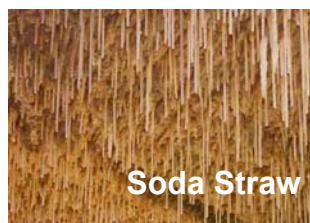
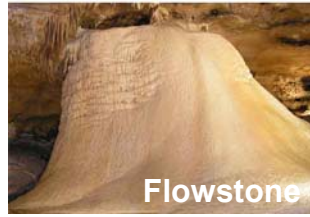


How are caves decorated?

As water passes through limestone, it dissolves away calcite, a portion of the calcium carbonate rock, and carries it in solution. When a super-saturated water droplet impacts the cave floor or simply evaporates, the calcite previously held in solution is deposited in formations called speleothems.

There are several types of speleothems. **Flowstone** forms as water flows over walls, floors, or other formations and builds up sheets of calcite that look like a rock waterfall. **Stalagmites** rise upward from the floor of the cave passage and are usually formed by water dripping from ceiling formations. **Stalactites** hang from the cave ceiling and form as water flows down the formation and evaporates leaving layers of calcite. When a stalactite and a stalagmite join they form a **column**.

In general, all ceiling formations are stalactites, but because there are so many distinctive types, there are more specific terms. For instance, a **drapery** develops when water deposits calcite in thin sheets that hang in delicate folds like a curtain. The tiny, hollow stalactites known as **soda straws** are particularly fascinating. They grow as water runs down inside them and deposits a ring of calcite at the tip. **Helectites**, or delicate, twisted speleothems, form as air movement within particularly humid cave passages causes the calcite formations to project at all angles from ceiling walls and the floor of caves.



Why are speleothems useful?

Speleothems are not only beautiful, they're useful, too. Examining the location of speleothems within a cave can help explain how the cave formed. A tight cluster of soda straws on the cave ceiling can indicate diffuse flow—where water passes through the rock. A long, sinuous drapery hints at fracture flow—when water flows through cracks in the rock. Even the color and composition of the speleothems can be informative. It suggests what types of rocks and minerals exist along the recharge flow path.

As the speleothems grow, they record atmospheric information such as climatic conditions and ocean levels. Scientists at the University of Texas have found speleothems in central Texas caves that are more than 350,000 years old (Musgrove, 2000). Growth rates are hypothesized to correlate to rainfall: the more rainfall the faster the formations grow. By examining growth rates scientists are able to reconstruct regional climatic conditions and determine precisely when they occurred (Musgrove et al., 2001).

References

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