New dinosaur discovered head first, for a change (w/ Video)

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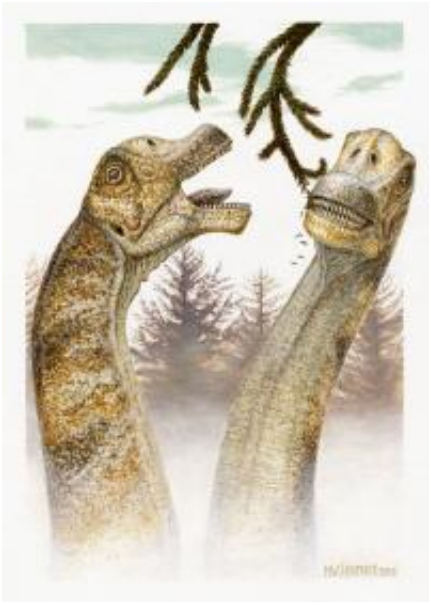
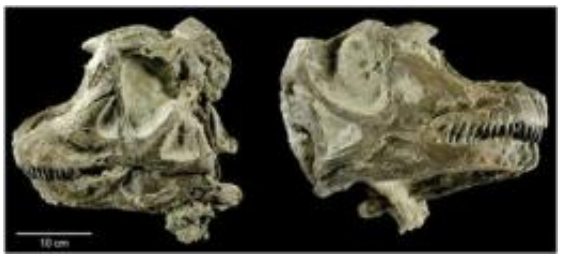


Art by Michael Skrepnick



This image provided by the National Park Service on Tuesday, Feb. 23, 2010 shows the right and left views of the complete skull of the newly-discovered dinosaur Abydosaurus mcintoshi. Paleontologists say this new species of

dinosaur was found in Dinosaur National Monument, Utah hidden in slabs of sandstone so hard they had to use explosives to free some of the fossils. (AP Photo/National Park Service)

(PhysOrg.com) -- A team of paleontologists has discovered a new dinosaur species they're calling Abydosaurus, which belongs to the group of gigantic, long-necked, long-tailed, four-legged, plant-eating dinosaurs such as Brachiosaurus.

In a rare twist, they recovered four heads - two still fully intact - from a quarry in Dinosaur National Monument in eastern Utah. Complete skulls have been recovered for only eight of more than 120 known varieties of sauropod.

"Their heads are built lighter than mammal skulls because they sit way out at the end of very long necks," said Brooks Britt, a paleontologist at Brigham Young University. "Instead of thick bones fused together, sauropod skulls are made of thin bones bound together by soft tissue. Usually it falls apart quickly after death and disintegrates."

Britt is a co-author on the discovery paper scheduled to appear in the journal *Naturwissenshaften*.

The lead author is Daniel Chure, a paleontologist at Dinosaur National Monument, who has no trouble boiling down the significance of the discovery.

"We've got skulls!" he shouted with sweeping hand gestures during a recent visit to the site.

BYU geology students and faculty resorted to jackhammers and concrete

saws to cut through the hardened 105-million-year-old sandstone containing the bones. At one point the National Park Service called in a crew to blast away the overlying rock with explosives.

The skulls are temporarily on display at BYU's Museum of Paleontology, where visitors can also watch BYU students prepare other bones from Abydosaurus.

"The hardest bone I personally have worked on is a vertebra that was half-eroded before discovery and is so fragile that it crumbles if you look at it wrong," said Kimmy Hales, a geology major studying vertebrate paleontology at BYU. "The funnest project I have worked on was a set of five toe bones. Each toe bone was larger than my hand."

Analysis of the bones indicates that the closest relative of Abydosaurus is Brachiosaurus, which lived 45 million years earlier. The four Abydosaurus specimens were all juveniles.

Most of what scientists know about sauropods is from the neck down, but the skulls from Abydosaurus give a few clues about how the largest land animals to roam the earth ate their food.

"They didn't chew their food; they just grabbed it and swallowed it," Britt said. "The skulls are only one two-hundredth of total body volume and don't have an elaborate chewing system."

All sauropods ate plants and continually replaced their teeth throughout their lives. In the Jurassic Period, sauropods exhibited a wide range of tooth shapes. But by the end of the dinosaur age, all sauropods had narrow, pencil-like teeth.

Abydosaurus teeth are somewhere in between, reflecting a trend toward smaller teeth and more rapid tooth replacement.

The fossils were excavated from the Cedar Mountain Formation in Dinosaur National Monument near Vernal, Utah. The site is just a quarter of a mile away from the condemned visitor center that displays thousands of bones that remain in place on an uplifted slab of sandstone.

University of Michigan researchers John Whitlock and Jeffrey Wilson are also co-authors on the study.

What's in the name *Abydosaurus mcintoshi*?

The generic name refers to Abydos, the Greek name for the city along the Nile River (now El Araba el Madfuna) that was the burial place of the head and neck of Osiris, Egyptian god of life, death and fertility. Abydos alludes to the type specimen, which is a skull and neck found in a quarry overlooking the Green River. Sauros is the Greek word for lizard.

The specific name mcintoshi honors the American paleontologist Jack McIntosh for his contributions to the study of sauropod dinosaurs. In 1975 McIntosh debunked the myth of Brontosaurus, exposing it as a mixed-up skeleton with an Apatosaurus body and a Camarasaurus skull.

Provided by Brigham Young University