New Findings in Dinosaur Extinction: The Asteroid that came from "After"

The Legacy of the Father-Son Duo who Unravelled its Mystery before

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The mass extinction that wiped out the dinosaurs 66 million years ago remains one of the most intriguing events in Earth's history. The dominant theory behind this catastrophic event is the asteroid impact hypothesis, a groundbreaking idea proposed by the remarkable father-son duo, Luis and Walter Alvarez. Recent studies have further deepened the mystery, suggesting that the asteroid responsible for this extinction may have originated from an extrasolar system. Adding to this intrigue, traces of plutonium found on Earth hint at a potential connection between interstellar objects and cosmic events. This article explores the fascinating journey of this theory, its key players, and the latest revelations in the field.

The Alvarez Hypothesis: A Father-Son Discovery

In 1980, Nobel Prize-winning physicist **Luis Alvarez and his geologist son, Walter Alvarez**, proposed that a massive asteroid impact led to the sudden extinction of dinosaurs and nearly 75% of all species on Earth. Their hypothesis was based on a thin layer of **iridium-rich clay** found in geological records around the world. Iridium is rare on Earth's surface but is abundant in asteroids and comets, leading the Alvarez' to conclude that a massive extraterrestrial impact was responsible for the mass extinction event.

Their theory faced scepticism initially, but in 1991, a giant impact crater was discovered near the Yucatán Peninsula in Mexico. Named the Chicxulub crater, it measured about 180 kilometres (112 miles) in diameter, confirming the Alvarez hypothesis. This impact would have triggered massive wildfires, tsunamis, and a prolonged "nuclear winter" effect, leading to the collapse of ecosystems and the demise of the dinosaurs.

A Cosmic Origin: The Asteroid's Extrasolar Roots?

While the Alvarez hypothesis solidified the idea of an asteroid impact, recent scientific advancements have opened new dimensions to this event. A groundbreaking study suggests that the Chicxulub impactor may not have originated from our solar system but could be an interstellar object.

In 2023, researchers analysing the chemical composition of the asteroid debris proposed that its structure and trajectory differed significantly from typical solar system

asteroids. Some scientists argue that the asteroid could have been a long-period comet from the Oort Cloud or, more intriguingly, an extrasolar visitor, similar to ‘Oumuamua, the first confirmed interstellar object detected in 2017.

Adding to this cosmic mystery, traces of **Plutonium-244 (Pu-244)** have been discovered in ancient seabed deposits on Earth. Since Pu-244 is not naturally occurring today and has a half-life of about 80 million years, its presence suggests that it may have originated from an interstellar source, possibly from the same cosmic events that produced extrasolar asteroids. If future research uncovers Pu-244 in the impact residues of the Chicxulub crater, it could provide strong evidence that the dinosaur-killing asteroid had an extrasolar origin, carrying with it materials formed in distant supernovae or neutron star mergers.

Conclusion: A Story Still Unfolding

The asteroid impact theory, pioneered by the Alvarez duo, has stood the test of time and scientific scrutiny. However, the possibility that the dinosaur-killing asteroid originated from beyond our solar system adds an extraordinary twist to this cosmic story. With ongoing research, new technological advancements, and deeper space explorations, we may one day uncover the complete history of this cataclysmic event and its implications for life on Earth.

As scientists continue to unravel the mysteries of our universe, the story of dinosaur extinction serves as a reminder of the ever-present cosmic forces that shape our world.

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