

Quickwrite

Answer the questions below in 1-2 sentences:

- ✓ What do you think the deep ocean floor looks like??? Is it flat??? Does it have mountains???

- ✓ What layer of the earth do we live on???

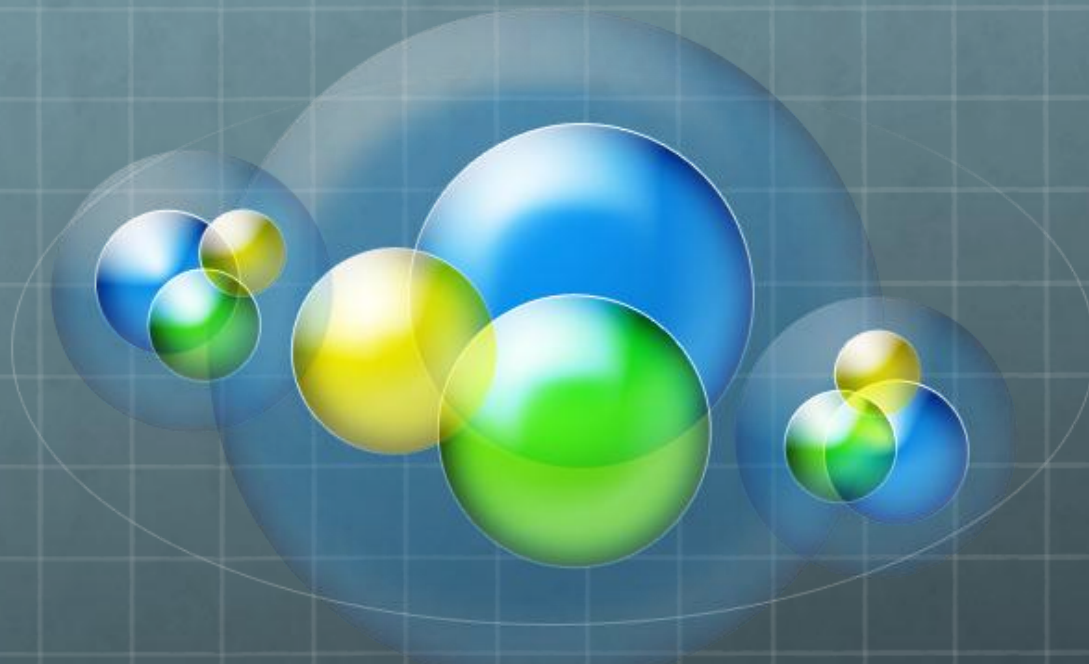






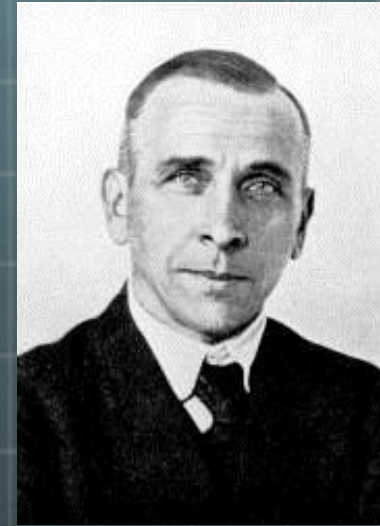
Plate Tectonics: Continental Drift

Objectives: I will be able to...

-  Identify Alfred Wegener and explain what his continental drift hypothesis was
-  Explain how Alfred Wegener used different lines of evidence to support his hypothesis
-  Plot latitude and longitude points of fossil evidence Wegener used to support his hypothesis
-  Map how the continents used to fit together

Who Was Alfred Wegener?

- 🌐 German meteorologist (person who studies the weather)
- 🌐 Most research dealt with proving the existence of the jet stream
- 🌐 Became famous for his Continental Drift Hypothesis

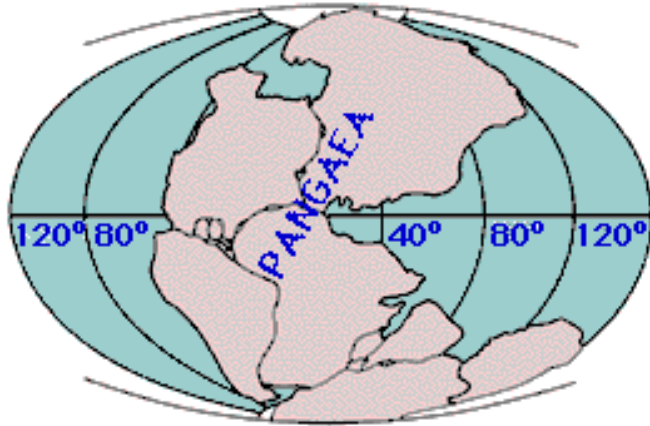


What is the Continental Drift Hypothesis

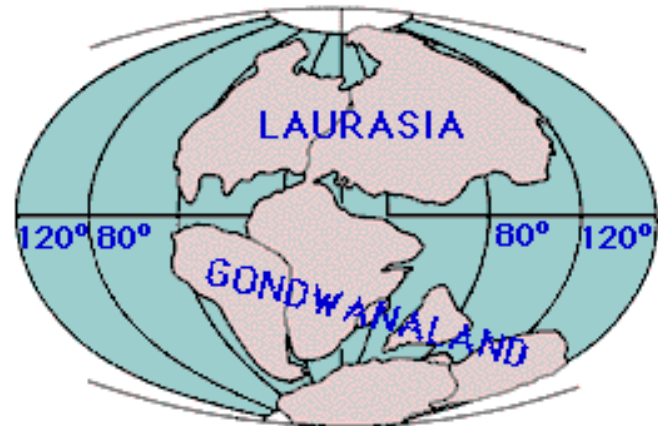
- 🌐 All continents were together in one landmass
- 🌐 Landmass was known as Pangaea
- 🌐 Some natural event happened and caused the continents to split
- 🌐 Continents drifted apart to their current day position



Continental Drift Hypothesis



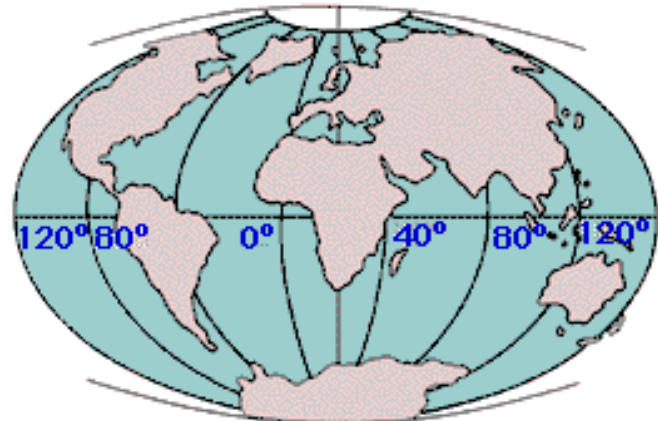
A 225 million years ago



B 135 million years ago



C 65 million years ago



D Present

Pangaea Animation


 <http://www.youtube.com/watch?v=hSdlQ8x7cuk>

What type of evidence did he use to support his hypothesis?

- 🌐 The continents seems to fit together like a puzzle
- 🌐 Fossil Evidence
- 🌐 Geologic Evidence
- 🌐 Climate Evidence



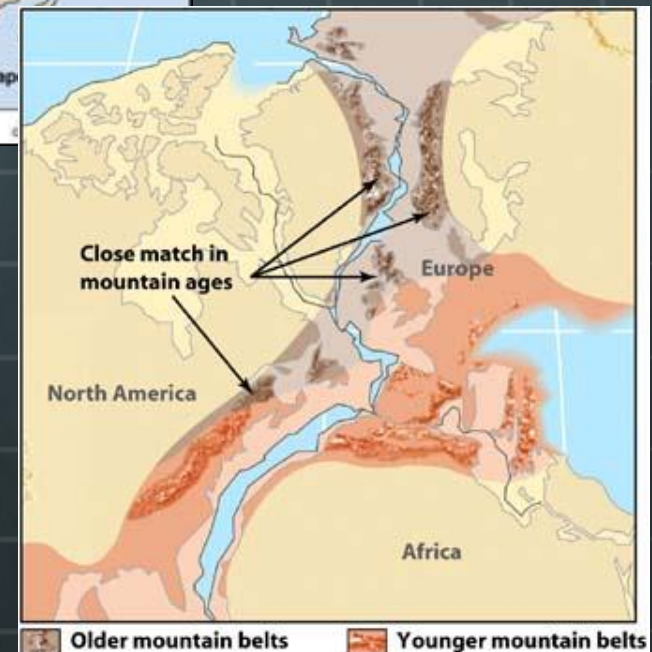
What type of evidence did he use to support his hypothesis?

-  The continents seem to fit together like a puzzle
1. One large land mass known as Pangaea
 2. Laurasia – North America, Europe, Asia
 3. Gondwana – South America, Australia, Africa, Antarctica, India

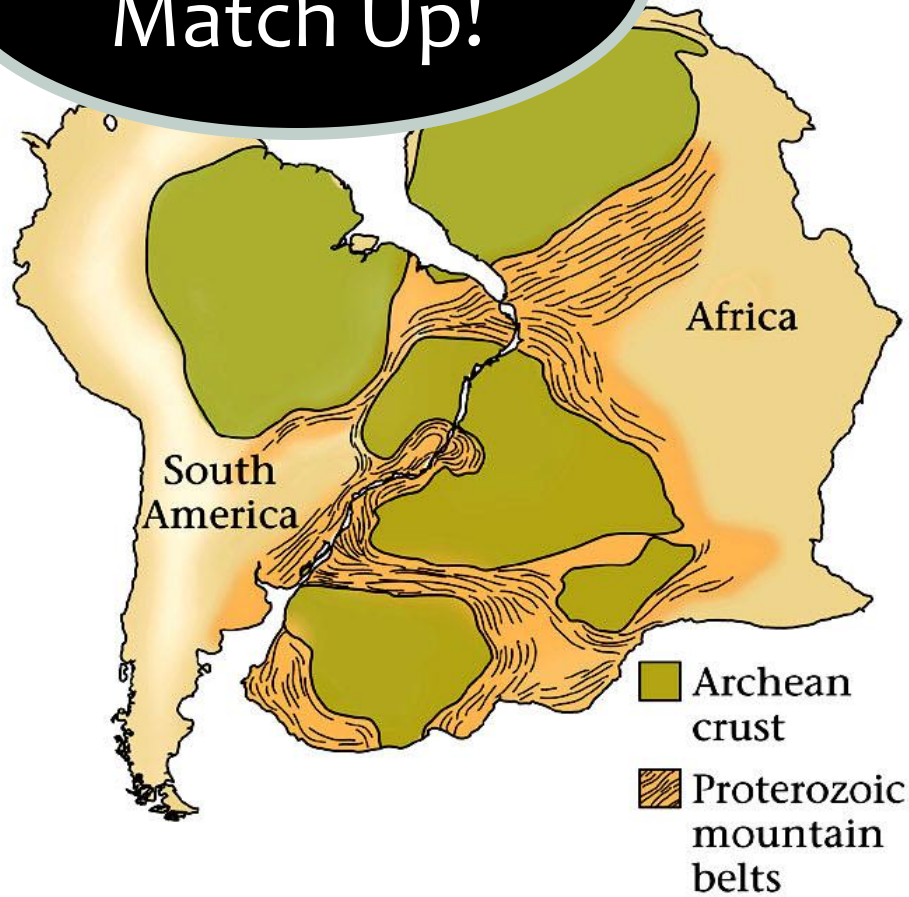


What type of evidence did he use to support his hypothesis?

- Geologic Evidence:
 - Similar rock formations found on different continents
 - These formations were the same age
 - Different mountain ranges line up and have similarities



Mountains Match Up!



(a)

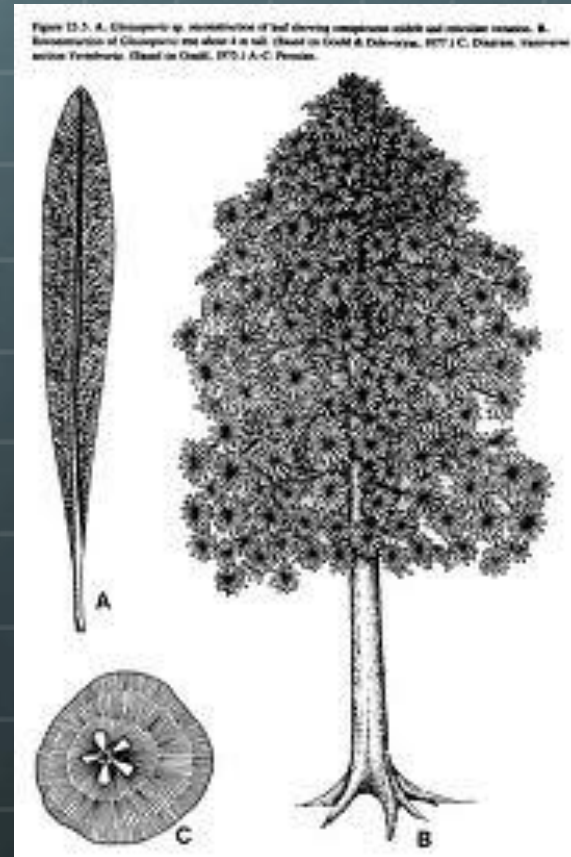
FIGURE 3.6

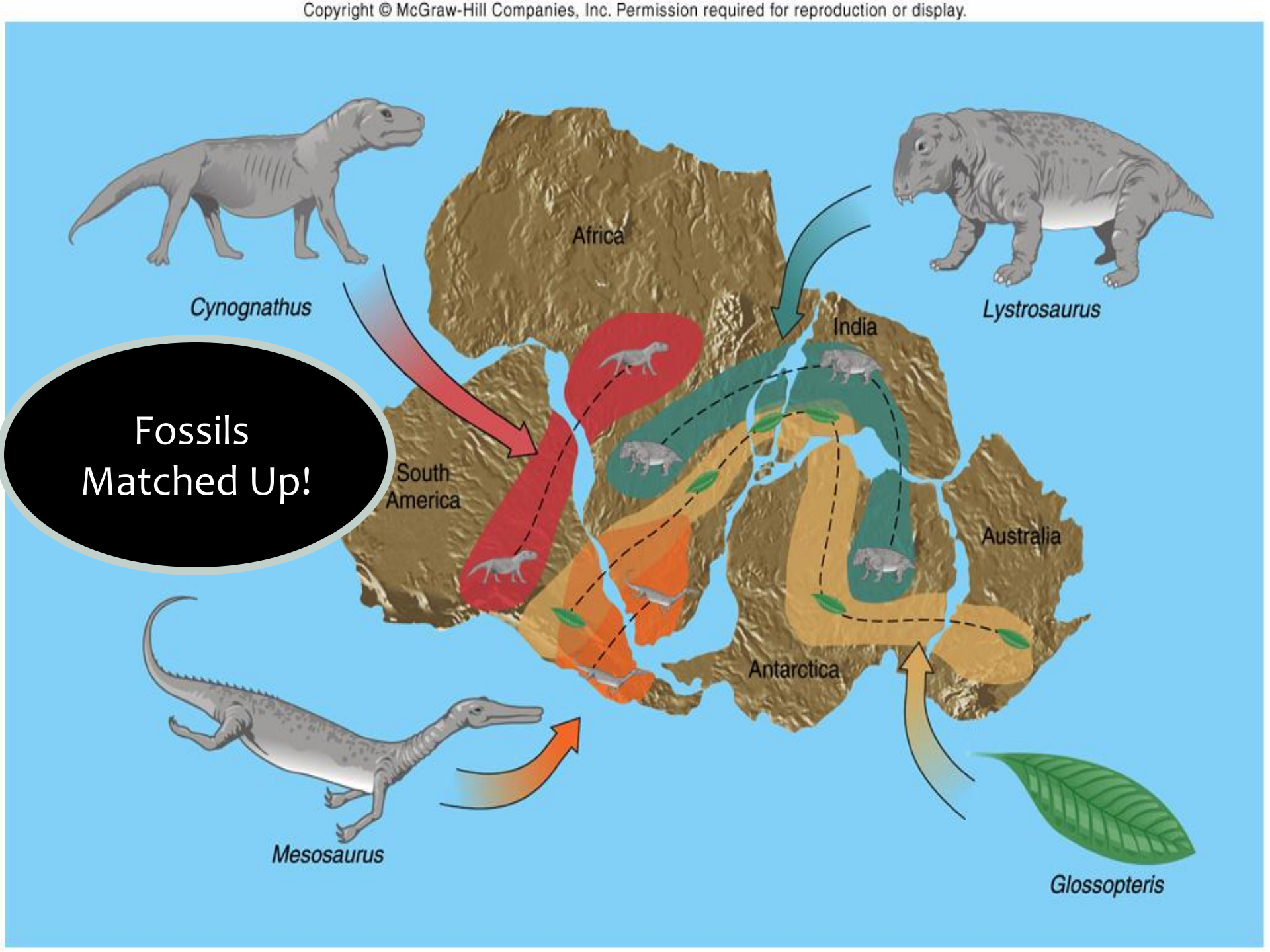


(b)

What type of evidence did he use to support his hypothesis?

- 🌐 Fossil Evidence:
 - 🌐 Four index fossils were found throughout the five southern continents
 - 🌐 Prime example: *Glossopteris* – type of tropical fern
 - 🌐 Most animals were fresh water or land dwellers and couldn't swim long distances





What type of evidence did he use to support his hypothesis?

Climatic Evidence

- Coal Beds: indicate tropical climates and were found in Antarctica
- Glacial deposits (moraines) on different continents are similar by positioning and material
- Glacial striations or scratch marks follow same trends on different continents



Climate Evidence



KEY					
	Folded mountains		Glacial deposits		Lystrosaurus fossils
	Coal beds		Glossopteris fossils		Mesosaurus fossils

**Was Wegner's Hypothesis
accepted?**

NO!!!!

Why wasn't Wegner's Hypothesis accepted?

- Wegner had an abundance of evidence to support his hypothesis
- Didn't have the mechanism to explain how the continents divided



as intended to show how selection
rased apart.

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Reflections on the American Rejection of Continental Drift

Naomi Oreskes, *The Rejection of Continental Drift: Theory and
Method in American Earth Science*. New York: Oxford
University Press, 1999. Pp. ix + 420. US\$ 30.00 HB.

By Ursula B. Marvin

Why the Long Delay?

Laudatory letters flooded in from many parts of the world as geologists discovered that the theory offered solutions to their most difficult problems. But few letters came from America. Clearly, then, this cannot be the response to the advent of plate tectonics in the latter 1960s. Instead, it was the response to the publication of *Our Wandering Continents* by Alexander du Toit in 1937. In his book, du Toit presented a comprehensive account of the evidence for continental drift and cited convection currents as the causal mechanism. However, despite its explanatory power and the lack of any other unified theory, continental