UnEarthed

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UNIVERSITY OF PENNSYLVANIA

Letter from the Editors

Dear fellow Readers,

My name is Daphne Cheung, Editor-in-Chief of UnEarthed, and my name is Amy Qu, the Managing Editor. On behalf of our executive board as well as our specialized teams of writers, editors, and designers, we are proud to present to you all the first ever issue of UnEarthed! Our team is composed of undergraduate students at the University of Pennsylvania studying everything from Business to Engineering, Art to even Dinosaurs! We also come from all over the world, across the US, Canada, Korea and even Spain.

Each and every one of us were lucky enough to be inspired in some way throughout our childhood to learn more about something that we learned to love and to be passionate about, whether that be history, biology, geography, physics, technology, or travel. Inspired by some of our childhood favorites like Bill Nye the Science Guy and National Geographic KIDS, we wanted to create a similar, fun resource for you guys. We hope that this magazine can be something you find both as a fun read and something to inspire you in discovering what you are passionate about. This issue's theme - monsters - explores some of our favorite crazy things in the world. You'll learn more about the deep ocean, mummies, mystical creatures, cool dinosaurs, geographic wonders, and much more! Each issue that we publish will be centered around a different theme, so you'll be sure to learn lots about the world.

We have really loved putting together UnEarthed for you, and we hope that you enjoy our content! Please let us know if you have any suggestions to improve the publication or artwork that you would like to see published in future issues. We are planning on publishing two issues every year, so keep your eyes peeled for more! Enjoy!

Daphne Cheung

EDITOR-IN-CHIEF

Amy Qu

MANAGING EDITOR

UnEarthed

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MUMMIES

monstrous or marvelous?

Hidden deep in the Valley of the Kings[1], the Pharaoh Tutankhamun, or King Tut for short, lays in his chamber, wrapped up as a mummy...

Three thousand years ago, Tut ruled over Egypt as a teenager; he didn't accomplish much, but the tomb he's buried in is one of the most famous discoveries in archaeology. The walls of the chamber are painted over with important scenes from Tut's life. The tomb itself has three coffins, the last of which being the most bold and extravagant. His greatest treasures were buried alongside the golden tomb to help him be comfortable and happy in his afterlife.

WRITING BY ANIA ALBERSKI

The Ancient Egyptians believed that once a person dies, the soul is transferred into another form. If that person had made peace with the gods during their mortal life, they would be sent to an eternal paradise called The Field of Reeds.[2] That's why the Egyptians used mummification before placing a corpse in a tomb, an extravagant one in Tut's case! Though, legend has it... If anyone dares to open his tomb, they'll be subject to the wrath of the Mummy's Curse.[3]

So, what exactly are mummies? We typically see them depicted as scary, grumbling monsters covered in toilet paper in Halloween movies. Although they make cool characters on the big screen, the historic mummies in Egypt were made for very different reasons. The ancient Egyptians weren't focused on making movies like Hotel Transylvania; they were concerned with preserving the bodies of their dead. This means they wanted to keep the bodies safe and intact so that they wouldn't decompose or rot... gross!

Once the body was all wrapped up, it was placed into a stone coffin called a sarcophagus. It was decorated with gold and paint, inscribed with hieroglyphs, ancient letters, and figures that were used to tell stories and communicate with others. The tombs of the pharaohs were also decorated with royal seals called cartouches,[5] which were representative of unique features of the kings' personalities. Many of these cartouches were birds with colorful shining feathers, or even serpents. Animals were very important in Ancient Egypt because they were considered sacred, meaning they were worshipped and represented different gods or goddesses.

So, why are mummies important? They don't actually run around scaring people for fun since they can't really move... at all. However, they have contributed a lot to human history. The long process of mummification really did preserve all of those bodies that the Egyptians wanted to save. It worked so well, in fact, that scientists today can now still observe the remains to learn more about Ancient Egypt.

By conducting x-rays or testing skin cells, scientists can determine the diseases that the Egyptians experienced thousands of years ago. These studies help us define the ages of kings, and approximate dates of important events. It was by testing King Tut's mummy that scientists discovered he was only 18 when he died; he ruled the kingdom when he was a kid! Observing skulls and other bones can give hints at family ties; this can tell us which people were related or where they came from.

For example, scientists only recently discovered that the Ancient Egyptians have much different DNA[6] than the people living in Egypt now. DNA is the carrier of information that makes up physical features. This means that the Ancient Egyptians were actually more similar to people that live in modern-day Lebanon and Israel.

Scientists are constantly risking coming under the wrath of the Mummy's Curse when they open the pharaohs' tombs to conduct research. Nevertheless, they continue to dig up new artifacts for the sake of our knowledge! These studies allow scientists to refine the facts we read about in books and see in movies. Even though mummies are dead silent, they continue to provide us with secrets about the past and will fuel our expeditions for more knowledge in the future.

Mummification, or the process of creating mummies, was a long and picky task; it took 70 days![4] It looked a little something like this:

1. The body had to be washed. No one wanted a dirty and smelly mummy!

2. Next, all the organs, except for the heart were removed from the body. The heart was essential for the afterlife.

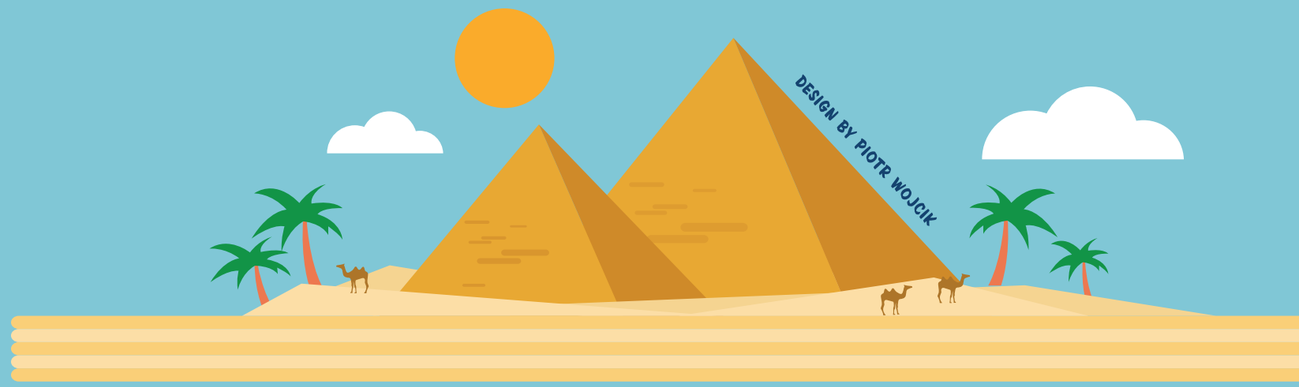
3. For 40 days, the body was covered in natron salt, found on the bottom of dry lakes. The salt soaked up all the moisture -- that's why we use salt on the sidewalks when it snows!

4. The organs were wrapped in cloths and placed in mini tombs that represented the guardians of the body parts.

5. The skin was then rubbed with oil. This is a process called embalming.

6. 20 layers of linen were wrapped around the body, becoming almost a month long process.

7. The entire body with all of its cloth was then placed in a large sheet called a shroud.



DESIGN BY PIOTR WOJCIK

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whose footprint is **THIS?**

Name: Yeti (or Abominable Snowman). Also known as himamānav in Nepal.[1]

What does it look like?: Apparently the Yeti looks like a huge ape with white fur. Some people say it looks like a snowman. Actually, the Yeti has been in a famous movie. Remember that scene in Monsters, Inc. where Mike and Sulley are banished to a snowy mountain?[2] There they met a furry white monster who gave them yellow snow cones. That is what the Yeti looks like!

Where does it live?: The Yeti is said to live in the Himalayas. The Himalaya Mountains are the highest mountain range on Earth, so high that some people call them "the roof of the world."[3] Most people who claim to have seen the Yeti are hikers who were climbing the Himalayas.[4]

How tall is it?: The Yeti's height has never been confirmed because no one has a picture of it. The Sherpa people, who live near the Himalayas, say that the Yeti is too fast to be caught on camera. On the other hand, people have found some footprints in the Himalayas that may be from the Yeti. Judging from the footprints, the Yeti is probably very large and heavy.[5]

Age: No one really knows! Some reports from around the Himalayas date back to before the 19th century. More people began to say they have seen the Yeti in the 20th century. Most people began to believe that the Yeti exists after seeing photographs taken by English mountaineer Eric Shipton. The photographs show huge footprints in the snow, at about 6,000m (20,000 ft) above sea level.[6]

Do you think the Yeti really exists?

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Graphics from Vecteezy, Photography from Unsplash.

Writing by SHINYOUNG NOH

Design by DELIA CHEN

7 Most GRUESOME Greek Mythology Monsters

GREEK MYTHOLOGY IS A COLLECTION OF STORIES ABOUT GODS, GODDESSES, HEROES, AND PERHAPS MOST INTERESTINGLY, MONSTERS. THE PEOPLE OF ANCIENT GREECE LOVED TELLING FEARSOME TALES OF CREATURES WITH FRIGHTENING FEATURES. HERE IS A LIST OF SEVEN OF THE MOST GRUESOME MONSTERS IN GREEK MYTHOLOGY!

MEDUSA

Graphic/Flickr

...was once a very beautiful woman, but became cursed by the goddess Athena for disgracing her temple. Athena gave her poisonous snakes instead of hair, and made her face so frightful that whoever looked into her eyes turned into stone. Now, Medusa is widely recognized in movies and later writings. For instance, the Percy Jackson series also has the character Medusa!

CERBERUS

...is a monstrous three-headed dog that guards the door to the Underworld to protect the dead from leaving. He was once captured by the Greek mythology hero Heracles and then returned to the Underworld to continue guarding the door. This creature was also the inspiration for Hagrid's dog Fluffy in the Harry Potter series!

MINOTAUR

...is a monster with the head of a bull and the body of a man. He was born to the queen of island Crete after being cursed by the sea god Poseidon. The architect Daedalus designed a labyrinth (a maze-like structure) to trap the monster and prevent him from killing people.

CHIMERA

...is a hybrid creature that breathes fire and is composed of parts from diverse animals. The sighting of a Chimera was interpreted as an omen for disaster. Many men in Lycia, where the monster lived, died when they saw the creature as it was able to burn them to ashes with a single breath.

SCYLLA

Graphic/Pixabay

...was also once a divine nymph loved by the sea god Poseidon but was turned into a monster by the witch Circe, her rival. Circe poured a magical potion into the water of the spring where Scylla would bathe and transformed her into a monster with six heads, four eyes, and three rows of sharp teeth. Perhaps the reason why the monster has so many teeth is to devour its enemies in one bite!

SIRENS

...are extremely dangerous creatures who lure nearby sailors and ships using their enchanting voices. Their singing cause the sailors to crash into cliffs to meet their painful demise.. They are described in Greek mythology as monsters with birds' bodies and women's heads. They sit on cliffs waiting to hypnotize people with their irresistible songs.

LERNEAN HYDRA

...has a unique regeneration feature: even if a head is chopped off, it can regrow many heads to replace the one that was cut off. The Lernaen Hydra has breath so deadly and poisonous that even smelling its scent is fatal.. The hero Heracles defeated the monster by using fire to burn the heads to prevent them from regeneration.

THESE MONSTERS WERE VERY IMPORTANT TO ANCIENT GREEK HISTORY. EVEN AFTER THOUSANDS OF YEARS, THEY STILL REMAIN INTERESTING AND PREVALENT IN POPULAR CULTURE. WE HOPE THAT READING ABOUT THESE CREATURES MAY SPARK YOUR INTEREST IN GREEK MYTHOLOGY!

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DEEP SEA CREATURES

WHAT LURKS IN THE DARK DEPTHS?

Written by Andrew Zheng
Designed by Violet Tu

Oceans make up 71 percent of the Earth's surface,[1] yet less than five percent of these vast ecosystems have been explored.[2] Humans interact with marine creatures all the time, from jellyfish and crabs at the beach to stingrays and barracudas at the aquarium, but only a few scientists have observed firsthand what lives in the deep sea. Starting at 650 feet below sea level and extending to over 36,000 feet at the bottom of the Mariana Trench,[3] the chilling, pitch black depths of the oceans still puzzle researchers. It's hard to imagine how anything could live in such a cold, dark, and pressurized habitat, but the animals that have been recorded suggest how diverse, tough, and downright eerie deep sea life can be.

Existing from 2,297 to 3,281 feet below sea level, the deep sea anglerfish must adapt to almost no light. Males are small and have simple features, using their strong sense of smell to attach to females as parasites.[4] This process causes the male to bite its own face and decay until only its sperm are left, necessary for fertilization.[5] Females, on the other hand, look like the unforgettably frightening fish from Nemo, having long sharp teeth, cloudy eyes, and a dangling bulb of luminescence. These feed on any available food, attracting prey with their frontal organ full of light-producing bacteria.[6]

In addition to anglerfish, bioluminescent comb jellies are beautiful organisms that have the ability to emit their own rainbow of colors in the black waters through photoproteins. These special proteins can initiate chemical reactions to shine light.[7] Bioluminescence is used by dozens of other deep sea animals too; one other special creature is the pacific viperfish, which lures prey by its glowing belly. When the innocent prey come close, they are caught in the oversized, jagged teeth of the pacific viperfish that do not even fit inside its mouth.[8]

Not only do deep sea creatures face nonexistent light, but they also live in low oxygen levels. The vampire squid is one organism that is able to thrive within its conditions. At 1,958 to 3,937 feet beneath the surface, there is less than five percent oxygen saturation, making it difficult for life to carry out biological processes essential for survival. Most cephalopods (squids and octopi) cannot even go below 50 percent oxygen saturation. The cool way vampire squids live is by their unique composition of blood containing hemocyanin—copper-based blue blood—that binds to oxygen easier. They also have a large gill surface area for oxygen to be absorbed. On top of everything, vampire squids do not use up energy quickly, so they do not require as much oxygen anyway.[9]

Despite the vampire squid not requiring a great deal of food, the low amount of biomass in the deep sea is a complication for other animals; however, the bizarre gulper eel is able to feast on lots of prey at once, and some much larger than itself, due to its loosely hinged mouth. The large jaw does not result in the eel normally eating bigger prey though; instead, it is an adaptation to allow the eel to eat a vast assortment of organisms when the usual food is scarce. Similar to a pouch seen in pelicans, the lower jaw of the gulper eel is its real companion. As it opens its mouth, floating groups of shrimp are all scooped up.[10]

Another interesting animal that must be alert for prey is the goblin shark. Observed 885 to 3,149 feet deep, these long sharks are easily distinguished by their flattened snouts, elongated heads, protruding mouths, and tiny eyes. They use a sense system known as "Ampullae of Lorenzini" in the snout to detect preys' electric fields given off by muscle movement. Once food is located, the goblin shark thrusts its projectable jaw rapidly to capture it.[11]

Just as rarely seen, the frilled shark resides 390 to 4,200 feet underwater. It is often named a "living fossil" because of its little change from prehistoric times. Looking like a mix of eel and shark, the frilled shark has incredibly deadly jaws: 25 rows of backward-facing, trident-shaped teeth. This amounts to 300 inescapable hooks.[12]

All of the fascinating creatures noted provide a glimpse into the deep sea, but they definitely do not give a full picture of what lurks in the depths of the oceans. As mentioned before, 95 percent of the oceans remain unexplored, but that figure is almost 100 percent for the deepest regions. Research is ongoing, and one notable exploration program includes Nautilus. Much of its biological research focuses on chemosynthetic ecosystems present in the deep sea. In contrast to land and shallow water ecosystems, these communities do not rely on sunlight as an energy source. The bacteria have instead evolved to transform chemicals from geological processes into usable energy for the higher trophic levels of tubeworms, mussels, and shrimp.[13] Only through more marine exploration will we demystify the deep sea.

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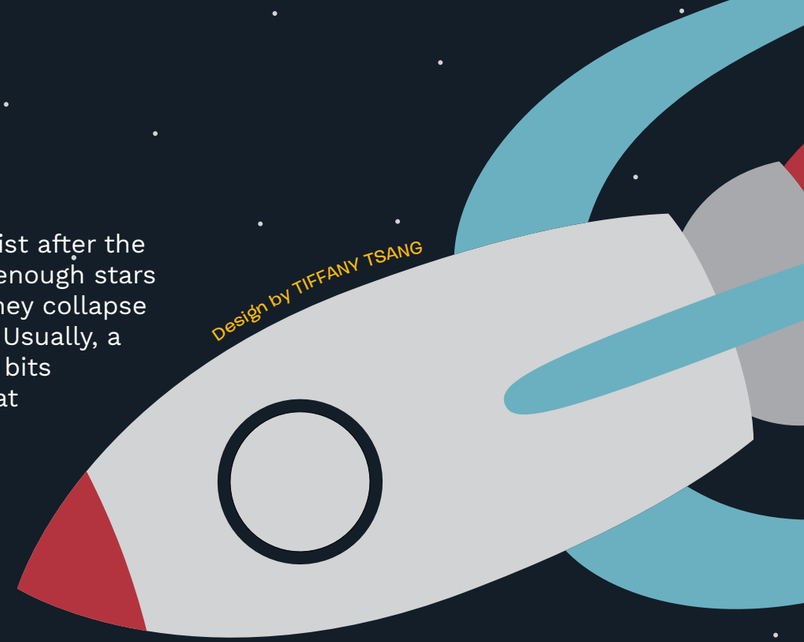
weird SPACE things

Writing by CAROLINE LENG

Space is filled with wondrous things, from stars, to comets, to possibly even alien life. However, the darkness of the skies above us can also conceal some scary things.

Stars are giant balls of gas that give off heat and light, and the color of the star is an indicator of how much energy it holds. The Sun in our universe is a medium-sized star, but it is still scorching and has a lot of energy. Smaller stars are red and brown, while stars with more energy are blue, and are very hot and very large.[1] While there are some stars out there like our Sun, there are others that defy all imagination.

The scariest of these large stars may just be vampire stars and zombie stars.. Vampire stars are two large stars in a binary system, which means the two stars are partnered together through gravity. Of these two stars, the smaller one steals gas from the larger one, and uses this extra energy to live longer than it should.[2] The larger star gets smaller and smaller, and weaker and weaker. Just like a vampire, the smaller star steals the lifeblood of the larger star, and lives longer because of it. On the other hand, zombie stars exist after the death of a star. When large enough stars run out of energy and die, they collapse and cause a huge explosion Usually, a dying star is blown into tiny bits across the universe into what is called a supernova[3], but with a zombie star, its fate is different. Just like a zombie, the star rises from the dead, and continues to live as a much smaller star.[4]

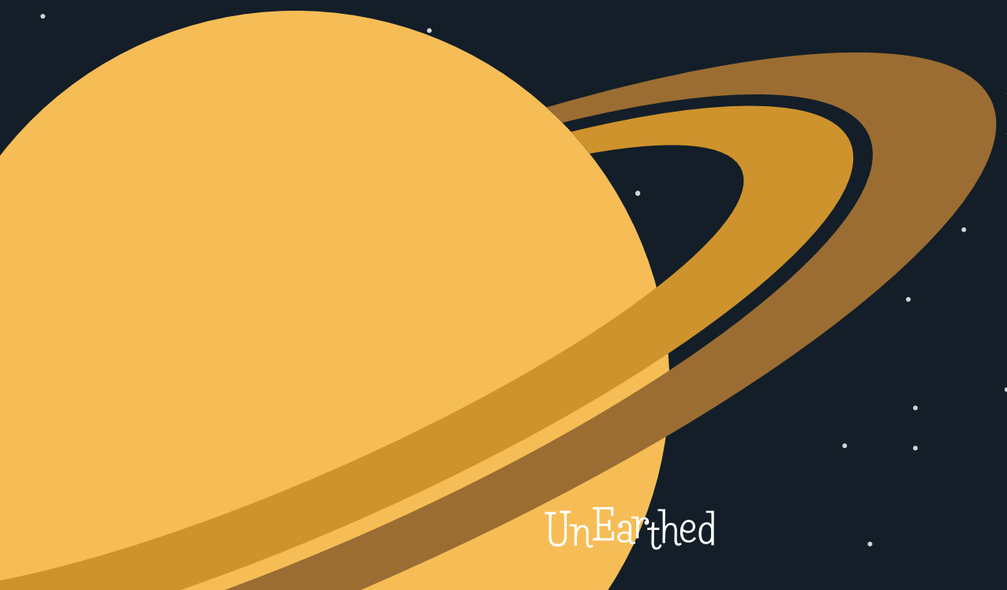


Design by TIFFANY TSANG

When even larger stars die, they don't end up as a supernova or a zombie star, but as a black hole. Black holes have such strong gravity that even light cannot escape. Because light doesn't escape, it is invisible. Anything that gets too close to the black hole will be sucked in, whether it be stars or spaceships or people.

The void of space is filled with countless more oddities other than stars. There is a whole other invisible part of space beyond black holes; dark matter cannot be detected by telescopes or traditional measurement devices used by scientists, but still make up almost one-quarter of the universe.[5] No one knows exactly what dark matter is: it could be a very dim and small star, or particles that do not exist on Earth. Dark energy makes up 68 percent of the universe, and counteracts gravity to make the universe expand faster and faster. Just like dark matter, dark energy cannot be measured.[6]

Space can be a very scary idea because humans know so little about it. However, as people explore the universe with telescopes and satellites, and more information is gathered, the realm outside of our small Earth may seem closer and more familiar than ever.



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TOP 6 WEIRDEST PLANTS
FROM AROUND THE WORLD

(see if you can match the descriptions to the illustrations!)

Writing by SARAH ROOT

Design by PIOTR WOJCIK

6. Venus Flytrap

The unusual Venus flytrap sits at the top of this list for its monstrous diet. While most plants harness light using photosynthesis to produce sugars and store energy, the Venus flytrap often grows in poor soil that lacks essential nutrients.[1] So, to add to its diet, it stealthily traps insects and digests them – making it a rare, carnivorous plant.

5. Mimosa Pudica

If carnivorous plants freak you out, then how do you feel about plants that can move? The Mimosa pudica is a plant native to the tropical regions of Central and South America.[2] The plant may not have a nervous system, but when its leaves are touched, they start to curl in towards each other, as if it were an animal instead of a plant!

4. Jumping Cholla

While this cactus might not actually be able to jump, it makes the list for its unbelievably sticky spines. Unlike most other cacti, the spines on the plant are barbed, meaning it sticks to anything and everything that comes near.[3] This helps the plant attach itself onto desert animals that brush by it, so the little jumping Cholla can spread its seed to grow further.

3. Dragon Blood Tree

From a distance, the dragon blood tree may appear to be an oversized mushroom. However, its odd shape helps conserve water in the heat and the dryness of its natural habitat.[4] The tree makes the list for its sap, which is bright red and looks like “dragon’s blood” when the tree is cut.

2. Stinking Corpse Lily

One of the largest flowers in the world is also one of the smelliest. The stinking corpse lily lives up to its name with a putrid smell similar to that of rotting meat. The stench attracts certain insects who land and pick up the plant’s pollen, allowing the corpse lily to pollinate and germinate.[5]

1. Hydnora

The last plant on the list is by far the most alien-looking. Hydnora is a parasitic plant that attaches itself to the roots of other plants and lives most of its life underground.6 When the plant is mature, it releases a smell similar to animal dung, luring in bugs which become coated with its pollen. The plant traps the bugs for a few days before sprouting above ground and releasing them back into the wild, allowing the critters to pollinate and spread the strange Hydnora species further.[6]

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VAMPIRE BATS
DRACULA’S BLOOD BROTHERS

Written By ARAN MCCAY

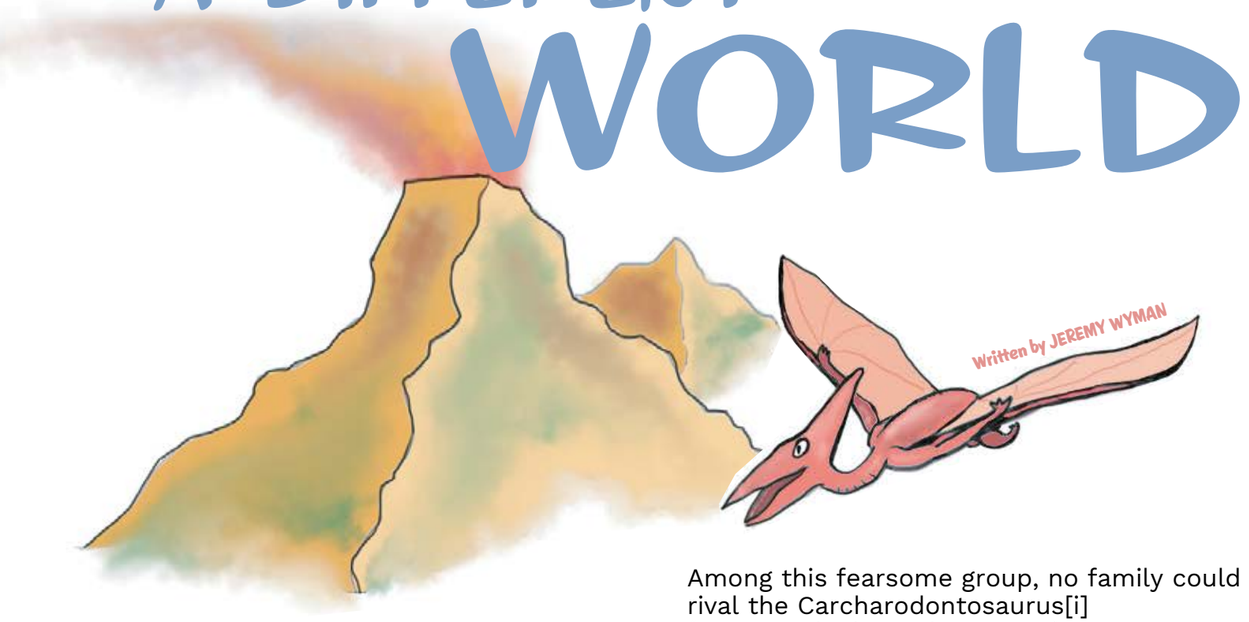
There are over 1,300 species of bats in the world, and whether you think most bats are cool or downright creepy, none of them quite compare to the vampire bat. Found in Central and South America, the three different species of vampire bats are known for what they do best: drinking blood. They were first observed by scientists in 1810, but did not get their monstrous name until after the book Dracula by Bram Stoker was published in 1897, which first described the monsters we know as vampires. Usually, these bats feed on livestock such as cows, pigs, and horses, and birds such as chickens. Once a bat chooses its prey, they use their razor-sharp teeth to bite the animal near an artery, which is where a lot of warm, delicious blood will be flowing. Technically speaking, they do not really “drink” the blood, instead allowing about a tablespoon to drip out and licking it up with their tongue. There is a substance in the saliva of vampire bats that scientists have appropriately named Draculin because of how the protein interacts with blood. When a vampire bat bites its prey, their spit acts as an anticoagulant, meaning it stops the animal’s blood from clotting and sealing the wound so that the bat can get as much as they need. Blood is their food and water source, and is full of the nutrients they need to survive. Vampire bats have also been known to hunt porcupines, armadillos, snakes, sea lions, penguins and...humans?

It’s true—vampire bats will bite humans if given the chance. Humans would not be their first choice of meal, but if you happen to spend a night outside where these bats live, there is a possibility you could wake up with a suspicious bite somewhere on your body. However, since their teeth are so sharp, their bite is usually painless, and humans have so much blood that losing a tablespoon of it is not a big deal.1 The only thing you might have to worry about is getting a rabies shot!

Design By DELIA CHEN

SOURCE: Griffin, J. (2016, October 31). 7 things you didn’t know about vampire bats. Retrieved September 27, 2017, from http://www.pbs.org/newshour/rundown/7-things-you-didnt-know-about-vampire-bats/

A DIFFERENT WORLD



Written by JEREMY WYMAN

Millions of years before humans lived, Earth was a completely different world. During the Mesozoic Era (225-66 Million Years Ago), large flying reptiles with leathery wings shared the sky with strange-looking birds, the North and South poles were warm rainforests instead of snowy deserts, there was no grass underfoot, and, most importantly, dinosaurs reigned supreme across every continent. Dinosaurs spanned the entire 186 million years of the Mesozoic Era, but they reached the height of their diversity in the Cenomanian Age, about 95 million years ago. The Cenomanian fell within the Cretaceous which was the last period of the Mesozoic Era.

This age had dinosaurs of all shapes and sizes: from the tank-like Ankylosaurs, to the long-necked Sauropods, to the duck-billed Ornithopods. But no group was scarier or more aggressive than the Theropods. Theropods walked on two legs and usually had short arms. They lived all across the world, including North America, Africa, and Asia, and these creatures came in all forms: feathered, small, scaly, gigantic.

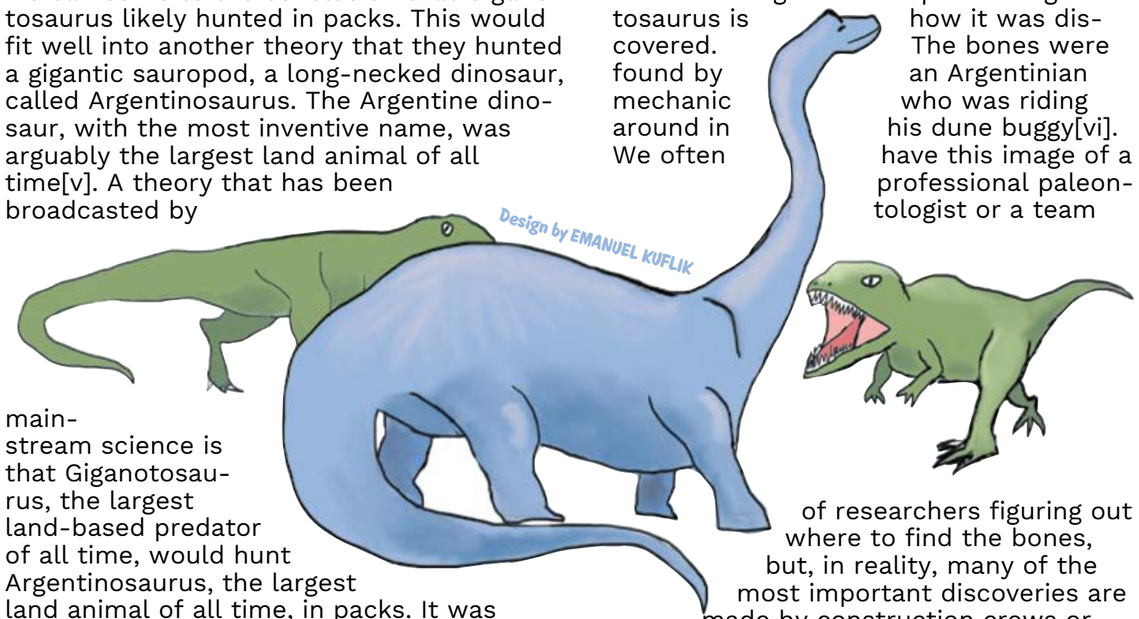
Among this fearsome group, no family could rival the Carcharodontosaurus[i] (car-car-oh-dont-oh-saur-us).

Around the world, these dinosaurs became the top predator because of their huge size. The smallest Carcharodontosaur was still over 20 feet long, and the largest Carcharodontosaur, Giganotosaurus, (Gig-a-note-a-saur-us) was over 45 feet long which is longer than a school bus[ii]! Giganotosaurus was significantly larger than Tyrannosaurus Rex and dominated his South American home. When Giganotosaurus was discovered, paleontologists welcomed it as the largest carnivore, or meat-eater, to ever live. Its man-sized crushing jaws were equipped with long knife-like teeth, perfect for slicing meat off of bone[iii]. They raced across the landscape at a predicted speed of 31 miles per hour, which is about the average speed of a horse. A recent study suggests that Spinosaurus might have been slightly larger, but there has never been a land-based predator more ferocious or larger than Giganotosaurus.

Although their bite might have been slightly weaker than their Tyrannosaur cousin's, Giganotosaurus' bite was no less gruesome. Instead of crushing through bone and flesh, Giganotosaurus would slice little pieces of skin and meat off their prey, leaving it to die slowly. Unlike the solitary hunters in North America, there is evidence that Giganotosaurus hunted in packs. Another Carcharodontosaur, closely related, was discovered in a bonebed[iv], a large group of bones formed by many different individuals and multiple species. When animals are found in bone beds, it typically means that they died suddenly, and that means that these large predators were hunting in packs. If we assume that families in the animal kingdom typically share characteristics, then we can come to the conclusion that Giganotosaurus likely hunted in packs. This would fit well into another theory that they hunted a gigantic sauropod, a long-necked dinosaur, called Argentinosaurus. The Argentine dinosaur, with the most inventive name, was arguably the largest land animal of all time[v]. A theory that has been broadcasted by mainstream science is that Giganotosaurus, the largest land-based predator of all time, would hunt Argentinosaurus, the largest land animal of all time, in packs. It was suggested that the large predators would target younger Argentinasaurs, bleed them by slicing off bits of skin and flesh, and leave them to get weaker from blood loss before moving in for the kill. Imagine: several, massive, school bus-sized monsters working together to slowly take down the largest land animal of all time. Nothing in our modern world could compare to a show like that.

Although the possibility of packs of Giganotosaurs hunting giant sauropods is exciting, there is no way to be absolutely sure about certain aspects of paleontology, the study of prehistory. The process of fossilization requires very specific conditions which is why there are often large gaps in knowledge. Not only that, but every fossil is a dead animal, leaving much of the details of an animal's life to mystery. No one would ever know from a dead spider, that it was able to spin beautiful patterns. Paleontologists attempt to account for this error, but there are some things we will never be able to know. The information gaps will be filled in gradually as more and more techniques are introduced by people with new ideas, and there is no better time than right now to be using many of these new techniques.

Despite the size of this creature, the most amazing aspect of Giganotosaurus is how it was discovered. The bones were found by an Argentinian mechanic who was riding around in his dune buggy[vi]. We often have this image of a professional paleontologist or a team of researchers figuring out where to find the bones, but, in reality, many of the most important discoveries are made by construction crews or even children. Recently, a 9-year-old from New Mexico found an interesting Stegomastodon, a type of ancient wooly elephant. What is most important when you look into the past is not how much you know, but an unstoppable curiosity and an uncontained sense of adventure.



Design by EMANUEL KUFLIK

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"Heavy Lizards": KOMODO DRAGON

Written by ANDREW GU

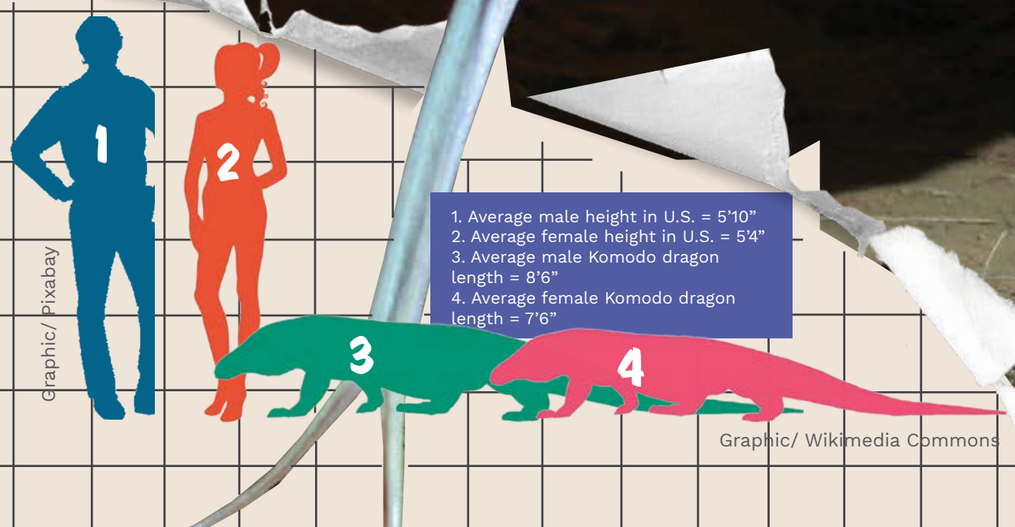
DESIGN BY JUDY ZHANG

Strong and long, the Komodo Dragon is the largest living lizard in existence. The adult Komodo typically weighs 154 pounds (70 kilograms), but the largest komodo ever measured weighed 366 pounds.1 The Komodo starts developing a vibrant range of colors and patterns at a young age. As adulthood approaches, they lose both their colors and patterns, taking the color of a boring rock. Luckily, the Komodo makes up for its color with its hidden talent: it can throw up the content of its stomach to lose weight and flee from predators. Both the jaw and the stomach of the Komodo expand with ease, allowing it to consume a large percentage of its own body weight.2

Komodos are found exclusively in the Indonesian Islands; they even have an island named after the them. With their amazing sight and smell, the Komodo is able to detect its prey from up to 4000 feet away. The Komodo actually uses its dragon-like, forked tongue to smell- creepy yet cool. After catching sight of its target, the Komodo lunges for either the neck or the legs depending on the size of the prey. Through the use of its powerful claws and serrated teeth, the komodo tears apart its victim until satisfaction. It eats not only the meat but also the bones, hide, and hooves; gross but efficient. The Komodo is left with a messy meal suitable for its messy eating habits.

Komodos hide another secret talent: a silent but deadly bite. After finishing a nice dinner, the Komodo will grow deadly bacteria by keeping pieces of flesh between its teeth. A survivor of a komodo bite will sadly only survive for a little longer. If the 50+ strains of bacteria in a komodo's bite aren't enough to kill the victim, the venom from the komodo's lower jaw definitely will.3 The Komodo will eventually find the corpse using its sense of smell and feed on it, meaning it's futile to run.2 Scientists are currently discovering a way to develop antibodies for the many bacteria, hopefully discovering a possible cure-all medicine.

Although these creatures are impressive, komodos are extremely dangerous. Two unlucky park rangers were bit by a 6.5 foot Komodo in 2013. Luckily for us, these lizards reside far away and are few in number. The rise in Komodos seems to be increasing, especially with the female's ability to reproduce without a male.1 Let's just hope there's no Komo-tion on the news!



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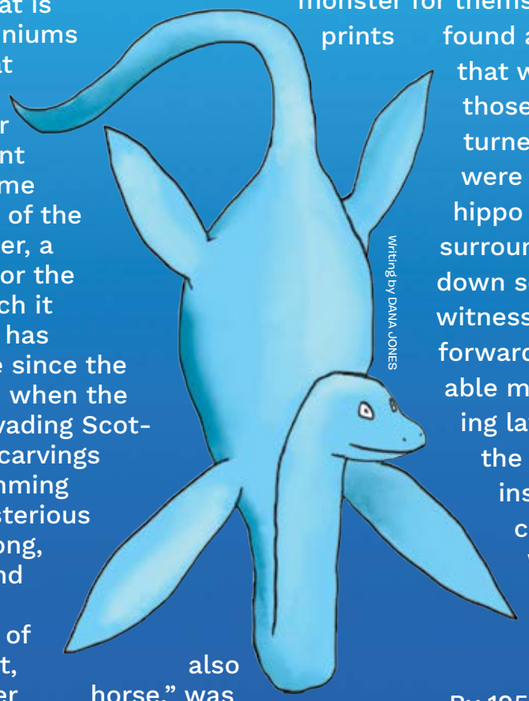
The Legend of the Loch Ness Monster

If someone told you that, within the murky depths of a massive lake in the Scottish highlands, there lived a mythical creature that was more than 1,800 years old, you would probably be a bit skeptical. A monster that is nearly two millenniums old? How can that be possible?

Believe it or not, this statement actually holds some truth. The legend of the Loch Ness monster, a creature named for the Loch Ness in which it supposedly lives, has indeed been alive since the first century A.D., when the Romans, upon invading Scotland, discovered carvings depicting a "swimming elephant"—a mysterious creature with a long, narrow muzzle and flippers.



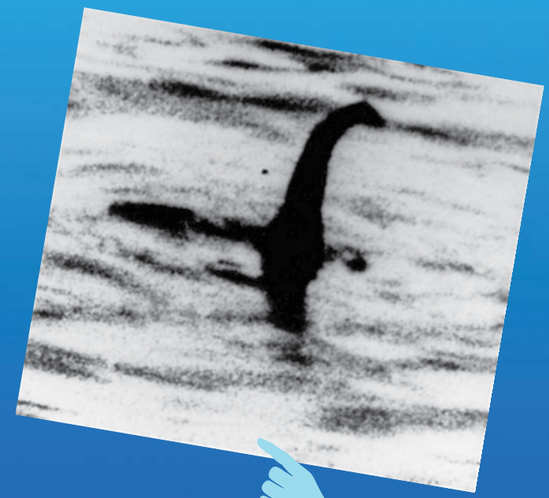
Writing by DANA JONES

The legend of this strange beast, also known as a "water horse," was carried throughout the centuries. It wasn't until the twentieth century, however, that the legend morphed from a vague description of a hulking elephant-horse with flippers for feet into the more familiar version of the monster known today—a long-necked creature with humps protruding from the water. How did this modern version of the legend come to be, you may ask? It all began in the year 1933, when a local couple claimed to have spotted "an enormous animal rolling and plunging on the surface" of Loch Ness lake. This, along with another sighting that same year, sparked public interest, and people flocked to the lake to try to catch a glimpse of the famed monster for themselves. After a set of footprints found along the side of the lake that were initially reported to be those of the Loch Ness monster turned out to be fake (they were created using a stuffed hippo foot), the excitement surrounding the monster died down somewhat. However, eyewitnesses continued to come forward, many of them respectable members of society (including lawyers, scientists, and even the occasional priest), all insisting that they had caught sight of the beast. With each new eyewitness, the legend grew stronger, drawing in more believers.

By 1958, this widening circle of believers came to include the BBC, as well as Oxford, Cambridge, and the University of Birmingham, all of whom investigated the lake using a technology called sonar, which used pulses of sound to search the deepest parts of the lake. While their results were technically inconclusive, the technologies did detect large moving objects far below the water's surface that could not be explained.

Since the mid-twentieth century, more advanced sonar technologies, as well as underwater cameras have captured various pieces of evidence that could support the existence of the Loch Ness monster. However, the creature is not without its fair share of critics and firm non-believers, and much of the original evidence supporting its existence (including the most famous photograph of the monster, taken in 1934) has turned out to be fake.1

So, does the Loch Ness monster really exist? If you were hoping for an answer by the end of this article, you will, unfortvunately, leave disappointed. Because, just as no one has been able to definitively prove the existence of the Loch Ness monster, no one can prove the creature doesn't exist. Loch Ness, the largest freshwater lake in all of Great Britain, is no easy body to search completely, and it may be centuries still before mankind will ever uncover its deepest, darkest secrets.2



FUN FACT

Photo taken in 1934 famously believed to be the Loch Ness monster for over 50 years. In 1994, one of the people originally involved in taking the photo confessed on his death bed that the photo was indeed fake, and that the "monster" was nothing more than a toy submarine with a prop serpent head attached to it.

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Design by Emanuel Kuflik

BIG Structures Around the WORLD

1 BURJ KHALIFA: Tallest Skyscraper

LOCATION: Dubai, United Arab Emirates • **HEIGHT:** 2722 ft • **OPENED:** 2010

How would you like to eat in a restaurant in the sky? Hop right into one of the Burj Khalifa's 58 elevators and ride up all the way to the 211th floor![1] The Burj Khalifa is a magnificent structure, freely standing and soaring nearly half a mile into the sky. It is host to the world's highest nightclub and restaurant, and second-largest pool.[2] The Burj Khalifa is a global model for future developments in compact structures and living spaces in highly populated urban areas.

2 GREAT WALL OF CHINA: Longest Structure

LOCATION: Huairou, China (Northern China) • **LENGTH:** 13,170 miles
YEAR: (Construction began between 259-210 B.C), completed in 1644

The Great Wall of China is perhaps the best known cultural symbol of both ancient and modern-day China. Although it was initially conceived very early on during China's ancient history, it took over 1800 years to complete. It was originally constructed to protect China from foreign invaders. Though it never physically prevented invaders from entering China, it did serve as a symbolic and psychological barrier between China and the rest of the world.[4] Interestingly, the wall is not just constructed out of earth and stone: the mortar that has kept the wall sturdy for so many years contains sticky rice![5]

3 ROYAL PALACE of MADRID: Largest Royal Palace

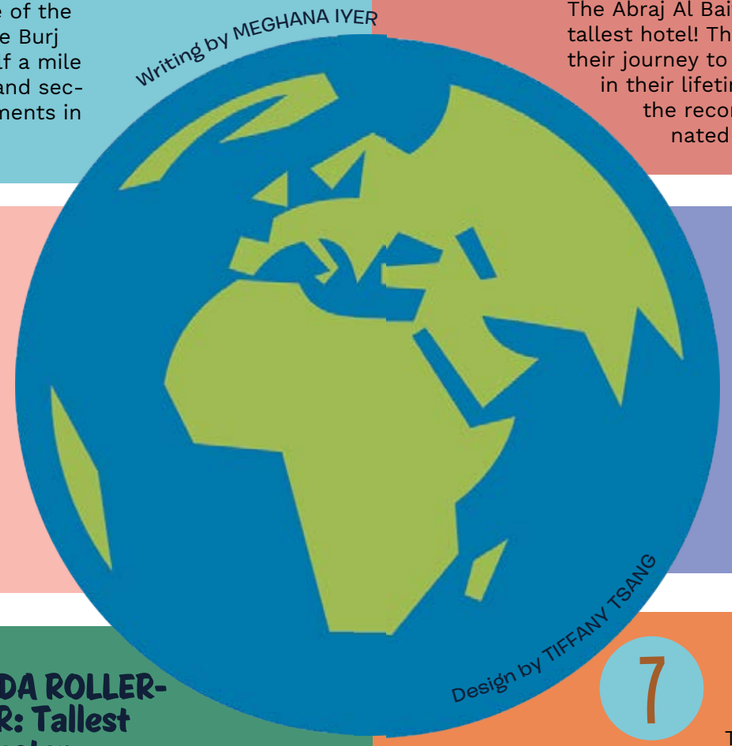
LOCATION: Madrid, Spain • **YEAR:** 1755

This palace is the official residence of the Spanish Royal Family, but is now only used for official state ceremonies.[2] This beautiful palace has over 3000 rooms and contains some of Europe's most treasured relics, including string instruments made by the legendary Antonio Stradivari. The palace is essentially in the shape of a giant square, which overlooks a grand courtyard in the center.[6]

4 KINGDA DA ROLLER-COASTER: Tallest Rollercoaster

LOCATION: Six Flags Park, New Jersey • **YEAR:** 2005

Do you enjoy the the thrill of riding roller coasters? Then why not hop on the Kingda Ka, the world's tallest, and North America's fastest, roller coaster?[7] In just under a minute, riders are accelerated to 128 miles per hour and go through a series of rises and dips. At the grand finale of the ride, riders travel up a 456-foot tall tower and are shot straight down.[8] How thrilling!



5 ABRAJ AL BAIT TOWERS: Largest Clock Tower

LOCATION: Mecca, Saudi Arabia • **HEIGHT:** 1972 feet • **YEAR:** 2011

The Abraj Al Bait Towers holds the world record for tallest clock tower and the world's tallest hotel! These towers and the hotel accommodate thousands of Muslims who make their journey to Mecca for Hajj, a pilgrimage journey that Muslims must make at least once in their lifetime.[2] The clocks on the face of the towers are enormous (141 feet)[10] and hold the record for being the highest clocks in the world. At night, the clocks are illuminated by thousands of LED lights to make the tower truly stand out.[9]

6 Angkor Wat: Largest Religious Structure

LOCATION: Siem Reap Province, Cambodia • **FLOOR SPACE:** 17.5 million ft²
YEAR: 12th century

Angkor Wat is one of the most important religious complexes in Southeast Asia and the world. For several centuries, Angkor Wat served as the center of the Khmer Kingdom. Presently, several relics from the Khmer Kingdom such as temples, dams, canals, and some impressive monuments lie in Angkor Wat.[11] This beautiful complex is spiritually significant and is equally magnificent in its artistic and structural qualities. Unlike many other religious structures, this complex has a good combination of physical buildings and natural features such as ponds, trees, and gardens.[12]

7 ERICSSON GLOBE: Largest Hemispherical Building

LOCATION: Stockholm, Sweden • **VOLUME:** 21 million ft³ • **YEAR:** 1989

The Ericsson Globe is a significant national symbol for Sweden. It represents the sun in the Swedish Solar System, which is the world's largest permanent scale model of the Solar System. Other buildings in the solar system are located around Stockholm, but they are all centered around this magnificent dome.[2] It is also the official arena for the Swedish national hockey team. This building has also hosted notable dignitaries such as Nelson Mandela, and famous pop artists such as Lady Gaga and Beyoncé. This structure is known for its incredible flexibility and, weirdly, its completely red interior![13]

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ICE AGE MAMMALS

WRITTEN BY HANNAH PAN
DESIGNED BY VIOLET TU

If you've ever watched Ice Age, you probably remember Sid, Manny, and Diego—the sloth, wooly mammoth, and saber-toothed cat who become friends when their journeys unexpectedly collide. But aside from these goofy animals, there are so many more interesting facts about the Ice Age and its mammals.

WHAT IS THE ICE AGE?

The Ice Age is a more casual term for the time period known as the Pleistocene Epoch1, which lasted from 2.6 million to 11,700 years ago2. It is known for the large ice sheets and glaciers that formed over much of the land, which contributed to the dramatic climate changes that occurred during that period. During extreme times, as much as 30 percent of the Earth's land was covered by glaciers1! These glaciers and and ice sheets also affected the environments surrounding them. Areas of permafrost, ground that has been frozen for two or more years3, formed around the edges of ice sheets in North America and Eurasia. Large lakes also developed around glaciers. The ever-changing climate and environment caused mass-migrations of both plants and animals—like our trio of friends from Ice Age—as well as evolutionary changes and extinctions1.

Below are some of the mammals that roamed the land during the Pleistocene.

WOOLLY MAMMOTH

Mammoths are an extinct group of elephants whose fossils from the Pleistocene have been found on nearly every continent.[4] The woolly mammoth, also known as the Northern or Siberian mammoth, is the most well-known species, and for good reason—not only did a woolly mammoth star in the Ice Age movie, but the great preservation of this species' fossils in the permafrost of Siberia has allowed scientists to discover many things about the structure and behavior of mammoths.[4]

Most mammoths were about the size of today's elephants, and had an outer layer of brown hair (which could be as long as 20 inches) covering an undercoat of yellow-brown hair. Ancient cave paintings reveal that mammoths had a hump on their back, which was probably due to a mound of fat. Mammoths fed on arctic plants and were hunted by early North Americans.[4] It must have been difficult to take down such a massive, strong beast!

GIANT BEAVER

Castoroides, an extinct genus of giant beavers from the Pleistocene,[6] could be as long as 7.5 feet[6] and 220 pounds, as large as a black bear![7] It was the largest rodent in North America during the last ice age, and its incisors could be 6 inches long. Although they look similar, the giant beaver and today's beaver are not closely related. They became extinct most likely due to competition from modern beavers, as well as their habitat decreasing.[7] Imagine seeing bear-sized beavers today, building giant dams in our lakes and rivers!

The beasts of the Ice Age are all magnificent in their own ways, and thanks to the amazing preservation of their fossils, we know more about our world's past.

SABRE-TOOTHED TIGER

Also known as Smilodon, this is the most well-known of sabre-toothed cats.[5] Their name, however, is misleading, since they are actually not related to tigers. They were a foot shorter than today's lions, but twice as heavy. Unlike many of today's wild cats, Smilodon did not have long tails to help them run, which means that they probably did not chase their prey for long distances. Most likely, they ambushed their prey at close range.[5]

Many Smilodon fossils show evidence of fracture injuries and arthritis, but also show the ability of the Smilodon to heal, suggesting that they could survive for a long time after being injured. This was most likely possible because injured sabre-toothed cats were cared for by other sabre-toothed cats. Smilodon were pack animals whose social structure is like that of today's lions. However, they may not have been very peaceful, since fossils suggest that they may have often fought over food and mates.[5]

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