

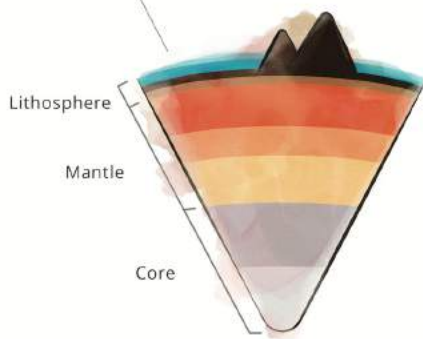
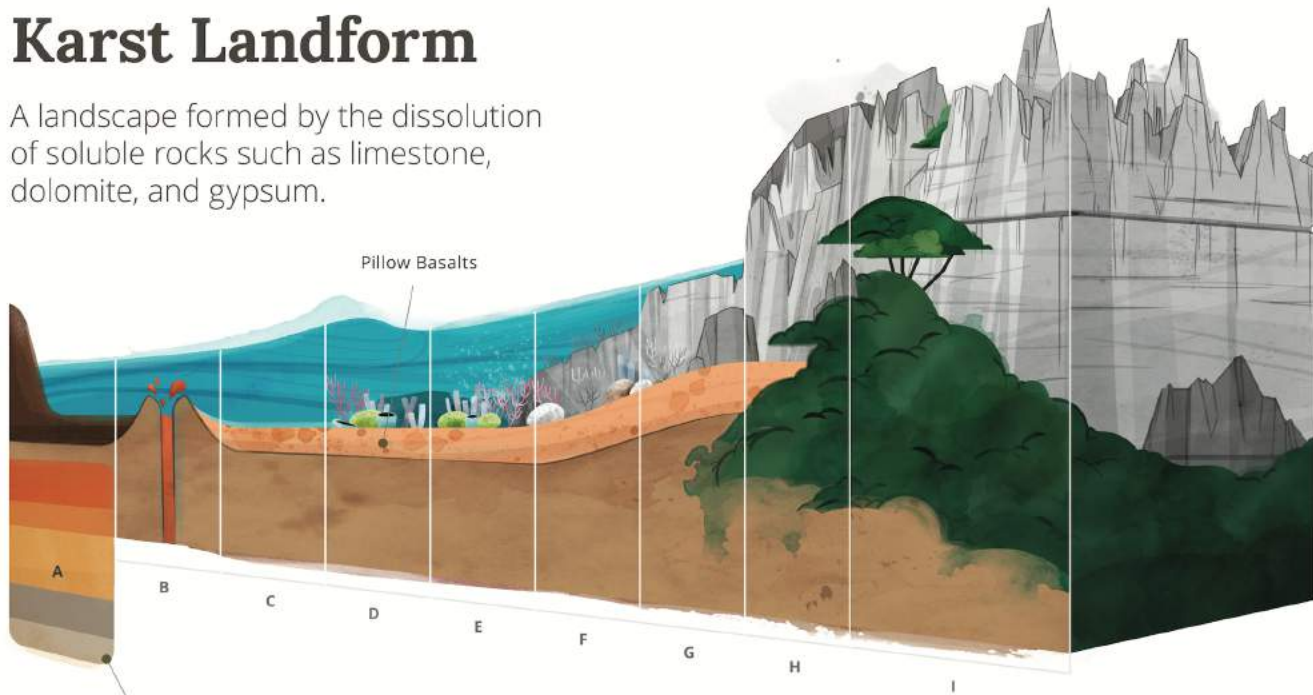
FORMATION OF THE KARST PINNACLES



MASUNGI
— GEORESERVE —

Karst Landform

A landscape formed by the dissolution of soluble rocks such as limestone, dolomite, and gypsum.



- A** The outer rigid shell of the earth, called the lithosphere, is divided into tectonic plates.
- B** Magma flows out of the ground as lavas of basalt, in pillow-like lumps, harden as it comes in contact with sea water. It forms the top part of the new oceanic lithosphere.
- C** Several other sediments may be deposited on top of these pillow basalts.

D On top of pillow basalts and the other sediments, certain kinds of environment are good for the growth of corals and other calcium carbonate-secreting organisms.

E Coral reefs form by capturing calcium carbonate (CaCO_3) from the ocean and secreting it as their exoskeleton.

F Corals and other organisms continue to form their exoskeleton and grow on top of one another through time. These become rocks called limestones.

Judging from the present size of Masungi's limestones, the former reef build-ups would have been enormous in breadth and width.

The limestones exposed in Masungi were particularly formed during the Paleocene age, about 60 million years ago.

G When plates finally reach an area where they meet, sections (including the limestones on top) are pushed above the sea floor. At the same time, the water level may subside through time. This is how Masungi's limestones were thrust out of the water.

H-I Exposure to rain water and air causes Masungi's limestones to develop the sharp and pinnacled characteristics it has today.

THE PALEOCENE EPOCH



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The Rocks of Masungi Georeserve

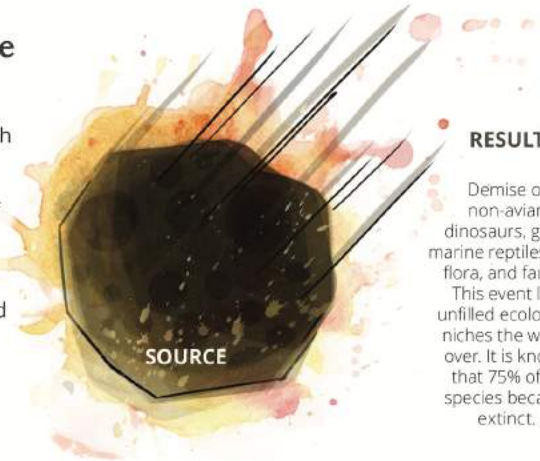
were formed underwater during the Paleocene Age. This time in geological history stands for "Older New". It is the phase preceded by Cretaceous epoch (demise of dinosaurs) and followed by Eocene epoch (growing presence of mammals). This was between 66 to 56 million years ago.

The Palaeocene epoch was sandwiched between two extinction events in Earth history which caused widespread and rapid decrease of biodiversity.

1

EXTINCTION EVENT Cretaceous-Paleocene

The onset of the Paleocene Epoch was marked by the demise of dinosaurs. This is perhaps the most popular extinction event of all. The Big Bang Theory states that this was caused by a large asteroid hitting the Earth off the Yucatan Peninsula in Mexico, and causing a global darkening through soot and dust. This slowing down in photosynthetic activity led to mass starvation.



RESULT

Demise of non-avian dinosaurs, giant marine reptiles, and flora, and fauna. This event left unfilled ecological niches the world over. It is known that 75% of all species became extinct.

2

The Paleocene Age

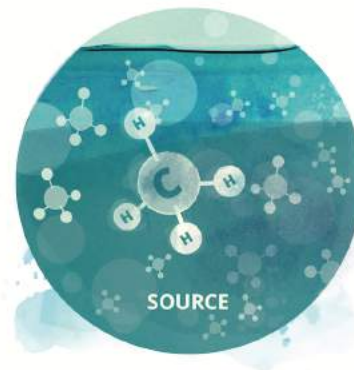
This epoch is characterised by the absence of prehistoric dinosaurs. Through the lack of plant-munching and predatory reptiles, ferns resurged and mammal species began flourishing.



3

EXTINCTION EVENT Paleocene-Eocene

The end of the Paleocene epoch was marked by an extinction event spanning a brief period of more or less .2 million years, making the seas more acidic through increase in CO₂. This affected deep sea foraminifera and coral growth.



RESULT

Mass extinction of 35-50% of benthic foraminifera (especially in deep waters). Contrarily, planktonic foraminifera diversified, and dinoflagellates bloomed.

FORMATION OF CAVE FEATURES

LIMESTONE DISSOLUTION



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Stalactites

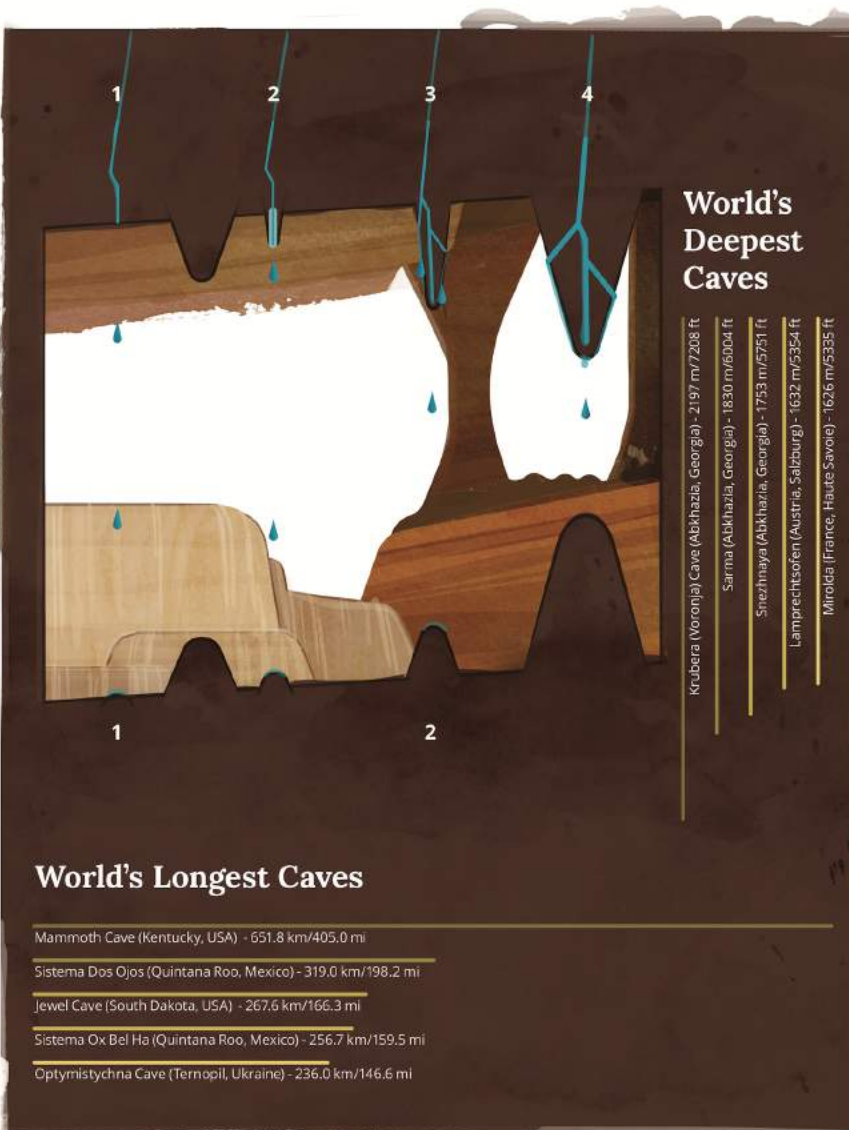
hang from roofs of caves.

- 1 They begin as water drops from the roof causing calcite deposits to be left along the way.
- 2 These drops deposit thin rings of calcite as it goes taking the shape of a fragile "soda straw" in its beginning stages. These kinds of stalactites are like tubes - they are hollow in the center.
- 3 As more water passes through time, the hole in the center may get blocked by debris causing the water to flow at the sides.
- 4 This causes the stalactite to grow into the more familiar conical shape (as opposed to a singular tube). The dripping action causes it to be pointed.

Stalagmites

begin at the floor of a cave.

- 1 Drippings deposit calcite on the floor through time.
 - 2 Stalagmites are generally shaped like a mound because of this.
- When stalactites and stalagmites form long enough to meet, they form a column.



Flowstones are formed through a similar process to the construction of a stalagmite. However, the area receiving the deposit is a sloped wall or floor, causing deposits to be in sheets. The end result looks like wax running down a candle.



When flowing from an overhung sloping surface, these are called **draperies**. They can be colored in dark and light bands, generally a product of the waxing and waning supply of organic acids to the seep solution. These are literally called **bacon**.

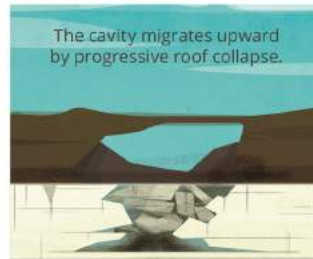
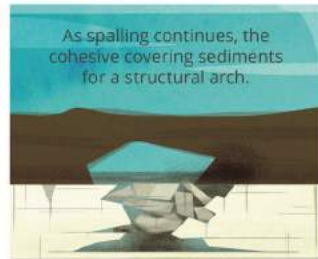


Cave **popcorn** forms when water seeps through walls and then precipitates due to exposure to wind or air. These leaves nodules on the wall.

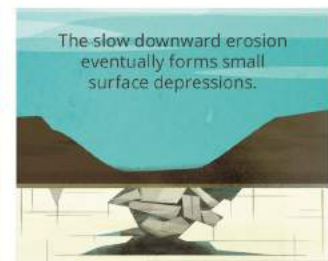


Formation of Sinkholes

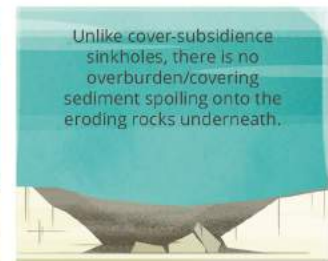
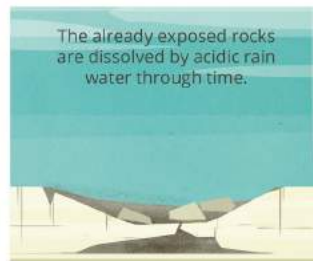
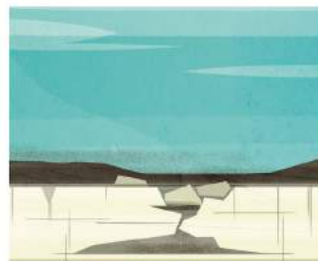
COVER-COLLAPSE



COVER-SUBSIDENCE



SOLUTION SINKHOLES



Formation of Solutional Caves



As more rainwater percolates into the ground, there is more groundwater with carbonic acid that dissolve the limestones.

As groundwater level lowers down due to an outfall or decreased rainfall, openings within the limestone are no longer filled with water. This create what we call caves.