

RAMSEY COUNTY
History
A Publication of the Ramsey County Historical Society

Winter, 1995

Volume 29, Number 4

The Boys from
the Adams
School

Page 16

*St. Paul Underground—
What Happened to Fountain Cave?—Page 4*



Fountain Cave, pencil and watercolor by unknown artist, about 1850. This is the oldest known graphic depiction of a Minnesota cave. Much of the story of Fountain Cave could have been reconstructed merely from the names inscribed on its walls. Interspersed with the graffiti are the arm-length nesting holes dug by swallows. The natural ledge in the cave wall allowed explorers to stay above the water. Is the squared timber, seen straddling Fountain Creek in the foreground, a remnant of one of the cabins destroyed in 1840 by soldiers from Fort Snelling? Minnesota Historical Society photo.

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A Message from the Editorial Board

This issue of *Ramsey County History* celebrates the memory of Reuel D. Harmon, a supporter of history in Ramsey County. He had long encouraged the Editorial Board to publish something on St. Paul's caves and tunnels. Our lead article here explores Fountain Cave's history. Written by geologist Greg Brick, the article includes research never previously published and is the first in a projected series on "St. Paul Underground". The issue also contains Reuel Harmon's memoir of growing up in St. Paul and a brief history of his grandfather's house in our "Historic Sites" feature. Reuel Harmon made no secret of his abiding interest in history. This issue is a way of expressing our gratitude for his support and encouragement of the practice of history.

John M. Lindley,
chairman, Editorial Board

St. Paul Underground—

What Happened to Fountain Cave—the Real Birth p

Greg Brick

On July 16, 1817, on his way up the Mississippi from Prairie du Chien to reconnoiter the Falls of St. Anthony, and again the following day on his way back down, Major Stephen H. Long, of the newly created United States Corps of Topographical Engineers, disembarked from his “six-oared skiff” in what is now St. Paul to explore something which perhaps local Dakota bands had told him about.

A few miles below the confluence of the St. Peter’s and Mississippi rivers there was a gap in the bluffs where a small creek added its mite to the great “Father of Waters.” Imagine Long’s party following this creek for more than a hundred yards as it threaded its way up a narrow ravine clothed with bluebells and columbine. At the head of the ravine, they found themselves in an amphitheater of sugar-white sandstone whose walls, forty feet high, formed three-fourths of a circle around them, making it seem as though they were standing at the bottom of a hole. Swallows darted from innumerable niches in the cliffs. The creek issued from a Gothic cave entrance sixteen feet high and about as many feet wide.

They passed through the entrance into a large winding hall about 150 feet long. The sharp drop in temperature came as a shock on this hot summer day. At the far end of the room they crawled through a narrow passage that opened into a most beautiful circular room about fifty feet in diameter, where their candles must have cast flickering phantoms on the walls.

“The lonesome dark retreat,” Long later wrote, was cheered by the “enlivening murmurs” of the “chrysal stream.” Wading in icy cold water up to their knees, they continued along the meandering passage, encountering more rooms of a circular form and penetrating about two hundred yards before their candles went out. They halted, and began to grope their way back in absolute darkness. The U. S. Army, in the persons of Major Long and

This is the first attempt at a comprehensive study of Fountain Cave. Considering the historical significance of the cave, a synthesis of the widely scattered primary source materials has been long overdue. When the author began his research several years ago, not a single map of the cave was known to exist. Thanks to the staff and resources of the St. Paul Public Works Department, that gap was bridged. The author also would like to thank Alan R. Woolworth, archeologist for the Minnesota Historical Society.

Ramsey County History would like to hear from readers who have memories of any of St. Paul’s caves.

his men, had just discovered what was thereupon named, “the Fountain Cave.”¹

“Both at the lower and upper border of Saint Paul there are caves,” wrote Edward Duffield Neill, St. Paul clergyman, historian, and future secretary to Abraham Lincoln, in the January, 1855, issue of *Graham’s Magazine*. The lower cave, or Carver’s Cave, owing to its ceremonial associations, has always occupied the limelight to the exclusion of the upper cave, or Fountain Cave, even though the latter is called the birthplace of St. Paul. But the author of the present article shares the opinion of Long that Fountain Cave is “far more curious & interesting” than Carver’s Cave. And so, with the title of Charles T. Burnley’s 1913 Carver’s Cave article in mind, perhaps what we re-

ally should have been asking is, “What Happened to Fountain Cave?”

Landscape painter Henry Lewis, in his discussion of Fountain Cave in *The Valley of the Mississippi Illustrated*, published in 1854, wrote that the stretch of river bluffs in which the cave was situated was called “The Cornice Cliffs.” This architectural expression aptly summarizes some local geology. The walls of the river gorge are formed by soft St. Peter Sandstone, and capping them is a resistant cornice of Platteville Limestone. They represent beach and floor, respectively, of inland seas dated to Middle Ordovician times, over 450 million years ago.

Strictly speaking, it is paradoxical to describe the St. Peter Sandstone as “soft” because its constituent grains are composed of quartz, the hardest common mineral. It is soft only in the sense that it lacks natural cements between the hard grains, so that it crumbles in the hand. It is thus also easily eroded by flowing water, giving rise to caves. But while these rocks are old, the caves in them are much younger.

Fountain Cave dates to the waning of the last Ice Age. The melting ice lobes to the north formed Glacial Lake Agassiz, and spillover from this lake formed Glacial River Warren, an ancestor of the Mississippi. A waterfall on this glacial river, said to have been the size of Niagara Falls, eroded headward from downtown St. Paul, carving the present gorge. Migrating past the site of the future cave, it exposed the St. Peter Sandstone. The sandstone aquifer was thus “uncorked,” and water contained therein was free to drain laterally to the new gorge along pre-existing joints. The flowing water erosively enlarged the joints into a cave, a process called piping². Radiocarbon dates constraining the age of the glacial river suggest that the cave may be 10,000

h place of St. Paul?

years old. The cave entrance, originally located at the river, subsequently receded into the bluffs by periodic ceiling collapse, creating the serpentine ravine through which Fountain Creek flowed in historical times.

The name "Fountain" connotes "spring," and judging by the volume of Fountain Creek as seen in old photographs, it must have been the largest spring in St. Paul (except perhaps for the Fish Hatchery springs below Dayton's Bluff). The cave water had a year-round temperature of 46 degrees Fahrenheit, which is the expected temperature for groundwater at this latitude.

Other explorers soon followed Long. In 1820, by the terms of Colonel Henry Leavenworth's treaty with local Dakota bands, Fountain Cave became one of the boundary markers for the new Fort Snelling military reservation. Leavenworth was soon joined by a party of U. S. soldiers who had just completed the first known overland traverse by white men of what is now the state of Iowa. Captain Stephen Watts Kearny, for whom Fort Kearny, Nebraska, was later named, had accompanied this trek, and kept a journal that was published in 1908. Leaving Fort Snelling, returning down the Mississippi on a flatboat, Kearny stopped at Fountain Cave on July 29, 1820. He penetrated an estimated 400 yards, twice Long's distance, noting that in some places the water was so deep that he could not touch bottom.

Henry Rowe Schoolcraft visited Fountain Cave less than a week later, on August 2, 1820, recording his observations in the *Narrative Journal of Travels*, published in 1821. Mistakenly assuming that he had found Carver's Cave, Schoolcraft was understandably puzzled by the cave description given in Carver's *Travels*. He concluded that Carver's Cave had



"A delightful retreat." Fountain Cave in its golden age, ca. 1870. This photo, looking out from the entrance, gives a good idea of the amphitheater of white sandstone so often described by visitors. Note figure for scale. Minnesota Historical Society photo.

undergone a metamorphosis since Carver last had seen it.

Schoolcraft was at this time mineralogist for Governor Lewis Cass's expedition to the headwaters of the Mississippi. He reported that Fountain Cave "affords no stalactites, or spars. Some parts of the rock at the mouth are coloured green, probably by the carbonate of copper." He noted that the cave contained "small pebbles of so intensely black a colour as to create a pleasing contrast [with the white sand], when viewed through the medium of a clear stream. These, on examination, proved to be masses of limestone, granite, and quartz, coloured . . . from the gallic acid, with which the water, percolating into the cavern, through the beds of oak leaves of the superincumbent forest, may be partially saturated." This signaled the existence of an upstream entrance to

the cave somewhere.

Even though Fountain Cave was located at this time in a supposedly howling wilderness, Schoolcraft was able to comment on "the number of names found upon the walls." Nothing loath, he and Governor Cass added their own, where they were seen by Henry Lewis a generation later.

On July 5, 1831, in a belated celebration of Independence Day, Joseph R. Brown and others brought a cannon down from Fort Snelling and discharged it from within the mouth of Fountain Cave, nearly collapsing the arch. They explored the cave "for a distance of nearly one mile, when they reached a precipitous water fall. Here their candle burnt out." They had another, but no means of lighting it. "After long retrogression," the anonymous writer continued, they re-

gained "the light of the sun."³ Minnehaha Falls originally was known as Brown's Falls, after this same man, who had first seen a waterfall in Fountain Cave.

George William Featherstonhaugh, the first person to bear the title "United States Geologist," visited Fountain Cave on September 12, 1835, but he also mistook it for Carver's. Featherstonhaugh was an Englishman who wrote of America in much the same fashion as his contemporary, Charles Dickens. Featherstonhaugh's *Canoe Voyage up the Minnaw Sotor*, which described the visit, was published in 1847, a few years after Dickens's *American Notes*. Featherstonhaugh was the only visitor to report having seen Indian "hieroglyphics" at Fountain Cave.

Joseph N. Nicollet, the early cartographer of Minnesota, visited Fountain Cave in 1837. It is marked "New Cave" on his famous 1843 map, *Hydrographic Basin of the Upper Mississippi River*. In the report which accompanied the map, he stated that "The cave now referred to is of recent formation. The aged Sioux say that it did not exist formerly." This went beyond the statement of Long in 1817 that "the Indians formerly living in its neighbourhood knew nothing of it till within six years past." In turn, the idea of recent formation influenced the Native American name for Fountain Cave, "the new stone house," recorded by James Duane Doty in the official journal of Cass's expedition, not published until 1895. Perhaps Nicollet's name for the cave was nothing more than an abbreviated form of the aboriginal designation.

It is more likely that Fountain Cave was not new at this time, but merely newly reopened. The cave entrance had been concealed by collapse-debris, it may be conjectured, and was flushed open again by Fountain Creek in 1811. As noted above, the cave is now thought to be much older.

But Nicollet was right on the mark when he described *how* the cave had formed. The peculiar geology of the Fountain Cave site is nowhere better described than in the following extract from his posthumous papers, which was included in Schoolcraft's massive volumes on the Indian tribes of the United States:

"On descending the Mississippi to arrive at this cave, it will be observed that the calcareous beds [Platteville Limestone] which rest upon the free-stone [St. Peter Sandstone] . . . gradually diminish in thickness, showing themselves only in fragments, and then totally disappearing. Above the vault of the cave there are no longer any traces of the calcareous formation, and there is seen only deposits of sand and of pebbles."

Nicollet's 1843 report tied these observations to genesis. Fountain Cave "owes its formation to the dislocation and decomposition of the upland limestone, which have left sloughy places; the waters of which have penetrated into the sandstone, wearing it away."

Fountain Cave began to inspire legends. When the missionary Peter Garrioch explored it on November 16, 1837, he recorded in his diary a story he had heard of how "a soldier and two Indians formerly penetrated so far into this cave that they were never heard of any more." It was something that Garrioch himself could relate to. While deep in the cave his torch had gone out in the best Fountain Cave tradition, and it was with some anxiety that he effected his escape from "the gloomy and direful abode of spectres, hobgoblins, and other sweet and tender creatures of fancy."⁴

So by the time Pierre "Pig's Eye" Parrant arrived on the scene, also in 1837, Fountain Cave already had a respectable bibliography. The 1837 treaty with the Ojibway having opened for settlement the triangle of land between the St. Croix and Mississippi rivers, Parrant staked a claim at this cave because it was the nearest point to Fort Snelling that was not on the military reservation and shortened the distance for the soldiers to whom he sold whiskey. There was also a river-crossing to the fur-trading post at Mendota.

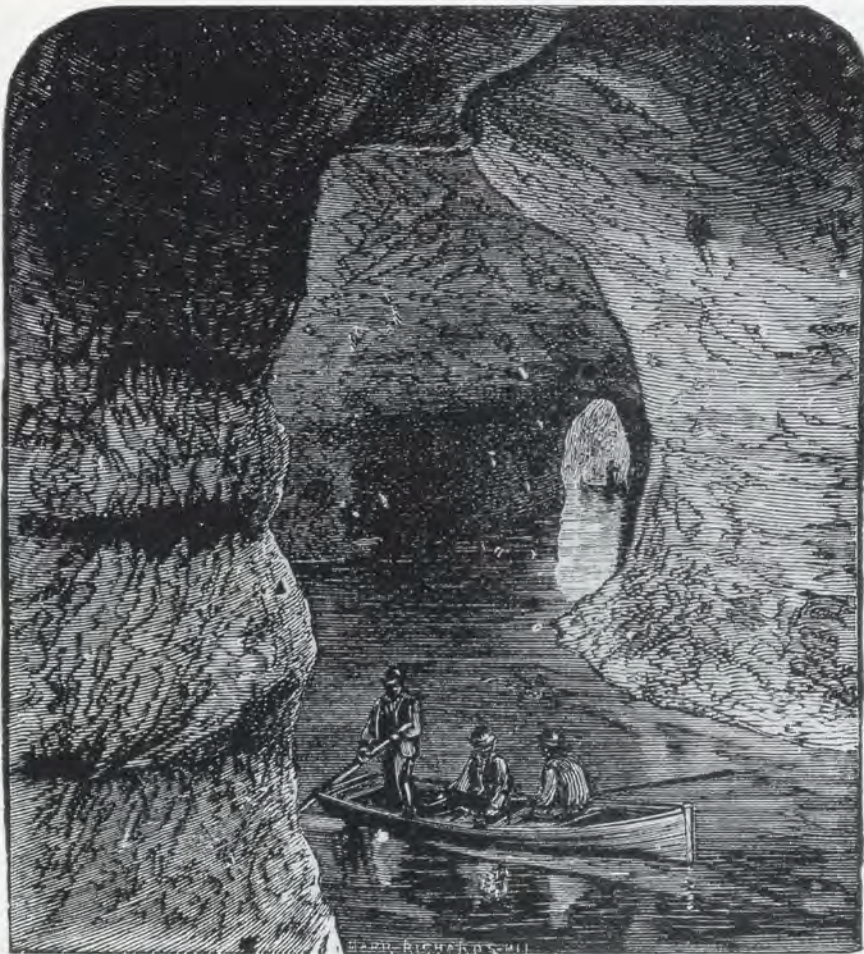
Parrant was a French Canadian voyageur who attempted sedentary habits in his old age, but he did not actually live in Fountain Cave. On the contrary, much of his historical significance rests in the fact that he erected a log cabin, one of the first buildings on the site of what is now St. Paul, on June 1, 1838. Described as a saloon, it was sited at the mouth of the secluded gorge so that it could be seen by

potential customers. Some squatters at Camp Coldwater (now the largest spring in Minneapolis) moved downriver to join Parrant, and cabins began to sprout like mushrooms at the cave.

Parrant soon lost his claim through a mortgage foreclosure and from this transaction we learn that the cave was worth ninety dollars. The other settlers were evicted in 1840 when the Fort Snelling military reservation was resurveyed and expanded. The Fountain Cave area became "Government Lot No.4."

The *St. Paul Dispatch* for February 16, 1921, reported that Prohibition agents found a copper still in Fountain Cave and Parrant was cited as the originator of such activities. Poor old Parrant couldn't win; historian John Fletcher Williams had taken him to task for diluting his fire-water, now he was accused of concentrating it!

The years from 1850 to 1880 were a golden age for Fountain Cave. It had become fashionable. *The Minnesota Pioneer* for July 11, 1850, referred to "the explorations of that cave now daily made," and indicated that the use of Long's name for the cave had begun to stick. *The St. Anthony Express* for July 5, 1851, described one of the rooms in the cave as being "more beautiful than could be made with all the wealth of Astor." *The Minnesota Democrat* for June 16, 1852, boasted that this cave was "one of the greatest curiosities and wonders of the West. It is one of the most beautiful spots in this beautiful Territory." *The Minnesotian* for June 19, 1852, stated that "The new retreat at the cave above town, will be opened for visitors in a few days." A week later the same newspaper reported that "Ice cream and other nice delicacies in the way of confectionery, can now be had at 'The Cave'." It seems that Governor Ramsey himself went spelunking there in the following year, as related in Elizabeth Ellet's *Summer Rambles in the West*, published in 1853. "A rustic pavilion stands in the woods," she wrote, "where lights can be procured to enter the cave." A footbridge over the ravine also had been constructed. She compared Fountain Cave, which she called "Spring Cave," to "a marble temple," and its stream to "a shower of dia-



FOUNTAIN CAVE, ST. PAUL, MINN.

An engraving of Fountain Cave from William H. Dunne's travel guide, *The Picturesque St. Croix* (1881). This view shows the long, sinuous entrance chamber, looking back toward the entrance. The artist has taken liberties in depicting boats, because Fountain Creek was not navigable. Note joint in ceiling. Minnesota Historical Society photo.

monds." A letter to the *Congregationalist* of Boston for September 19, 1856, described a visit to the cave and mentioned "the torch of birch-bark which your guide manufactures for the occasion."

These references are significant because they indicate how near Fountain Cave came to becoming the first commercial cave in the state, an important distinction among cave historians. If someday evidence were found that someone had paid to enter the cave, Fountain could claim that distinction from Chute's Cave in Minneapolis, where from 1875 to 1883 "a grim, Charon-like individual" gave torchlight boat tours "for the small consideration of a dime."⁵

The oldest known graphic depiction of a Minnesota cave is a pencil and water-

color of Fountain Cave, looking into the entrance, by an unknown artist, about 1850. Adolph Hoeffler, the German landscape artist, soon responded with the first view looking out, a small woodcut in his "Sketches on the Upper Mississippi," published in *Harper's New Monthly Magazine* in July, 1853.

In 1855, a promotional tract, *The Minnesota Messenger*, by A. D. Munson, gave the most detailed description of Fountain Cave ever published. Munson established that the cave was an unbranched tube, wholly in white, or St. Peter, sandstone, as it had just been named by geologist David Dale Owen. Apart from widenings of the passage, called rooms, most passage was crawlway. By Munson's count there were four

rooms, successively decreasing in size upstream, of which he gave the dimensions. His first two rooms comprised the "large winding hall" found by Long. The third room back was the only named feature in the cave, being called Cascade Parlor because it contained a waterfall two feet high; he suggested planking over a segment of stream to make it more accessible to visitors. He did not go beyond the fourth room, having penetrated an estimated distance of sixty rods (990 feet), but he wrote that he could hear a second waterfall in the distance.

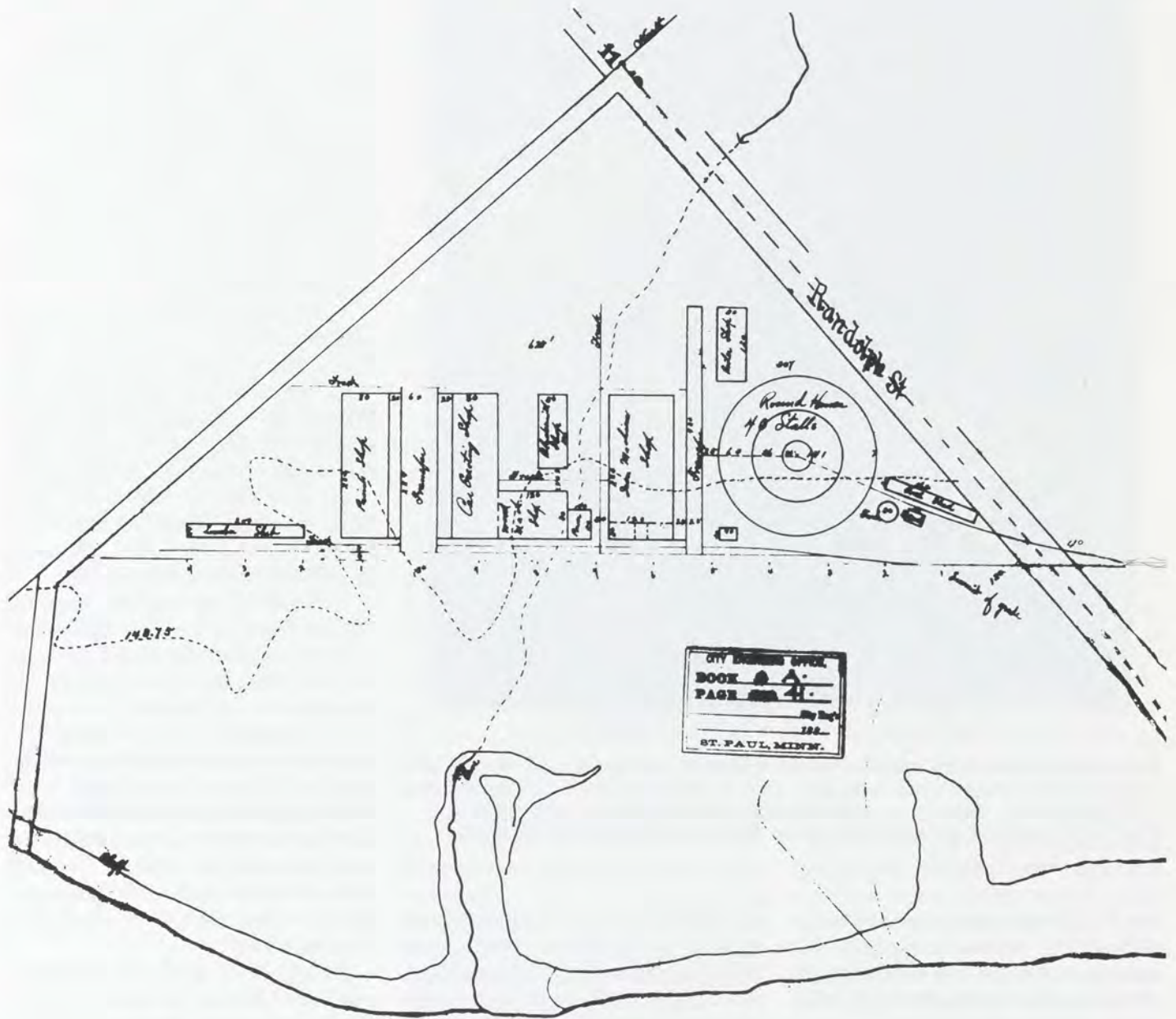
The passage in Fountain Cave had a keyhole cross-section resulting from ledges that projected from either wall. These natural shelves were described by Munson and are visible in drawings and photographs. They proved useful where the passage was narrow, allowing an explorer to straddle the cold stream. Alas, Munson himself slipped and received an icy bath, by which point the companions he had brought along deserted him.

It is amusing to note that when the Munson narrative was later reprinted on the reverse side of stereoscope cards, the part describing his sufferings in the upstream reaches of Fountain Cave was discreetly omitted. Henry Lewis said it all when he observed that as the cave diminished in size, the water deepened.

Note that similar exploratory narratives for Carver's Cave do not exist, because the latter had only one accessible room. From a spelunker's perspective, Carver's Cave can't hold a candle to Fountain Cave.

Johann Georg Kohl, the immensely productive German geographer, visited Fountain Cave in 1855. He wrote that "it is called Crystal Cave because the small stream that bubbles out of it is clear as crystal." The entrance was "a true painter's dream." Of the sandstone he remarked, "Swallows have pierced it with their beaks in a hundred places; arm-length holes for nests that hold their young." And more practically: "sand has other uses, and a glass factory will soon be built here." Some local industries indeed have mined the sand for this very purpose.

Nothing better captured Fountain Cave in its chthonian aspect than when



The A-41 map of Fountain Cave, dated to the 1880s. It is the oldest and only complete map of the cave known to exist. The Omaha Railroad shops are enclosed in the triangle formed by Randolph Street, Drake Street (unmarked), and the Mississippi River (which crosses the bottom of the map). Fountain Creek bisects the triangle from top to bottom. At the top, the creek, flowing on the surface, is represented by a solid line. It enters a swallowhole near Randolph and Drake and takes a subterranean shortcut to the river by flowing through Fountain Cave, represented by the meandering dashed-line. (Not to be confused with the dashed-line that parallels the bluff-line.) At the bottom, the creek reappears as a solid line where it exits from the cave entrance used by human explorers, flowing through the goose-head outline of the ravine before joining the Mississippi. At 1,150 feet, Fountain Cave is the longest natural sandstone cave in Minnesota. At this scale, Carver's Cave would fit inside the box marked "Boiler Shop" (above the roundhouse at ten o'clock). St. Paul Public Works Department map.

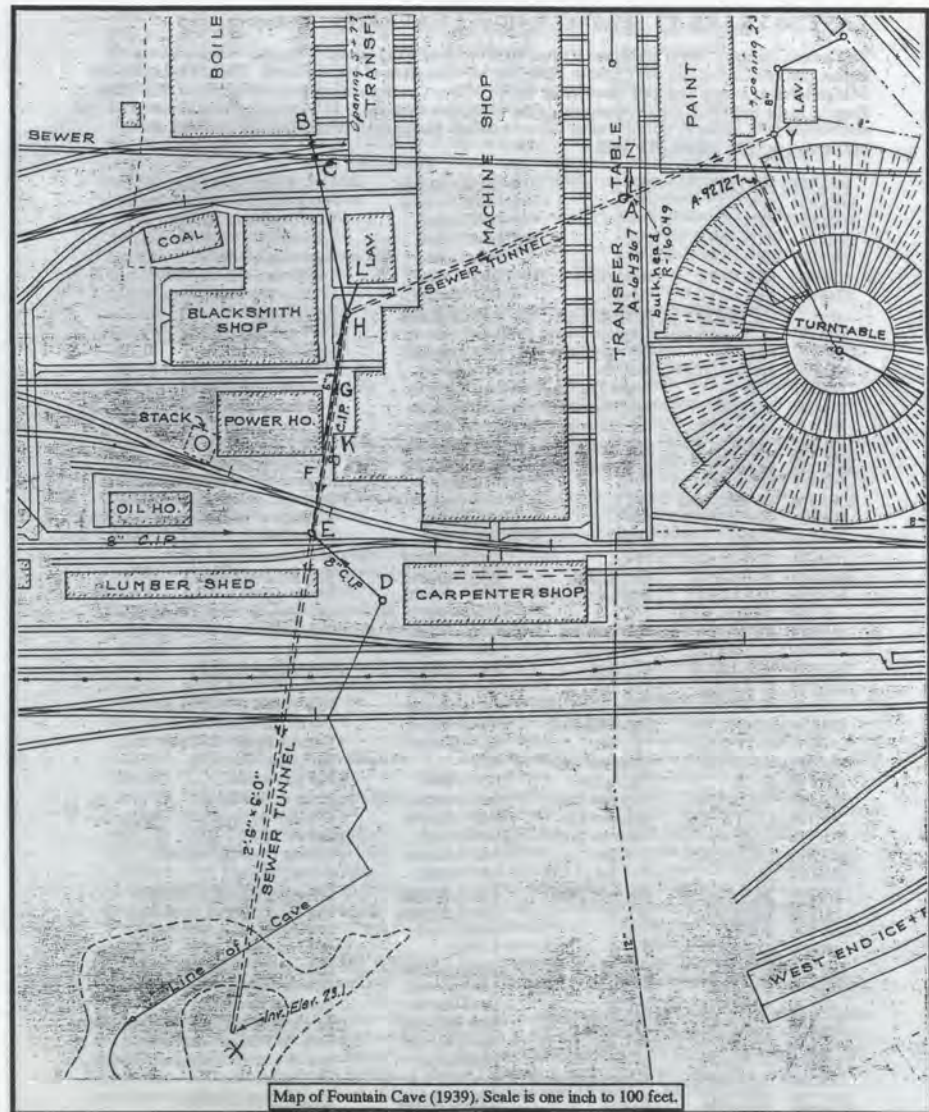
Kohl wrote: "The cave twists deep underground. In its depths can be heard a hissing and boiling as in a kettle, said to come from subterranean falls of the stream that exits the cave."⁶

In 1857, during the fever of real estate speculation that smote early St. Paul, the present Grotto Street was platted. It was named after Fountain Cave because it was said that if the street were extended it would strike the Mississippi near the cave. In fact, it would strike the river a half mile too far south. The street that did run nearest was Barton Street, where Parant's fellow sojourners had dwelt.

Most photographs of Fountain Cave are stereoscopic souvenir views from a single decade, the 1870s. Those by William H. Illingworth are classics. About the time of his appointment as photographer for Custer's Black Hills expedition of 1874, Illingworth, using the new wet-plate process, hauled his heavy equipment into the cave for photographs, some of which were published in Chicago by John Carbutt. The heavy equipment explains why there are no images from the deep-cave environment; the simple box camera was not invented until 1889.

A tourist guidebook by James Davenport, published in 1872, reveals that directions to Fountain Cave from downtown St. Paul were surprisingly uncomplicated: "the route being out Fort Street to the outskirts of the city, and then by turning to the left down to the river bank." In 1879, Fountain Cave was featured in *Tourists' Guide to the Health and Pleasure Resorts of the Golden Northwest*, published by the Milwaukee Railroad, and its engraving of the cave shows the most elegantly dressed visitors of all, with top hats and walking sticks. Although Fountain Cave more likely qualified as a pleasure resort than a health resort, "taking the waters" at the cave, if only to quench thirst, long since had become almost a ritual. In 1881, William H. Dunne published *The Picturesque St. Croix and Other Northwest Sketches Illustrated*, the last travel guide to suggest a trip into Fountain Cave. Dunne's engraving depicted boats inside the cave, but Fountain Creek was not navigable.

In 1887, Captain Willard Glazier pub-



The 1939 Strother map, showing the use of Fountain Cave as a sewer for the Omaha Railroad shops, from 1880 to 1940. Only the downstream half of the cave is depicted, below point D. Sewage poured into the cave through a manhole at point D, followed the zigzag line of the cave and discharged to the ravine at the bottom of the map. In 1940, to abate river pollution, sewage that would have entered the cave was diverted by pipes. An eight-inch C.I.P. (cast iron pipe) was laid in a shallow trench from manhole D to manhole E, where the pipe descended to the Omaha sewer tunnel, thirty feet underground. The pipe continued along the ceiling of this tunnel, which discharged at point C. There it was intersected by the West Seventh Street branch of the new sanitary sewer system, which crosses the top of the map from left to right. From there sewage flowed to the treatment plant at Pig's Eye Lake, several miles downriver. Storm water in the Omaha tunnel itself continued to drain to the ravine through a gated outfall at point X, to right of cave entrance. St. Paul Public Works Department map.

lished *Down the Great River*, in which he attempted to redefine the true source of the Mississippi, and his book contains a late reference to the popularity of Fountain Cave: "This cave is a favorite resort in the summer," he wrote. In Glazier's second-hand account, the two-foot waterfall had grown to a height of fifteen feet,

one foot shy of St. Anthony Falls itself!

In 1880, the newly incorporated Chicago, St. Paul, Minneapolis, and Omaha Railroad—usually referred to as the Omaha—began building a roundhouse and repair shops in the triangle of land bounded by Randolph Street (now Avenue) on the north, Drake Street on the

west, and the Mississippi River. The oldest and only complete map of Fountain Cave known to exist dated to the 1880s and shows this facility already in place. For convenience it will be referred to as the A-41 map, in accordance with its designation in the City Engineer's Office.⁷

Newton Horace Winchell, Minnesota's first state geologist, in *The Geology of Ramsey County*, published in 1878, reported that "The water that issues at Fountain Cave, St. Paul, is that of a creek which disappears in the ground about half a mile distant—toward the city." His statement provides the key to the A-41 map. At the top of the map, Fountain Creek, flowing on the surface, is represented by a solid line. It enters a sinkhole near the intersection of Randolph and Drake and takes a subterranean shortcut to the river by flowing through Fountain Cave, represented by a meandering dashed-line. At the bottom, the creek reappears as a solid line where it exits from the cave entrance used by human explorers, flowing through the goose-head outline of the ravine before joining the Mississippi. The sinkhole also explains how the black pebbles seen by Schoolcraft had entered the cave.

Water had descended through the sinkhole rather than rising from the depths; Fountain Cave was therefore a gravity spring, and not artesian, as so often claimed.

Real estate maps can be used to magnify the sinkhole. On the plat of "A. Vance Brown's Subdivision of the West Half of Block No.30 of Stinson, Brown, and Ramsey's Addition to St. Paul," dated 1858, the sinkhole occupies lots ten and eleven and is fed by a creek. In the 1920s the Ford Motor Company built an assembly plant in Highland Park and the Milwaukee Railroad spur laid to service it ran directly across these two lots. Presumably the sinkhole was filled at this time because the tracks at this location now rest on a graded surface.

The full length of Fountain Creek is depicted on W. F. Duffy's *Map of Ramsey County*, published in 1859. The creek, which no longer exists, is shown draining a wetland located about half a mile distant—west of Fort Road. By the late nineteenth century this wetland had



"The beautiful little valley," above, looking up the ravine toward Fountain Cave (concealed by vegetation), ca. 1870. Fountain Creek, in the foreground, was described as "a shower of diamonds" by one visitor. Minnesota Historical Society photo.

given way to residential development.

On the A-41 map, where Fountain Cave is represented only by a northwest-trending line, the "4 rooms in succession" described in the exploratory narratives are not depicted, but measurement of the line allows us to calculate the length of the cave as 1,150 feet. Major Long had measured the cave itself, but his figure of 150 yards is meaningless because he turned around without having reached the end. All later values were merely estimates, ranging as high as one mile, while one report had it that the cave extended as far as Pleasant Avenue. The most frequent guess was 400 yards, which agrees very well with the map length.

Judging by the A-41 map, Fountain Cave is the longest natural sandstone cave in Minnesota. Its nearest rival is Channel Rock, a cave under West River

Parkway in Minneapolis, which is only 800 feet long⁸. Carver's Cave, even prior to pruning by railroad construction, had a length of 117 feet, according to the Reverend E. D. Neill⁹, about one tenth that of Fountain Cave. But for width, Carver's Cave would have fit comfortably in the entrance room of Fountain Cave. Garrioch's legend thus bore a semblance of truth..

From 1880 to 1940, Fountain Cave was used as a cesspit for the Omaha Railroad shops. This is most easily understood in terms of the 1939 Strother map, whose origin requires explanation.

As the Twin Cities grew, local water quality deteriorated. Great rafts of raw sewage were seen floating down the Mississippi. To abate the nuisance, the Metropolitan Sanitary District, in the years before the Second World War, dug the present interceptor system under the



"Nettles, old tires, rotting boards." Mayor Dillon of St. Paul (shirtsleeves) and city engineer Shepard search for Fountain Cave on June 16, 1959. Cave and creek have vanished, and the ravine is a dump. The whole area seen in both photographs was filled with surplus excavated material during the construction of Shepard Road in 1960. Minnesota Historical Society photo.

Twin Cities. After the sewage treatment plant at Pig's Eye Lake became operational in 1939, wastes could no longer be discharged to the river.¹⁰

Accordingly, a letter dated December 30, 1939, from R.R. Strother, Assistant Chief Engineer and Superintendent of the Omaha, to Milton Rosen, Commissioner of Public Works, detailed how the railroad intended to "separate" the drainage of the Randolph Street shops, so that only storm water would reach the river. Strother's letter was accompanied by two maps, small and large scale, respectively. A third, hybrid derivative of these two was drafted on linen by the St. Paul Sewer Division, and this version (still in active service) is the most useful. Keyed alphabetically to the maps, his letter identified point D as "a manhole to a natural cave." Sewage poured into the

downstream half of Fountain Cave at manhole D and drained to the ravine, at the bottom of the map.

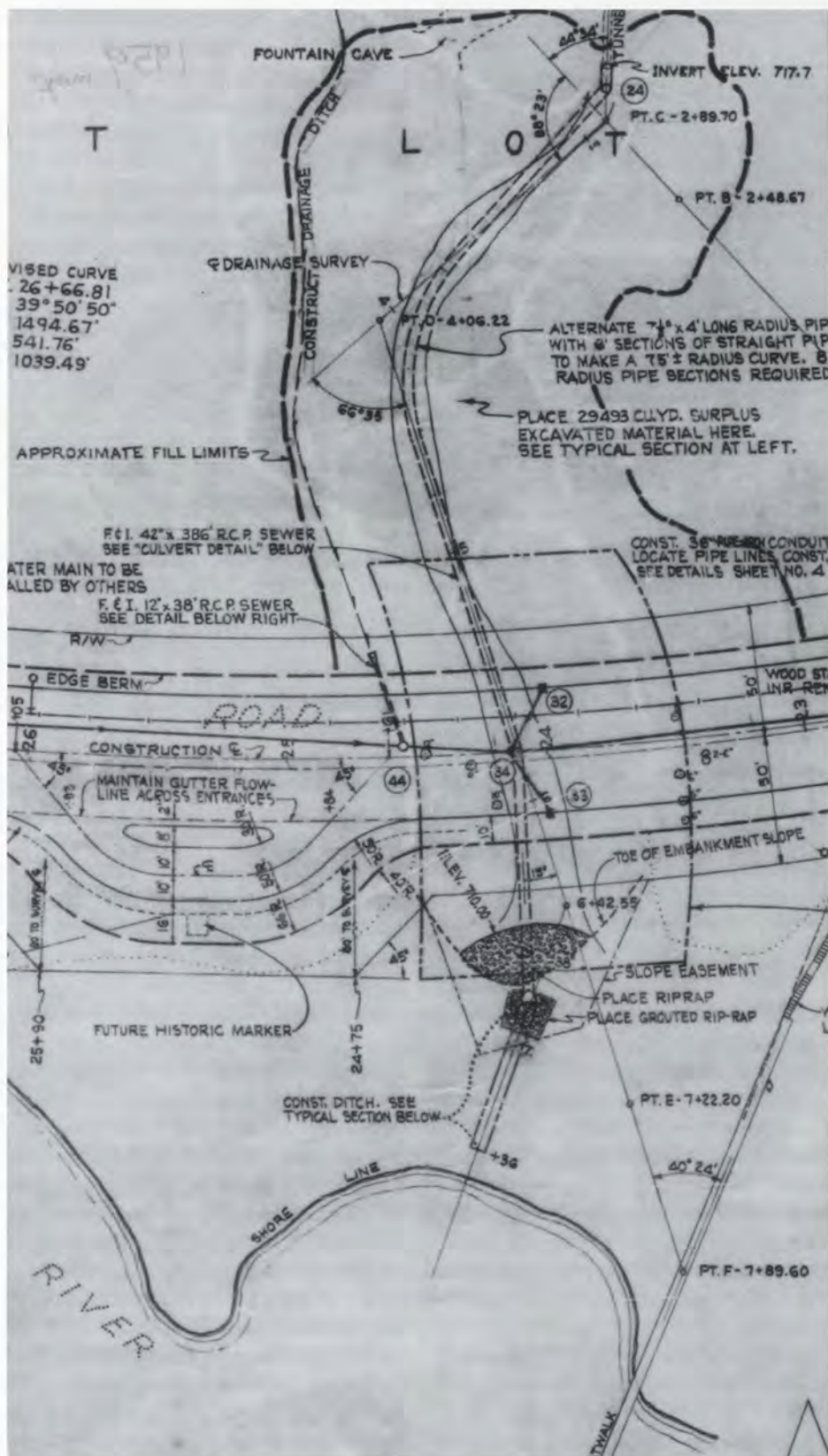
Manhole D was already old. George L. Nason, former city landscape architect, in his *St. Paul Dispatch* column, "Visiting Around St. Paul Parks," for October 27, 1932, wrote that Fountain Cave "has had its upper end tapped and is used as a sand rock sewer." There were no sewers on Randolph Street that might have intersected the cave, so this must be a reference to Strother's point D. Even earlier, William H. Dunne, the travel writer, in a letter to the *Dispatch*, on September 6, 1880, had described a visit to the cave in which he mentioned "the shaft of the railroad company." In retrospect, the construction of this fistula was a great turning point in the history of Fountain Cave. Once sewage began flowing through the

cave, the cave lost its fashionable air. The dark ages began here.

In the contract specifications for the sewer separation, dated March 15, 1940, Strother directed the contractor to "place false floor in cave entrance at 'D' at level of lowest inlet pipe." Sewage that would have entered Fountain Cave was now to be diverted by a system of cast iron soil pipes. Use of the term "soil pipe" suggests that excreta had been entering the cave. From manhole D, a pipe would carry the wastes to a new manhole that the contractor would construct at point E. Inside manhole E, the wastes would descend through a drop pipe to an older sewer tunnel that formed a big letter "Y" across the map. Referred to as "the Omaha tunnel" in a surveyor's fieldbook, this sewer, thirty feet underground, paralleled the course of the cave itself. The drop pipe would connect to a pipe strung along the ceiling of the Omaha tunnel, which discharged at point C, where it was intersected by the West Seventh Street branch of the new sanitary sewer system (shown crossing the top of the map from left to right). After 1940, in other words, sewage that would have entered the river by way of the cave, was diverted to the new treatment plant, several miles downriver. Storm water in the Omaha tunnel itself would continue to discharge to the river through a gated outfall at point X, to the right of the cave entrance.¹¹

Fountain Cave was used only as a receptacle. Nowhere is there evidence that it supplied a railroad tank, as happened at Carver's Cave. In any case, the cave waters would have found but limited use without further treatment, as groundwater is notoriously hard, containing much dissolved mineral matter, creating excessive scale deposits in locomotive boilers.

The Age of Steam was drawing to a close, however, and soon the Omaha shops themselves would be obsolete. In the words of local railroad historian John C. Luecke, "The diesel locomotive provided management with an excellent opportunity to trim expenses; not only by eliminating the repair prone steam locomotives, but also by closing the shops, roundhouses and other support facilities."¹² The Randolph Street shops were retired in 1960. The ground was cleared,



Burial plot. Thompson's 1959 grading plan for the ravine in which the entrance to Fountain Cave (seen at top) was located. Shepard Road crosses the middle of the map. The "future historic marker" was sited near the location of Parrant's whiskey hovel. St. Paul Public Works Department.

becoming a parking lot, the Drake Street Auto Facility, operated by the Chicago and Northwestern. A recent visit disclosed that manhole D had been paved over; not even a metal-detector could find it¹³.

The upstream half of Fountain Cave is ignored on the Strother map, and the West Seventh Street branch of the sanitary sewer system is shown crossing the map where the line of the cave should extend. (This led one surveyor to suggest to the author that when this sewer was dug in 1935, the "sandhogs," or laborers, may have tapped into the cave.) For this sewer, as for all others in the city, there are linen strip maps at the St. Paul Sewer Division, showing plan and profile. Manhole shafts sunk to access the sewers provide stratigraphic data that are often sketched into the profiles. The sewer profile that slices across the upstream half of the cave thus constitutes a geological cross-section of the Fountain Cave site¹⁴. It shows that the Omaha Railroad shops are underlaid by tumblerock (fragmented Platteville Limestone), mixed with sand and gravel, whereas surrounding bedrock is solid limestone. Perhaps tumblerock explains why the longest sandstone cave in the state developed where it did. Glacial River Warren not only cut the gorge; it also disrupted the limestone over the site of the future cave. Recharge of water to the sandstone was greater where its limestone caprock had been breached, promoting cavern development. Nicollet's observations were thus confirmed.

On Strother's map Fountain Cave has the zigzag appearance characteristic of line-of-sight surveys, which suggests that the map should be accurate. But note how cartography appears to contradict photography. Illingworth's photographs show the cave initially heading off into darkness toward the left, just where Strother's map depicts a long straight passage to the right. Is this merely an optical illusion, or had the cave taken another step in its collapse-migration up the ravine by the time the surveyors arrived?

In the mid-1950s, Archer-Daniels-Midland built the present grain elevator just beyond the head of the ravine, giving rise to a rumor that its foundations had



One of Illingworth's souvenir views of Fountain Cave, ca. 1870, above. Below, Willoughby Babcock stands in the cave entrance, 1922. As St. Paul grew, Fountain Creek dwindled, and the cave could no longer keep its entrance flushed clear of debris. Minnesota Historical Society photos.



destroyed Fountain Cave. Indeed, when viewing the row of towers on decennial aerial photographs, it looks as though a guillotine blade had descended. However, according to a yard map owned by the Chicago and Northwestern, the only map to juxtapose the elevator and the line of the cave, the cave was not impacted.

But a new menace arose. The construction of Shepard Road along the river bluffs began in the late 1950s to provide "a fast route downtown." In the balance of cuts and fills the ravine was slated to receive 29,493 cubic yards of "surplus excavated material." Fountain Cave would be entombed. Anticipating the grading crews, Mayor Joseph Dillon of St. Paul, and his city engineer, the eponymous George M. Shepard, went searching for the cave on June 16, 1959. A sequence of photographs at the Minnesota Historical Society shows two men, dressed to the nines, bushwacking through a mosquito-infested ravine that had been described as "a dumping ground" as early as the 1920s.

"Historic Saloon Eludes Officials" was the headline on the front page of the *St. Paul Pioneer Press* the next day. "Dillon and Shepard could find no sign of that cave," Carl G. Langland reported. "Shepard said that quite likely falling rock, sand and debris have hidden the mouth." To be sure, the same thing had happened several times before at Carver's Cave, but each time some enterprising individual had dug it open again. It could not be so here.

However, on October 1, 1959, design engineer Claude L. Thompson put his signature on the grading plan for this stretch of Shepard Road, and it shows something labeled "Fountain Cave." Intrigued by this detail, the author contacted Thompson in retirement. Thompson stated that at the location of Fountain Cave, in 1959, he found a dry rockshelter, about thirty feet long, that may have been a remnant of the cave.¹⁵

A third version held that Fountain Cave was found collapsed at the time of the road project. But this assertion was found to be based on some property maps on which the ravine itself had been labeled "Fountain Cave." (The A-41 map shares this peculiarity.) An outline of the

ravine had been mistaken for a map of the cave.

In "Oldest Business Site Regaining Prestige," in the December 8, 1959, *Dispatch*, Steve Alnes wrote, with reference to Fountain Cave, that "Nobody, it appears, ever had courage to find the end of the tunnel. Now nobody can even find the beginning of it." Finally, the following summer, on August 2, 1960, a front-page photo in the *Dispatch* showed the partially filled ravine, with a grading crew at work.

The grading plan shows Shepard Road crossing over the mouth of the filled ravine, the site of Parrant's whiskey hovel, but it does not indicate what happened above the remainder, the site of the former cave entrance. It became what is today, a parking lot for trucks waiting to unload at the grain terminal, now operated by Harvest States Cooperatives.

The entrance to Fountain Cave was buried but its 1,150 feet of passages still exist. Someday a construction crew will tap into them somewhere, and the state archeologist will be summoned.

The Fountain Cave historical marker was unveiled on April 24, 1963, by Mayor George Vavoulis and Commissioner Milton Rosen, as reported by Langland in an article for the *Pioneer Press*. The Minnesota Historical Society was responsible for the text on the bronze plaque, and its stone base was provided by Karl Dedolph Construction Company for \$1,100.¹⁶

Regarding the demise of Fountain Cave the marker stated, in raised, gilded lettering, that "Through the years debris accumulated to block its entrance." This was fine so far as it went, but it failed to address the real issue. After all, the cave had existed for millenia before this. What had changed?

Fountain Cave was doomed from the outset by the growth of the very city to which it had given birth. Urbanization of the glacial river terrace under whose surface the cave was located had effects that were noted above. The source of Fountain Creek dried up and its sinkhole was plugged. As a result, the flow of "the un-failing stream" became too sluggish to flush away debris.

Reporter Earl Christmas wrote an arti-



The Omaha sewer tunnel today. This photo by the author shows the Fountain Cave plumbing system. Strother's pipe runs along the ceiling. This sandrock tunnel was given a brick arch at places where it grazed the overlying tumblerock layer. The opening along the right wall leads to a sinkhole under the former Machine Shop. Initially, cavers thought that "sinkhole K" (point K on Strother's map) would provide a backdoor into Fountain Cave.

cle entitled "Sandstone Under St. Paul Honeycombed With Caverns," published in the *St. Paul Daily News* for April 30, 1922, which described an examination of Fountain Cave by Willoughby M. Babcock II of the Minnesota Historical Society. Photographs taken on this occasion were valuable in documenting the process described. (The much clearer originals are at the Minnesota Historical Society.) A pile of sand partly obscured the entrance, and the cave was filled with water several feet deep. Compare this with the usual description of Carver's Cave, which contained a lake. Hydrologically speaking, Fountain Cave was beginning to look like another Carver's Cave.

Christmas claimed that Long's 1817 description "tallies very closely with the cave as it is today," but his own photo of Babcock, with its caption, only qualified the assertion. Babcock "could just reach the top of the cave as he stood in its entrance," whereas Long's estimate of the height of this entrance was sixteen feet. Comparison with the souvenir views of half a century earlier is especially striking; the human figures are dwarfed by the gaping portal. Fountain Cave had succumbed to arteriosclerosis of the ground-water arteries.

After burial in its grave under Shepard Road in 1960, Fountain Cave began to lead a ghostly afterlife. A local caver thought that he had detected water emanating from the direction of the cave. The historical marker indicates that Fountain Creek had joined the Mississippi "about 140 feet downstream from this marker." Going to the indicated spot today there will be seen, at river-level, an R.C.P. (reinforced-concrete pipe), forty-two inches in diameter, projecting from the weed-covered embankment. A trickle of water pours out. Could this somehow be the same water that Major Long had seen, a century-and-three-quarters earlier?

The caver climbed in and began to trace the water on hands and knees. Following the old course of Fountain Creek, the pipe wound its way through the buried ravine toward Fountain Cave. After he had crawled 386 feet, the pipe suddenly opened into a Gothic-shaped space in the sandrock. High and wide enough to stand in, it was a place much frequented by rac-

coons, judging by the footprints and scats. It was an unexpected discovery.

By now the rumble of cars overhead had died away, and nothing could be heard but the dripping of water. The caver pointed his flashlight into the darkness and continued to follow the rivulet. At intervals, niches were seen in the smoke-blackened walls, looking as though they were meant to hold candles. Several hundred feet later, the narrow passage expanded into a circular room in the sandrock. Against the left wall of this room there was an old brick manhole shaft leading up toward the surface. Approaching for a closer look, he gashed his head open on a rusty pipe that ran along the ceiling . . .

I can still feel that bump. Unknowingly at the time, I had just rediscovered Strother's ingenious pipe system, and the old Omaha tunnel. But the silver thread never did lead to Fountain Cave. "The House of the Great Spirit," as Native Americans called such places, had been sealed forever.¹⁷

FOOTNOTES

1. Lucile M. Kane, June D. Holmquist, and Carolyn Gilman, eds., *The Northern Expeditions of Stephen H. Long* (St. Paul: Minnesota Historical Society Press, 1978), pp. 67-69, 76. My reconstruction has been supplemented by other accounts.

2. R. K. Hogberg and T. N. Bayer, "Guide to the Caves of Minnesota," *Minnesota Geological Survey Educational Series 4* (1967), pp. 12-14.

3. *The Minnesota Pioneer*, July 11, 1850, p. 2.

4. George Henry Gunn, "Peter Garrioch at St. Peter's, 1837," *Minnesota History* 20 (June 1939), pp. 124-125.

5. Greg Brick, "The Rediscovery of Minnesota's First Commercial Cave," *NSS News* 50:7 (July 1992), pp. 182-183.

6. Frederic Trautmann, "Johann Georg Kohl, A German Traveler in Minnesota Territory," *Minnesota History* 49 (Winter 1984), pp. 126-139.

7. The A-41 map exists only on microfiche in a drawer labeled "Pigeon Hole" at St. Paul Public Works.

8. E. Calvin Alexander, Jr., ed., *An Introduction to Caves of Minnesota, Iowa, and Wisconsin* (National Speleological Society, 1980), p. 70.

9. *Ibid.*, p. 53.

10. Paul Hesterman, "The Mississippi and St. Paul," *Ramsey County History* 21:1, pp. 3-22.

11. Contract 40-S-49 is the best source for Fountain Cave as a sewer. It contains Strother's letter, specifications, maps, and drawings.

12. John C. Luecke, *The Chicago and Northwestern in Minnesota* (Eagan, MN: Grenadier Publications, 1990) p.149. Page 163 contains a 1915 photograph of the Fountain Cave ravine in relation to the Randolph Street shops.

13. Special thanks to Gary Erichson, sewer maintenance engineer, who provided crew and equipment for the metal-detector test on March 31, 1994.

14. It is filed as West Seventh Street Branch, Sheet 2, in the "1:100" (actually 1:1200) linen strip maps. See also Contract 34-SS-4 and Fieldbook 462.

15. Paving Drawing 860, Sheet 6. See Fieldbook 1408-C for the original survey notes on which the grading plan was based.

16. Contract 62-M-267.

17. Greg Brick, "The Hunt for Fountain Cave," *Minnesota Speleology Monthly* 26:1 (Jan.-Feb. 1994), pp. 9-11. This article gives a detailed account of the sewer explorations.

Greg Brick has spent years exploring caves and sewers under the Twin Cities, furthering an interest in urban geology. A member of the National Speleological Society, he was featured in several newspaper articles for his rediscovery of Chute's Cave under Minneapolis in 1990. More recently he received an award for an investigation of the historic springs of that city. He holds baccalaureate degrees in geology and biology from the University of Minnesota, and is currently doing graduate work at the University of Connecticut-Storrs, studying nineteenth-century mining sites.



The old Adams School, 615 S. Chatsworth Street, around 1900. For the stories of three young men from the school, and their experiences during World War I, see Paul D. Nelson's article beginning on page 16. Minnesota Historical Society photo.

R.C.H.S.
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