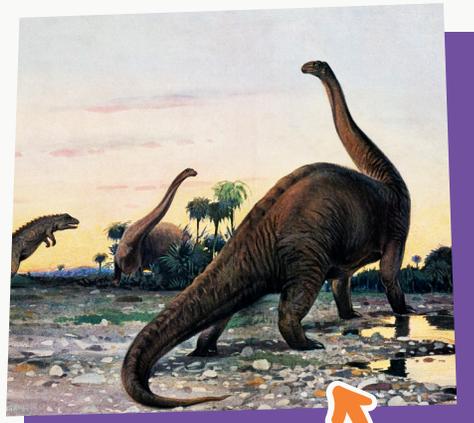


The Great Dinosaur Debate:  
**Apatosaurus** or  
**Brontosaurus?**

**Session 7** Puzzling Out the Fossil Record

**While hunting for fossils in the rocky hills of Como Bluff, Wyoming in 1879, paleontologist Othniel Charles Marsh made a startling discovery.**

Hidden in the rock was the gigantic, near-complete skeleton of a long-dead dinosaur. The fossilized bones included huge vertebrae and gigantic leg bones—some of which were almost the height of an adult human! Based on the size and shape of the bones, Marsh concluded that he was looking at the remains of a new kind of sauropod dinosaur.



**Scientists have debated whether or not the *Brontosaurus* is a unique genus.**

Sauropods were some of the largest animals that ever lived on Earth. They lived between 215 and 66 million years ago and some reached over 30 meters (100 feet) long. These herbivores walked on four legs and had long necks and tails.

On closer inspection of the bones he found in Wyoming, Marsh concluded that the fossilized remains belonged to a never-before-seen genus of sauropods which he named *Brontosaurus* (Ancient Greek for “thunder lizard”). But by the beginning of the next century, additional discoveries threatened the *Brontosaurus* with extinction once again.

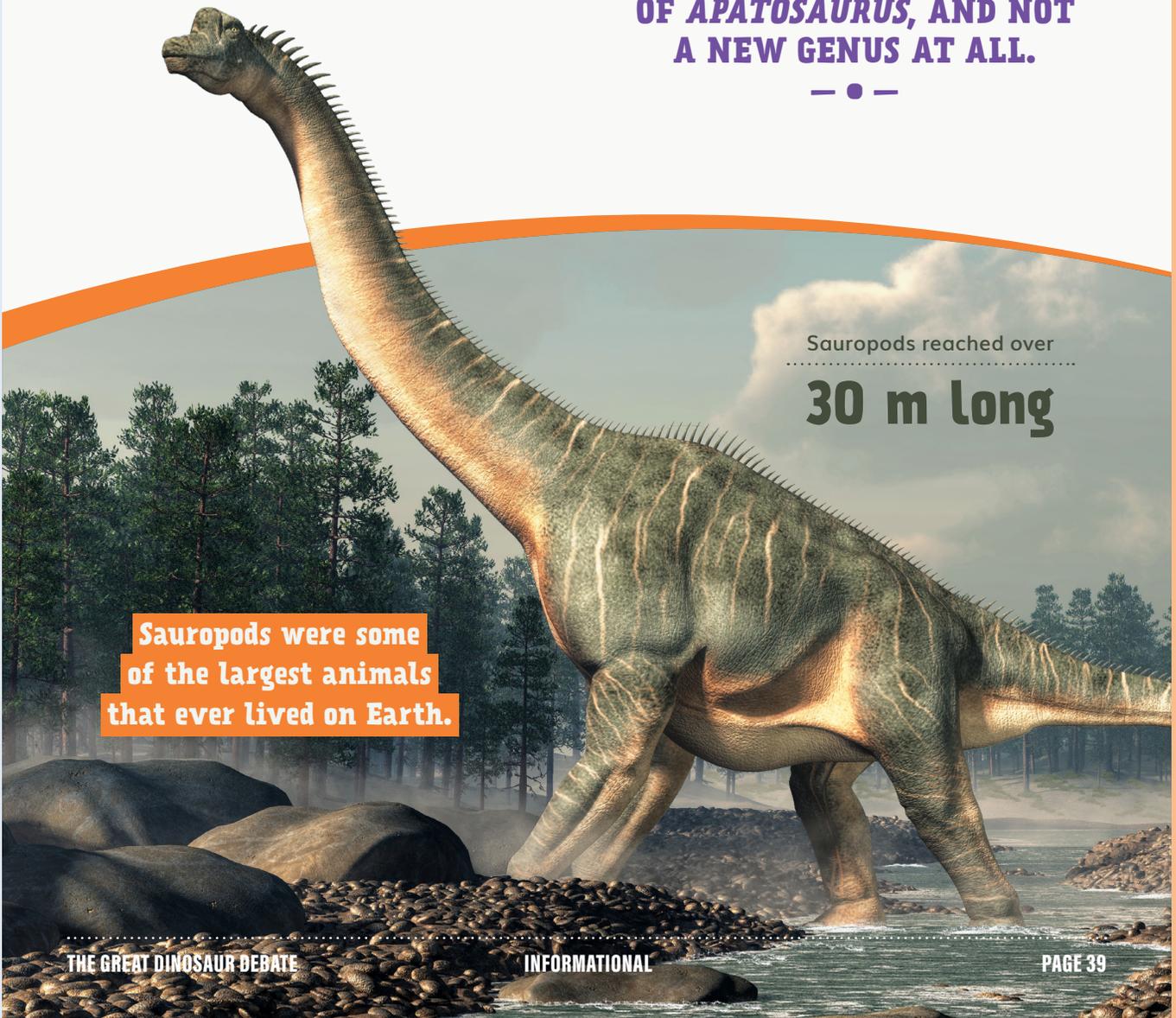
In 1903, paleontologist Elmer Riggs uncovered portions of a dinosaur that appeared very similar to Marsh's *Brontosaurus* but belonged to a previously discovered genus of sauropods known as *Apatosaurus*. In fact, bones from the two dinosaurs appeared so similar that Riggs claimed the *Brontosaurus* was actually just a type of *Apatosaurus*, and not a new genus of dinosaur at all. For the next 100 years, this is exactly what paleontologists believed.

— ● —  
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— ● —

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**30 m long**

**Sauropods were some  
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that ever lived on Earth.**





Fossils are rarely found in as complete condition as this dinosaur skull.



Paleontologists study fossils to learn about prehistoric species.

— ● —  
**FOR THE NEXT 100 YEARS, PALEONTOLOGISTS BELIEVED THAT THE *BRONTOSAURUS* DIDN'T EXIST.**  
— ● —

If that's the case, then why is the *Brontosaurus* so well known? The answer comes down to a wrongly placed label. In the early 1900s, very few complete dinosaur skeletons had been discovered, and this lack of fossilized evidence resulted in a lot of mistakes. In the early 1900s, someone at the American Museum of Natural History in New York incorrectly labeled a popular sauropod specimen as a *Brontosaurus*. So even if scientists didn't accept that it existed, the *Brontosaurus* was still famous.

Paleontologists continue to find new fossils every year that change their minds about evolutionary history. In 2015, paleontologist Emanuel Tschopp was studying sauropod dinosaurs when he made a discovery that saved the *Brontosaurus*. Tschopp was comparing old, incomplete specimens with skeletons that had been found since 1903. Tschopp carefully compared the structures of bones from many different dinosaurs, including vertebrae and skulls. With this analysis, he determined that *Brontosaurus* was a unique genus of dinosaur after all, not just a type of *Apatasaurus*.

Tschopp's analysis couldn't have happened without new pieces of fossil evidence. According to Tschopp, he could only reach his conclusion by comparing more complete skeletons with earlier, less complete ones.

As paleontologists continue to discover new fossils, things could change again. But for now, *Brontosaurus* is back.

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**TSCHOPP CAREFULLY  
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OF BONES FROM MANY  
DIFFERENT DINOSAURS,  
INCLUDING VERTEBRAE  
AND SKULLS.**  
— ● —

## GLOSSARY

### **evolutionary history**

the study of how living organisms have developed over time, from the prehistoric to modern times

### **fossilized**

when an organism's remains have been preserved from a past geological age

### **genus**

a class of related organisms, one level above species—humans are part of the *Homo* genus

### **herbivore**

an organism that consumes plants

### **sauropod**

a very large herbivorous dinosaur, with four legs, a long neck and tail, and massive limbs

