

Speleological Aggies

...

3/9/23

Announcements

- For spring break we are doing...
 - TAG
 - BCI
- ASSassins
- Emma's Thing
- Ben Huchinson's Survey Practical
- Rich Dig

Ben Hutchinson Survey Practical

- March 25
- McCarty Cave, San Marcos, TX
 - Horizontal
- Learn how to survey!
 - Project caving
 - Setting stations
 - Using DistoX/Brick
 - Marking stations
 - Practical survey tips
- 8 spots open!
- Carpool there and back
 - Daytrip!
 - Maybe stop and grab some good grubs on the way back...?!?
- Ben Hutchinson = BNC in Texas!!!

Dig with Rich

- Saturday, March 25
- Jarrell, Texas
- He's really excited about the property and caves!
- The more people that go the more fun it generally is
 - Dig faster get to virgin passage faster!
- Opportunity to find more caves!
- More details to come in future meetings!

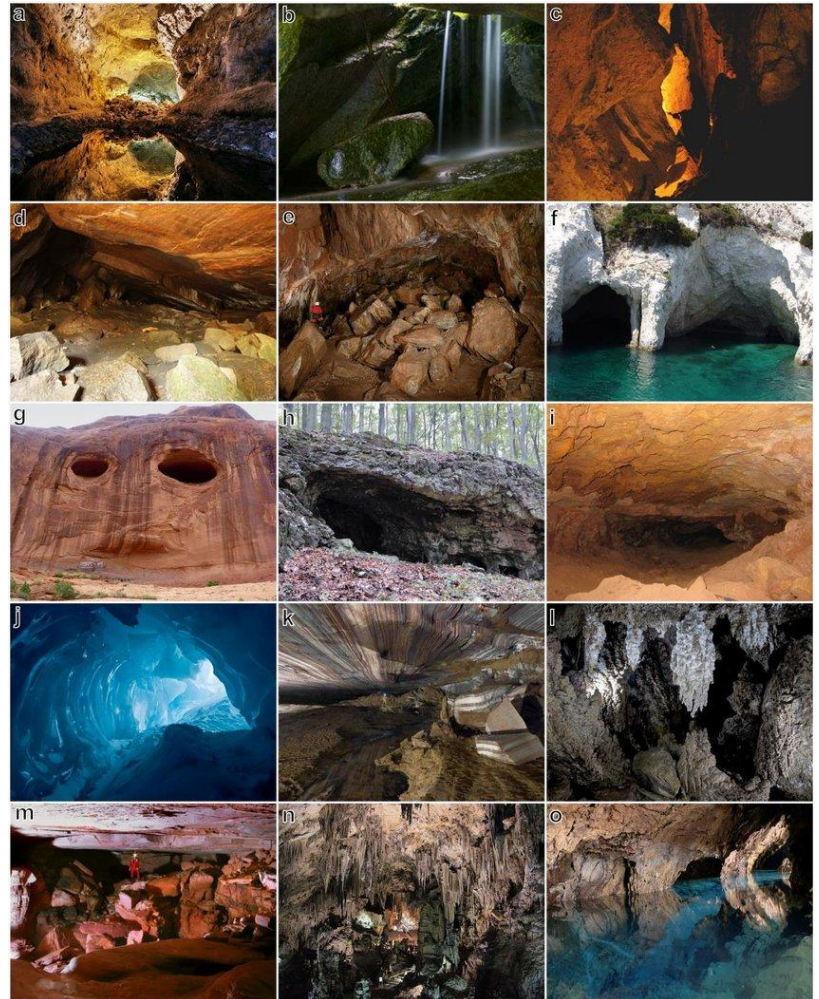
Geology of Caves



By Ya Safety Boi Evan

Types of Caves

- Karst Caves (Deep Cave, Whirlpool Cave)
- Lava Caves
- Talus Caves (Enchanted Rock)
- Sea Caves
- Eolian Caves
- Glacial Caves



Karst Caves

- Form through the dissolution of Calcium Carbonate by water (chemical process)
- Type of landscape with sinkholes, caves, springs
- Examples include the Texas Hill Country, TAG



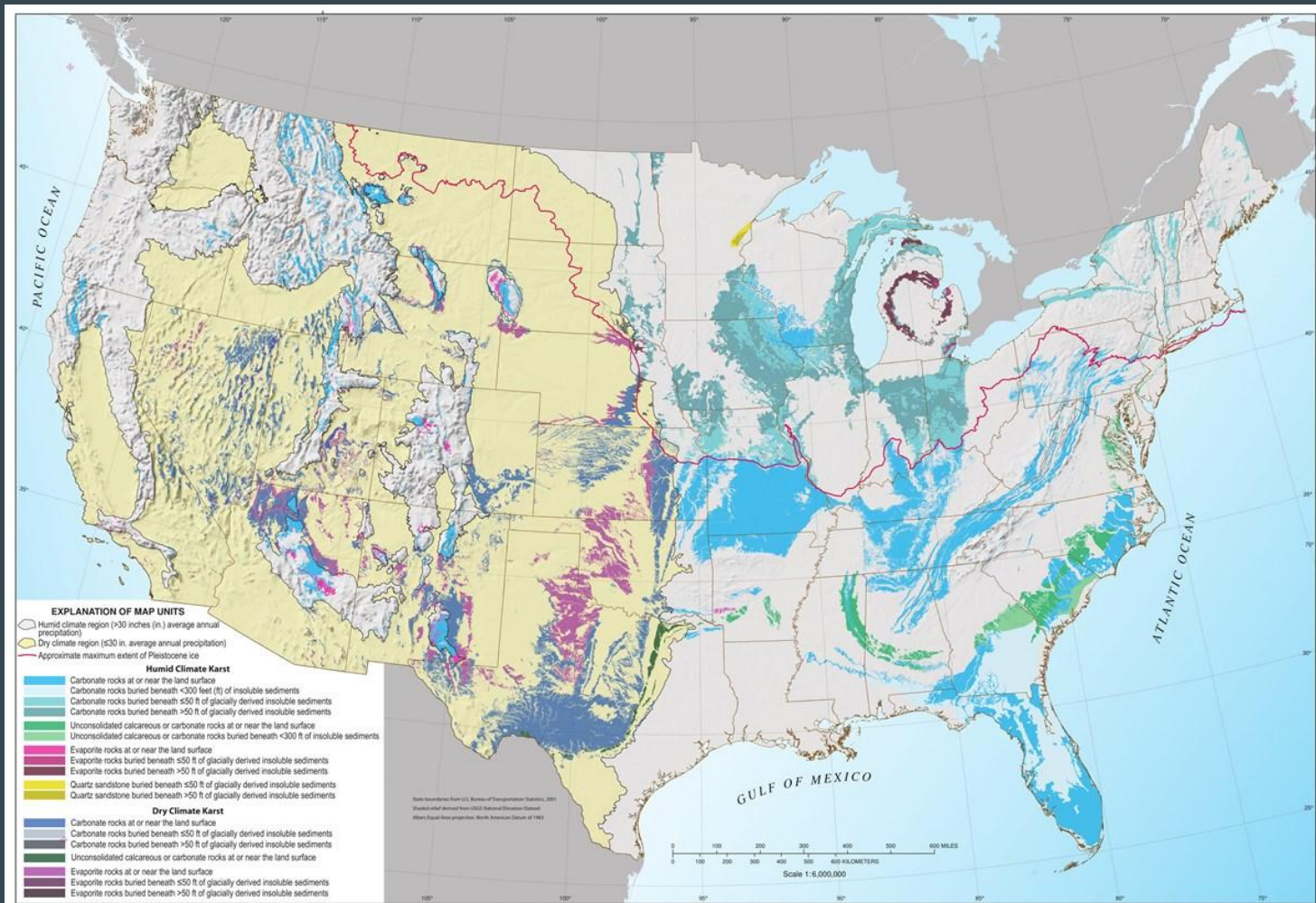
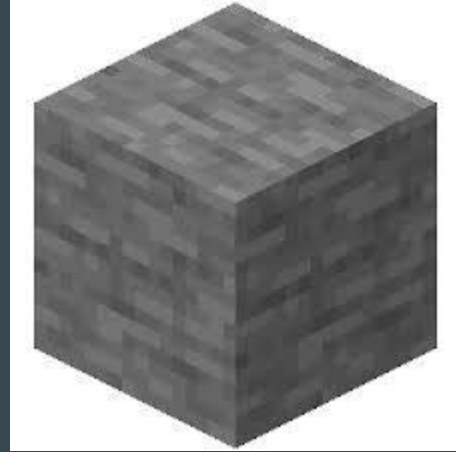


Figure 1. Karst and potential karst areas in soluble rocks in the contiguous United States.



+



= Limestone

Limestone

- Mostly made up of the mineral Calcite (CaCO_3)
- Carbonates very important in Karst Cave formation
- Type of sedimentary rock formed in marine environments
- High porosity and permeability
- Mohs Hardness: 3
- Streak: White
- Acid Test (10% HCl)



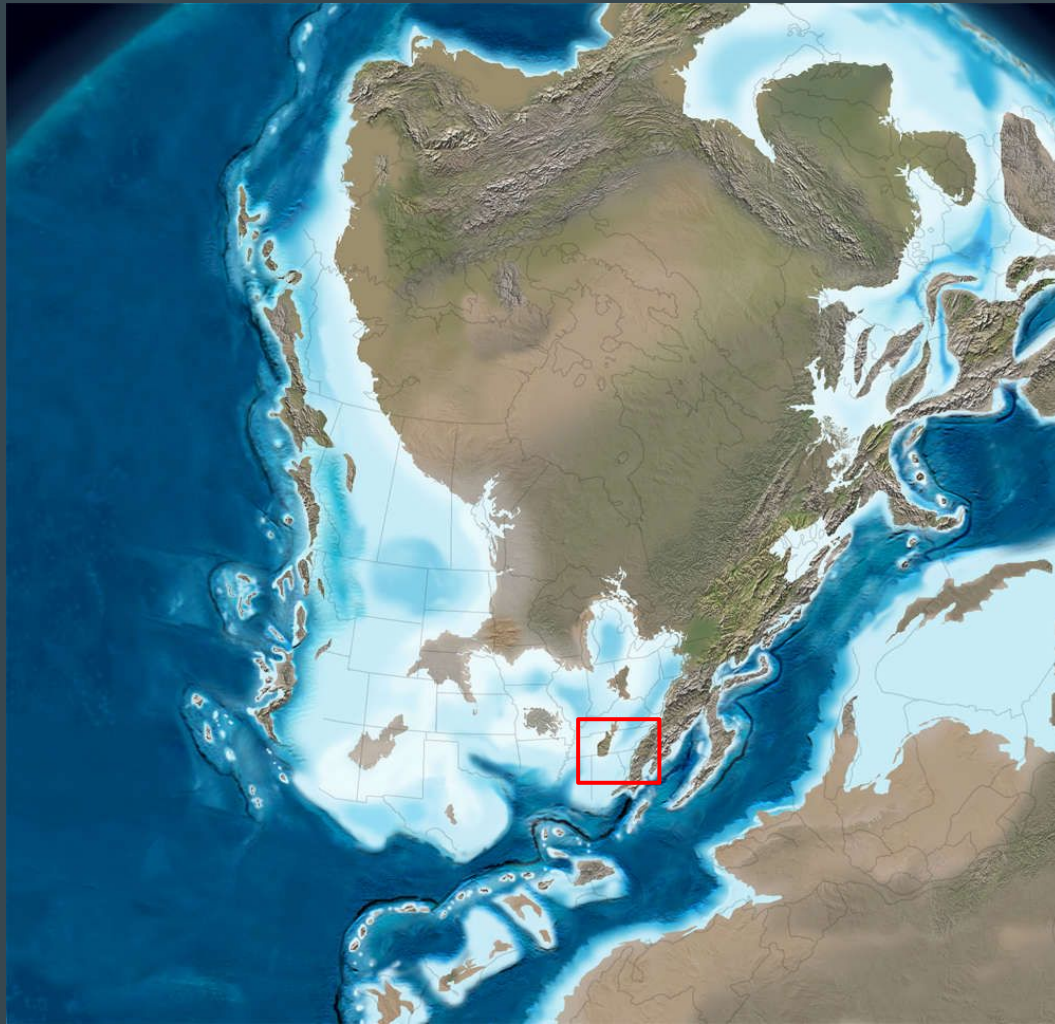
Calcite



Limestone

Carboniferous

345 Million Years Ago



TAG



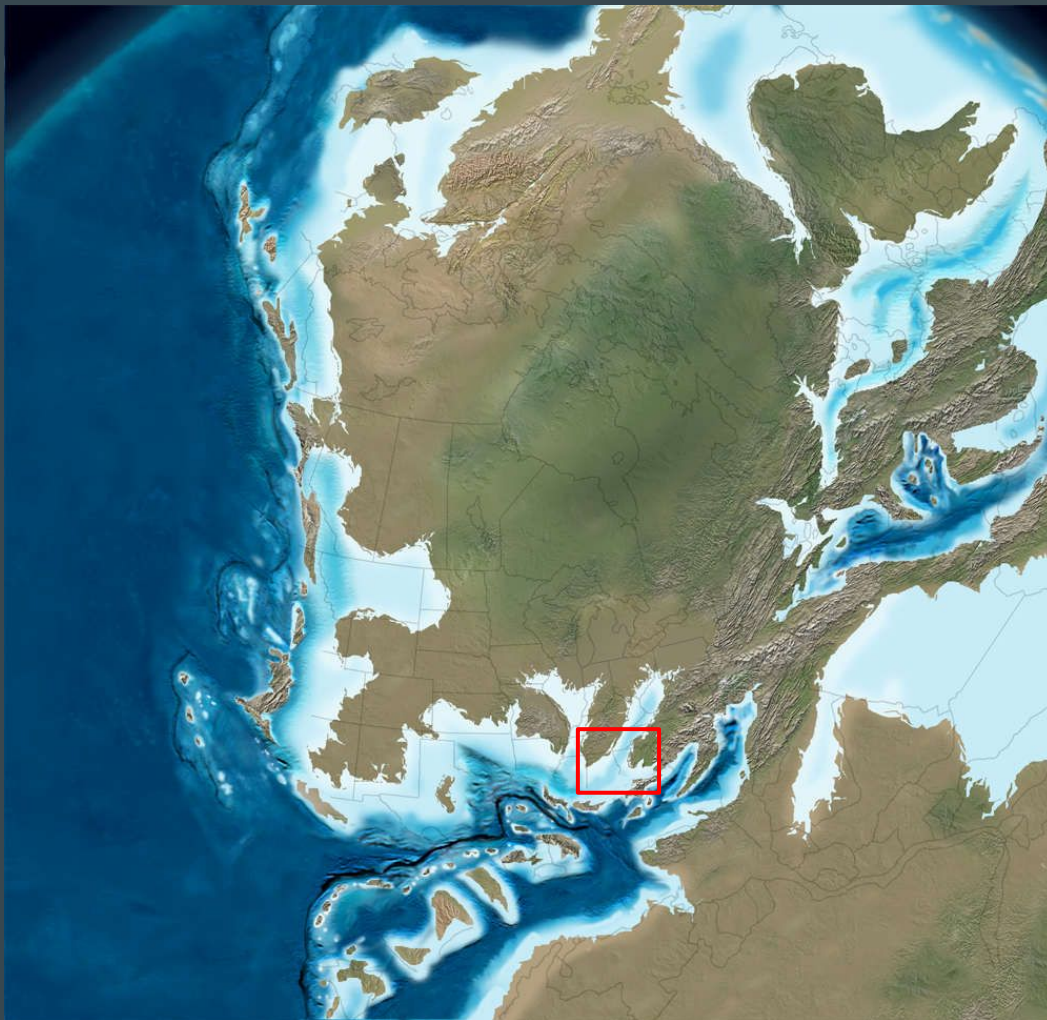
Texas Hill Country/
Edwards Plateau



Carlsbad Caverns

Carboniferous

325 Million Years Ago



TAG



Texas Hill Country/
Edwards Plateau



Carlsbad Caverns

Carboniferous

300 Million Years Ago



TAG



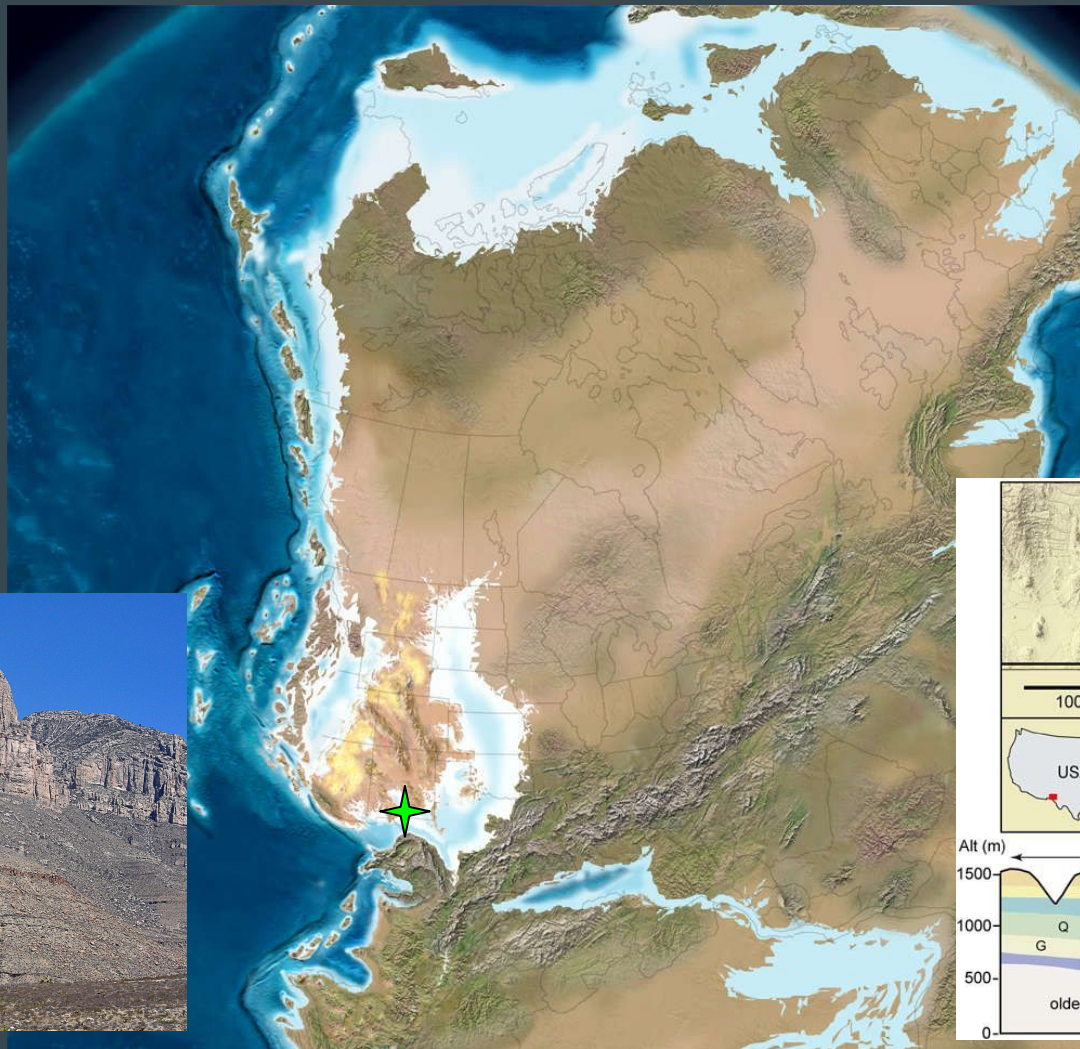
Texas Hill Country/
Edwards Plateau



Carlsbad Caverns

Permian

290 Million Years Ago



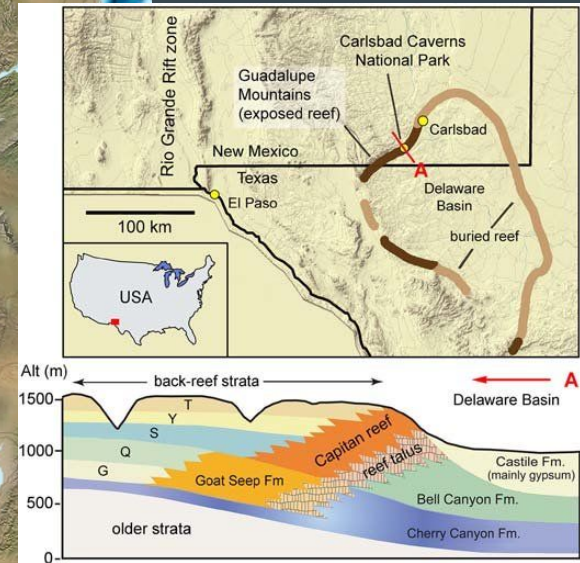
TAG



Texas Hill Country/
Edwards Plateau



Carlsbad Caverns



Cretaceous

140 Million Years Ago



TAG



Texas Hill Country/
Edwards Plateau

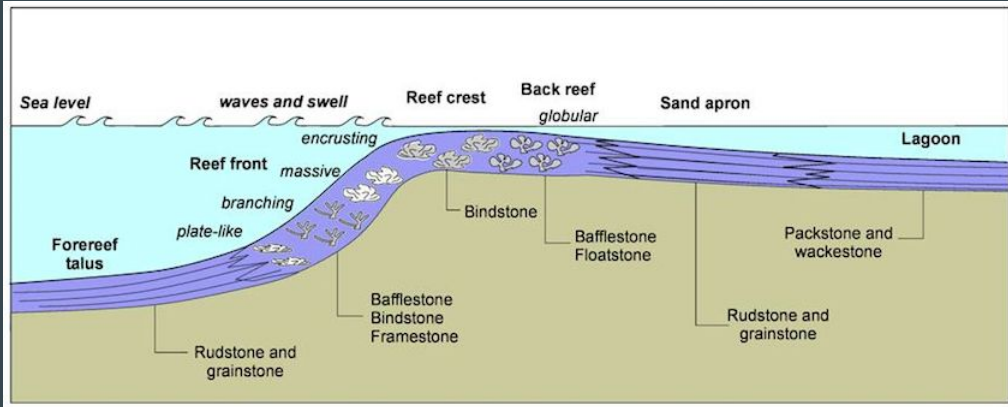


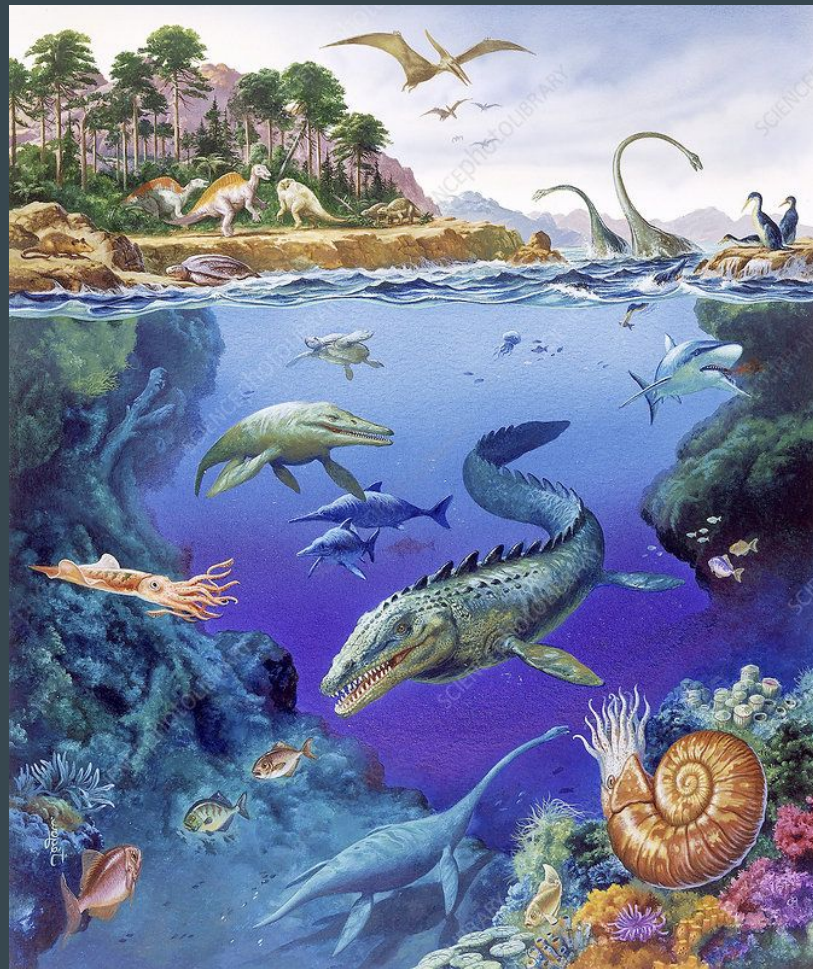
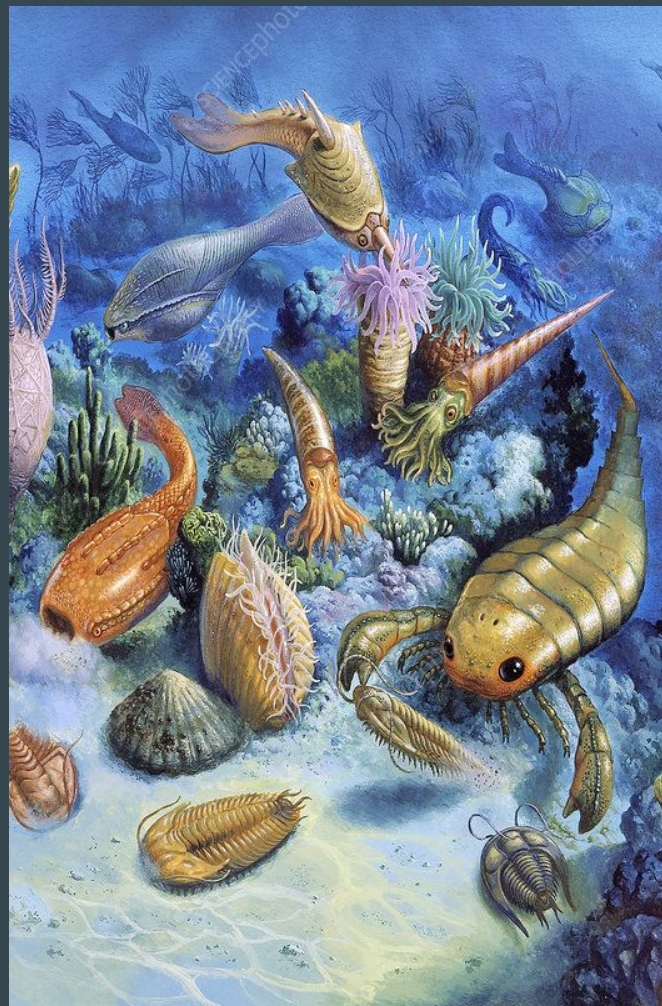
Carlsbad Caverns

Cretaceous

85 Million Years Ago

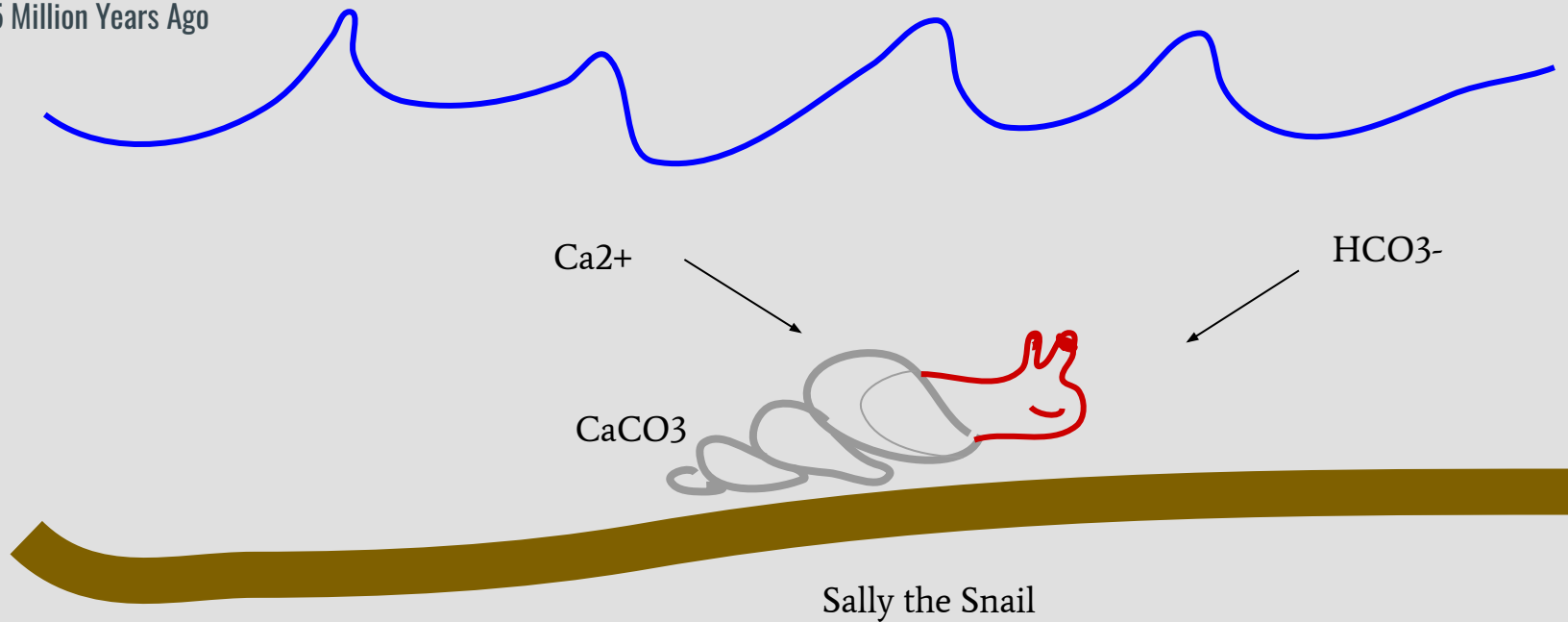


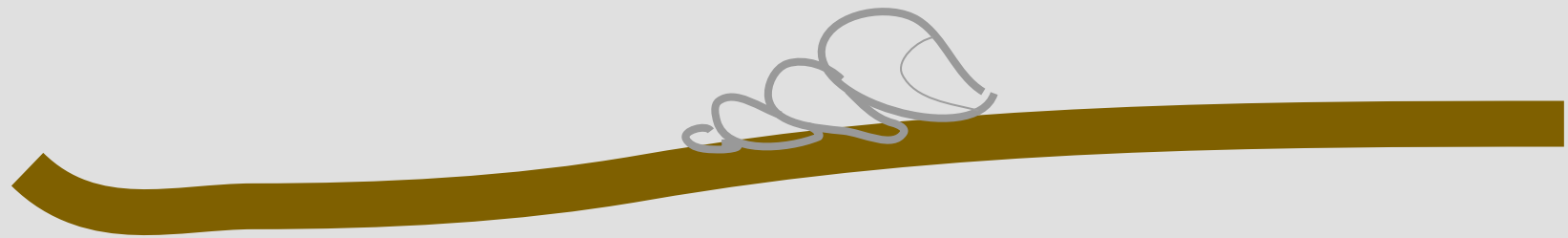
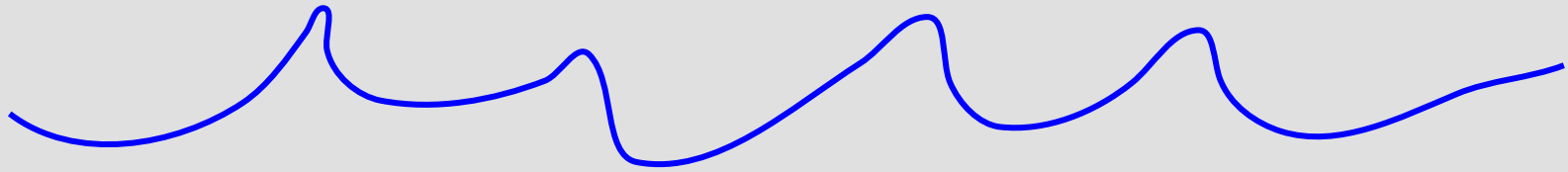




Cretaceous (Western Interior Seaway)

85 Million Years Ago





Sally the dead snail



Other snail friends

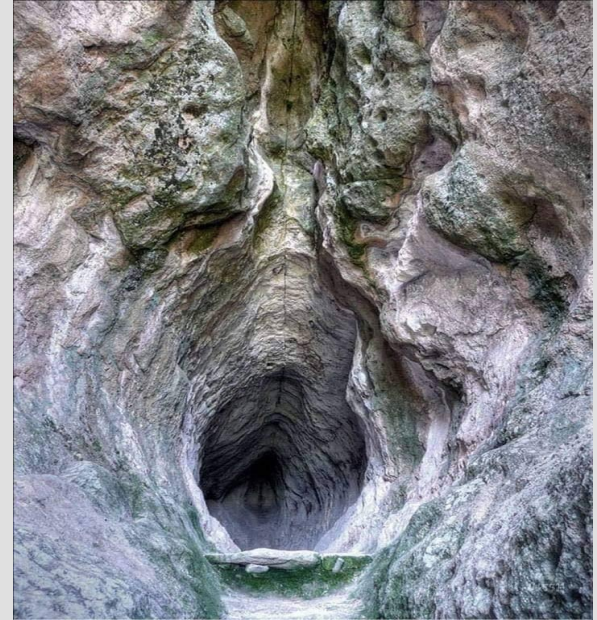


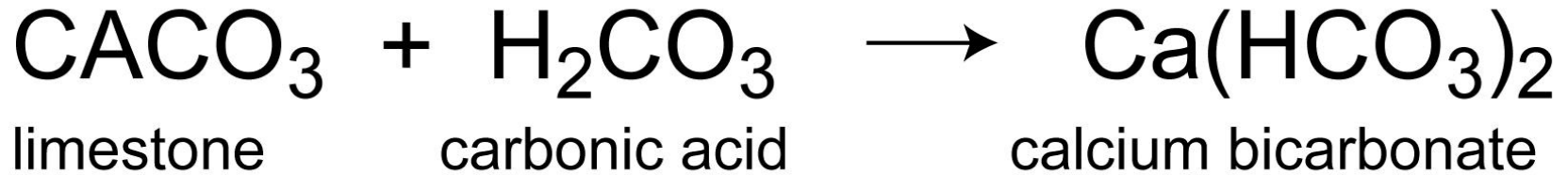
Sally the rock snail

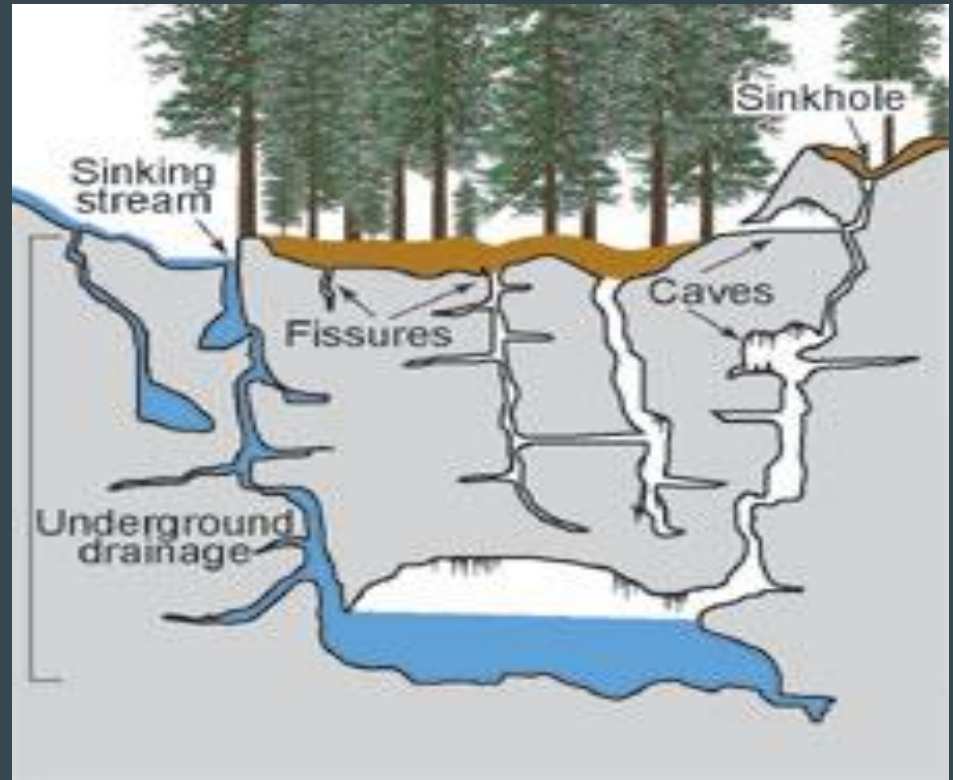
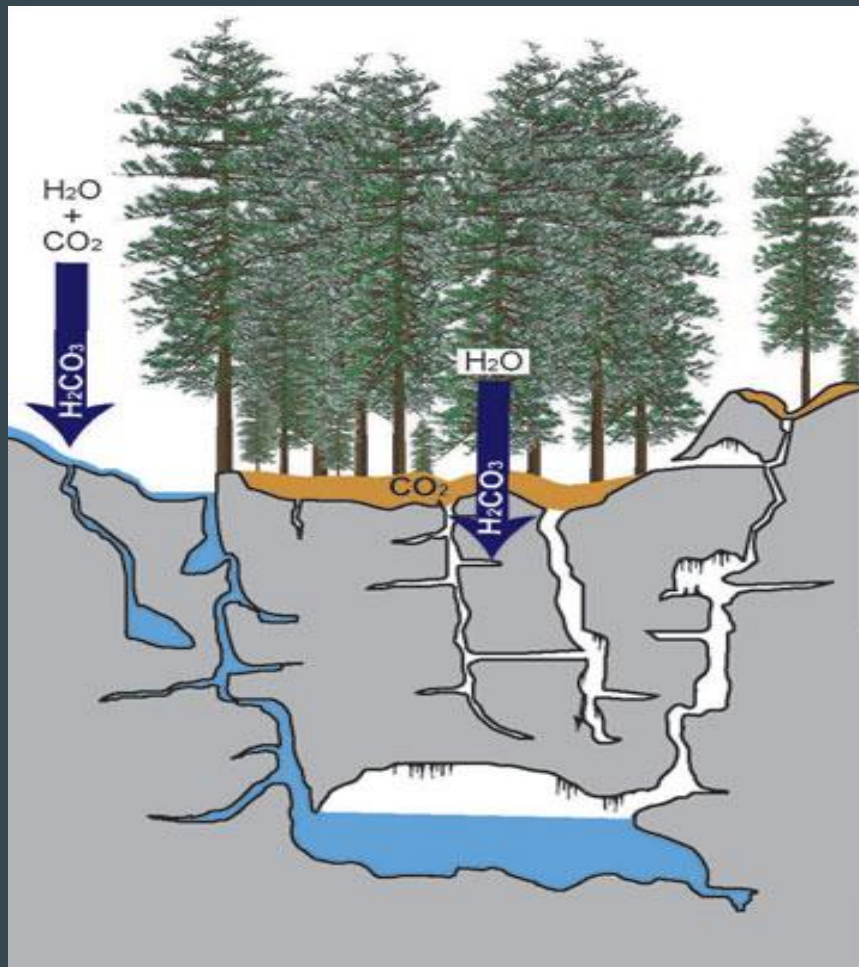


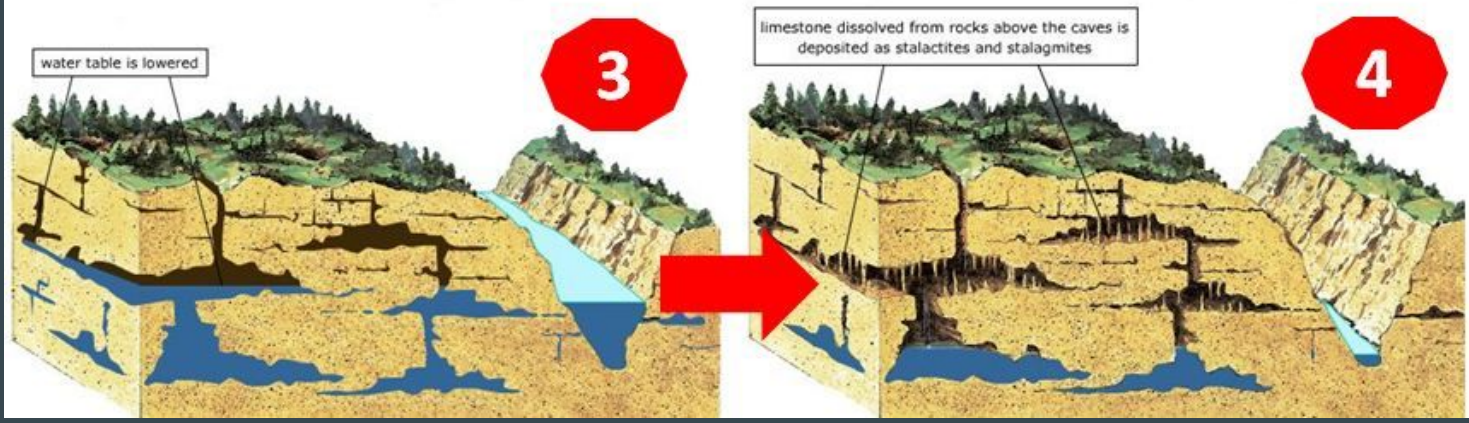
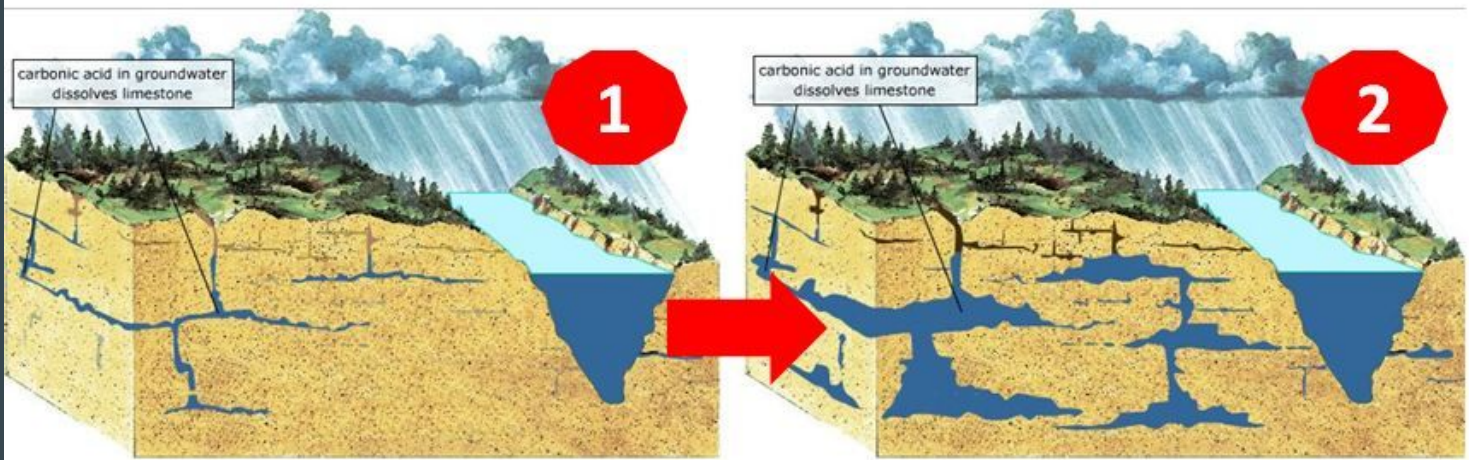


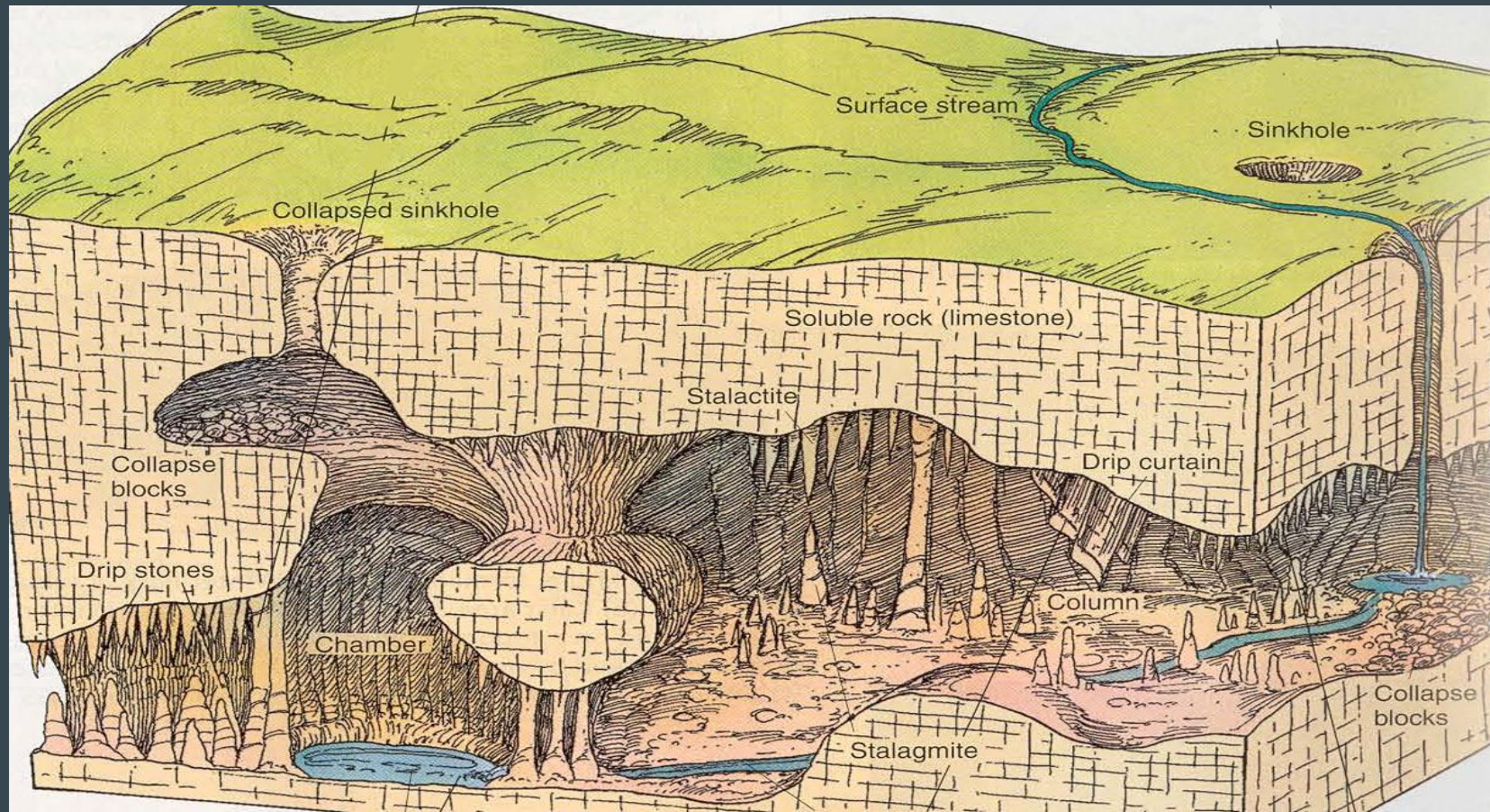
How do caves form?





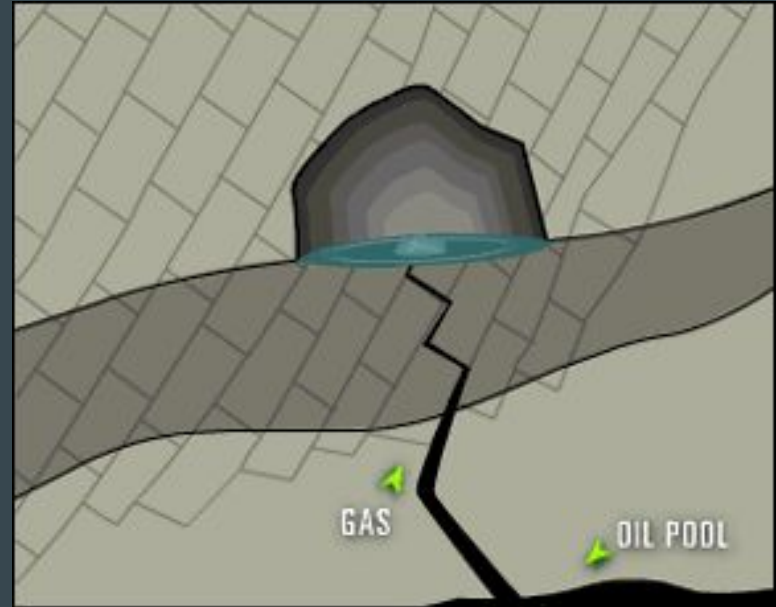
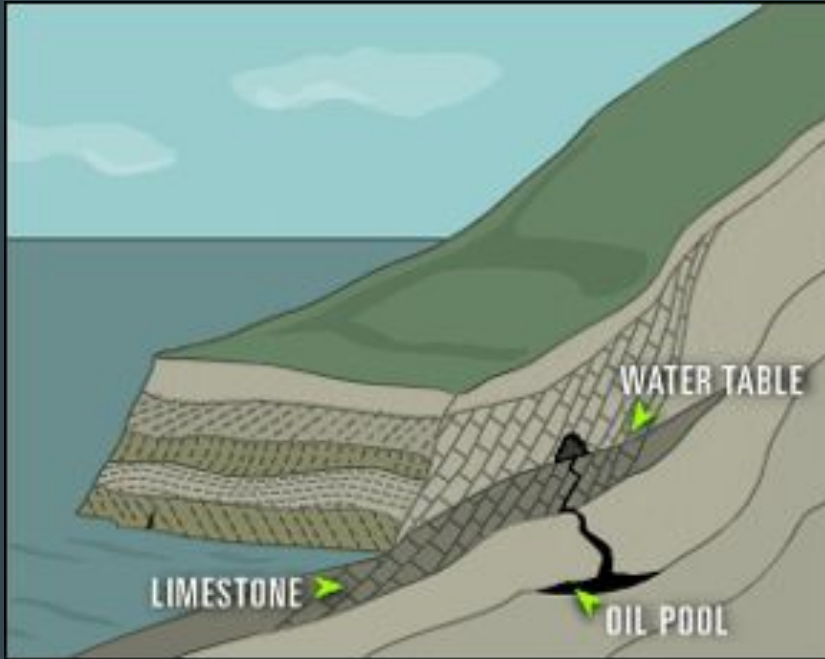
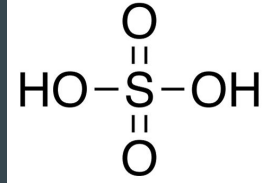






Sulfuric Acid Caves

Carlsbad Caverns

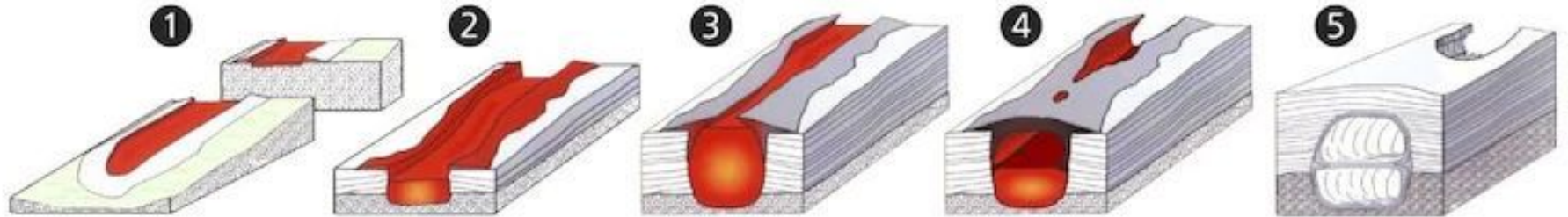


Lava Tubes

Hawaii, Arizona, New Mexico



How Lava Tubes Form



1
Lava flows from volcanic eruptions tend to become "channeled" into a few main streams .

2
The overflows of lava from these streams often cool and solidify, creating stacked layers of lava around the flow.

3
After many hours or days the lava melts downward into the ground giving the tube a taller, more narrow cross-section.

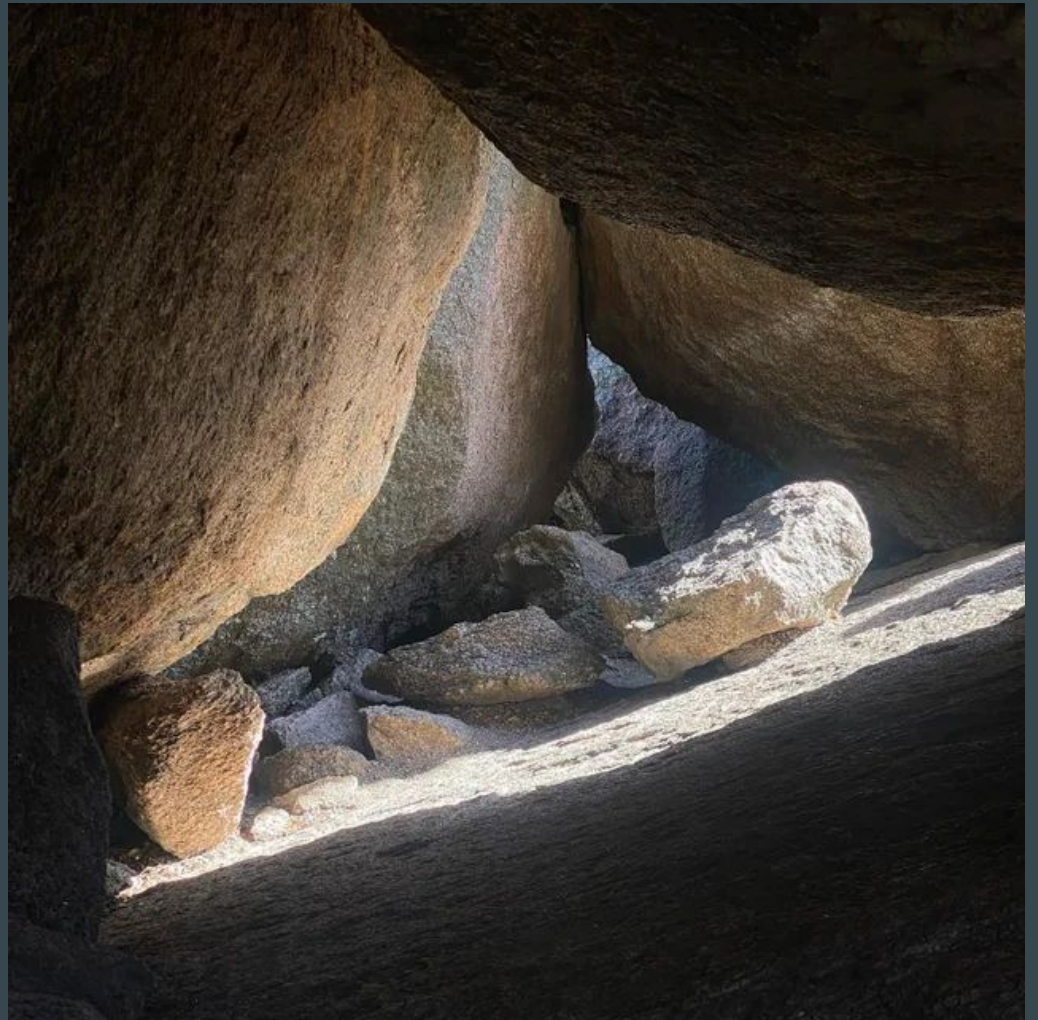
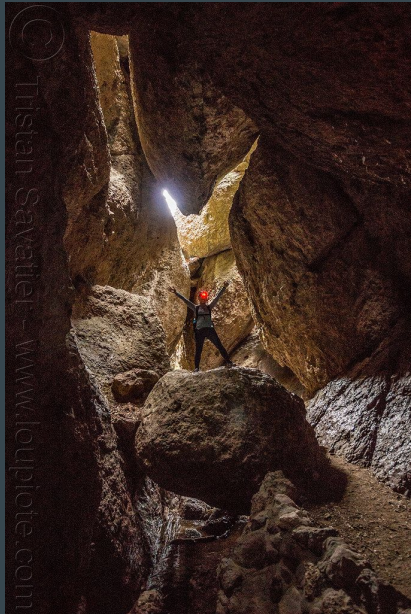
4
A solid crust can form overhead and enclose the tube. The tube then insulates the flowing lava within, allowing it to flow great distances.

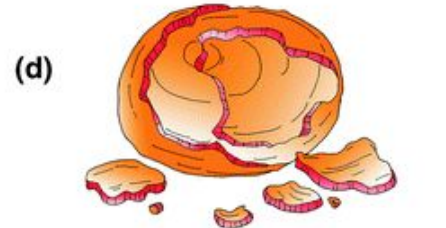
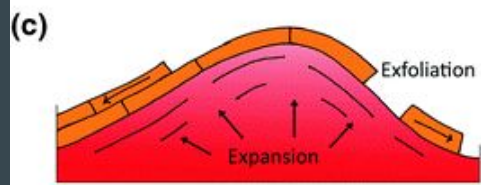
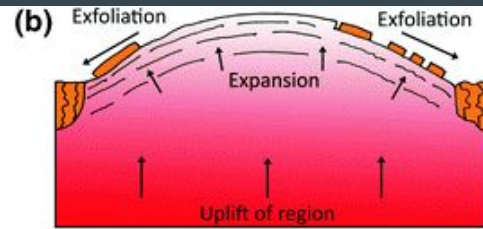
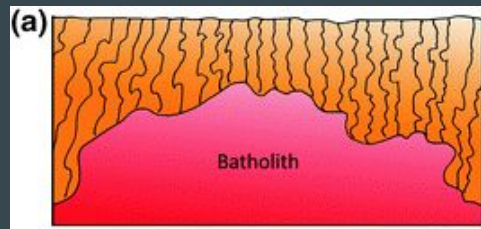
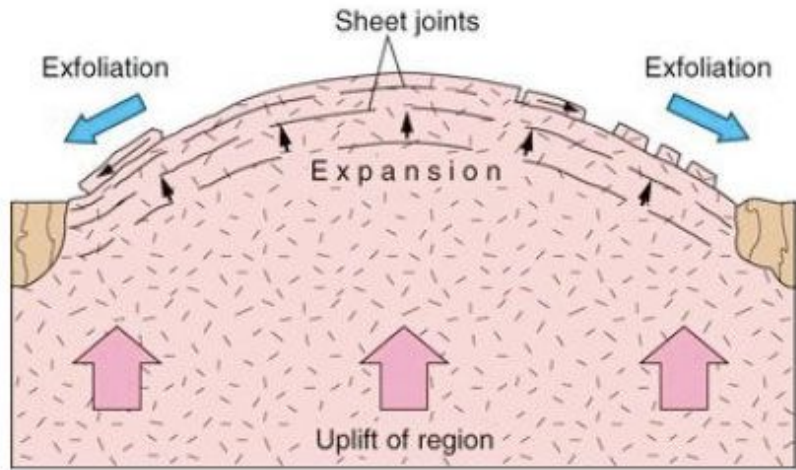
5
After the eruption subsides and the flows harden, these lava tubes become a cave, sometimes with remnants of the ebbing lava flow preserved.



Talus Caves

Enchanted Rock (near
Fredericksburg, TX)





Sea Caves



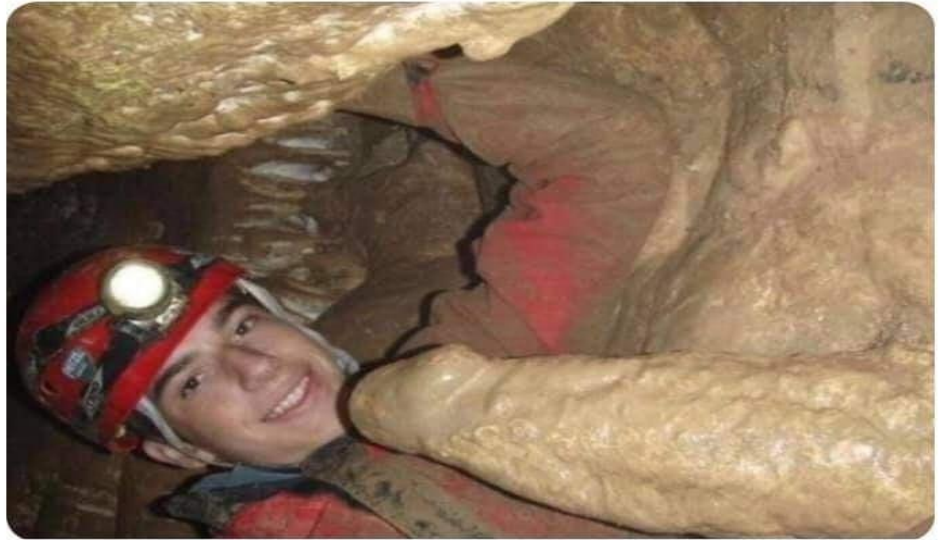
Glacial Caves

(Ice is technically considered a rock)



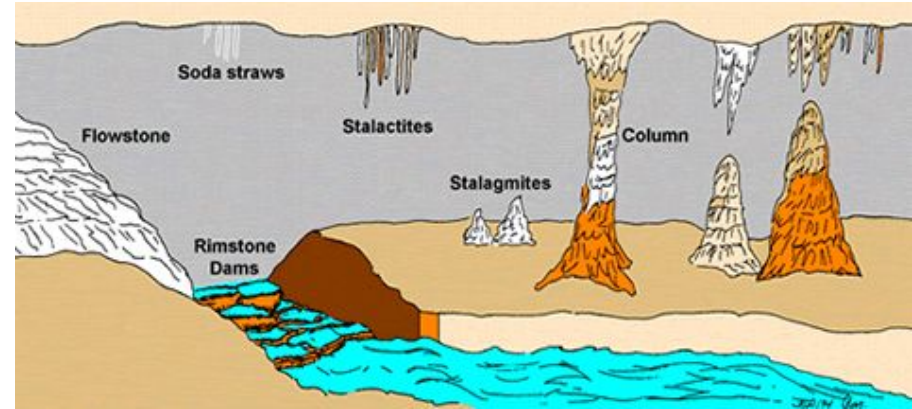
Speleothems

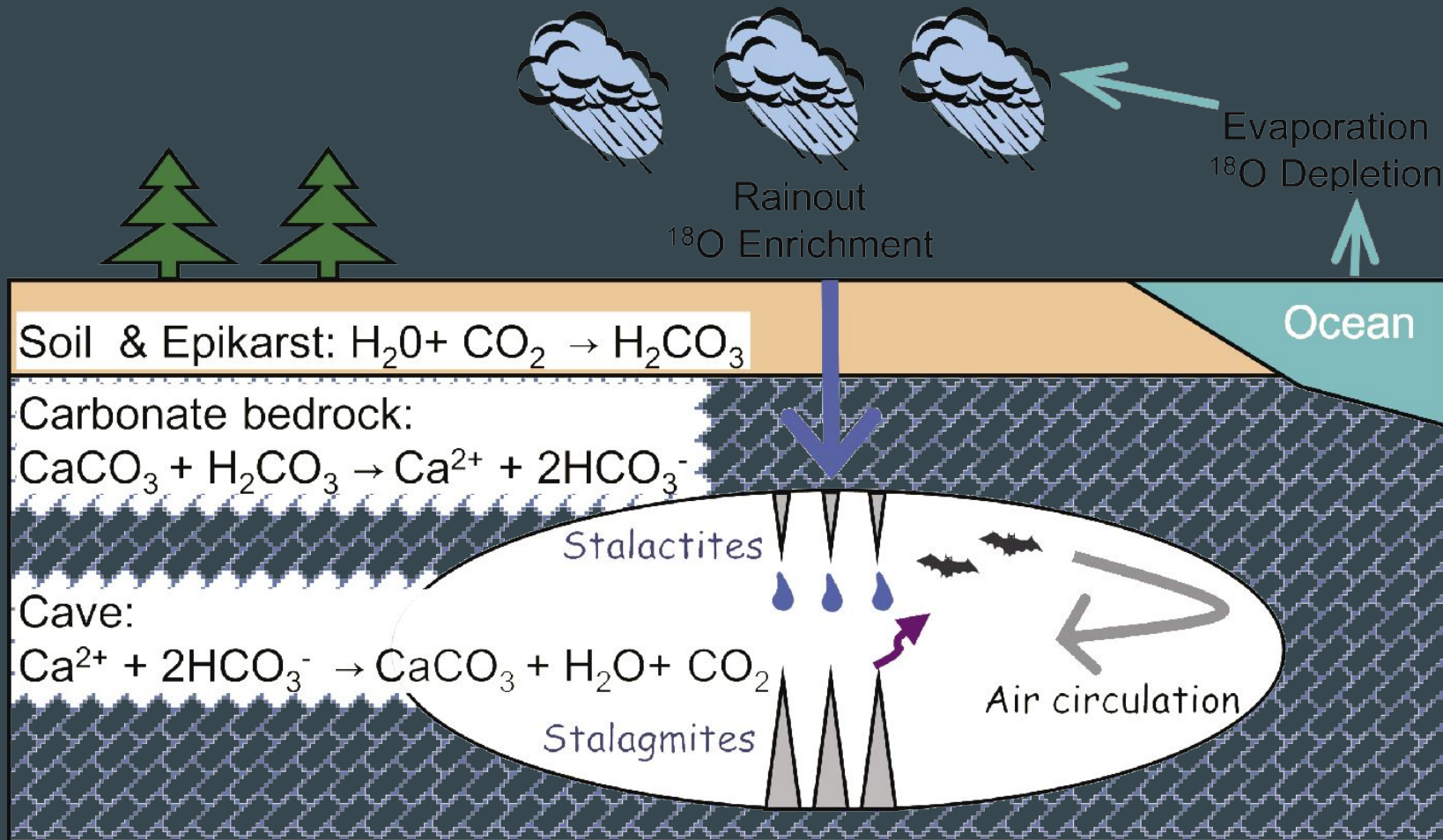
Is this a stalactite or a
stalagmite?

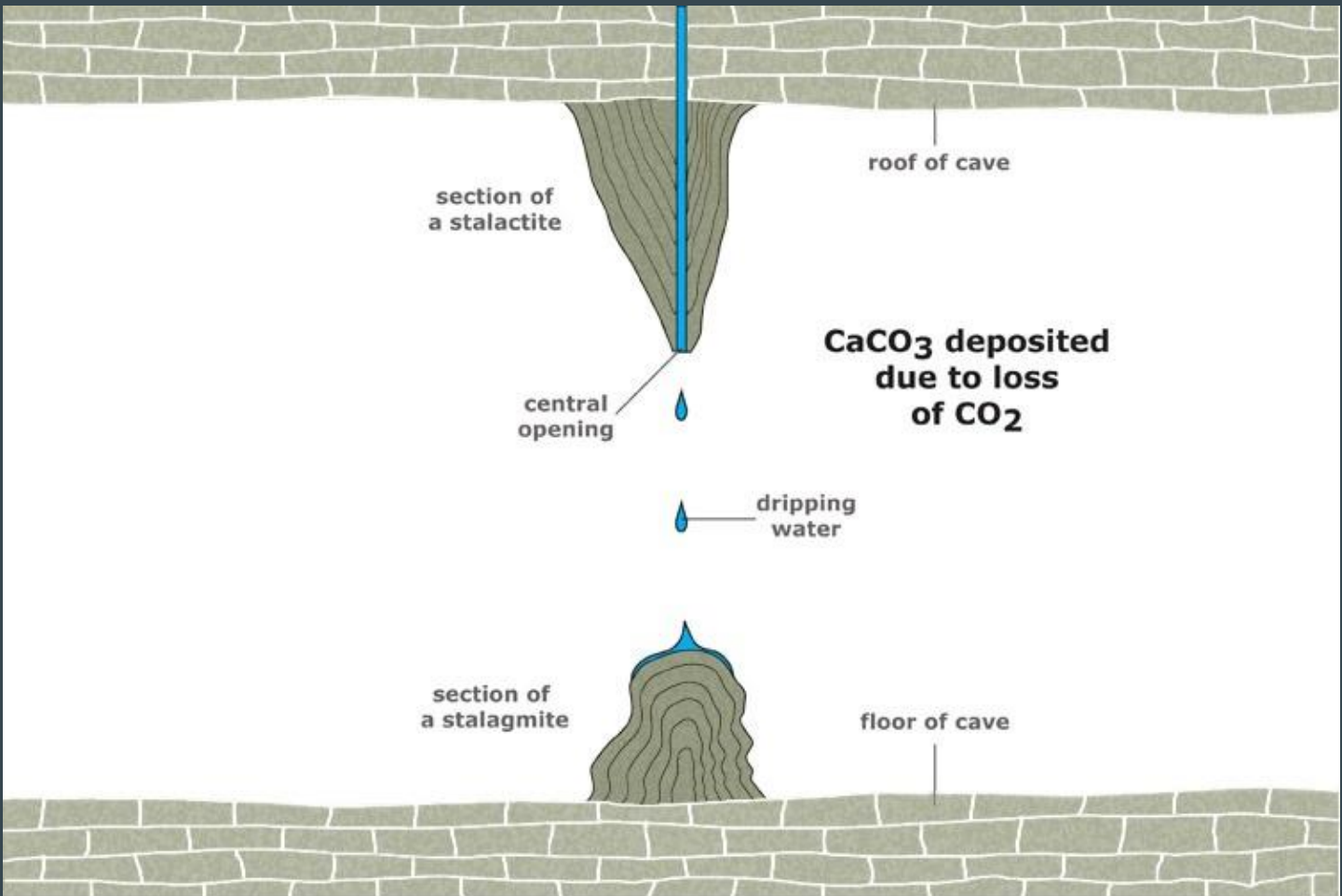


Speleothem formation

- Mineral formation in a cave that accumulates and grows over time
- Many different types of speleothems
- Rimstone, shelfstone, stalactites, stalagmites, soda straws, columns, draperies, helictites







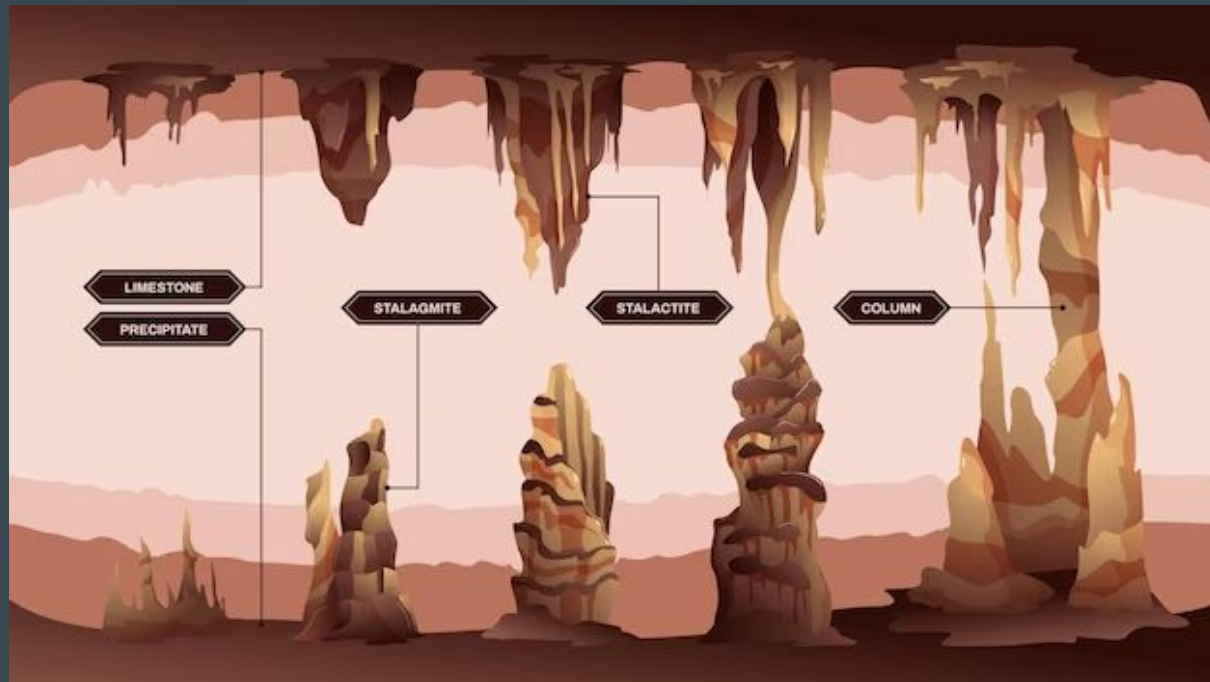
Stalactites



Stalagmites



Column



Rimstone



Shelfstone



©Dave Bunnell



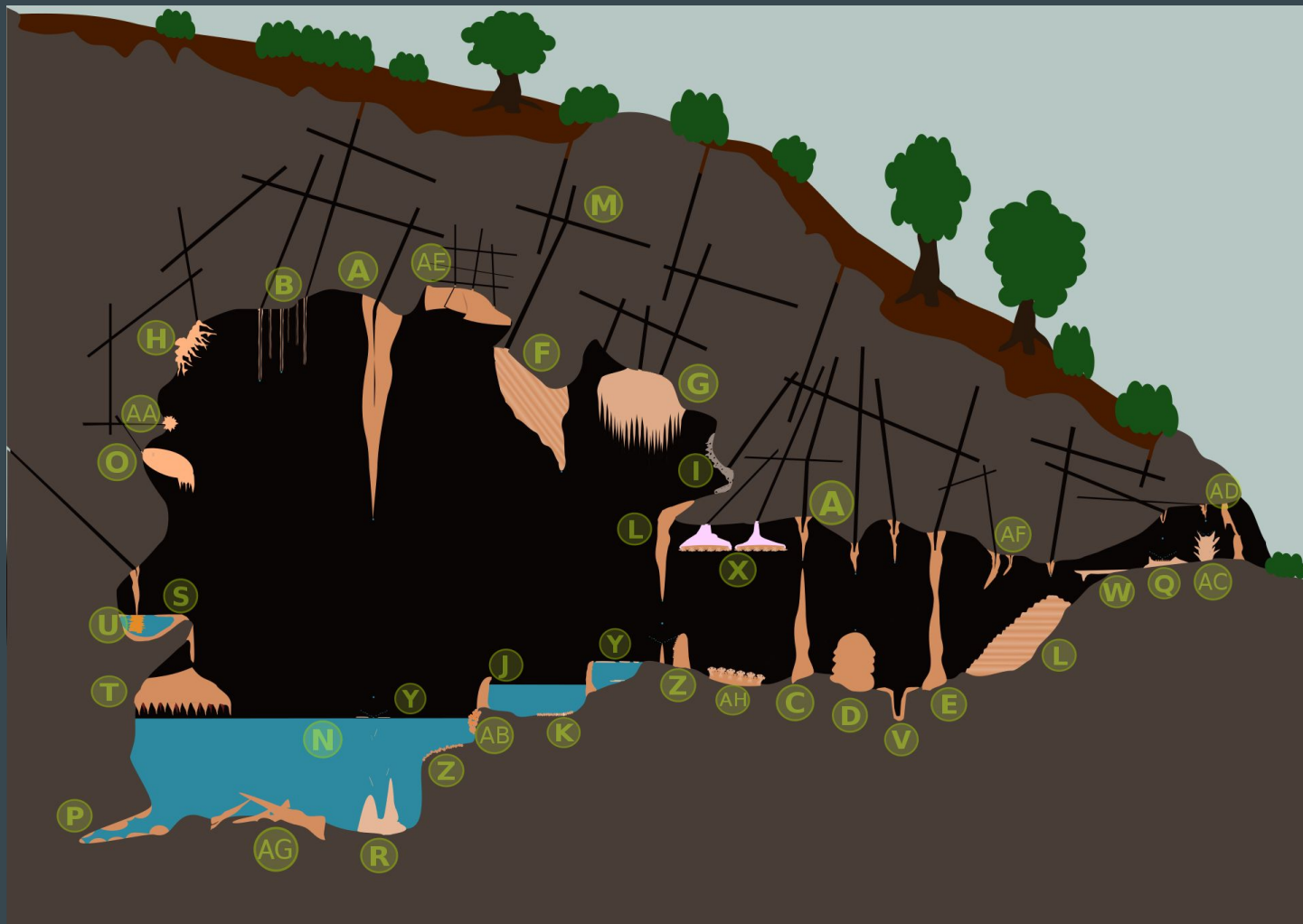
Draperies

Fe_2O_3 : Hematite aka rust



Boxworks





Questions?

Ben
Hutchinson
Survey
Practical



Dig with Rich

