

The Origin of Life

The Incredible Experiments of the Evolution
in the Primordial Seas



Marco Signore







*I hope there's some kid out there dreaming
of worlds we can't even imagine.*

James Cameron

CHALLENGER DEEP

The Mariana Trench lies in the middle of the ocean, near Guam. This is the deepest point in the ocean and there have only been two manned missions to reach this point. It's no simple task to reach the bottom, but with advances in technology, missions may be more frequent and allow scientists and explorers to spend more time down there.



BATHYSCAPE TRIESTE

January 23, 1960

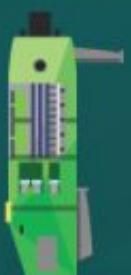
CREW: Jacques Piccard and U.S. Navy Lieutenant Don Walsh



DEEPSSEA CHALLENGER

March 26, 2012

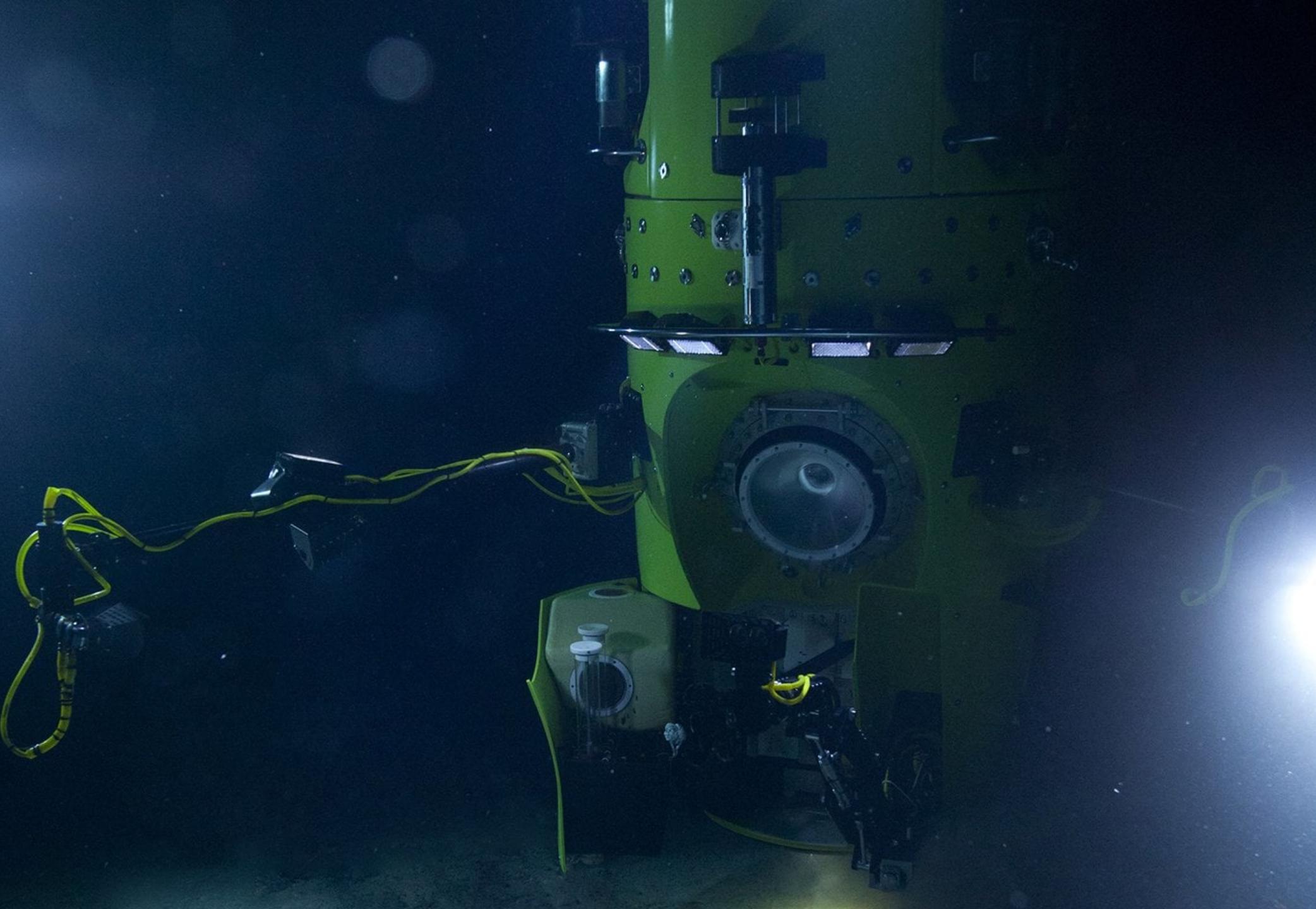
CREW: James Cameron

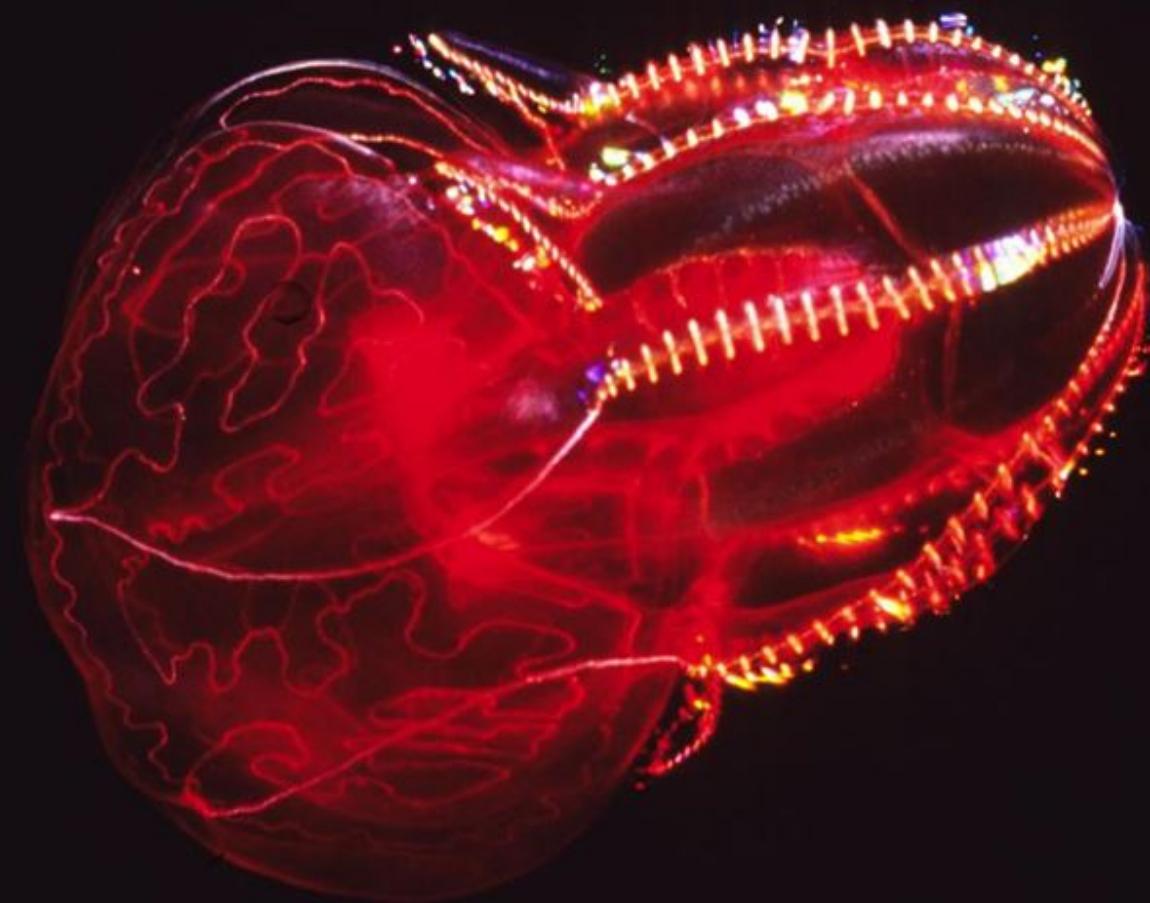


This vertical shape allowed the vessel to descend quicker, allowing, Cameron to explore the bottom for nearly **9X LONGER** than the Trieste.

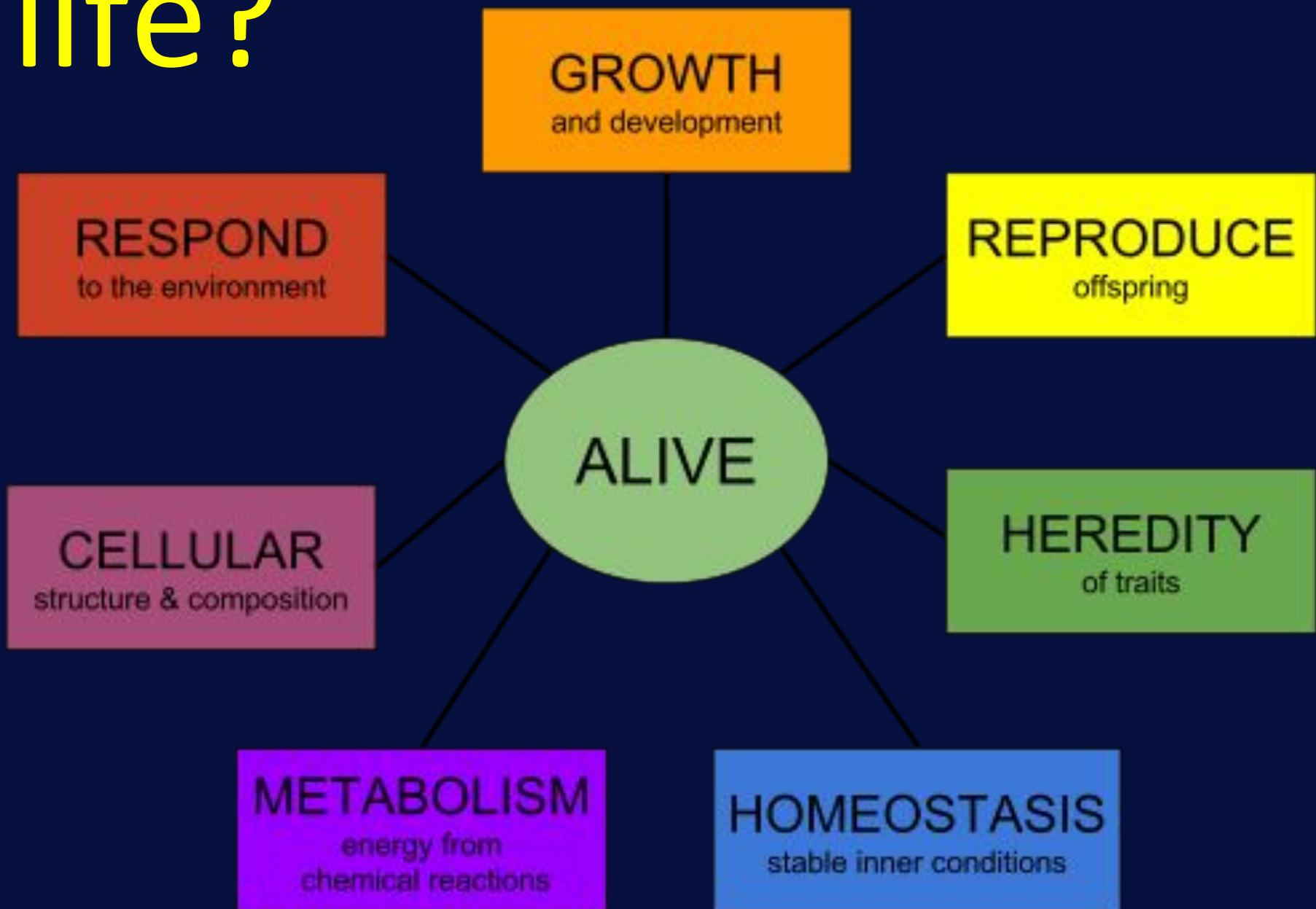
SOURCES:
nationalgeographic.com,
deepseachallenge.com





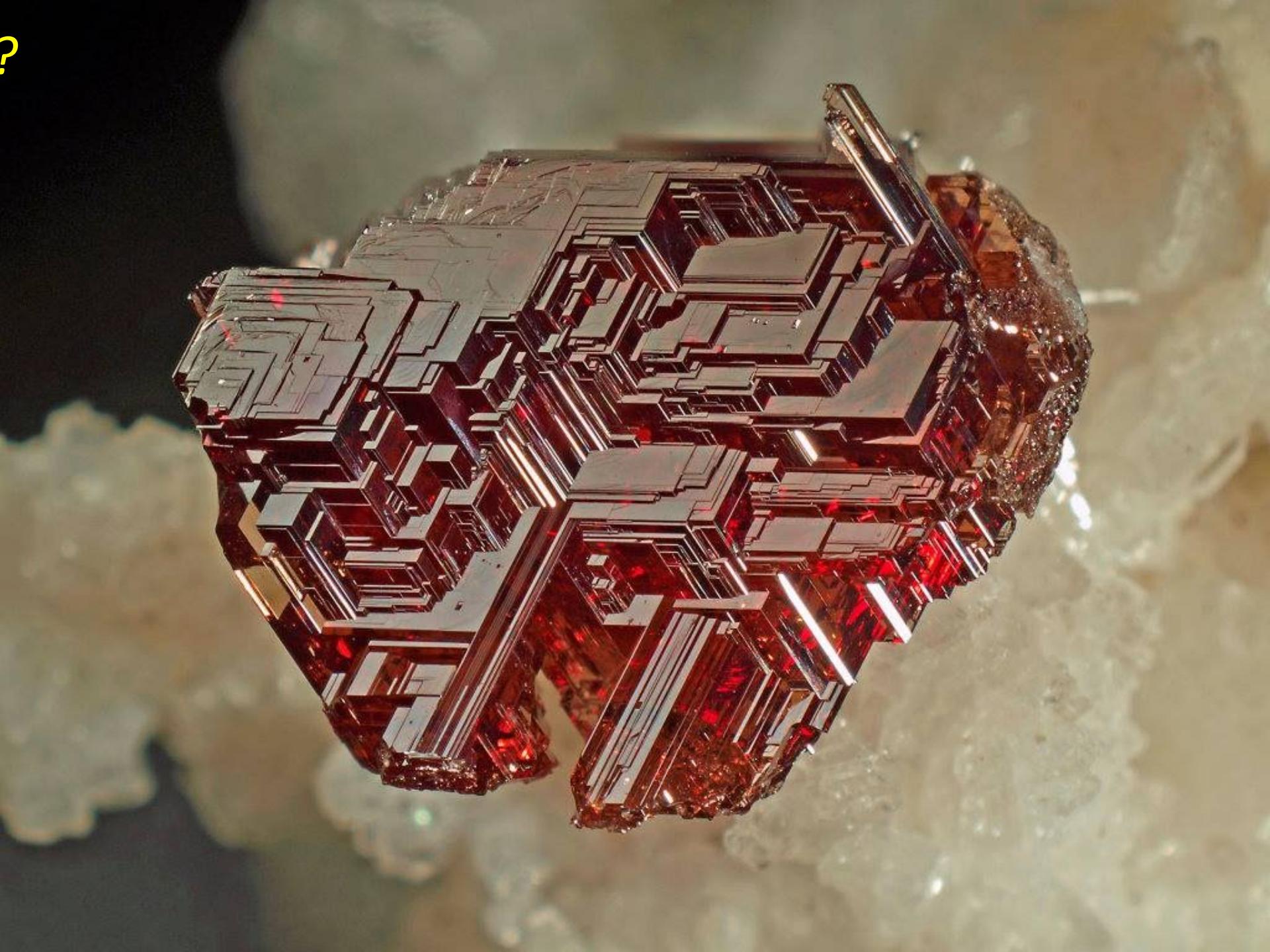


What is life?



Is this the real life?

(Queen)



Is this just fantasy?

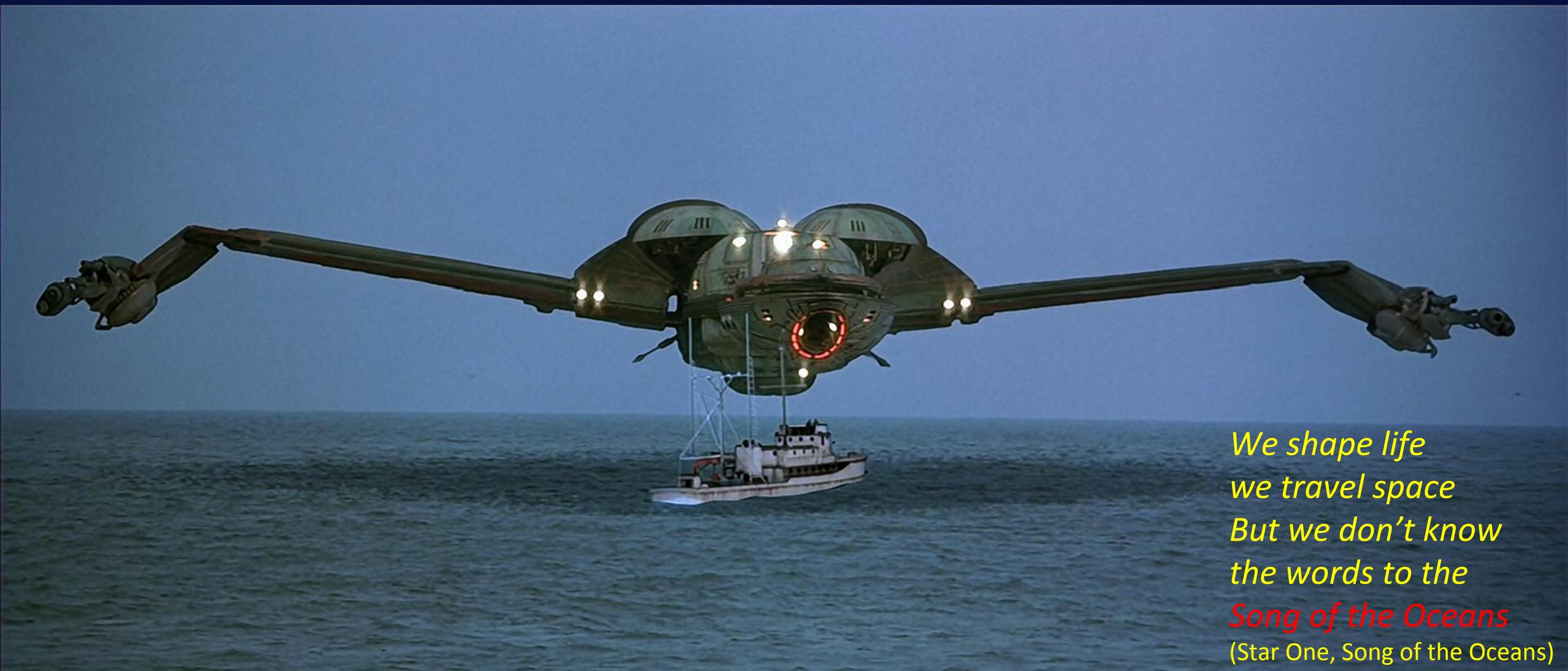
(Queen)



Shadow biosphere

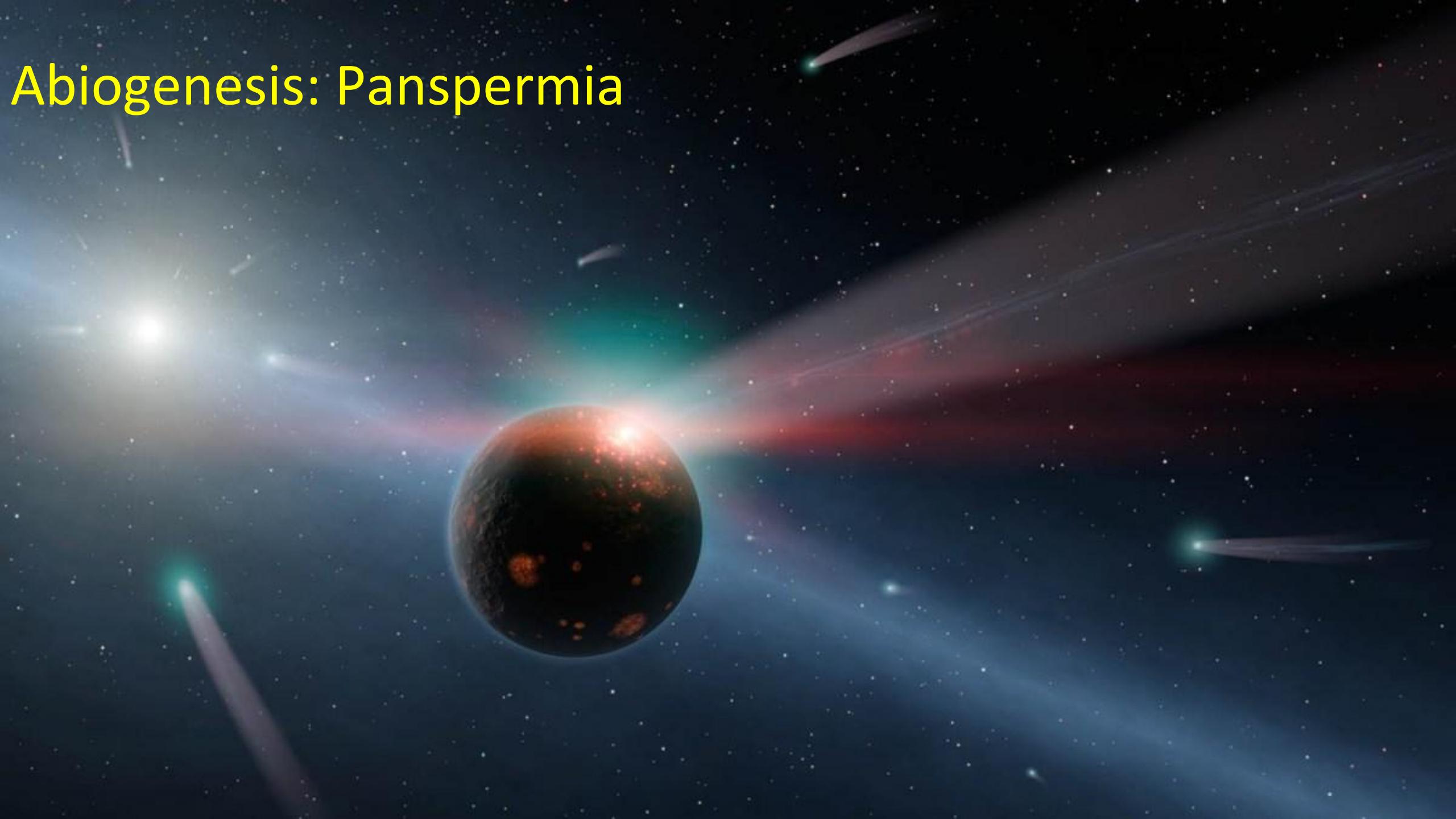


What do deep time and deep sea have in common?



We shape life
we travel space
But we don't know
the words to the
Song of the Oceans
(Star One, Song of the Oceans)

Abiogenesis: Panspermia



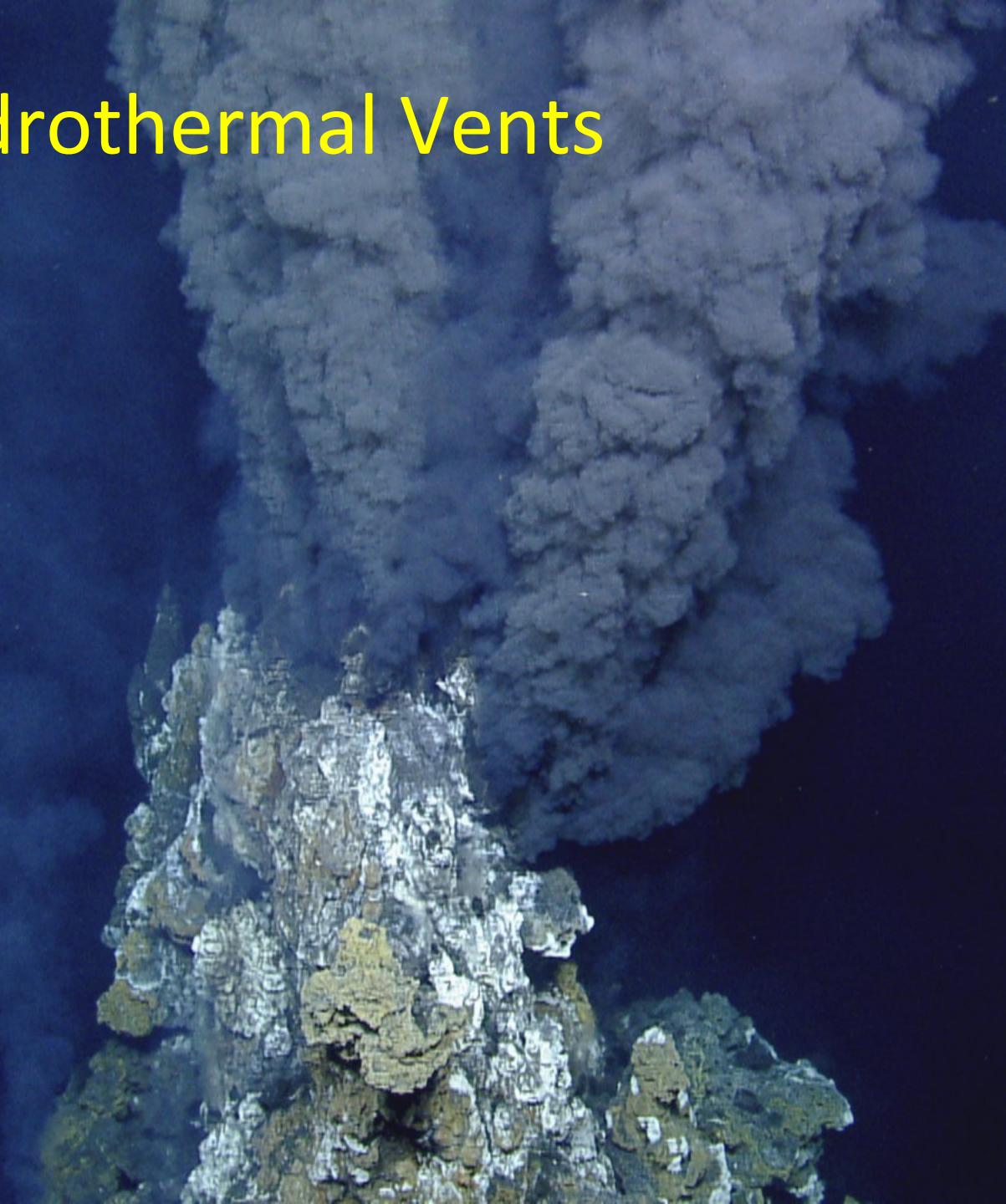
Abiogenesis: Primordial soup



Abiogenesis: Nuclear Geyser



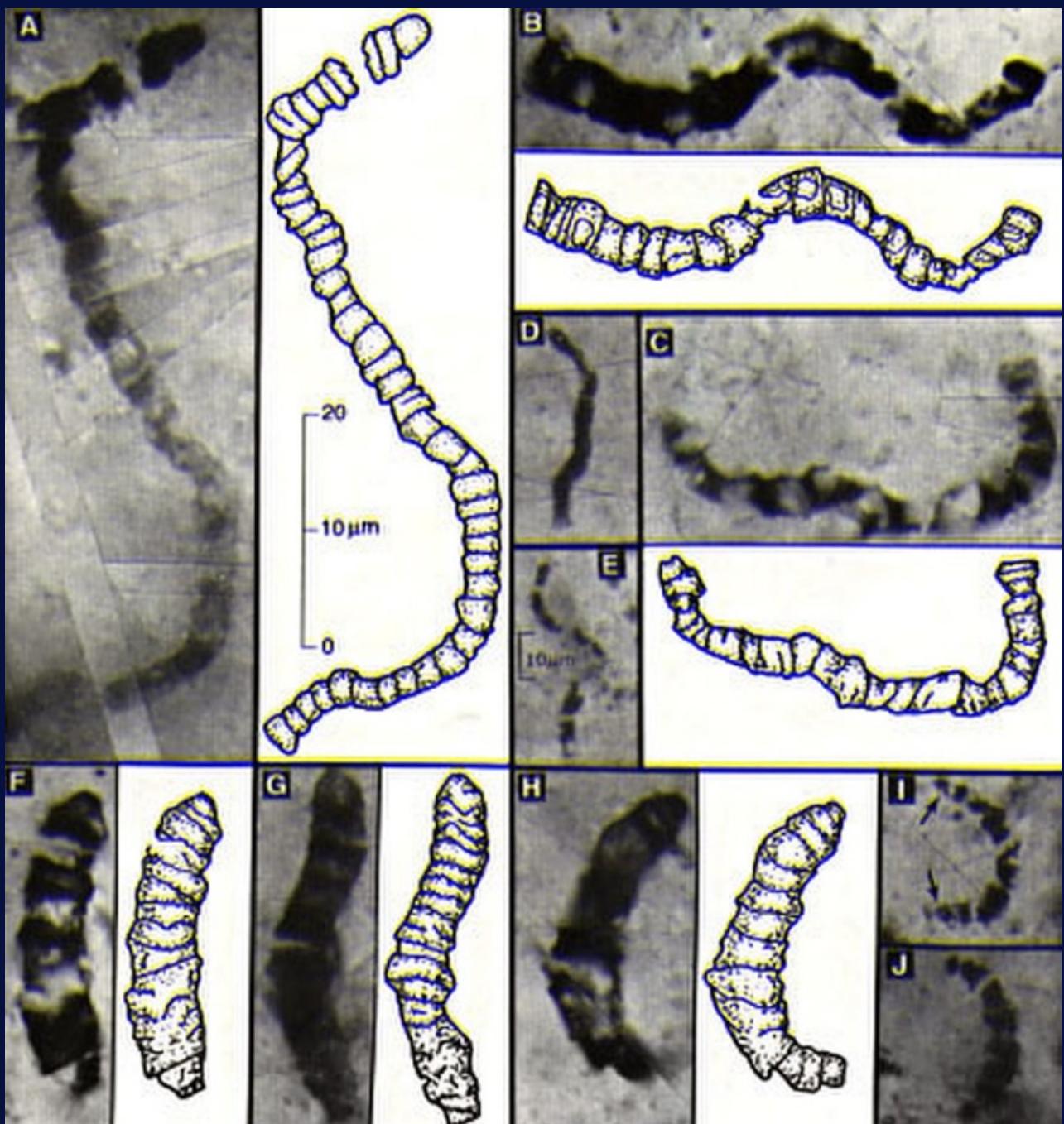
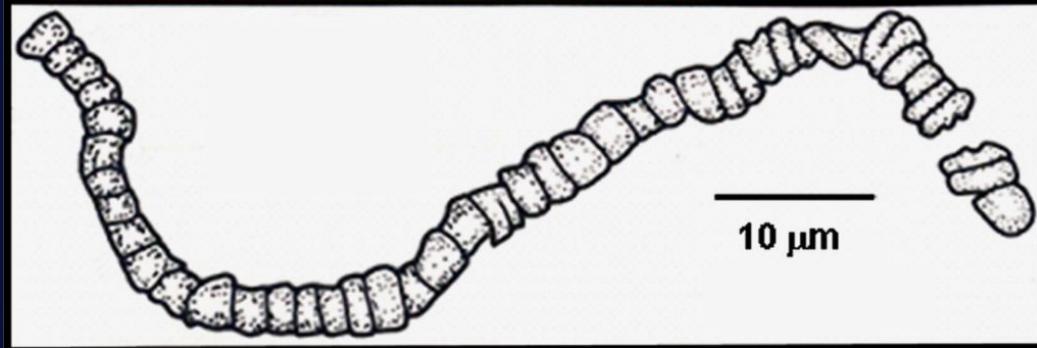
Abiogenesis: Hydrothermal Vents



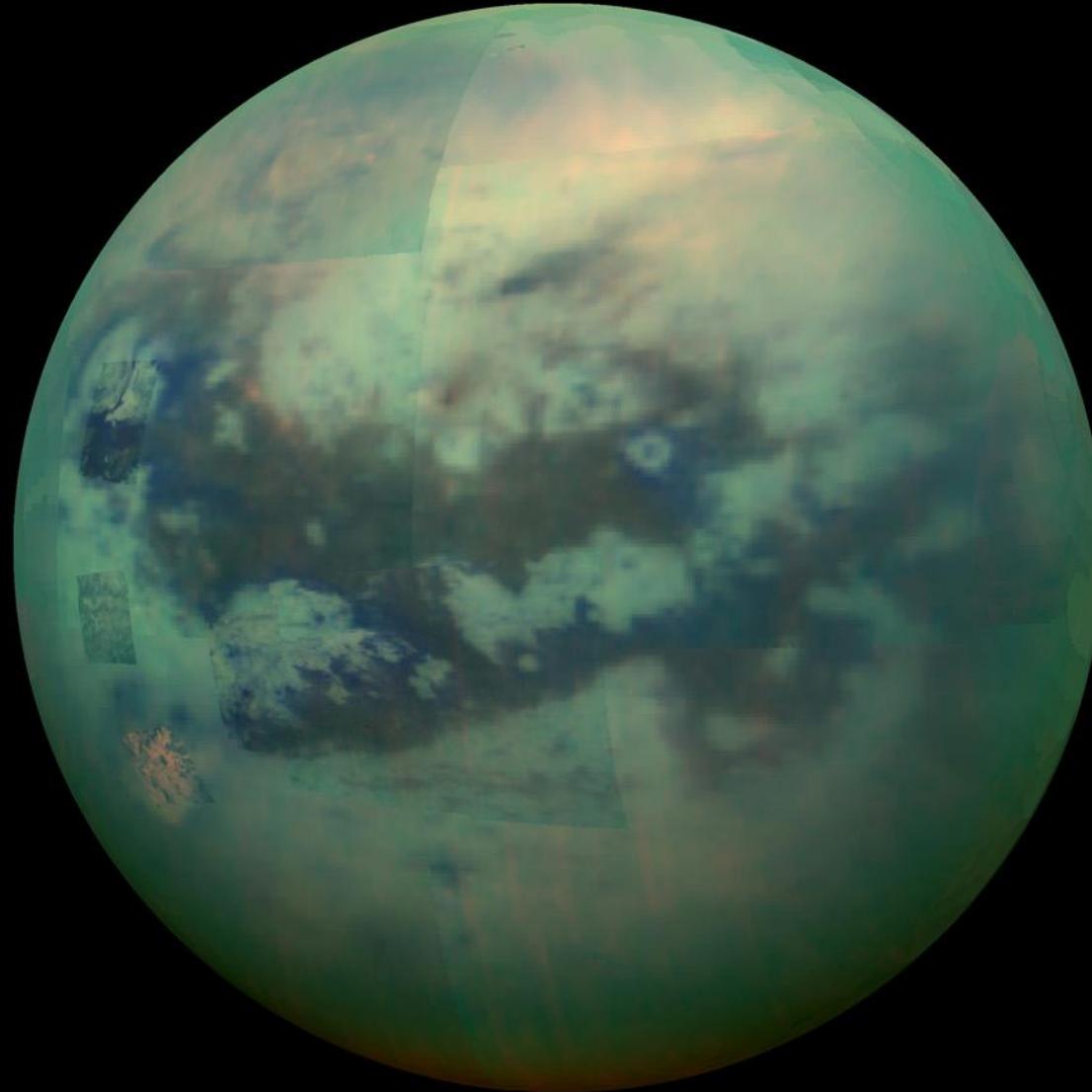
A black and white photograph of a single, spherical cell or microorganism against a dark, grainy, and textured background. The cell is centered and appears as a bright, slightly hazy sphere with a visible internal structure.

LUCA *Last Universal Common Ancestor*

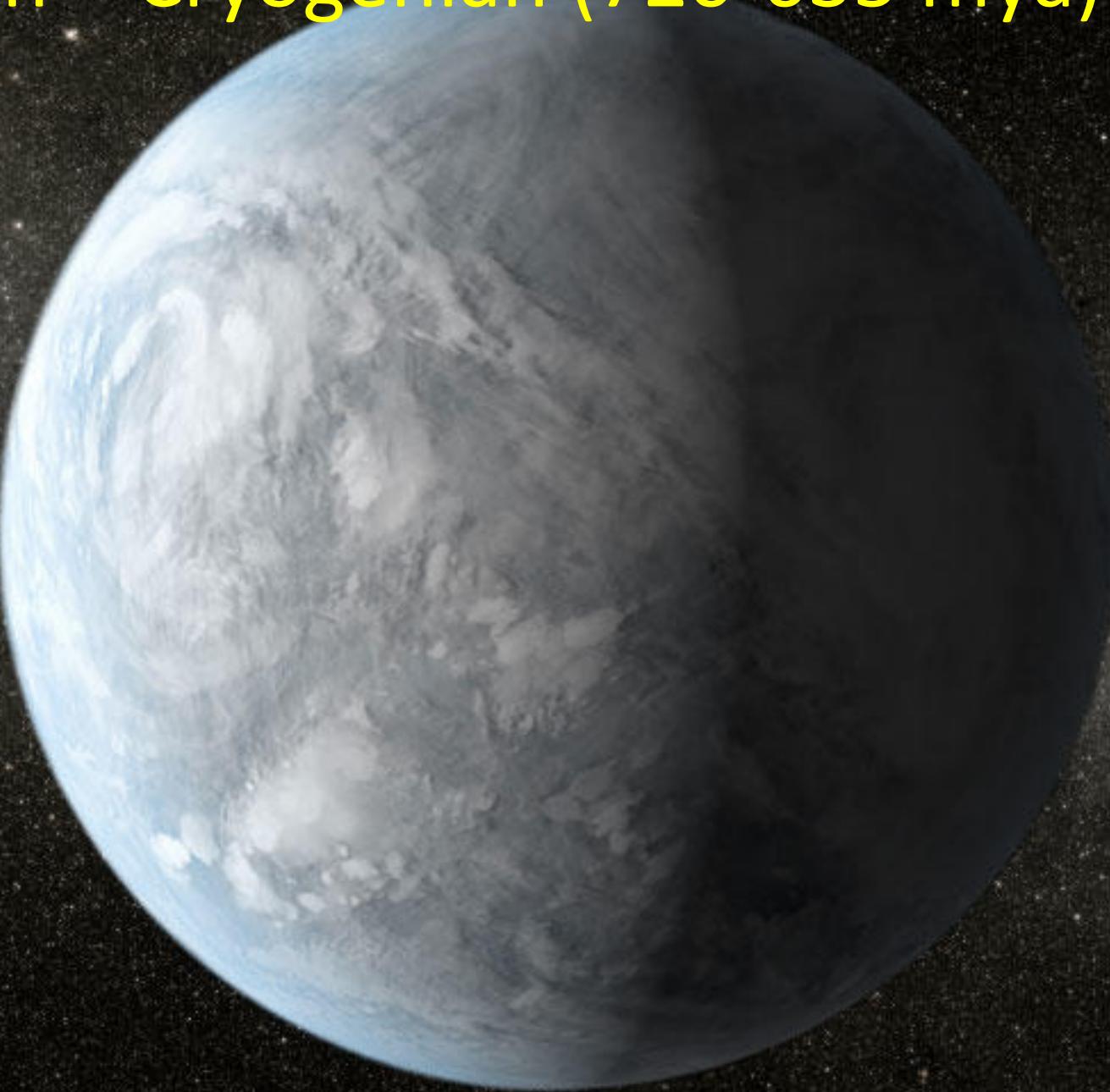
Apex chert (3.5 bya)



Snowball Earth



Snowball Earth – Cryogenian (720-635 mya)



The oldest ‘animal’?



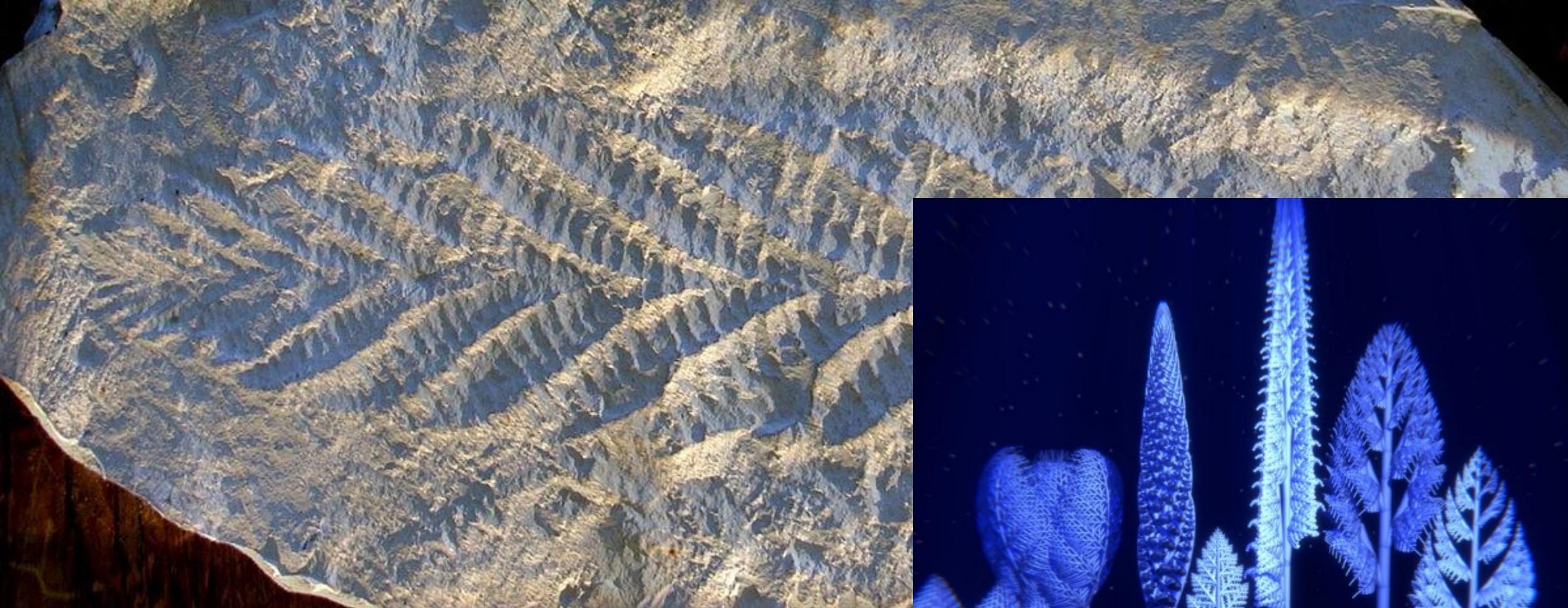
Eocyathispongia qiania
(Yin et al., 2015)

Ediacaran fauna (635-541 mya)

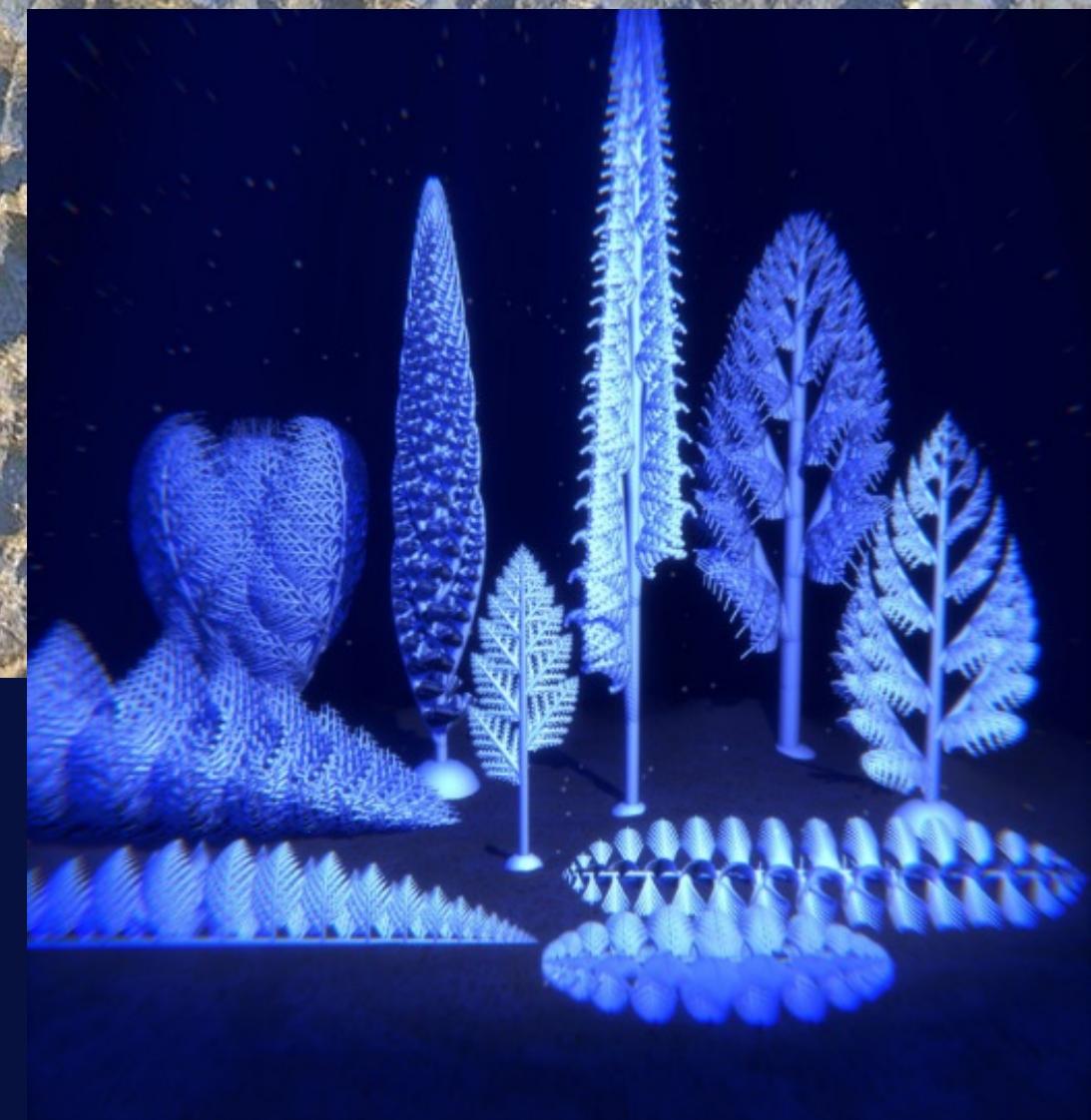


Charnia





Rangeomorpha



Fractofusus



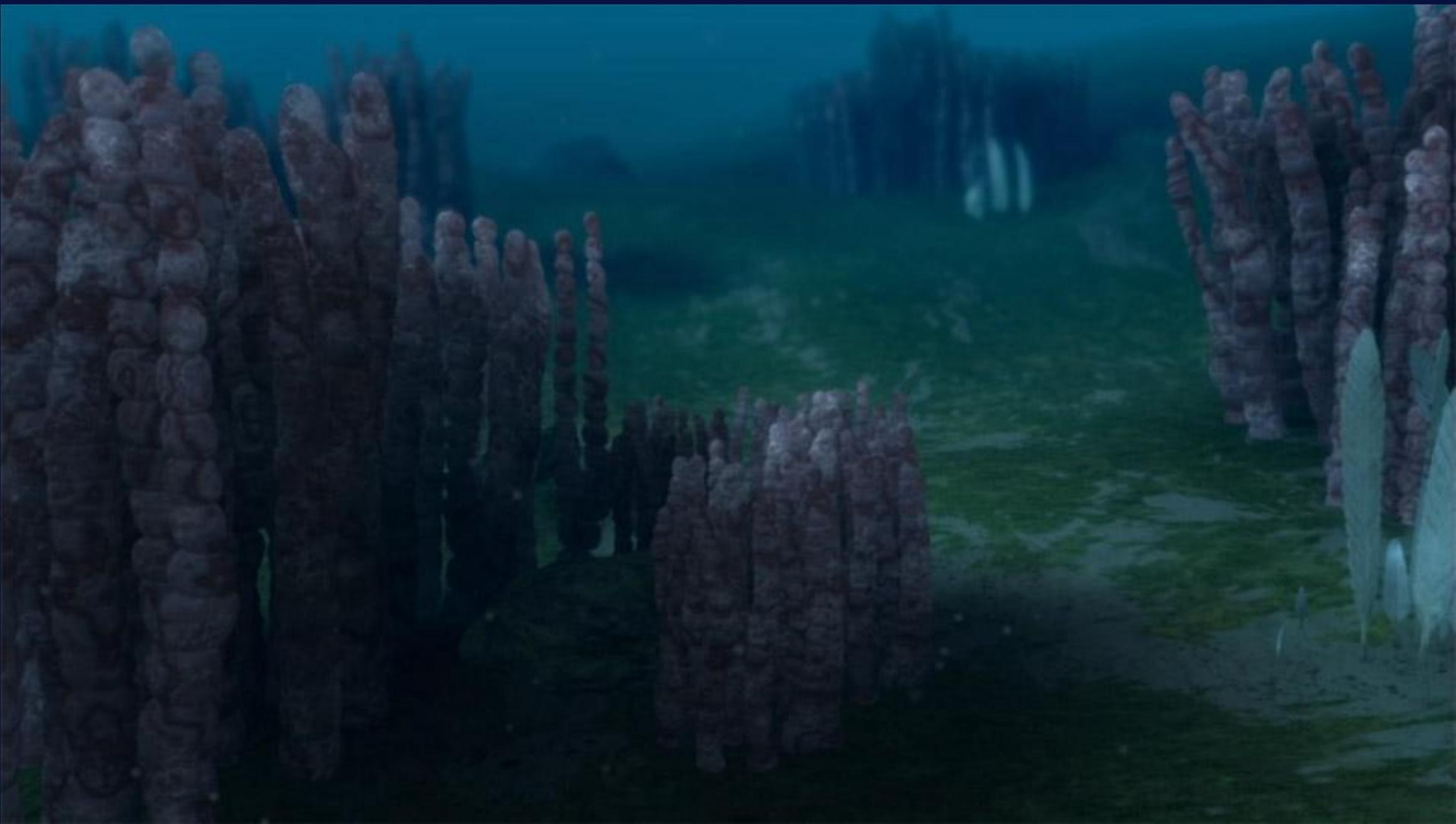
Tribrachidium



Parvancorina



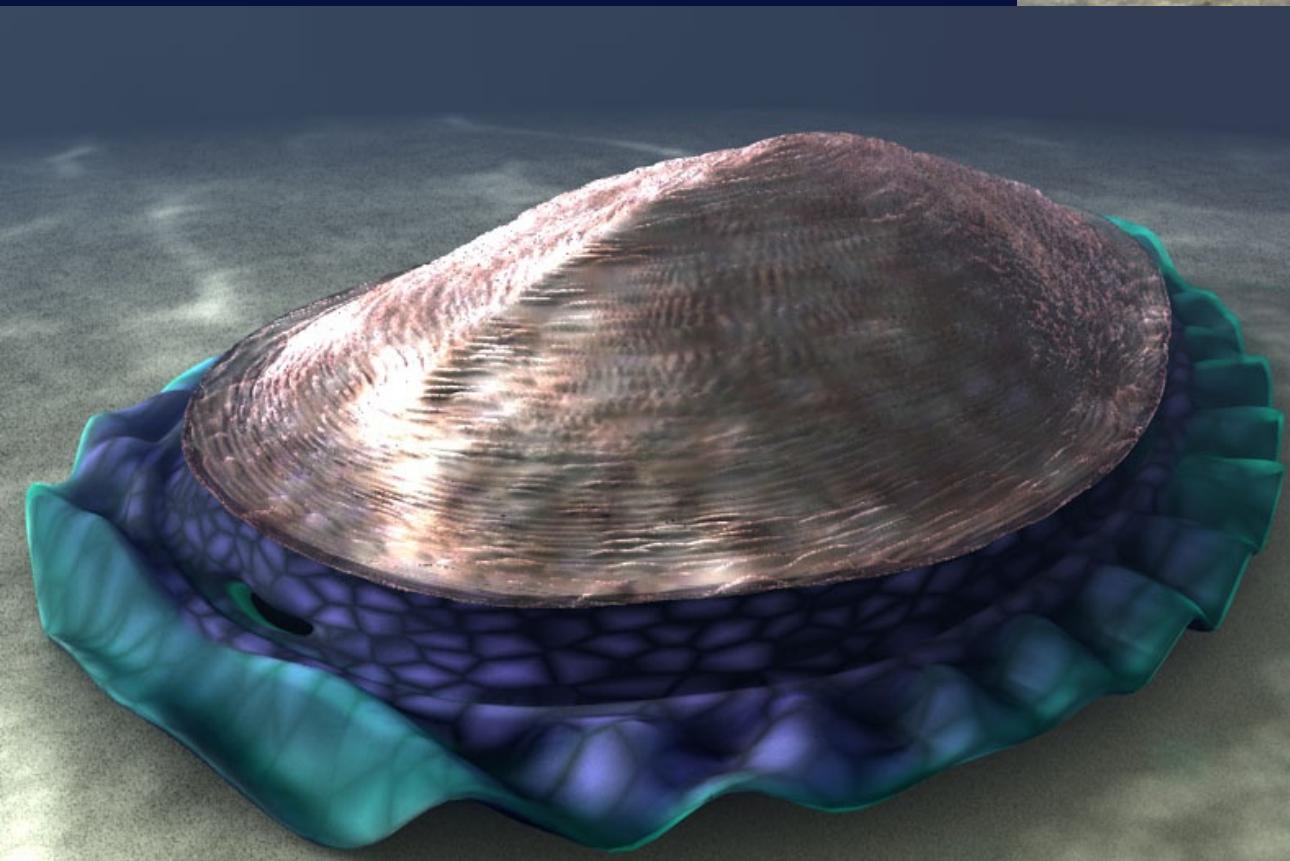
Funisia



Dickinsonia



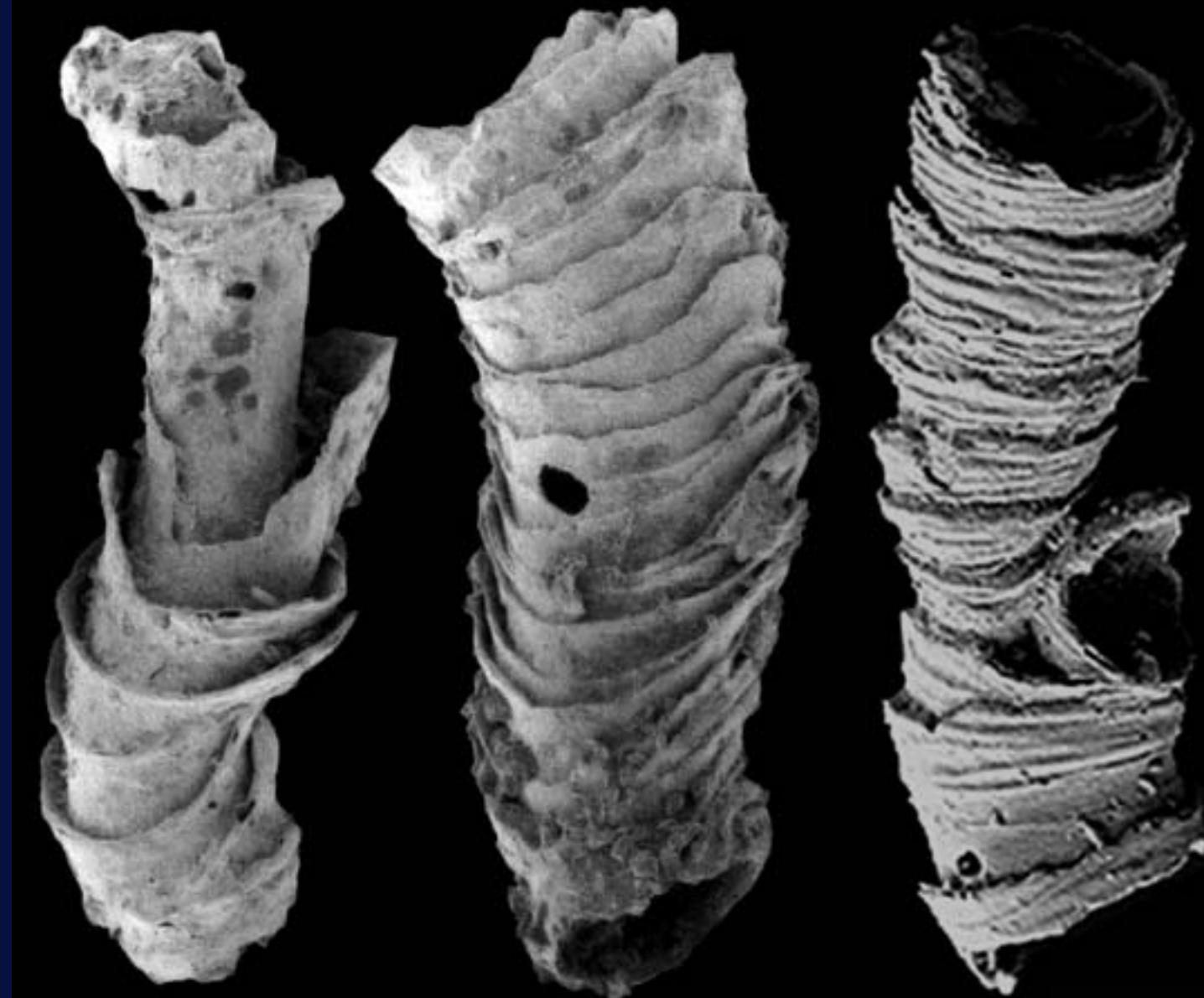
Kimberella

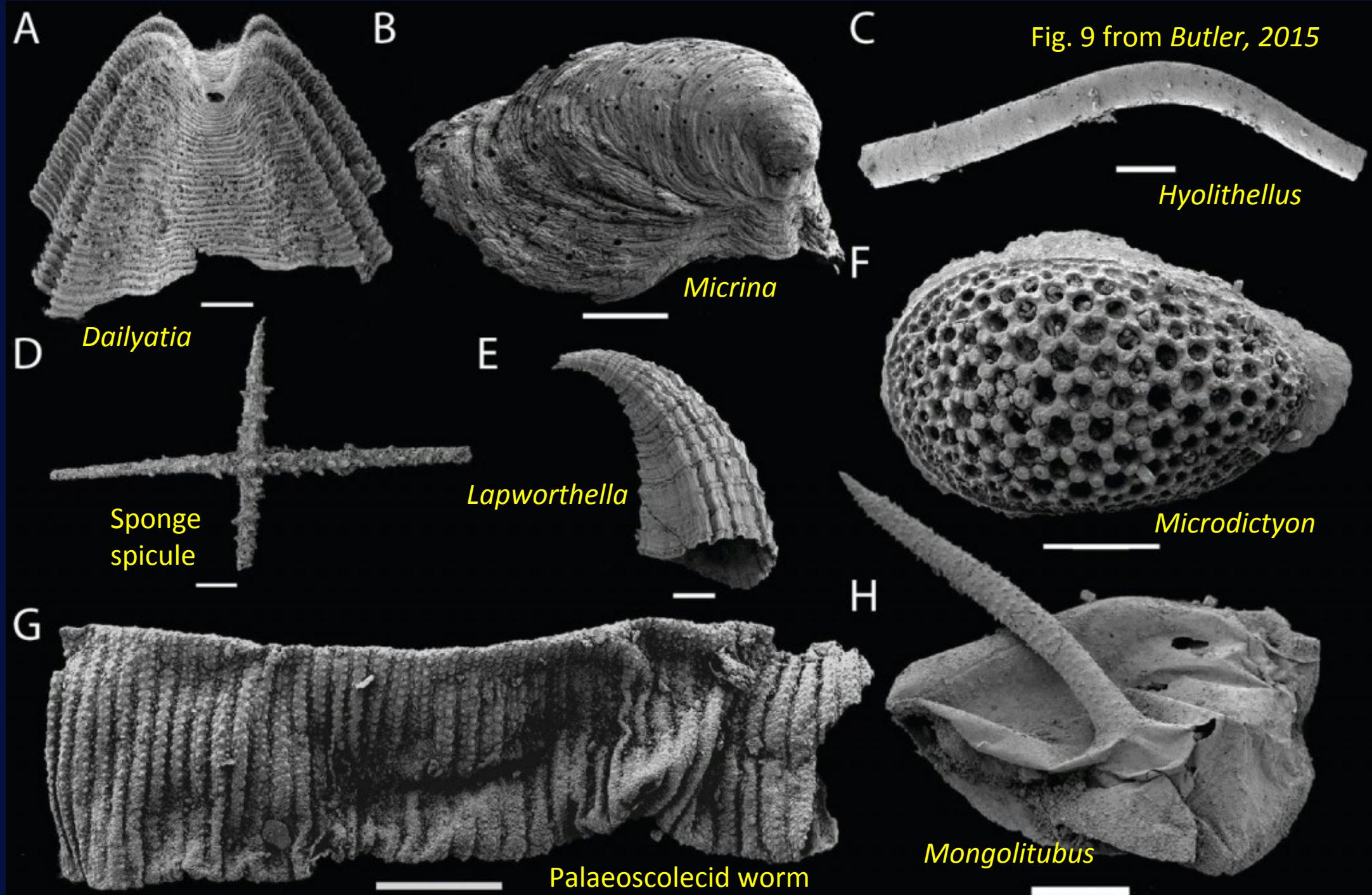


© Ciavatti 2008



Cloudina

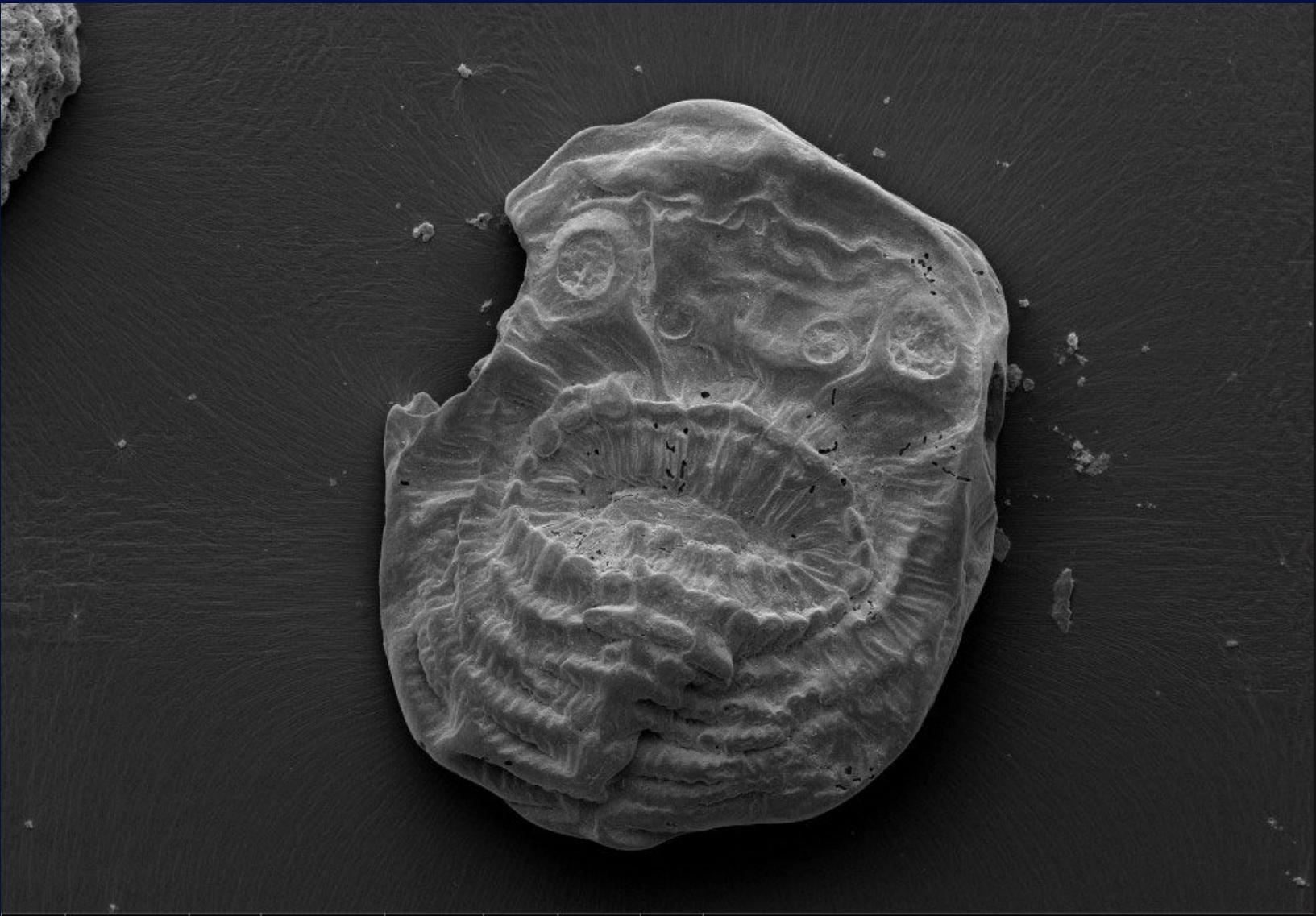




Burgess fauna (527-510 mya)



Saccorhytus



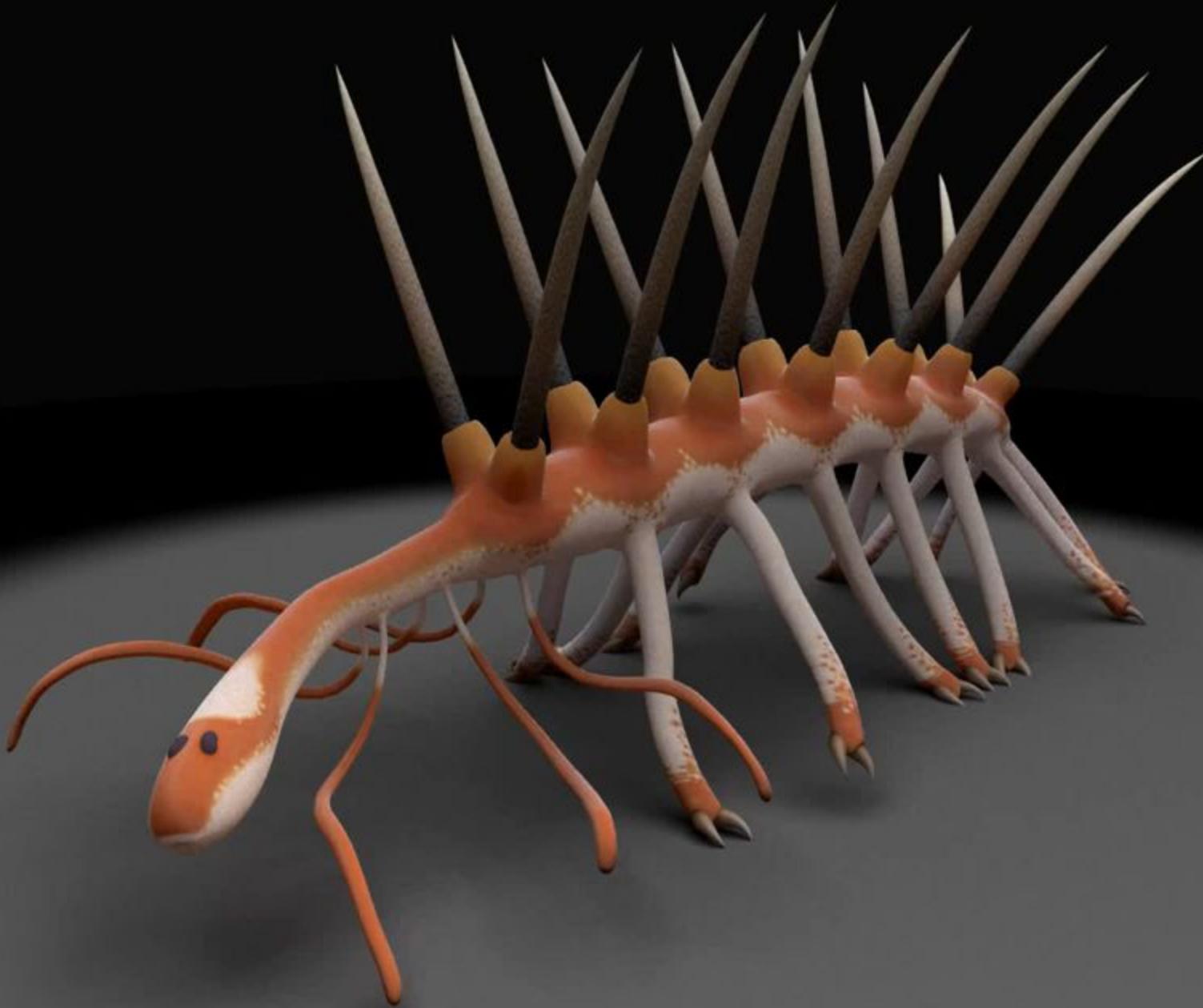
	HV	spot	WD	mag	det	mode	tilt	— 1 mm —
	20.00 kV	4.0	10.8 mm	162 x	ETD	SE	0 °	Quanta FEG

Jian et al. (2017)



Marrella

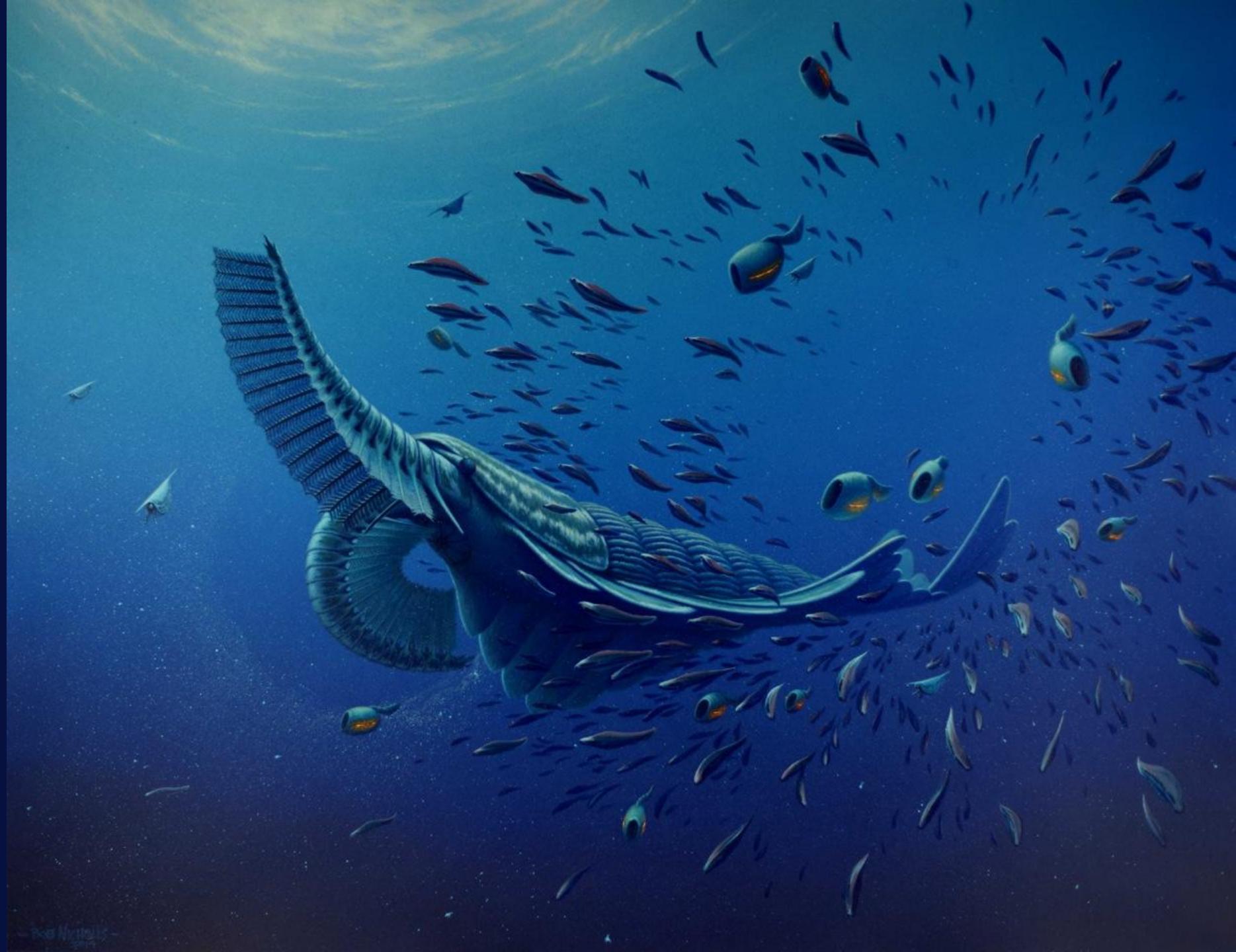




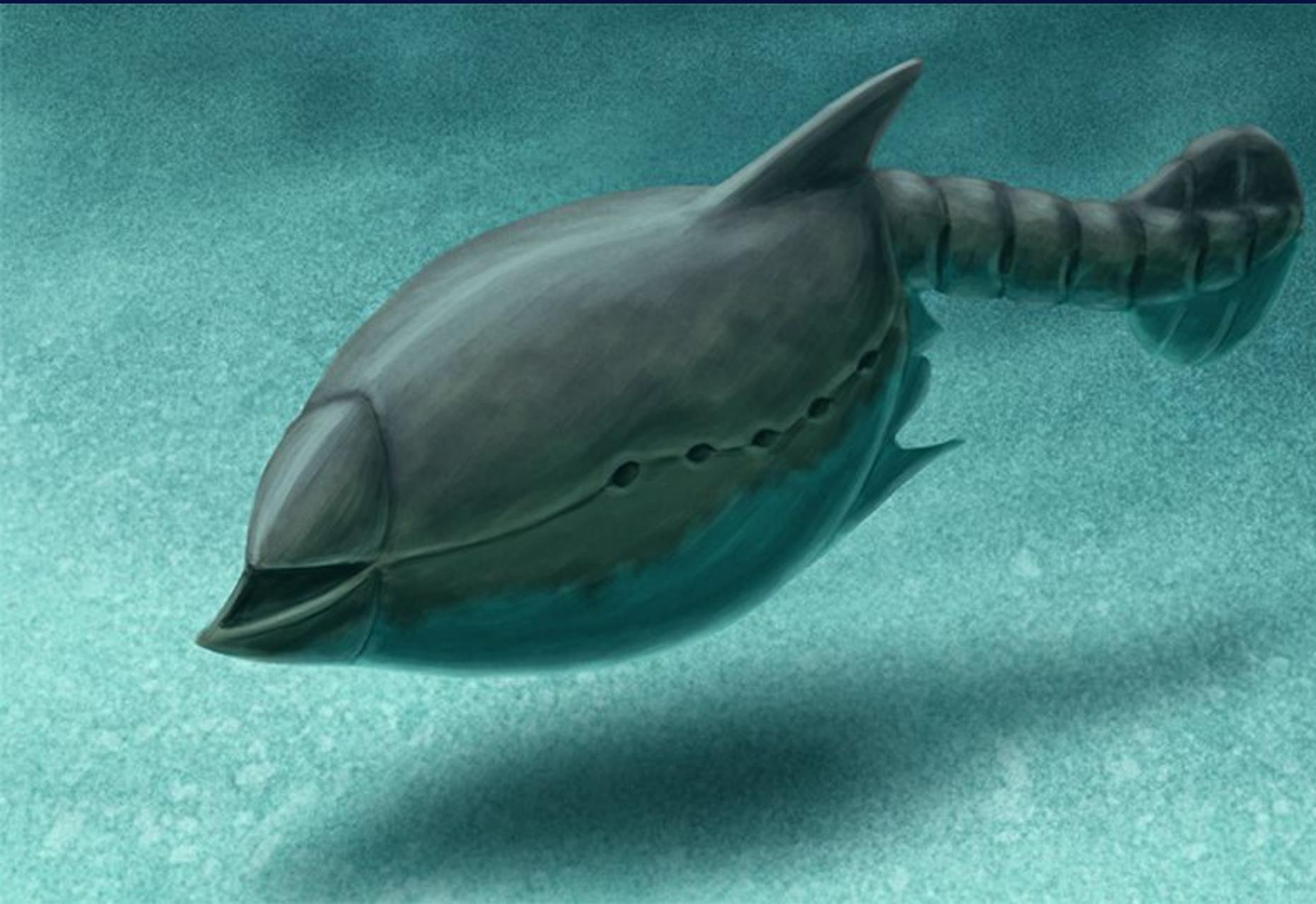
Opabinia



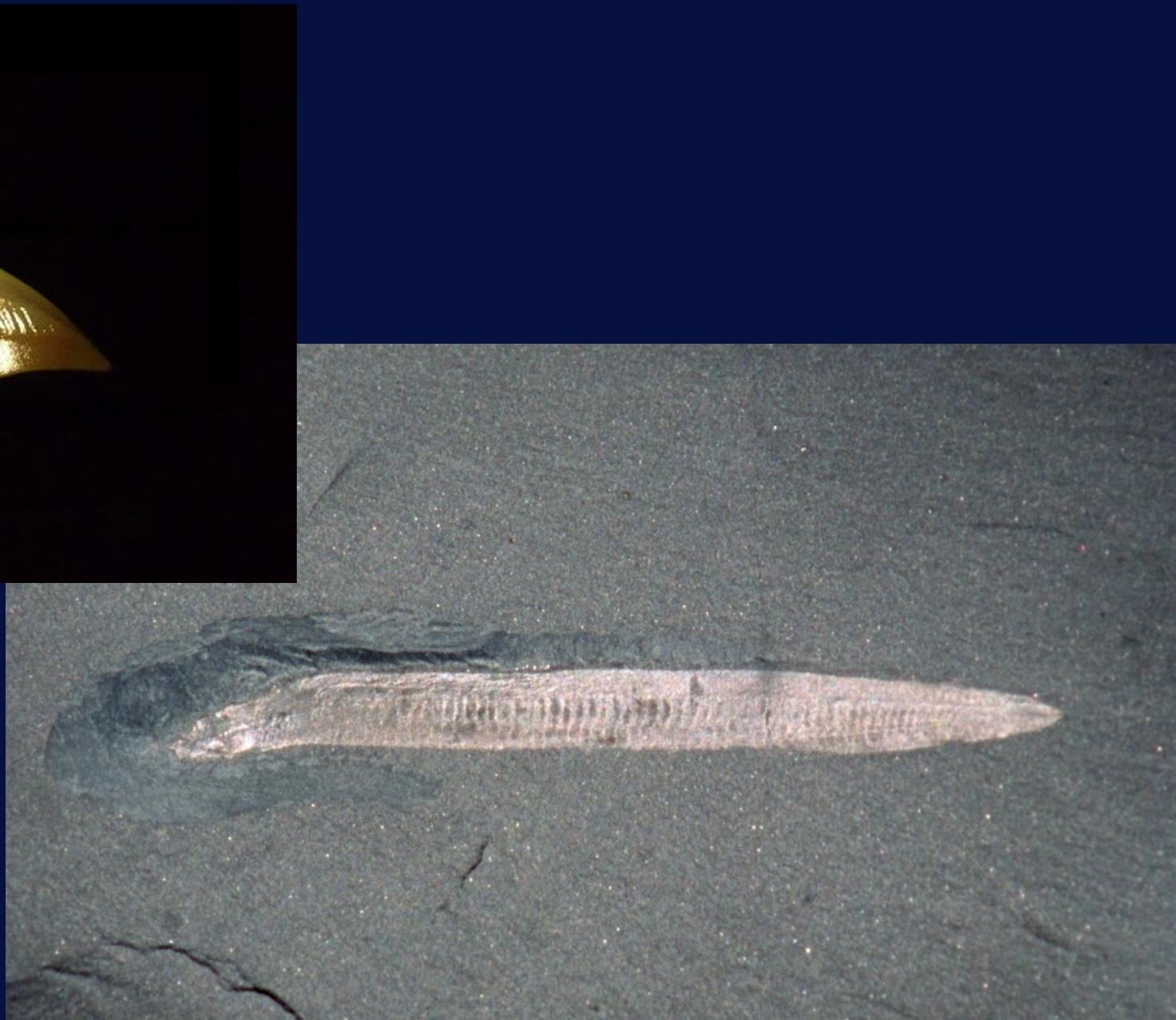
Tamisiocaris



Vetulicola



Pikaia



Deep sea (the present)



Riftia



Macropinna

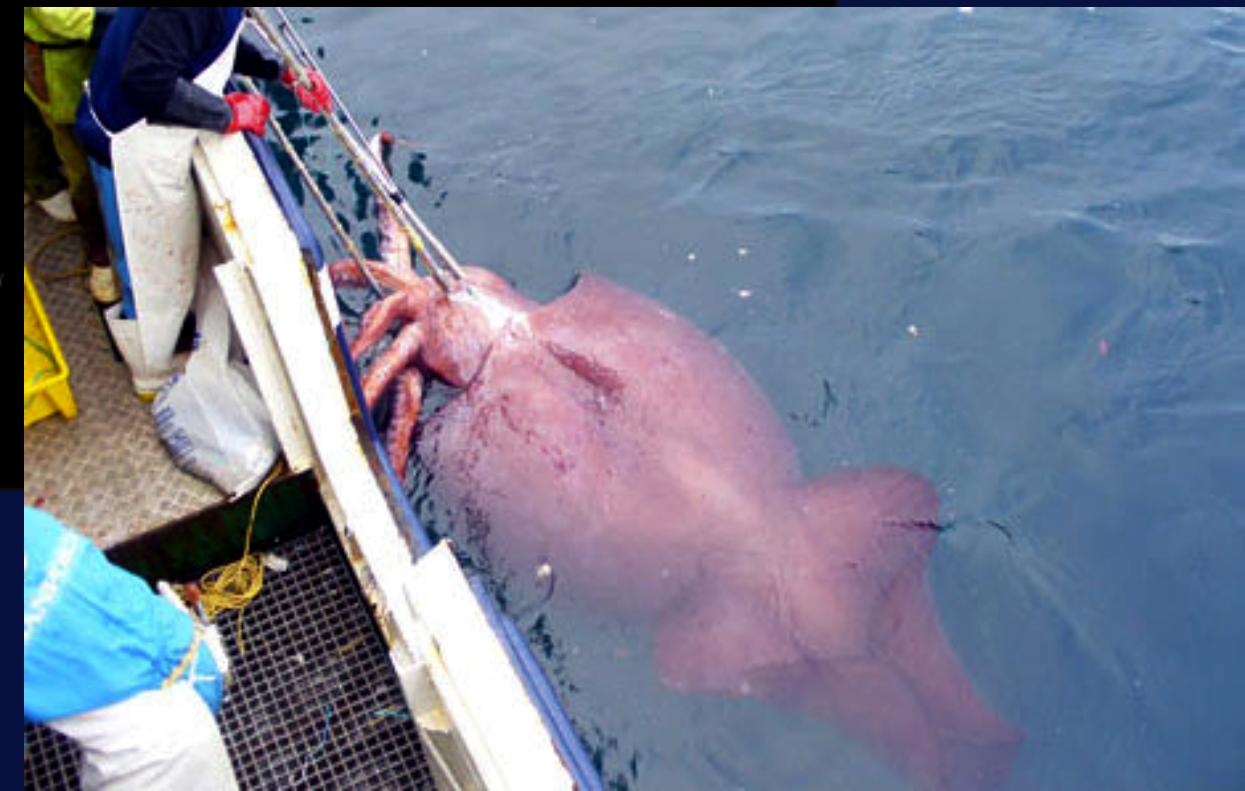


Mesonychoteuthis

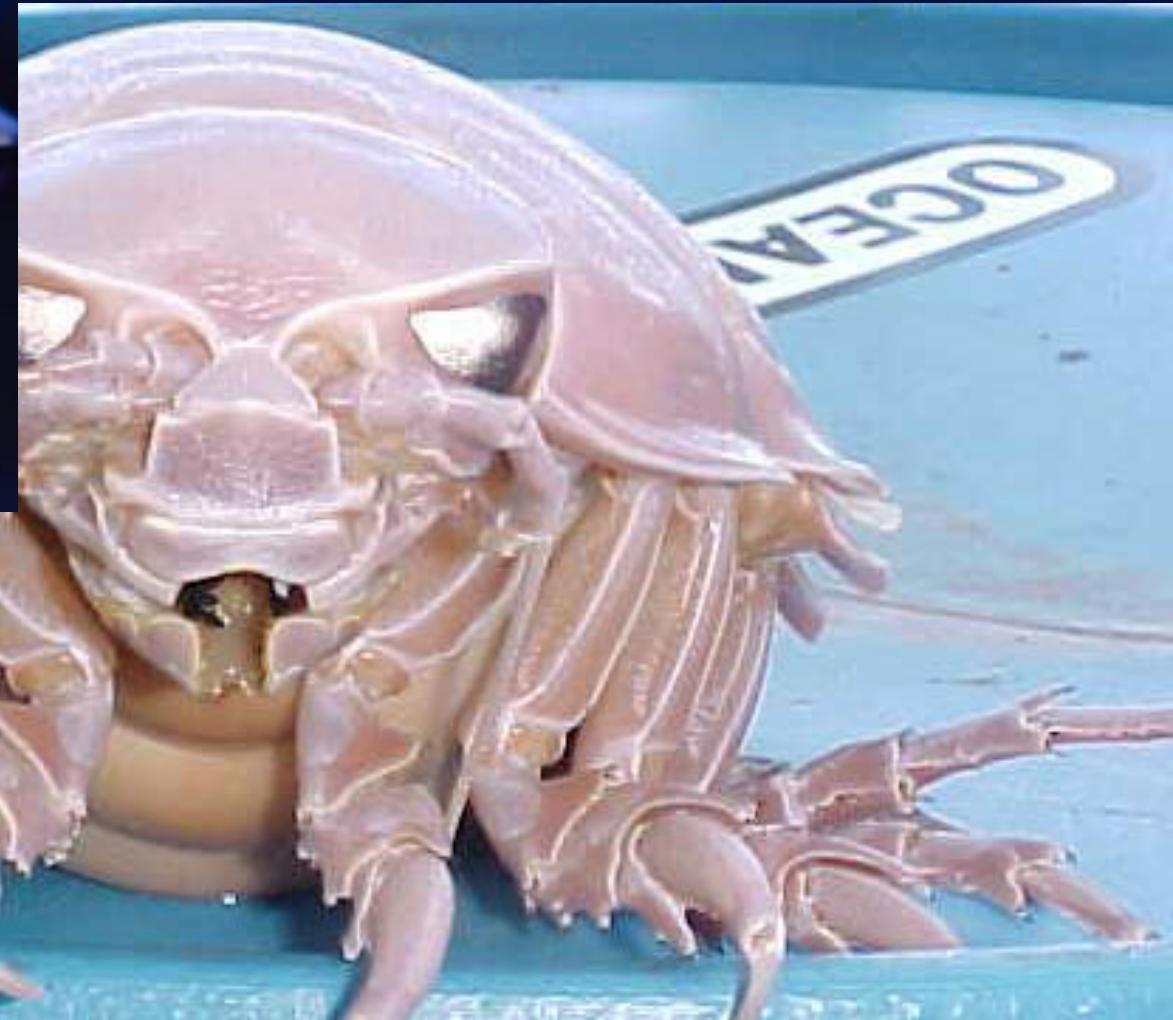


Colossal Squid

Mesonychoteuthis hamiltoni



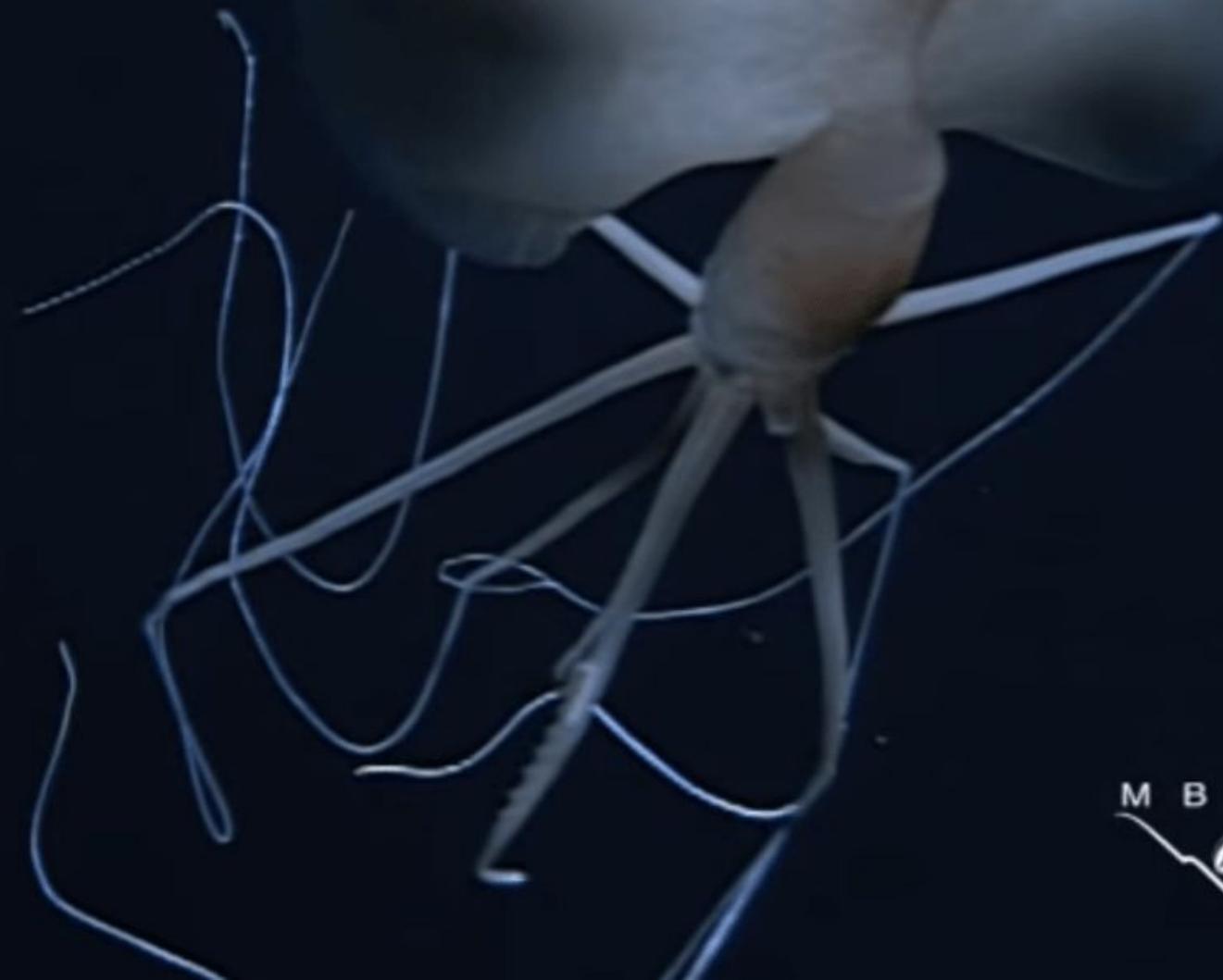
Bathynomus



Hdg:317.69 Depth:7828.48

7828
14

7756
100

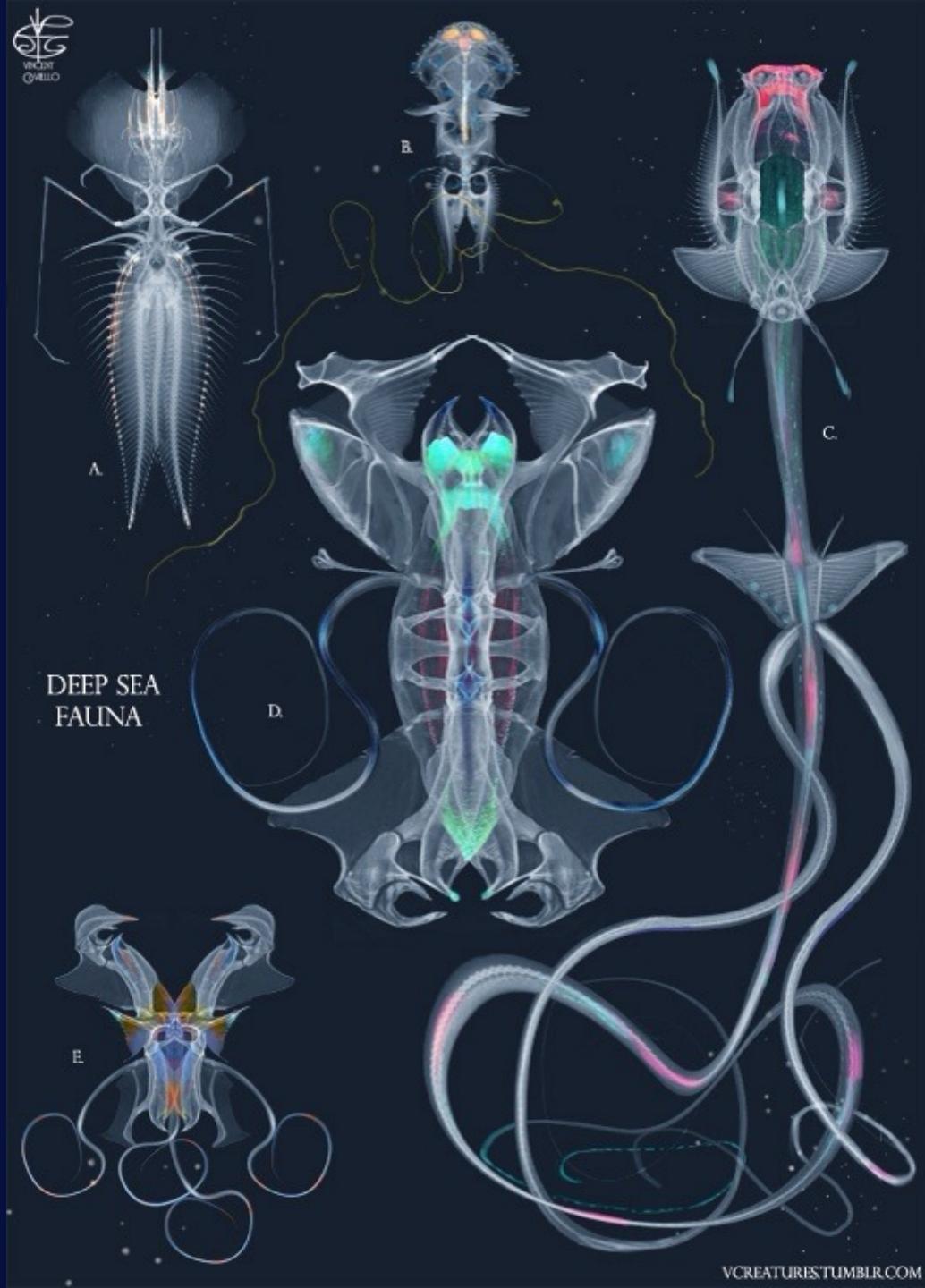
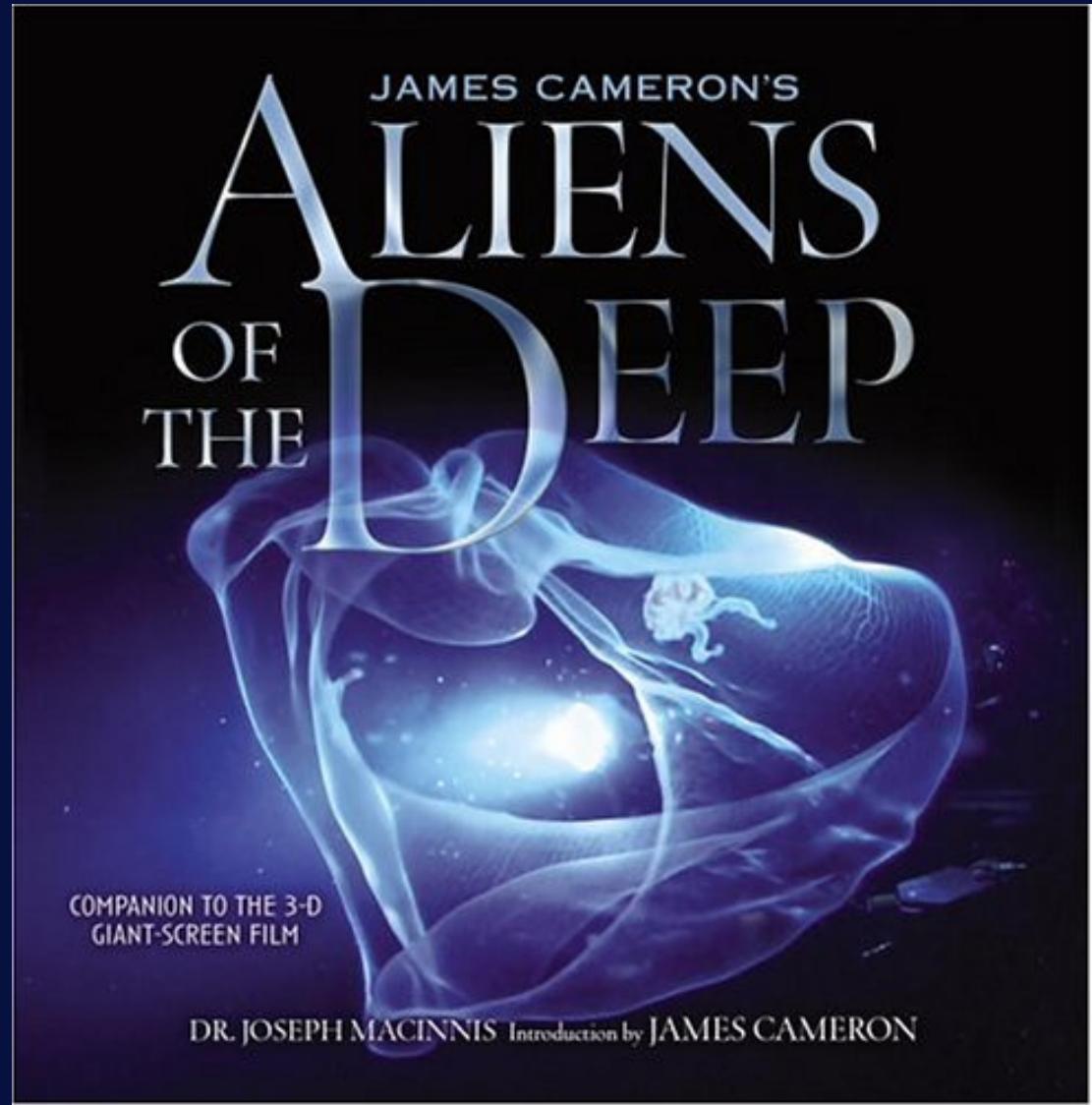


M B A R I





So that **we** could find them...



...before they find us.



69,534,000 TONNES OF DIPLOMACY



Kuat Drive Yards