

Ancient snake embryo found encased in 105-million year-old amber

First fossilized embryo rewrites what paleontologists know about ancient snakes.

By Katie Willis on July 18, 2018



Overview of skeletal remains from the Xiaophis myanmarensis snake hatchling trapped in Burmese amber. Photo credit: Ming Bai, Chinese Academy of Sciences

An ancient snake embryo, preserved in 105-million year-old amber, provides important new information on the evolution of modern snakes, according to a new study led by University of Alberta paleontologists. The fossil is the first baby snake to yet be found.

“This snake is linked to ancient snakes from Argentina, Africa, India, and Australia,” explained paleontologist Michael Caldwell, lead author and professor in the Department of Biological Sciences, “It is an important, and until now, missing component of understanding of snake evolution from southern continents, that is Gondwana, in the mid-Mesozoic.”

Caldwell and his international team, including collaborators from Australia, China, and the United States, have tracked the migration of these ancient Gondwanan snakes beginning 180-million years ago, when they were carried by tectonic movements of continents and parts of continents, from Australia and India, to Madagascar and Africa, and finally to Asia, in modern day India and Myanmar.

Encased in amber

The amber clast in which the specimen was found also provided important data about its environment. “It is clear that this little snake was living in a forested environment with numerous insects and plant as these are preserved in the clast,” explained Caldwell. “Not only do we have the first baby snake, we also have the first definitive evidence of a fossil snake living in a forest.”

Using CT scanning technology, the scientific team studied the ancient snake and compared it to the young of other modern snakes. Their results yielded unexpected insight into the development and embryology of the ancient specimen, including the formation of the vertebrae and notochord.

“All of these data refine our understanding of early snake evolution as 100-million year-old snakes are known from only 20 or so relatively complete fossil snake species,” said Caldwell. “There is a great deal of new information preserved in this new fossilized baby snake.”

The paper, “A Mid-Cretaceous Embryonic-To-Neonate Snake in Amber from Myanmar,” was published in *Science Advances*. This research was conducted in collaboration with the China University of Geosciences, the Institute of Zoology at the Chinese Academy of Sciences, Midwestern University, the South Australian Museum, Flinders University, the Royal Saskatchewan Museum, the University of Regina, the Paleo-Dairy Museum of Natural History, and the Beijing Forestry University.

Source: Faculty of Science

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