

New Fossils Show Dinosaurs Weren't the Only Raptors

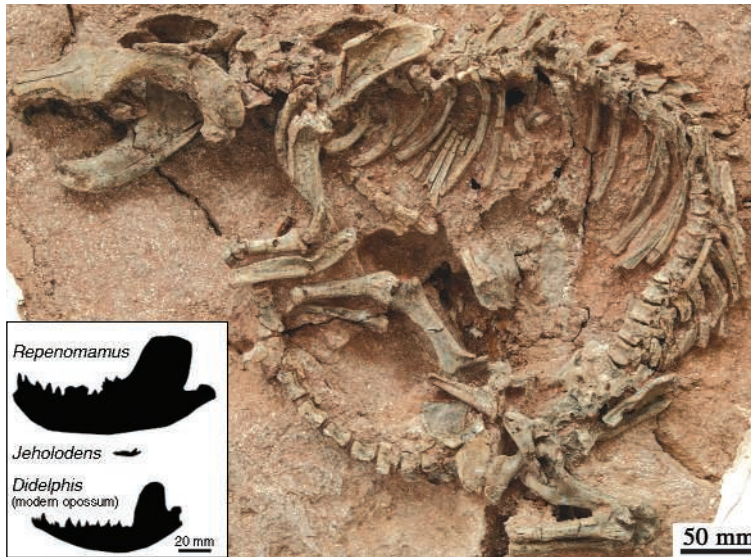
The Mesozoic era is called the “Age of Dinosaurs” for good reason. For 185 million years, they diversified with ferocious gusto, evolving into a panoply of predators and prey that fill the record books for size and shapes. Mammals, meanwhile, were nocturnal, shrewlike nobodies that snatched insects and stole the occasional egg. Only after dinosaurs went extinct 65 million years ago could mammals escape from the shadows and begin to thrive. Or so the story goes.

In this week's issue of *Nature*, Chinese paleontologists describe the largest Mesozoic mammal skeleton ever found, more than a meter long. And this furry

Goliath wasn't content just to eat bugs: A smaller relative was discovered nearby with the bones of a baby dinosaur in its stomach. “This thing was probably hunting and eating relatively large-sized dinosaurs,” says Guillermo Rougier of the University of Louisville, Kentucky. “It forces us to think about [Mesozoic] mammals as a fully diversified group, not just in their typical role of insectivores.”

The new fossils, each about 130 million years old, come from the famous fossil beds of Liaoning Province in northeastern China. Paleontologists had already discovered skulls of the smaller animal, called *Repenomamus robustus* (*Science*, 12 October 2001, p. 357), but could get only a vague estimate of its body size. Now the same team has found a fairly complete specimen of an adult. Squat, with powerful legs, it probably weighed about 4 to 6 kilograms. “We would say it looked something like a Tasmanian devil,” says team member Yaoming Hu, a graduate student at the City University of New York. Collaborators include his adviser Jin Meng of the American Museum of Natural History in New York City and colleagues at the Institute of Vertebrate Paleontology and Paleoanthropology in Beijing.

While removing rock from the specimens, preparators made a rare discovery: teeth and bones strewn about inside the ribcage, in the likely position of the animal's stomach. The jumble included the remains of a herbivorous dinosaur hatchling, a 14-centimeter-long *Psittacosaurus*. One leg appears mostly intact, suggesting that the mammal dismembered and wolfed down its



Big guy. *Repenomamus giganticus* was much larger than other Mesozoic mammals, such as the typical shrew-sized insectivore *Jeholodens*.

food. Given the large, sharp teeth and powerful lower jaw, the team suspects that *Repenomamus* was a predator, but Hu

acknowledges it's hard to tell scavengers from hunters.

R. robustus wasn't the only mammal that dinosaurs had to worry about. Another skeleton, better preserved, was even larger. Named *Repenomamus giganticus*, it was 1 meter long and weighed roughly 12 to 14 kg, as much as a modern coyote. “It was probably competing with carnivorous dinosaurs for food and territory,” Hu says.

And that raises interesting questions, notes Anne Weil of Duke University in Durham, North Carolina. “What these finds really allow us to do—at least speculatively—is ask how mammals might have influenced dinosaur evolution,” she

says. In other words, Mesozoic mammals may have cast a shadow of their own.

—ERIK STOKSTAD

ITALY

Synchrotron Staff Protests Funding Cuts

NAPLES, ITALY—The 250 employees of Sincrotrone Trieste, which operates Elettra, Italy's large synchrotron light source, put down their tools for a day this week to protest government funding cuts that triggered a financial crisis. After it lost half its income in 2002, the facility took out bank loans, which it assumed that the government would pay off. Staff and users now fear that if the government does not come to its rescue, the synchrotron may have to be mothballed. “The laboratory is suffering. If something breaks down, we cannot repair it,” says Silvia Di Fonzo, a physicist at Sincrotrone Trieste and a labor union representative who helped organize the strike.

Like other synchrotrons, Elettra speeds electrons around a particle accelerator to produce x-rays that researchers use as probes in a wide variety of fields. Commissioned in 1993, Elettra

hosts 840 users per year from across Europe and developing countries. But in 2002 the government drastically cut some research institution budgets, including one that supports Elettra. As a result, Elettra lost 50% of its \$33 million yearly operating budget, although it retained the half that comes directly from government.

According to Alfonso Franciosi, CEO of Sincrotrone Trieste, the government encouraged the company to take out bank loans to cover the shortfall. “The lab operated for 3 years with loans from local banks, and the debts are now adding up to [\$20 million],” says Franciosi. The government has repeatedly promised to restore Elettra's missing \$18 million per year starting in 2005, he adds. But many were alarmed to see that Elettra is not included in the 2005 government budget, which was approved last month. Elettra officials are hoping that new funding will be included in a decree on national competitiveness that the government will issue at the end of January.

Guido Possa, Italy's deputy research minister, says the trouble is that Sincrotrone Trieste was set up as a private company, making it hard for the government to fund it directly. “The problem is when you have to manage public money, you have to follow certain rules.”

—ALEXANDER HELLEMANS

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On borrowed time. The Elettra synchrotron.