

THE DINOZONE

The Dinosaur Magazine

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WHAT WERE THE
DINOSAURS?

FAMOUS
PALAEONTOLOGIST
ROBERT T BAKKER

FEATURED DINOSAUR
TYRANNOSAURUS REX

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Message from the Dinoman



Welcome to our very first edition of the DinoZone. Large dinosaurs grow from small ones so we are looking forward to breaking out of our dinosaur egg and growing into a giant diplodocus, making our way through the lush undergrowth, browsing low hanging ferns and enjoying life.

We are very excited here at the DinoZone. There is such a story to tell about ancient life – about the different kinds of dinosaurs, what they looked like and how they lived.

We will also look at who hunted who, who were friends and who were enemies.

Then there are the many famous palaeontologists who

have dug
up
dinosaur

bones
of the last 200 years or so, so that will be great fun walking in their footsteps and reliving those grand dinosaur hunting days. Featured this month is Robert T Bakker, the guy with the big hair and hat.

Our featured dinosaur is T Rex – the biggest, orneriest killer of the prehistoric world so go check him out, but remember to keep out of sight as he might eat you for lunch.

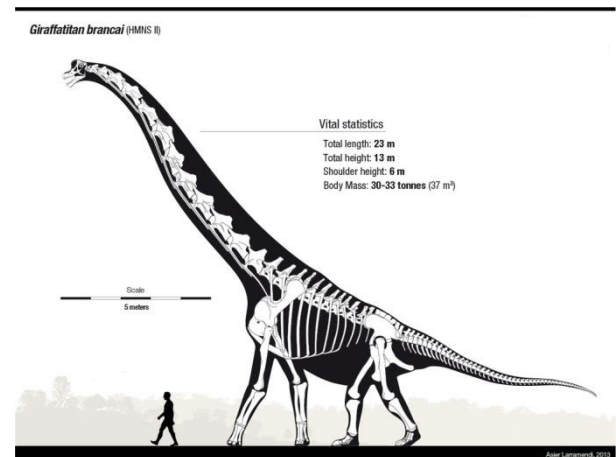
We are looking forward to going on bone digging expeditions together, so keep on reading. Yours in bonehunting!

Dinoman

So what were the Dinosaurs?

Now there's a question. Way way back, long before your parents were born, before aeroplanes and cars, roads and houses, lived the dinosaurs. They existed at a time called the Mesozoic, which means 'Middle Life.' We don't want to torture you with big numbers, but the Mesozoic, for those who want to know, lasted from 252 to 66 million years ago.

Dinosaurs ruled the Earth for 180 million years – longer than you or I can imagine. They were all sorts of sizes, from that of a chicken to bigger than a bus! Some even got to lengths of 40 metres (130 feet).



Giraffatitan - a Tanzanian Sauropod

That is pretty big by anybody's standards. Generally they were much bigger than the animals that share our world today. The biggest were creatures called Sauropods, who walked on thick legs like elephants and

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had long necks and tails.



Then there were the predators – those dinosaurs that hunted for a living. The most famous is Tyrannosaurus Rex – the biggest and fiercest of them all. We have a featured article on T Rex, as he is known for short, in this issue so will leave those details for later.

Dinosaurs were reptiles. The name means ‘terrible lizard’ but they were more than that. Unlike lizards, their legs were tucked under their bodies, which allowed them to walk efficiently. Some could run at

high speeds and over long distances. Some if not all of them were warm blooded.

Their bones are preserved in the rocks.

We know about them today because their bones are preserved in the rocks. Scientists called palaeontologists specialise in digging up fossils and working out what the ancient world looked like.

Many of these amazing fossils are displayed in museums around the world for us all to visit and enjoy.

Dinosaurs evolved from an ancient crocodile-like ancestor called a thecodont which means ‘socket tooth.’

These thecodonts managed to get up on their back legs and run on land. Over time they became smaller, faster and

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more agile, evolving into the early dinosaurs.

There has been a revolution in thinking about dinosaurs in the last 30 years, driven by a very famous palaeontologist, Dr Robert T Bakker.

Back in the day he asked the question, "*what is wrong with our dinosaurs*" when looking at the mounted skeletons in the American Museum of Natural History. Those skeletons were mounted with their tails dragging on the ground and in strange sluggish postures. So Dr Bakker went on to prove

that dinosaurs were the perfectly adapted animals as we all understand them to be today.

We now know that dinosaurs were warm blooded, some were feathered, some agile hunters, some perfectly adapted to grazing and herd life. Some made nests and cared for their young. So that idea of slow moving sluggards has been chucked in the rubbish bin.



Why do we love Dinosaurs so Much?

It seems like the whole world is in love with dinosaurs and almost every kid gets some kind of exposure to these ancient beasts. My first encounter was a book in a Scottish caravan park at the age of four and I have been hooked ever since. Everyone knows about T Rex and Diplodocus, and even rock bands have named themselves after dinosaurs. If you visit London's Natural History Museum they tell you arrival to go to the dinosaur exhibit first to beat the rush. And they were right – when we left the queue wound its way around the museum's main hall.

Those big blockbuster movies like Jurassic Park and the recently released Jurassic World attract millions of

viewers to the extent dinosaurs have been totally integrated into our culture. A phenomenon indeed and for some a great money spinner too.

Question is, why? What is it that dinosaurs have they for instances whales don't. Whales are the largest animals that have ever existed – the blue whale being far larger than any dinosaur. Or fast flying eagles or fierce tigers? The answer that is usually trotted out is that they are big, fierce and extinct. No danger of being eaten by one – they are far enough away to get really close up in a manner of speaking. But there are other big fierce critters from other prehistoric eras which don't get the

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attention that dinosaurs do. So that easy answer doesn't seem to hold much water. Maybe the answer is more complex and more subtle than size and ferocity. Perhaps it partly lies in the fact that these animals are the remains of creatures that are fundamentally different to any animals alive today. They are surrounded by mystery and their fair share of adventure and derring-do thanks to those bone hunters from days of yore. The few remains that have been recovered are on display in museums all over the world, which allows us to marvel at their size and wonder how these creatures lived, what they ate, how they walked and where they slept. And marvel at the fact that they once shared a world that is also ours. Cows and sheep now wander across prairies, pampas and savanna which are underlain by ancient sediments preserving a

secret world in the dust of the millennia. And we are endlessly fascinated.

Even more, we compare these creatures to things we know in our world. As big as a bus, or as long as a football field we say. These are the only points of reference we have. But the



bones tell another story – a story of both change and of continuity.

Sudden death came to these ancient creatures

Sudden death came to these ancient creatures who ruled the world for 180 million years. The bones tell the story of

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Earth's deep history and that we haven't been the only inhabitants of this amazing planet of ours. And it serves as a sober reminder that species evolve, flourish and ultimately go extinct, extinction often driven by factors outside of our control.

On a deeper level still, just as an adopted child wants to find out about her biological parents, so do we as a species want to find out about our origins and what went on in our backyard. Dinosaurs can tick all the Hollywood boxes, provide ongoing material for scientific study, but at the heart of it we want to know more about the prehistory which we share. In short, the dinosaur story is our story.



An artists impression of Ground Zero - a massive meteorite strikes the Earth

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ROBERT T BAKKER

Featured Palaeontologist

Seeing that we have already met Dr Bakker, he seems like a great place to start in our series on famous palaeontologists. If you watch a lot of dinosaur documentaries he is the dude with the big hair, big hat and big beard. And the dude with the big ideas. He led the world when it came to changing ideas on dinosaurs and their behaviour.

Those ideas eventually were incorporated into the likes of Jurassic Park and Jurassic World and we now think it silly to think of dinosaurs and oversized, slow, swamp dwelling beasts unable to survive in the world and overdue for extinction. He

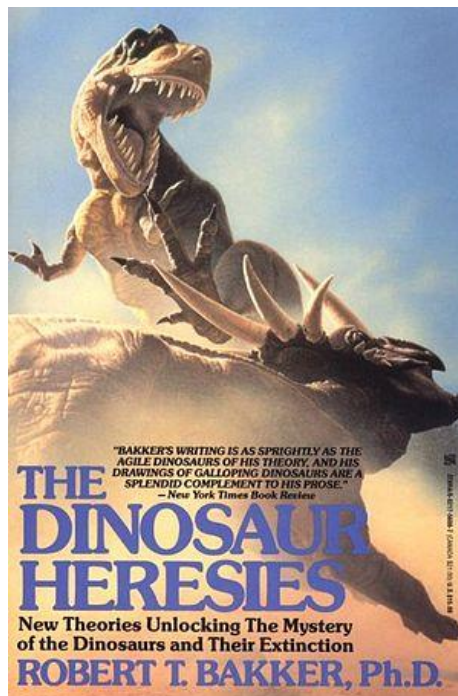


published his book, *'Dinosaur Heresies: New Theories Unlocking the Mystery of Dinosaurs and their Extinction'*

which led to this revolution in dinosaur thinking. It was in this book that he put forward his theories that dinosaurs, at least in some cases, were warm blooded animals that ruled our planet for 200

million years.

He also lent his weight to the idea that dinosaurs were the



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ancestors of birds - an idea laughed at at the time but of course is now widely accepted by the palaeontology community and the public at large.

Bakker saw his first dinosaur at the American Museum of Natural History when he was a kid, and then when he was eight saw a copy of Life Magazine with dinosaurs on the cover, and has been hooked ever since.



He studied at **American Museum of Natural History** Yale University under John Ostrom, another famous palaeontologist. It was at Yale that he and John Ostrom put forward the idea that dinosaurs were not cold-blooded dullards but warm blooded, highly adapted, smart and social animals.

He then went on to Harvard to study Anatomy and Zoology and received his PhD in 1971 and following which he lectured Anatomy at John Hopkins University, all the while continuing with his study of dinosaurs and working with his mentor John Ostrom. Those two are credited with the dinosaur renaissance which has led to the ongoing blooming of dinosaur studies across the globe.

Much of his work has been done in Wyoming and especially at Como Bluff, but he has travelled to Mongolia and hey, even visited us here in South Africa to study dinosaurs and their environments.

Bakker has written popular books, and was caricatured in

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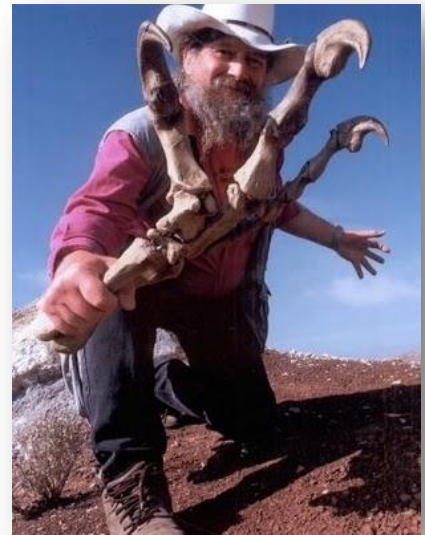
Jurassic Park as Dr Robert Burke – who was eventually eaten by T Rex.

He helps out at the Tate Museum in Casper Wyoming, is the director of the Morrison Natural History Museum in Colorado, Visiting Curator at the Houston Texas Museum of Natural Science and when he isn't doing all of that he consults for museums and other organisations. He lives in Wyoming and Colorado, and is active in leading fossil digs, focusing of course, on dinosaur bones in the State of Wyoming

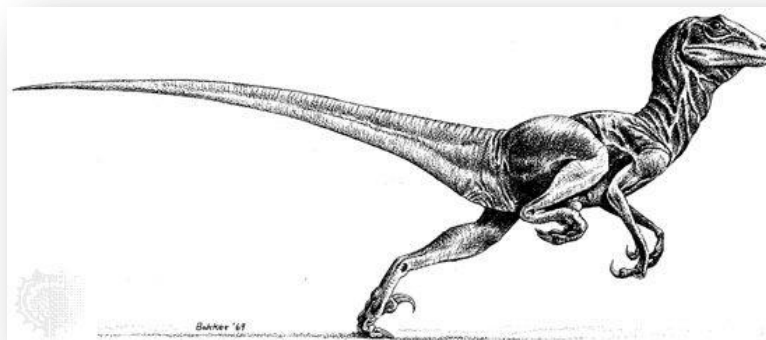
So Dr Bakker is an amazing guy – a revolutionary thinker,

writer, novelist and artist.

Clearly a man in love with his craft and it just shows. Hats off to Dr Bob Bakker – Palaeontologist Extraordinaire!



Dr Bakker having some fun



Fast and deadly – Deinonychus on the move. This is a reconstruction by Bakker based on fossil evidence.

Tyrannosaurus rex

Featured Dinosaur

There is no doubt about it, Tyrannosaurus Rex, or T Rex for short, owns the top spot in the world of dinosaurs.

Whether this was actually the case back in the Cretaceous is open to debate, but in our popular

imaginations he is indeed the king. King of the Tyrant Lizards is the literal translation of his name, which was given to him by Henry Fairfield Osborn, president of the American Museum of Natural History, back in 1905. He has been popularised in films, books, TV shows and every other form of

media since the first skeleton was discovered back in 1902.

King of the Tyrant Lizards



So what is so great about T Rex? Well, if you haven't seen the movie Jurassic Park, you have been missing out, as there, in all its CGI glory, is one big,

ornery critter that is intent on eating the visitors to the park for dinner. And there is little doubt that she must have been as imposing in real life. There are perhaps bigger dinosaurs, there are faster dinosaurs, but the combination of size, speed and a mouthful of sharp teeth, along with a powerful bite, make her one of the top predators of the Cretaceous. Who cannot be

impressed by that? She lived around 68 to 66 million years ago.

Dinoman has built a half size scale model of T Rex called Marmaduke, who is now living at the offices of GeoZone GeoServices in Hilton. Go and see the building and fun that was had in creating Marmaduke on Facebook [here](#).

The largest T rex ever

The largest T Rex ever found is



Sue, who is 12.3 m long and stands 4 m high at the hips. She is currently displayed in the Field Museum, Chicago, USA. She weighed in at an estimated 7 tonnes, which by comparison to a full-grown African elephant who can weigh up to 5 tonnes, that is one big beast.

Her large head and body was counterbalanced by a long, powerful tail, all held up by strong thighs that could power her along at speeds up to 40 km/hr. So those smaller dinosaurs on which she preyed either had to be pretty fast, or had to have some other kind of defence mechanisms against the boss of the Cretaceous.

bone crunching teeth

The jaw was 1.2 m long and was stuffed full of thick, bone crunching teeth that could puncture the bony armour of Triceratops. Her arms were short - about as long as a

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human's - with sharp claws but these were not used for hunting or as weapons due to their shortness. Her real weapons were her teeth which we have already heard about. Each foot had claws but these were more for running on much like the foot of a chicken or ostrich.

There are theories that she was a scavenger but this is not widely accepted. That said she was probably not averse to grabbing a free meal of rotting flesh if the opportunity presented itself along the way.



Sue the Tyrannosaurus Rex.

Mural from the Field Museum, Chicago

Next month – T Rex's great enemy, Triceratops.

There are theories that she was a scavenger but this is not widely accepted. That said she was probably not averse to grabbing a free meal of rotting flesh if the opportunity presented itself along the way.

Next month – T Rex's great enemy, Triceratops.

You too can own your very own skeleton of Tyrannosaurus Rex. Impress your friends and family and have you own Night at the Museum by clicking [here](#).

Dinosaur Expeditions

Past and Present

Perhaps the most famous dinosaur expeditions of all time were those carried out by Othniel Charles Marsh and Edward Drinker Cope in the American West from 1872 to around 1892. These two great rivals, in fact bitter enemies, ventured out into the Badlands of Nebraska, Colorado and Wyoming to collect dinosaur fossils. They braved immense distances, freezing winters, hostile Native Americans and each other as they battled it out in the bone quarries and back in the laboratories and scientific journals.

They were bitter enemies

After the dust had settled they had discovered and named 142 new species of dinosaurs, mostly from the fantastically rich bone beds of the Morrison Formation, although today only

32 of



those species are valid.

Marsh was head of the Palaeontology Department of the Peabody Museum of Natural History at Yale, and Edward Drinker Cope of the Academy of Natural Science in Philadelphia.

Dynamite and stones

Weapons of war included bribery, theft, dynamite, stone throwing, spying and attacks in the scientific publications in an attempt to destroy each other's reputation. They didn't seem

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to care about the money, and in fact Cope almost bankrupted himself financing fossil hunting expeditions.

Getting those specimens home was no easy task either –



remember there were no roads, cranes, phones, forklifts or other technological wizardry to help out there in the Badlands of the American West. The new railway was being built but all of the specimens had to be loaded onto wagons and transferred to the station or hauled the whole way back east in the same way.

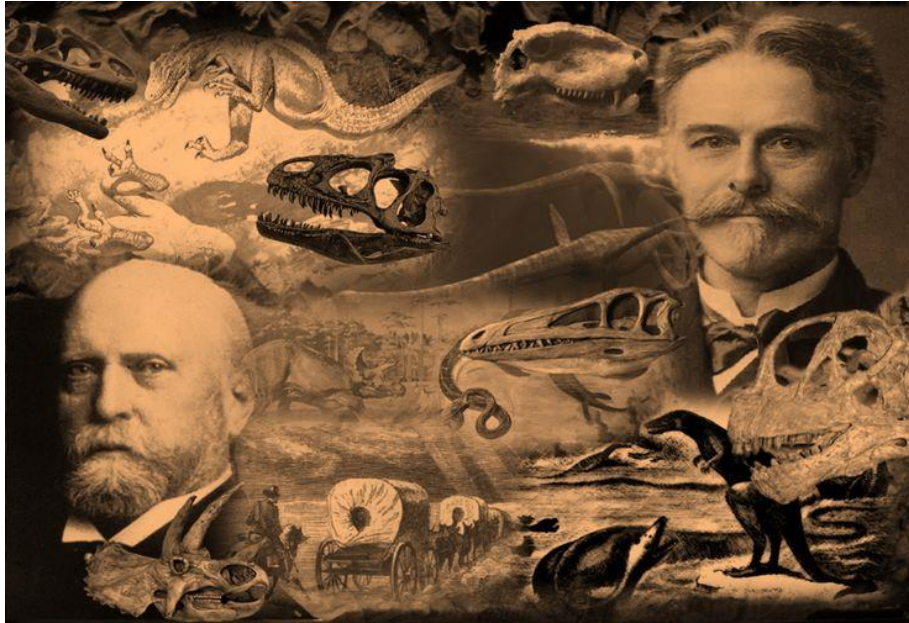
At the end of the golden age of bone collecting some of the most well-known dinosaurs, including species of Triceratops, Allosaurus, Diplodocus,

Stegosaurus, Camarasaurus and Coelophysis had been described.

Marsh and Cope had driven the new science of palaeontology to new heights, particularly in view of the fact that only nine dinosaurs had been discovered before the Bone Wars. Marsh came up with the idea that birds were descended from dinosaurs and this theory still is upheld by the scientific community. Other theories went into the rubbish bin. The public were fascinated by the discoveries and the dinosaur exhibits that popped up in the museums – a fascination that has yet to subside. As Robert Bakker said, *"The dinosaurs that came from Como Bluff not only filled museums, they filled magazine articles, textbooks, they filled people's minds."* Find out more about the Bone Wars by clicking [here](#).

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Marsh (left) and Cope (right) with some of the dinosaurs they discovered.

Dinosaur Art

It's a tough job being a dinosaur artist, otherwise known as a palaeoartists. If we want to draw a picture of a cow or a lion we can always go out and find ourselves a picture of one, or show up in a field somewhere and draw one. But dinosaurs have been extinct for at least 60 million years so it is a bit difficult to find one in your local paddock. All palaeoartists have to go on is a pile of old bones lying in laboratories around the world. And they don't even have free and easy access to these bones, and the palaeontologists themselves are still arguing about how the skeletons fitted together.

That said, palaeoartists are getting better and better at their jobs as more information becomes available to them. Scientists are scanning the bones and building 3D computer images of these beasts, which are now getting published. They are also starting to work closely with the artists in an attempt to recreate the Mesozoic world, so

us dinosaur fans are the fantastic new palaeoart that is bringing these creatures and their world back to life.

We often laugh at some of these early attempts to depict dinosaurs. The first attempt was in 1854 by sculptor Benjamin Waterhouse Hawkins when he sculpted the dinosaurs at Crystal Palace in London. He worked closely with the preeminent biologist of his day, Sir Richard Owen and produced 15 beasts which looked more like dragons than dinosaurs. They are still there to this day. We need to remember that Hawkins had very little to go on at the time, so a brave attempt by him.

Then there were all of those pictures showing dinosaurs dragging their tails in the dirt or living in water – based on ideas that their tails were too heavy or body weight too great for them to live on land. Well, most of those ideas have now been dumped in the rubbish bin. John Ostrom and Robert Bakker trashed those ideas. Bakker himself

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draw a picture in 1976 of a Deinonychus at top speed, so his ideas have been around for forty years now. However we still see some of those artists falling into the old ways, but things have improved a great deal.

There is now the challenge of feathered dinosaurs to face up to. New discoveries of dinosaurs have shown that some of them had feathers.

So the question is, was the whole dinosaur covered in feathers, and what colour were they? We seem to like our dinosaurs scaly and featherless, probably due to the massive influence of Jurassic Park and Jurassic World. Our artists are now having to push back against what the general public thinks a dinosaur should look like. A tough call indeed.

Next instalment – Robert Csotonyi



Dinosaur Fun Pages

Hey, let's now have a bit of fun seeing that we now know what dinosaurs are. Go grab yourself a pencil and your crayons and get joining the dots and colouring in the dinosaurs.

Dinosaurs were gorgeous creatures

Modern thinking is that the dinosaurs had brightly coloured skins just like some modern lizards. They have also been finding dinosaurs with feathers. If the birds of the modern world are anything to go by, the dinosaurs were gorgeous creatures with brightly coloured tail feathers and beautiful crests on their heads. No one will ever know for sure, as colours aren't preserved in the dinosaur fossils.

Go wild when choosing colours

So you can go wild when choosing your dinosaur's colours because your colour schemes will be no less fanciful than those of the best palaeontologists and palaeoartists alive today.

Each month we will bring you new dinosaurs to colour in. If you want you can load them up onto the DinoZone Facebook page and if we get enough of these we may run a competition to see whose is the best. So tell your Mom to keep you buying the DinoZone Monthly so that you can keep up with all things dinosaur and of course have hours of fun colouring in and cutting out and joining the dots and having fun.

You will be learning about Dinosaurs

And of course you will be learning about the dinosaurs as you colour in as we will include their names, how big they grew, when and where they lived and what they ate.

Go grab those crayons now and get cracking on creating your own beautiful dinosaurs.

For more on dinosaurs visit us at www.thedinozone.com. We have also put together some colouring books, model dinosaur skeletons, Jurassic

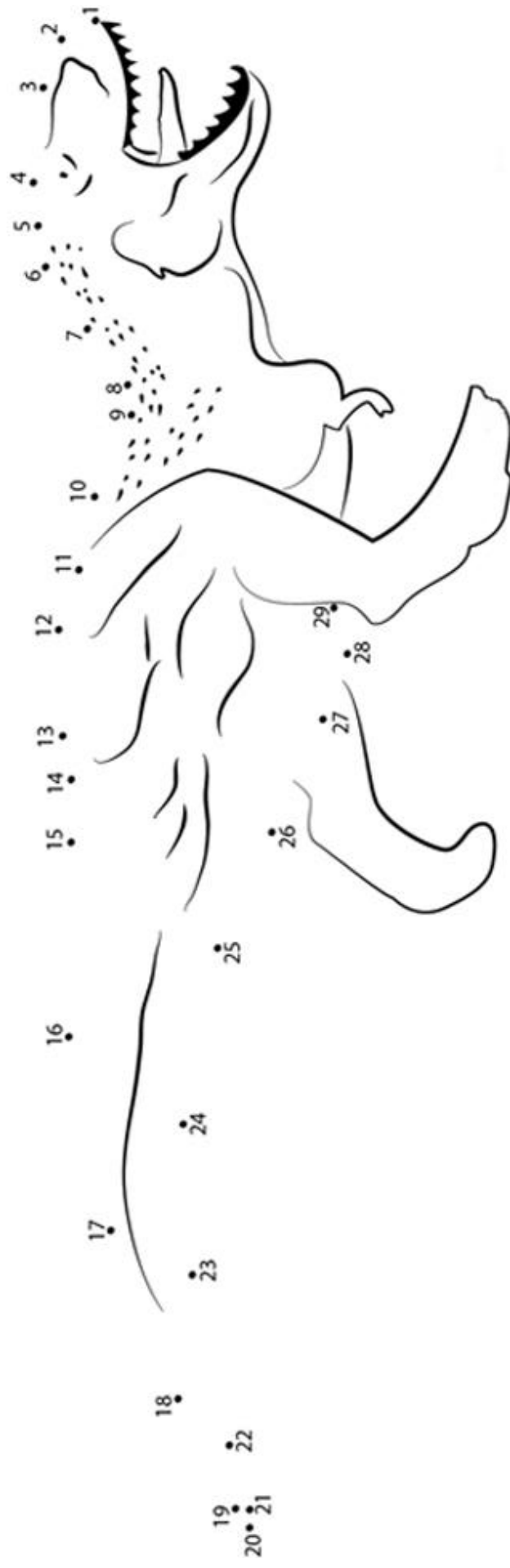
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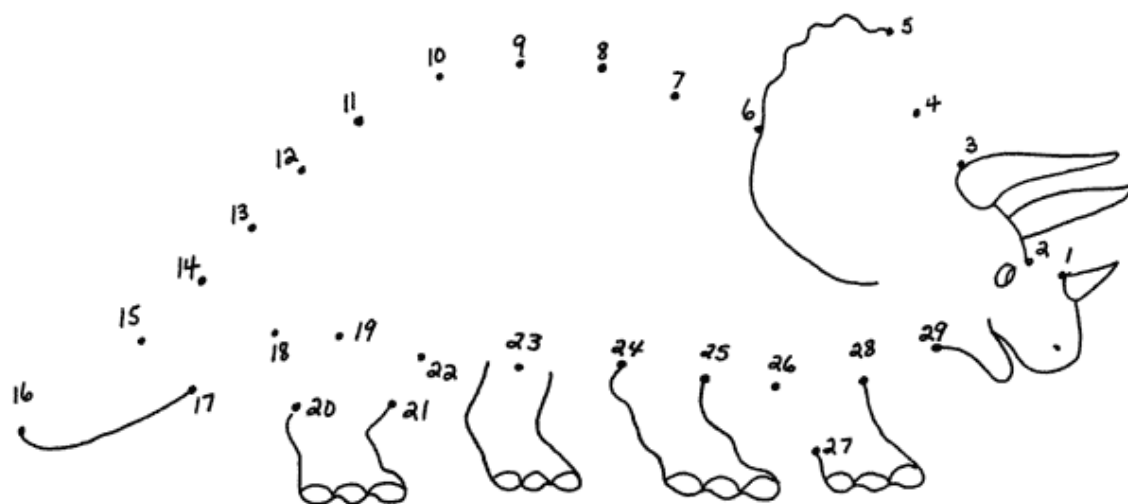
landscapes, Beware-of-the-Dinosaur signs for your bedroom. You too can have you own Night at the Museum and impress your friends and family with your collection of dinosaurs. Get them [here](#).

Your own Night at the Museum

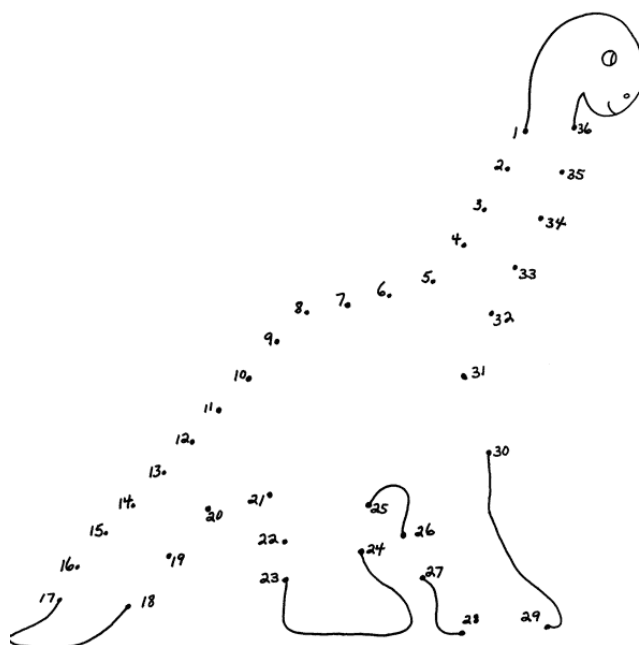
Look out for the next Issue of the DinoZone. We have put together a pile of lovely stuff – featuring Richard Owen who invented the name “Dinosaur” and Triceratops, T Rex’s great enemy. Send Dinoman your Dinosaur related questions to dinoman@thedinozone.com or check out the DinoZone website [here](#).



Tyrannosaurus Rex



Triceratops



Brontosaurus



TOROSAURUS

GENUS: CERATOPSIAN

WHEN: CRETACEOUS PERIOD

WEIGHT: 6 TONNES

LENGTH: 9 METRES

HEIGHT: 3 METRES

WHERE: WESTERN USA



STEGOSAURUS

GENUS: STEGOSAURID

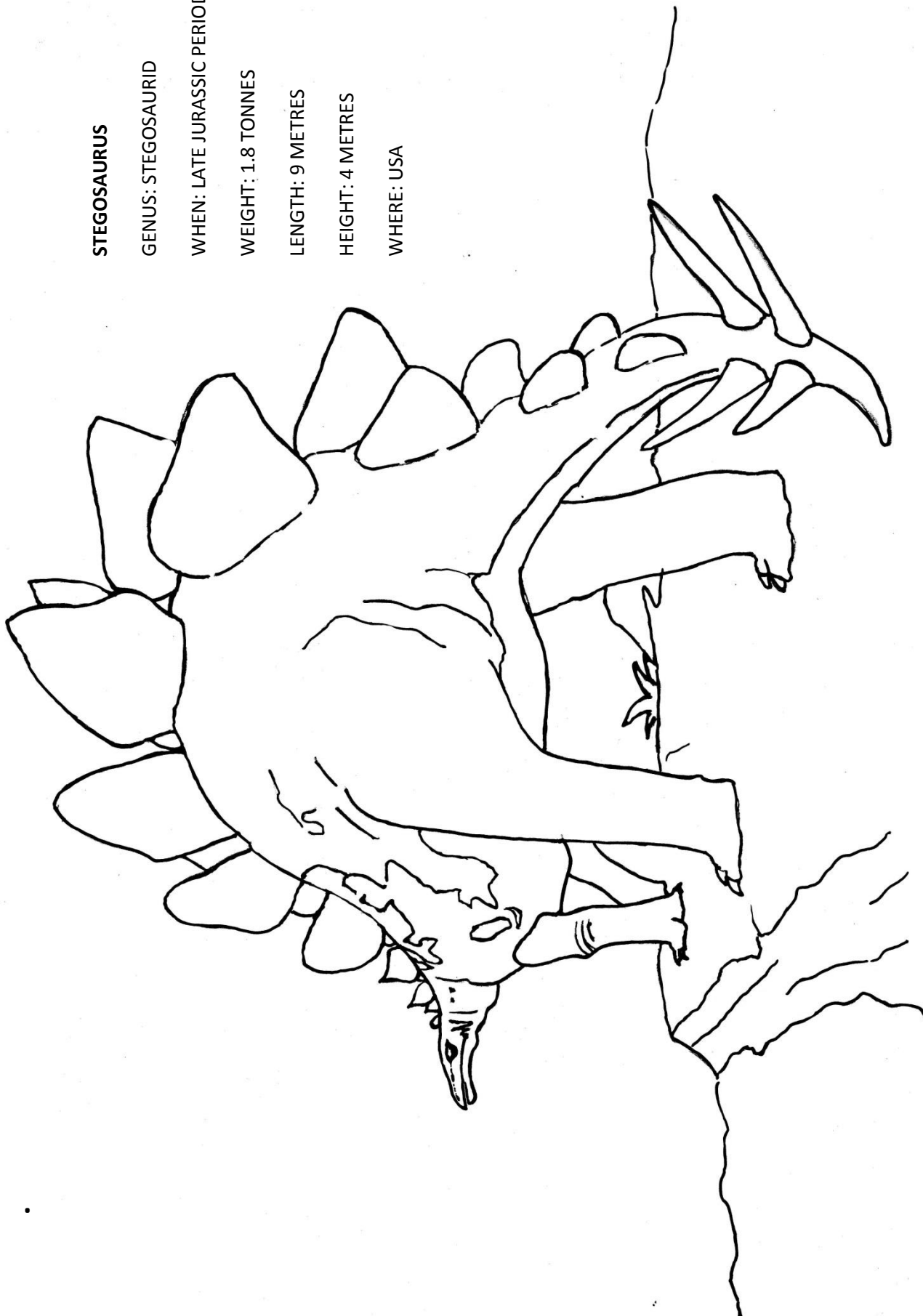
WHEN: LATE JURASSIC PERIOD

WEIGHT: 1.8 TONNES

LENGTH: 9 METRES

HEIGHT: 4 METRES

WHERE: USA



DinoZone Emporium

We have already talked about your very own Night at the Museum and impressing your mates with your dinosaur collection. Why not grab some more dinosaur stuff at the DinoZone Emporium? Check out some of the amazing things by right clicking on the pics below which will direct you to those things which any budding dinosaur collector cannot be without.





And that is all for this month folks. Remember to get the next DinoZone Monthly which will have more dinosaurs and more palaeontologists and more stuff on digging up bones in wild and wonderful places.

Until next time, keep on hunting for those bones.

Kind regards

Dinoman