

HIGHLIGHTS

LIFE THROUGH T

In August 2003, Jeff Wilson and Paul Sereno described a new dinosaur, *Rajasaurus narmadensis*, a 30-foot horned carnivore that lived 65 million years ago.



Photo by C. Wendy Taylor, courtesy Project Exploration, www.projectexploration.org

▶ VERTEBRATE PALEONTOLOGY

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Last year, China was once again in the news for an exciting fossil discovery — the oldest known marsupial. Dubbed *Sinodelphys szalayi* by Zhe-Xi Luo and colleagues in the Dec. 12 *Science*, the pouched mammal fossil consists of a nearly complete articulated skeleton from the 125-million-year-old Yixian formation, which also produced the earliest placental mammal. *Sinodelphys* is 50 million years older than the oldest previously known marsupial fossil. Its skeleton is mouse-sized, but shows adaptations for climbing and tree dwelling. This specimen pushes the divergence between marsupials and placental mammals back to the Early Cretaceous, and suggests that both groups originated in Asia.

A few weeks after this report, Xijun Ni and colleagues described in the Jan. 1, 2004, *Nature* specimens of the oldest known euprimate (a primate with modern features) from the early Eocene (55 million years ago) of the Hengyang Basin in China. Placed in the European genus *Teilhardina*, this Asian specimen has large eye sockets that faced forward, along with a large braincase and relatively primitive teeth. Although it is smaller than any living primate (body mass was estimated at only 28 grams), the creature is closely related to the extinct omomyine primates and the living tarsiers. *Teilhardina asiatica* shows that direct connections between Europe and East Asia were possible in the early Eocene, despite the barrier of the Obik Sea across Siberia.

A number of other important discoveries were reported from Asia as well. Jeff Wilson and Paul Sereno (*Contributions from the Museum of Paleontology, University of Michigan*, v. 31, p. 1) described a 4-ton, 10-meter-long tyrannosaur from the latest Cretaceous deposits of the Narmada Valley

of India, which they named *Rajasaurus narmadensis*. Robert V. Hill and colleagues (*American Museum Novitates*, v. 3395) described new specimens of the ankylosaur *Pinacosaurus* from the Late Cretaceous of Mongolia, which reveal important clues about how these dinosaurs grew and changed as they got older. Hai-Lu You and co-workers (*Cretaceous Research*, v. 24, p. 347) described the oldest known duckbill dinosaur from China. It comes from the late Early Cretaceous of the Gobi Desert in Inner Mongolia, and suggests that the hadrosaurs originated in Asia in the Early Cretaceous before spreading around Laurasia.

From Africa, Sereno and colleagues (*Journal of Vertebrate Paleontology*, v. 23, p. 477) described a specimen known as the "duck-billed crocodile," *Anatosuchus minor*, from the middle Cretaceous of Niger. It is closely related to Cretaceous crocodiles of South America, suggesting that they could still cross the widening South Atlantic even by the mid-Cretaceous. David Krause and colleagues (*Journal of Vertebrate Paleontology*,

v. 23, p. 842) described the oldest known African lizard fossil, which comes from the Late Cretaceous of Madagascar.

Important studies on functional morphology included an analysis of CAT scans of pterosaur skulls. Larry Witmer and colleagues (*Nature*, v. 425, p. 950) found that they have smaller brains than comparably sized birds, with enlarged balance organs for coordinating flight, and other features that enhanced their ability to grab prey with their flexible necks while in flight. Frank Seebacher (*Paleobiology*, v. 29, p. 105) reexamined the question of warm-blooded dinosaurs. He found that nearly all dinosaur groups could have maintained high body temperatures without an endothermic metabolism; only advanced theropod carnivores were likely to be endothermic.

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