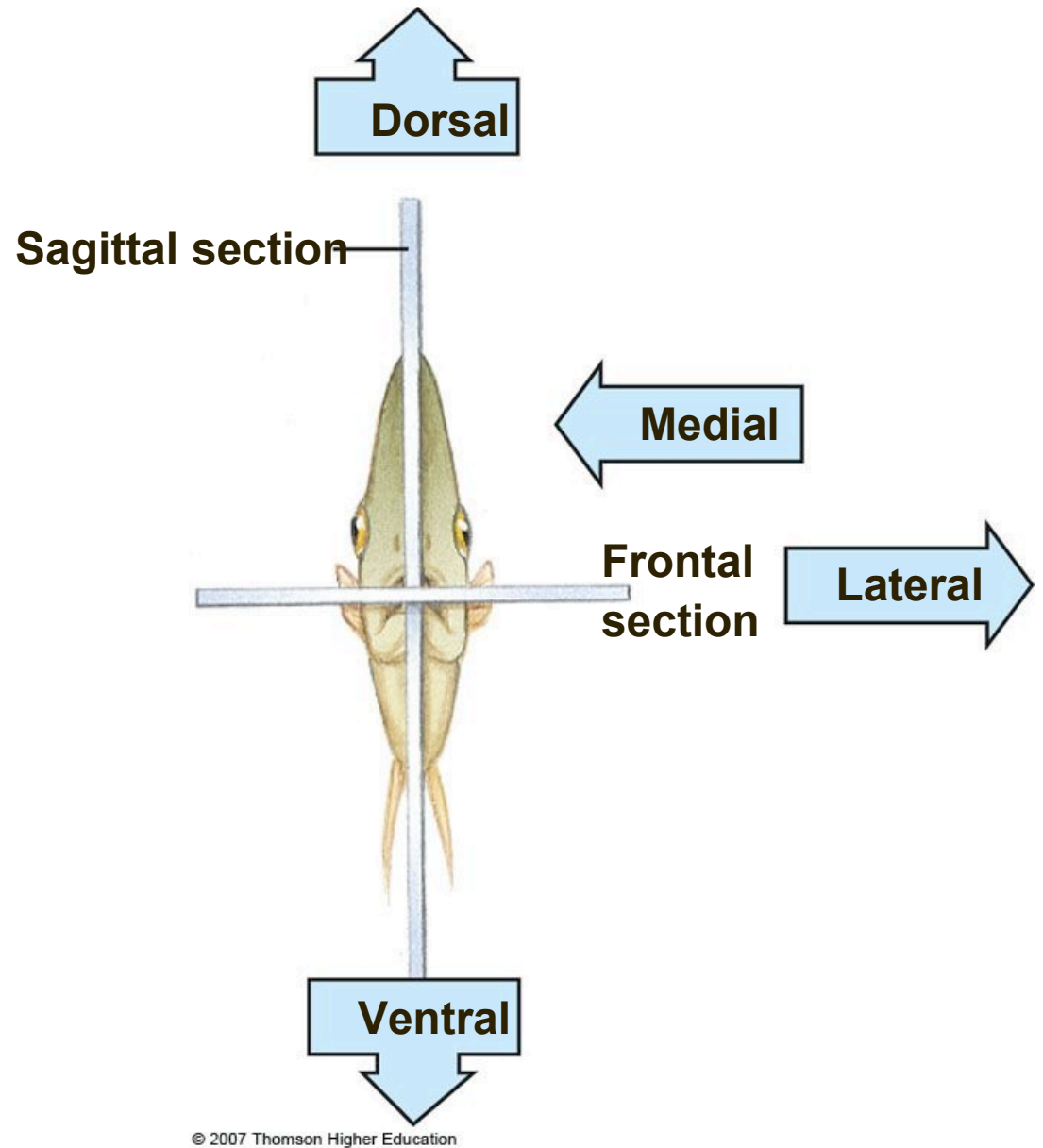
Jellyfish

Ctenophores

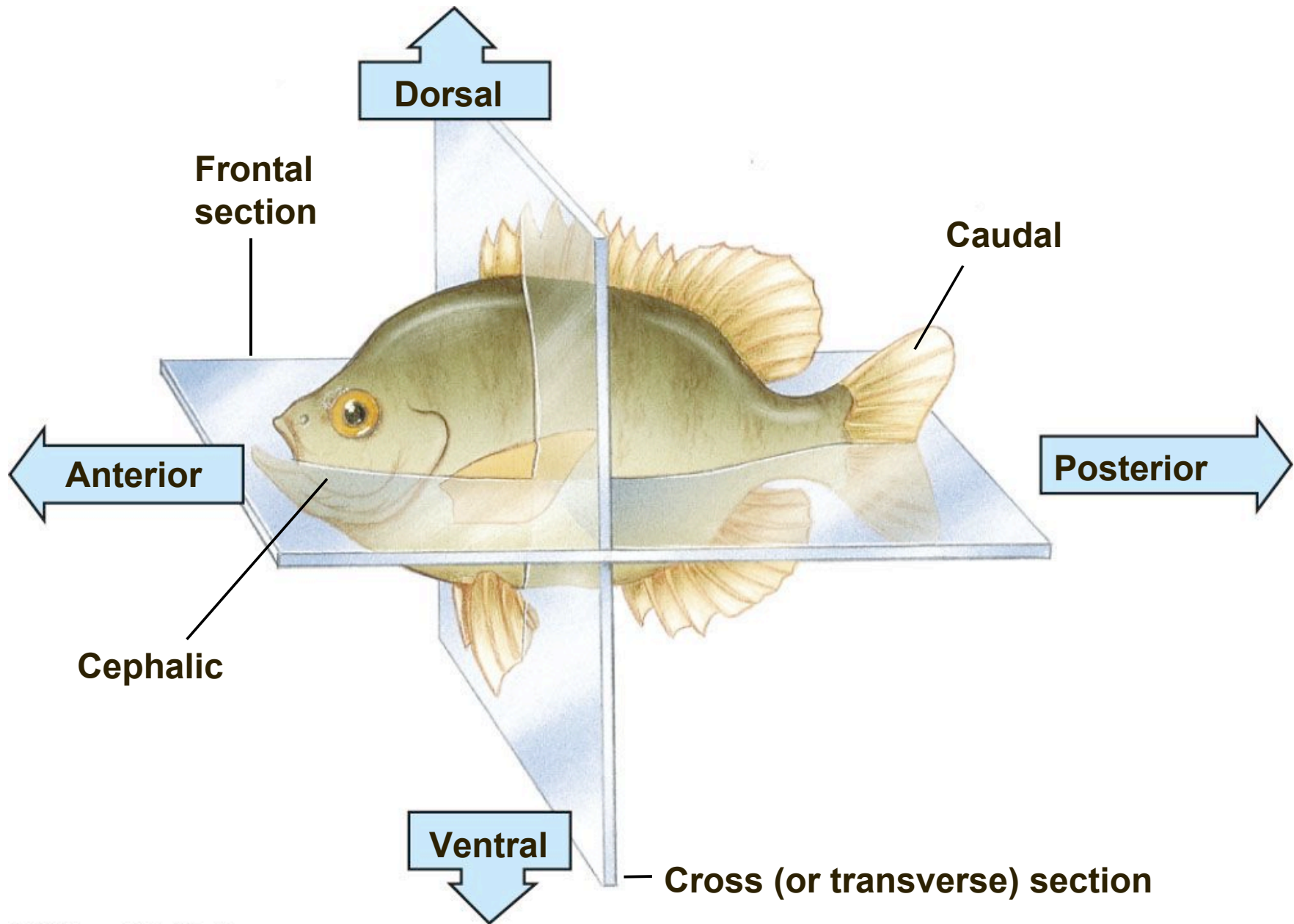




The Bilateria
Characterized
by bilateral
symmetry



Bilateral symmetry (front view)



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Bilateral symmetry (lateral view)

The Bilateria
divided into

Protostomes & Deuterostomes
(based on development)

The Bilateria
divided into

Protostomes = Mouth First

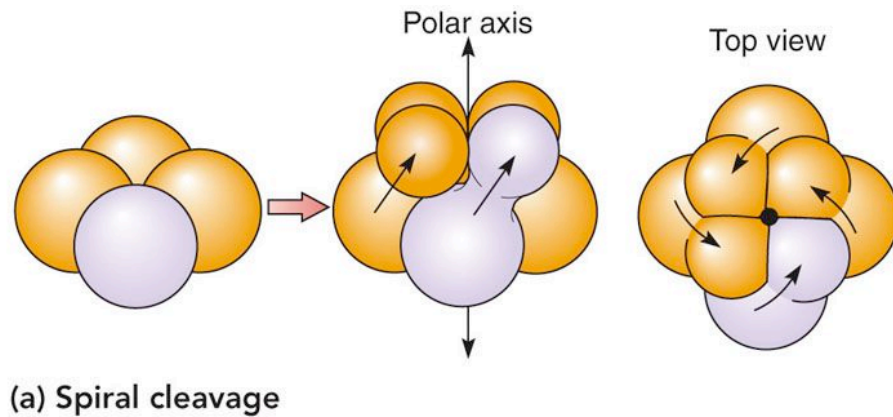
Deuterostomes = Mouth Second

Zygote --> Gastrula

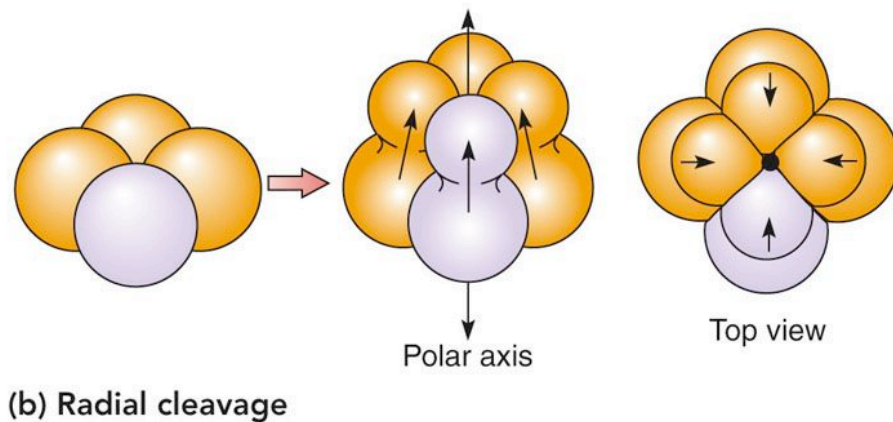
Spiral vs. Radial Cleavage

Protostomes = Mouth First

Deuterostomes = Mouth Second



Protostomes



Deuterostomes

Phyla within **Protostomes**

Platyhelminthes (flatworms, many parasitic)

Nemertea (proboscis worms)

Mollusca (clams, squid, snails etc.)

Annelida ('true' worms..earthworms, polychaets, leeches)

Nematoda (roundworms, trichina worms etc)

Arthropoda (insects and crustaceans)

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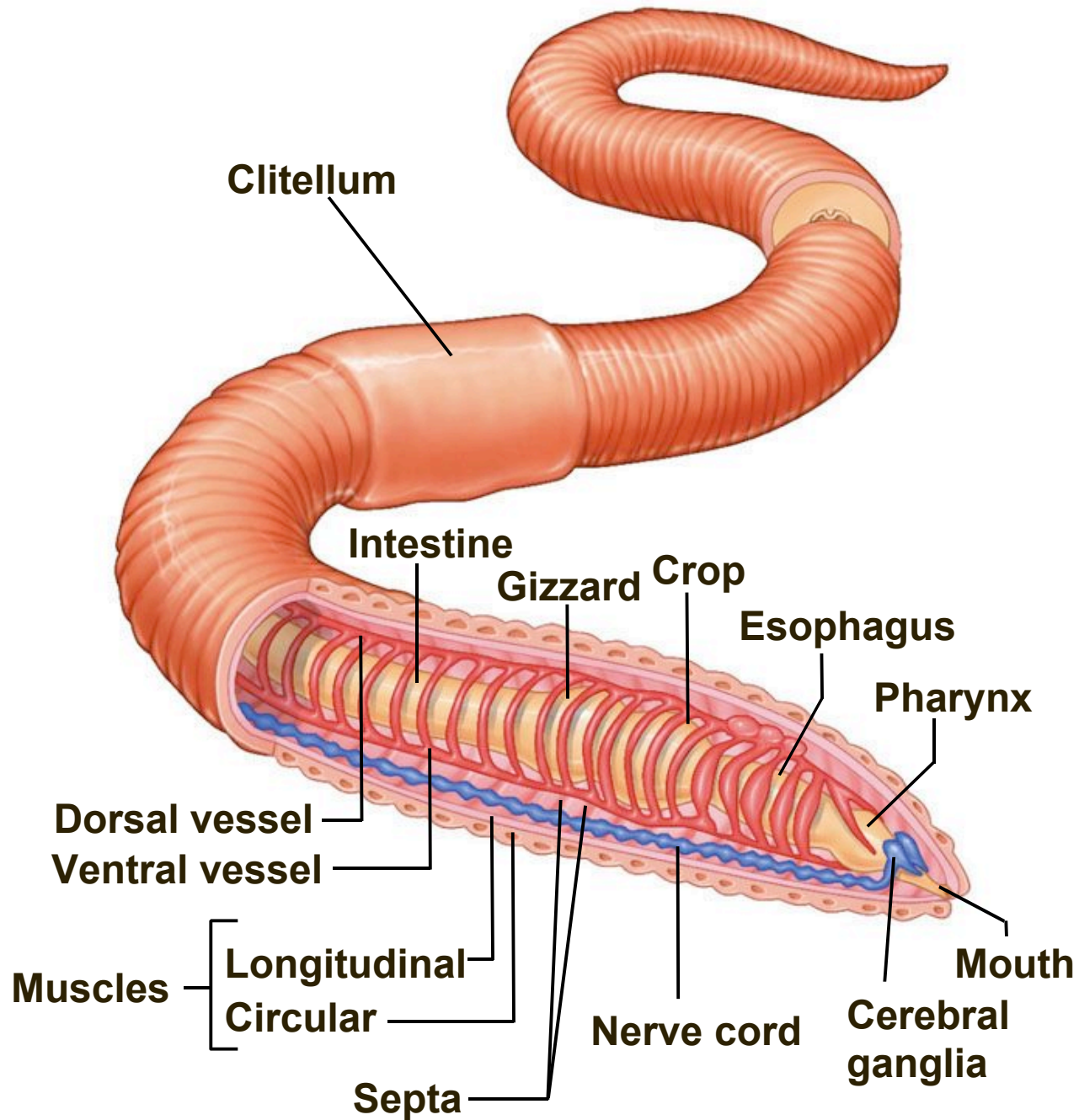
Arthropoda (insects and crustaceans)

Phyla within **Protostomes**

Mollusca soft body, calcium carbonate shell, muscular foot, coelomic compartments, open circulatory system

Phyla within **Protostomes**

Annelida segmentation (particularly muscles) segments = repeated units,
Closed circulatory system



Phyla within **Protostomes**

Arthropoda (insects and crustaceans)

Segmented body (like annelids), hard exoskeleton, paired jointed appendages, open circulatory system

Phyla within **Deuterostomes**

Echinodermata (starfish, urchins)

Chordata (includes vertebrates and close relatives)

Phyla within **Deuterostomes**

Echinodermata (starfish, urchins)

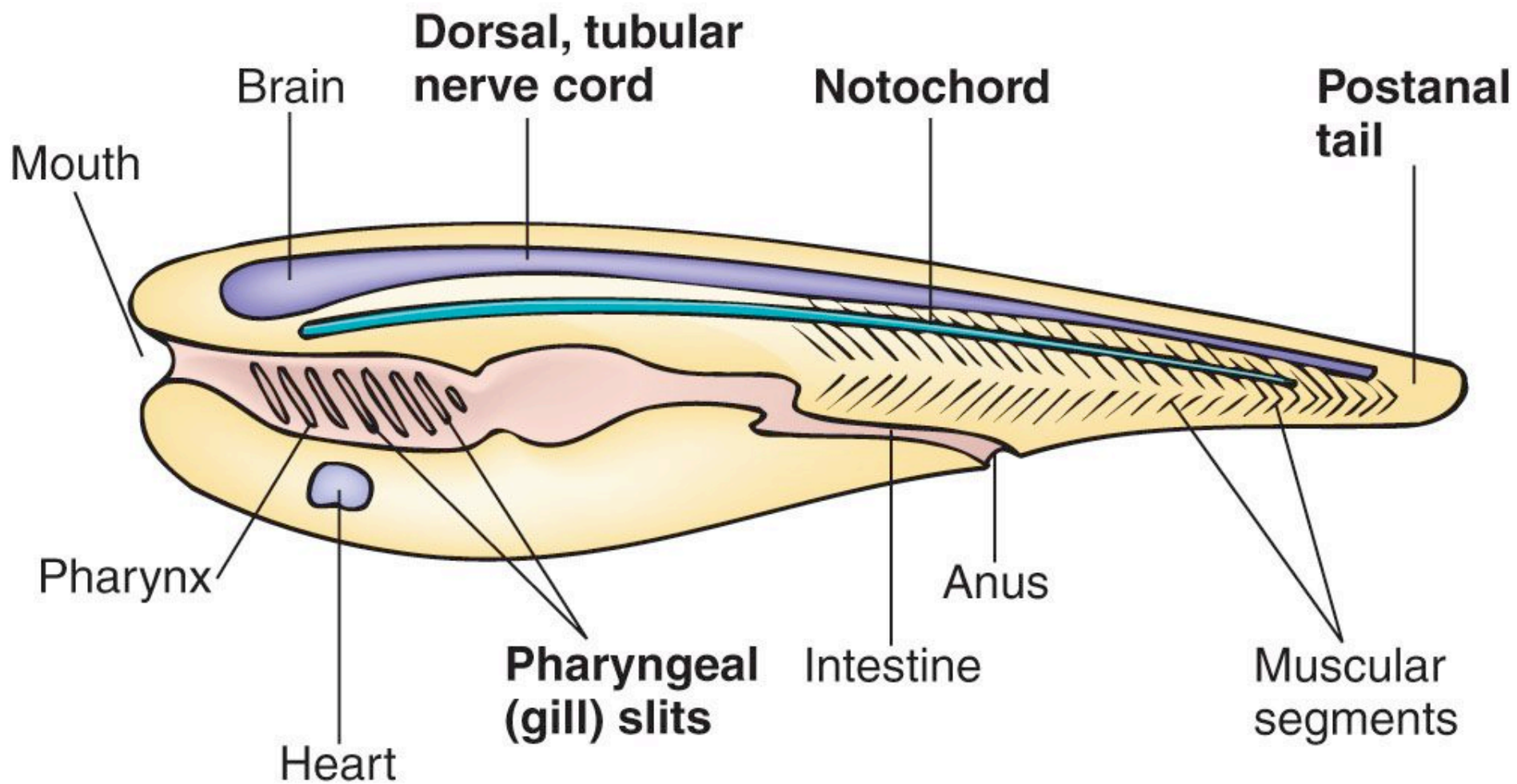
A very 'derived' body plan -

Pentaradial symmetry

Water vascular system

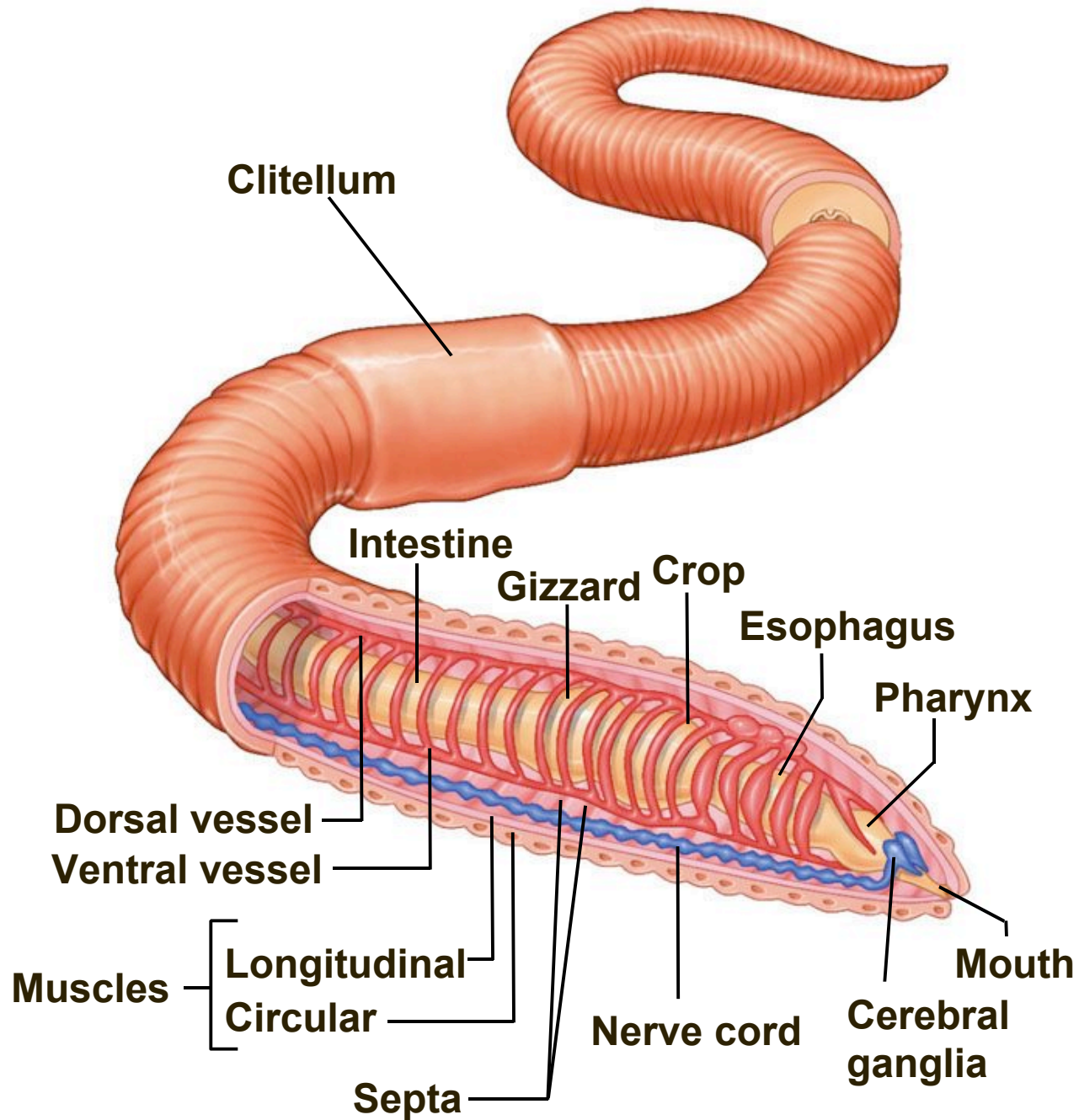
Phyla within Deuterostomes

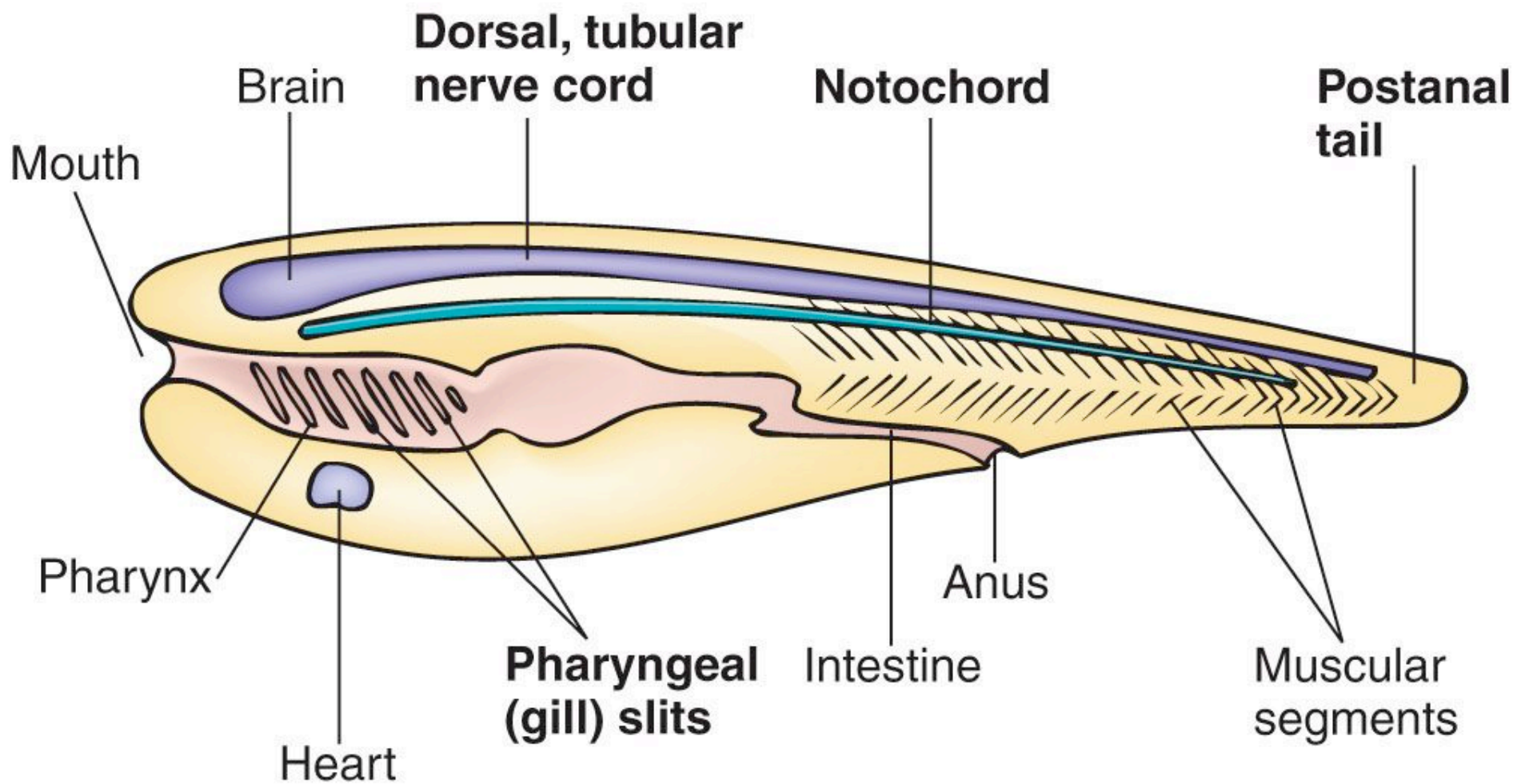
Chordata - dorsal hollow nerve chord,
notochord, pharyngeal slits



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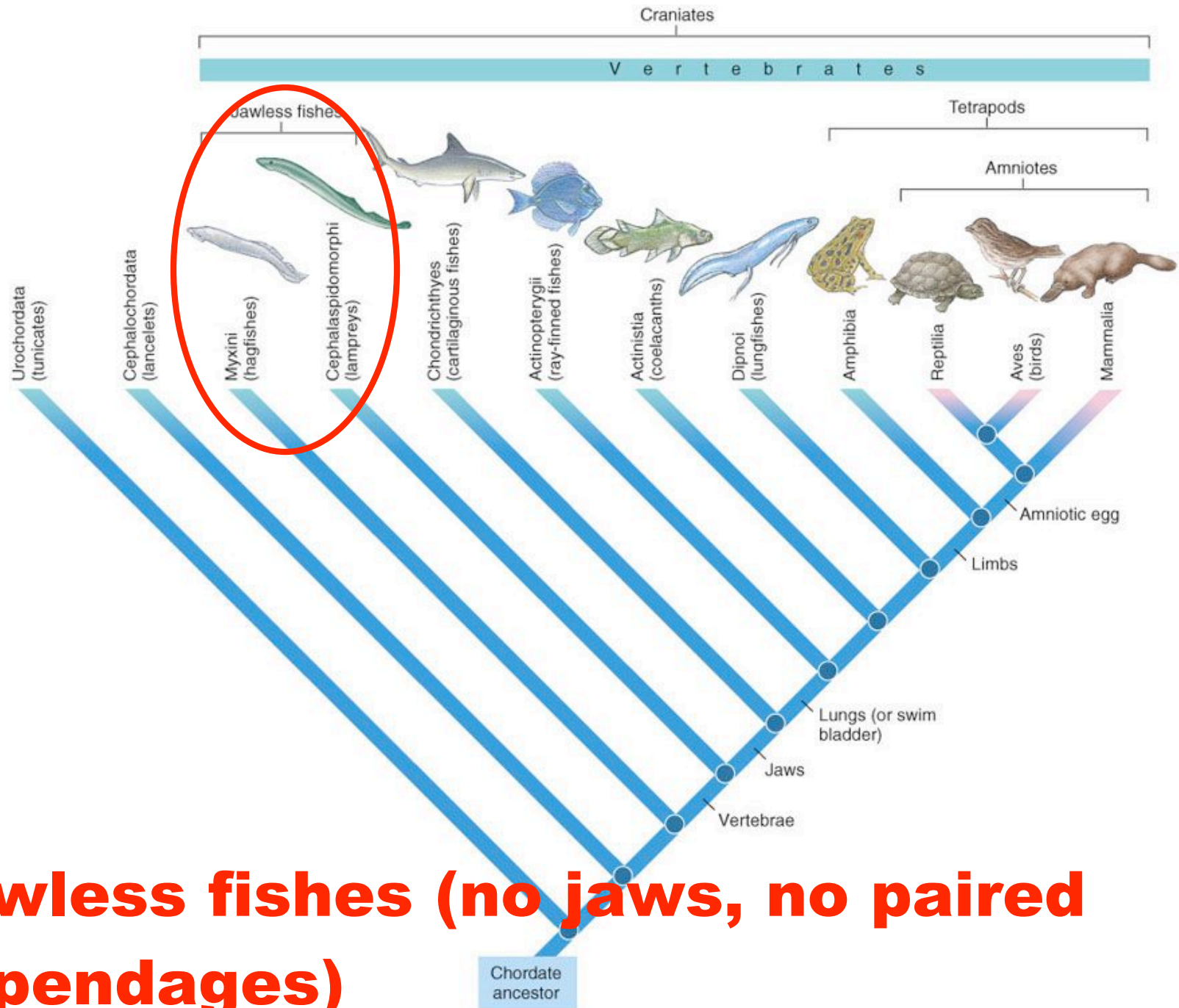
Fig. 31-4, p. 671



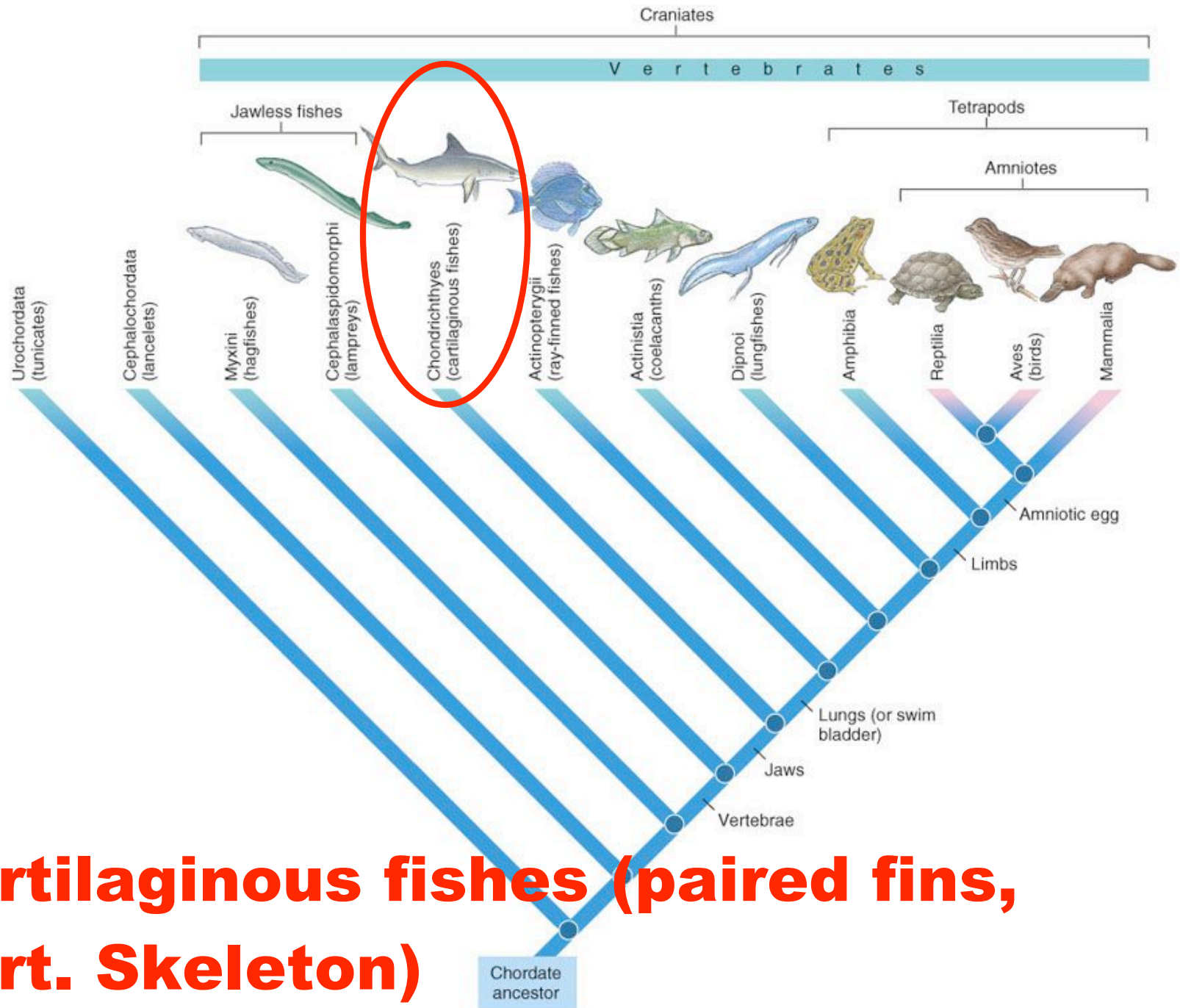


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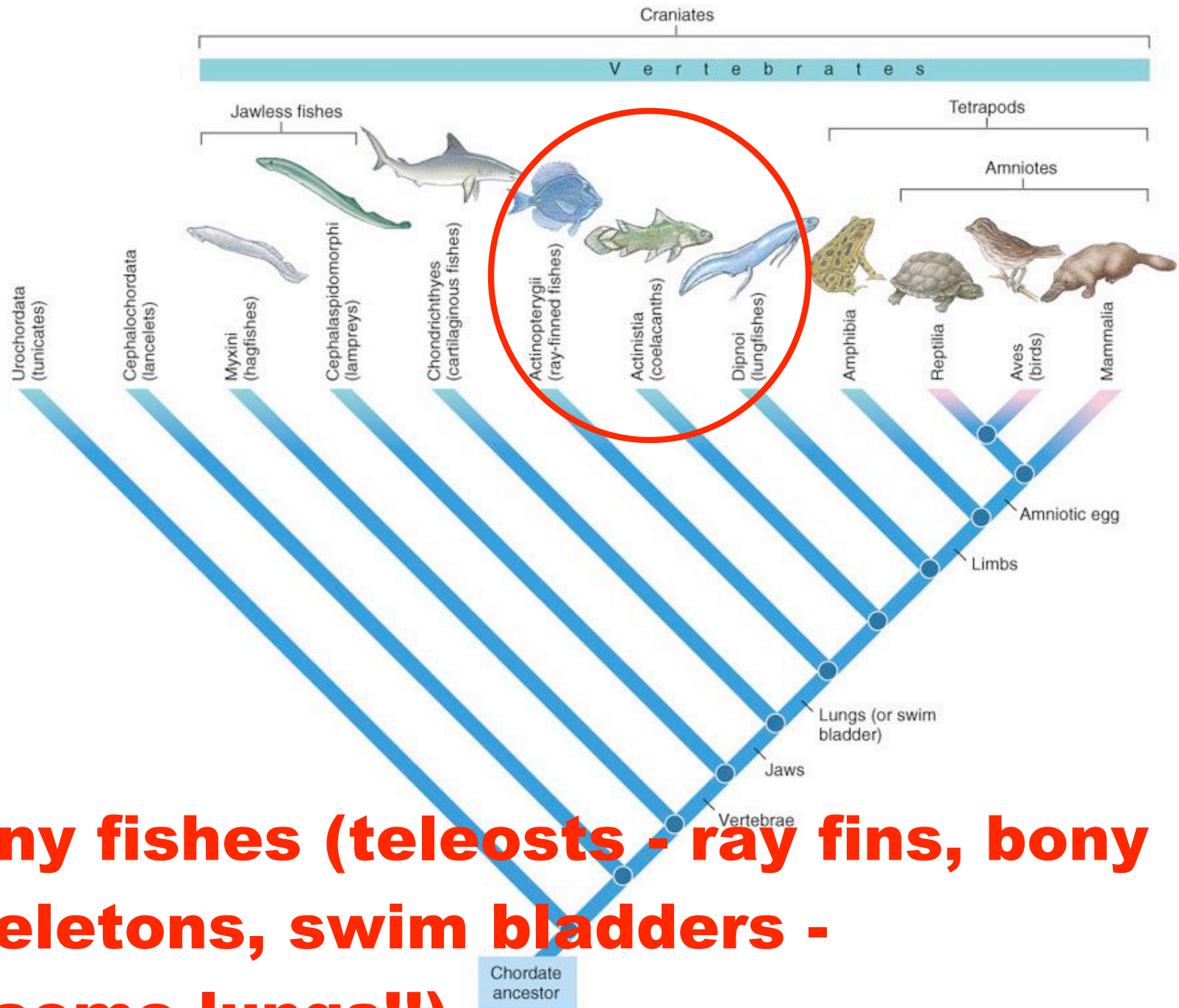
Fig. 31-4, p. 671



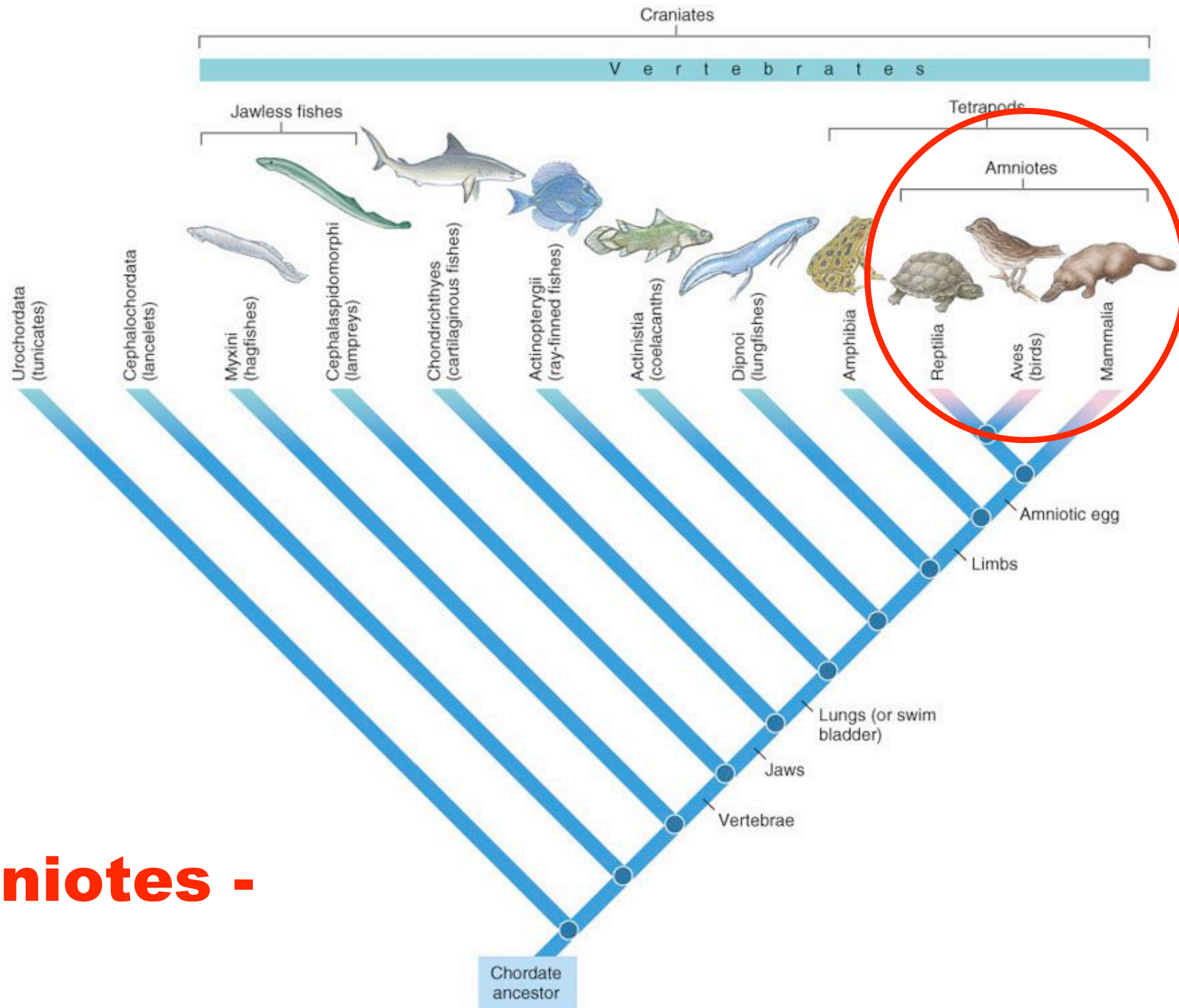
Jawless fishes (no jaws, no paired appendages)



Cartilaginous fishes (paired fins, Cart. Skeleton)



Bony fishes (teleosts - ray fins, bony skeletons, swim bladders - become lungs!!)



Amniotes -

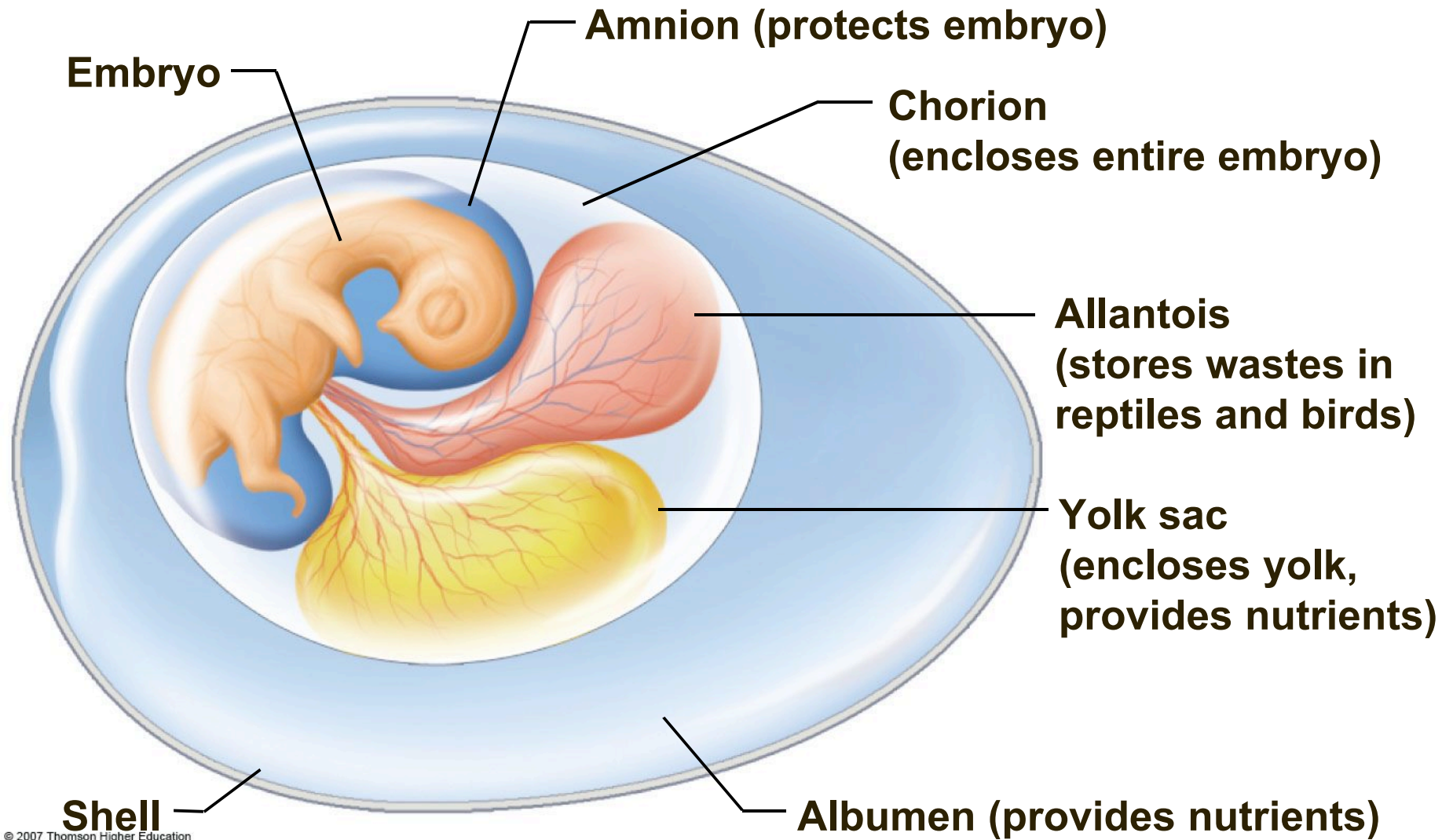


Fig. 31-19, p. 683

