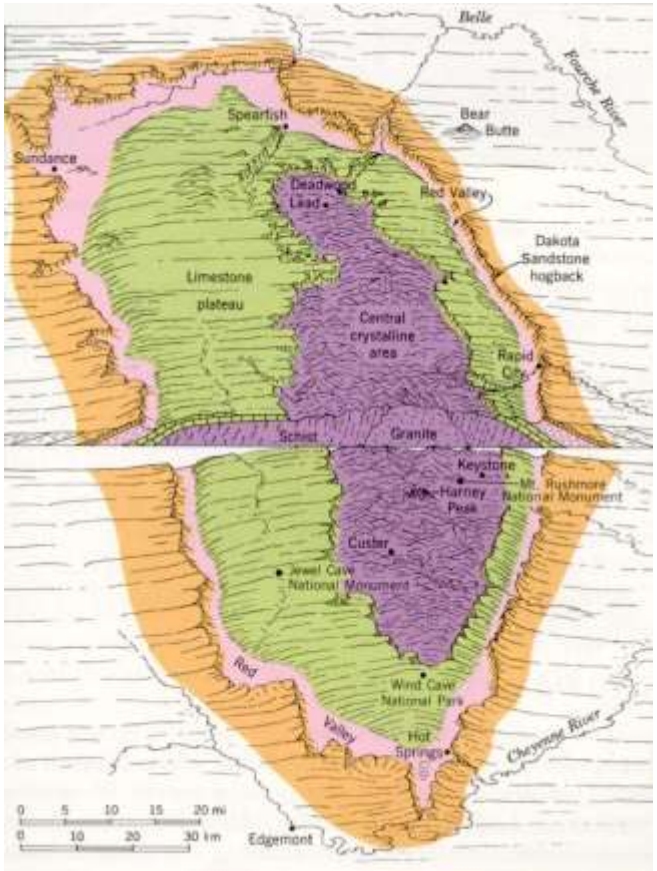
**Caves**

Beautiful Rushmore Cave, Keystone
Beautiful Wonderland Cave, Nemo
Back Hills Caverns, Rapid City
Crystal Cave Park, Rapid City
Jewel Cave National Monument, Custer- pay for tour only, no need for a national park pass
Wind Cave National Park, Hot Springs- pay for tour only, no need for a national park pass




Notice the list of commercial caves able to be visited. Circling the Black hills is a belt of limestone caves. Great tectonic forces caused magma to be pushed up, revealing the granite basement rocks. The limestone that encircles this granite is gently tipped. Jewel Cave National Monument with 142 miles of mapped passages is known for its calcite crystal formations of dogtooth spar and nailhead spar. Wind Cave National Park has 128 miles of passages with the rare crystal formations of boxwork. The other Black Hills caves offer other cave formations such as stalagmites, columns, flowstone, frostwork, and cave popcorn.

**Caves**

How are caves formed?

Erosion does not happen only on the surface; it can happen underground too. Groundwater can erode rock, especially limestone resulting in caves. Once the cave is formed the decorating begins, dripping water from the ceiling may leave a deposit forming an icicle-like structure hanging down (stalactite). This water may drip down to the floor leaving a deposit and forming a stalagmite. When groundwater dissolves limestone, it must eventually redeposit it. Since cave formations are formed drop by drop, it is often assumed that it took million of years for these formations to form. However, in the basement of the Lincoln Memorial and other places there are both stalactites and stalagmites; these did not take millions of years to develop, just the right conditions.

Biblical view:
Have you considered the origin of caves? Most caves are limestone caves. They are usually found in nearly pure limestone layers hundreds of feet thick. There are two stages of cave formation: 1. the cave itself, 2. the decorating of the caves (stalactites, stalagmites…). The Flood of Noah's day would have laid down these nearly pure layers of limestone. At the end of the Flood, "the mountains rose, the valleys sank (tectonic activities)" ~Psalm 104:8. These tectonic activities would have caused many cracks in the limestone which would have allowed waters to drain through them. These were no ordinary waters but waters rich in acid, acids from volcanic activity, decaying dead animals and vegetation from the Flood, which would have quickly eaten away limestone forming the cave tunnels.
Now stage two: decorating the caves, these decorations were formed by waters loaded with limestone. Just after the Flood, the ground would have been much wetter, due to the Flood waters and the post-Flood Ice Age. Limestone rich waters dripped from the cave ceilings and evaporated, leaving behind a variety of cave decorations. Since that time, the water supplies have decreased, and the growth of cave decorations has slowed. When we put on our Biblical glasses, we can see where caves formation and decoration fit in. Limestone cave formations began with the Flood of Noah's day some 4,300 years ago.

Oard, Michael J., Tara Wolfe & Chris Turbuck. *Exploring Geology with Mr. Hibb*. Creation Book Publishers: Powder Springs, Georgia. p.61-63.

**Jewel Cave:** Jewel Cave does not have the "normal" cave formations of stalactites and stalagmites but an abundant of sparkling jewels of calcite crystals. When visiting this cave you may feel like you are walking around in a geode. These calcite crystals are known as cave spar. Cave spar is any relatively clear cave mineral with large crystal faces. At Jewel cave this mineral is calcite, the stuff of limestone. The growth of spar rather than other cave formations such as stalactites and stalagmites requires a barely saturated solution left in a quiet stable environment over some time. This allows the crystals to grow. Some calcite crystals can be large; a cave in Romania has crystals that are 30 inches in length. The Chicly Bowl Cave in Arkansas has a calcite spar crystal about 5 feet long. Calcite crystals are the most common spar crystals found in caves, another spar mineral that is common is gypsum. Gypsum is found in sheet rock. Gypsum spar crystals have been found in the caves near Naica, Mexico. These spar crystals made of gypsum are 50 feet long. Investigation of this pocket of crystals has been hampered by 150 degree F temperatures and 100% relative humidity.
*The Rock Rustlers News 2008 Minnesota Mineral Club, Inc*. newsletter, February 2008, "Cave Spar", Dr. Bill Cordua, p.10.

**Wind Cave** has few stalactites and stalagmites but has the unusual formation called boxwork. Boxwork is thin honeycomb-shaped structures made of calcite (a mineral from limestone). Boxwork resulted from veined limestone.