



Mains Practice Question

Q. Explain the geological and palaeontological evidence of continental drift theory.

09 Jun, 2021 GS Paper 1 Geography

Approach

- Start the answer by briefly discussing the continental drift theory.
- Discuss the various evidences of Continental Drift Theory.
- Conclude Suitably.

Introduction

Continental drift is the hypothesis that the Earth's continents have moved over geologic time relative to each other, thus appearing to have "drifted" across the ocean bed. It was given by Alfred Wagner in 1912.

He suggested that at the beginning of the Mesozoic era (about 200 million years ago) all the continents of the earth were united together to form a single supercontinent which he called "Pangaea". This supercontinent later broke into small continents.

Body

Evidence of Continental Drift Theory.

- **Similarities in Shape of Coastlines:** The mapping of the continental slopes of eastern South America and west Africa has indicated that their contours match excellently.
- **Similar Orogenic Belts:** If the eastern coast of South America and the western coast of Africa are fitted together, the orogenic belts of the two continents which have the same range of ages and similar structural trend, are found to align themselves across the joint.
 - For example, in Ghana near Accra (west Africa) there is a clear boundary between 2000 million year old rocks and the much younger (about 400 million year old) rocks.
- **Permo-Carboniferous Glaciation:** If these land masses had always been in the tropical latitude, as they are today, it would mean that glaciation extended from the polar regions to the equator.
 - This idea is apparently unreasonable. The only explanation for this puzzle is that all these continents were joined together to form a single landmass.
- **Paleomagnetic Evidence:** Igneous rocks record the earth's magnetic field present at the time of their formation.
 - The orientation of the earth's magnetic field in each of the separate lava flows is found to be different.
 - Thus paleomagnetic techniques which locate the magnetic pole of any stage in the past, give consistent results on each continent only when they are placed in the proposed framework of continental drift theory.

Conclusion

If the evidence of seafloor spreading and plate tectonics are added to the argument, continental drift may be regarded as an established fact.

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