

Introduction to Biology. Lecture 13

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Outline

1 Where we are?

- Cell division
- Mitosis

2 Life in late Precambrian

- Cryogenian period and Snowball Earth



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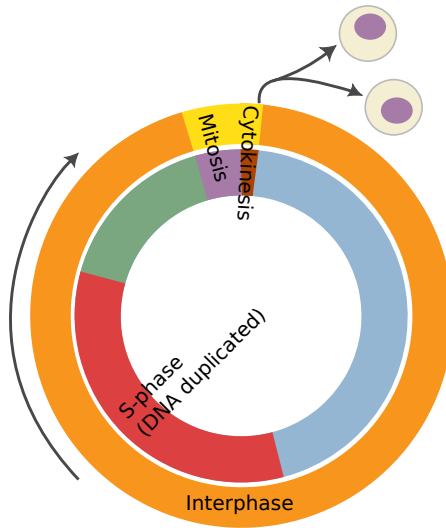


Where we are?

Cell division



Cell cycle



Where we are?

Mitosis

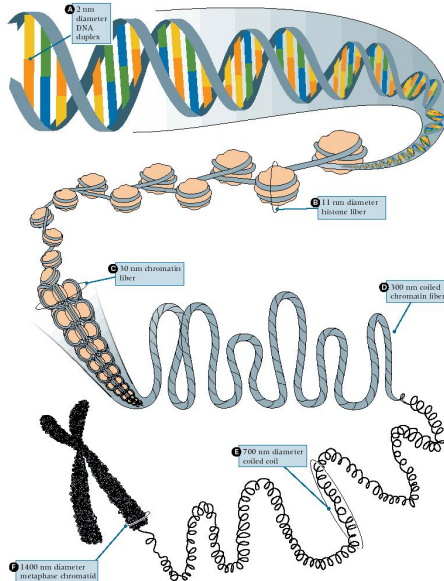


Stages of mitosis

- Prophase
- Metaphase
- Anaphase
- Telophase



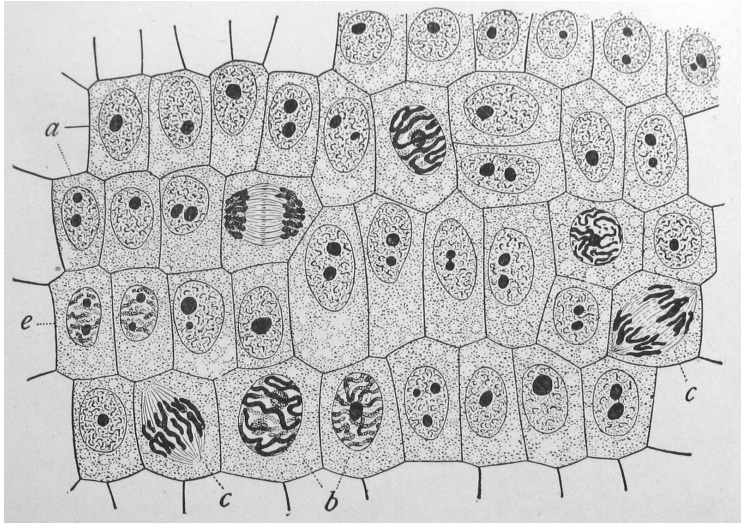
Super-coiling of DNA into chromosome



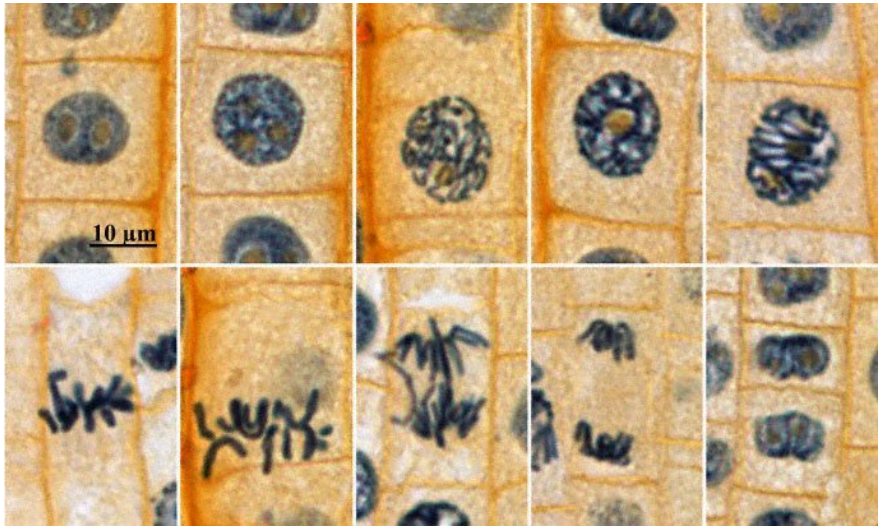
Stages of mitosis



Which stage? (drawing)



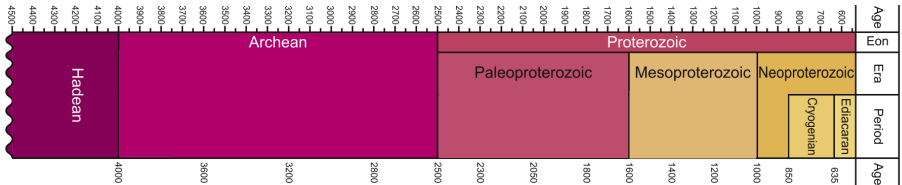
Which stage? (photo)



Life in late Precambrian Cryogenian period and Snowball Earth



Time scale for Precambrian



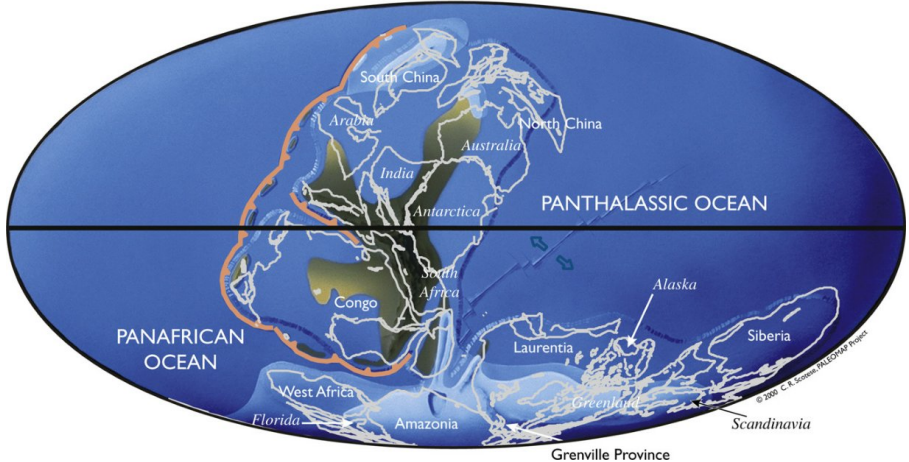
Rodinia—the first super-continent

- Tectonic plates formed (and will form) one continent several times
- 650 Mya this continent—Rodinia was formed right over the South Pole



Cryogenian continents which formed Rodinia

650 Ma Cryogenian



Rodinia: view from South Pole

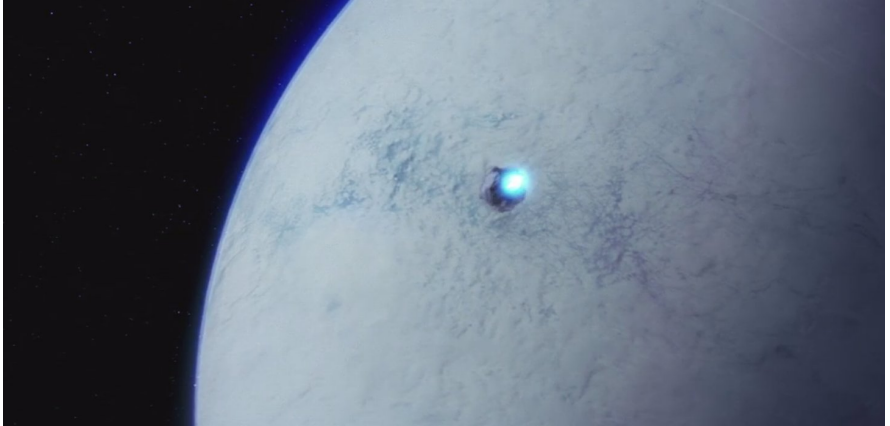


Marionan glaciation: Snowball Earth

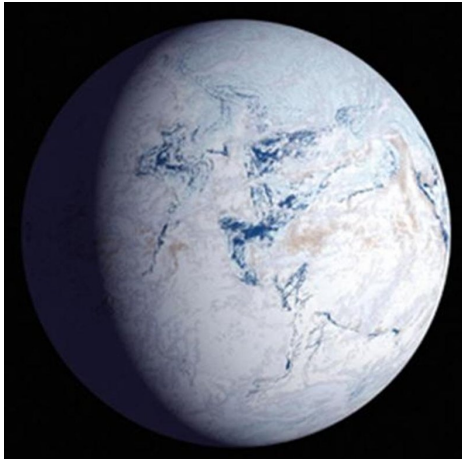
- First global glaciation was started because ice started to concentrate over the pole and increase Earth albedo (this is the positive feedback)
- And because the configuration of continents blocked the equatorial warm current
- And because concentration of oxygen was high but greenhouse gases (like CO₂)—small
- As a result, from time to time Earth was completely covered with ice sheet 1 km tall!



Star Wars Hoth—ice planet



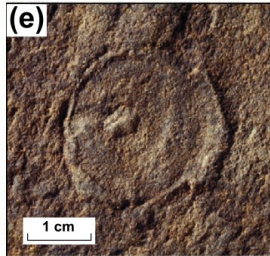
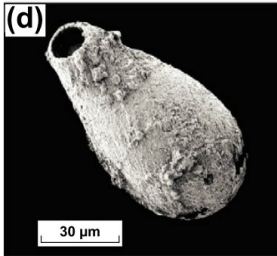
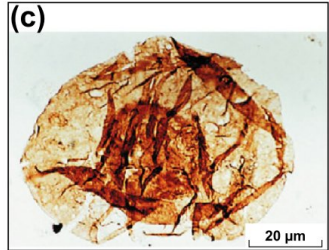
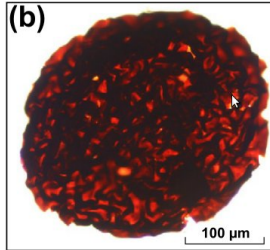
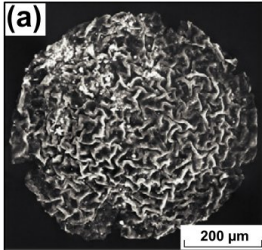
Snowball Earth



The evidence of Marinoan glaciation: diamictite layers everywhere on Earth



Cryogenian fossils



Summary

- Mitosis is an equal division of nucleus
- In Cryogenian, Marinoan glaciation covered the whole Earth



For Further Reading



Mitosis.

<http://en.wikipedia.org/wiki/Mitosis>

