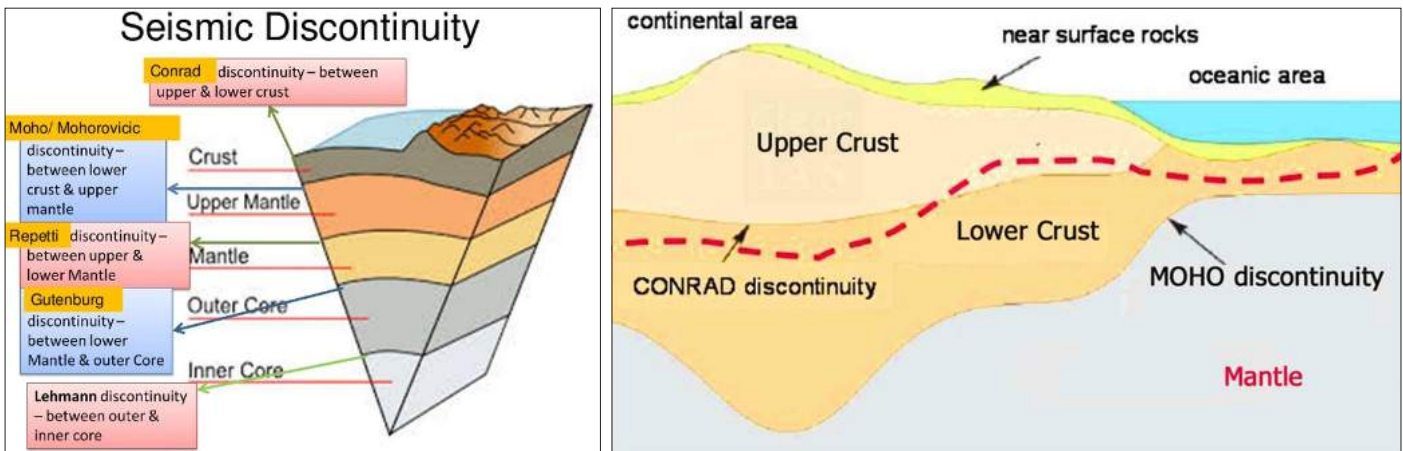


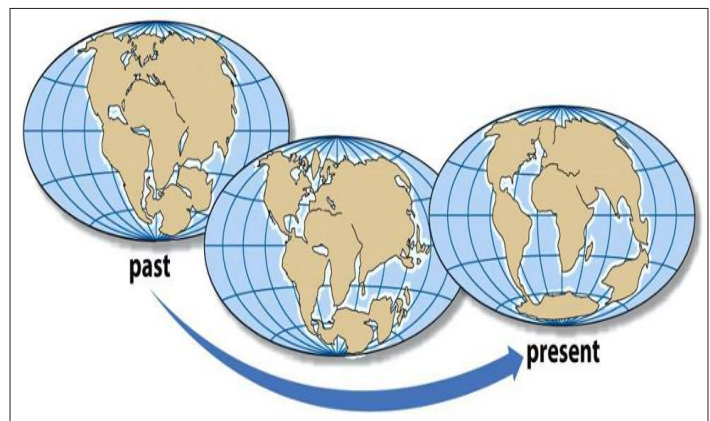
LITHOSPHERIC DYNAMISM

Layered Earth



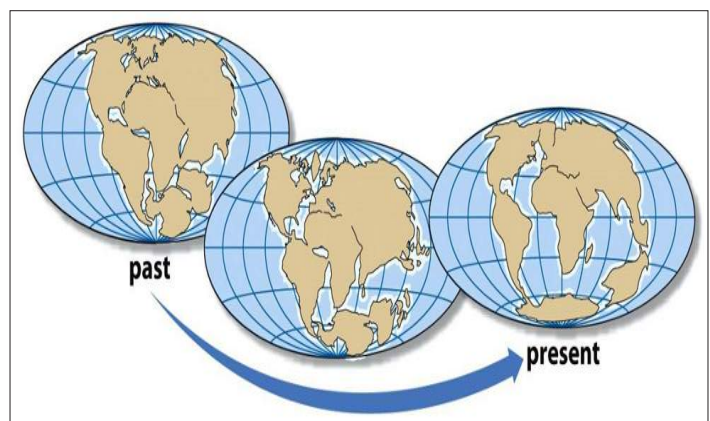
Earth's Dynamism: Continental Drift Theory

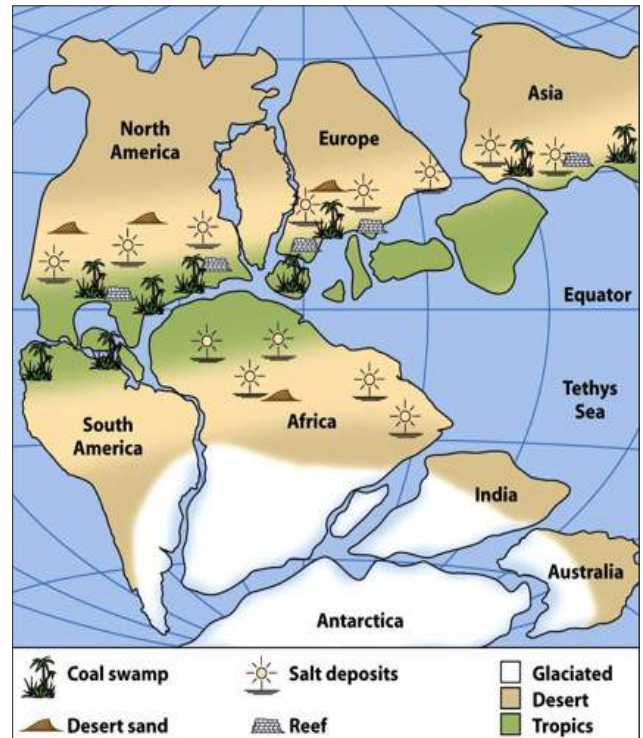
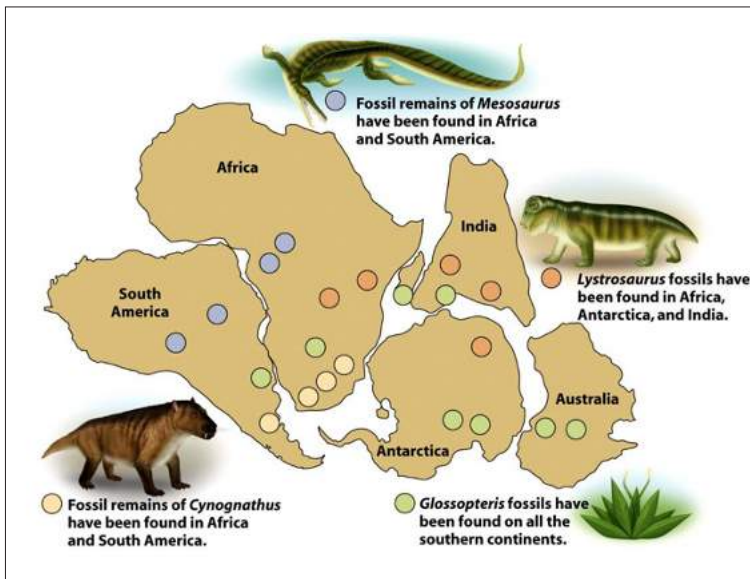
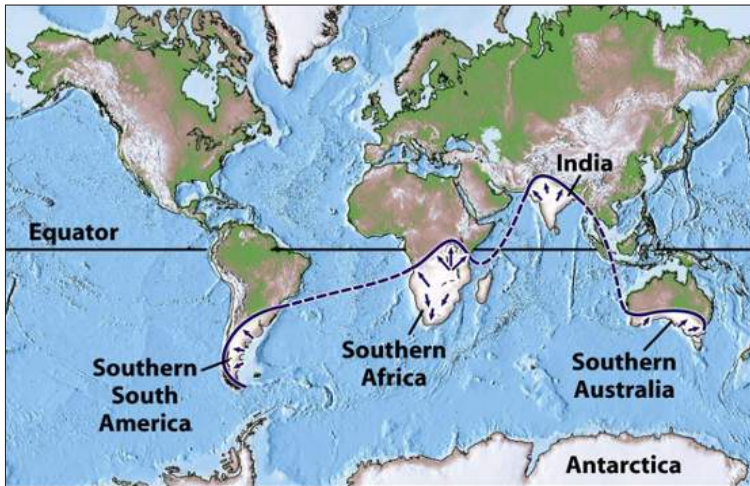
- **F B Taylor** postulated his concept of '**horizontal displacement of the continents**' in the year of **1908** to explain the problems of the origin of the folded mountains of tertiary period.
- **Alfred Wegener** propounded his concept on continental drift in the year **1912** which is also known as **displacement hypothesis**. It was propounded to explain the global climatic changes.



Continental Drift Hypothesis

- The hypothesis that continents are mobile.
- Proposed by German meteorologist Alfred Wegener.
 - ✓ The Origins of Oceans and Continents published in 1915.
 - ✓ Wegener hypothesized a former supercontinent Pangaea.
 - ✓ Idea was based on abundant evidence.
 - "Fit" of the continents.
 - Location of glaciations.
 - Fossil evidence.
 - Rock type and structural similarities.
 - Paleoclimatic evidence.





Earth's Dynamism : Sea Floor Spreading Theory

- The concept of sea floor spreading was first propounded by professor Harry Hess in the year 1960.

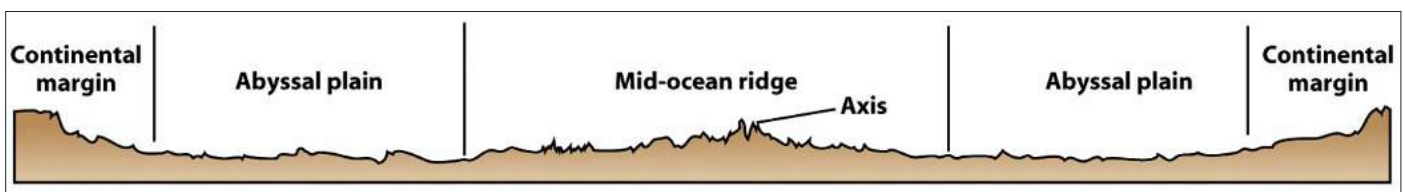


Plate Tectonics Theory

- Tectonic theory evolved in the 1960s.
- Previous research provided a strong foundation.
 - ✓ Wegener (1915) – Evidence supporting continental drift.
 - ✓ Hess / Dietz (1960) – The sea-floor spreading hypothesis.
- By 1968, evidence for tectonics was overwhelming.
- This evidence changed the view of most geologists.

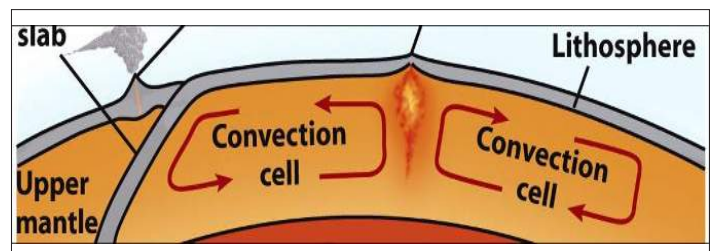
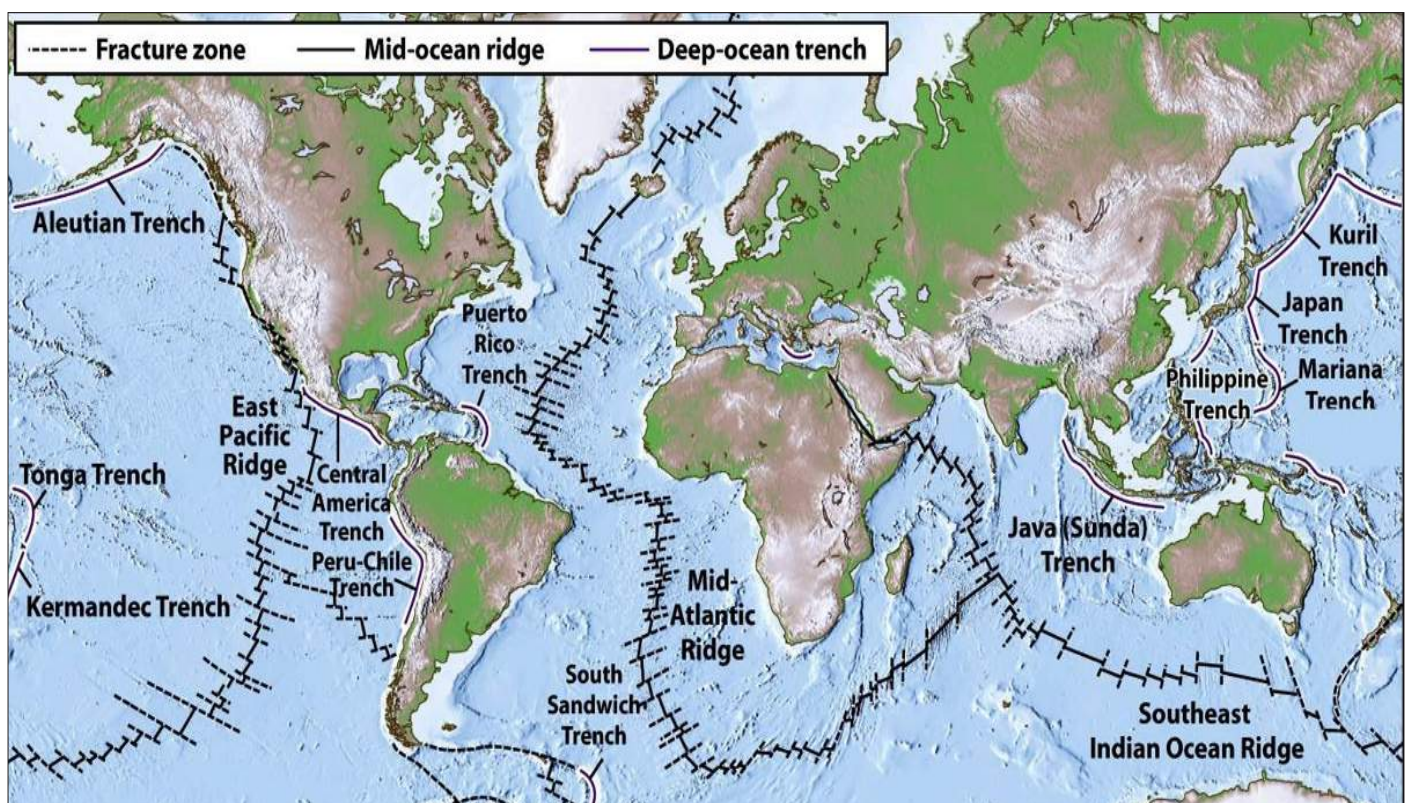
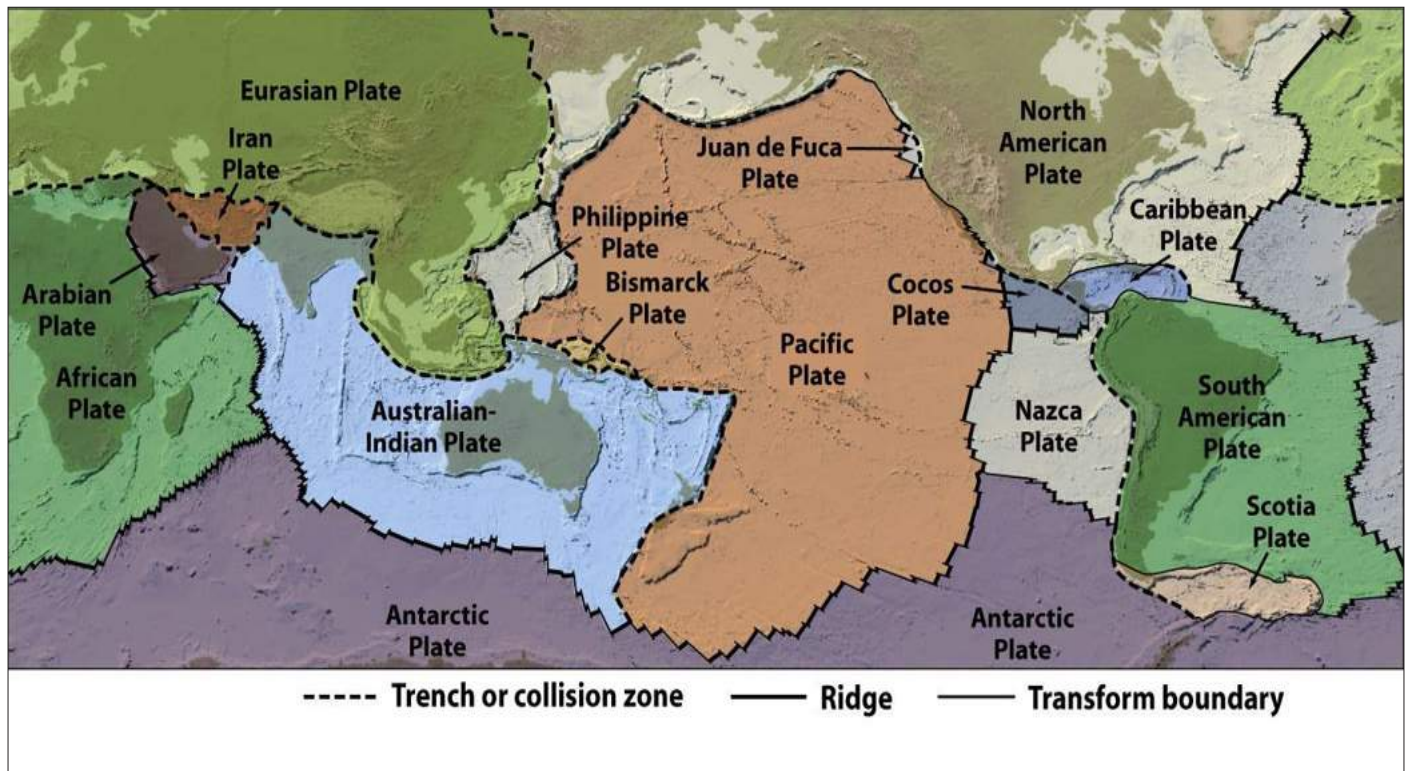


Plate Boundaries

- Lithosphere is fragmented into ~ 20 tectonic plates.
- Plates move continuously at a rate of 1 to 15 cm/yr.
 - ✓ This motion appears to be slow on a human time scale.
 - ✓ Yet it is extremely rapid on a geologic time scale.
- Plates interact along their boundaries.



2013 : GS Paper I

- Q1. Major hot deserts in northern hemisphere are located between 20-30 degree north and on the western side of the continents. Why?
- Q2. What do you understand by the theory of continental drift? Discuss the prominent evidences in its support.
- Q3. Which of the following pairs is/are correctly matched

	Theory/Law	Associated Scientist
1.	Continental Drift	Edwin Hubble
2.	Expansion of Universe	Alfred Wegener
3.	Photoelectric Effect	Albert Einstein

Select the correct answer using the code given below:

Codes:

- (a) 2 and 3 only
(b) 3 only
(c) 2 only
(d) 1 only