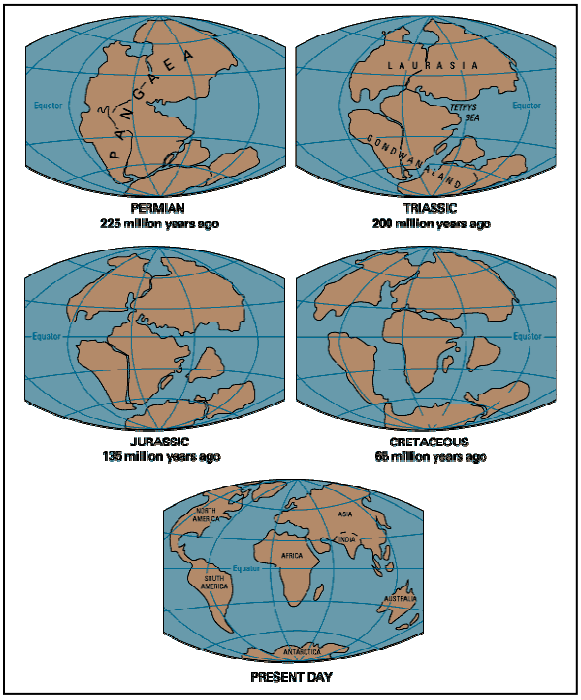
Section 12.1 Notes: Evidence for Continental Drift

- In the early1900s, **Alfred Wegener** proposed that Earth's continents move/drift over time

- He also suggested that at one time, all continents were joined together as one **Supercontinent** known an ***Pangaea***

- Many people found it hard to believe for they couldn't understand how such large masses of land **could actually move!**

- (Greek) ***pan*** = All + ***gaea*** = World

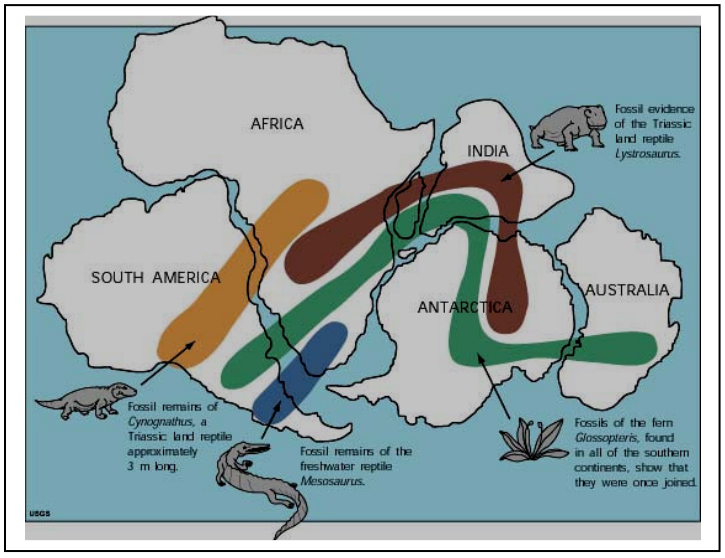


Evidence To Support Continental Drift During Wegener's Time

- **Jigsaw Puzzle Fit** – The edges of the continents seem to **fit together like a puzzle**

- **Matching Geological Structures** – Lands across oceans have the same type and age of rocks/rock layers

- **Fossil Evidence** – Similar fossils have been found all over the world. How was this possible way back then?



Evidence To Support Continental Drift After Wegener's Time

- **Unexplainable Findings** – Scientists have found evidence of glaciers in tropical areas, and **coal** (created by decomposing tropical swamp material) **in Antarctica**.

Were these landmasses somewhere else in history? **Paleoglaciation** refers both to the extent of ancient glaciers and the rock markings they have left behind.

How Can Continents Move?

- New scientific equipment allowed scientists to measure the slow but steady drift of Earth's **tectonic plates** (large moveable slabs of rock that earth is broken down into).

- It was noted that earthquakes and volcanoes appear in certain patterns along the edges of tectonic plates.

- Mapping of the ocean floor revealed the **Mid-Atlantic Ridge**, a long mountain range running down the middle of the Atlantic Ocean.

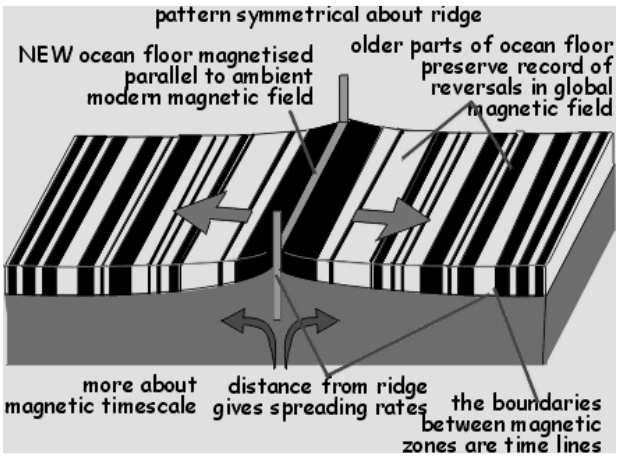
- Rocks taken from the Mid-Atlantic Ridge were younger and thinner than other ocean rocks and sediments farther away from the ridge.

- Also, **Paleomagnetism** showed that iron-based rocks along the ridges are striped with reversing magnetic fields called **Magnetic Striping Patterns.**

- Because the earth's magnetic field can reverse (magnetic reversal) earth's magnetic north pole becomes the south pole, changing the direction magma cools and a pattern of stripes develop. **Magnetic reversal** is random and not well understood. (see Figure 12.10 of your text)

- These magnetic stripes provided evidence for **diverging plate boundaries** (showed that plates move apart from one another)

- **Harry Hess** suggested that this occurs when **magma** from beneath the earth's surface rises (because it's less dense than what's around it) forming a **spreading ridge**, and forming new sea floor and this continues over and over again through many years like a conveyer belt. Older rocks keep being pushed more outwards and newer rock (closer to a ridge) take over.



HOMEWORK☺

- Page 509 and 513 reading checks
- Page 517 #1-12
- Provincial Exam Study Guide