The Mission Canyon Limestone

Lewis and Clark Caverns formed in the Mission Canyon Limestone of the Madison Group, which is the most productive cave-forming formation in Montana and is exposed from the continental divide to the northern plains. The Mission Canyon Limestone is massive, with many massive beds of almost pure limestone, composed of calcium carbonate particles formed by marine organisms. The limestone is thick-bedded with few shale, siltstone, or sandstone layers. These properties make it very soluble in groundwater, and relatively free from inclusions and impurities. The Mission Canyon Limestone is about 400 feet thick at Lewis and Clark Caverns. The caverns were first identified in 1806, when Meriwether Lewis and William Clark entered the cave on November 1892. Native Americans may have been first to see the caverns, but there is no evidence that they conducted tours. Discovery is credited to Tom Williams and Ben Parrett, who found the entrance while on a hunting trip on October 26, 1902.

Early Exploration

Tom Williams returned to the caverns in 1903, and using ropes and ladders, first described the caverns to the State in 1904. The following year, Tom Williams and Dan Shumway explored the caverns. The first tours were conducted by the Montana Natural History Association and Montana State University. The commercial operation of the caverns began in 1906 and continues today. The Lewis and Clark Caverns State Park was created in 1937, just a year after the establishment of the National Park Service. The caverns were named Lewis and Clark Caverns in honor of the men who discovered the cave in 1806. Tom Williams was the first known guide in the history of commercial tour operations, and the first person to explore and describe the caverns in scientific terms. Tom Williams died in 1972 at the age of 81.

Cave Decorations

Lewis and Clark Caverns formed in the Mission Canyon Limestone, which is about 400 feet thick at the caverns. The Mission Canyon Limestone consists of thick limestone beds separated by thin shale layers. The limestone is very soluble and free from impurities, and is therefore highly susceptible to cave formation. The Mission Canyon Limestone is about 20 million years old, and was deposited in a warm, shallow sea 330 million years ago. This environment was favorable for deposition of thick, massive beds of almost pure limestone. The limestone is thick-bedded with few shale, siltstone, or sandstone layers. These properties make it very soluble in groundwater, and relatively free from inclusions and impurities. The Mission Canyon Limestone at the caverns. Map modified from image provided by Rich Aram.

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