



UNIVERSITY OF SOUTH ALABAMA

## GY 112: Earth History

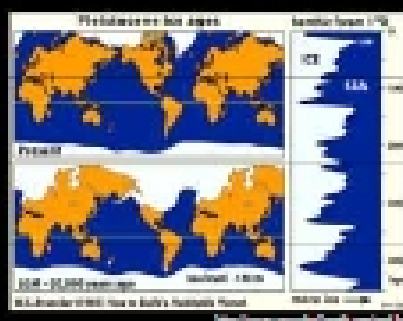
### Proterozoic Fossils

## Last time we covered...

- 1) Glaciations: what happens and why
- 2) Glaciations in the Proterozoic
- 3) Snowball Earth Hypothesis (neato cool!)

## Paleoclimate Phases

We now recognize three major Earth phases



- 1) **Greenhouse Earth**  
(no continental glaciers present)
- 2) **Icehouse Earth**  
(continental glaciers present)
- 3) **Snowball Earth**  
(frozen oceans at equator)

## Snowball Earth

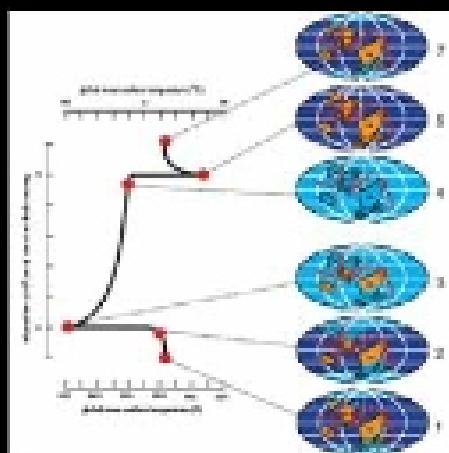


The Varangian glaciation was weird; many of the best glaciated sites were near the equator!

This led several people to conclude that the Earth literally froze over... 2 or 3 times

It was a **Snowball Earth**

## Snowball Earth



Stable isotope geochemistry implies a dramatic change in temperature...

...from -50°C to +50°C (-60°F to 122 °F)

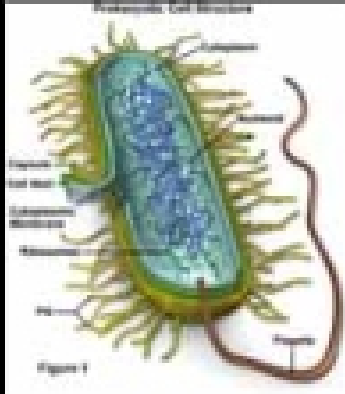
## Today's Agenda

### The Proterozoic Part 4

- 1) Eukaryotes (Acritarchs)
- 2) Metazoans (Ediacarin Fauna)

(web notes 21)

## Proterozoic Fossils

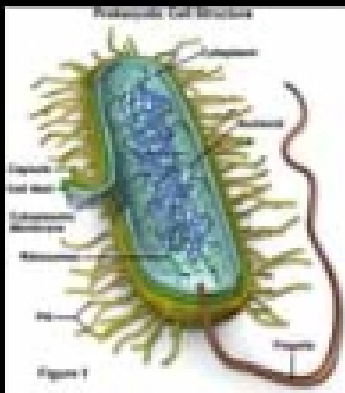


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- Small

## Proterozoic Fossils



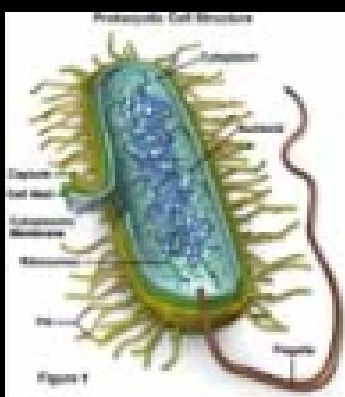
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## Proterozoic Fossils



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- Small
- No nucleus
- DNA spread throughout the cell
- Asexual reproduction
- Could only be single-celled

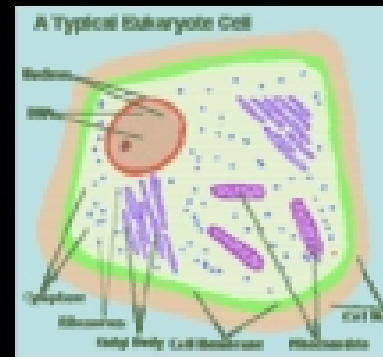
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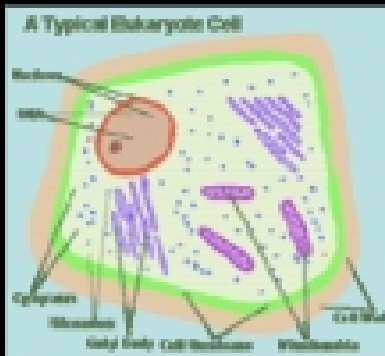
- Larger (>0.06 mm)



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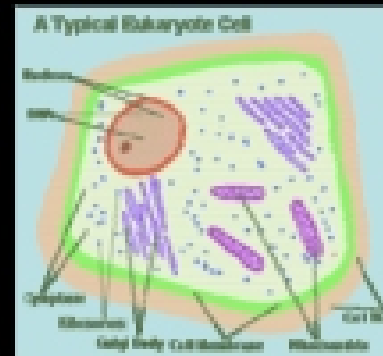
- Larger (>0.06 mm)
- A nucleus and organelles



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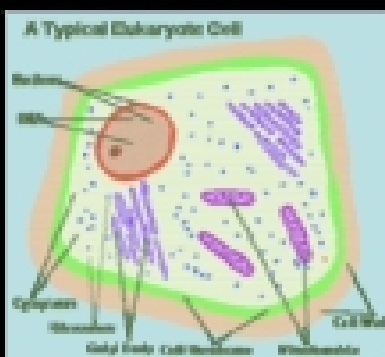
- Larger (>0.06 mm)
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- DNA contained within the nucleus



## Proterozoic Fossils

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- Larger (>0.06 mm)
- A nucleus and organelles
- DNA contained within the nucleus
- Sexual reproduction



## Proterozoic Fossils

During the Proterozoic, something wonderful happens: the rise of the **eukaryotes**:

- Larger (>0.06 mm)
- A nucleus and organelles
- DNA contained within the nucleus
- Sexual reproduction
- Could be multi-celled (**metazoans**)

