

Mammoth Cave and the Making of Place

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Occupation, use, and symbolic construction of place in the Mammoth Cave region of Kentucky has resulted in five distinct eras of place-making during the past two hundred years. The connectedness of Mammoth Cave to the larger national stage is revealed through struggles over control and development that wrought successive transformations upon the cultural landscape. The symbolic import of the world's largest cave altered as, in turn, resource extraction, tourism, and environmentalism became the dominant ideology influencing development in the Mammoth Cave region. This paper positions the process of place-making at Mammoth Cave within the changing scene of American society and culture.

KEY WORDS: place-making, Mammoth Cave, tourism, identity, historical geography

Mammoth Cave, Kentucky, has long been recognized as an outstanding feature of the natural landscape and a quintessentially American place. Starting in the early nineteenth century, numerous authors pointed out arresting traits, particularly its grandeur of length and endemic flora and fauna, to support the notion that Mammoth Cave belongs to the pantheon of distinctive and praiseworthy American places, those that, like Niagara Falls and the Grand Canyon, are both a source of pride to the American nation and somehow defining of it. Its popularity provided the impetus for the creation of one of the first national parks in the eastern

United States. Recognition of Mammoth Cave's distinctiveness was expanded to a global scale in the late twentieth century with UNESCO World Heritage Site and International Biosphere Reserve designations. Mammoth Cave, however, has been marked by struggles over control, development, and symbolic construction of place, struggles that reflected general trends in American society to an extent that belied the cave's peripheral location in rural southcentral Kentucky (Fig. 1). This paper plumbs the symbolic shaping of Mammoth Cave, namely the processes by which this place was connected to the larger national stage and took on iconic meaning within American culture. National events and cultural movements influenced economic development of the Mammoth Cave region, and, in turn, Mammoth Cave figured in the formation of an American national identity.

At the start of the twenty-first century, however, Mammoth Cave is, to a certain extent, a forgotten place. It has been forgotten, not by tourists, who still number between one and two million annually, but by scholars of tourism, national parks, and culture studies who have largely overlooked it. An emerging body of literature on the history of tourism in North America links regional development of scenic places to larger social, economic, and political issues, and ponders the multiple ways that visitors have imagined such

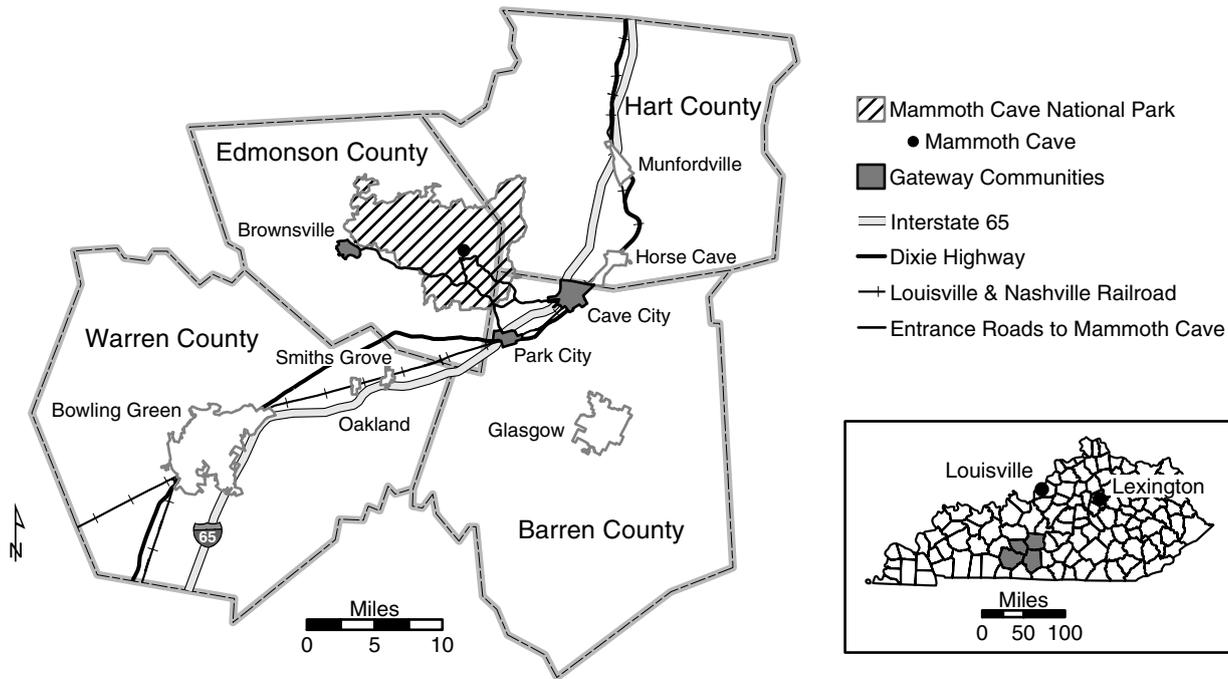


Figure 1. The Mammoth Cave region of Kentucky.

places (e.g., McGreevy 1994; Brown 1995; Rothman 1998; Neumann 1999; Shaffer 2001). Yet, scholars of tourism have largely neglected Mammoth Cave, which, after Niagara Falls, was one of the earliest focal points of mass tourism in the United States. The notable exception is Sears' (1989) chapter devoted to nineteenth century travelers' accounts which depict Mammoth Cave as a form of sacred landscape, a Romantic shrine to the scenic and sublime. My essay is designed, as a start in addressing this lacuna, to recover some of the culture history of this understudied, but important southern locale. It is based on a variety of archival materials, including published accounts by travelers, guide books, local histories, business papers related to the Mammoth Cave Estate housed in the Janin Family Papers in the Huntington Library of San Marino, California, and the Croghan Family papers in the library of Historic Locust Grove in Louisville, Kentucky.

A BIG HOLE IN THE GROUND

With a mapped extent of over 330 miles, Mammoth Cave is the longest known cave system in the world. Home to over 130 faunal species, many endangered, such as the gray bat, or found only in the Mammoth Cave region, such as the Kentucky cave shrimp, it is a site of ecological importance. An extensive archeological record of prehistoric Native Americans and remnants of early American industrial activity mark it as a historically significant place. For almost two hundred years, it has also been a destination for a growing stream of tourists whose cumulative impact has shaped the local economy and cultural landscape. How did a big hole

in the ground become an attraction that drew over two million visitors in 2002?

Observers of the American scene have noted that American culture tends to compensate for an inferiority complex stemming from the truncated Anglo-American historical context through a reverence of nature and of gigantism, what David Lowenthal has termed the "cult of bigness" (Lowenthal 1968; Shaffer 2001, 13). America may lack ancient classical civilizations that are direct antecedents of contemporary society, but national pride is assuaged by the presence of signally large natural features—dinosaurs, redwoods, and the Rockies, to name a few. In the case of Mammoth Cave, sheer size may be part of the answer, but I suggest that we need to look beyond the essentialist argument of "biggest" to understand Mammoth Cave's enduring popularity and iconic status. Where, after all, is the world's largest cliff? Do hordes travel to see the world's largest lake? Why should the largest cave merit so much attention, particularly when the casual visitor sees but a fraction of its record-breaking extent? Mammoth Cave is not even spectacularly pretty. As a dry cave, it largely lacks the gingerbread of stalactites & stalagmites, flowstone, and soda straws that form the most spectacular underground landscapes and that are readily visible in the privately owned Diamond Caverns located just outside Mammoth Cave National Park.

Like Niagara Falls and the Grand Canyon, Mammoth Cave is more than an immense feature of the physical landscape (McGreevy 1994; Neumann 1999). I will argue that Mammoth Cave is a cultural production, a site whose significance lies in the multilayered interactions of tourists,

tour providers, scientists and other visitors, and the body of cultural works about the cave that they produced. Through the overlapping, interrelated, and mutually reinforcing processes of tourism and scientific discovery, Mammoth Cave took on symbolic meaning within American popular culture to the point that it stood for something beyond the mere statistics of its existence. It became a national icon, representing the distinctiveness of America, an identity rooted in an abundance and diversity of natural resources, and an ineffable quality of possibility, i.e., the potential for discovery. This iconic status, both produced by and reflected in the substantial body of literary, artistic, and scientific material produced about the cave during the nineteenth century, was by no means static. The significance of Mammoth Cave within American culture continued to change throughout the nineteenth and twentieth centuries, an exemplar of what Allan Pred has termed “the becoming of place” (Pred 1984). To illustrate this evolution of meaning, this paper identifies five distinct eras of place-making at Mammoth Cave that are separated from each other more by the changing significance of the cave within the American zeitgeist than by particularities of ownership or landuse.

EXTRACTIVE RESOURCE USE

The first era of place-making at Mammoth Cave was tied to the period of nation-building, westward expansion, and settlement that marked the decades following the United States’ independence. Survival and prosperity on the frontier depended upon settlers transforming lands perceived as wilderness into productive landscapes, a transformation that carried

positive moral overtones as well (Nash 1967, 23–43). Mammoth Cave was one of numerous caves in a belt stretching from southern Indiana through central Tennessee and extending into the central Appalachian Mountains that were mined for saltpeter during the eighteenth and early nineteenth centuries. Saltpeter is thought to form through the action of seeping groundwater, which dissolves nitrates from organic material in surface soils and is then drawn to dry caves by capillary action. As the water evaporates, saltpeter deposits form near the cave surface with the help of nitrifying bacteria (Hill 1981). Also known as potassium nitrate, saltpeter became an instrument for taming the wilderness when combined with sulphur and charcoal to form gunpowder.

The earliest recorded claim for land around Mammoth Cave indicates that saltpeter was known to be present and was perhaps the impetus for that land claim. According to a land certificate dated 1798, Valentine Simmons had “200 acres of second-rate land” surveyed in an area around “two petre [*sic*] caves,” which are now known by the names of Mammoth and Dixon (Faust 1967, 23). Little is known about mining in Mammoth Cave before the War of 1812, but activity is thought to have been small in scale (Mullin 1986, 8). Gunpowder was a necessity of frontier life, and small-scale production of saltpeter from caves or in artificial niteries, holes where compost, limestone, and ashes were combined to produce saltpeter, was common. During peacetime, however, the bulk of saltpeter used in more settled areas came from India (Mullin 1986, 5).

Mining intensified throughout the saltpeter region during periods of war, when



Figure 2. Remains of the Mammoth Cave saltpeter works. Pipes carried water from a stream at the cave entrance to leaching vats where the saltpeter was recovered. Undated photo courtesy of the Kentucky Library, Western Kentucky University.

demand for gunpowder increased, and foreign supplies were often cut off (Hovey 1897; De Paepe and Hill 1981). At Mammoth Cave, a brief period of intensive extraction was fueled by the War of 1812. Trade embargoes in the years leading up to that war halted imports from British-controlled India and prompted development of domestic sources. Charles Wilkins, a saltpeter dealer based in Lexington, Kentucky, and Hyman Gratz, a wealthy Philadelphian, purchased the cave and created an industrial facility that was worked by seventy slaves at the peak of production and is estimated to have produced half of all saltpeter used during the War of 1812 (Fig. 2) (Faust 1967, 25, 69–71; Sears 1989, 32). Lexington was a major market for saltpeter, much of which was shipped out of state to the Du Pont gunpowder factory in Wilmington, Dela-

ware (Faust 1967, 36–7; De Paepe and Hill 1981, 90). Thus, resource extraction not only connected this Kentucky hinterland to the industrializing regions of the young country, but Mammoth Cave saltpeter helped secure the American frontier against foreign incursion, making continued westward expansion possible.

SCENIC TOURISM

Saltpeter production stopped shortly after the war's end as its price plummeted, but a small number of visitors were already seeking out the cave that was considered a natural curiosity and was recognized, even then, for its unusual size. This reorientation from industrial to recreational use marked the start of the second era of place-making at Mammoth Cave, a period of low-level tourism by members of

the upper class who traveled as a means of acquiring or displaying social capital. In the early nineteenth century, Americans of means and leisure began self-consciously emulating their European counterparts in cultivating a taste for travel (Towner 1996, 158). Making the circuit of fashionable resorts in the Northeast, such as mineral springs in the Hudson Valley, the White Mountains of New Hampshire, and Niagara Falls, was, in part, a quest for social status (Brown 1995, 35). Travelers demonstrated their elite status through the financial wherewithal for undertaking a lengthy vacation, but also by their refinement in appreciating the 'correct' type of landscape (Brown 1995, 58; Towner 1996, 147). In early nineteenth-century America, landscape tastes were heavily influenced by European tastes and, particularly, by the Romantic Movement, which through its near veneration of the transcendent beauty of nature had already re-oriented European travel away from cities and scenes of pastoral productivity to wilder areas, such as England's Lake District (Towner 1996, 139–151). Ironically, although Americans' taste in scenery was derived from European tastes, the vogue for picturesque and fantastic scenery fostered a nationalistic pride, for while America lacked the historic towns, great houses, castles, and artful ruins that formed other foci of European tourism, it had scenery in abundance—scenery of a scale and grandeur as to lend natural refinement to an otherwise raw, young nation.

Mammoth Cave became a candidate for the American version of the Grand Tour, the circuit of significant sights that a cultured person should visit, through the writings of early travelers. The earliest of these descriptive narratives took the form

of letters published in newspapers, such as the letter "from a gentleman in Bowling Green, Kentucky, to his friend in Russellville [Kentucky]" that appeared in the 20 April 1810 issue of *The [Richmond, VA] Enquirer*. The author, who thought his friend "may perhaps not deem it uninteresting to have some information respecting the largest cave now known," touched upon the major themes that would become part of the Mammoth Cave meta-narrative through repeated use by later travel writers. Although more measured in tone than many later authors, he did call upon the language of Romanticism in depicting "one of the most sublimely beautiful and picturesque amphitheatres in the world" and likening the cave formations to "the different orders of Gothic architecture, columns, moldings and pilasters in embossed and stucco work." He described a place that was essentially unknowable without the direct experience of being there, for "the most elaborate effort of the pencil would fail to do justice to the rich scenery and varied drapery with which the senses are delighted." In addition to the saltpeter works, he noted the abundance of other minerals including "glauber salts," borax, and "ocherous earths," and a plentitude of Native American artifacts. Absent, though, from this missive are the fanciful names that would later be applied to cave formations, chambers, and passages to contrive a landscape for tourists.

Another letter, by Nahum Ward of Marietta, Ohio, "to a gentleman in Worcester, Massachusetts," recounted a guided trip through the cave in 1816 and was significant both for the wide spread publicity it brought to Mammoth Cave and for establishing a way of viewing the cave. The letter was first printed in the *Worcester Spy*,

but was reprinted in newspapers and journals across the U.S. and England, with some copies appearing as late as 1823 (e.g., Ward 1819; Sears 1989, 32). The first-person narrative of exploration set a style and tone that was repeated and embellished in similar accounts appearing in a variety of popular journals, women's magazines, and specialty tracts throughout the nineteenth century (e.g., Davidson 1840; Cross 1852; Hovey 1880). In keeping with Romantic tradition, Ward recorded his reactions to the underground landscape and the play of certain features upon his emotions. Of the avenue "chief city," Ward declares, "nothing under heaven can be more sublimely grand than this place" (Ward 1819, 381). After hours in the cave, Ward confessed to "a shivering horror at my situation, when I looked back upon the different avenues through which I had passed . . . to be buried several miles in the dark recesses of this awful cavern . . . gave me no pleasant sensations" (Ward 1819, 383). Also notable is his recording of emotive, historic, and classical names for parts of the underground landscape, such as "the haunted chamber," "Wilkin's armed [*sic*] chair," and the "pool of Clitorius," which suggests the beginnings of commercialized tourism. The process of naming features to differentiate them from other, similar features is the first phase of what Dean MacCannell has termed "sight sacralization", a process by which an attraction is staged for tourists, making it easier to consume (MacCannell 1976, 43–45).

Subsequent travel writers more fully developed the Romantic interpretation of Mammoth Cave (Sears 1989). While these early accounts attempt to convey a realistic portrait of underground passageways

and chambers and to explain natural phenomena such as the existence of the caves themselves and the formation of stalactites, they also revel in the fanciful names for rock formations and places of interest in the cave that superimposed a landscape of the human imagination over the natural world. The anti-landscape of underground chambers, passageways, and rivers prompted analogies with the underworld, cathedrals, and other liminal places of religious experience (Fig. 3) (Sears 1989, 31–48). At a time when Romantic thought held nature to be a direct reflection of the divine, Mammoth Cave was America's newest sacred place, for in viewing such natural wonders, one might glimpse God. Mrs. J. T. H. Cross describes the impact of entering "The Church," the first large chamber on her tour: "The soul is mute. The awful grandeur around bespeaks a God" (Cross 1852, 164). An anonymous correspondent to *Scientific American* writes in reference to Mammoth Cave, "Gazing on the works of the Creator you are engrossed with a feeling of uncontrollable delight" (Anonymous 1850, 80). Although such encounters elicit a range of emotions, as a reflection of the ineffable Divine, Mammoth Cave presents limits to knowledge—"it is impossible to convey any just idea of the cave to the mind of a person who has never seen it" (Cross 1852, 164), and "is it not singular, that nature should construct so many things that man cannot comprehend?" (Anonymous 1859, 80).

Travel accounts also emphasized the wild and dangerous character of the landscape near Mammoth Cave. If Mammoth Cave was a sacred place, the journey to it "through brush and brake, over rocks and ruts, up hill and down," was a symbolic



Figure 3. Nineteenth century writers likened Mammoth Cave's caverns to religious landscapes (Horace 1851, 34).

pilgrimage through the wilderness (Cross 1852, 163). Through mid-nineteenth century, the journey to Mammoth Cave was certainly rigorous, with travelers proceeding by stage or hired coach to the village of Three Forks¹ and traveling the remaining eight miles on foot, horseback, or carriage. Judging by extant accounts, most travelers stopped over at Bell's Tavern in Three Forks, which became something of a tourist destination in its own right, known for its epicurean table, homemade peach

brandy, and the number of dignitaries who had signed its guest register (King 1874). By the early 1830s they could also stay at the Mammoth Cave Hotel, a "rustic inn" in the vernacular dogtrot style built on the grounds adjoining the cave entrance (Brucker and Watson 1976, 264).

Despite the difficulties inherent in the journey, these writings extolling the beauty and sublimity of Mammoth Cave served as models of travel for the American public. The earlier examples appeared

in regional journals, such as *DeBow's Review* and *The Southern Lady's Companion* (e.g., DeBow 1849; Cross 1852; Anonymous 1860). Although regional, the journals that carried travel accounts of Mammoth Cave were not inconsequential. Carl Bode, historian of mid-nineteenth century popular culture, considers *DeBow's Review* one of three "enduring and celebrated" southern literary journals (Bode 1959, 161). As national mass-market magazines emerged following the 1850s, Mammoth Cave was represented in the likes of *Scientific American*, *Vanity Fair*, *Appleton's Journal*, *Scribner's Monthly*, *Science*, and *The Century Magazine* (e.g., Anonymous 1859; Anonymous 1862; King 1874; Hovey 1880, 1893; Procter 1898). Authors expressed consensus about Mammoth Cave's position in the hierarchy of America's signature sights. J. D. B. Debow championed Mammoth Cave as "next to Niagara . . . the greatest wonder of nature in the western world" (Debow 1849, 203). A short piece entitled "Notes for a Tourist" appearing in the 5 December 1846 issue of *Scientific American* urges,

Madam, you should have been born in America; the greatest country in the known world; nature has clustered all her stupendous and dazzling works upon this land . . . Madam go and see the falls of Niagara . . . Then, madam, you should go and see the great cave in Kentucky . . . if you go back to England without seeing our mammoth cave . . . you'll leave a pretty big hole in the book you're going to write.

Cumulatively, this body of literary representations positioned Mammoth Cave as one of America's, if not the world's, great natural wonders, a status that spoke

to America's distinctiveness as a nation and, because of the symbolic linking of God and nature in the Romantic tradition, conferred legitimacy on the national endeavor.

CREATING AN AMERICAN ICON

The success of Mammoth Cave as a tourist destination, however, was not solely a literary construction. It was also the result of a concerted campaign of infrastructure development, exploration, and promotion undertaken by the cave's owners. A resort hotel to meet the expectations of the traveling public was built, a place amenable to the kinds of structured social interactions including dancing and promenading that marked elite society at fashionable watering holes. Cave guides, the most prominent of whom were African-American slaves, pushed the known extent of the cave, discovering new subterranean wonders that could be touted in print to bolster the cave's reputation and keep it in the public consciousness. Promotion was achieved by direct means, including advertising in newspapers and printing guidebooks, but also by indirect means designed to insert Mammoth Cave more broadly into popular culture. It is the success of these latter efforts that positioned the cave for iconic status in the late nineteenth century.

Of all the individuals involved with Mammoth Cave, gentleman-physician John Croghan was most instrumental in the development of tourism. He bought the cave in 1839 and owned it until his death in 1849. After a brief, failed experiment in using the cave as a health resort for patients with tuberculosis, Croghan worked avidly to build and market it as a

conventional tourist destination. Croghan used his family fortune to expand tourism infrastructure, converting the Mammoth Cave hotel from a simple log building into an elegant hotel with ballroom, billiard room, bowling alley, and rambling veranda. He had oak pipes fashioned to carry water to the hotel from a nearby spring and built roads to connect Mammoth Cave with the Louisville and Nashville turnpike. Croghan's letters to family members mark the progress of the enterprise, but also the financial strain of so large an undertaking. In December 1841, Croghan confidently wrote, "the profits of this place equal, indeed, surpass my expectations. The accommodations are now extensive & comfortable, and, if I mistake not, the receipts the ensuing year will be very large" (Croghan 1841). By May, however, Croghan expressed concern about the cost of the improvements. "I have necessarily been subjected in furnishing the Hotel at the cave. I am now more pushed for money than at any former period of my life; if however, there be as many visitors [sic] at the cave this summer & fall as is expected I will soon be free from embarrassment" (Croghan 1842). The result of Croghan's refurbishment was a hotel "two stories high, and two hundred feet long, with brick buildings at each extremity, showing their gable ends in front," with the intervening space "occupied by a long wooden building, with a piazza, and gallery over it" (Martin 1851, 18). The structure was praised as a "fine and convenient hotel . . . capable of lodging 150 visitors," who, "in this beautiful and retired spot . . . will meet with polished and refined society, from all parts of the world" (Anonymous 1852, 356). Croghan had grand plans, many of which were never realized,

including building a hotel underground and "clearing out the [cave's] avenues, and making them accessible for an omnibus to the distance of three or four miles" (Davidson 1840, 62).

Croghan died childless in 1849, but the terms of his will ensured the continuation of his project. A group of nine nieces and nephews inherited the property in the form of a trust that was charged with continuing to operate the cave and hotel as tourist enterprises. Trustees of the Mammoth Cave Estate presided over the flowering of mass tourism, controlling the operation until it was turned into a national park in the early twentieth century. After the death of the last of these original heirs, the cave property was to be sold at public auction. That sale never happened, for a movement to turn the cave region into a national park, with Mammoth Cave at its heart, gained momentum during the 1920s. The Mammoth Cave National Park Association purchased two thirds of the estate in 1928 and acquired the final third through condemnation in 1930, donating the land to the federal government for the park that had been authorized in 1926, but would not be formally dedicated until 1946 (Goode 1986, 32, 37).

In addition to building infrastructure, Croghan helped propel Mammoth Cave into American popular culture by hosting leading poets, artists, and scientists, sometimes for extended periods, in the expectation that they would write about or otherwise portray the cave in their works. Poet Ralph Waldo Emerson described a visit made to Mammoth Cave years earlier in the essay "Illusions," published first in the inaugural issue of *Atlantic Monthly* and later, accompanied by a poem of the same name, in a book of collected poems called

The Conduct of Life (Emerson 1857, 58–62, 1860). This work was no mere travelogue, but a meditation on impermanence in life, with the illusion of Mammoth Cave's Star Chamber imitating a night sky used as an extended metaphor for the susceptibility of the senses to deception. Artist George Brewer spent nine weeks during 1845 making sketches of the cave for his moving panorama *Natural Wonders of America* (Arrington 1965a, 25). The panorama, a series of paintings on a long roll of canvas, simulated movement through a landscape as scenes slowly passed before the audience to the accompaniment of music and narration. *Natural Wonders* was a virtual tour of the continent's scenic landscapes, and Mammoth Cave was its headline attraction. It toured for a decade starting in 1848, expanding from regional cities, such as Louisville and Cincinnati, to eastern and southern tours before starting a European run in 1851 (Arrington 1965a, b). Demand was so great that a second copy of the panorama was made to continue the American tour. The copy showed in Boston for ten months and was viewed by an estimated 300,000 people (Arrington 1965b, 163). An immensely popular mid-nineteenth century entertainment, panoramas stimulated American's desire to see Mammoth Cave while conditioning them to be passive consumers of landscape. Those who attended the panorama silently viewed scenes selected, arranged, and explained for them, armchair explorers consuming pre-packaged images. The panorama instilled in viewers a set of expectations easily validated by an actual tour of Mammoth Cave that traversed the same views. The ease of consumption of the tourism product and the validation of expectations played to basic motivations

for travel, factors that helped make Mammoth Cave a popular destination (Jakle 1985, 7, 17, 39).

If the American public was shown how to tour Mammoth Cave by Brewer's panorama, celebrities who toured the cave acted as role models in actually doing so. Two mid-century visitors, Norwegian violinist Ole Bull and Swedish soprano Jenny Lind, both veritable nineteenth-century pop stars, drew attention to the cave, and through the incorporation of their visits into the landscape and lore of Mammoth Cave, added to the attractions purveyed to latter tourists. Although Bull was beloved in his native Norway for his promotion of Norwegian arts and culture, his popularity in the United States hinged upon his composition and performance of "native program music," songs such as "Niagara" and "Prairie Solitude" that appealed to American nationalism through their aural portrayal of distinctive American places (Bode 1959, 32). Bull visited Mammoth Cave during his first concert tour of the United States from 1843 to 1845. His visit was commemorated by renaming the chamber where he reputedly played "Ole Bull's Concert-Room" (Anonymous 1872, 630). Jenny Lind visited in 1851 towards the end of the wildly successful concert tour managed by P. T. Barnum (Bode 1959, 32–6). Lind, a forerunner of the modern pop icon, was mobbed by crowds of 30,000–40,000 upon her arrival in America, and tickets to her show were auctioned for as much as \$250 (Bode 1959, 32–6; Broadhead 1993, 52). Lind is reputed to have sung in the cave while seated on the formation known as "Wilkin's armchair" after an early owner of the cave, but which was renamed in her honor "Jenny Lind's armchair." The re-inscribing of the cave

landscape to reflect her visit indicates a continuing concern with enhancing the cave's appeal by connecting it to popular culture, and her performance, whether it occurred or not, became part of cave lore and worked its way into later tourist accounts of the cave (e.g., Horace 1851; Procter 1898, 647).

By the mid-nineteenth century, Mammoth Cave had achieved a currency within popular culture that led to its being referenced in a variety of ways. A growing body of popular magazine articles and guide books formed the largest and most accessible part of this body of reference, but other representations suggest that Mammoth Cave was ingrained in contemporary popular culture. In 1850, publisher Peters & Webb of Louisville, Kentucky, printed sheet music for the "Mammoth Cave Waltz" composed by J. C. Cook for piano. Piano playing was becoming a favorite activity of middle class society, and piano manufacture surged during the mid-nineteenth century, with the number of instruments increasing from one per 4,800 people in the United States in 1829 to one per 1,500 in 1860 (Loesser, in Bode 1959, 20). Sheet music sales propelled Stephen Foster to fame, waxing nostalgic in 1852 about "My Old Kentucky Home." Sales figures for the "Mammoth Cave Waltz" are unavailable, but Peters & Webb was a highly successful business that manufactured and marketed pianos as well as sheet music. The Louisville business spawned "a veritable dynasty of music publishing in Cincinnati, St. Louis, and New York" (Korda, n.d.). Other types of references to Mammoth Cave support the idea that it was well known. Now in the printed ephemera collection of the Library

of Congress, a program printed in New York for an evening's farcical entertainment on 13 July 1863 bears the title "Mammoth 'Cave!'", where "cave" is likely a pun on the Latin for "beware." Notices of newly discovered caves in Alabama, Indiana, Missouri, and Tennessee invariably compare them in size to Mammoth, seemingly the benchmark for large caves (Anonymous 1846; Anonymous 1848; Anonymous 1850; Anonymous 1857; Anonymous 1859).

In addition to representations in literature and art, the place of Mammoth Cave in nineteenth century popular culture was tied to a growing interest in science. At the start of the century, science was largely the domain of educated, upper-class amateurs who professed the Victorian penchant for natural history. Rhoda Hite King, reminiscing about an antebellum visit to Mammoth Cave, exemplifies this enthusiasm—"This summer I had a 'hobby' as most idle women have. It was geology . . . Such jaunts as I had, such specimens collected! . . . In time, my little rooms became a perfect 'curiosity-shop' of shells, pebbles, mosses, ferns, and all kinds of stones, to the disgust of my tidy chamber-maid" (King 1874, 434). As the century progressed, science both popularized, gaining favor among the expanding, now better educated middle class, and professionalized through the formation of separate academic disciplines and professional societies. Mammoth Cave became a field site for professional archeologists, biologists, and geologists, and both mass market literary magazines and popular science journals carried reports of their research. Between 1845 and 1869, twenty-five separate items in *Scientific American* refer

to Mammoth Cave. Four discuss scientific topics such as air currents in the cave, cave fauna, or the psychological effects of extended periods in the dark on humans. Three items discuss the depth of Mammoth Cave's "Bottomless Pit." Nine deal broadly with chemicals or minerals and their properties and mention Mammoth Cave, among other places, as a source for a particular resource. The rest contain passing references to Mammoth Cave which, while inconsequential individually, cumulatively support the notion that the cave was part of a mid-century frame of reference. At the conclusion of the 1871 and 1882 meetings of the American Association for the Advancement of Science, held in Indianapolis and Cincinnati, respectively, attendees traveled to Mammoth Cave, and detailed accounts of the groups' field explorations were subsequently published in *American Naturalist* and *Science* (Packard 1871; Stevens 1882). Among other topics, the report of the 1871 expedition shows geologists grappling with competing theories, amassing evidence to reject the catastrophic theory of cave formation in favor of a gradualist, uniformitarian viewpoint. Professional scientists' interest in Mammoth Cave translated to greater public exposure to information about it, as when Kentucky State Geologist John R. Procter wrote a broadly accessible article about Mammoth Cave for *The Century Magazine* (Procter 1898). Although primarily descriptive, the article also discussed the relationship between landforms and stratigraphy, processes of cave formation, and how mineral crystals create the illusion of the Star Chamber. Popular science accounts reinforced literary images of the cave to associate a sense of

discovery with Mammoth Cave in the public imagination.

MASS TOURISM

Literary, artistic, and scientific representations contributed to the currency of Mammoth Cave in mid-nineteenth century popular culture. Exposure to images of Mammoth Cave stimulated tourists' desire to be transported to the exotic underworld realm, and an emerging national transportation infrastructure made it increasingly possible for them to be so. Industrialization, increased leisure time, and a desire to leave the crowded, dirty city, at least for a while, prompted growing numbers to make the trip to rural Kentucky. Developments in transportation technology that made Mammoth Cave more accessible transformed it from natural curiosity to mass tourist destination, the third era of place-making. It morphed from a destination for the relatively privileged few to a place routinely visited by the growing ranks of the middle and working classes.

In the decades leading up to the Civil War, stagecoach lines crisscrossed the South in an extensive network, but stage travel was neither easy, quick, nor cheap. The 180-mile journey between Louisville and Nashville took 33 hours and cost \$12 (Slaughter 1894, 10). Six miles per hour was a typical speed on roads of average condition. On the southward journey, the stage left Louisville's Galt House at 5 am, stopped at either the Eagle Tavern or Hill House in Elizabethtown for the noontime meal, and reached Bell's Tavern at Three Forks, the changing point for travelers bound for Mammoth Cave by 9 pm (Cole-

man 1936, 190). The completion of the Louisville and Nashville railroad in 1859, with stops in Glasgow Junction and Cave City for Mammoth Cave, shortened the journey to three to four hours, with stages covering the last nine miles to the cave. Although the Civil War caused a temporary hiatus in travel and some destruction of tracks and bridges and appropriation of rolling stock, the rail line thrived in the decades after the war.

From the start, the L&N railroad had a strong interest in promoting cave tourism to boost ridership. The railroad and Mammoth Cave management entered a series of joint advertising agreements and eventually offered package tours that included round-trip transportation, overnight accommodation at the cave hotel, and one or more cave tours. The Passenger Department of the L&N Railroad worked in concert with Mammoth Cave to promote an early form of package tour. From the 1880s through 1910, organized excursions from major southern cities provided round-trip train fare, connecting transportation to the cave, an optional stay in the Mammoth Cave Hotel, and a cave tour. The size of tour groups ranged from ten to several hundred on these discount tour packages.

Mass tourism created business opportunities for local entrepreneurs to provide facilities, services, and supplementary tourist experiences. Hotels sprang up near the Cave City and Glasgow Junction depots. Increasing numbers of commercial caves offered tours, claiming features to rival Mammoth. Diamond Caverns, the second-oldest central Kentucky "show cave," opened in 1859. By the end of the next decade, tourists could view five other area caves, Hidden River, Proctor, In-

dian, Hundred Domes, and Grand Avenue (Sides 1971). Dozens of other commercial cave ventures opened and failed in the late-nineteenth and early-twentieth centuries. Local explorers searched avidly for new entrances to Mammoth Cave and new caves that promised to turn second-rate farmland into a tourist gold mine. Where cave access did not naturally exist, it was sometimes created. Between 1915 and 1921, oilman George Morrison explored the subsurface geology and opened two entrances to Mammoth Cave with dynamite before finally creating an entrance through which he controlled legal access to a portion of Mammoth Cave (MCNP, n.d.). His enterprise went by the name of "New Entrance to Mammoth Cave," a name that infuriated trustees of the Mammoth Cave estate, who sued for trademark infringement. Although the new name was speleologically correct, the trustees argued that they had gone to a great deal of expense and effort to develop and market the name Mammoth Cave. These competing claims to authenticity of place were eventually settled in court with Solomonic result. Morrison could continue to use the name "New Entrance to Mammoth Cave", but had to annotate his advertising to indicate that he did not show any portion of the cave known before 1907 as Mammoth Cave.

Touring by automobile, a hobby of the wealthy at the start of the twentieth century, quickly became a past time of the middle class, ushering in the era of the tin can tourist and the roadside auto camp. Mammoth Cave benefited from being close to the Dixie Highway, one of the early trans-national routes to come out of the Good Roads campaign. This improved surface road became a major tourist route be-

tween northern Michigan and southern Florida. The automobile freed tourists from prescribed transportation routes in ways that realigned commercial development within the cave region, pulling businesses away from the depot to the highway and opening possibilities for cave development away from the rail lines. Operators of show caves competed intensely for tourists, leading to a host of deceptive practices and cave vandalism. Caves off the main tourist route sometimes used trickery to divert travelers bound for Mammoth Cave. Unscrupulous cave operators removed competitors' signs and employed "cappers," men who wore police-like uniforms to redirect cars with official looking signs and an authoritative bearing (Halliday 1998, 9). The cave wars reached a zenith with the unauthorized entry and outright destruction of some of the cave formations that attracted tourists.

NATIONALIZATION

The movement to create the national park that marked the fourth era of placemaking at Mammoth Cave was founded on a mix of strategic economic development, boosterism, sectional pride, and conservation. The L&N railroad, perhaps hoping to duplicate successful relationships that had developed between western rail lines and national parks, anticipated and promoted the park. Even before the idea of the national park was widely discussed, the L&N had amassed large land holdings in cave country. In 1898, the railroad established a wholly owned subsidiary named the Colossal Cavern Company that acquired 3,400 acres of land and cave rights that were eventually donated to the national park (Goode 1986, 19, 83). Railroad offi-

cial played prominent roles in galvanizing local businessmen and civic leaders to form the Mammoth Cave National Park Association, the non-governmental organization charged with raising funds to purchase land for donation to the federal government. Promotional literature published by that group touted the park as an engine of future economic growth. Federal investment in infrastructure and federal management were expected to raise the standard of tourist facilities at the cave, which, combined with the cache of the national park designation, were expected to draw "an immense throng of tourist from every section of our land" so that "every type of business in Kentucky, every individual, every industry will be directly and profitably affected by the great influx" (MCNPA, n.d., 5, 20).

The destruction that accompanied the cave wars and the mining of stalactites, cave crystals, and other underground keepsakes for sale to tourists provided a conservation rationale for nationalizing the cave system. Federal ownership would eliminate the petty bickering and economic struggles among cave operators that threatened to destroy the underground landscape. Mammoth Cave was authorized as a national park in 1926 along with the Great Smokies and Shenandoah. As the first national parks in the southeastern U.S., these sites had been the focus of intense lobbying, promotion, and political deal making, and were a source of regional pride. Yet, nationalization of the Mammoth Cave region also created conflict over property ownership. Although some landholders in the designated park area were willing sellers, others were not, and condemnation proceedings were used against them, including the Mammoth



Figure 4. Manufactured attractions vie for attention with the natural landscape along crowded Highway 70 leading from Cave City to Mammoth Cave National Park. Photo by the author.

Cave Estate. By the time the park was granted full national park status in July 1941, over 2,000 people had been displaced (Murray and Brucker 1979, 238).

Far from halting human impact on the landscape or preserving a vast tract of pristine nature, the creation of Mammoth Cave National Park continued the relationship between landscape modification and economic development, both inside and immediately adjacent to the park. The national park area was set aside from routine use and development in order to preserve the underground cave system, but park management practices modified settlement patterns, vegetation cover, wildlife populations, and economic activities in and around the park. In keeping with national park policy, most traces of settlements were removed, and the land allowed to reforest. Tourism development,

limited to national park concessionaires within the park, mushroomed along Highway 70 linking Cave City to the park, and that stretch of road became the epitome of a tourist trap, with souvenir geode stands sandwiched between the go cart rides at Kentucky Action Park and the Haunted House at Guntown Mountain (Fig. 4).

ENVIRONMENTAL CYNOSURE

In recent years, Mammoth Cave National Park has become a focal point of environmental concern for development taking place outside the park (Fig. 5). The UNESCO World Heritage and International Biosphere Reserve designations, awarded in 1981 and 1990, respectively, acknowledge natural and cultural landscapes unique enough to be considered part of global patrimony. No longer is it

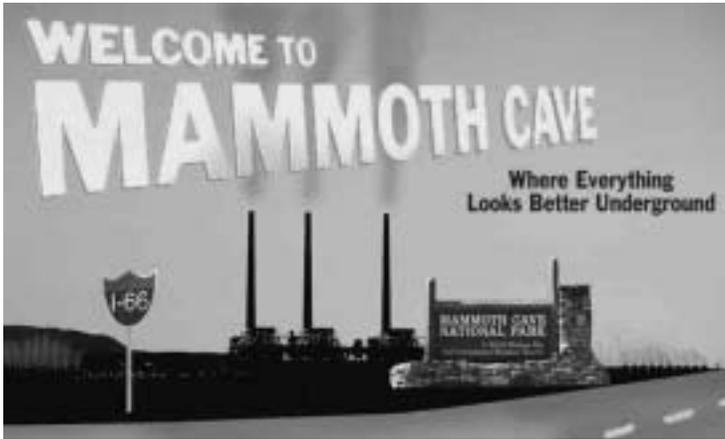


Figure 5. Composite image created by Lane Boldman for the Kentucky Chapter of the Sierra Club to illustrate environmental threats to Mammoth Cave. Featured are planned industrial development in the Kentucky Transpark, Interstate 66, and smoke stacks of a planned coal-powered electric plant. Used by permission.

deemed sufficient, however, to protect the designated park area, and nearby proposed developments are scrutinized for potential negative impacts on the park environment. This linking of park preservation with a region beyond the park boundaries marks the fifth stage of place-making at Mammoth Cave, one that explicitly recognizes ecosystem connections at a larger scale. It is a reflection of the most recent “environmental turn” in the United States, which started in the late 1960s, when issues of air and water pollution and limits to natural resources came to the fore of public consciousness, resulting in lobbying for changes in environmental policy and passage of significant pollution controls.

Three developments, in particular, have generated concern among park advocates and have highlighted tradeoffs between economic development and long-term park preservation. The Kentucky Transpark is a proposed 4,000 acre indus-

trial park located 8 miles south of Mammoth Cave that is intended to be a hub of truck, rail, and air transport. Much local community opposition to the industrial park centered around the potential for groundwater pollution from industry and transportation to impact the delicate underground ecosystem of Mammoth Cave and the endangered species that live there. As of January 2004, with one automotive parts fabricator slated to break ground in the near future, the industrial park is proceeding, but remains contested terrain with outstanding legal challenges.

Interstate 66 is a proposed east-west highway crossing Kentucky that, in the Mammoth Cave area, would connect the Cumberland and Natcher parkways. Alternative routes are currently under evaluation, with one proposed route crossing the sinkhole plain south of the park, where chemical spills could easily enter the cave system. The possibility of this kind of acci-

dent was demonstrated in August 2001, when a tanker truck overturned on a section of I-65 near Mammoth Cave, spilling almost 3,800 gallons of diesel fuel. According to Mammoth Cave spokesman Jim Carroll, quoted in an article titled "Karst hurdle in spill on I-65: Topography at the least may prolong diesel cleanup effort" in the 31 August 2001 issue of the *Bowling Green Daily News*, the fuel "immediately disappeared into a crevice and went underground," hampering cleanup efforts. While the I-66 project has met no formal opposition, the route selection process is being closely watched.

Fifty miles away, in Muhlenberg County, a 1,500-megawatt coal-fired power plant is in the planning stages. The Thoroughbred Generating Station, to be run by the Peabody Energy Corporation, would be the largest power plant built in the state in over two decades. Its opponents point out that air quality at Mammoth Cave is already among the worst experienced by any national park, with levels of haze and acid rain that rival those of the Great Smoky Mountains National Park. Upwind of Mammoth Cave, the plant's emissions could further reduce visibility in the national park and, by increasing acid rain and adding mercury and other hazardous pollutants to the environment, negatively impact endangered species in the park. As of December 2003, this project is also proceeding, with construction approval granted by the Kentucky State Board on Electric Generation and Transmission Siting over legal objections raised by the Sierra Club.

Protecting Mammoth Cave originally entailed setting aside the land that became Mammoth Cave National Park. Since

the park's creation, however, new understandings of ecosystem dynamics show that protection to be partial and contingent. At the start of the twenty-first century, many park proponents believe that protecting Mammoth Cave and the things it stands for may now require limits to development in areas outside the designated national park boundary. Mammoth Cave has come to be viewed as the proverbial canary in the mine whose health signals larger environmental conditions. It is not merely a site worth preserving, but an emblem of the environmental future, for if a site that has been declared unique and precious by the federal government and two international bodies cannot be adequately protected, what hope is there for the rest of our land?

SUMMARY

Five distinct eras of place-making at Mammoth Cave wrought successive transformations upon the cultural landscape of the surrounding region and re-worked the cave's symbolic meaning within American culture. During a brief period of resource extraction, Mammoth Cave was the source of a valuable wartime commodity, saltpeter, which helped secure the borders of the young nation and perhaps its continued existence. Americans have more typically viewed Mammoth Cave not as a source, but as a destination. Although tourism through the mid-nineteenth century was small-scale and largely the provenance of the elite, it positioned Mammoth Cave as a place of symbolic import, paradoxically a secular enterprise that offered a chance to glimpse the sacred via the beauty of nature. Along with other awe-

inspiring sights of grand proportions, such as Niagara Falls, Mammoth Cave became an icon of America's claim to eminence, that economic, political, and cultural distinction flowed, in some measure, from a Divinely imparted patrimony evident in the natural landscape. Travel accounts in the emerging national press and the moving panorama, a popular mid-nineteenth century entertainment, fixed Mammoth Cave as a tourist destination in the popular imagination, so that when transportation developments allowed, Mammoth Cave became a mass tourist destination. The democratization of tourism led to a burgeoning landscape of show caves, hotels, tacky souvenir stands, and sideshow entertainments, and to the despoiling of the underground environment. Nationalization of the cave area offered protection from souvenir hunters and destructive competition, but pushed most commercial development outside the park borders and re-natured lands within the park to minimize traces of earlier settlements. As a national park, Mammoth Cave remained an emblem of national distinctiveness, but one within a landscape managed to match conceptions of wilderness. Currently, Mammoth Cave acts as a bellwether for environmental concerns. Air and water pollution from sources outside the park threaten Mammoth Cave's endangered species, making the park a cynosure for scientists modeling complex environmental relationships. Over the course of two centuries, the changing demands and expectations of larger society, along with the agency of those who live, work, and play in the cave's vicinity, have helped inscribe new meanings, contributing to the "making" of Mammoth Cave.

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NOTE

1. The crossroads settlement of Three Forks changed its name to Glasgow Junction in 1863 after the construction of a spur rail line to Glasgow from the Louisville and Nashville trunk. In 1938, the community changed its name again, to Park City. This essay uses each of the three names in appropriate historical context.

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