

Echinoderm



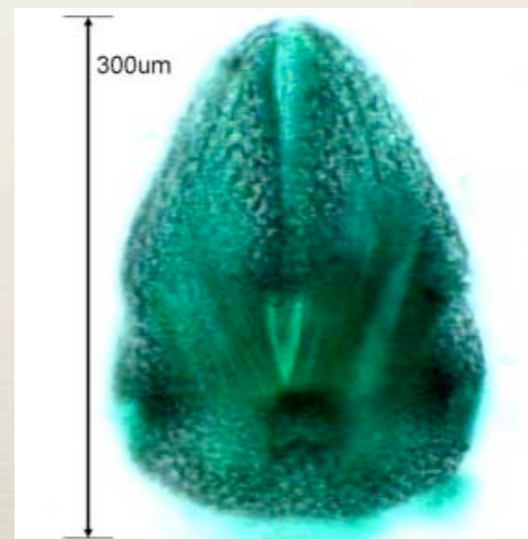
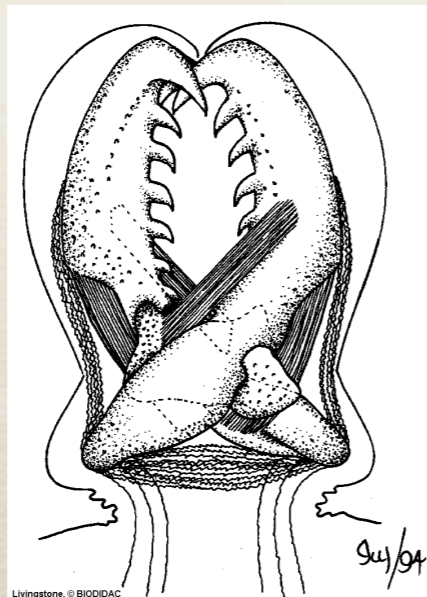
**A spiny-skinned
invertebrate.**

ECHINODERMS

Echinoderms

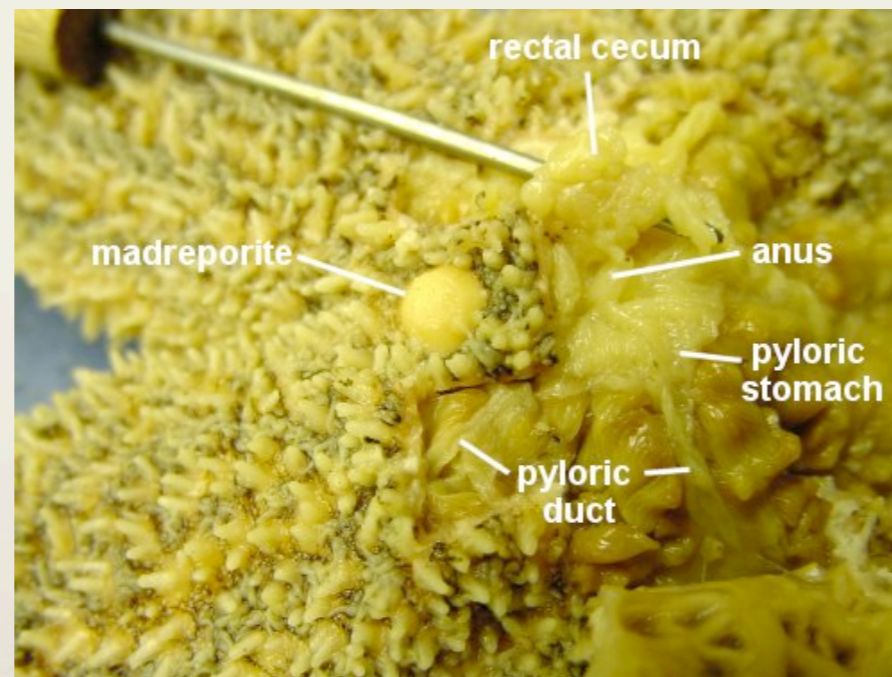


- * “Spiny skin”
- * 5 part symmetry (adults)
- * Endoskeleton - bony plates (CaCO_3) connected by tiny muscles
- * Pedicellaria - pinchers, protection and cleaning



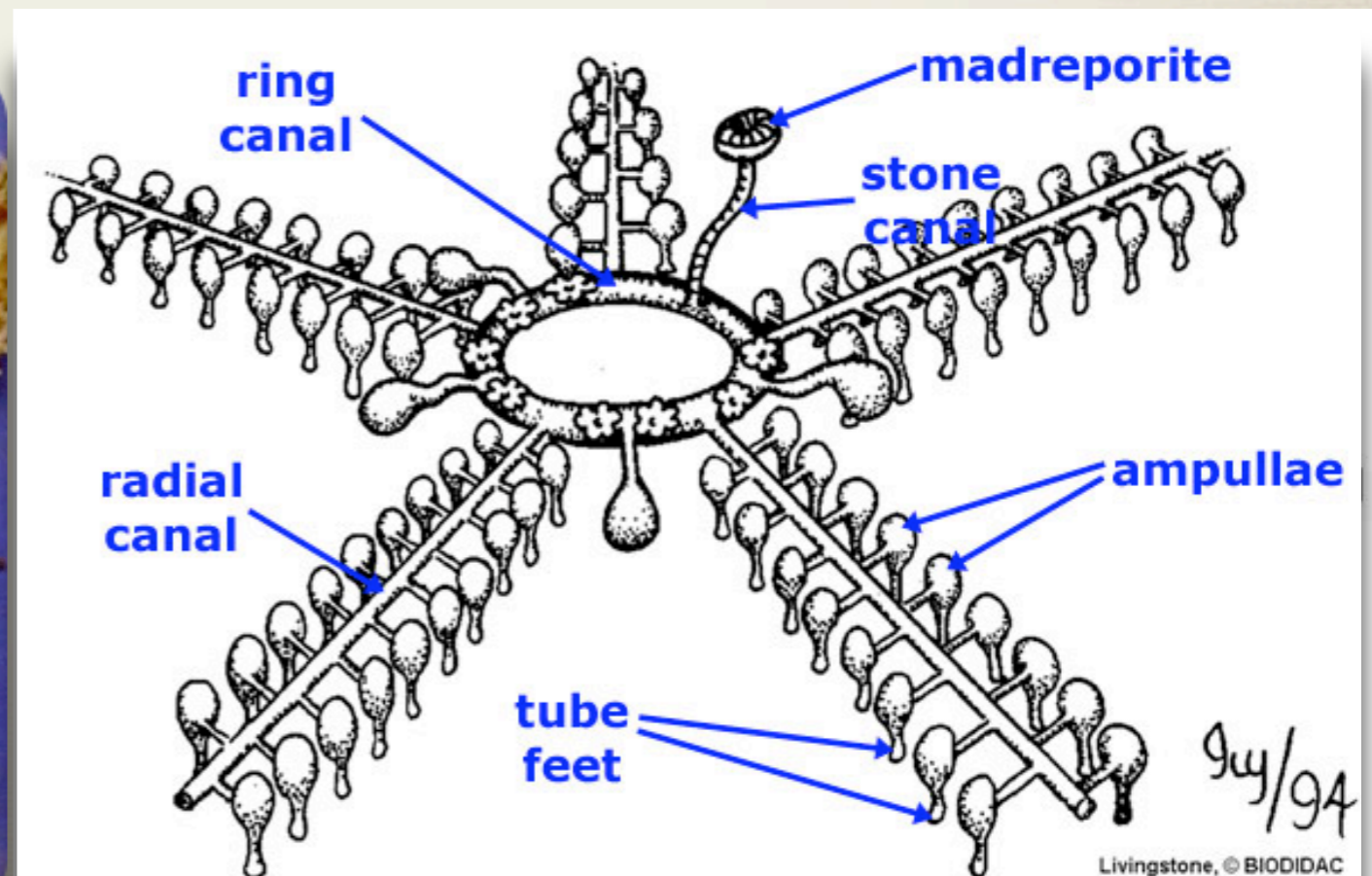
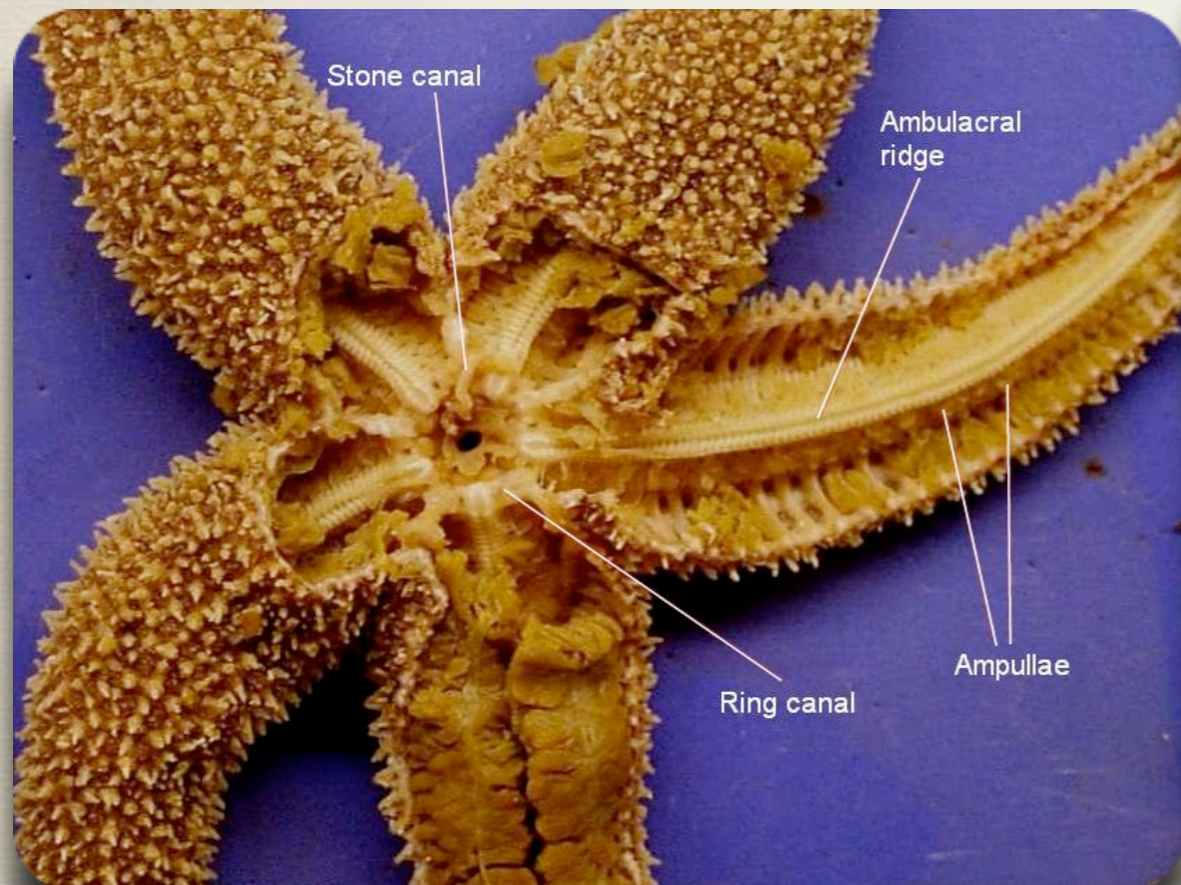
Water Vascular System

- * Network of fluid-filled system connected to tube feet
- * Used for walking, feeding, gas exchange, excretion
- * Madreporite - entrance for water (like sieve)



Water Vascular System

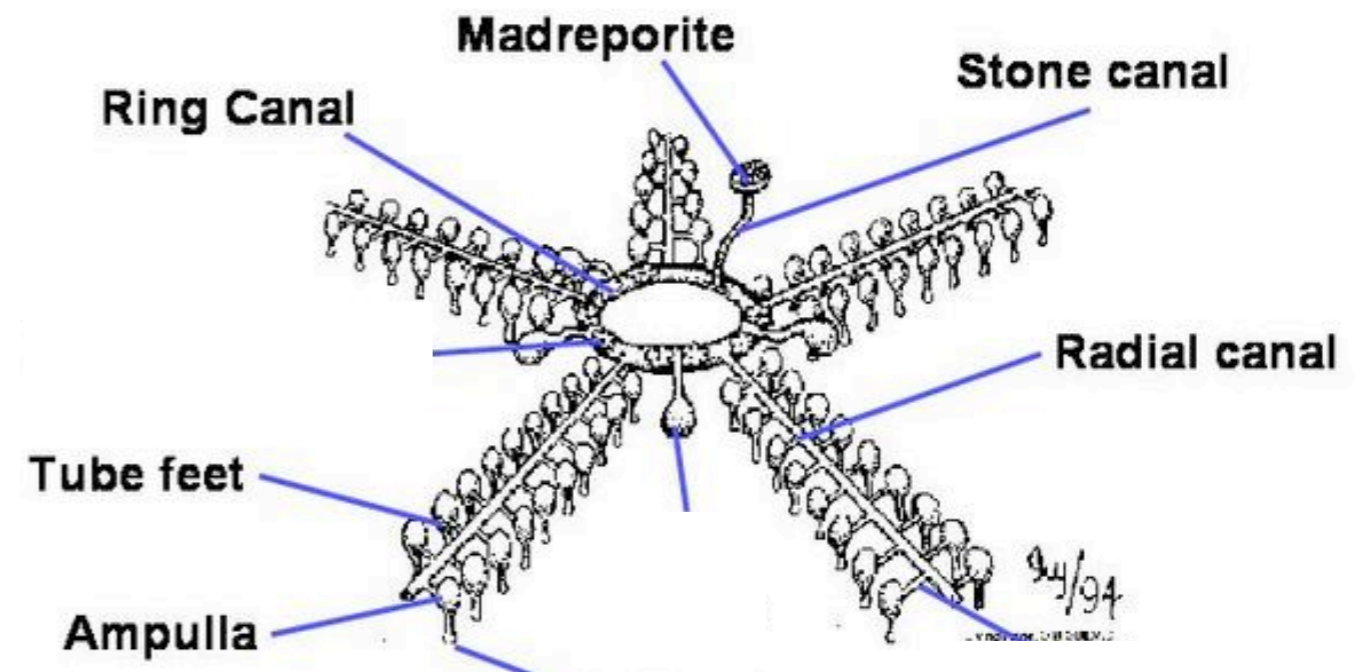
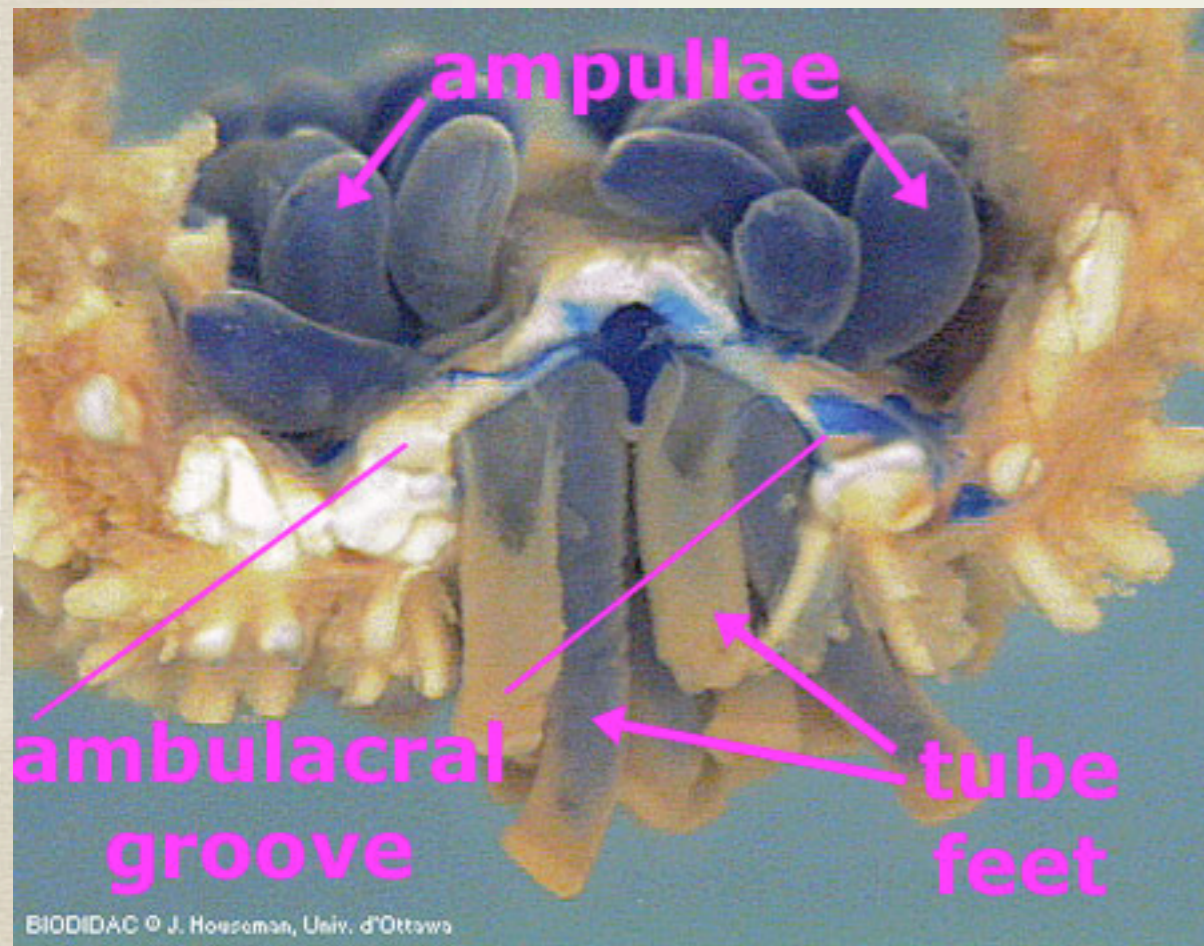
- * Ring canal - connected to madreporite by stone canal (circle around digestive organs)
- * Radial canal - extend into leg



Water Vascular System



- * Tube feet - water pulled out - shrinks and created suction
- * Gas exchange, excretion by diffusion moving



Senses

- * Nerve ring round mouth, connected to radial nerves
- * Sensory tube feet - chemicals, light (tip of arm)





Reproduction

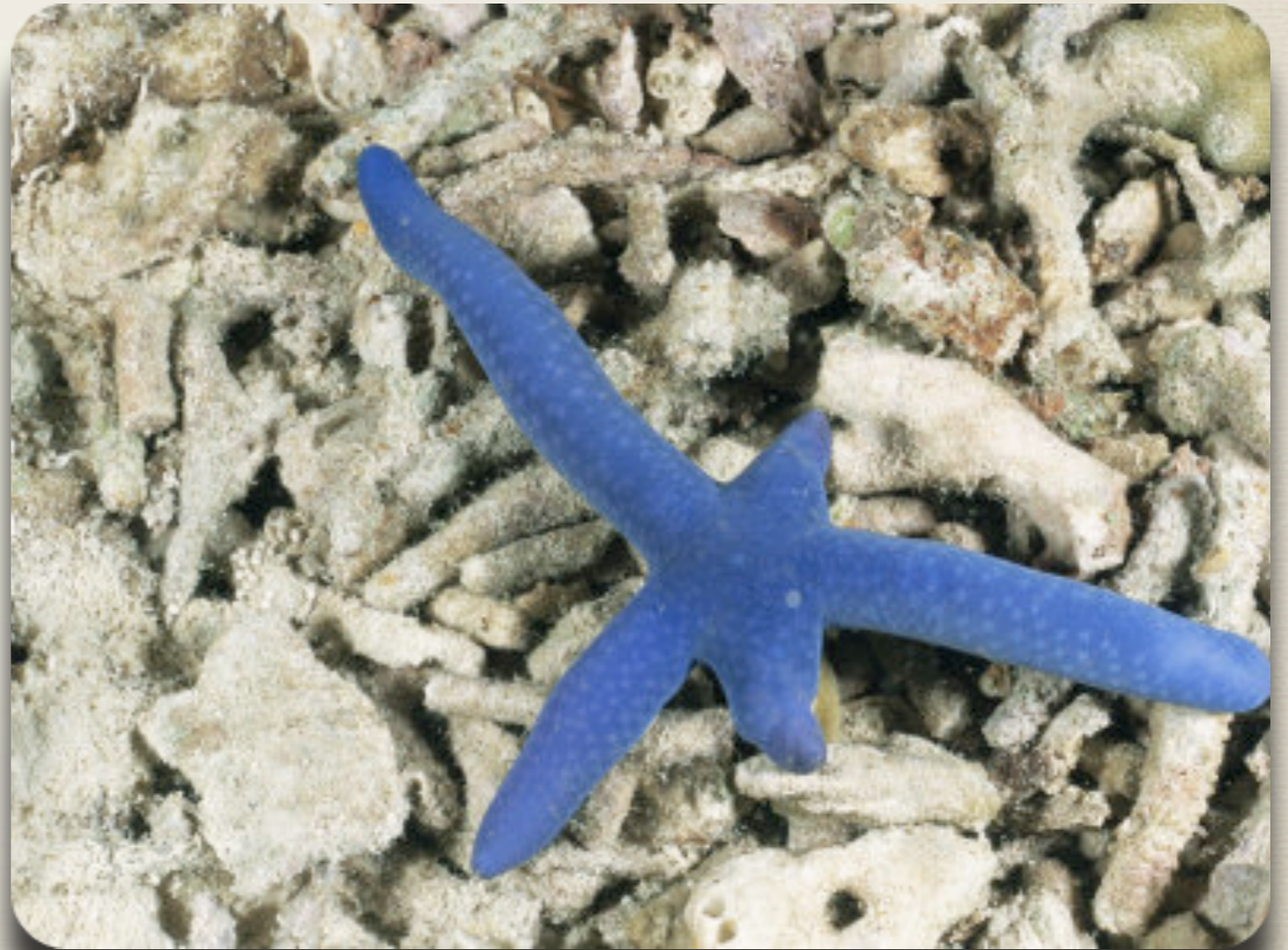


- * Sexual, external fertilization
- * Gonads fill arms during reproductive season
- * Detect own species - all release eggs and sperm same time
- * Bilateral larvae swims



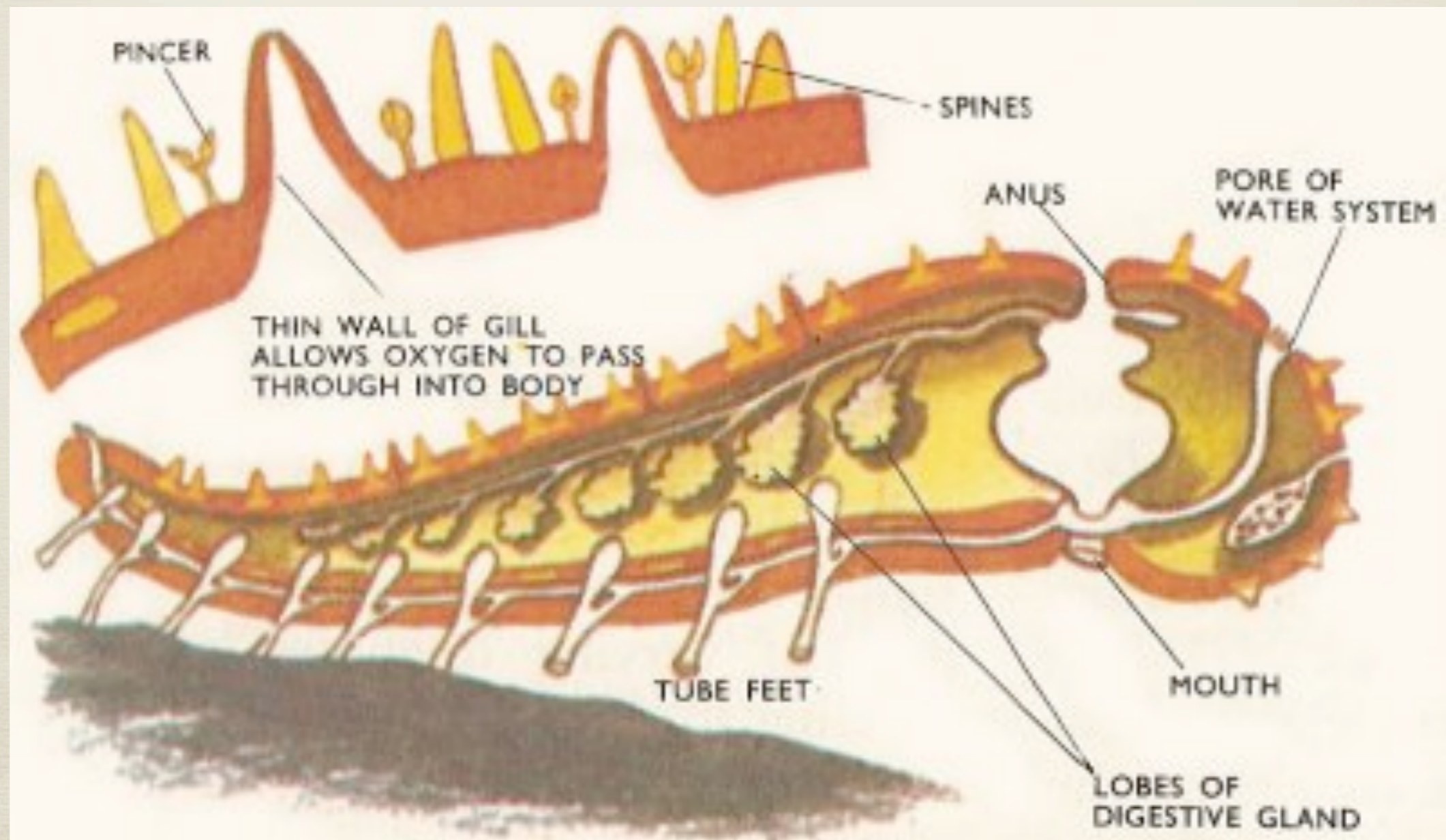
Reproduction

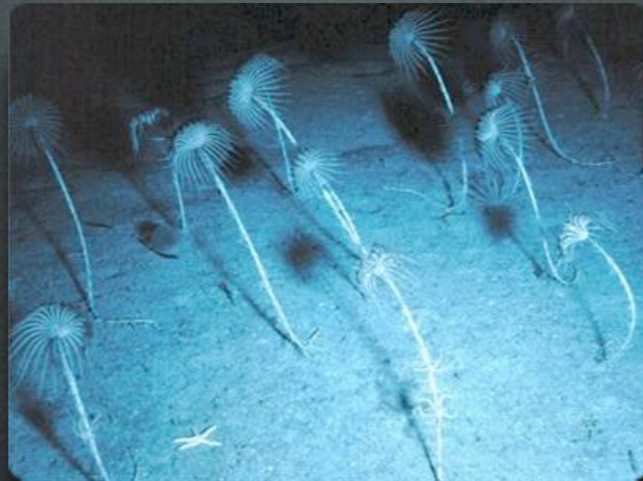
- * Some hermaphrodites
- * Regeneration



Respiration

- * gas exchange through tube feet and skin gills

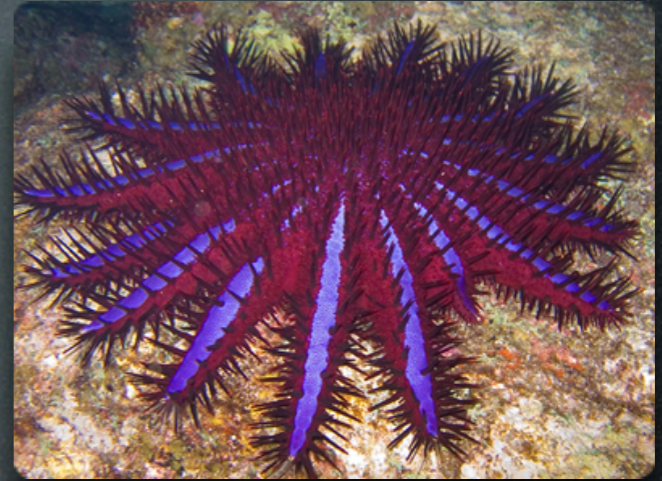




Class Crinoids

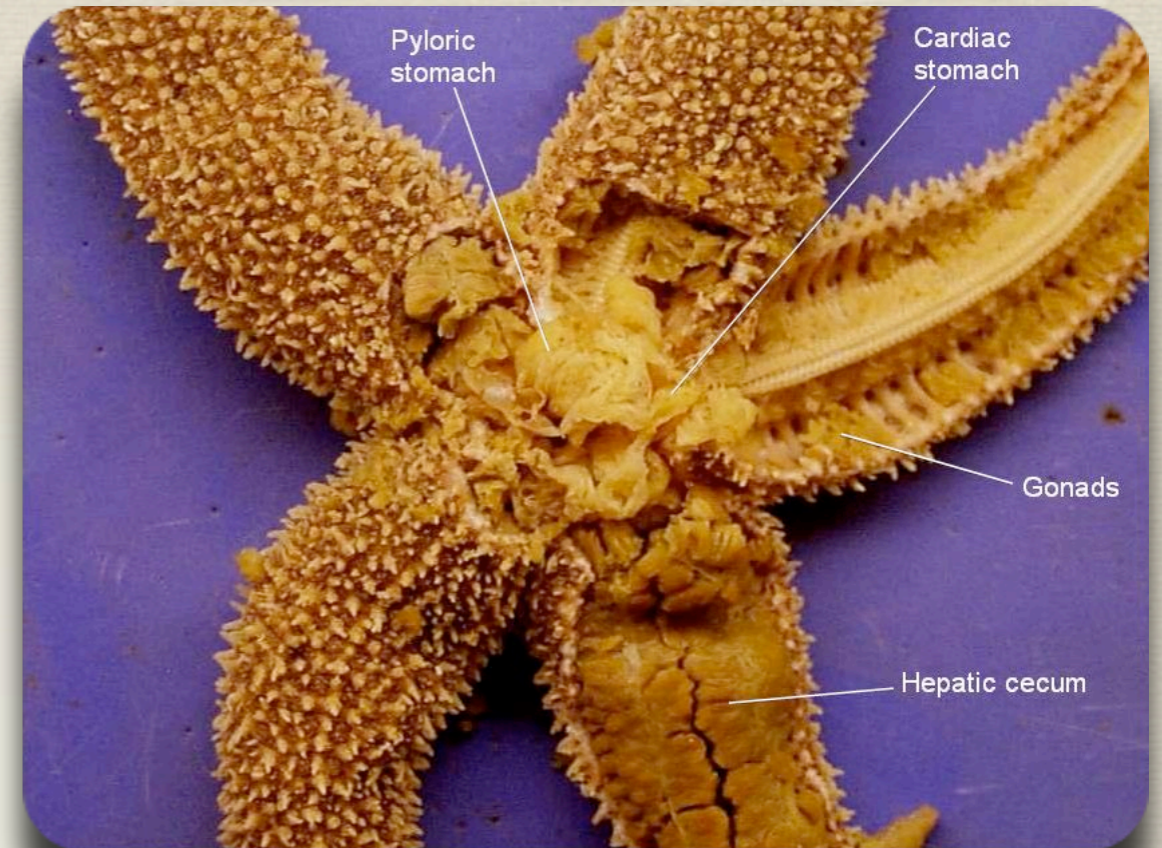
Crinoids

- * Sea lilies and feather stars
- * Filter feeders w/ feathery arms (tube feet capture plankton)
- * mouth and anus on upper surface, some sessile



Class Asterooids

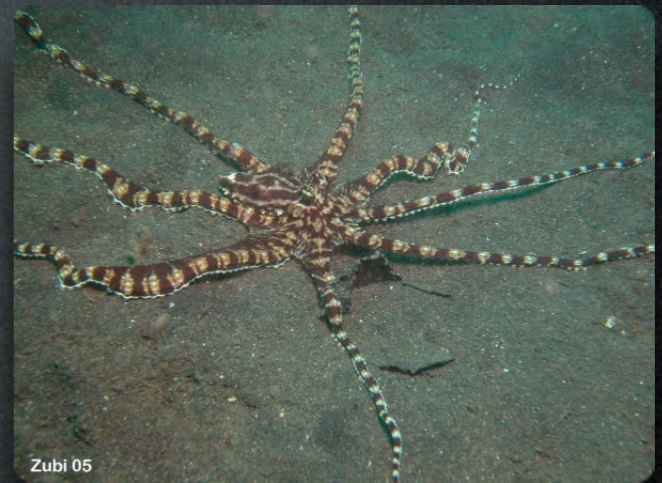
Asteroids



* Sea stars

* carnivores - use feet to open shells, eject stomach inside shells, digestive enzymes turn clam to soup

* benthic



Class Ophiuroids

Ophiurods

- * Brittle stars and basket stars
- * small body disk, long armored arms (can drop as defense and regenerate)
- * filter or detritus feeders



Class Echinoids

Echinoids

- * sea urchins, sand dollars
- * no arms
- * grazing herbivores or detritus feeders



Class Holothuroids

Holothuroids

- * Sea cucumbers
- * long body w/ feeding tentacles (tube feet)
- * lie on side, can crawl
- * reduced exoskeleton
- * detritus (vacuums of the sea) or filter feeder
- * expels internal organs through anus as defense (regenerated later)

- Eating?
- Who's a carnivore?
- Herbivore?
- Filter feeders?
- Detritus?