Bits of an Ancient Planet Called Theia May Be Buried in Earth's Mantle

New research suggests that remnants of an ancient planet named Theia, which is believed to have collided with Earth around 4.5 billion years ago, may be buried deep within our planet's mantle. This hypothesis provides new insights into the violent history of our solar system and the formation of the Earth-Moon system.

Theia is a theoretical planet that, according to the giant impact hypothesis, crashed into the early Earth. This colossal collision is thought to have led to the formation of the Moon from the debris ejected into space. While the giant impact hypothesis is widely accepted, the idea that parts of Theia might still exist inside Earth is a more recent development.

Geochemists have long speculated about the origin of certain mysterious regions deep within Earth's mantle, known as large low-shear-velocity provinces (LLSVPs). These areas, located beneath West Africa and the Pacific Ocean, are massive structures that slow down seismic waves, suggesting they are compositionally different from the surrounding mantle material.

The new theory posits that these LLSVPs could be remnants of Theia's mantle, which merged with Earth's mantle after the impact. This idea is supported by isotopic evidence found in volcanic rocks, which show a composition that could be consistent with material from a different celestial body.

If true, this hypothesis would not only change our understanding of Earth's internal structure but also provide direct evidence of the collision that formed the Moon. The presence of Theia's remains deep within Earth could explain certain anomalies in Earth's mantle composition and provide a unique window into the early solar system.

Further research and more advanced seismic imaging techniques are needed to confirm this theory. However, the possibility that Earth's mantle contains remnants of an ancient planet opens up exciting new avenues of research in both geology and planetary science.

In conclusion, the notion that bits of the ancient planet Theia may be buried in Earth's mantle adds a fascinating chapter to the story of our planet's formation. As scientists continue to explore the deep Earth, they may uncover more clues about the violent events that shaped our solar system, providing a deeper understanding of the origins of the Earth and the Moon.