# Pangaea: the ancient supercontinent

History, Ancient History

Pangaea: The Ancient Supercontinent Throughout Earth's history, fragments of continental crust have floated across the planet's surface, pushed and pulled by plate tectonic motion. At times in the geologic past, these fragments (what we may now call continents) came together to form one large supercontinent, only to be broken apart once again by tectonic forces. The cycle of supercontinent construction and destruction took hundreds of millions of years. The most recently created supercontinent was Pangaea, which came into being about 300 million years ago.

Panthalassa, a giant ocean, surrounded it. In just 100 million years, though, Pangaea began to break apart. Tectonic forces created a north-south rift in the super-continent, separating it into two new continents, Laurasia and Gondwanaland. As the new continents separated, the rift filled in with water, eventually becoming the present-day Atlantic Ocean. Laurasia, composed of the present-day continents of Asia, Europe, and North America (Greenland), occupied the northern hemisphere.

Gondwanaland, composed of the present-day continents of Africa, Antarctica, Australia, and South America, occupied the southern hemisphere. The subcontinent of India was also part of Gondwanaland. By 135 million years ago, the breakup of Laurasia and Gondwanaland was underway, leading to the present-day locations of the continents. The forces that formed Pangaea, then broke it apart, are still at work. North America, South America, and Greenland are all moving westward.

Australia, India, and the western part of Africa are all moving northward. Europe and Asia are moving eastward. The Atlantic Ocean is becoming larger, and the Pacific Ocean is becoming smaller. Although impossible to

know when, at some point in the future, millions of years from now, the continents may well come together to form yet another super-continent. Beginning some 1, 800 miles (2, 900 kilometers) beneath the surface and extending to a depth of 3, 960 miles (6, 370 kilometers), the very center of the planet, is Earth's core.

Composed of the metal elements iron and nickel, the core has a solid inner portion and a liquid outer portion. Scientists estimate that temperatures in the core exceed 9, 900°F (5, 482°C), creating extreme heat energy. Were this energy not released in some manner, Earth's interior would melt. Circulating currents, called convection currents, carry the energy to the surface of the planet, where it is released. It is the release of this energy underneath the lithosphere that leads to the formation of the major geologic features on the surface of the planet.