

Osher Week #4 February 1st
Fossils; Record of Nashville's First Inhabitants

Topics

- 1) Find two fossils or more from fossil pile - bring inside
- 2) Truth about fossils: they are failures of carbon recycling
- 3) Common fossils of Nashville and Middle Tennessee
- 4) Less common (but more exciting) fossils of Middle Tennessee
- 5) Summary of fossil animals' lifestyles
- 6) Fossil contribution to Middle Tennessee's limestone

Vulcan Materials quarry, Parsons, TN

Source of Ft. Negley rock pile

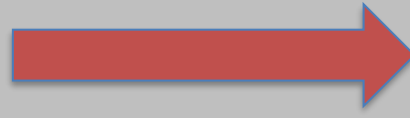


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Fossils; Record of Nashville's First Inhabitants

Topics

- 1) Find two fossils from fossil pile - bring inside
- 2) Truth about fossils: they are failures of carbon recycling
Did not decay. Most fossils are parts that are hard to decay. Not all.
- 3) Common fossils of Nashville and Middle Tennessee
- 4) Less common (but more exciting) fossils of Middle Tennessee
- 5) Summary of fossil animals' lifestyles
- 6) Fossil contribution to Middle Tennessee's limestone

Continuum: No recycling



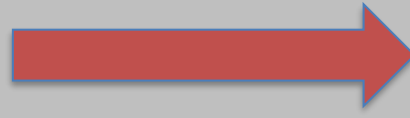
Complete recycling

Seal on coast of Antarctica (80 degrees S) - hundreds to thousands of years old



No to very little recycling (decay) because of being frozen

Continuum: No recycling

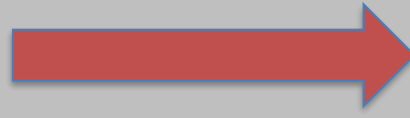


Complete recycling



Insect in amber – no or little decay because of lack of oxygen

Continuum: No recycling

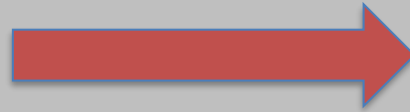


Complete recycling

Bog people: lack of oxygen preserved organic matter but acid dissolved bones somewhat.



Continuum: No recycling



Complete recycling

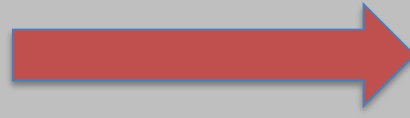


Altered – original organic matter replaced by minerals before decay.

This is the morphology of original, but is totally rock.

“COPROLITE”

Continuum: No recycling

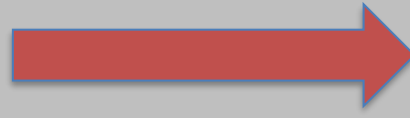


Complete recycling



Complete replacement of organic matter before decay occurred – recycled but morphology is preserved. (replacement by silica)

Continuum: No recycling

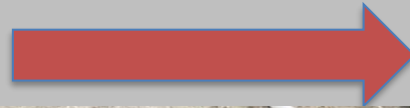


Complete recycling



Soft parts decayed (recycled). Bones preserved completely and not disarticulated, not moved

Continuum: No recycling



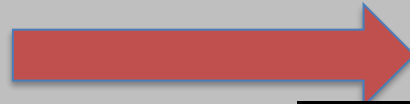
Complete recycling



Screenshot

Soft parts decayed (recycled) but hard parts composed of original calcite

Continuum: No recycling



Complete recycling



Almost all recycled: soft parts decayed
Shell mostly dissolved

Continuum: No recycling

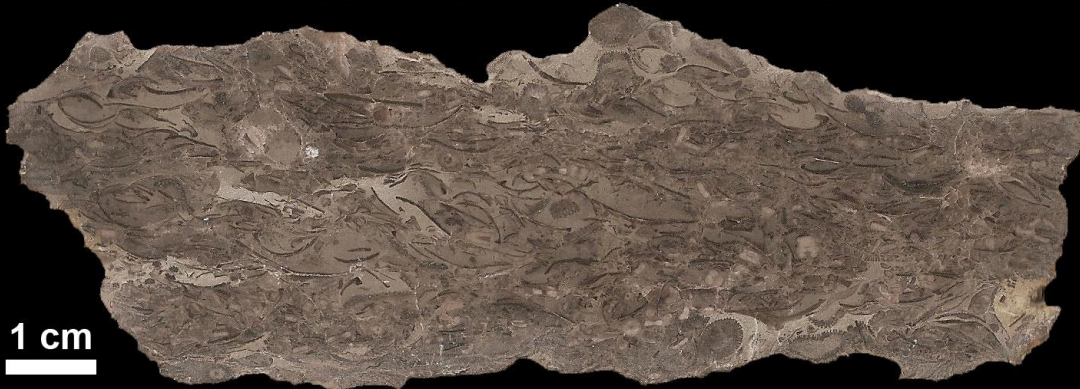


Complete recycling



Soft parts decayed,

Hard parts broken



1 cm



Generalizations:

- 1) The easier something is to decay, the more rare it is as a fossil.
- 2) If decay is stopped by early formed minerals, shape is preserved.
- 3) The more parts to an organism, the more likely it is to be broken.

Think of organisms that would be very unlikely and very likely to become fossils.

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Brachiopod from fossil pile – its flat shape kept it from sinking into muddy seafloor sediment

good thing: it had no way to move itself



Steve Loftin prepared
brachiopod from
fossil pile at Ft
Negley



Living brachiopod – suck water in by beating of cilia on ring of tentacles
low metabolism, immobile, efficient food gatherer

Brachiopods = Phylum Brachiopoda



Guess: Is this a still photo or a YouTube video?

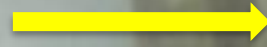


Phylum Bryozoa

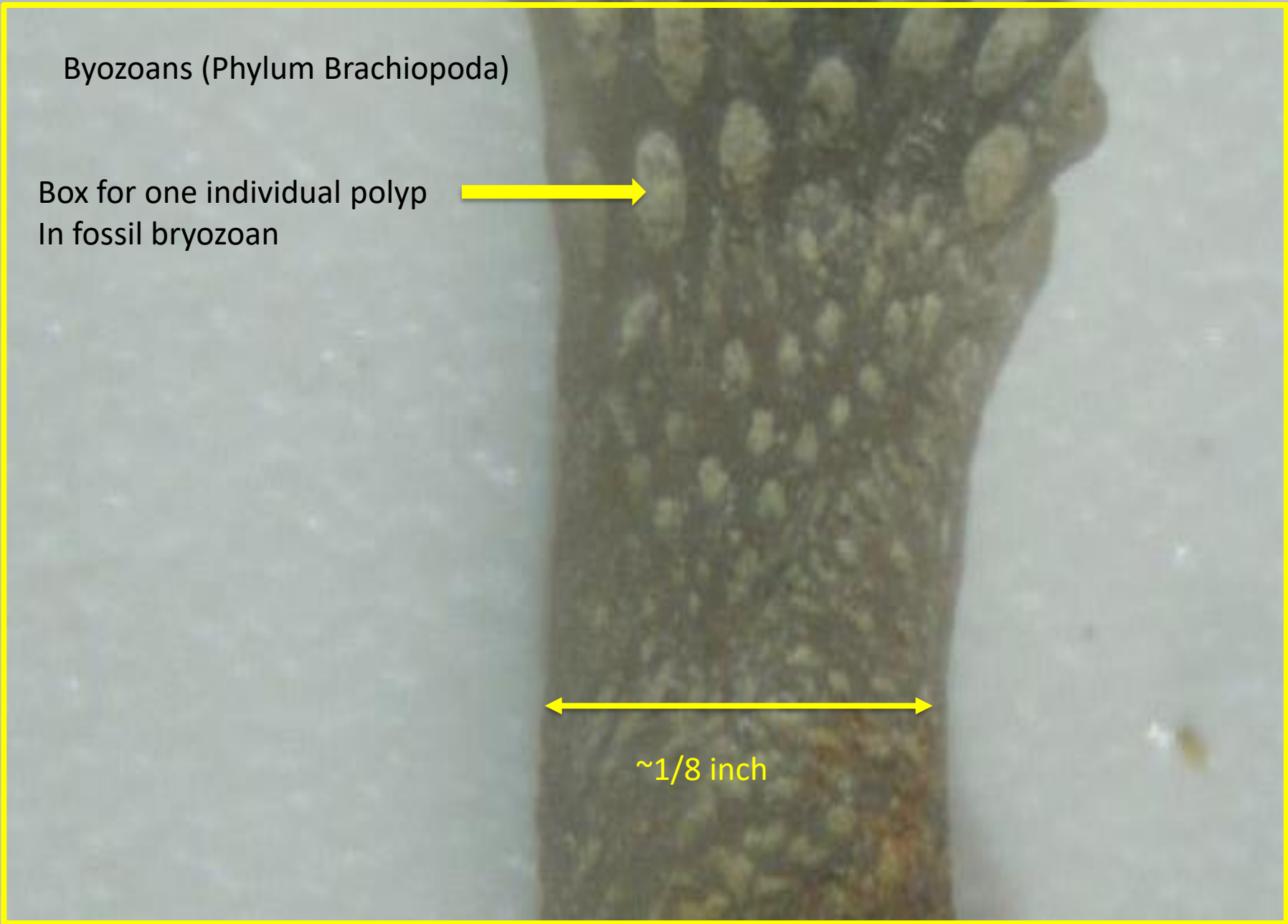
Bryozoan colonies - each with thousands of individual polyps (snatching food items from water) smallest complex animal

Byozoans (Phylum Brachiopoda)

Box for one individual polyp
In fossil bryozoan



~1/8 inch



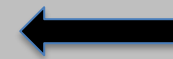


Bryozoa -- colonial, individual polyps are tiny, feeds on suspended particles via tentacles

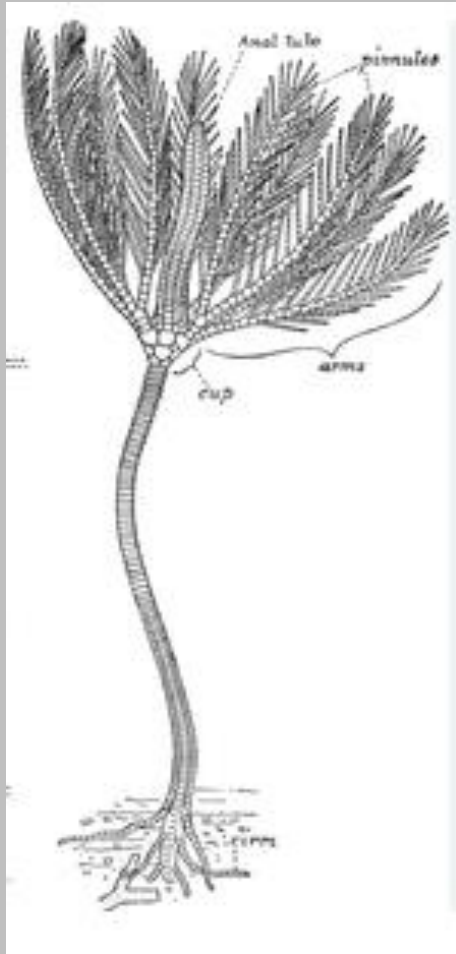
https://www.youtube.com/watch?v=CvCOtRj9_dA



Colonial coral head with polyps
(Phylum Cnidaria – also includes jellyfish)



Solitary coral



Crinoids – related to sea stars, sand dollars, sea urchins
Suspension feeders attached to stalk. (all in Phylum Echinodermata)

stalks



<https://www.youtube.com/watch?v=IFWeqDcAYGk>

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Trilobite - rear ends, molts



<https://www.youtube.com/watch?v=OMaXzuTyzZM>



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Cephalopods - "straight nautiloids" related to squid, but have shell

Carnivores



<https://www.youtube.com/watch?v=5JvS5E9YUcM&t=14s>

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Most common animals snatched food from ocean – boring, effective

Active animals – trilobites, nautiloids less common, more exciting

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