

Lava Beds

National Monument

National Park Service

The Sleeping Giant



The Medicine Lake shield volcano, a sleeping giant, is the largest volcano in the Cascade Range. Filling up the entire southern skyline, it has been erupting off and on for half a million years. The eruptions were gentle rather than explosive like Mt. St. Helens, coating the volcano's sides with flow after flow of basaltic lava. This created a shield-shaped mountain approximately 150 miles around the base and 7900 feet high. Medicine Lake is part of the old caldera, a bowl-shaped depression in the mountain. It is believed that the Medicine Lake volcano is unique, having many small magma chambers rather than one large one.

Eruptions can also occur that create anthill-shaped hills known as cinder cones. A break in the earth's crust releases magma held under great pressure. The magma blows in the air and falls as cinders around the break. (Picture a can of soda pop that has been shaken before opening. The soda sprays in the air and falls around the can. Cinder cones act much the same way.) Once the pressure is relieved, much like the soda bottle, liquid is extruded from beneath the cone. A cinder cone's eruption may last for a week, a month, or a year; but once the eruption stops, another will not occur at that site again. Schonchin Butte, with its switchback trail up the north-facing side, is the most accessible in the monument. Please do not attempt to climb other cones. They are easily eroded and scarred. The latest cinder cone to erupt is Cinder Butte, occurring 1110 years ago, plus or minus 60 years.

Spatter cones are another formation that can occur in association with shield volcanos. Blobs of lava are thrown up through the break in the earth's crust. The lava is very thick and pasty, taking the shape of whatever it coats. A chimney may eventually be formed. An excellent example of a spatter cone is at Fleener Chimneys, 150 feet deep. Black Crater and Ross Chimneys are also spatter cones.

Craters also occur around the base of a shield volcano. Mammoth Crater, on the southern boundary of the monument, erupted about 30,000 years ago. There was such a tremendous outpouring of lava, that it covered the entire monument from the crater to Tule Lake, forming most of the 346 known lava tube caves in the monument.

Three things are needed to create a lava tube cave--an erupting volcano, a slope, and very fluid lava. As the volcano erupts, lava flows downhill. The 2000 degree basaltic lava comes in contact with the cooler air and begins to cool. Chunks become welded together creating a crust over the top. The crust acts as an insulator, keeping the lava inside molten. When the eruption stops, the lava continues to flow, leaving an empty tube. Picture your garden hose. Turn on the water, the hose fills up and the water flows out the end. Turn the water off and the water drains out leaving the hose empty. Lava tube caves act much the same way. Most of our lava tubes came from the Mammoth crater flow and are approximately 30,000 years old.

Icicle-like formations called lavacicles hang from the ceilings of the caves. They are formed when molten lava splashes and drips from the ceiling or the ceiling sags from being reheated. Their shapes may vary from thick nubs to thin needle-like cicles. Splashing lava also oozes and slides down the walls leaving ribs of lava called dripstone.

Pahoehoe lava is molten rock the consistency of pudding, smooth, billowing and ropy. It often looks like coils of thick rope. Pahoehoe means ropy in Hawaiian. Most of Lava Beds is covered with pahoehoe lava.

Aa, another kind of lava, is associated here with Fleener Chimneys. As the pahoehoe flow cooled and lost dissolved gases, aa was formed. Aa, also a Hawaiian term, is very rough, jagged, clinkery lava. It is thicker than pahoehoe. The aa hardens but is pushed and dragged by molten material underneath. Huge chunks and plates pile up, become welded together, and create a nightmare for walking. Devils Homestead is an appropriate name for our most visible aa flow.

The volcano includes a variety of rock types known as basalt, andesite, dacite, and rhyolite. About 90% of Lava Beds National Monument is covered by basaltic rocks.

In 1988, hundreds of minute earthquakes occurred between September and the end of the year. Cause of these earthquakes is unknown. At present, however, there is little indication that a volcanic eruption will occur.

Please remember, collecting rocks in the monument is prohibited.

