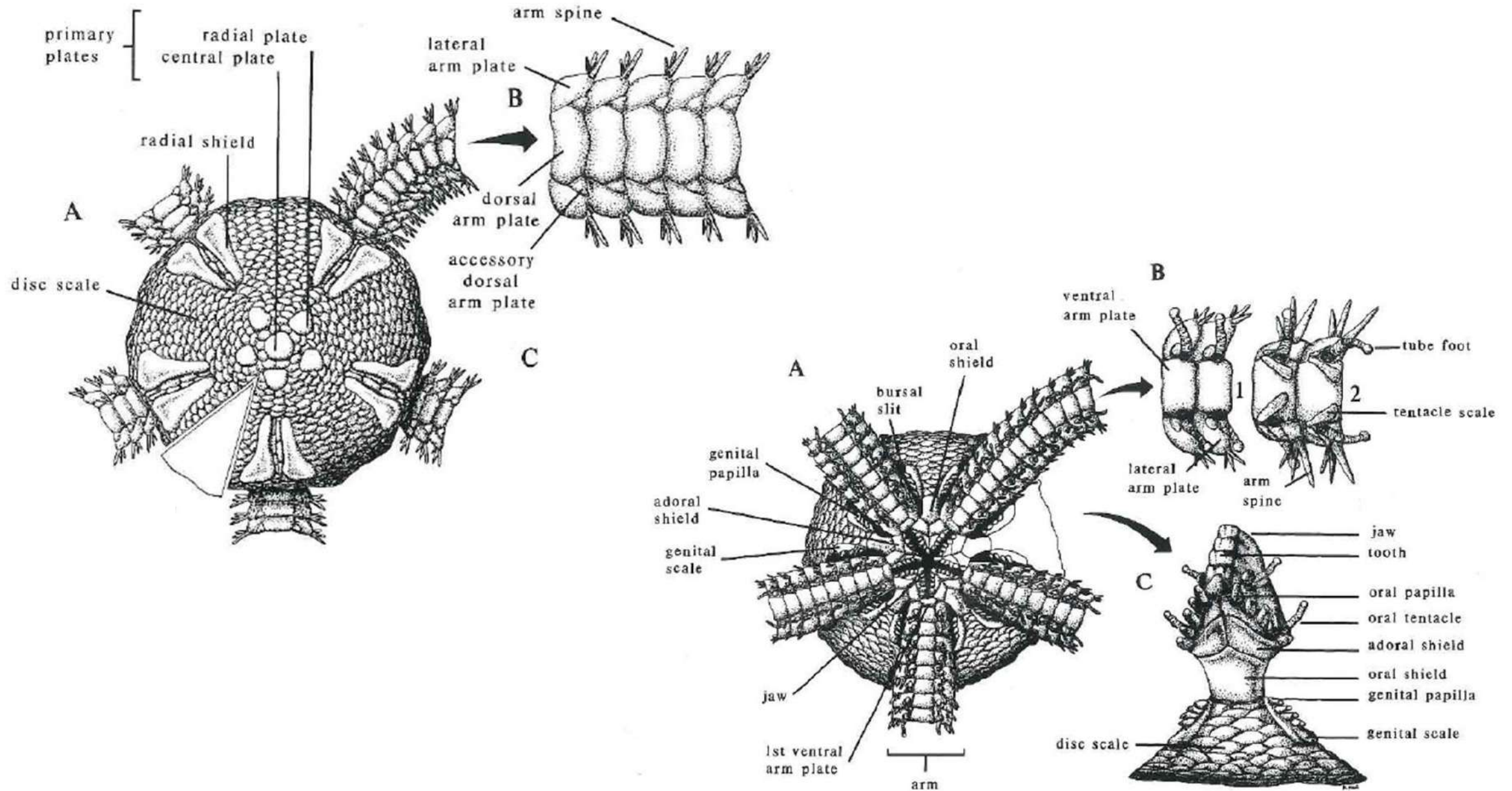


Brittle star / Ophiuroidea Taxonomy



Morphology



Ophiurida vs Euryalida



Ophiurida

- Disc covered in scales, may be concealed by skin / granules / armament.
- Arm spines many
- Arms inserted into disc laterally

Euryalida

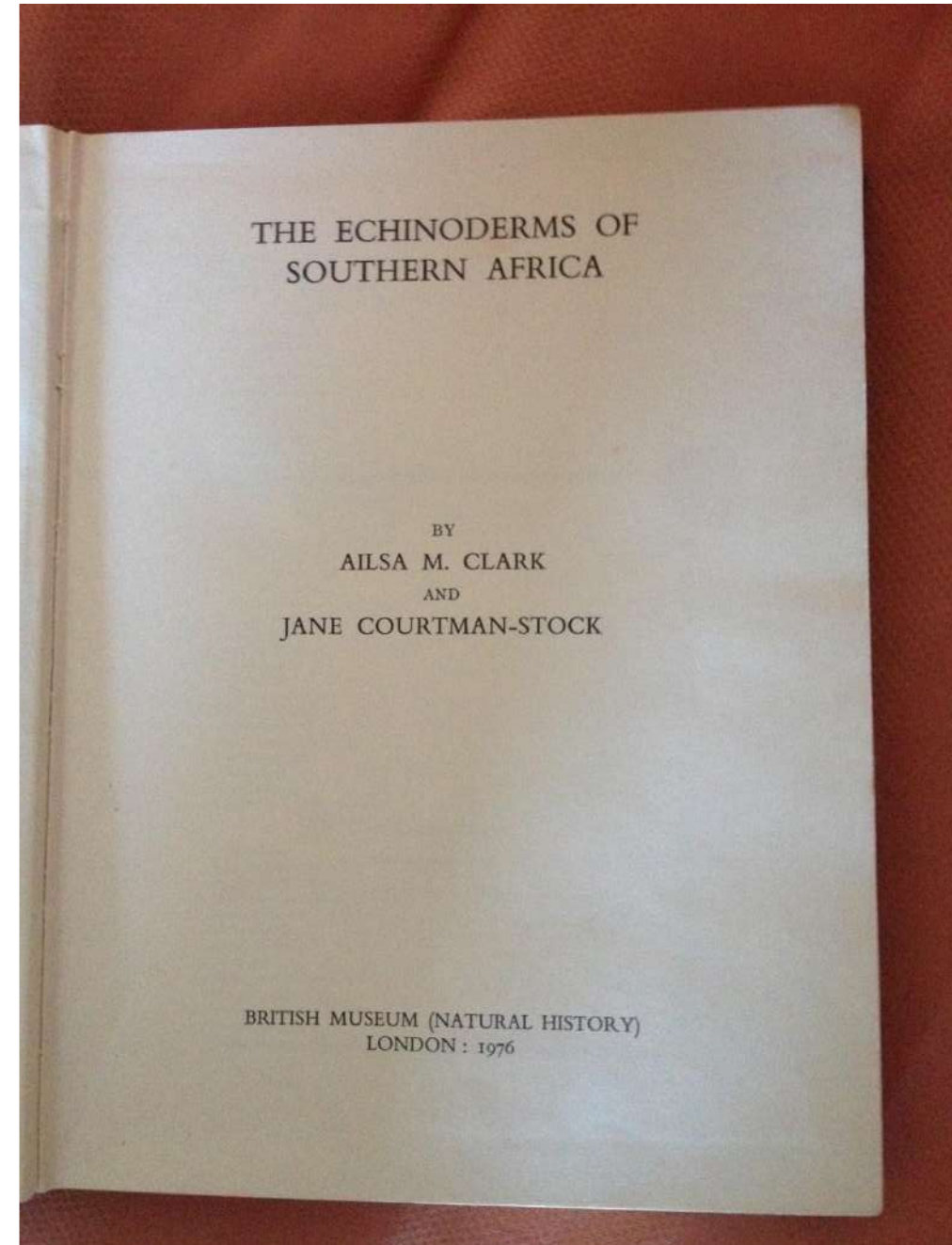
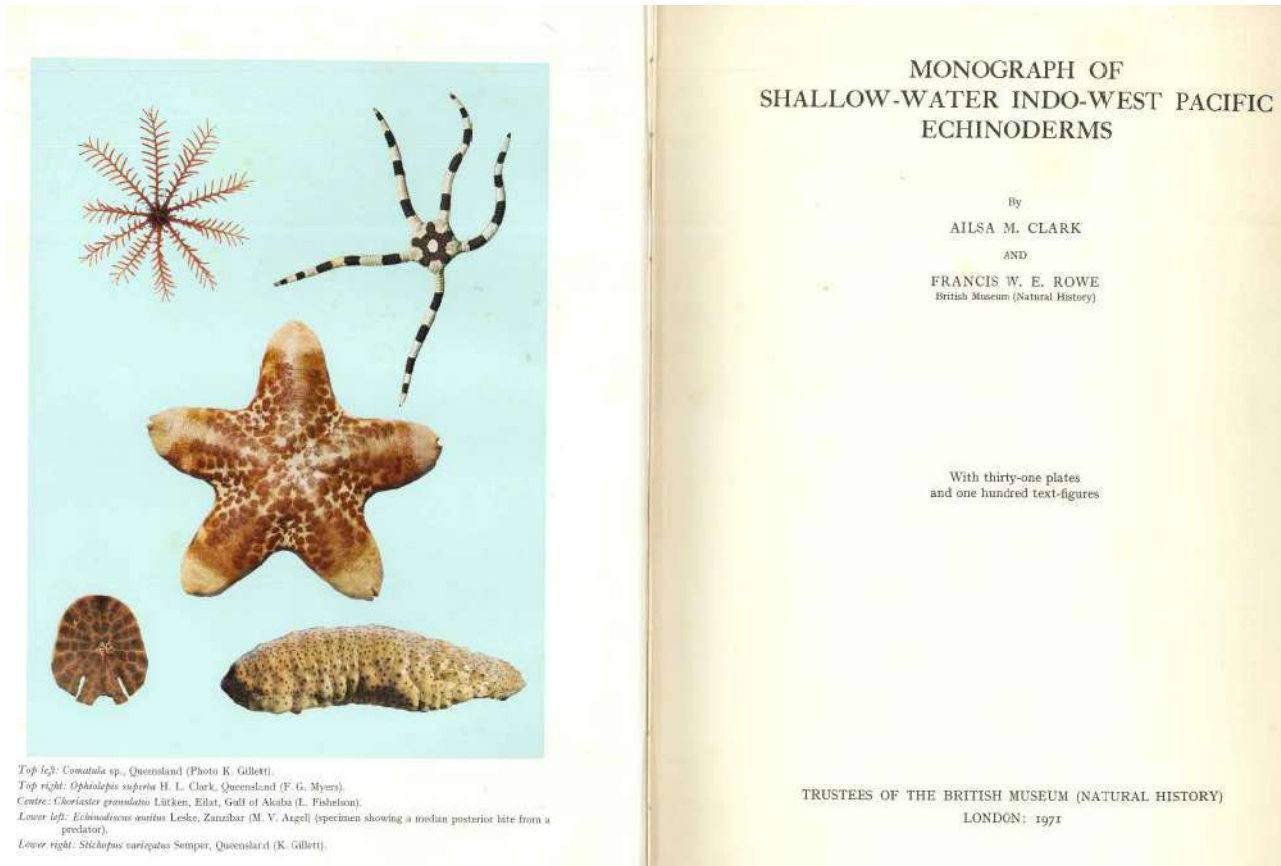
- Disc and arms covered in thick skin.
- Arm spines reduced or few
- Arms inserted into disc ventrally



Keys

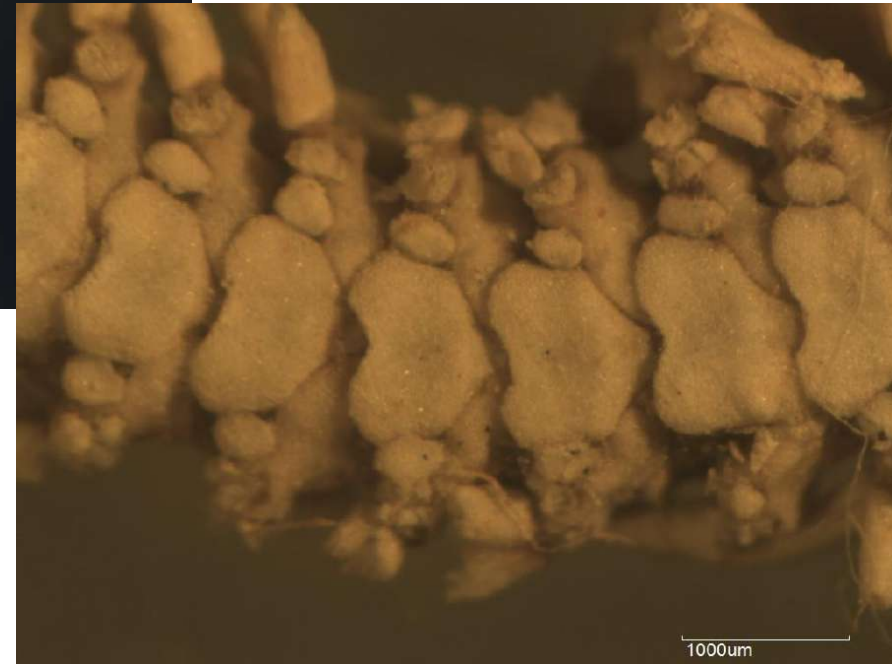
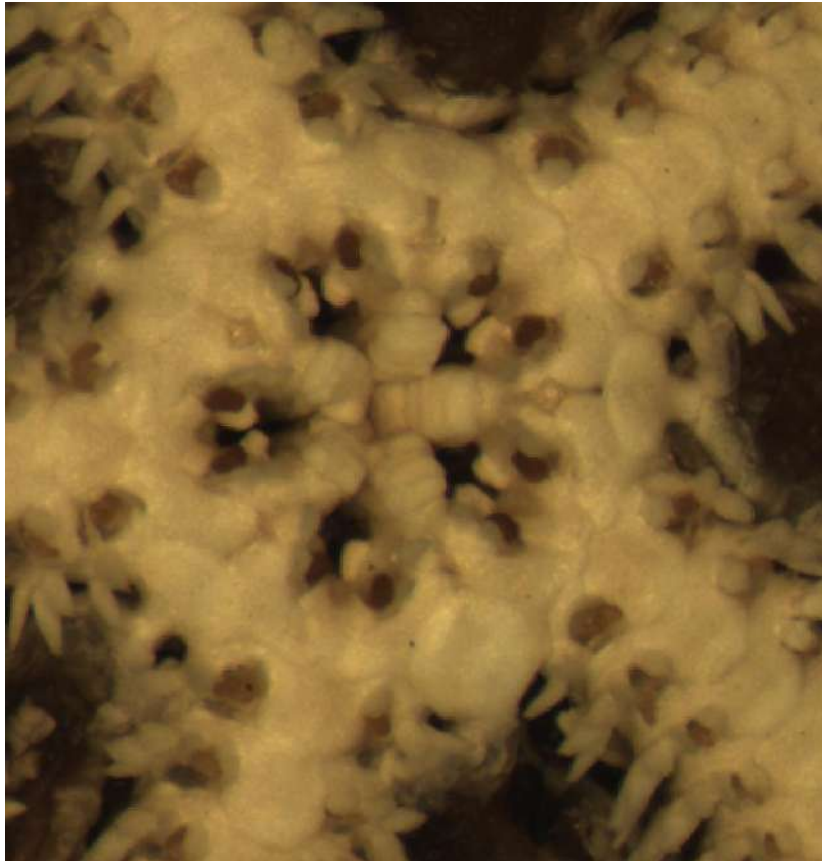
Two reliable South African keys

- Clark and Courtman-Stock (1976)
- Clark and Rowe (1971)



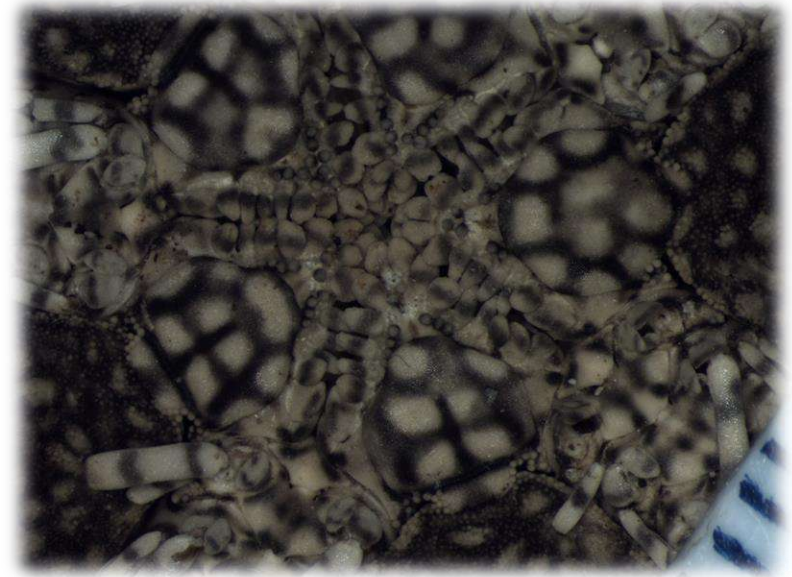
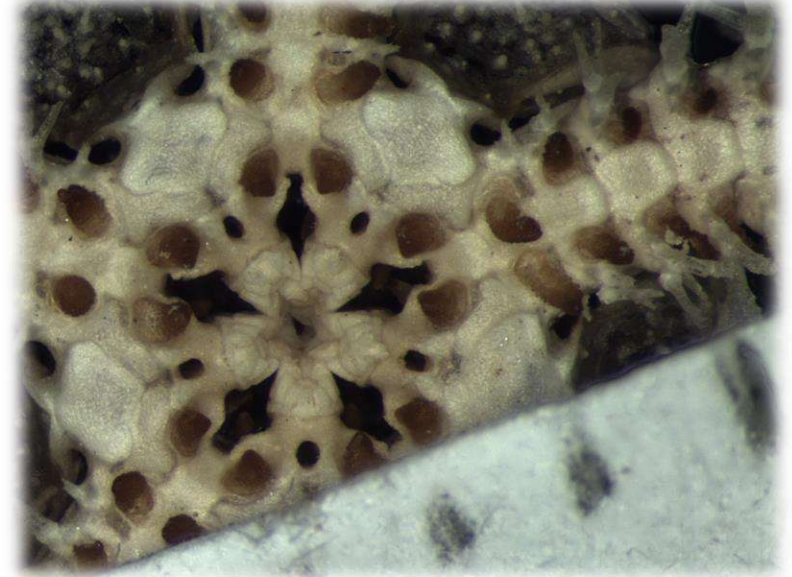
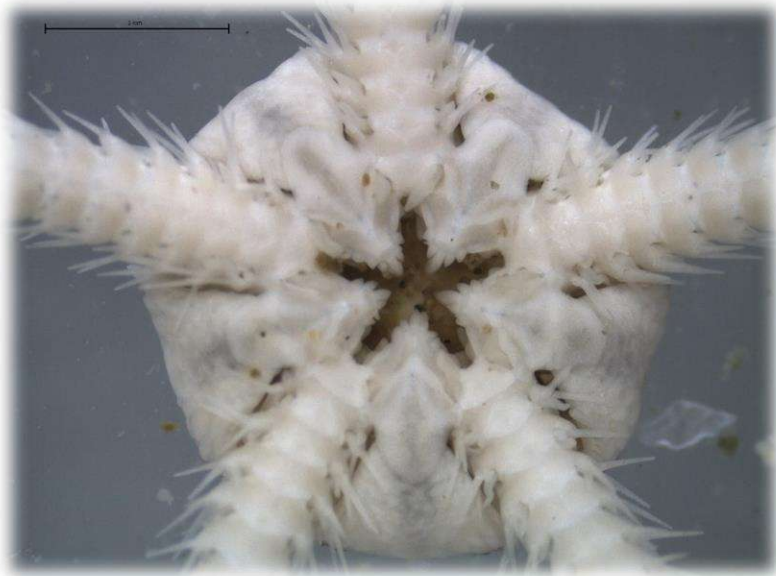
Most commonly used Characteristics

- Jaws
- Disc armament
- Arm armament

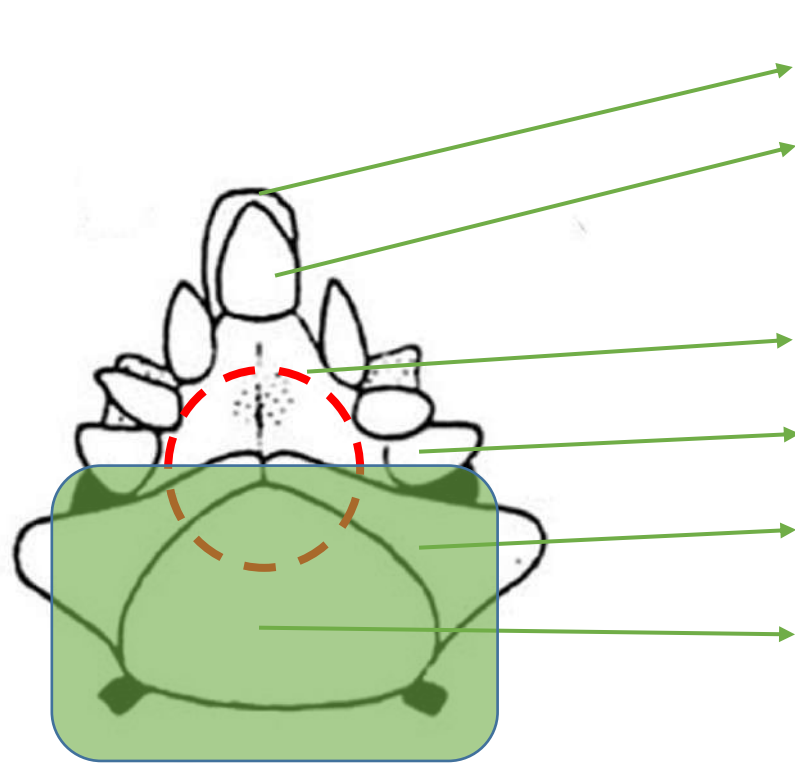


Jaws

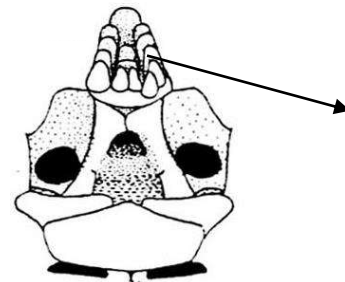
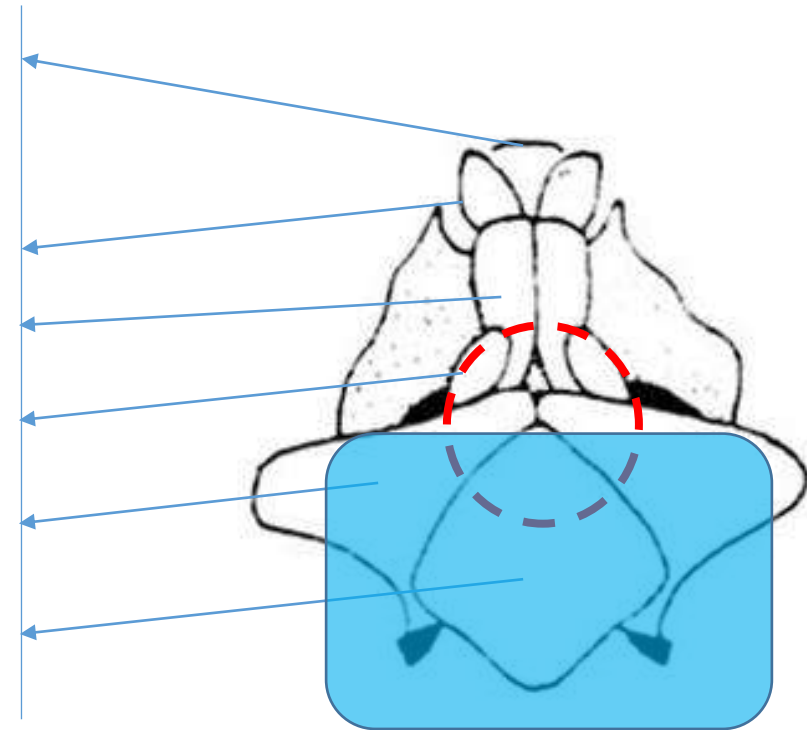
- Primary character for Ophiuroidea identification
- Arrangement of oral features
- Eight characters used



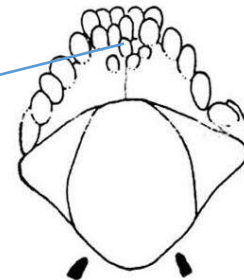
Jaw Terminology

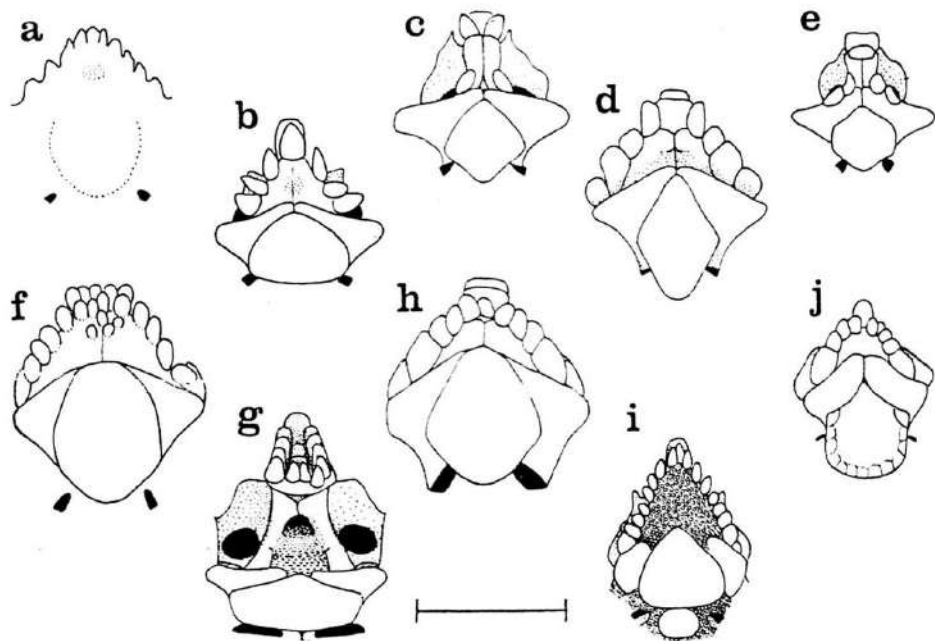


Tooth
Apical papillae
Infradental papillae
Jaw
Oral papillae
Adoral shield
Oral shield



Dental papillae





Single jaws of: a. *Ophiomyxa australis*, b. *Ophiacantha discoidea*, c. *Amphiura septemspinosa*, d. *Amphioplus (Lymanella) hastatus*, e. *Ophiactis savignyi*, f. *Ophiocoma pica*, g. *Ophiothrix savignyi*, h. *Ophionereis lineata*, holotype, i. *Ophiarachnella infernalis* and j. *Ophiolepis cincta*. In a, f, i and j the scale equals 2 mm., in b, e and g it equals 1 mm. and in c and d 0.7 mm.

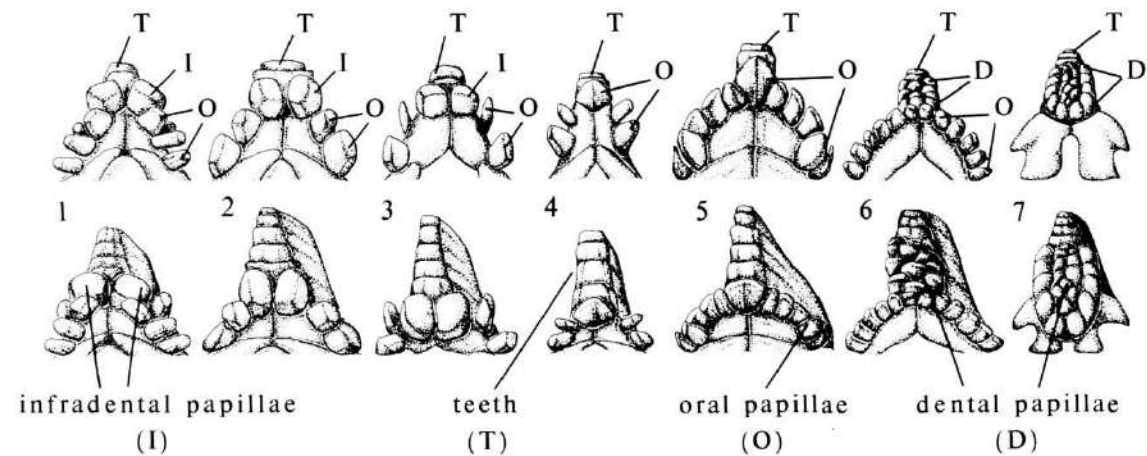
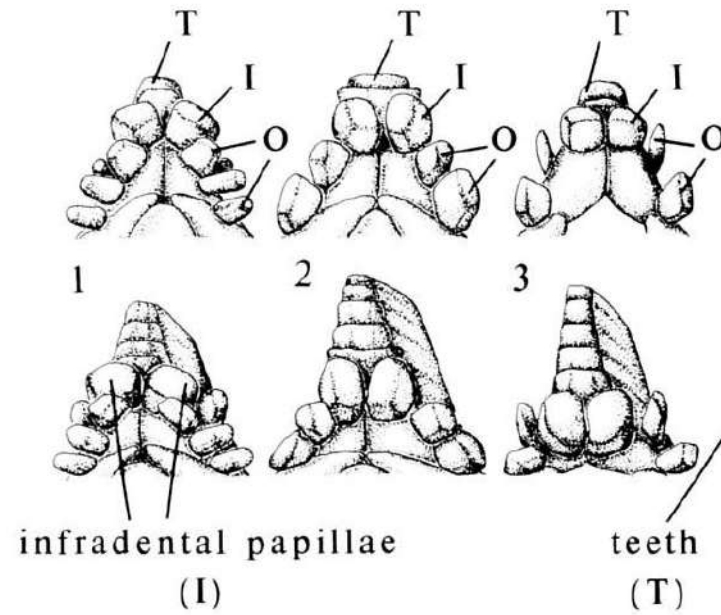
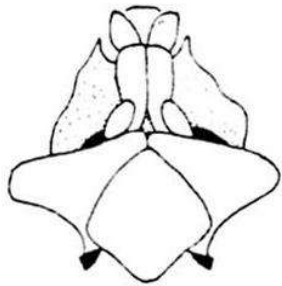
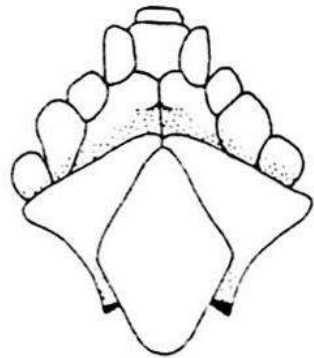
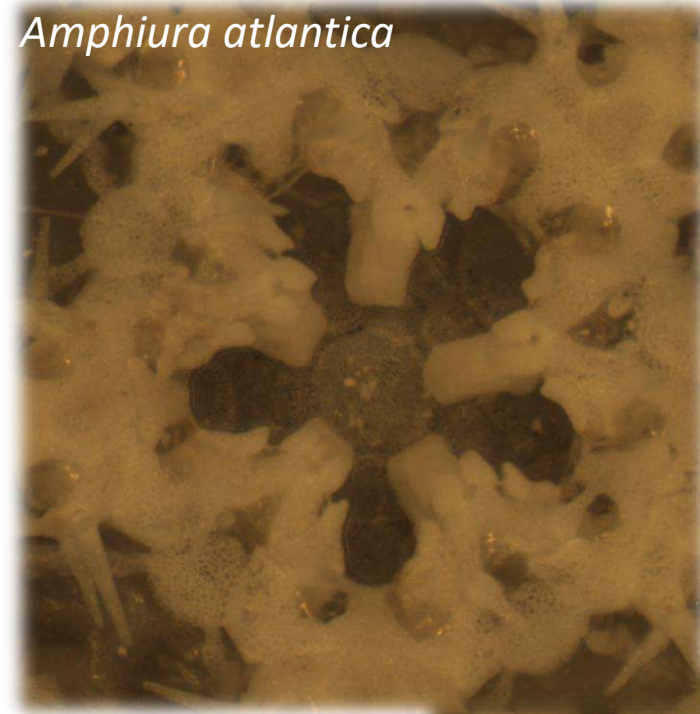


FIGURE 32. Brittle star jaw structures showing configurations of the dental papillae (D), infradental papillae (I), oral papillae (O), and teeth (T) that are characteristic of different families and genera. Upper row: ventral view of the jaw; lower row: the proximal edge of the jaw, showing the tooth row that projects into the mouth. (1) *Amphioplus thrombodes*, (2) *Ophiophragmus pulcher*, and (3) *Amphiura kinbergi* with paired infradental papillae at the apex of the jaw; (4) *Ophiactis savignyi* with two oral papillae on each side of the jaw, and (5) *Ophiolepis elegans* with several pairs of oral papillae; (6) *Ophiocoma echinata* with a cluster of dental papillae and a series of oral papillae, (7) *Ophiothrix suensonii* with a large cluster of dental papillae, oral papillae lacking. Illustration by R. Mooi.

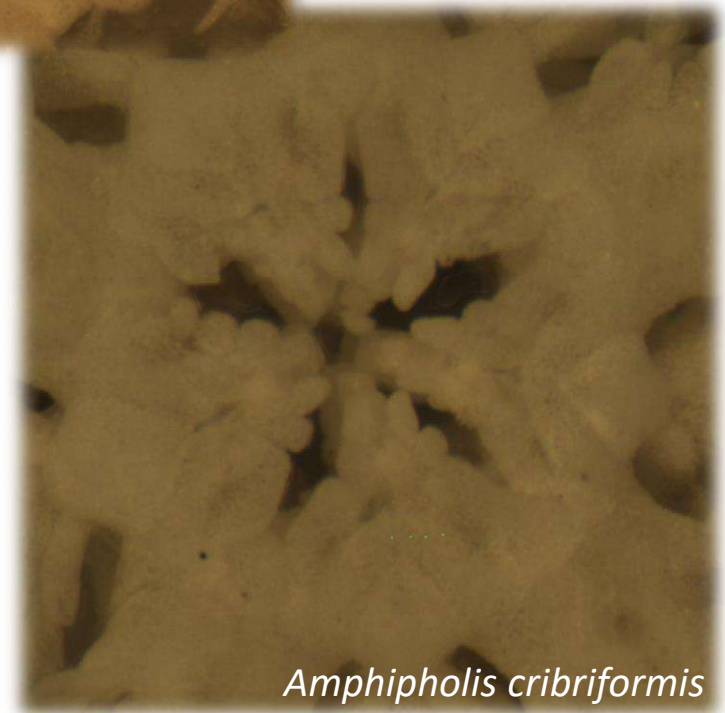
Amphiuridae



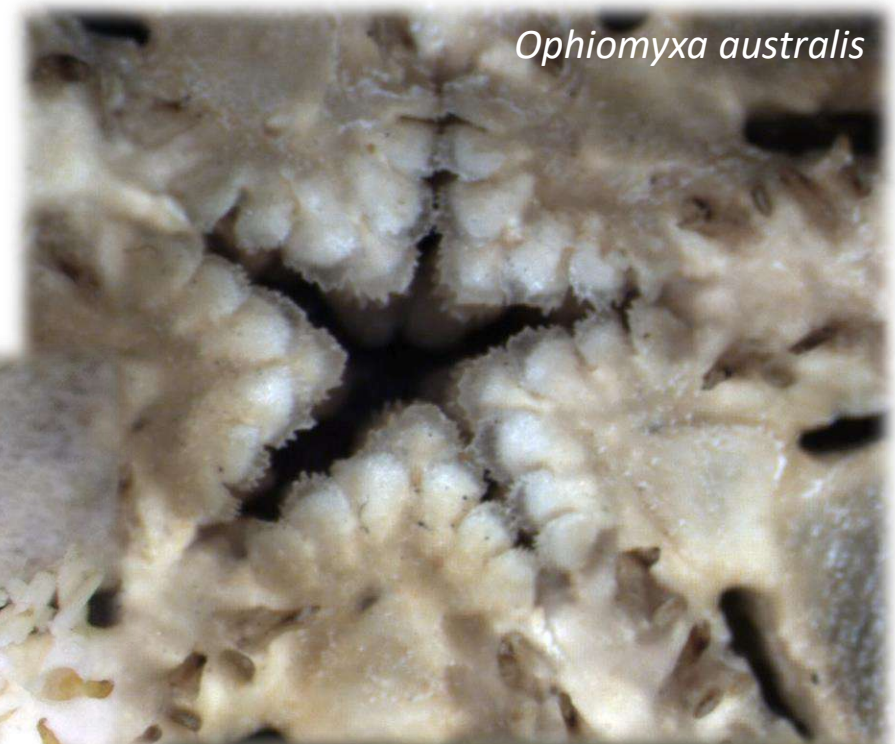
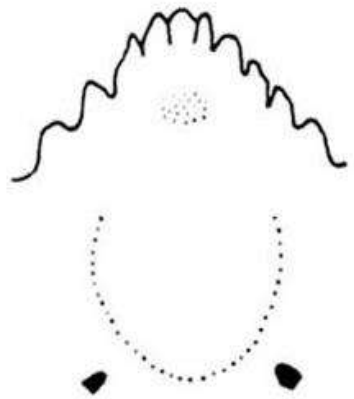
Amphiura atlantica



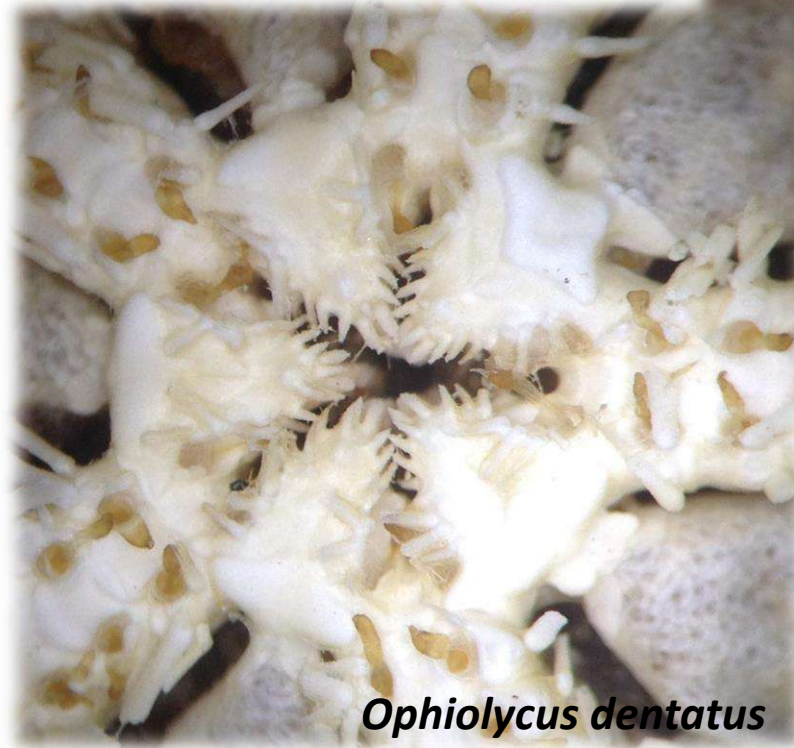
Amphipholis cribriformis



Ophiomyxidae



Ophiomyxa australis

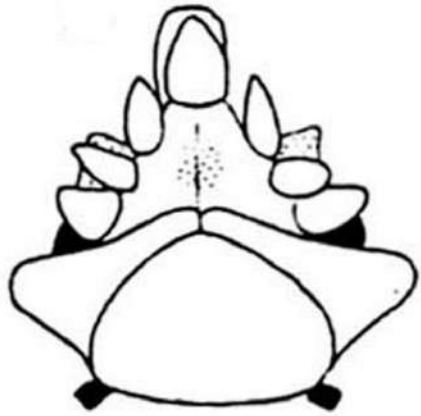


Ophiolycus dentatus



Ophiomyxa tenuispina

Ophiacanthidae



Ophiacantha striolata

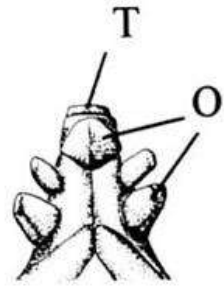
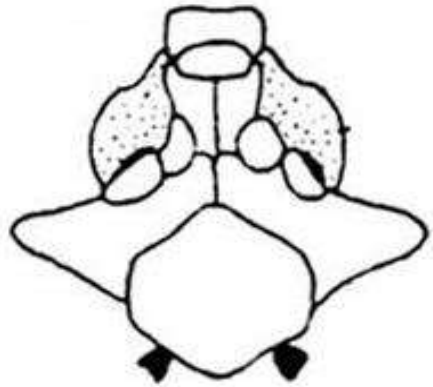


Ophiacantha nerthepsila

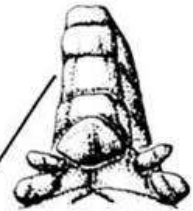


Ophiacantha vivipara

Ophiactidae



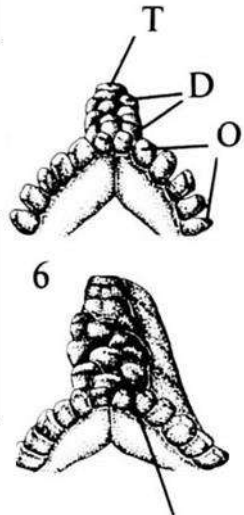
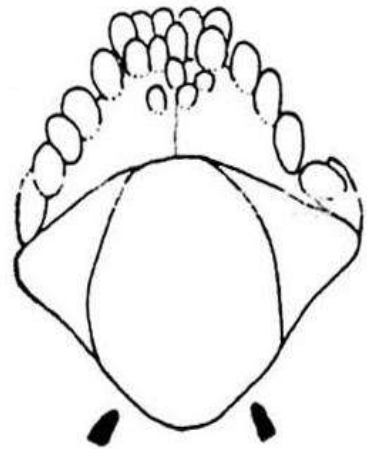
4



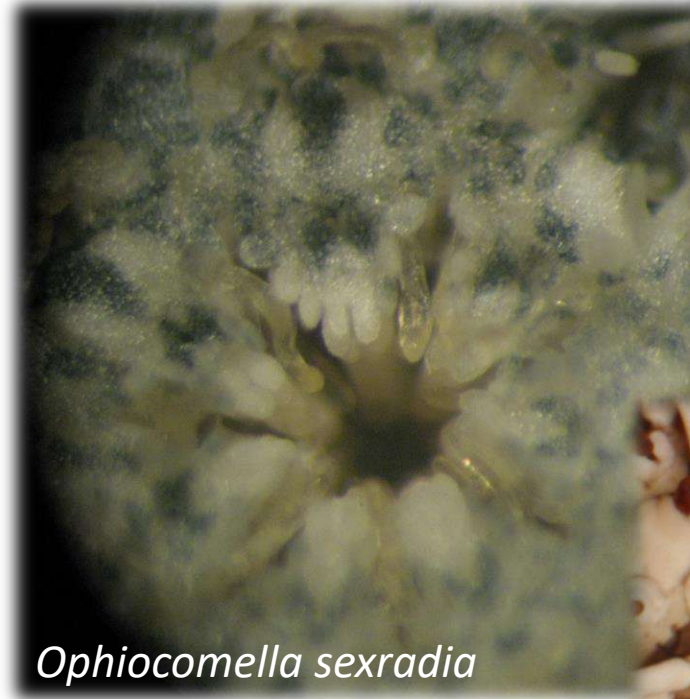
teeth
(T)



Ophiocomidae



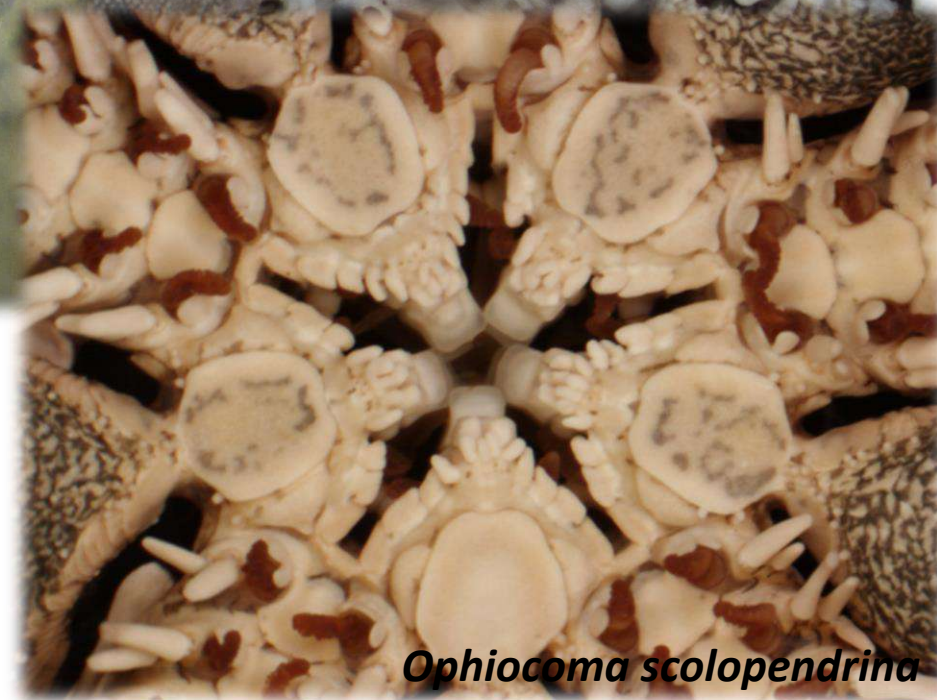
dental papillae
(D)



Ophiocomella sexradia

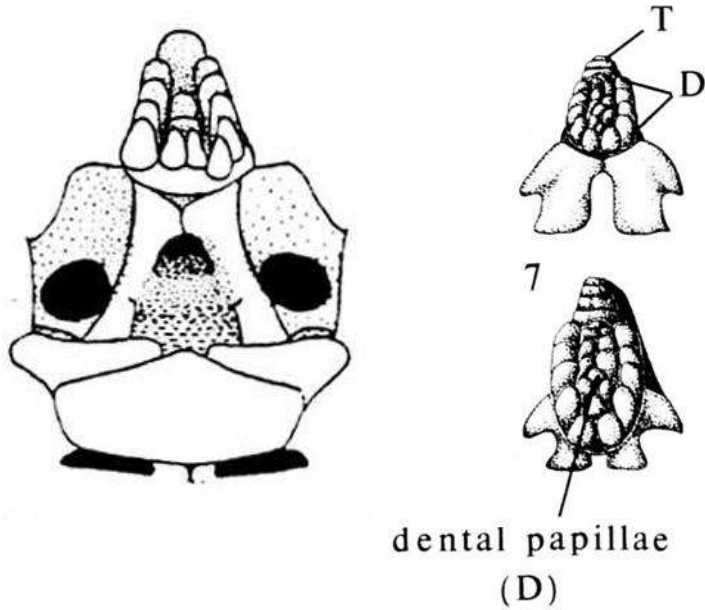


Ophiocoma dentata



Ophiocoma scolopendrina

Ophiothrichidae



dental papillae
(D)



Macrophiothrix demessa



Macrophiothrix hirsuta cheneyi

Macrophiothrix propinqua

Ophionereidae



Ophionereis porrecta

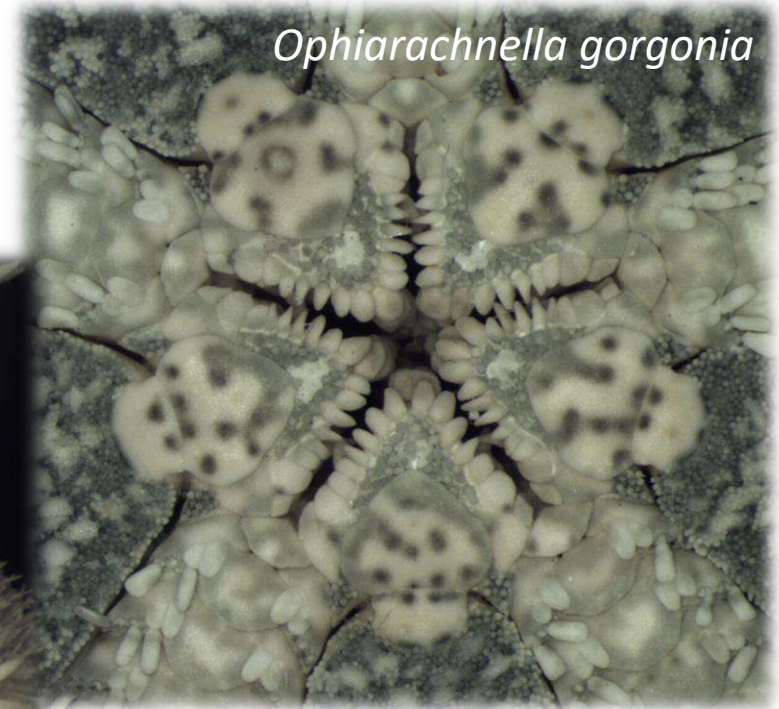
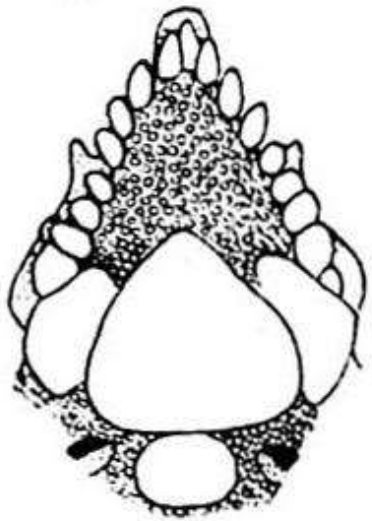


Ophionereis australis

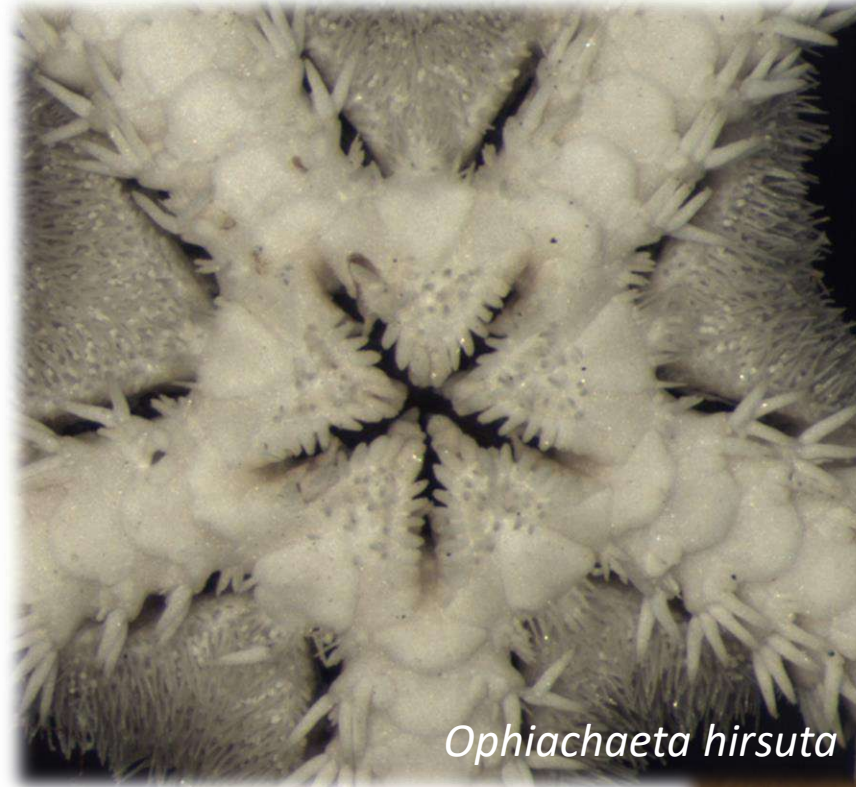


Ophionereis dubia

Ophiodermatidae



Ophiarachnella gorgonia

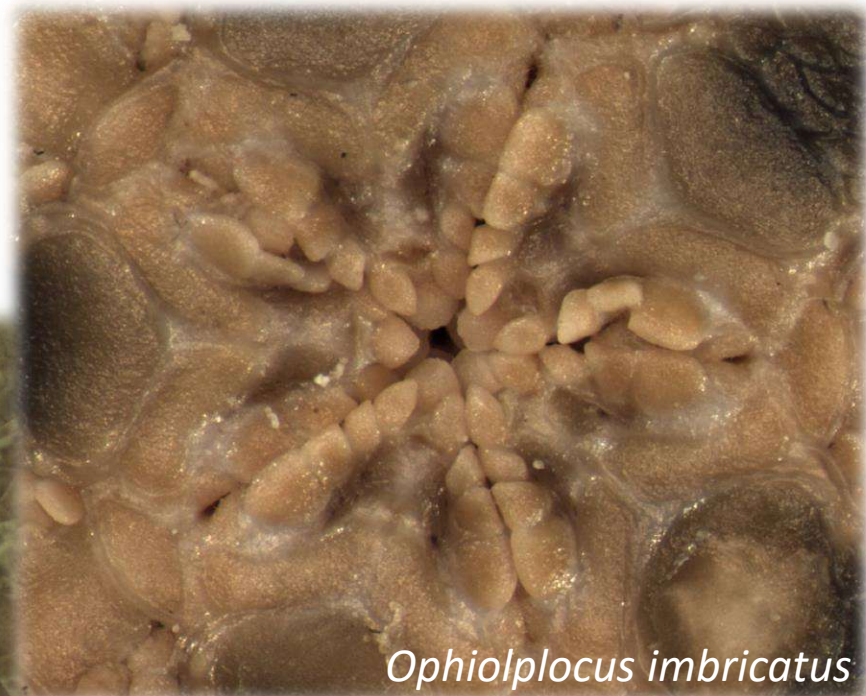
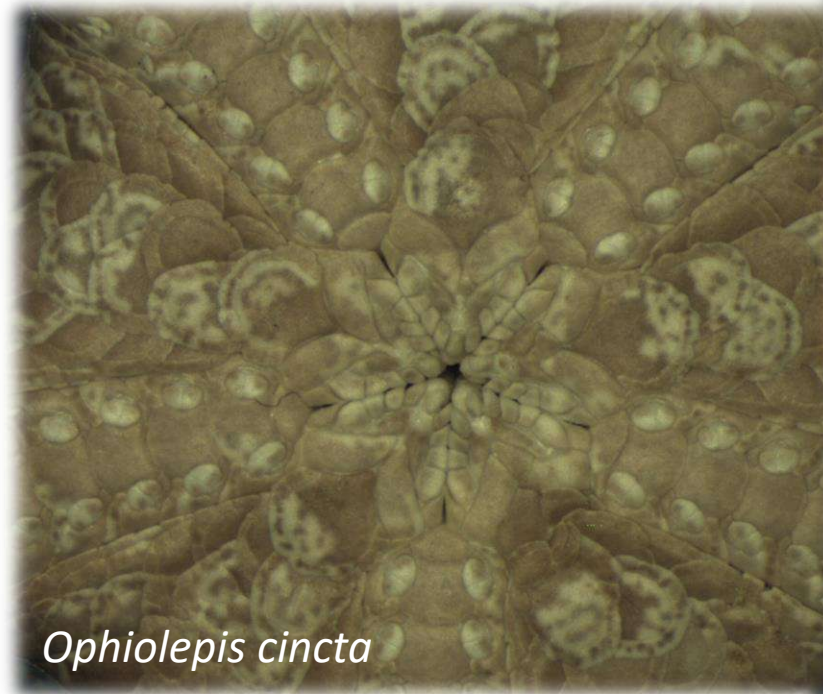
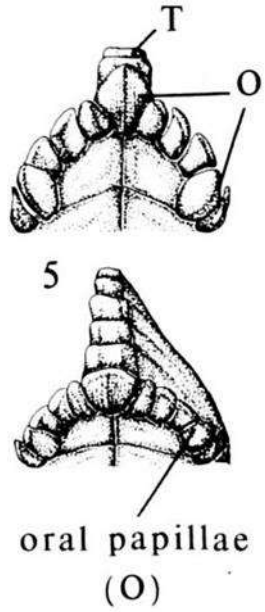


Ophiachaeta hirsuta



Cryptopelta aster

Ophiolepididae



Disc Armament

- Massive variety
- Can be uniform or mixed
- Dorsal & ventral similar or different
- Naked (dorsal & ventral or either)
- Armament can include:
 - scales, tubercles, spines, stumps, granules, multifid stumps, trifid stumps, combinations.
- Arrangement can be:
 - fine, coarse, dense, scattered, sparse, rugose, overlapping, combinations.



Dorsal side

A

dorsal arm plate

E

trifid stumps

B

radial shield

D

arm comb

C

Ventral side

ventral arm plate

tentacle scale

A

tentacle pore

arm spine

oral shield

genital papilla

adoral shield

E

tooth

oral tentacle pore

B

oral papilla

lateral arm plate

infradental
oral papillae

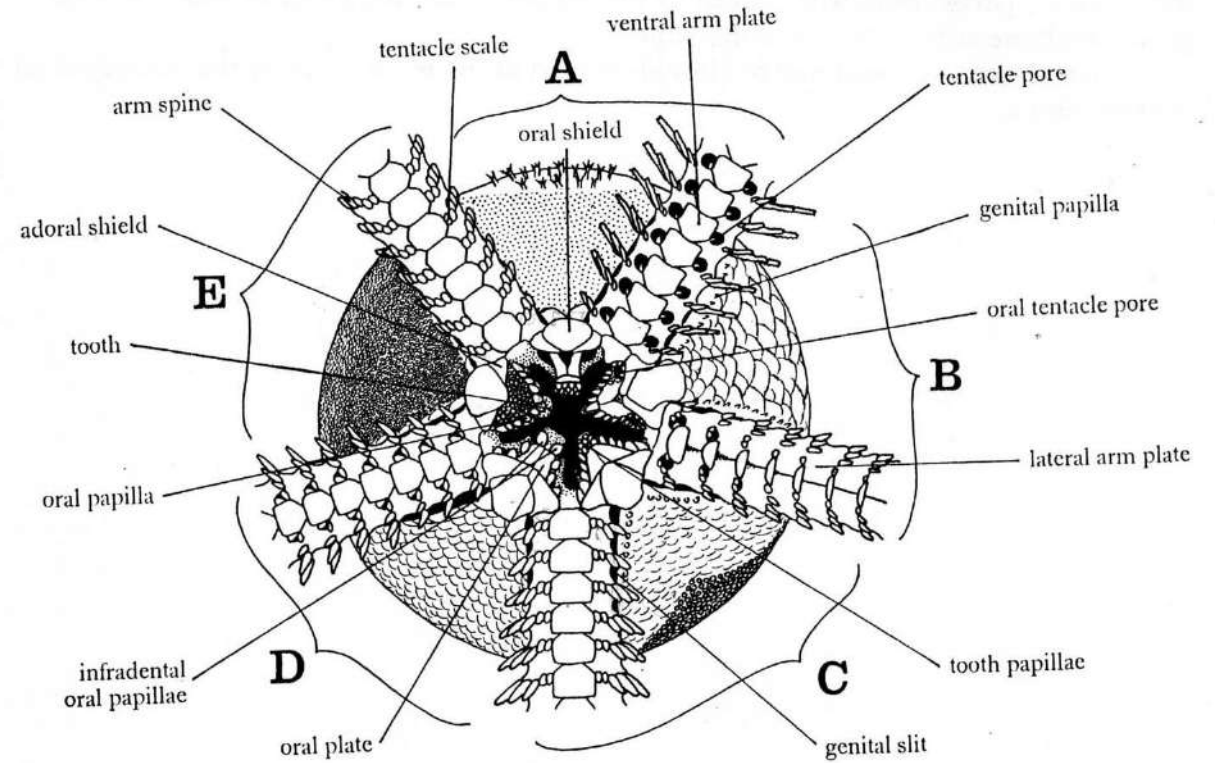
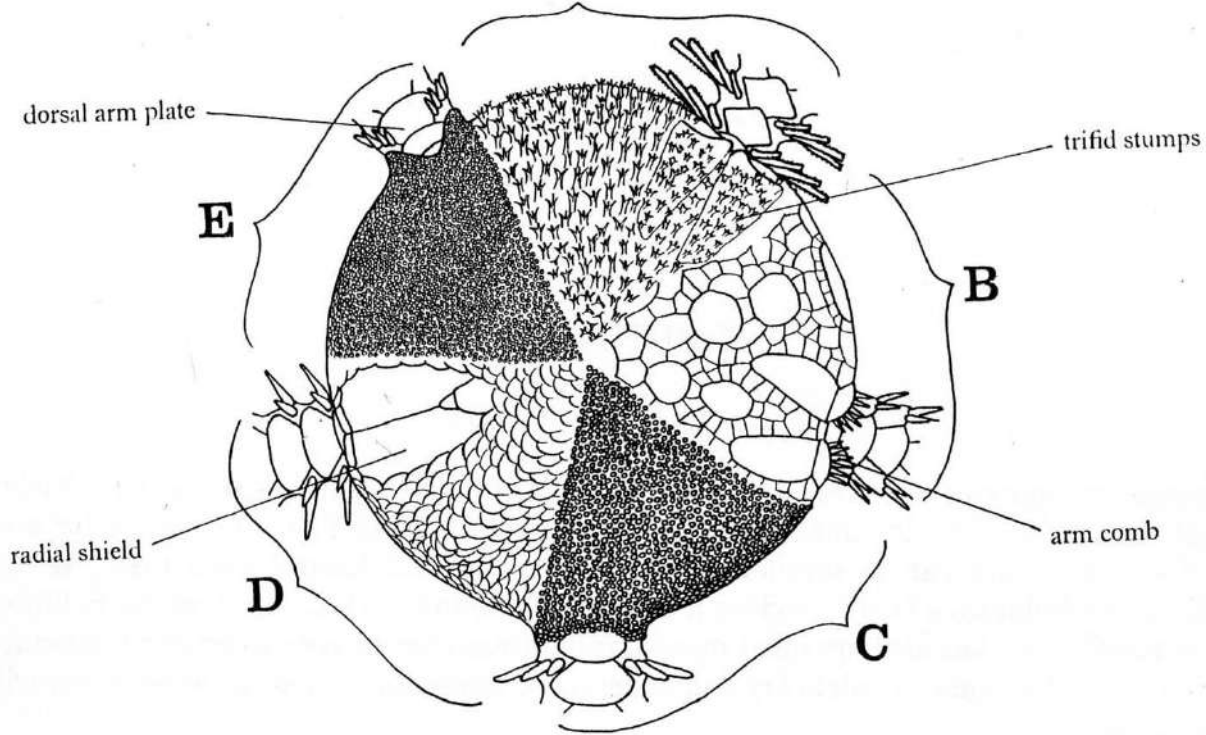
D

oral plate

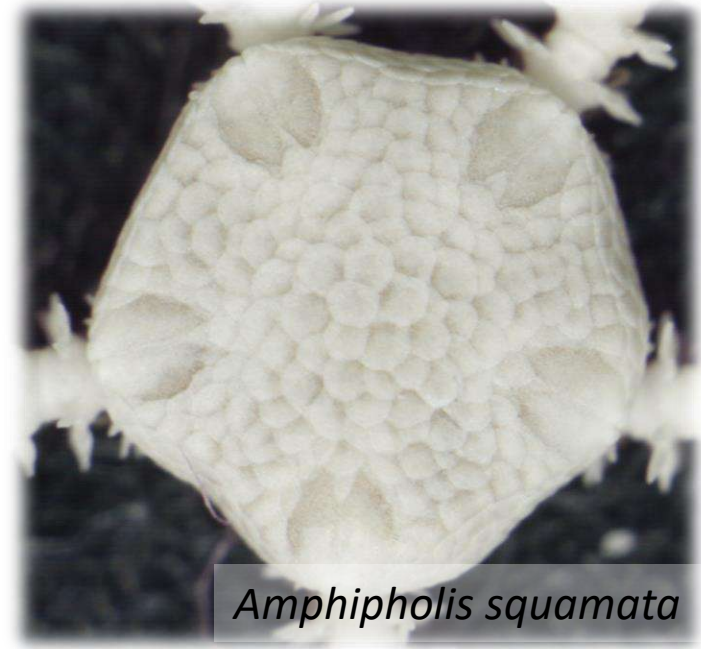
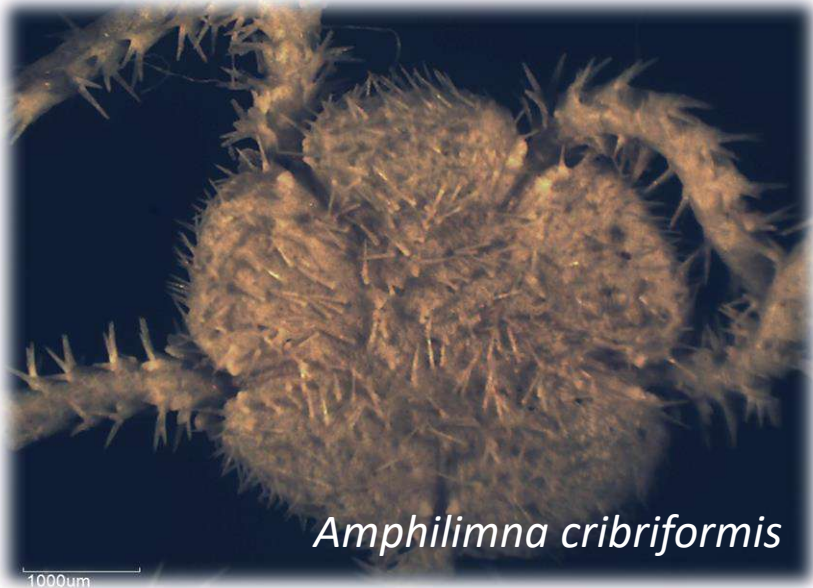
tooth papillae

C

genital slit



Amphiuridae



Ophiomyxidae

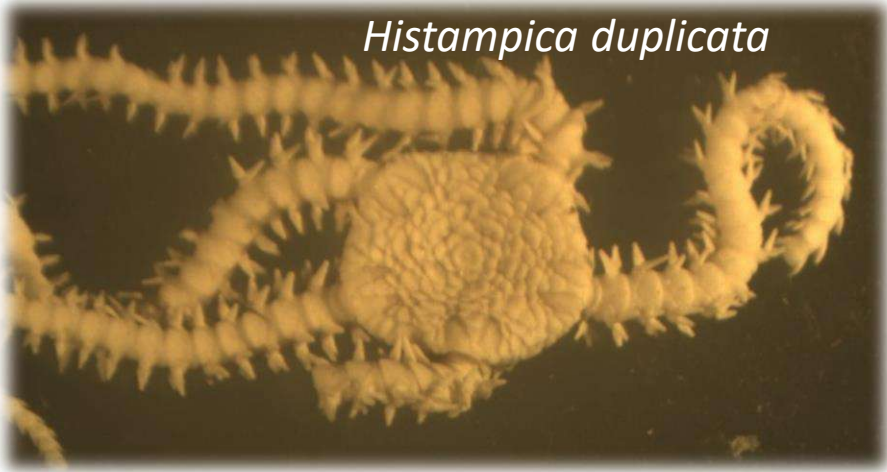


Ophiacanthidae



Ophiactidae

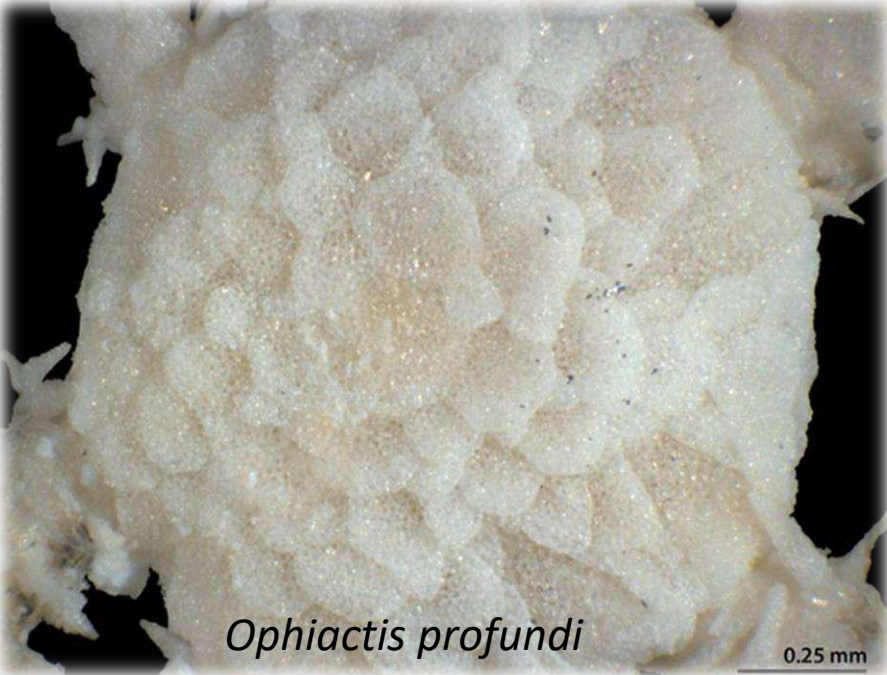
Histampica duplicata



Ophiactis carnea



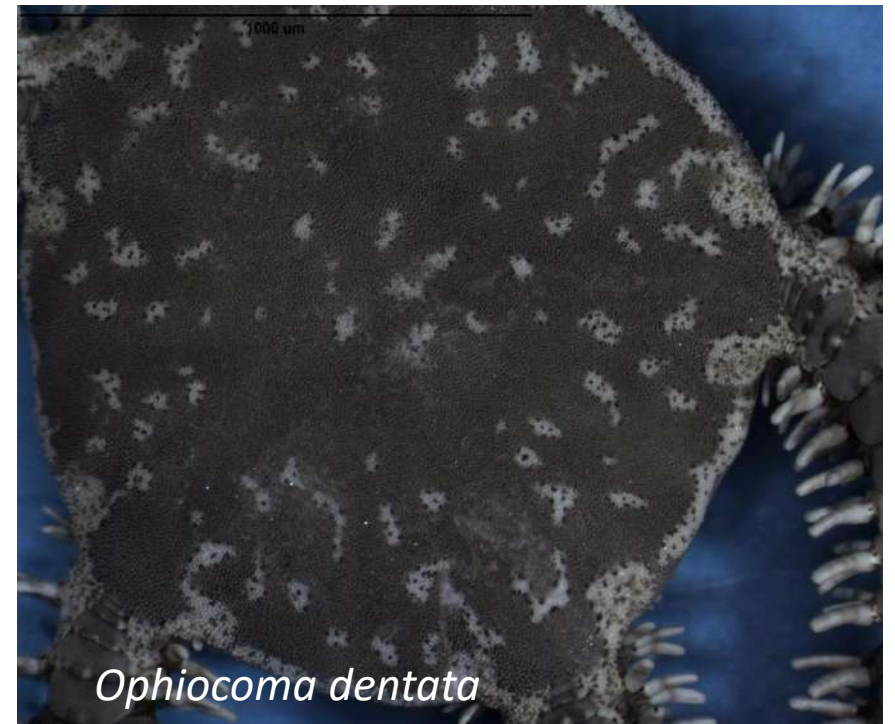
Ophiactis profundi



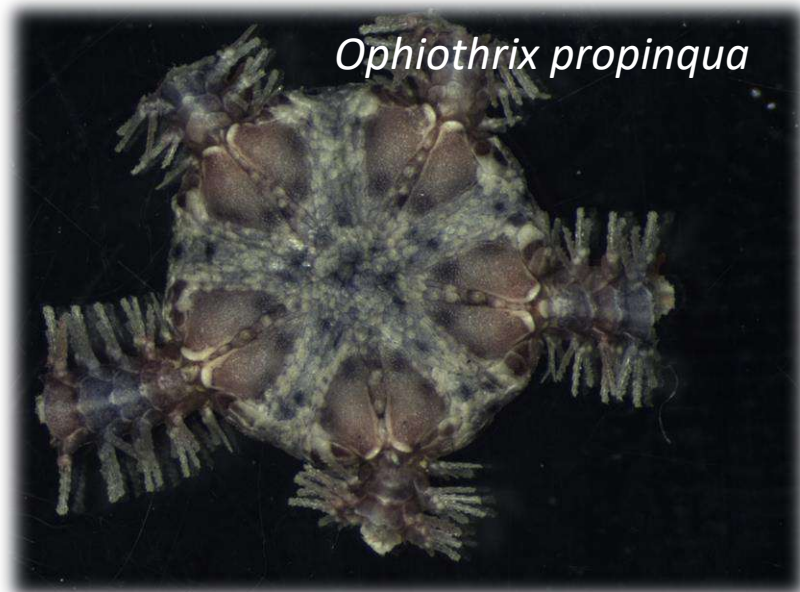
Ophiactis abyssicola



Ophiocomidae



Ophiothrichidae



Ophiothrix propinqua



Macrophiothrix demessa

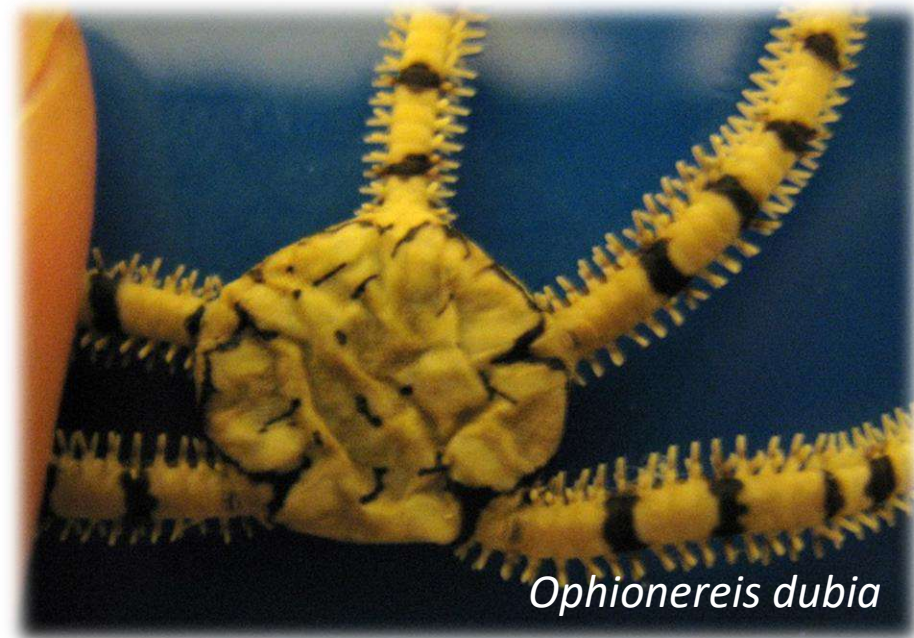
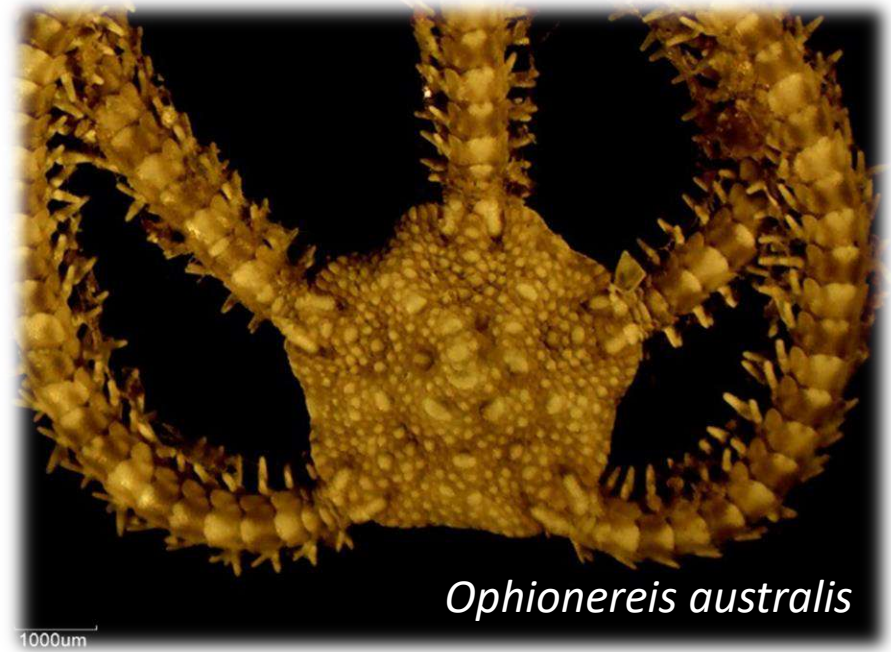


Ophiothrix fragilis

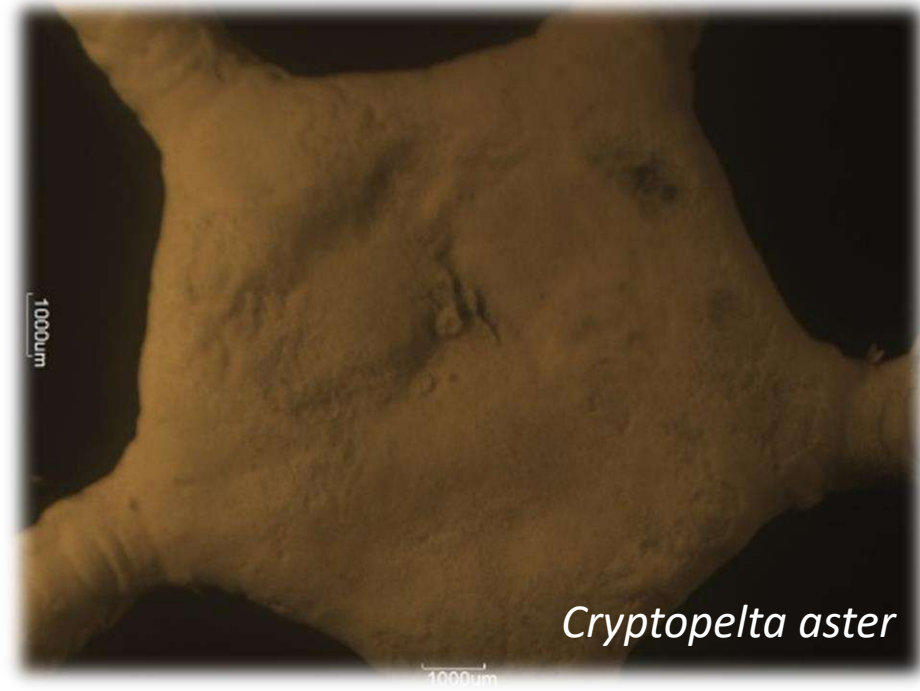


Macrophiothrix hirsuta cheneyi

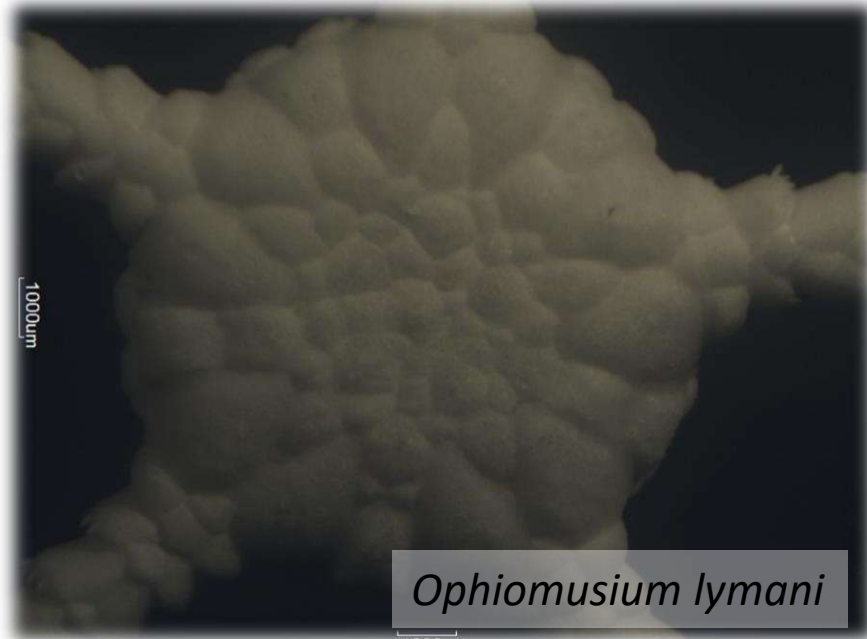
Ophionereidae



Ophiodermatidae



Ophiolepididae



Ophiomusium lymani



Ophiolepis cincta



Aspidophiura corone



Ophioplocus imbricata

Arm Armament

- Arm plates can change shape along arm
- Arms plates may be visible dorsally, ventrally laterally or all three
- Arm plates can be longer than wide or wider than long
- Edge of each plate may be important, i.e. straight, concave or convex.
- Consecutive plates may / may not touch (contiguous)
- Supplementary / secondary plates may exist
- Lateral plates host arm spines
- Lateral plates may be large and separate dorsal or ventral arm plates
- Common arm plate shapes include:
 - Fan, triangular, rectangular, square, rhomboidal or hexagonal.

Amphiuridae



Dorsal

Amphipholis squamata

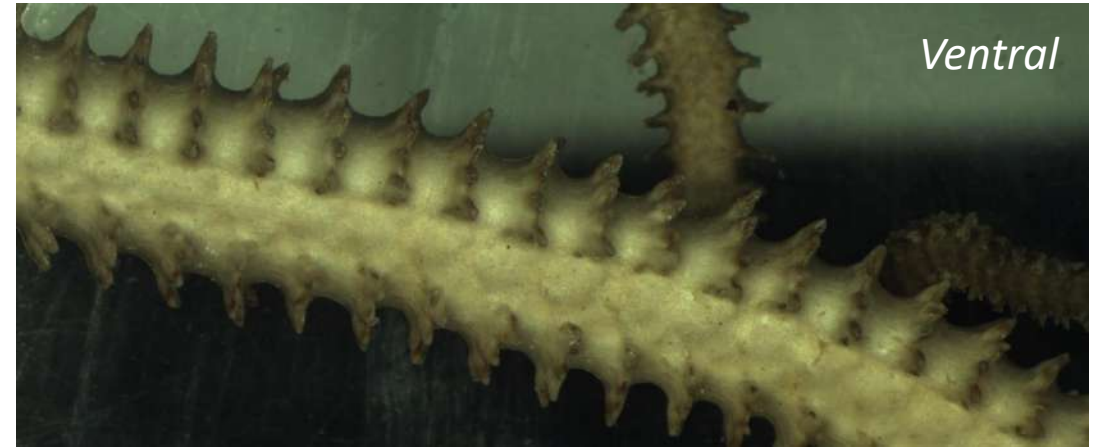
Amphioplus hastatus



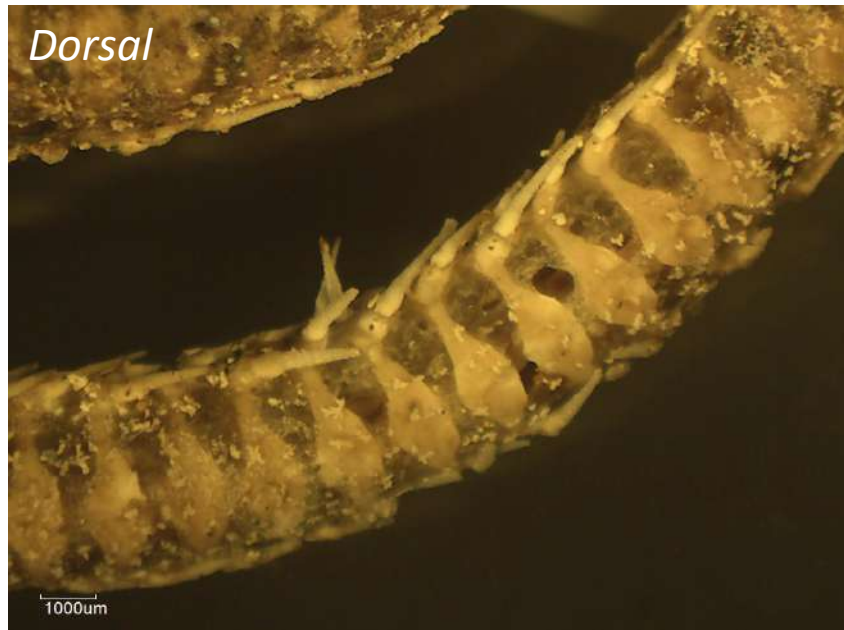
Ventral

Ophiomyxidae

Ophiomyxa australis

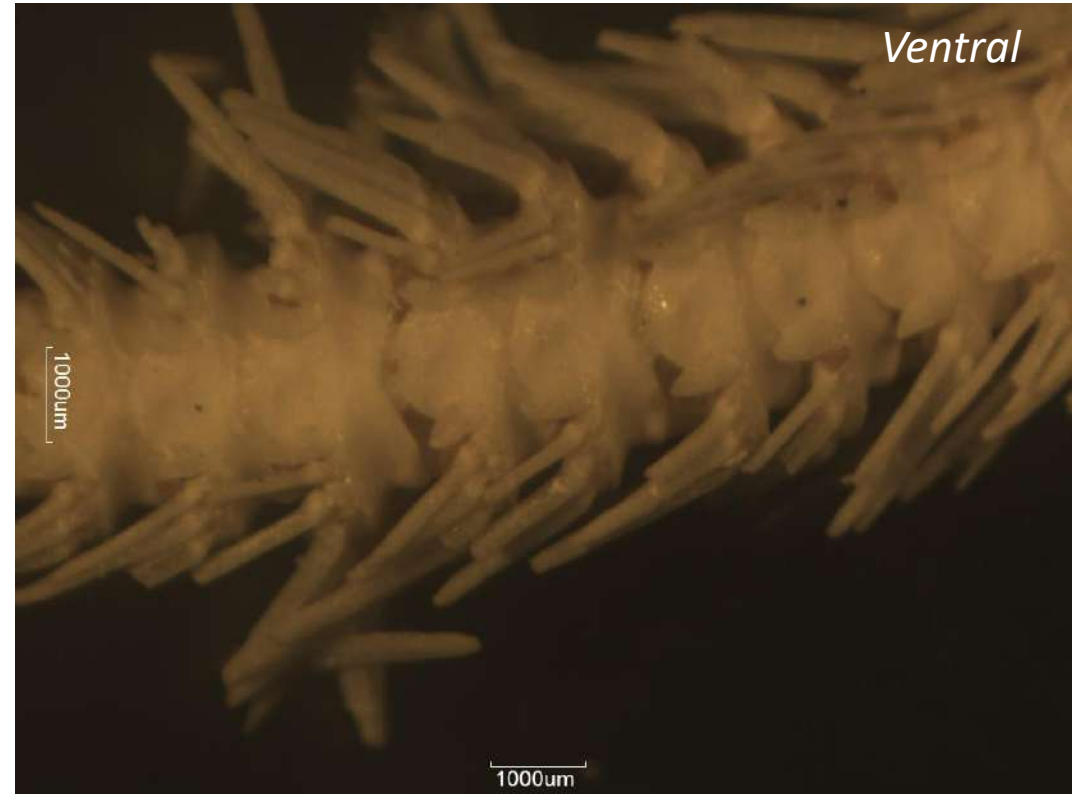


Ophiomyxa bengalensis



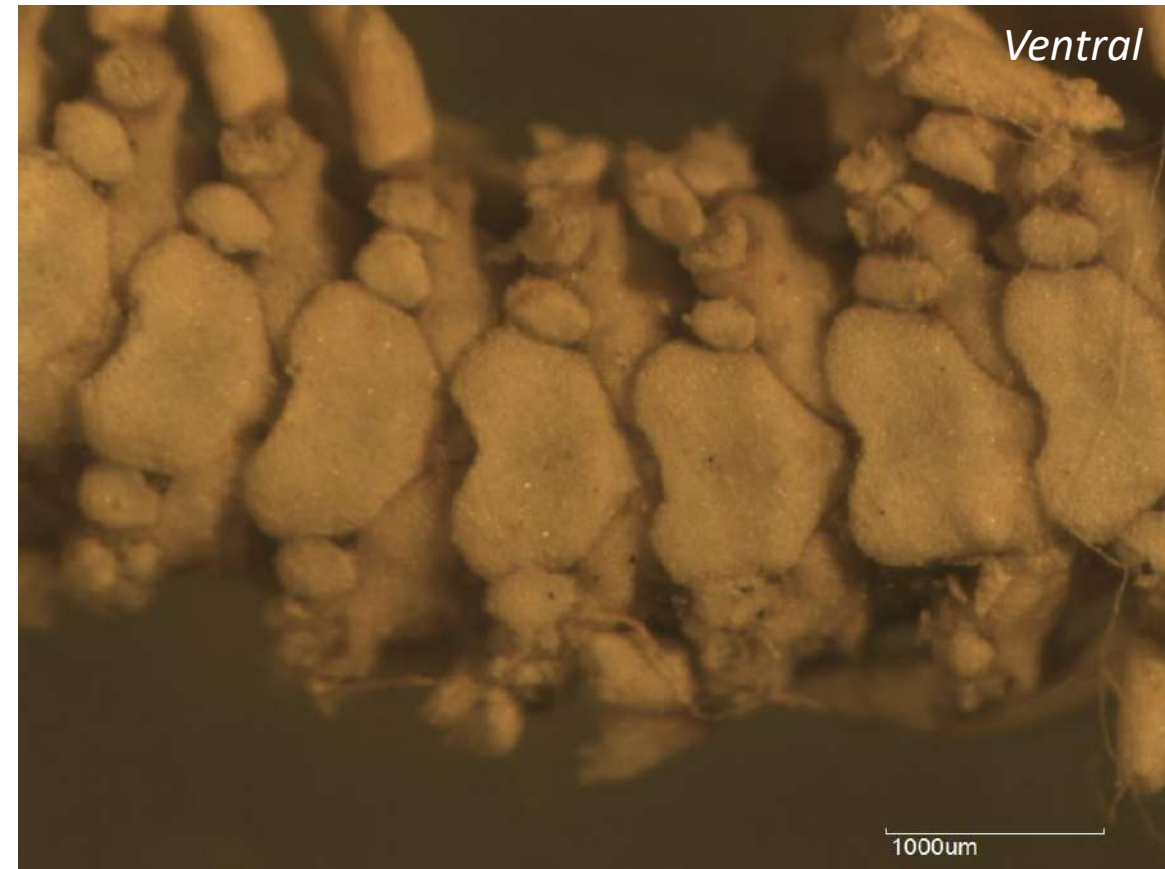
Ophiacanthidae

Ophiacantha baccata



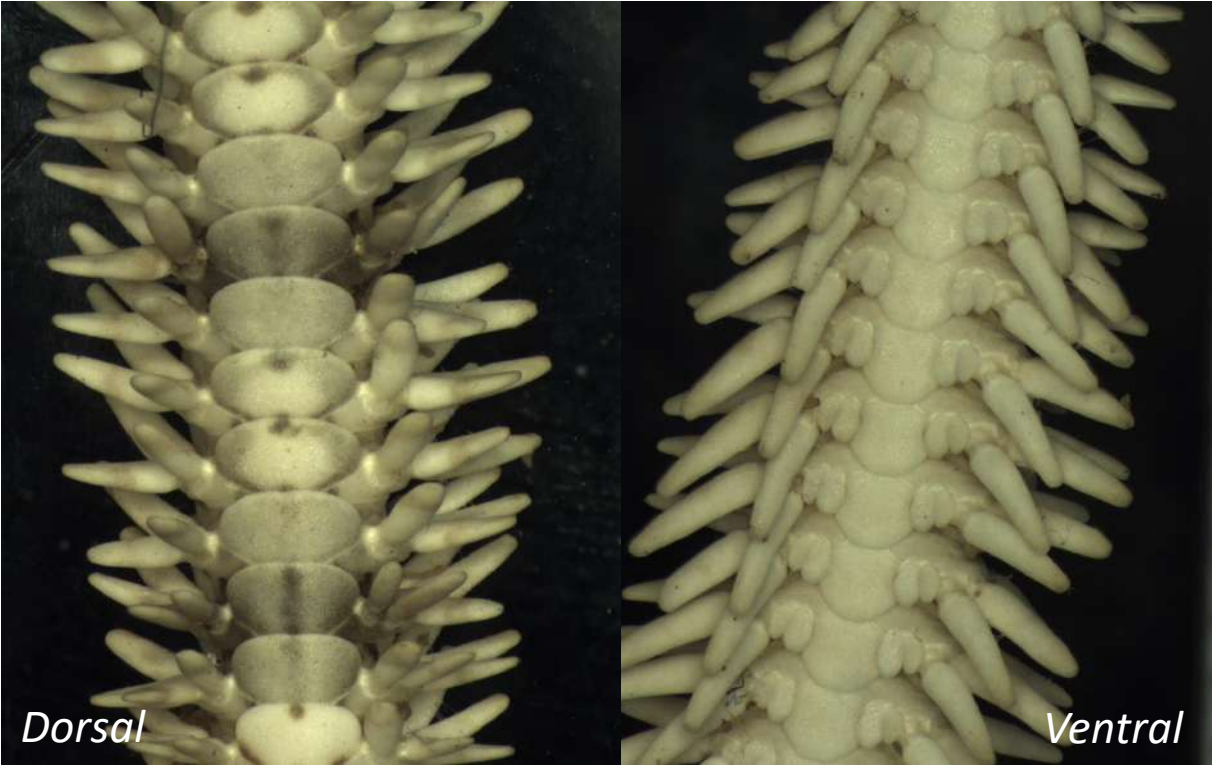
Ophiactidae

Ophiactis abyssicola

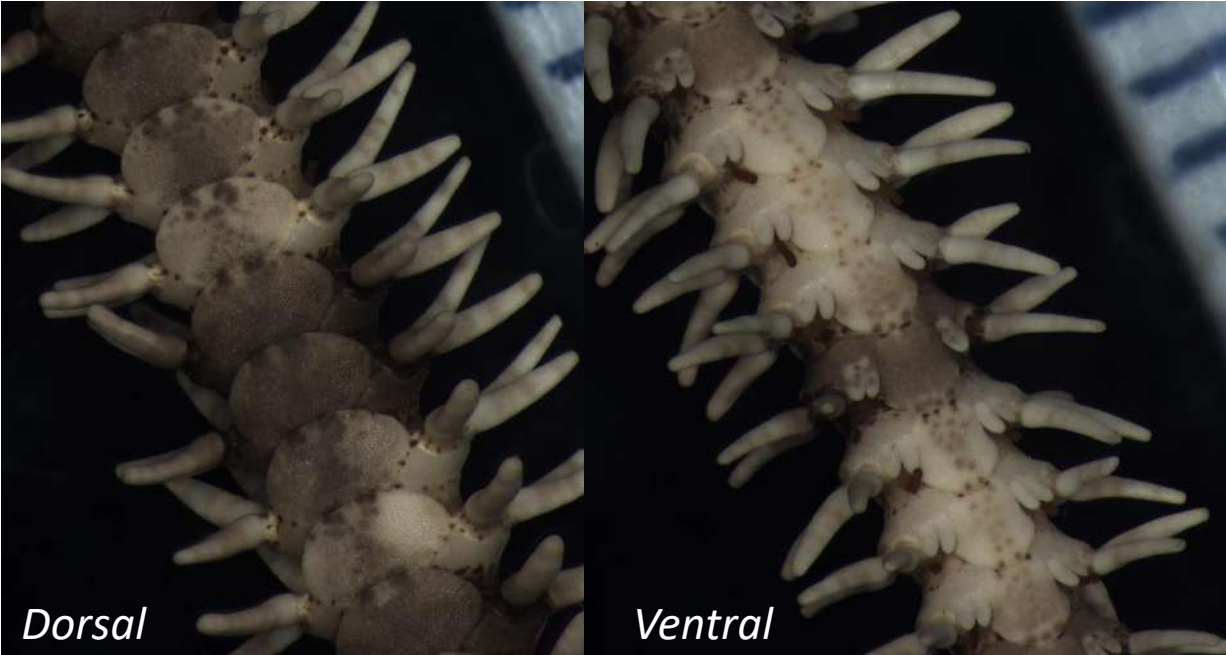


Ophiocomidae

Ophiocoma brevipes

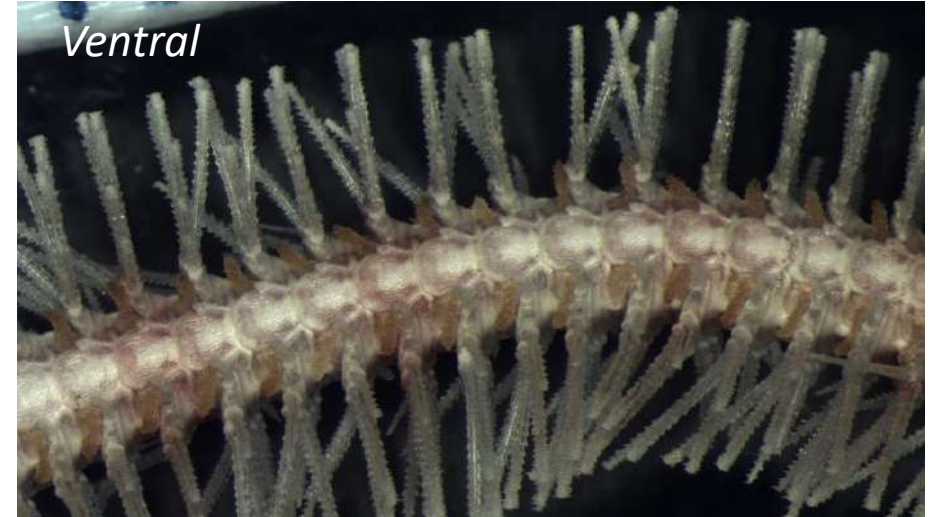
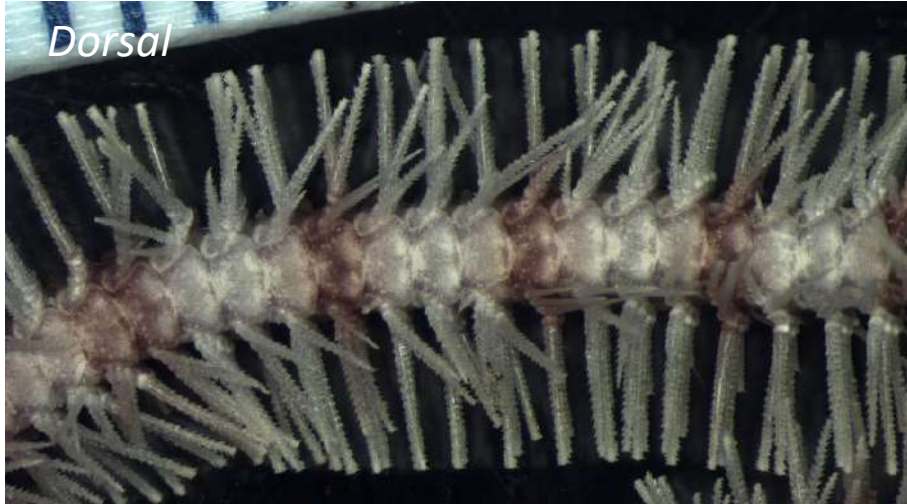


Ophiocoma dentata

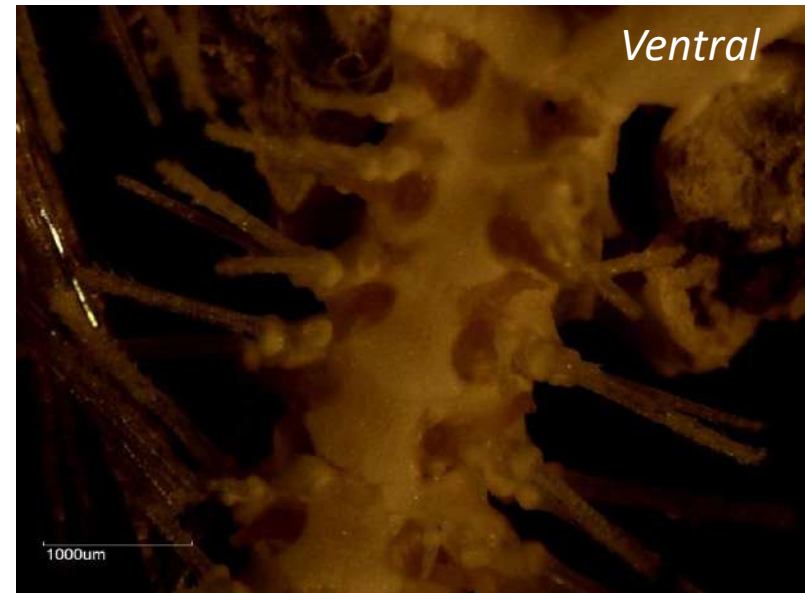
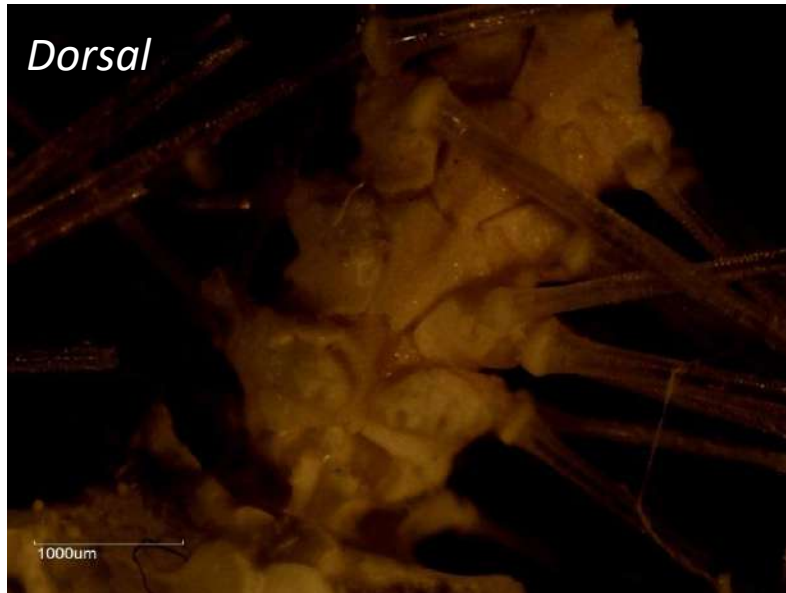


Ophiothrichidae

Macrophiothrix demessa

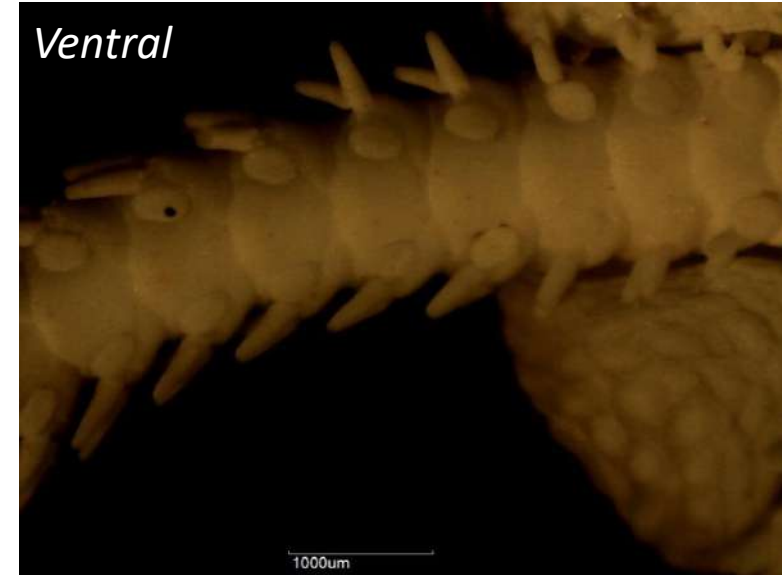
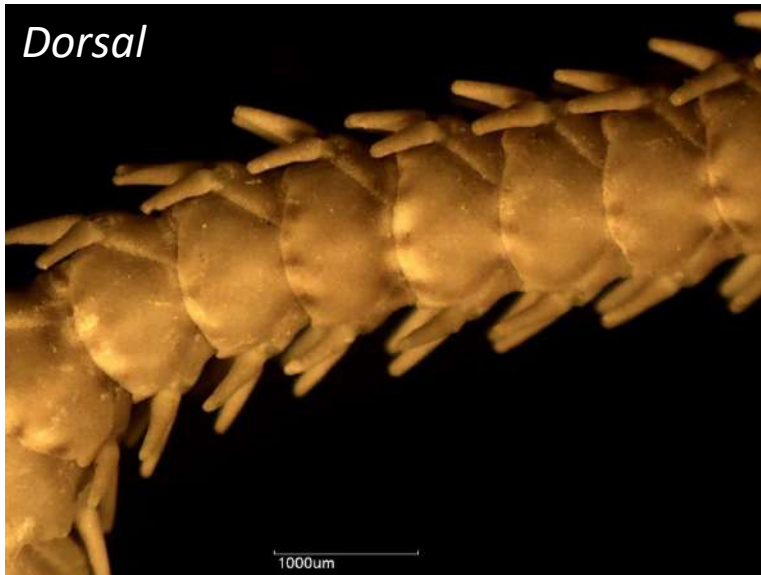


Ophiothrix Acanthoophiothrix purpurea

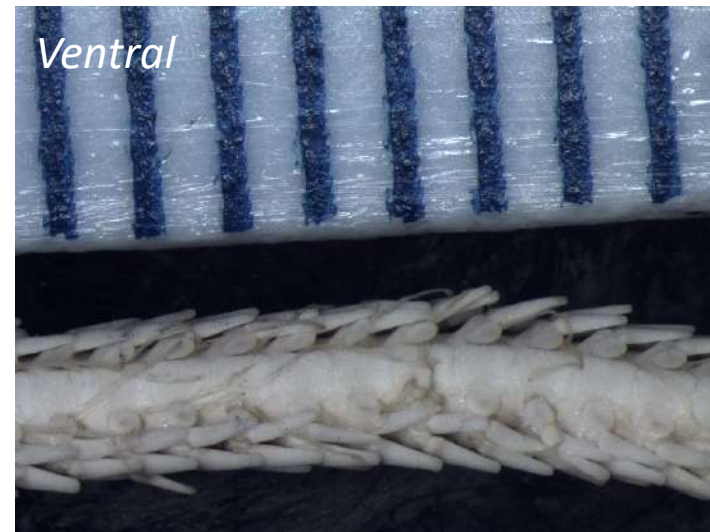


Ophionereidae

Ophionereis australis

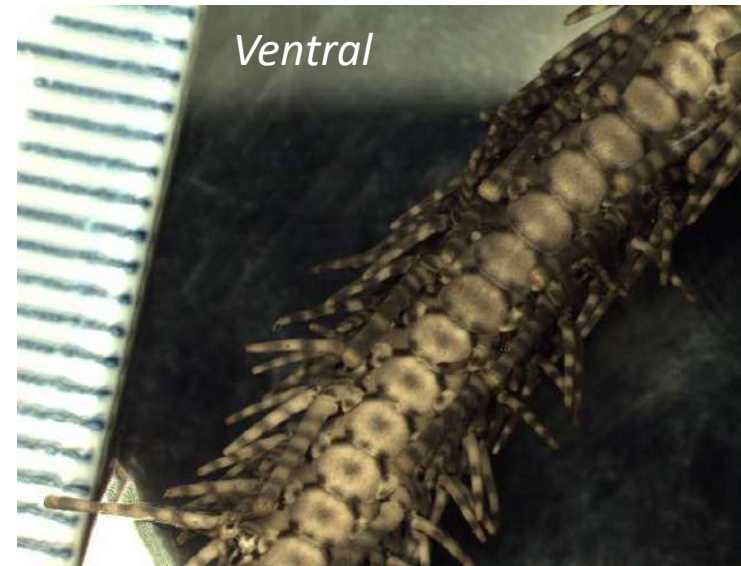
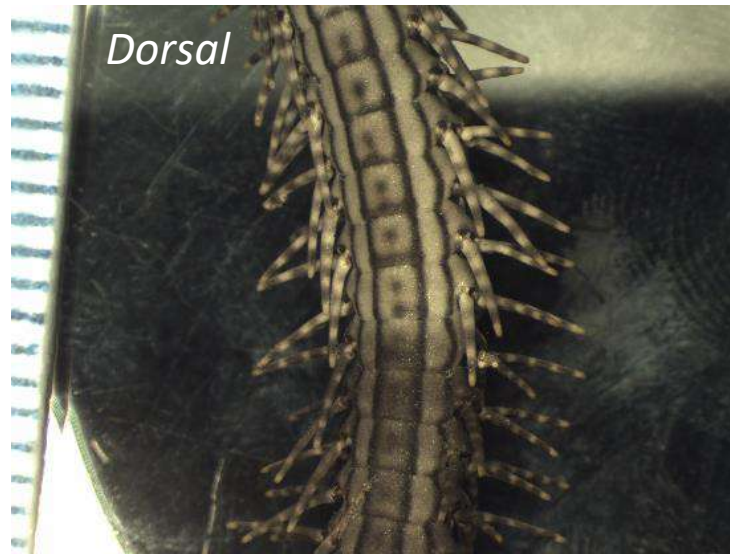


Ophionereis dubia



Ophiodermatidae

Ophiarachna affinis

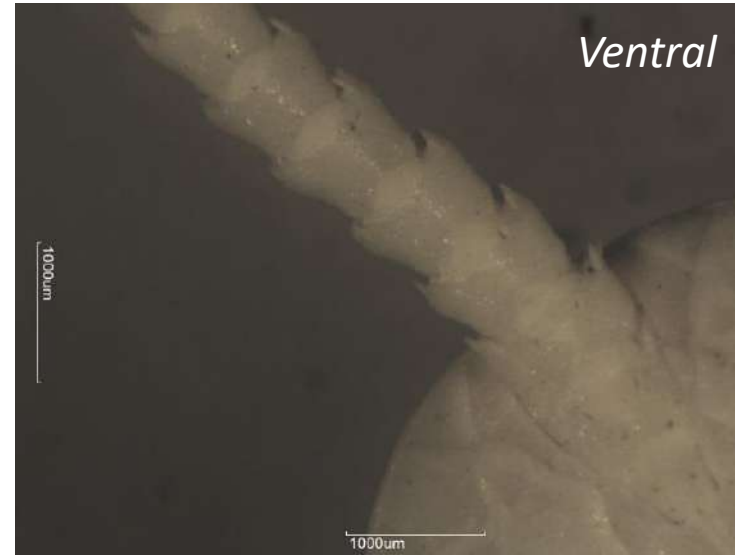
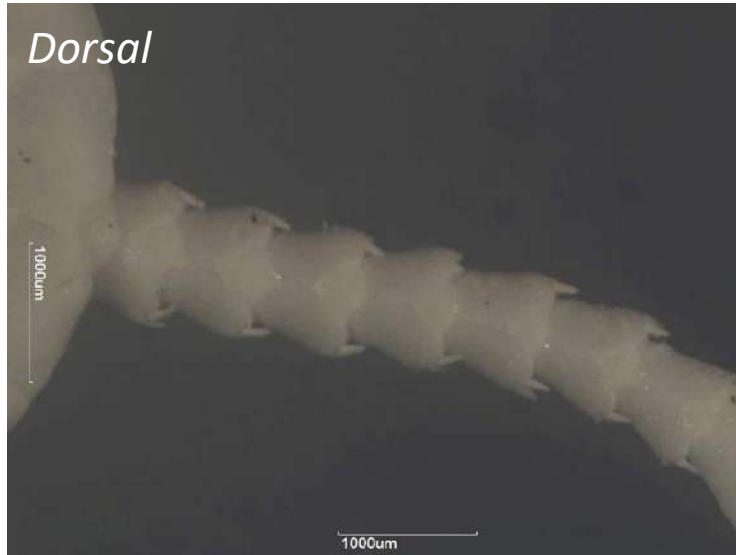


Ophioconis cupida



Ophiolepididae

Anophiura simplex



Ophiolepis cincta

