

'Pregnant plesiosaur' examined

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A paper to be published on August 12, 2011 in *Science* reveals that Dr. F. Robin O'Keefe of Marshall University in Huntington, W.Va. and Dr. Luis Chiappe, Director of the Natural History Museum's Dinosaur Institute, have determined that a unique specimen now displayed in the Natural History Museum of Los Angeles County is the fossil of an embryonic marine reptile contained within the fossil of its mother.

The 78-million-year-old, 15.4-foot-long adult specimen is a *Polycotylus latippinus*, one of the giant, carnivorous, four-flipped reptiles known as plesiosaurs that lived during the Mesozoic Era. The embryonic skeleton contained within shows much of the developing body, including ribs, 20 [vertebrae](#), shoulders, hips, and paddle bones. The research by Dr. O'Keefe and Dr. Chiappe establishes that these dual fossils are the first evidence that plesiosaurs gave birth to live young, rather than hatching their offspring from eggs on land.

Although live birth (or viviparity) has been documented in several other groups of Mesozoic aquatic reptiles, no previous evidence of it has been found in the important order of plesiosaurs. Drs. O'Keefe and Chiappe have also determined that plesiosaurs were unique among aquatic reptiles in [giving birth](#) to a single, large offspring, and that they may have lived in social groups and engaged in parental care.

"Scientists have long known that the bodies of plesiosaurs were not well suited to climbing onto land and laying eggs in a nest," Dr. O'Keefe stated. "So the lack of evidence of live birth in plesiosaurs has been puzzling. This [fossil](#) documents [live birth](#) in plesiosaurs for the first

time, and so finally resolves this mystery. Also, the embryo is very large in comparison to the mother, much larger than one would expect in comparison with other reptiles. Many of the animals alive today that give birth to large, single young are social and have maternal care. We speculate that plesiosaurs may have exhibited similar behaviors, making their social lives more similar to those of modern dolphins than other reptiles."

Plesiosaurs have no known living relatives, but were common in the world's oceans during the Age of Dinosaurs. They were among the top predators in the Western Interior Seaway, the vast, tropical body of water that split North America during the Cretaceous when waters from the Arctic Ocean and the Gulf of Mexico flooded onto the continent and met.

The remarkable NHM specimen was discovered in 1987 by Charles Bonner on the Bonner Ranch in Logan County, Kansas. Virtually complete except for parts of the adult's neck and skull, the "mother" specimen and her baby were given extensive conservation by NHM and then mounted for display by Phil Fraley Productions (Patterson, NJ) with the supervision of Drs. O'Keefe and Chiappe. The specimen is currently on display in the Dinosaur Hall, the new 14,000-square-foot exhibition at NHM featuring more than 300 fossils and 20 complete mounts of dinosaurs and sea creatures.

"Like many other specimens on display and in our collection, this extremely important specimen is among the significant fossils that can be admired and studied only here in Los Angeles," Dr. Chiappe stated. "We're very proud that at NHM, these irreplaceable materials are accessible not only to research scientists but to the public, giving people the opportunity to connect the quest for knowledge with the wonder of seeing the remains of these ancient and mysterious animals."

Provided by Natural History Museum of Los Angeles County

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