

## MAY 26 - BRYCE CANYON

On the way to Bryce Canyon this morning we drove through Red Canyon and a couple of "tunnels" cut through the red rock. Pretty impressive.

A short while later we entered the park.



One of the nice things about this National Park is that you can drive its entire length, or take the shuttle bus. As it's 18 miles to Rainbow Point, we decided to drive there then stop on our way back at the various view points.





# The Geology of Bryce Canyon

Bryce Canyon National Park  
National Park Service  
U.S. Department of the Interior

## Once A Lake

About 60 million years ago, a large freshwater lake began to fill the low basin that covered most of southern Utah. Over a period of millions of years, rivers and streams from surrounding mountains gradually filled this lake with clays, silts and sands. Calcium carbonate cemented these sediments together, forming the limestone layer from which Bryce Canyon has been carved.

## A Period Of Uplift

About 16 million years ago the land in southern Utah began to rise. A series of plateaus were uplifted along large cracks in the earth's crust called faults. The Panguisaut Plateau, on which you are standing, rose from near sea level to 8,000 feet (2440 m). To the east, the Aquarius Plateau moved 2,000 feet (610 m) higher than the Panguisaut Plateau.

## Erosion By Water

Even as the plateaus rose, erosion began to wear them away. The Paria River, a tributary of the Colorado River, began cutting northward into the landscape. Gradually, through a process known as headward erosion, it carved out a broad valley between the Aquarius and Panguisaut Plateaus. As erosion continues, the softer limestone on the eastern edge of the Panguisaut Plateau is washed away, leaving the many colored pinnacles, or hoodoos, of Bryce Canyon.

## The Colors

The range of color in the limestone layers at Bryce Canyon seems almost endless. Yet limestone in its pure state is basically white in color. Small amounts of iron deposited with the limestone have oxidized, or rusted, to produce the yellows, oranges, reds and browns. Manganese oxides cause the blue and purple hues. Constantly changing weather and light conditions also add variety to the canyon's colors.

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## Weathering and Erosion: Nature's Relentless Forces

Water is the major force shaping the landscape here. Wind has had little if any effect. Weathering occurs when rain, snow & ice break rock into smaller pieces. Erosion occurs when running water washes away weathered rock debris. Spanning vast amounts of time, these relentless forces have shaped, and will continue to shape, the landscape you see today.

## Mechanical Weathering

Mechanical weathering is the most important type of weathering at Bryce Canyon. On about 200 days a year the temperature rises above freezing during the day and drops below freezing at night. During these freeze/thaw cycles, water seeps into cracks in the rock, expands as it freezes, and breaks apart the rock.

## Chemical Weathering

Chemical weathering, while less important, also helps break down the rocks at Bryce Canyon. Water picks up weak acids from the air and soil, dissolving the calcium carbonate cement, which holds the clay, silt, and sand particles together. These particles then fall away, helping in a small way to shape the formations.

## Shaping the Hoodoos

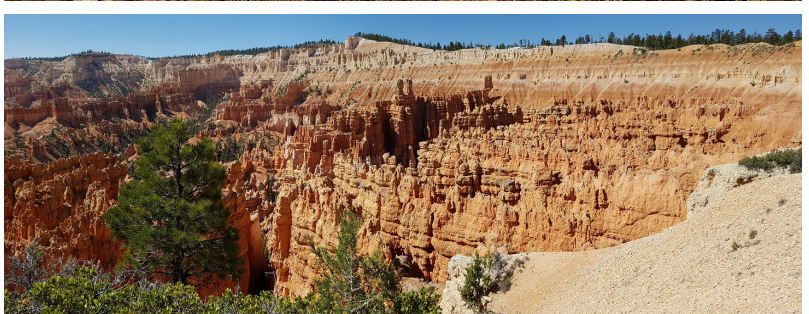
A hoodoo is a rock pinnacle left standing by the combined forces of weathering and erosion. Bryce Canyon has thousands of hoodoos, in all shapes, sizes and colors. These columns of rock are protected from erosion by a harder caprock called dolomite, a unique form of limestone reinforced by magnesium. Alternating hard and soft layers erode at different rates - a process known as differential erosion - which causes the varied hoodoo shapes. As the softer layers continue to erode, the hoodoos will eventually collapse.















We arrived at Sunset Point and were immediately surrounded by a mass of humanity. Drivers in cars looking for a parking spot, circling the small parking area. We decided our idea to arrive early, and leave early, was a good one.

We stopped just outside of the park at Ruby's Inn for a bite of lunch. Our server, Luis, was from the Mazatlan area of Mexico. His wife and son are at home in Mexico. He is alone here and looking forward to getting home soon.

Tomorrow we head for Zion National Park.