Plant-eating dinosaurs had lots of spare teeth to eat their tough food

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Diplodocus skeleton at the Natural History Museum in London. Photo: Paul Hudson (CC)

Dinosaurs must have kept the tooth fairy busy. A new study shows that the dinosaurs known as sauropods grew new teeth as often as twice a month. And they had up to nine more spare teeth waiting underneath each tooth. When one teeth fell out, another one took its place.

The terrifying Tyrannosaurus rex is known as the king of the dinosaurs. But sauropods were even bigger. They were the largest animals that ever walked on land. A big T. rex was about 45 feet tall. But a big sauropod was 100 feet long or more.

Even though they must have looked scary, sauropods were vegetarians. They only ate plants.
Scientist Michael D'Emic has been very interested in dinosaurs ever since he was a kid. He is now a paleontologist whose job is to study ancient animals. On Wednesday, he published a new report on dinosaur teeth.

**Eating Lots Of Plants**

D'Emic knew that sauropods were very, very big. This meant they had to eat a huge amount of food. So he wondered: Had all that eating made their jaws and teeth unusual?

To find out more, he went looking for sauropod jaws. He found a Camarasaurus jaw and a Diplodocus jaw. Both of these animals lived about 150 million years ago. They were two different kinds of sauropods that lived side by side.

The next step was to break apart the jaws. He wanted to remove the 30 teeth he could see. He also wanted to get to the backup teeth under each tooth.

Beneath every tooth you could see, the Camarasaurus had three more teeth waiting to be used. The Diplodocus had even more. It had five spares beneath each tooth.

D’Emic was not only interested in seeing how many spare teeth sauropods had. He also wanted to figure out how quickly those teeth came in.

**And Using Lots Of Teeth**

D'Emic had the teeth cut into thin slices. Inside each tooth were lines like the rings in a tree. By counting those lines, he was able to tell the age of a tooth. He then compared the age of each tooth with the age of the backup tooth behind it. That way he was able to figure out about how quickly teeth were replaced.

Camarasaurus had larger teeth. They had new teeth come in about once every two months. Diplodocus had smaller, narrower teeth. They grew replacement teeth about once a month. One type of sauropod called Nigersaurus replaced its teeth every two weeks. They had nine spares for every tooth.

D’Emic also noticed that Diplodocus had smaller narrower teeth. So did some other more recent dinosaurs. These teeth got replaced a lot faster. He wondered: Why had they changed that way?

Sauropods didn’t chew the plants they ate. They clipped them off with their teeth and then swallowed them whole. Perhaps getting new teeth so quickly helped keep teeth sharp, D’Emic said.

D'Emic also wondered how two huge plant-eating dinosaurs could live together in the same area. How could there be enough food for both of them? He thinks their teeth may give us the answer.

**Enough Food For All**

D'Emic believes Diplodocus grazed on plants close to the ground. Their narrow teeth helped them to not swallow dirt picked up along with plants. With Diplodocus only eating plants down low, Camarasaurus had plenty of food up high. That way, there was enough for everyone.

Paul Sereno is a University of Chicago paleontologist who also studies sauropods. He thinks D’Emic is right.
“Last night I had a salad that I grew in my own yard. I really had to wash the lettuce carefully, because there’s this grit in it,” said Sereno. “It’s exactly what we’re talking about. You put your muzzle down to the ground and you’re going to be [taking in] these sand grits that wear your teeth down.”

And if your teeth get worn down quickly, it helps to have a lot of spares.
Quiz:

Select the paragraph from the article that states the reason why sauropods had to eat a large amount of food every day.

What was the outcome of D'Emic breaking apart the dinosaur's jaws and removing the teeth?

A He discovered the age of the dinosaur's teeth.  
B He discovered spare teeth under each tooth.  
C He learned how quickly dinosaur teeth grow.  
D He became a famous paleontologist.

What is the correct procedure for finding out how quickly the dinosaur's teeth were replaced?

A cut the teeth in slices, count the lines of the tooth, compare each tooth to the backup tooth behind it  
B count the lines of the tooth, cut a tree trunk, compare the rings on the tree to the dinosaur tooth  
C cut the teeth into slices, compare each tooth to the backup tooth behind it, count the rings  
D cut a tree trunk, cut the teeth into slice, compare each tooth to the backup tooth behind it

How is Nigersaurus different from Camarasaurus

A Nigersaurus replaced its teeth more often than Camarasaurus  
B Nigersaurus replaced its teeth less often than Camarasaurus  
C Nigersaurus had fewer spare teeth than Camarasaurus  
D Nigersaurus had larger teeth than Camarasaurus