

Idealized Vertical Stratigraphic Section of Geologic Formations in the Sedona Area

The magnificence of Red Rock Country has been 330 million years in the making. Traveling from the Mogollon Rim high on the Colorado Plateau to the depths of Oak Creek Canyon, visitors pass through a rich geologic record, very similar to that of the upper Grand Canyon. Like pages in a great book, horizontal layers of rock strata tell stories of ancient oceans and swamps, floodplains, vast deserts of sand, and violent volcanic eruptions.

Redwall Limestone lies at the bottom of Red Rock Country's geological column. Once the bottom of a great ocean, this 330 million year old sedimentary deposit is the oldest visible layer of rock in the Sedona area. The ocean eventually receded and was replaced by swamps and coastal deltas, creating the sandstone Supai Group. Floodplain sediments were then deposited to form the sandstone, siltstone, and conglomerate beds of the Hermit Formation. About 270 million years ago, the region entered a very dynamic period in which it was intermittently covered by water and arid coastal desert. These alternating geologic events left a deep and colorful collection of sandstone and limestone strata known as the Schnebly Hill Formation. The sand dunes of a vast inland desert that followed this period solidified and became an 800 foot thick layer of Coconino Sandstone. About 250 million years ago, the desert was once again inundated by a shallow sea, creating Kaibab Limestone. The crowning piece to this geologic puzzle is basalt, formed by a rash of volcanic eruptions that spread lava over much of northern Arizona about 10 million years ago.

Over the course of many millions of years, Red Rock Country has risen high above the oceans to its present elevation of 4500 feet above sea level at the southern edge of the Colorado Plateau. Wind and water have slowly eroded and sculpted the land to create the deep canyons, towering cliffs, and fascinating rock formations seen today. Erosion and other geologic processes continue to shape this ancient landscape, forever changing its form, color, and texture. Imagine what it will look like in another 300 million years!

edited by Mike Ward

Geologic Rock Features of Sedona

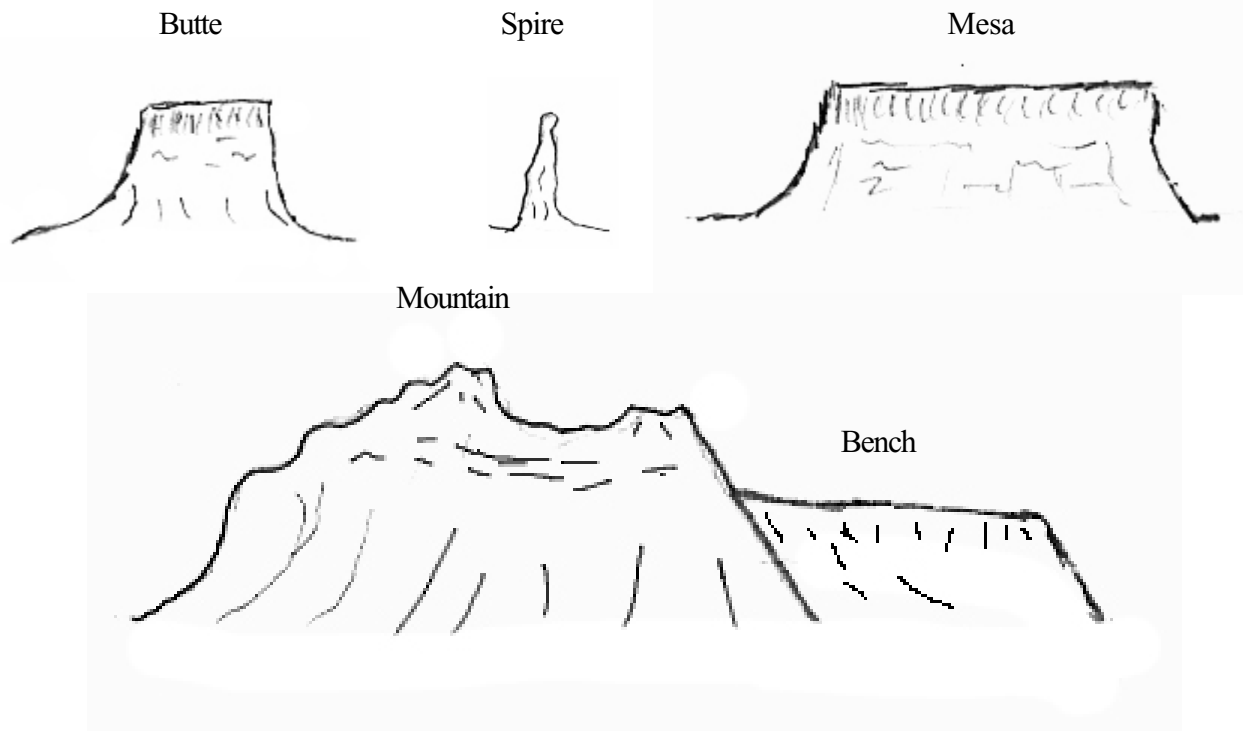
Before 80 million years ago, the Hermit Formation upon which Sedona is built lay beneath 12,000 feet of sedimentary rock below a shallow sea. A small South Pacific oceanic plate named the Falleron Plate then subducted underneath the North American continental plate uplifting the continental plate over 3 and one-half miles over a 40 million year period of time.

As soon as sedimentary is exposed to the elements, it erodes away. Nearly 80 million years of wind and water erosion has sculpted the landscape in and around Sedona. Sedona now rests at an elevation of 4500 feet above sea level and about 2500 feet below the rim the of Mongollon Rim.

The various rock features surrounding Sedona are limestone and sandstone sedimentary rock that has thus far survived the effects of erosion. Rock falls and decomposed sands and clay soils surrounding the rock features around Sedona provide evidence that these features a continuing to be eroded by the forces of nature.

The rock features around Sedona are named using the terms spire, bench, butte, mesa and mountain or often just the term 'rock'. Mesas and buttes are isolated, flat-topped hills with steep sides. There are many different ideas about the difference between a mesa and a butte. Generally mesas are longer than they are high and buttes are higher than they are long.

A pinnacle or spire, sometimes called 'hoodoo' or 'chimney' is an isolated rock that is tall and thin. A mountain is a term applies to any land mass that is very large having a pointed top. A bench is a flat-topped land mass that is appended or attached to a mountain.



For further information on the geology of Sedona, ***So Why are the Rocks Red?*** by Mike Ward is available in the ANHA bookstore