

**MAMMOTH CAVE OF
KENTUCKY (HOVEY AND
CALL): WITH AN ACCOUNT
OF COLOSSAL CAVERN**

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Mammoth Cave

O F K E N T U C K Y



(Hovey and Call)

WITH AN ACCOUNT OF COLOSSAL
CAVERN

REVISED EDITION



By HORACE CARTER HOVEY, D. D., F. G. S. A.

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*With Historical Notes. Scenic Accounts. Descriptive and
Scientific Matters of Interest to Visitors, based upon new and
original explorations.*

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THE CAVERN REGION OF KENTUCKY AND CAVE MAKING

LARGE caverns are limited to regions favorable to the process of cave-making. Kentucky is peculiarly such a region. Along rocky sea-coasts grottoes are numerous and often beautiful. But the mighty billows that carve the granite into natural tunnels, or spouting horns, or fantastic arches, also break down their own products, and transform grottoes into chasms, embayments, or straits. This destructive agency has been so vigorously active along the Atlantic coast that not a cavern can be found, from the Bay of Fundy to the Gulf of Mexico, deep enough to exclude the daylight. With ice caves, and those formed in lava-beds, or among coral islands, and in granitic regions, we need not here concern ourselves.

Limestone regions vary according to their exemption from or exposure to mountain-making forces. The limestones of Virginia, for instance, have been upheaved and shaken by orogenic action until they are cracked and fissured by seams running in every direction. These were easily enlarged by the action of water, and were thus developed into countless grottoes, some of which have gained a world-wide celebrity. But the fractured condition of the rocks limited the process of cave-making; and in size the Virginia caves are insignificant, compared with the enormous excavations found in the homogeneous and nearly undisturbed limestone regions of Kentucky and other States of the central West.

Then, again, the conditions of the country rock vary as we descend the valley of the Ohio. About Cincinnati and Covington the Lower Silurian limestones are

presented in thin, fragile strata, with variable layers of shale between; and in these it would be almost impossible for even small grottoes to grow. But when this terrane meets the Upper Silurian, as at Madison, Indiana, the massive upper ledges resist decomposition, while the underlying softer strata are easily eroded; and the result is seen in some of the most picturesque grottoes in the world. Rising in the geological horizon while descending the valley, we enter the most extensive cave region on the globe. The Ohio River transects this territory in such a manner that three fourths of it lies in Kentucky, while the remaining fourth is divided between Indiana and Tennessee. In Indiana is the wonderful Wyandot Cave, and in Tennessee the formidable Nicajack; which are worthy rivals of Kentucky's greatest cavern.

The main line of the Louisville & Nashville Railroad runs through the region in which Mammoth Cave is located. And as we ride swiftly and comfortably along we can observe from the cars the more conspicuous results of the complex erosive process by which the landscape has been wrought into its present features.

Imagine a vast plain, which in its entirety covers quite eight thousand square miles, and that plain, during successive ages, slowly and gently uplifted, as a whole, by geological agencies. Extensive erosion necessarily would ensue. For, previous to this uplifting, this part of the continent was submerged; but since the Carboniferous period the region has been dry land. Unlike the areas to the remote West and South, there are here no Cretaceous nor Tertiary rocks. The hills are all Carboniferous; though in many places, as in the vicinity of Louisville, these eminences have been worn away, and

the underlying Devonian and Silurian now form the country rock.

Meanwhile the falling rains have run over the slightly tilted limestone rocks, wearing their surface into furrows and undermining the harder ledges. Additional to this mechanical agency chemical forces have been at work. From the air and the soil the rain-water gathers into itself carbonic acid (carbon dioxide) which attacks the limestone, dissolves it slowly or rapidly, as the case may be; after which the water runs away with its mineral burden. The region once level now becomes undulating; the surface waters find, or make, underground channels, and finally the region is honey-combed with caverns. Where less soluble rocks occur, or form the surface, the process of erosion is less rapid. Hills are thus formed, their very tops refusing to yield to solution. The environs become lower, and finally conical masses remain, testifying by their geologic structure to the processes that have been at work.

The problem is complicated, so far as the region around the Mammoth Cave is concerned, by the fact that the compact Chester Sandstone overlies the St. Louis Limestone, which is here largely oölitic. The sandstone yields slowly to the mechanical action of the running water, but resists its chemical action; while the limestone yields to both these agencies. It thus happens that there are visible thousands of "knobs" and myriads of "sink-holes." Knobs are eminences, sometimes several hundred feet high, and frequently perfect pyramids, left by the erosion of the weaker rocks, the original strata being diminished horizontally, but undisturbed in position, even to the apex of the pyramidal peak. The sink-holes, on the other hand,

are usually oval depressions, of every conceivable size and of variant depths, without inlet or outlet, except through funnels which communicate with subterranean passages. These pits were, in former times, and sometimes still are, natural animal-traps, into which has fallen many a wild denizen of the forest. In order to save domestic animals from a similar catastrophe numerous sink-holes have been artificially plugged, thus transforming them into deep pools. So extensive has been the undermining by the process now described, that one may travel on horseback all day, through certain parts of Kentucky, without crossing a single running surface stream; all the rain-water that falls being carried down through the sink-holes into caverns below, where are the gathering-beds that feed the few large open streams of the region, of which the Green River is an example.

It is reported that there are four thousand sink-holes and five hundred known caverns in Edmonson County alone. The Mammoth Cave Railway, that leads from Glasgow Junction directly to the cave, passes a number of them. The largest sink-hole known is the Eden Valley, along whose margin the road runs. This charming valley is adorned by fertile farms, and occasional ponds that mirror the passing clouds, and it is flanked by the virgin forest; but after all it is a true sink-hole, without inlet or outlet. Its area is certainly not less than two thousand acres, and this enormous depression must have been made by the falling in of a series of great caverns.

The reader will not expect us in this Manual, which is meant to describe a single famous cavern, to offer a catalogue of the other known caverns of the county.

Some of these, like the Diamond, the Grand Crystal, Proctor's, and the recently opened Colossal Cavern, have gained more than a local celebrity. Another large cavern, the Salt Cave, belongs to the Mammoth Cave estate, and has interest for scientific men on account of its prehistoric relics. It is now very difficult of access; and being absolutely dry, the explorer needs to carry his own water supply. Hence it is rarely visited.

The White Cave belongs to the same estate, and is well worth visiting. It gets its name from the brilliant whiteness of its stalactitic formations. It is really a branch of the Mammoth Cave, being connected with it by a passage, now occluded, leading to Klett's Dome and the Mammoth Dome, of which the former is a portion, separated therefrom by the thin floor at the end of Little Bat Avenue, through which Crevice Pit leads—connecting thus the two domes that are practically and geologically identical.

The entrance to the White Cave is guarded by an iron gate, beyond which is an oval chamber, irregular in outline, beneath whose low, flat roof we proceed to the second chamber. Here is exhibited a splendid piece of stalactitic drapery, called the Frozen Cascade. It is fretted and folded in a thousand fantastic forms, and well deserves its name. The resemblance of this mass of onyx to the gigantic columns formed in winter around great waterfalls, such as Niagara, is indeed striking. The roof is covered with pendants, from the largest stalactites down to those as small as a quill; each one of which is hollow, and from whose tips hang tremulous drops of water sparkling like diamonds. The floor is intersected with shallow, crooked channels, in which

run transparent rills. A stately shaft, named Humboldt's Column, appears to support the low arch.

In the third chamber are huge blocks of limestone cemented together and encumbering the floor. And around all is kindly drawn a wide veil of the purest alabaster. Attempts have been made to break through this mighty curtain, with the hope of finding a passage into the Mammoth Cave. With the same wish certain deep pits in the vicinity have been thoroughly explored, but thus far in vain.

Some ninety years ago Mr. J. D. Clifford, a Kentuckian, exhumed from the floor of the White Cave certain bones, that, after passing through several hands, finally came into the possession of the Academy of Natural Sciences, at Philadelphia. It has been stated that among them were the remains of bisons, stags, a bear, a megalonyx, and also a human skeleton. This remarkable statement is open to serious question, beyond the megalonyx bones; and it is mentioned here merely because some degree of paleontologic importance has been attached to the story.*

Dixon's Cave, also belonging to the same estate, is supposed to have been, at some remote prehistoric time, the original mouth of the Mammoth Cave. However this may be, the cave is well worth visiting for its own sake. Its mouth is a yawning gulf, somewhat larger than that by which one enters Mammoth Cave. In its present condition it is obstructed by fallen

*See a reference to the Megalonyx of the White Cave, Kentucky, by Doctor Richard Harlan, *American Journal of Geology*, Vol. 1, page 76; and a more full account of the same on page 171, by Professor William Cooper, who distinguishes it from the specimen found at Big-Bone Lick, Kentucky, and in the Big-Bone Cave, in White County, Tennessee. See also *Transactions of the Geological Society of Pennsylvania*, August, 1834, pp. 67-70 and pp. 144-145.—
—H. C. H.