

## CAVE FORMATIONS OF MAMMOTH CAVE

Mammoth Cave is in limestone rock. Water charged with acid from rotting vegetation has dissolved passageways in the limestone. Later, the upper passageways were drained by a lowering of the water table, and now they are shown to the public. Water, with a load of dissolved limestone, still finds its way downward through cracks in the rocks. If it finds its way into a passage, it begins to drip from the ceiling. The cave formations that are created by dripping water are called "dripstone" formations. If the water drips slowly enough it will evaporate, and the dissolved limestone will be left in a ring, the size of one drop of water, on the ceiling.

Each drop of water deposits one ring of the mineral calcite. A tube that looks like a soda straw begins to form. Each drop of water runs down the inside of the tube and deposits its mineral on the end of the straw. Sometimes, the drops move so slowly that they deposit their mineral on the inside of the straw and plug it up. Water flowing down the outside of the straw will also deposit calcite. Gradually, the soda straw begins to look more like an icicle. Cave formations that grow downward from the ceiling are called stalactites. Remember this word by its letter "c" which can stand for "ceiling".

If water drips too fast from the ceiling, it will not form a stalactite. It splashes on the floor and deposits its mineral there. Gradually, a mound of mineral will be formed. It will grow higher and higher as more mineral is added by falling drops. No hole will form in the center. This dripstone formation is a stalagmite. Remember this word by its letter "g" which can stand for "ground".

Sometimes, a stalactite will grow all the way to the floor. Sometimes, a stalagmite will grow all the way to the ceiling. Sometimes, a stalactite will grow as its excess water builds up a stalagmite beneath. These may eventually join. All of the above formations are called "columns" or "pillars". Sometimes, water deposits mineral as it flows through caves. This cave formation is called flowstone. As water flows down over big piles of broken rock, it may deposit flowstone in the shape of a frozen waterfall.

Draperies are thin sheets of calcite that hang from the ceiling. They often form as blades growing along the sides of stalactites. Light will shine through draperies. This often reveals a banding which makes the drapery look like a slab of bacon.

Helictites are very crooked dripstone formations that may grow in any direction or suddenly change direction. Nobody knows their true cause, but there are several different causes suggested by scientists.

Cave streams are very strange in that they often dam themselves. Water flowing over an irregularity may begin to deposit a layer of calcite across the passage. A "rimstone" dam is gradually built up. Some cave passages are filled with one rimstone dam after another.

Colors of cave formations may range from white to black. They will be white if they are pure calcite. Impurities cause coloring. Tiny amounts of iron color cave formations yellow, red, or brown as it rusts. Traces of manganese may color them black.

Cave Formations grow very slowly. Different parts of the cave have different conditions in which they form. Therefore, cave formations grow at different rates in different parts of the cave. It probably took thousands of years for Mammoth Cave's 75 feet high flowstone formation, Frozen Niagara, to form.

The mineral, gypsum, is very common in the dry passages of Mammoth Cave. It is not considered a dripstone or a flowstone, although it is evidently deposited by water. The water seems to pass right through the limestone itself. Sometimes, gypsum is deposited inside the limestone and causes the limestone to curve away from the ceiling and walls of the passages. Gypsum may grow in cracks and pry great masses of limestone from the ceiling.

Gypsum forms a sparkling white crust on the walls and ceilings. Since gypsum is passing through the limestone, the crust is pushed outwards by new gypsum forming beneath. A blister or "snowball" is formed. This blister expands until it breaks open. A beautiful gypsum "flower" is pushed out through the blister. Its petals may grow as much as six inches long. They may break from their own weight.

Gypsum is very fragile. You can scratch it with your fingernail or crush it in your hands. One type of gypsum called "cotton" gypsum is so fine you could blow it right off the wall. Plaster of Paris is made from gypsum.

Indians entered Mammoth Cave over 2,000 years ago. They scraped gypsum from the walls of the cave. We do not know what they did with it. Since we cannot find any among their relics, we think they may have eaten it or a mineral closely associated with it.