California State Parks

Video Transcript

Eyes of the Mountain

(Mitchell Caverns at Providence Mountains State Recreation Area)

"Eyes of the Mountain," Native Americans once called it, the entrance to a series of limestone caverns now known as Mitchell Caverns. Located in the Providence Mountains of Southern California's Mojave Desert, Mitchell Caverns are the only limestone caves in the California State Park System. Rare rock formations abound in these caverns, which are specially protected as a state natural preserve and a national natural landmark. Unique denizens of the darkness call the caves home. Some species are found nowhere else on earth. For centuries the caves have been a place of wonder, worship, and awe.

Centuries before Europeans came to the East Mojave, Native Americans used the caverns. Some anthropologists believe that man has been in this area of California for the last 10,000 years, and it is likely that the caves were used during this time. More recently, the Chemehuevi people have used these caverns. Tecopa Cave served occasionally as a residence and food storage area by the semi-nomadic tribes. Holy men of the tribe went deep into the caverns to carry out their rituals. Native people revered the first cavern room, El Pakiva, as a place of power. The common people did not visit out of fear and respect for the spirits which were said to dwell there.

With the westward movement of the European immigrants and the Spanish colonization of the Southwest, the nomadic culture of tribes in the area changed, and the caverns were seldom visited. In the late 1800s prospectors rediscovered the caverns while combing the Providence Mountains for gold and silver ore. They called the caves the Crystal Caves due to the white calcite crystals in the rock. Fortunately, the caverns were worthless to gold and silver prospectors, so they were left relatively undisturbed.

In the late 1920s, Jack Mitchell heard about the Crystal Caves of Providence Mountains. Jack got directions from local residents and walked to the caves—about 27 miles cross-country from Essex. Recognizing the outstanding beauty of the caves and the potential for a tourist attraction, Jack staked several claims in the area including the caverns. Later, he and his family moved here and built a complex of buildings known as Mitchell's Resort. Tours of the caves, given by the light of kerosene lamps and railroad flares, highlighted a stay with the Mitchells. To connect his resort to the town of Essex and the highway from Los Angeles, Jack built a dirt road. It frequently washed out during flashfloods. A rugged cross-country trail provided the only access to the caves, half a mile from the resort.

The California Department of Parks and Recreation acquired the caverns and surrounding land from the Mitchells in 1958. The parks department built a good trail to the caves, cut out a passage between El Pakiva Cavern and the second main chamber, Tecopa Cave, and

installed electric lights. Now, thousands of people each year are able to tour the caverns and marvel at the unique handiwork of nature found within the “Eyes of the Mountain.”

When the caverns were formed, this area had a much different climate, with abundant water. The action of water within the earth played a crucial role in the formation of the caverns and the features found within. Through thousands of lifetimes, groundwater dissolved large vaults in limestone buried deep within the earth. Eventually, water that seeped through the limestone reached the airspace formed by the caverns. As water drops formed in the caverns, the dissolved limestone began to form small crystals of calcite within each water droplet.

Drip after drip, for centuries, crystals were formed within the drops. Slowly, at the rate of an inch every hundred years, they formed stalactites. Stalactites grow downward from the ceiling. Stalagmites, rock pillars which grow upward from the floor, formed once the water table dropped below the floor of the cavern. As the water dripped from the stalactites and fell to the cave floor, the resulting splash deposited calcite crystals. Repeated billions of times, the crystals eventually formed a stalagmite.

When conditions were just right, the stalactites and stalagmites grew toward each other until they joined … forming columns.

Within El Pakiva there are three cave formations, which occur together in only one cavern of 40,000—stalactites, stalagmites, and columns. They formed as water dripped and are called dripstone formations.

Where the cavern wall or ceiling is sloped, the water flows along the surface leaving behind a deposit of calcite called flowstone. Examples of flowstone formations are ribbons and draperies. What appears as solid rock is actually crisscrossed with microscopic fractures, holes, and crystal faces. Water moves through these minute pores in the rock and deposits the dissolved limestone in strange shapes called erratic formations. Cave coral, popcorn, and helactites are examples of erratic formations. These formations develop much more slowly than dripstone or flowstone formations and appear to defy the influence of gravity.

Among the most unique features in the cavern is a flat circular formation called a cave shield. Only 60 caverns in the country can claim one each of these rare formations. Mitchell Caverns have several cave shields. One cave shield is considered exceptionally large and is perhaps the finest example in the country.

Coral pipes, found in only seven caverns in the world, are vertically oriented and form in clusters spaced a few inches apart. These thin, paper-like features formed as water dripped onto steeply inclined dry, silt, or clay cave floors. The pipes have a soft, usually clay, interior covered by a thin, hard shell of calcite. The texture of the calcified pipe creates a coral-like appearance—hence the name coral pipes.

Soda straw formations are the younger stages in the growth of a stalactite. Water drops seep through the hollow center of the straw, depositing calcite on the end of the straw, causing it to grow. When the tube within becomes plugged, the water finds a passage through the straw walls and deposits calcite around the straw as it seeps out.

Another flowstone feature common in most caverns is the drapery. Draperies usually hang down from inclined ceilings or from under a bell canopy—named for its bell shape. Curtains, often confused with draperies, form as several stalactites fuse together, forming a wavy curtain of stone.

Often a cave stirs the imagination. While viewing the strange, twisting forms created by nature, faces and shapes may appear in the muted and changing light.

Jack Mitchell named this the Queen's Room because of its regal appearance and the figures he could visualize in the formations. He would point out the Queen's throne and the crib of the Royal Princess, or Prince, and the Queen herself as her Royal Highness leans over the basin, washing her long hair.

Staghorn coral is found in the Queen's Room. Clustered on the ceiling, this erratic formation develops as calcite crystals grow along crystalline planes, creating a jumble of spikes that grow in all directions.

As we go deeper into the caves we come to a chamber—the so-called Bottomless Pit. Jack Mitchell really had fun making his tour guests believe they were standing over a bottomless pit. He would demonstrate the illusion by tossing in a flare for his guests to see how deep the Bottomless Pit was. His guests would see the bright flare fall into the darkness of the pit, gradually fading from sight as it went deeper and deeper. At the Bottomless Pit, Jack's tour came to an end, and his guests turned around and crawled back to El Pakiva.

The park's department carved the connecting tunnel between the two caverns, enabling visitors to walk through the caves and opening up other rooms of wonder and delight. While the tunnel was being drilled, workers discovered a miniature cavern enclosed in calcite crystals. In the hollow were cave mushrooms—delicate formations of rock that formed within a stone-encased pool of water. As the formations grew to the water's surface, they spread out into the mushroom shape.

Over millions of years, many changes have affected these caverns. Within the last fifteen thousand years, rapid changes occurred, probably due to earthquakes. Powerful tremors shifted and collapsed many formations throughout the caverns. This large stalactite, which may have been part of a column, actually broke off. On the ceilings of the Fallen Stalactite Room bare patches are left where stalactites once grew. In the Hollow Floor Room the ceiling also lacks the stalactites that would be expected in this cave. Researchers believe that the present floor of this cave is not the original level of this cave. They believe that debris that fell from the ceiling during an earthquake thousands of years ago is what makes up the floor. Currently other processes are deteriorating the cave formations. Air circulating into the cave causes temperature and humidity changes which, over the course of time, causes flakes of rock to fall from the floors and ceilings in a process called exfoliation.

Tecopa Cavern demonstrates the weathering process at work. Notice that the cave walls and ceiling are nearly devoid of any cave features. Tecopa Cavern is an example of a cave which is changing through the natural process of aging.

In the connecting tunnel we can see evidence that without prehistoric life these caves would not exist. Frozen in rock, we can find fossil crinoids, a simple animal like the corals of today and one of the basic builders of the limestone which created these caverns.

Several thousand years ago a giant ground sloth found its final resting place in Tecopa Cavern. The leg bone was unearthed in an archaeological study some years ago.

Today these caves host a variety of wildlife species who depend on them for shelter, food, and the correct environment to sustain their life. Pack rats use the caves to nest and store food and in turn are hunted by snakes and ring-tailed cats. The rats also host two species of rare and endangered arthropods—a beetle and pseudo-scorpion which are found nowhere else on earth. The caves also host a variety of bats, which can often be seen flitting through the darkness when disturbed by the tour.

On leaving this world of wonder deep within the earth, with its natural beauty and splendor, visitors are left with a sense of awe. They often feel relieved to return to the openness and light outdoors. Visitors experience the history and mystery of this dark place, a home to many living creatures and changing for millions of years.

You may recall a favorite site, perhaps a face imagined in the rock, a delicate crystal growth, or the shadow of bat wings in the darkness. It is your special memory of your journey into the "Eyes of the Mountain."

Running Time: 20 minutes