Hiking Underground

THE LONGEST CAVE IN THE WORLD WENDS BELOW KENTUCKY'S MAMMOTH CAVE NATIONAL PARK. HERE VISITORS CAN VIEW CAVE FORMATION UP CLOSE **BY MARGUERITE HOLLOWAY**

I emerge from Fat Man's Misery—a narrow, twisted low-roofed passage where the rocks have gone shiny and smooth from the touch of countless hands reaching out for balance or perhaps solace—only to find myself just a short walk from the River Styx. The sliver of water apparent between walls of rock is green and seemingly leisurely; it imparts no sense of foreboding, no mythical beings spring to life. Yet this small river is a powerful force. This flow built one of the most extensive cave systems on earth; it sculpted limestone into the more than 360 miles of tunnels, chambers and beautiful shapes that compose Mammoth Cave.

Our group—45 enterprising people who have been soundly warned about the physical demands of our two-and-a-half-hour "Making of Mammoth" tour—has descended to the fifth and lowest level of the cave system to see the River Styx. Down here the air is humid and thick, the ground muddy in places, and the knowledge of depth, of the weight of layers of rock above us, is more oppressive than in the higher, dry realms of the cave. But it is only down here, in the potentially claustrophobia-inducing depths, that water is still at work, carving new passageways. And only here that some of the cavern's most unusual creatures—colorless Mammoth Cave shrimp, Indiana eyeless crayfish and eyeless cavefish—make their home.

As we descended, our National Park Service guide explained how Mammoth became so mammoth—a story of seawater, rainwater and eons. Some 350 million years ago central Kentucky was undersea.

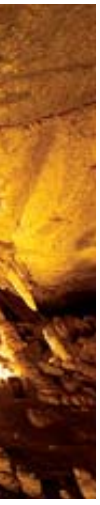
HISTORIC ENTRANCE serves as a flyway for the 12 species of bat that inhabit the cave, albeit in small numbers (*above*). Flowstone formations, such as the Drapery in the Frozen Niagara area of the cave (*right*), are among the site's most dramatic features.

The calcium carbonate shells of the ocean's organisms settled on the bottom, becoming, over time, layers of limestone—several hundred feet or so of soft rock by the time the Mississippian period was over. A river then deposited sand and mud, forming a cap of hardier sandstone and shale.

As the climate shifted and the sea receded and the river ran a different course, rainwater began its work. Percolating through the ground to the constantly lowering water table, and thence to the sea, some of it combined with carbon dioxide in the soil to become carbonic acid. The weak acid ate through the limestone, trickling down in ever widening cracks, ultimately forming underground

PHOTOGRAPHS BY MARC MUENCH

GREEN RIVER FERRY shuttles visitors to the western section of the park for camping and trails (*below*).



rivers that became labyrinthine caves. These water-hollowed passages exist today only because of the sandstone; without that protective covering, the cave would have no roof—it would be a canyon, not even a grand one at that.

After a brief musical interlude, in which our guide leads us in song to demonstrate the remarkable acoustics near Echo River, just beyond the River Styx, we begin the climb out. Panting from the steep ascent, we emerge at the Historic Entrance, where long ago an accumulation of water weighted down the ground, creating a sinkhole that eventually collapsed, opening a part of the cave. A few feet beyond the entrance, the cave's cool air—around 54 degrees Fahrenheit year-round—is replaced by the hot southern summer and the damp of a fresh rain. The light is dizzying.

The geology walk is just one of many that Mammoth Cave National Park offers each day. The tours vary by season: some, for instance, are offered only in the fall or winter, when fewer people visit the park and the groups are smaller. But most of the time, visitors can choose the aspects of the cave they most want to see and select accordingly.

To experience the cave without the extensive electric light system that most tours rely on, I take the "Violet City Lantern" tour. The cave has been many things over the centuries, and on this three-hour walk our group, this time consisting of about 60 people, learns about much of its human history. Native people explored the cave and mined for gypsum 4,000 to 2,000 years ago, as the mummified remains of one ancient visitor attested. Discovered by European settlers in the late 1790s, the cave was then mined for saltpeter (a component of gunpowder) during the War of 1812. Shortly after the war, the cave became principally a tourist attraction—something that continues today. In 1842, while the public tours continued, tuberculosis patients were housed in underground stone huts. Their physician thought subterranean life would cure them. It didn't; the doctor, who owned the cave at the time, also died of consumption.

Neither the geology tour nor the lantern tour centers on the cave's incredible sculptural formations, however, so I also take the "Travertine" tour—which one guide calls the "cheater's tour." Only an hour or so and not very taxing—no Fat Man's Misery, no 560 stairs to ascend from the River Styx—this circuit passes 80 percent of the various cave for-

mations that exist at Mammoth. We hike by a curtain of flowstone called the Drapery, and we see stalactites, stalagmites, columns, and the myriad other lovely organic forms and textures that water makes of rock. The shapes conjure tube worms, coral, roots, druids, moss, the soft inner flaps of mushroom caps.

Mammoth Cave National Park is open every day except Christmas. There is no park fee; visitors must pay for each tour. Some, including "Wild Cave," are only for those who are extremely physically fit and meet certain dimensional requirements. Two of the options are relatively easy. The others range from two to four-and-a-half hours and are often quite strenuous. Guides make clear at the outset that people with respiratory or heart problems or other health issues should not participate. Despite the stringent warnings, overweight and otherwise unhealthy people take the tours, and there have been several deaths and emergency evacuations from the cave as a result.

For a description of the tours, see www.mammoth.cave.national-park.com/hike.htm. The cave gets more than 400,000 visitors a year, and the rangers recommend making reservations well in advance (www.reservations.nps.gov or 1-800-967-2283) because many of the tours often sell out.

If you decide not to take the more challenging tours, there is plenty to see aboveground in the park's 53,000 acres. At the bottom of the hill, just past the Historic Entrance, the River Styx empties into the daylight and makes its way to the nearby Green River. And past the Heritage Trail, which runs next to the park's visitor center and the Mammoth Cave Hotel and through the region's lush oak and hickory woods, is the Mammoth Dome Sink. Decades from now this sinkhole will probably collapse as well, opening another portal into the dark, cool hallways of the earth. SA

This is the final Voyages column.