

# A Passage Through Time

## The Jefferson River Canyon

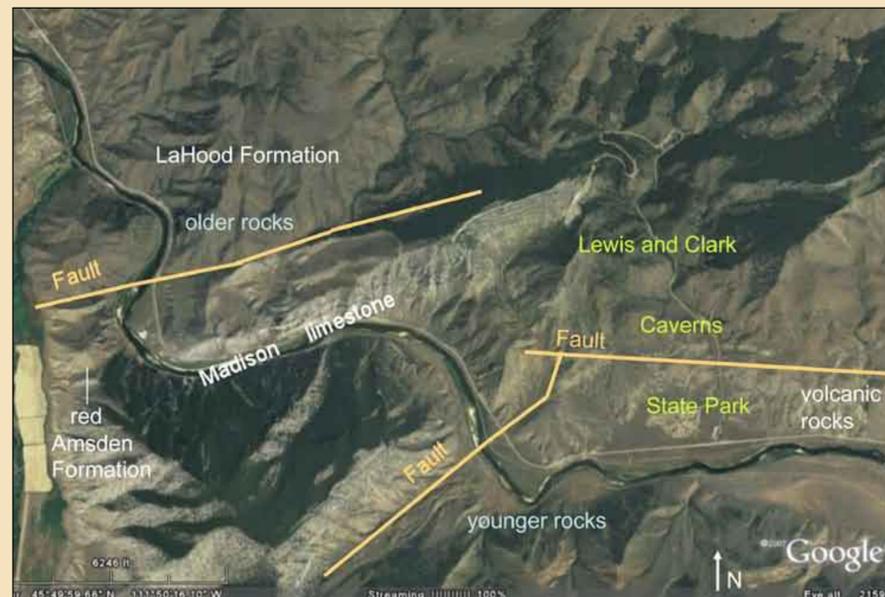


**T**he four-mile long Jefferson River Canyon was cut into the Tobacco Root Mountains between LaHood Park and Lewis and Clark Caverns State Park relatively recently in geologic time. The canyon exposes rocks that span over a billion years of geologic history. The rocks indicate times when the area was covered by shallow seas in which fine-grained sediment was deposited, and other times when rocks were exposed and eroded. The rocks also record times of volcanic activity and when stresses in the earth caused rocks to contort into folds or break into complex and significant faults. Entering the canyon from the east will take you backward in time. Most of the rocks at the east end of the canyon are sedimentary and volcanic rocks from the age of dinosaurs and younger. Gray cliffs of Madison limestone mark the entrance to the canyon, and form its walls for about a mile and a half to the west. Lewis and Clark Caverns developed in this limestone. A short distance beyond a northward bend in the highway, a steeper canyon is developed in dark-colored rocks of the LaHood Formation that are much older than a billion years. In the outcrops of the LaHood Formation, chunks of a lighter-colored rock as much as 100-feet long are apparent within the dark rock of the canyon walls. They are boulders that broke off an ancient cliff produced by a major fault.

After much political wrangling and public comments by citizens in Three Forks and Whitehall, the Montana Department of Transportation rerouted US Highway 10 through the Jefferson Canyon in 1928. Prior to that, the old highway bypassed the canyon. The new road was difficult to build and engineers used dynamite to blast a route for it through the rocks. When completed in 1930, the highway was one of the most scenic routes in Montana. Bypassed by Interstate 90 in 1968, this highway still retains many of the design features common to Great Depression-era roads and is a unique driving experience.



Jefferson River Canyon. Photo by Dick Gibson.



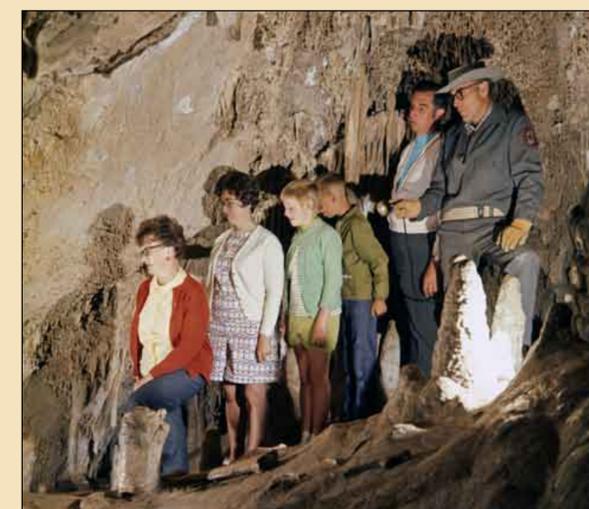
Labeled aerial view of the Jefferson River Canyon.

### Geo-Facts:

- The high-quality Madison limestone was used as flux in the Butte smelters during the height of that city's prominence as a mining town. A limestone quarry from the turn of the last century is located just north of the highway at mile marker 5.5. The Madison limestone is also an important aquifer in much of Montana.
- Placer gold was discovered about a mile and a half upstream from the entrance to Lewis and Clark Caverns in the late 1800's, but the placer mining operation was short-lived.
- Acidic water caused the limestone to dissolve along cracks, forming the caves of Lewis and Clark Caverns. When the water table dropped as the Jefferson Canyon was cut, the caves became dry and their ceilings collapsed.

### Geo-Activity:

- Try to spot some of the features along the road that are characteristic of late 1920s/early 1930s highways such as steep rock cuts, stone retaining walls, and roadside businesses and tourist attractions.



Lewis and Clark Caverns State Park, Montana. Photograph by Bill Browning, Montana Chamber of Commerce, Helena, Montana. Photo courtesy of the Montana Historical Society.