



Adventures From the Land of Dinosaurs

The Seafaring Ankylosaur



In 2011, a man named Shawn Funk was operating a digger the size of a house when he noticed some interesting patterns on the rocks that were falling down in front of him. Palaeontologists confirmed they were dinosaur bones and worked to excavate the fossils. Something was not quite right though. These rocks had been formed under a sea. How on Earth did a dinosaur get there?



The unusual specimen took six years to prepare. It was a new type of ankylosaur called Borealopelta and it was built like a tank. To the delight of the scientists, it was also nearly complete – and preserved in 3D! And despite 110 million years passing, 186 of its impressive, armoured plates, called osteoderms, were still in place on its back.

Ankylosaur

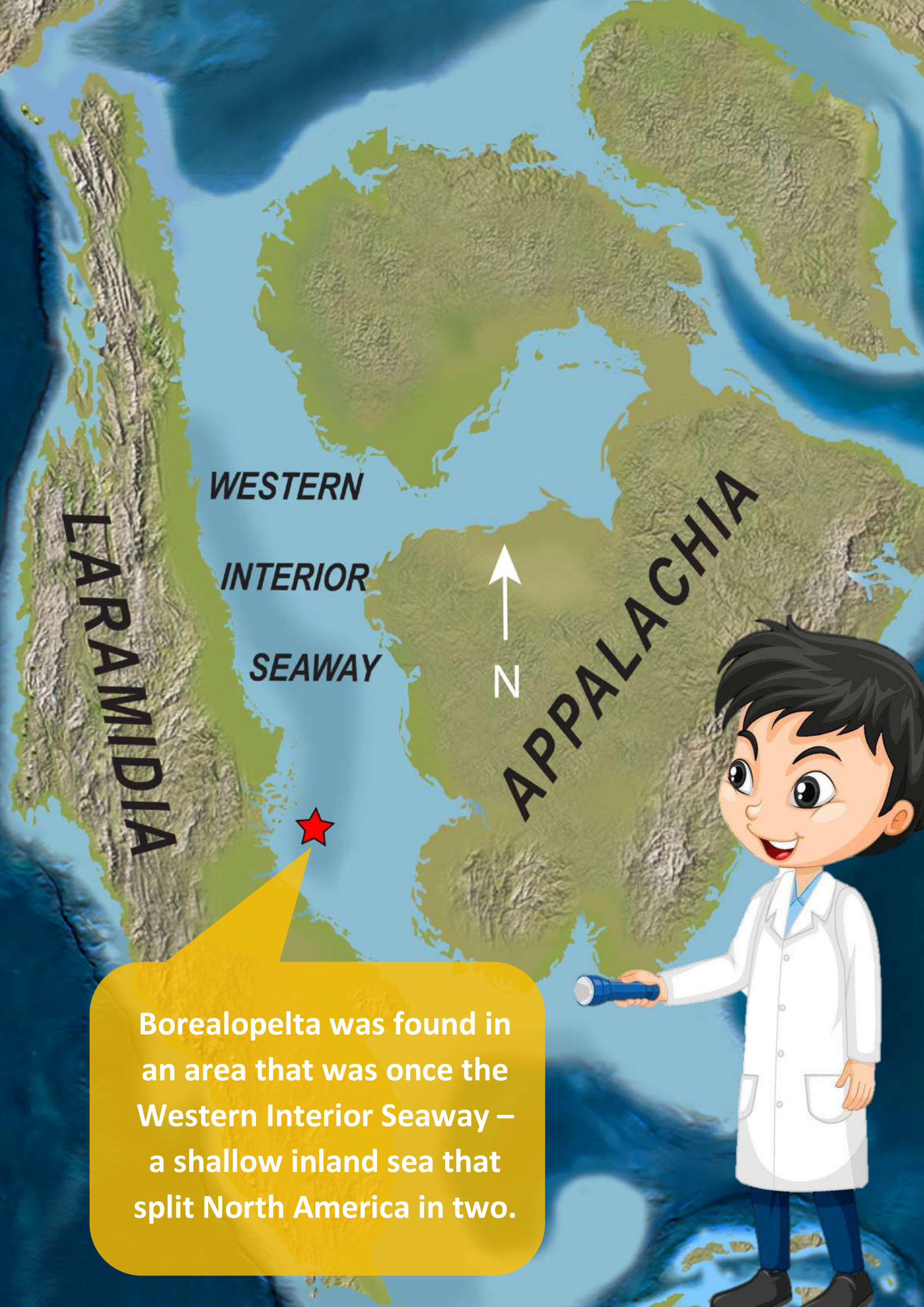


Borealopelta Fossil



Remarkably, the fossil had also preserved soft tissues like tendons, scales, and skin impressions! Thanks to this, palaeontologists could tell this fortress of a dinosaur was reddish brown and lighter on its belly. Like Psittacosaurus, it possibly used countershading as camouflage to hide from predators – though you'd need a bit of luck to conceal a tank.





LARAMIDIA

WESTERN
INTERIOR
SEAWAY

APPALACHIA



Borealopelta was found in an area that was once the Western Interior Seaway – a shallow inland sea that split North America in two.



So, how did this heavy landlubber dinosaur get buried 250 miles (400km) offshore?



Well, palaeontologists think it died near a river, where its carcass became bloated. Then it must have floated out to sea in a process called “bloat-and-float”.

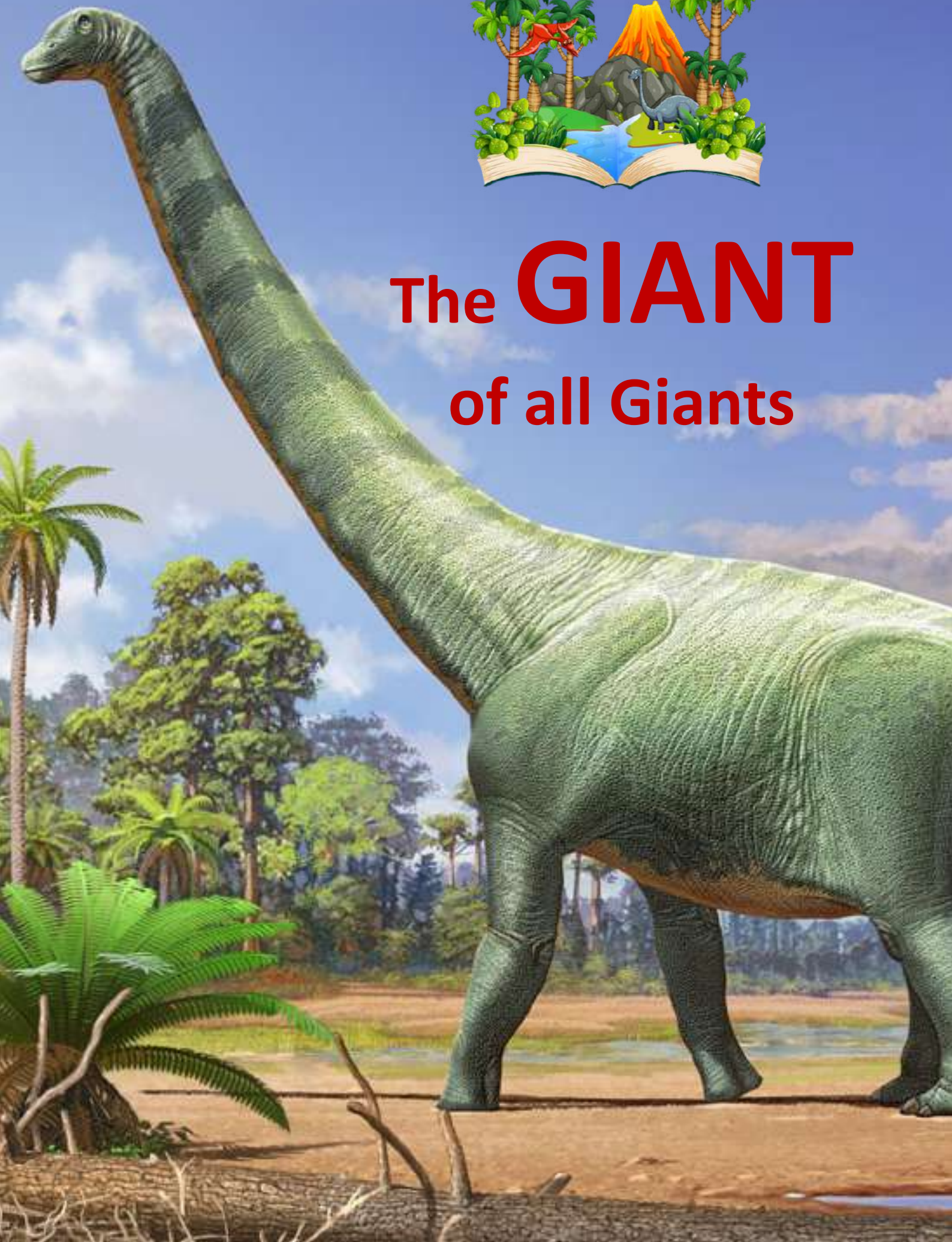


As the body started breaking down, it sank to the bottom of the sea. Due to the weight of its armour, it landed upside-down in the soft mud, perfectly preserving it for us to find millions of years later.





The **GIANT** of all Giants



Every palaeontologist gets asked, 'What is the biggest dinosaur?' And it's actually a really hard question to answer. A lot of the time they only have a few isolated bones of a dinosaur and the best they can do is make estimates. However, one of the contenders for the crown of the largest dinosaur is a giant called Patagotitan.

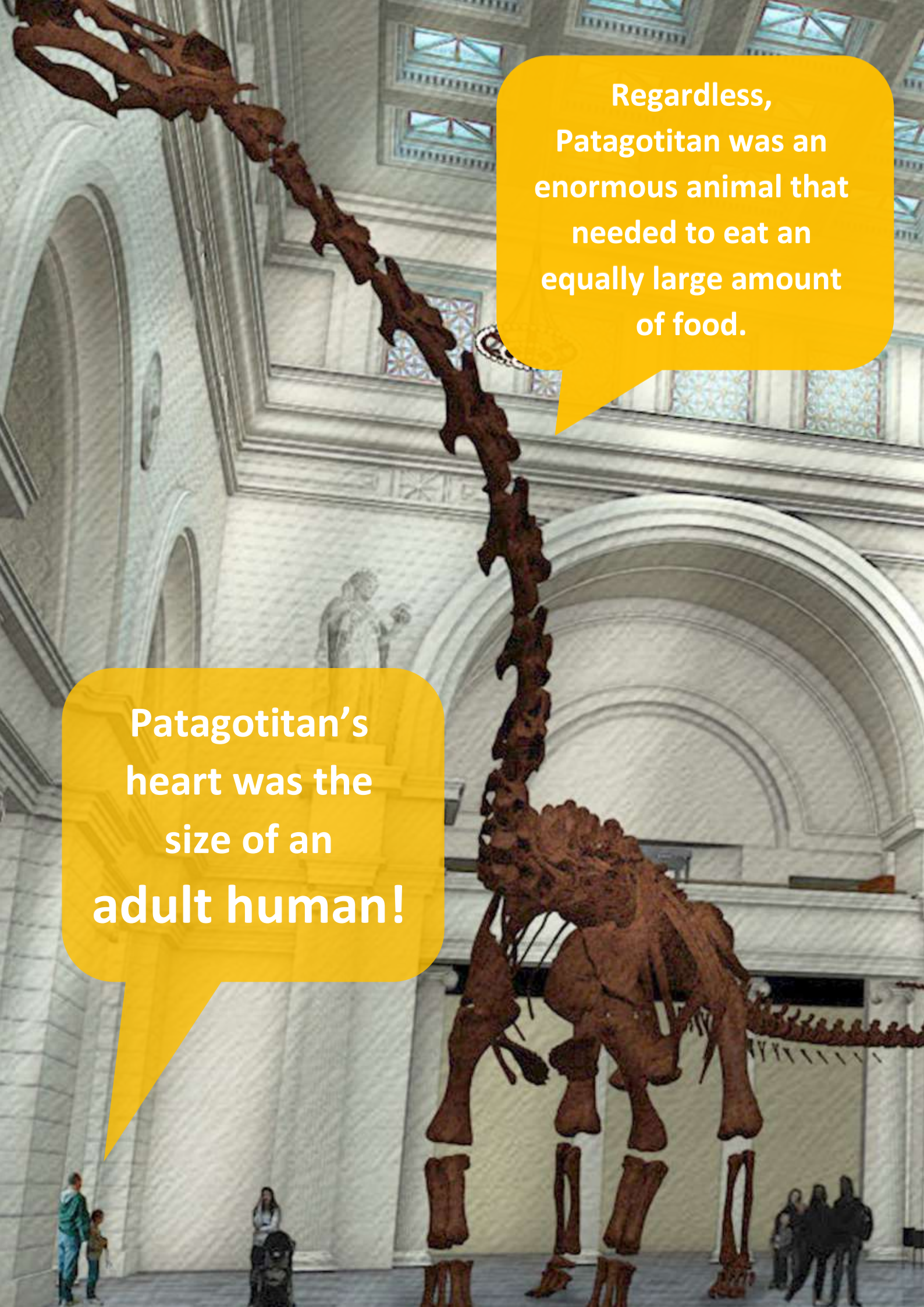


As we've already established in this story series, Argentina is a great place to find dinosaurs. Everything we know about Patagotitan is based on six partial skeletons found in the same 101-million-year-old quarry in the Argentinian desert.



And research on the bones suggested the animals the scientists found hadn't finished growing ... Adults estimated to weigh almost 70 tonnes (77 tons) and were longer than a blue whale. However, recently there has been some debate about how big this dinosaur really was. In 2020, researchers slimmed down Patagotitan to a measly 57 tonnes (63 tons).



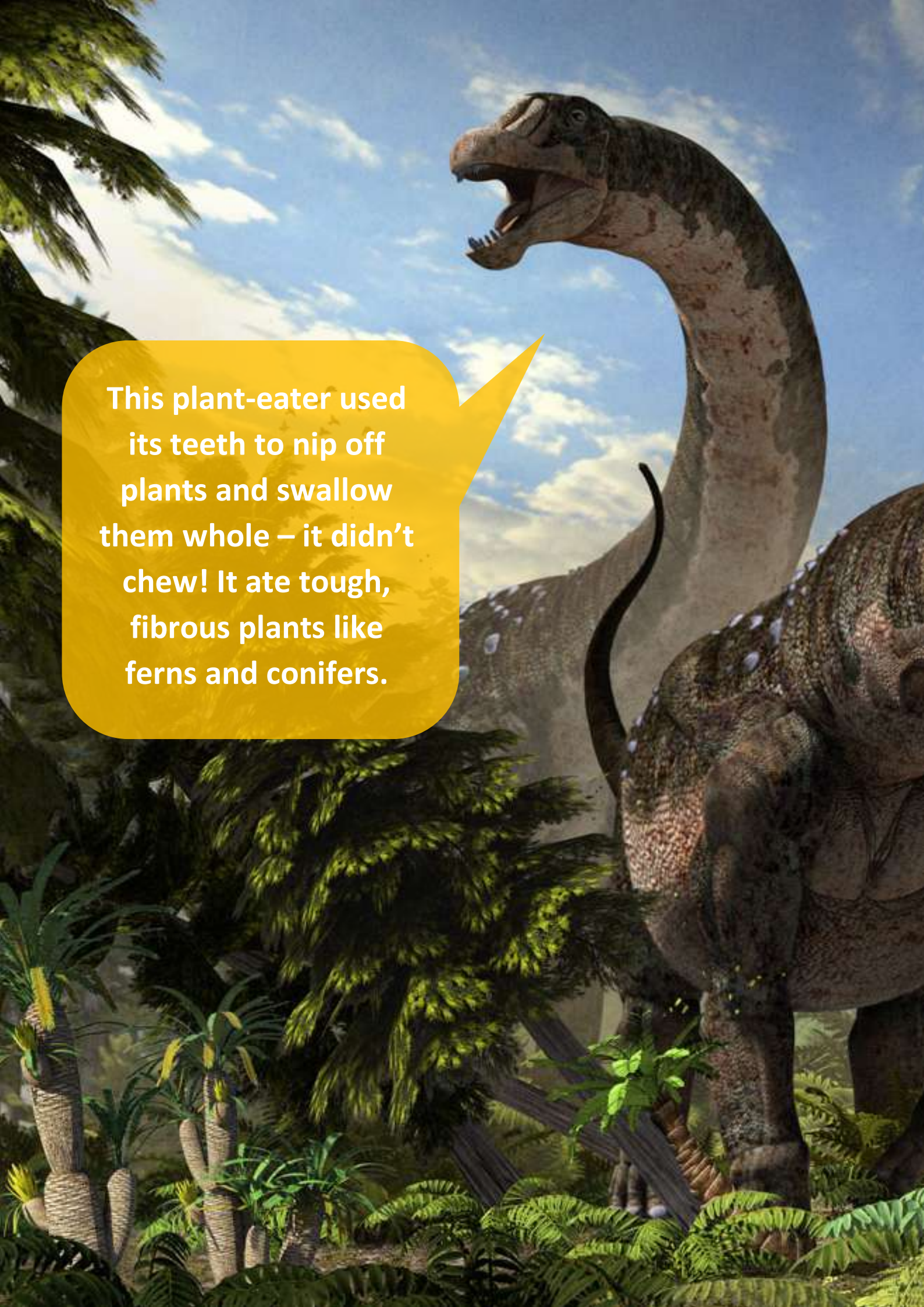
A large, brown, fossilized skeleton of a Patagotitan dinosaur is displayed in a grand, high-ceilinged museum hall. The skeleton is the central focus, showing the long neck, ribcage, and legs. The hall has high, vaulted ceilings with arched windows and classical architectural details. Several people are visible at the bottom of the frame, providing a sense of scale to the massive skeleton.

Regardless,
Patagotitan was an
enormous animal that
needed to eat an
equally large amount
of food.

Patagotitan's
heart was the
size of an
adult human!

Unfortunately, palaeontologists did not find a skull at the quarry, but they did find a single, small, peg-like tooth. This may not sound like much, but it revealed lots of secrets.



A large, long-necked dinosaur, likely a sauropod, is shown in a lush, prehistoric jungle. The dinosaur is standing on the right side of the frame, with its long neck curved upwards and its head tilted back, showing its mouth open. The background is filled with various types of prehistoric plants, including palm trees and ferns. The sky is blue with some light clouds. A yellow speech bubble is overlaid on the left side of the image, containing text.

This plant-eater used its teeth to nip off plants and swallow them whole – it didn't chew! It ate tough, fibrous plants like ferns and conifers.

Since these plants are low in nutrition, Patagotitan had to eat an estimated 650 kg (1430 lbs) of food every day. That's about five times the amount an African elephant eats.



While adult Patagotitans didn't have to worry about predators, youngsters probably did. Palaeontologists found 80 teeth from Tyrannotitan in the same quarry.



Tyrannotitan was a member of the shark-tooth dinosaur group known as Carcharodontosaurids. This apex predator was almost as large as T.rex, and a baby Patagotitan would have made a delicious supper for it.

Tyrannotitan



There's still lots we don't know about Patagotitan. If only we could find a skull...





The GEMSTONE Dinosaurs



Lightning Ridge is a small town in the outback of New South Wales, Australia. Despite being so remote, it is world famous for the gemstone opals that are found there.



In the 1980s a miner named Bob Foster was 10m (32ft) underground digging for precious gemstones. To find opals he would break open rocks, looking for tell-tale flashes of iridescent blue.



Some of the opals were oddly shaped, kind of resembling horse hooves. Bob was puzzled and started setting them aside until he had about two suitcases full. Then he took them to the Australian Museum in Sydney – almost 500 miles (800 km) away – to see what the experts made of them.



The museum palaeontologists were shocked – Bob had found dinosaur bones that had fossilized into opal!



They quickly organized an excavation of the mine and found around 100 dinosaur bones, 60 of which were from a large adult. The other bones were from juveniles. All in all, they found remains of at least four individuals that may have been part of a herd. In honour of Bob, the Iguanodon-like dinosaurs were named Fostoria.



**Fostoria lived about
100 million years ago
when this part of
Australia was a vast
floodplain.**

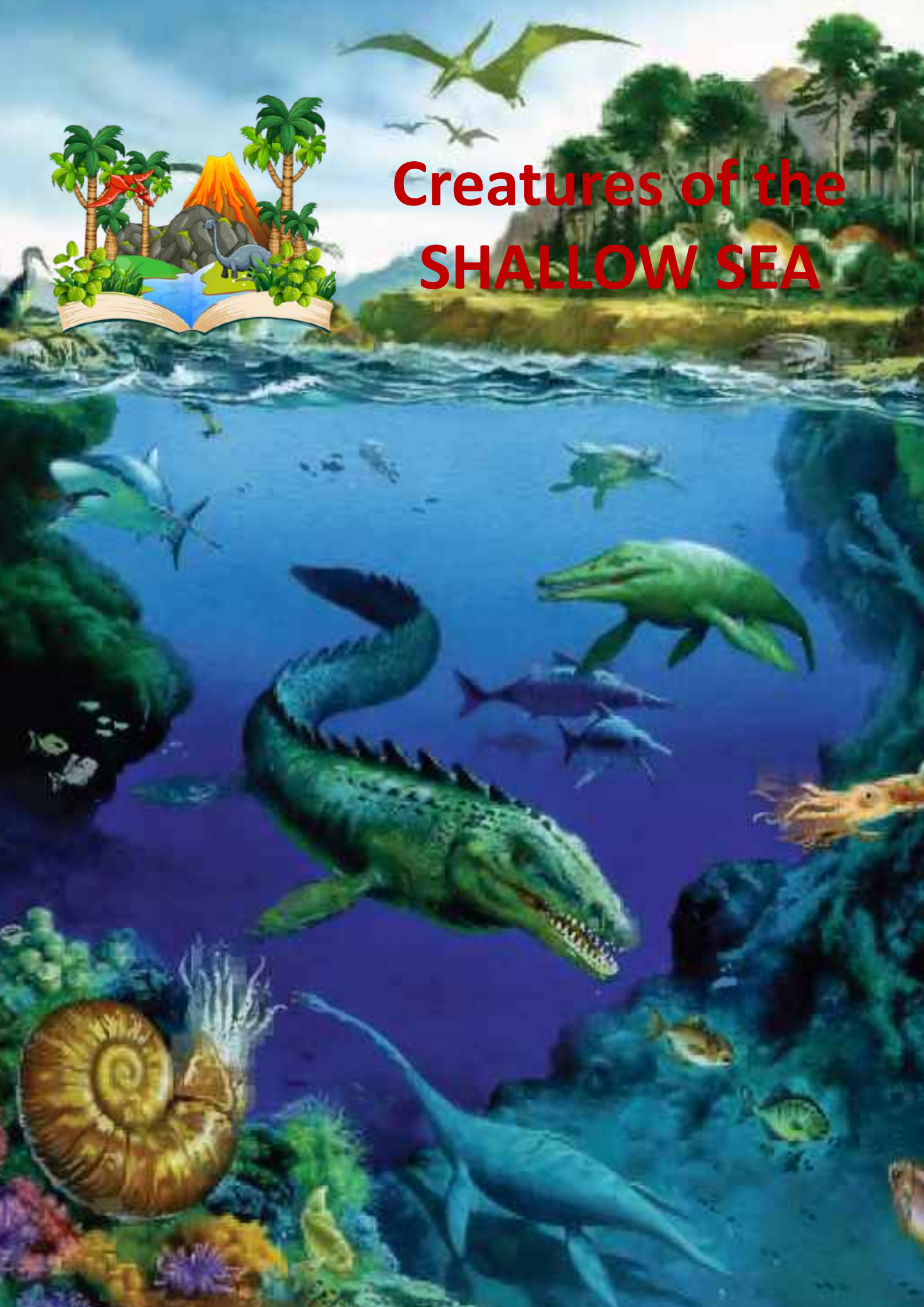


Lakes, lagoons and rivers flowed into the Eromanga Inland Sea, a seaway that covered most of eastern Australia during the Cretaceous. The dinosaurs that lived here probably didn't expect they'd one day turn into colourful gemstones!

Dinosaur bones turned into chunks of opal over millions of years.



Creatures of the SHALLOW SEA



During the Cretaceous the climate was warmer than it is today. Sea levels were also higher and ocean water flowed onto North America.



By 100 million years ago the continent was split in two by the Western Interior Seaway – home to lots of amazing creatures.

**WESTERN
INTERIOR
SEAWAY**

LARAMIDIA

APPALACHIA

Scientists call the “island continents” formed by the seaway Appalachia and Laramidia.



The rise of the Rocky Mountains eventually drained the seaway, and by 70 million years ago it was basically gone.



Meet the Neighbours

The Western Interior Seaway was shallow, only 800 m (2600 ft) deep. For comparison, the average depth of the Mediterranean Sea is 1500 m (5000 ft). The warm sunlit waters of the seaway supported thriving ecosystems that were dominated by giant swimming reptiles.



Archelon is the largest known turtle in history – it was the size of a car!

Archelon



Hesperornis was a flightless bird with teeth. It had tiny wings and swam using powerful hindlegs.

Hesperornis



Tylosaurus was a type of predatory marine reptile known as a mosasaur.

Tylosaurus



Platyceramus was a giant clam that made massive pearls.

Platyceramus



Uintacrinus had ten long arms. It lived in free-floating colonies.

Uintacrinus



Nyctosaurus was a pterosaur with a large, forked crest on its head.



Elasmosaurus had a neck up to 6 m (20 ft) long. It was slow-moving and ate small fish.

Elasmosaurus



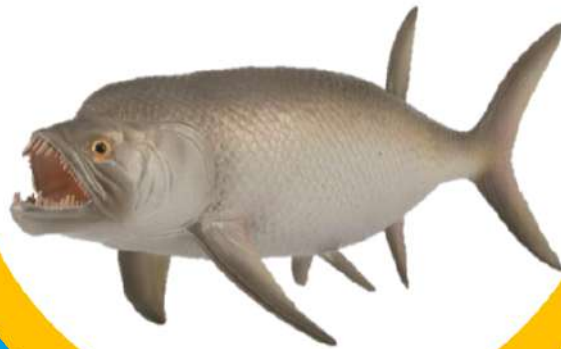
Parapuzosia was a large ammonite that preyed on turtles, fish, sharks and even small mosasaurs!

Parapuzosia



Xiphactinus was a predatory fish with a big appetite!

Xiphactinus



Quilolamna had extremely long, wing-like fins that were used to glide through the water.

Quilolamna





THINK

DIGITAL ACADEMY

