

p.272 Continental Drift

Sometimes, the rocks and fossils provide evidence of how the continent has moved.

Geologic Evidence of Continental Drift

Rocks in India show scratches and scars that formed when glaciers ground over their surfaces. So, at one time, India must have been covered by ice. Such a thick layer of ice could not form at sea level in the tropical zone where India is today. Southern Africa and Brazil also have ice-scratched rocks of the same age. This evidence suggests that at one time, the rocks were joined and were located in a colder climate. Scientists now know that India, South Africa, and Brazil were part of a single landmass that was located near the South Pole about 280 million years ago.

Fossil Evidence of Continental Drift

A fossil of a little reptile called Mesosaurus is shown in Figure 3. Mesosaurs ate fish in rivers and lakes about 270 million years ago. Today, Mesosaurus fossils are found in South America and southwestern Africa. These areas are separated by 3,000 miles of ocean. Mesosaurs could not have swum across this ocean. And there is no evidence of land bridges between these continents. Thus, mesosaurs must have lived at a time when the two continents were joined. This fossil evidence supports continental drift.

p.273 History of Continental Drift

By putting together all of the evidence, scientist can draw maps that show how Earth's geography has changed over time. For example, all of earth's continents made up a supercontinent called Pangaea (pan JEE uh) about 245 million years ago. At the same time, Earth also had a single super ocean. Pangaea split into several new plates beginning about 200 million years ago. As the plates drifted apart, those new continents separated, and new oceans formed between them. The breakup of Pangaea is shown in Figure 4.

These huge changes moved rocks and fossils all over Earth. The rocks and fossils give scientists evidence of the plate movements. In addition, plate movements changed Earth's climate and affected evolution, or how populations of species have changed over time.

Changes in Climate

AS continents moved, they changed the way land and sea were placed on Earth's surface. If continents moved toward the equator, they received more energy from the sun and developed warmer climates. Continental drift caused ocean currents and winds to flow differently. These changes affected heat flow. As a result, temperature and precipitaion patterns around the planet changed.

For example, Antarctica was not frozen 40 million years ago. But as the other continents moved, Antarctica was left surrounded by the cold water near the South Pole. As cold water currents moved around Antarctica, the polar icecap formed. Antarctica slowly became the icy land we see today.