Precambrian Continents and Plate Tectonics

Content of Cratons

Little is known about the **paleogeography**, or ancient geography, of early Earth. The earliest continental crust is found in **cratons**, which are the ancient cores on continents. They also contain all three types of rocks that each tells their own story about the Precambrian era.

- Felsic igneous rocks are the remains of the first continents.
- Rounded sedimentary grains show that early rivers and seas existed and that erosion occurred.
- **Greenstone,** a metamorphic volcanic rock, shows the location of subduction zones because they are found in ocean trenches

Study Tip

The forming of continents was similar to the forming of our planets: Many small pieces (microcontinents) collided to create bigger pieces.

Notice the greenstone lining the Canadian shield, which has been exposed by the scraping of glaciers.

Formation from Cratons

Shields are where cratons crop out at the surface. Many Precambrian shields are about 570 million years old. Cratons covered by younger rocks are called **platforms.** When these platforms undergo erosion, the Precambrian craton is exposed.

Early Crustal Plates

Early crustal plates were small due to faster mantle convection and stronger plate tectonics processes. These processes also created more subduction zones.

Plate Tectonics

Plate tectonics: Smaller **microcontinents** collided to create bigger **supercontinents**, which resulted in the formation of massive mountain ranges. An active period of convergence was between 1.5 million and 1.0 million years ago. Cratons collided with microcontinents and oceanic island arcs to form Laurentia, which is part of the supercontinent Rodinia. Around 750 million years ago, oceans began forming in between continents as the result of Rodinia's disintegration.

The supercontinent Rodinia 1.1 billion years ago

Concept Check

- What are cratons? What kinds of rocks do they contain and what do these rocks tell us about the Earth during the Precambrian era?
- What are shields? Platforms? What do they form from?
- What was the plate tectonic activity like during the Precambrian Era?