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CONTENTS

Gennarino Persico, The Forgotten Artist at Mammoth Cave <i>Katie Algeo</i>	4
The Revival of Robber's Cave <i>Gary K. Soule</i>	18
How Nebraska's Robber's Cave Got All the Loot: A Study in Comparative Cave Utilization <i>Greg Brick</i>	21
Calculating the Historic Amount of Sewage Discharged through a St. Louis Cave <i>Joe Light</i>	27
"White as the Driven Snow": Neptunian Echoes from the Deep Sewers <i>Greg Brick</i>	31
Spelean History Session Abstracts, 2022 NSS Convention	36

Cover: Abraham Werner (1749-1817), see the article on Neptunism in this issue.
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GENNARINO PERSICO, THE FORGOTTEN ARTIST AT MAMMOTH CAVE

By Dr. Katie Algeo

The recent discovery that John Croghan's original name for Mammoth Cave's Pensacola Avenue was Persico raises questions about its namesake and what he did to merit such memorialization.¹ Gennarino (or Gennaro) Persico painted Croghan's portrait, the miniature on ivory that is part of the Historic Locust Grove collection. Possibly, Croghan also intended to honor Gennarino's brother, Luigi, a sculptor who was nationally famous during the 1840s when he produced monumental statues for the U.S. Capitol. Through a series of sound shifts—Persico to Pensico to Pensacola—the current name for the passage in Mammoth Cave was derived (**Fig. 1**).

Over time, the Persico brothers have been forgotten, except by art historians. Luigi's sculptures, particularly ones that are a prominent part of the political landscape, have been the subject of occasional articles, but works by his less famous, younger brother sit quietly in museum collections, with a minimum of biographical information. Published biographies of Gennarino are short and fragmentary, largely for lack of source material.

Large-scale digitization projects have recently made available to scholars a vast trove of historical resources. This article draws on electronic databases of newspapers, magazines, and books, as well as prior published work about Gennarino Persico, to create a fuller portrait of the artist's life. There are still critical holes in his story, but this article better shows the arc of his life, including his lifelong creative drive and struggles he faced. This biography will also serve as a basis for examining, in a future article, the circumstances of his friendship with John Croghan and his creation of the John Croghan portrait.

"... Persico avenue, 2 miles in length, which is described as the most grand and beautiful of the cave."

"The Mammoth Cave of Kentucky," 1841. *Martinsburg [VA (WV)] Gazette*, July 15, p.1.

"... Persico avenue 1 mile long and almost strait, sufficiently large for a coach and horses to pass through."

D. 1842. "A Trip to the Mammoth Cave [Concluded]" [Holly Springs, MS] *Guard*, Nov 8, p.1.

"... 'Pensaco Avenue.' This avenue is three miles and a half in length..."

Zabriskie, James C. 1842. "A Visit to the Mammoth Cave of Kentucky," *Rutger's Literary Miscellany*, 1(10), 148-152.

"Another route from Satan's Council Chamber conducts you to a smooth, level path, called Pensacola Avenue."

Child, Maria. 1843. "Mammoth Cave," *Bentley's Miscellany*, 14(4), 408-19.

Figure 1. Variant names for the same passage (despite different estimated lengths) show how Persico evolved to Pensacola.

Early Life in Naples

Gennarino was born about 1800 in Naples, when it ruled the Kingdom of Naples. Both brothers studied at the city's Academy of Fine Arts, and Gennarino (and likely Luigi, as well) subsequently studied art in Rome.² Although little is known of their family life, their education speaks to a privileged background. Later, when becoming a U.S. citizen, Gennarino would swear that he never held a noble title, but there was at least one Count Persico based in Venice. In 1820, Neapolitan physician Logedario Persico enjoyed a moment of fame when one of his patients, Caroline of Brunswick, the spurned wife of England's prince regent, became Queen of England.³ Whether either of these prominent men shared a close family relationship with Gennarino is not known. As a younger son, Gennarino would not have inherited a title, even if there was one in the family.

The Napoleonic Wars brought invasion and chaos to Naples, which suffered several regime changes during the first two decades of nineteenth century. Bourbon King Ferdinand was restored to the throne in 1816, the year that the kingdom merged with Sicily to become the Kingdom of the Two Sicilies.⁴ Perhaps the Persico family found themselves on the losing side of these power struggles, and it was deemed safer to ship two young men off to another continent. Both Luigi and Gennarino emigrated to the United States around 1817.⁵

Aspiring Artists in America

The Persico brothers lived initially in Baltimore, where they advertised their availability to make portraits, both full-size and miniature, with a money-back guarantee if the finished painting was not a good likeness.⁶ Many nineteenth century portraitists were itinerant for part of their careers, moving from city to city, staying a few weeks or months, as long as demand for their services lasted. Whether Gennarino's purpose in travelling to Charleston, South Carolina, in January 1820 was to make portraits or was in connection with an unspecified mercantile business, he found time for fun. He was the featured flautist in a concert that mixed Italian, Spanish, and French compositions with patriotic American tunes and ended with a rousing rendition of Yankee Doodle. Later that year Luigi highlighted Gennarino's skill on the flute in a letter of introduction to a friend in Lancaster, Pennsylvania: "He has some Mercantile business and he intends to stay a few weeks in your place. He paints miniatures also. As I told you that he could play the flute, I expect that you will be pleased to play a little with him."⁷ By October, painting had taken precedence over other business. Sounding very much like an itinerant painter, Gennarino advertised that he was staying for a short time at Mr. Slaymaker's in Lancaster and would make miniature portraits "on moderate terms," with a money-back guarantee of satisfaction.⁸

Gennarino also spent time in nearby Reading, where he met Elizabeth McKnight Kennedy, a young widow with an infant daughter.⁹ They were married in 1823, the same year he completed a handsome charcoal portrait of her father, banker John McKnight.¹⁰ At the end of the year, he made a formal declaration of intent to become a naturalized U.S. citizen, disavowing allegiance to the Kingdom of Naples.¹¹

By this time, Gennarino was living in Philadelphia, running a drawing and painting academy with his brother, while continuing to make portraits on commission. Celebrated American artist Rembrandt Peale, late in life, while reflecting on his role in championing Luigi's work, hinted at the meagerness of the Persicos' livelihood at this time, "...this artist was [Luigi] Persico, who, a few years before, obtained a scanty subsistence in Philadelphia by miniature painting and teaching drawing..."¹² With Peale's help, Luigi received the recognition for his work that raised his profile to the national level. By 1825, Luigi had moved to Washington, D.C., and Gennarino was running the school on his own. Advertisements for his art classes appeared periodically in Philadelphia newspapers through 1828 (**Fig. 2**).

Gennarino did not have a champion, but he, too, had ambitions to work in the highest echelons of his chosen field of art: history painting. History paintings tell a story, such as a historic battle scene, but the genre also include religious and mythological narratives. In the overtly hierarchical world of nineteenth century art, the most admired painters produced history paintings. Gennarino's better works were accepted for exhibition at the Pennsylvania Academy of Fine Arts' annual show: a crayon drawing of Joseph Bonaparte (1822), a miniature of Madonna and child (1822), a crayon drawing of Hebe, the Greek goddess of youth (1823), a second miniature of Madonna and child (1824), and a miniature of Madonna, presumably without child (1826).¹³ Except for the portrait of Joseph Bonaparte, the works Gennarino exhibited were history paintings. His portrait of John Croghan is undated but was probably made during this period.

Some of Philadelphia's cultural elite noticed Gennarino, for he was invited to a Wistar party given by Chief Justice William Tilghman of the Pennsylvania Supreme Court.¹⁴ The Wistars formed "the informal, social arm of the American Philosophical Society" and were an exclusive group (at one point limited to exactly twenty-four members) who

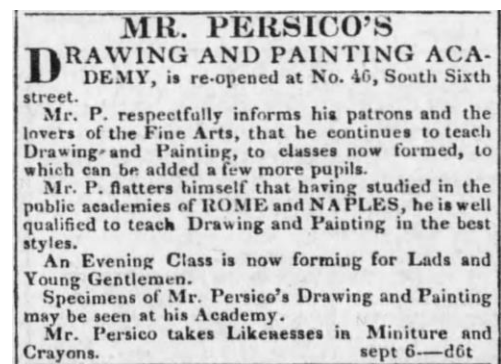


Figure 2. Ad for Gennarino Persico's art academy and portrait business. Source: *Philadelphia Inquirer*, September 7, 1823, p.3. Similar ads ran from September 1823 through September 1828.

rotated responsibility for hosting weekly salon-style gatherings during the social season.¹⁵ Members of the literary, scientific, and artistic intelligentsia might be invited, and invitations were much coveted. Henry Singer Keating, a British judge who attended a Wistar party in 1830, described it as “...very pleasant, and altho’ the attendance is too numerous for general conversation, still there is always a great deal of information to be picked up. I was here introduced to most of the leading men in the city... Ladies are not admitted.”¹⁶ A Wistar party was a perfect networking opportunity for an aspiring artist.

Neapolitan Sojourn

On May 24, 1829, the Persico brothers boarded the packet ship *William Byrnes* bound for Liverpool.¹⁷ Almost a month later, they found themselves dockside at the River Mersey. Luigi had a commission from the U.S. government to produce two statues for the Capitol Building (**Fig. 3**). He was headed to Naples and the quarries of Carrara, where the purest white marble could be found. Gennarino’s reason for going is not documented – perhaps he was to help with the commission or maybe he was simply visiting family and friends. While Luigi remained in Naples for several years, long enough to complete the statues, Gennarino returned to the U.S. before the end of 1829.

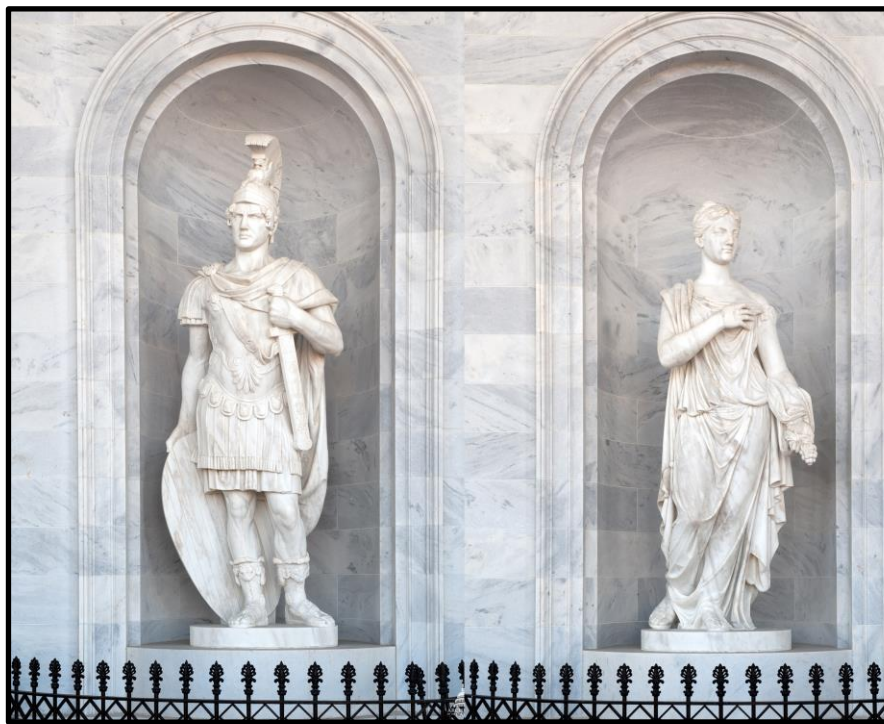


Figure 3. War (Mars) and Peace (Ceres). Statues by Luigi Persico that flank the east central front door of the U.S. Capitol. Source: Architect of the Capitol. The commission for these statues took the Persico brothers to Naples in 1829.

While in Naples, Gennarino agreed to assume a minor diplomatic duty, but one important to the impoverished family of a Neapolitan veteran of the Second Barbary War. He promised, when back in the U.S., to look into the case of D. Antonio Masi, who served as a lieutenant in the U.S. Navy and commanded two Neapolitan gunboats during the U.S. war with Tripoli. Masi’s two daughters claimed that their deceased father was owed both salary and prize

money. Gennarino was given a power of attorney to act on the family's behalf and documentation supporting the claim.¹⁸ This, his first documented diplomatic activity, foreshadowed his appointment as consul.

Back in Philadelphia, Gennarino settled into a familiar routine of painting and teaching. In 1831, his depiction of the Roman goddess Venus was selected for the Academy's annual art show.¹⁹ But June 1832 found him in Richmond, Virginia, where he intended to spend the summer, making portraits and teaching a few, select art students.²⁰ Richmond society must have been agreeable and the prospect for employment good, because by the end of the summer, Gennarino had decided to relocate his family.

Virginia School Master

In Richmond, Gennarino joined with Mrs. Maria Henriques to open a boarding and day school for girls.²¹ Mrs. Henriques had also recently relocated to Richmond, after running a similar school in Philadelphia for nine years. The school offered a long list of subjects: reading, orthography, translation, grammar, rhetoric, logic, composition, arithmetic, bookkeeping, history, mythology, astronomy, geography, natural history, philosophy, chemistry, and botany, with lessons in music, drawing, painting, Italian, Spanish, Latin, dancing, and ornamental needlework available at extra charge. French was the language of the school, and only students willing to learn and speak that language were accepted. By 1835, the partnership with Mrs. Henriques had dissolved, and the two ran separate schools.²²

For his second school, Gennarino leased an existing 21-room school building three blocks from the state capitol.²³ He spent the next few years building the school's reputation and making a place in Richmond society for himself. In 1836, he was appointed Consul to the Kingdom of the Two Sicilies for Norfolk and Richmond.²⁴ He joined Richmond's newly organized St. James's Episcopal Church and was elected a vestryman in 1837.²⁵ In this role, he took part in a Masonic ceremony on April 2, 1838, to lay a cornerstone for the church's new building on Marshall Street.²⁶ The cornerstone contained a time capsule holding, among other items, copies of the Masonic odes sung, coins and bills dating to 1775, and a list of ceremony's participants, which, in addition to Gennarino, included Virginia Governor David Campbell and President Martin Van Buren.

His political and religious volunteer work was augmented by social engagements. He was among the guests of the July 4th celebration in 1839 hosted by the Richmond Light Dragoons. At dinner, a member of the company rose and toasted him: "G. Persico, Consul of the Neapolitan Government: Our worthy and valued fellow citizens; we wish an increased trade with his country, and better acquaintance with its subjects."²⁷ Gennarino countered by raising his glass and saying, "Virginia: Should her rights be infringed upon, honor me with a membership in your Corps, and teach me how to fight for her."²⁸

The winds of sectionalism that heralded a bitter storm were already affecting Virginia. It seems that, for Gennarino, the price of admission to society in the future Confederate capital was to blow with those winds. Gennarino modified the name of his school to the Southern Boarding and Day School (**Fig. 4**).²⁹ A satisfied parent wrote to the *Richmond Enquirer*, praising the school and its “worthy proprietor.”³⁰ The school, he opined, “possesses such advantages, both for the ability with which it is conducted, and for its healthy situation, that it needs only to be well know, to be most highly esteemed by the many who are desirous of giving their daughters a first rate education.”³¹ Gennarino had used a loan from Richard Anderson in December 1838 to finance its expansion, and the pleased parent noted that the “new and spacious building,” finished in July 1839, would accommodate forty boarding students.³² By this time, Gennarino had also enslaved four individuals, three of whom were old enough to help with domestic chores, marking further assimilation into elite, but racist, Southern norms.³³

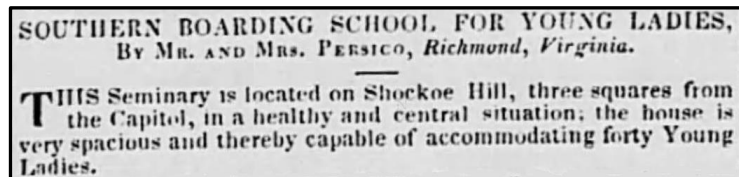


Figure 4. Header for advertisement of the Persicos' Southern Boarding School. The new name signaled alignment with the Southern cause. Source: *Richmond Inquirer*, November 6, 1840, p4.

In April 1840, John James Audubon visited Richmond and had tea with the Periscos and their boarding students. One student recalled previously meeting Audubon and his son John in Halifax, Nova Scotia. Audubon was touring eastern cities on a quest for subscribers to the folio and octavo editions of his *Birds of America* and other publications. His success had so far exceeded his expectations, and he was pleased to add Gennarino's name to the list. Gennarino paid \$6 for the first six numbers of the serialized *Birds*. At some point during the visit, Audubon inspected some of Gennarino's own art. “He draws *superbly* and speaks several languages,” Audubon reported to his son, Victor, and went on to comment that Gennarino's wife was “a learned and interesting woman.”³⁴

One old acquaintance in Richmond was Martha Pearce (which Audubon, a notoriously bad speller, rendered as Pierce).³⁵ Audubon knew her as a child in Louisville. She was now married to Virginian Robert Craig Stanard, who also took a subscription to *Birds*. Martha's maternal grandfather was General Jonathan Clark, the older brother of Lucy (Clark) Croghan. Hence, Martha was a first cousin, once removed, of John Croghan. Her father, James Anderson Pearce, was part of the prolific Anderson clan of Louisville who had originally migrated from this part of Virginia, as had the Croghans. Thus, Martha Pearce embodied, on both her mother's and her father's side, the network of family connections between Louisville and southeastern Virginia. John Croghan and his younger brother George, for example, had both been undergraduates at nearby William

and Mary College.³⁶ The web of relations may have been one way that John Croghan remained aware of Gennarino Persico's situation and prospects. Croghan had purchased Mammoth Cave six months earlier, and it was about this time that he changed the name Big Bat Room to Audubon Avenue and named one of the newly discovered passages beyond Mammoth Cave's Bottomless Pit "Persico Avenue."³⁷

As his school grew, Gennarino needed another teacher, and in fall 1840 he hired Elizabeth Payson from Maine. Payson kept a record of her time at Persico's Academy, one that provides insight into Gennarino's character.³⁸ She noted that he had "exquisite taste" in pictures, exemplified by those hanging in the living areas of the school, and that he spoke French during staff meals, helping his teachers improve their own facility with that language.³⁹ The diary also reveals an iconoclast who puzzled the young teacher, especially in his attitudes towards religion. Payson characterized Gennarino as non-religious, but tolerant of others' religious practices. At staff meals, he held a moment of silence, during which those who chose could pray, but it was always one of the female teachers, rather than the headmaster, who opened the school day with a prayer. He was raised a Catholic, Payson wrote, "but professes to be a nothingarian now."⁴⁰ Telling of a liberal, if unorthodox, religious attitude was his response to a teacher who asked him one Sunday if he had been to church. His response came in French, as usual, and translates to, "Yes, Mademoiselle, you visited the church of man. Me, I was at the church of God – in the woods."⁴¹

Gennarino fascinated Elizabeth Payson because he gave her "something to puzzle out."⁴² She found him independent and self-assured, with a strong sense of justice (although the enslaved staff would surely have disputed this point). But he was also fun and lively, telling witty stories at the dinner table. "Mr. Persico is a queer man," she concluded.⁴³

Bankruptcy

The vicissitudes of the boarding school business became evident soon after Payson arrived. In 1840, the number of boarders was twenty.⁴⁴ Enrollment had not grown as hoped and as needed to replay Anderson's loan. Gennarino gave up his position as Episocpal vestryman at the end of 1840.⁴⁵ By January 1841, his school building was advertised for rent. Mrs. A.M. Mead soon opened her own school in the building and remained there till July 1849. Persico's school seems to have continued a little longer, perhaps sharing the building.⁴⁶ Demand for upscale boarding schools, to a certain extent, follows national economic cycles. Persico's school drew students not just from the immediate region, but also from other states and the District of Columbia. The financial panic of 1837 caused a depression from which the country did not fully recover until the mid-1840s. Gennarino took out a loan to expand his school at one of the worst possible times.

Persico's financial problems were exacerbated by his wife's health crisis from an unspecified illness. In February 1841, Payson noted that "poor Mr. Persico is terribly unhappy and walks up and down perpetually with such a step."⁴⁷ A week later, she found him in a "bearish" mood, snapping at the teachers. In March, Elizabeth Persico travelled to Philadelphia for an operation. It was thought successful, and Gennarino wept openly with joy upon her return. Payson wrote in her journal, "Our good genius has come back to us; now again all things will go smoothly."⁴⁸ The reprieve would be temporary.

Elizabeth Persico died in August 1842 after a long and painful illness.⁴⁹ Gennarino tried to carry on. He recruited his sister-in-law, Sarah McKnight Orrick from Reading, Pennsylvania, to manage the domestic side of the school.⁵⁰ He pleaded with Payson, who had returned to Maine, to come back.⁵¹ Payson resumed teaching in November 1842 but saw that things were sadly different. "Mr. Persico, no longer under the influence of his wife, who had fallen prey to cruel disease, lost heart, fell heavily in debt, and became at last hopelessly insolvent... everything went wrong with Mr. Persico, and his gloom extended to all of us. I never spent such melancholy weeks in my life..."⁵² Payson remained at the school into the summer of 1843, knowing there was no money for salaries. The school and Gennarino were bankrupt.

Gennarino's personal property was originally scheduled to be auctioned for debt on March 16, 1843, but the auction was postponed to March 30, and finally took place on July 19, allowing the school to conclude its final term.⁵³ Items sold included the school's equipment, Gennarino's furniture, and a personal library of 800-1,000 volumes, including many valuable maps. He had lost everything—wife, home, business, possessions. Anyone would feel despair at such a time, and many would leave town to avoid shame. It is not clear what Gennarino did in the immediate aftermath of the bankruptcy. He may have gone to Louisiana for a while. His brother was still in Naples, and he had no other blood kin in the country. Ultimately, he turned to his in-laws in Reading for sanctuary.

Reading School

The McKnights gave Gennarino a second chance. His father-in-law, John McKnight, was president of the Reading branch of the Bank of Pennsylvania and probably funded the school that Gennarino opened there in December 1843.⁵⁴ Gennarino had the assistance of an "accomplished Preceptress," who was likely the same sister-in-law who came to his aid in Richmond after the death of his wife. The school was organized along similar lines to his prior school, but also offered evening classes for young gentlemen and boys. Ads for the school ran in area newspapers every month or two for the next year, after which the school quietly closed. Sarah Orrick continued to teach in Reading for decades, but Gennarino was at loose ends.

As it became clear that the school would close, Gennarino completed the naturalization process begun two decades earlier. He filed a petition with the Pennsylvania Supreme Court in October 1844 to become a U.S. citizen.⁵⁵ Oddly, he stated on that form that he was a native of Louisiana. Perhaps he meant that before returning to Pennsylvania, he had resided there for a while. If, in the wake of his devastating personal reversals in 1843, he sought the comfort of a French-speaking community or a place that valued instruction in French, he would have found it in Louisiana.

Focus on Fine Art

Gennarino's movements over the next few years are uncertain. He may have accompanied his brother Luigi to Europe in May 1845, but by late 1847, he was in Baltimore, Maryland, where he was part of a failed manufacturing partnership that involved a high-pressure steam engine, boilers, furnace, carpenters' tools, 2 tons of coal, and a large iron mill, all of which were auctioned on November 24, 1847, to pay back rent for the firm of Buck, Pratt & Persico.⁵⁶ Bad luck dogged Gennarino's business ventures.

By April 1848, still in Baltimore, he was renting a house on the corner of Baltimore and South Streets and was focused once again on creating art. He had at least one friend in the city who promoted his work: "In stepping into Persico's rooms... a day or two since, we observed some specimens of his drawings which were exceeded in beauty and perfection of the art by none that we have ever seen. Such an artist should find constant employment for his pencil in the good taste and refinement of such a city as Baltimore."⁵⁷ Seven months later, the friend tried again to arouse public interest:

A few days since, we called at Persico's Studio... in the expectation of seeing something besides the everlasting *portraits* which meet our eyes at every turn. To our great delight, we saw a specimen of art, full of poetry, shewing a thorough knowledge of the art of design, coupled with the rare talent of personifying imagination. The subject is a Hermit kneeling at the mouth of a cave, in a state of adoration; the scenery is wild, and so well managed, that the eye rests with pleasure upon the foliage around it; the head is one of these happy conceptions executed with so much art that it seems to breathe; the drapery is admirably delineated; the folds represent light woolen cloth, full of reflection It is a work of years, and well worth a pilgrimage to see. Such rare talent should be turned to use, and not be permitted to waste its worth upon unprofitable pursuits. Mr. Persico ought to be at the head of a school for drawing...⁵⁸

In 1848 and 1849, Persico showed some of his work at Baltimore's Maryland Historical Society. Among the paintings exhibited was a history painting, "Quarrel between Adolpho and His Lady Love."⁵⁹

In January 1850, Gennarino was again making plans to go abroad. From Baltimore, he applied for a passport.⁶⁰ This application includes a physical description. Gennarino was tall for the day, a little under six feet. He had blue eyes, a prominent nose, graying chestnut hair, and a dimple on his chin. He claimed to be forty-three but was probably

closer to fifty. Where he went in Europe is not known, but he returned to New York from Liverpool on June 6 in the ship *America*.⁶¹

This trip may have marked the start of a joint business venture with his brother to import fine European art to the United States. By this time, Luigi had tired of the politics of art in America and decided to live in Europe. He was well-positioned to buy paintings, including old masters, as they came up in estate sales. Gennarino made periodic trips to Europe to collect and ship the valuable works to the United States. In November 1850, he was planning another such trip and, to raise funds for it, he recruited New York auctioneer Henry H. Leeds to hold a special sale of "original & costly oil paintings selected in Europe by the celebrated sculpturist [Luigi] Persico of Rome."⁶² The paintings to be sold at Leeds's store on Wall Street included a Madonna by Raphael and works by Titian, Da Vinci, and De Rosa, among others. The personal inspection and selection of the paintings by such a distinguished artist as Luigi Persico was a selling point at this and subsequent auctions of the same paintings, an assurance of authenticity in a market already awash in fakes (Fig. 5).⁶³

Return to Richmond

Gennarino decided, when not in Europe, to make his home base in Richmond. He must have had friends and fond memories to draw on to counter those of personal and financial losses he suffered when last there. The *Richmond Dispatch* announced his return in February 1852 by encouraging residents to visit the Nash & Woodhouse bookstore, where they might view Gennarino's "fine crayon picture of the venerable Mr. Poitau, one of the city's oldest and most highly esteemed citizens."⁶⁴ Rather than attempting to run his own school, Gennarino took a position in Mrs. Pellet's Boarding and Day School for Young Ladies, where he ran the Department

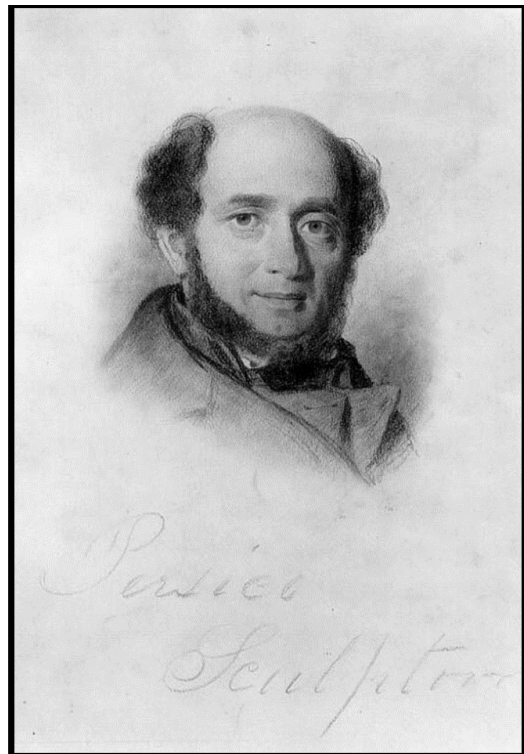


Figure 5. Luigi Persico, charcoal portrait on paper by Eastman Johnson, c.1847. National Portrait Gallery, Smithsonian Institution. George Catlin painted a miniature portrait of Gennarino, but the location of that work is not known. Comparing Luigi's portrait to the physical description of Gennarino from his passport (e.g., the dimpled chin), a family resemblance is obvious.

of Modern Languages, as well as teaching drawing and painting.⁶⁵ School terms ran ten months, from October to July, leaving two months free for travel.

Adjunct teaching has seldom been a secure occupation. The two years Gennarino worked for Mrs. Pellet was the first of a series of transitory teaching positions. In eight years, he taught at five different Richmond boarding schools. Gennarino may have moved back to Richmond precisely because it offered abundant, if short-term, teaching opportunities. Where he taught may have mattered little because Gennarino's heart was firmly centered on his art. He had a studio on Ninth Street, on the grounds of a grand old mansion owned by physician James Beale.⁶⁶ During this period, he made crayon portraits of a number of notable Virginians, including James Lyons, Joseph Carrington Cabell, Robert Craig Stanard, and at least three members of the Marshall Masonic Lodge in Lynchburg.⁶⁷ He exhibited from time to time in local venues, such as Woodhouse's store and the Mechanics Institute fair.⁶⁸ He also had admirers who continued to promote his art: "Mr. Persico has just completed a picture in crayon, to which we beg leave to call the attention of connoisseurs, amateurs, and the public generally. The subject is an aged hermit paying his devotions at the foot of the cross, in the mouth of a cave... The figure is almost startlingly natural... Mr. P. has on the easel, and nearly completed, the counterpart of the same picture – the hermit dying in the mouth of the cave, which... appears even more striking..."⁶⁹

Death of a Hermit

The picture of the dying hermit would turn out to be prophetic. Although he was scheduled to teach Italian during the Fall 1860 term at Mrs. Brook's Boarding and Day School, he did not return to Richmond following the two-month summer break.⁷⁰ No obituary was printed. He left no note and sent no letters to friends. Gennarino Persico just vanished. It was Giuseppe Piccioli, a piano teacher in Baltimore who doubled as Vice-Consul for the Two Sicilies, who first noticed his absence. After failing to receive a response to several letters, Piccioli placed personal ads, starting in late July, in newspapers in Baltimore, Richmond, and Washington, D.C., asking for information about Signor G. Persico.⁷¹

Elizabeth Prentiss née Payson, the teacher at the Persicos' boarding school who stayed even after it was clear the school was doomed, left a clue to Gennarino's fate. Perhaps she kept in contact with the McKnights because she had roomed with Gennarino's stepdaughter, Catherine Kennedy, during her final teaching stint in Richmond.⁷² Perhaps she heard from another source. Somewhere among her writings and letters, Elizabeth made a note about Gennarino's death. In her posthumous biography assembled by her clergyman husband, that note was rendered as, "he is said to have been lost at sea on his way to Italy."⁷³

Suicide was not a topic publicly addressed at the time and would have prevented burial on consecrated ground, if there had been a body. Reasons for depression are easy to fathom. Gennarino never recovered, financially, from his bankruptcy. He failed at a second school financed by his father-in-law. By the time of his death, he lacked immediate family, his stepdaughter having died in 1849.⁷⁴ When he booked the fateful passage across the Atlantic, he had probably just received news of Luigi's death in Marseille.

Early in his career, Gennarino repeatedly painted the Madonna and child, signs of new life and hope and good things to come. Towards the end of his life, he focused on a different religious trope – the austere saint isolated from society, making his peace with God and the death that is imminent. Having finished his final hermit painting, somewhere in mid-Atlantic, on a steamer ferrying him home, Gennarino found mercy.

Legacy

A handful of Gennarino's portraits are held by museums and universities, including the Metropolitan Museum of Art, the Reading Public Museum, the College of William and Mary, and the University of Virginia. Many more are in private collections and are known, largely, because they are occasionally lent for exhibition. While his portraits from the early 1820s tend to look a little flat and unnatural, he quickly became an accomplished portraitist, and his later work is marvelously realistic. Sadly, I was unable to locate any of his history paintings or his portrait by Catlin or determine whether they survived. His legacy includes the name of a passage in Mammoth Cave, which, if not originally named Persico Avenue, would not today be called Pensico or Pensacola Avenue.

The author welcomes communication about the Persicos or Mammoth Cave and may be contacted at katie.algeo@wku.edu. Further information about Gennarino Persico's paintings is especially sought.

Notes

¹ Algeo, forthcoming.

² "Mr. Perisco's Drawing and Painting Academy," [Philadelphia] *National Gazette*, September 6, 1824, p.3.

³ "Milan Journal," [London] *Morning Post*, August 7, 1820, p.3. Caroline resided in Naples after separating from her husband, the future King George IV, and frequently socialized with Joachim Murat, then King of Naples. They were rumored to be lovers.

⁴ Confusingly, prior to the merger, the Kingdom of Naples was formally titled the Kingdom of Sicily, just as the politically independent island was also the Kingdom of Sicily. Thus, when merged, they became the two Sicilies.

⁵ Johnson, Dale T. 1990. *American Portrait Miniatures in the Manney Collection*. New York: Metropolitan Museum of Art, p.178.

⁶ Ibid.

⁷ Luigi Persico to Benjamin Champneys, [no month] 16, 1820, in Hensel, W.U. 1912. "An Italian Artist in Old Lancaster," *Papers Read Before the Lancaster County Historical Society*, 16(3), 93-94.

⁸ "Miniature Painting," *Lancaster [PA] Intelligencer*, October 27, 1802, p.2.

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- ⁹ Sims, Jr., L. Moody. 1978. "Nineteenth Century Virginia Portraiture: Gennaro Persico, James W. Ford, and Louis M.D. Guillaume," *Southern Quarterly*, 17(1), 15-28.
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- ¹¹ The 1823 declaration of intent was documented on the 1844 form that completed the naturalization process. "Petition of Naturalization for Gennarino Persico," Petition 1325, October 28, 1844, Pennsylvania Supreme Court, Philadelphia, Ancestry.com.
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- ¹⁵ Kilbride, Daniel. "Philadelphia and the Southern Elite: Class, Kinship, and Culture in Antebellum America" (PhD Diss., University of Florida, 1997) p.80.
- ¹⁶ Posner, Russel M. 1971. "Philadelphia in 1830: An English View," *Pennsylvania Magazine of History and Biography* 95(2), 242-243.
- ¹⁷ *National Gazette*, May 27, 1829, p.3; *Charleston [SC] Daily Courier*, June 2, 1829, p.3; [London] *Standard*, June 22, 1829, p.3.
- ¹⁸ Alexander Hammett, U.S. Consul in Naples 1809-1860, documented Gennarino's involvement in the case. On April 8, 1851, he wrote a letter, asking what had been done and seeking the return of the documents. Hammett notes that Gennarino had not returned to Naples during the period 1830-1837. There is no documentation that the case was ever resolved. Marraro, Howard R. 1951. *United States Ministers to the Kingdom of the Two Sicilies: Instructions and Dispatches, 1816-1861, Vol 2*. New York: S.F. Vanni, pp.710-711.
- ¹⁹ Falk 1988.
- ²⁰ "Mr. Persico, of Philadelphia" *Richmond Whig*, June 25, 1832, p.3.
- ²¹ "English and French Academy for Young Girls," *Richmond Enquirer*, October 16, 1832, p.4.
- ²² "Mr. Persico's Boarding and Day School," *Richmond Enquirer*, October 6, 1835, p.1; "Mrs. Henriques' Academy for Young Ladies," *Richmond Enquirer*, September 27, 1836, p.3.
- ²³ Simms 1978, 19.
- ²⁴ *National Gazette*, April 30, 1836, p.2.
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- ²⁷ "Fourth of July Celebrations," *Richmond Enquirer*, July 16, 1839, p.1.
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- ³⁰ "To the editor of the Enquirer," *Richmond Enquirer*, Oct. 8, 1839, p.3.
- ³¹ Ibid.
- ³² Ibid.
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- ³⁵ Ibid.
- ³⁶ Conner, Eugene H. and Samuel W. Thomas, "John Croghan [1790-1849]: An Enterprising Kentucky Physician," *Filson Club Historical Quarterly* 40 (3), 205-234.
- ³⁷ Algeo, forthcoming.
- ³⁸ Elizabeth Payson would later marry the Reverend George L Prentiss, who produced a posthumous biography: Prentiss, George L. 1882. *The Life and Letters of Elizabeth Prentiss*. New York: Anson D.F. Randolph and Company.
- ³⁹ Ibid, p.52.

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- ⁴⁰ Ibid, p.80.
- ⁴¹ Ibid, pp.40-41.
- ⁴² Ibid, p.52.
- ⁴³ Ibid, p.40.
- ⁴⁴ John James Audubon to Victor G. Audubon, April 15, 1840, in Corning, Howard, ed. 1969 (1930). *Letters of John James Audubon 1826-1840*, Vol.2, pp. 257-261.
- ⁴⁵ Simms 1978, p.18.
- ⁴⁶ Ibid, p.19.
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- ⁵² Ibid.
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- ⁷² Prentiss 1882, p.75.
- ⁷³ Ibid, p.73.
- ⁷⁴ [Philadelphia] *Public Ledger*, January 9, 1849, p.2. Sadly, Catherine died only 17 days after marrying James Lesley, Jr. of Philadelphia, "after a very brief illness."

THE REVIVAL OF ROBBER'S CAVE

By Gary K. Soule

On October 24, 2022, the author visited the 1.42-acre Robber's Cave property in Lincoln, Lancaster County, Nebraska, for the fourth time. It was a thrill to finally see the revival of an urban, ex-commercial show cave. My three previous attempts to examine the cave were in 1993, 2001, and 2011. Only on my initial 1993 visit, did any surface remnants exist suggesting that a historic, ex-commercial cave lay hidden below. Even then, it was only a secured raised stairway that led down into the cave. Subsequent visits showed only a debris strewn, empty lot, with an indication of an old, filled-over descending stairway that kids managed to uncover from time to time. Back in 1987, I had written to the show cave for information. Viola (Vi) Scarborough sent me a green history sheet giving facts about the cave with tour information. Having visited many old show caves, it was an almost forgone conclusion that Robber's Cave would be no more. One need only look at the Twin Cities area, to see how old, historic public caves in urban areas have faded away.



Gary K. Soule in Tunnel No. 1, Robber's Cave, October 24, 2022. Photo by Joel Green.

I remember once visiting the ex-commercial Lakeland Caverns, in Charles Town, West Virginia. After introducing myself, a lady said I could visit the cave. She went behind the counter in a small lady's dress store and lifted a trap door. I peered down a vertical drop to the cave below! No stairs existed anymore. I climbed down into the cave. It was a thrill to see it, and the tiny "lake" it contained.

Crystal Cave, under Joplin, Missouri, was discovered by mining in 1893. It was a giant 225-foot-long geode containing huge calcite crystals. So unique was the cave that it was opened to the public on July 4, 1908. Here again, when the mining finally stopped, the water pumps were turned off. The water-table rose and the cave was permanently flooded by 1930.

Yet another urban cave, Cherokee Cave, was once shown under St. Louis, Missouri. Discovered in the mid-1940's, this natural cave was used to store beer. In April 1950, the cave was first shown commercially, but discontinued in 1960. In 1961, the Missouri Highway Department purchased the property and the main entrance to the show cave would eventually be collapsed and covered over by the construction of Interstate Highway 55.

Other urban caves have had similar events, but the one old, urban show cave to close, and then make a remarkable recovery, is Hidden River Cave in Horse Cave, Kentucky. It had closed due to urban industrial pollution. Now operated by the American Cave Conservation Association, its pollution problems have since been addressed, and it is better than ever! Even an impressive cable suspension bridge now spans a river gorge to permit excited visitors to reach the huge Sunset Dome!

As for Robber's Cave, I was very impressed when I saw the property on my latest visit. The property is now fully developed with a modern looking, 9,000 square foot building that was originally opened in 2016 as the Blue Blood Brewery. The parking lots in front and behind the building are not only paved, but with the more expensive concrete instead of blacktopping besides. The brewery failed, but the show cave tours thrived!

Today, a very talented, soft-spoken individual and educator, Joel Green, from Lincoln, personally schedules and guides tours of this Dakota Sandstone formed cave. His grasp and knowledge of the cave's history is second to none! While parts of the cave were excavated and extended by a former old on-site brewery employee, at least part of the cave appears to be natural. I especially liked the exposed cords and electric light bulbs high up in the center of the ceiling. Why? Because they were just like the old postcards showed from when it was originally developed!

The surface landscaping included an outside park-like setting, fancy night rope lighting, a stage, etc. Several surface vents, including one man-made emergency cave exit, exist at the south end of the property. One enters the cave from the lower level of the building by

means of a flight of modern-looking stairs. The emergency cave exit is a long flight of stairs that leads upward from the rear part of the cave. Even a lighted “EXIT” sign exists here, and in another place in the cave. This was required due to the event of a fire with the building above, or an accident in the cave.

Although odd, since caves do not burn, I must point out that Cherokee Cave near Solway, Tennessee, once proved that this Robber’s Cave emergency exit does have some merit. In October 1980, a restaurant existed over the large, slanted, walk-in culvert pipe to this, now former, show cave. It was the only entrance and exit to the beautiful show cave. A tour group was inside the cave at the time. When they returned to exit the cave, all the guide saw when looking up was smoke and flames! He very wisely took the group back to the rear part of the show cave and they waited. Eventually firefighters escorted them out of the cave after the combination restaurant and gift shop building was destroyed. Just the remains of the still smoking structure existed as the tourists walked out! So, this is evidence that an emergency exit to a show cave does have some merit! This cave has also gone by other names including Grand Caverns, Caveman’s Palace, Cherokee Fire Site Ceremonial Caverns, Atomic Caverns, and Caverns of the Ridge.

Greg Brick comments more on the Dakota Sandstone geology of Robber’s Cave and its history in the following article. I might point out that the modern surface building is now used for wedding venues. Like Melrose Caverns at Lacey Springs, Virginia, a cave tour is now offered as part of their wedding packages. Here again, both Melrose Caverns and Robber’s Cave, were at one time ex-commercial caves, and both have a large building on the surface with direct, interior access to their respective caves. No need exists for wedding guests to let the outside weather dampen, or ruin, their dress clothes with a walking, underground cave tour!

More information at:

<https://www.robberscavetours.com>



Slim Gary in Fat Man's Misery.

HOW NEBRASKA'S ROBBER'S CAVE GOT ALL THE LOOT: A STUDY IN COMPARATIVE CAVE UTILIZATION

By Greg Brick

"Superstitions, legends, and fairy stories have always clustered about caves."

– Louise Pound, Nebraska Cave Lore

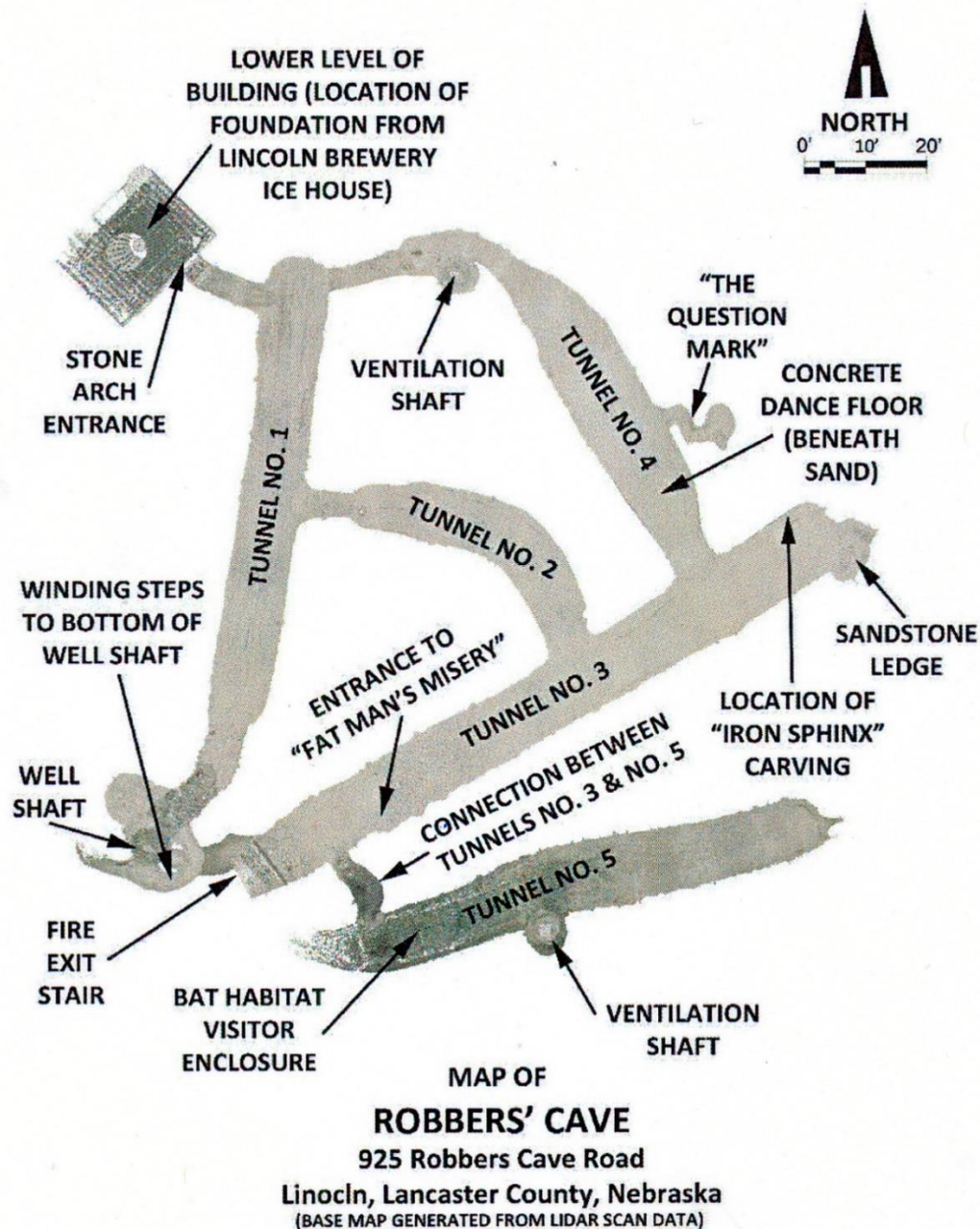
The history of Robber's Cave in Lincoln, Nebraska, is a blend of fact and fiction, more so than almost any cave I've dealt with. Being the only cave in the Lincoln area – as one of its variant names, "Lincoln Cave," emphasizes – it has served to focus and funnel ideas and impulses relating to the underground from a wide area, taking on many roles. While abandoned for intervals of time, it was placed on the National Register of Historic Places in 2020 and the revamped tours, led by Joel Green, have won Nebraska's Outstanding Tourism Attraction of the Year 2022. The purpose of this article is to examine how this cave compares with similar caves in another Midwestern state (Minnesota) with which the author is familiar.

Historical Background

Celebrated folklorist Louise Pound (1872-1958) injected a healthy dose of skepticism into stories about Robber's Cave (Pound, 1948), although Green (2018, pp. 64-65) asserts that she was too dismissive. This brief historical introduction presents information that seems to be well established.

What we know as Robber's Cave has an unauthenticated "prehistory" as a smaller natural cave. While it's alleged that this was a sacred Pawnee cave or Pawnee council cave, some experts have deemed the location "too far southeast for the Pawnee" (Green, 2018, pp. 44-45). As for it being a "council cave," the supposed corresponding natural remnant inside modern-day Robber's Cave, dubbed Fat Man's Misery (46.5 feet long), seems hopelessly cramped for that purpose. In 1862 (again, according to legend) this natural cave was used by settlers as a place to hide from marauding Indians. However, we are immediately struck with the absurdity of settlers hiding in an Indian cave to escape from those same Indians. Habitation caves often draw attention to themselves, considering the noise, trash, smoky plumes from cooking fires, and so forth.

Apparently, the upper part of the sandstone at Robber's Cave was ferruginous—cemented by iron cements—forming a caprock. This caprock portion of the sandstone was supposedly quarried as dimension stone in the 1860s. But from 1869 to 1873, Jacob Andra dug out the underlying, unconsolidated, sand with pick and shovel, creating a lagering cave with 500 feet of passage divided into 5 rooms on 3 levels (see map). Ice from nearby lakes and rivers was used to stock the cave as necessary. The financial panic of 1873 forced the owners to sell their brewery to other brewers.



According to Sloane and Gurnee (1966), the cave takes its name from the bank robber Jesse James, specifically, his supposed use of it as a hiding place after the botched 1876 Northfield, Minn., robbery attempt. This is unlikely because the cave was part of an active brewery at the time. The following clipping from the *Nebraska State Journal* (July 25, 1888), provided by Joel Green, gives us the flavor of such hyperbole, with an early use of the name “Robber’s Cave”:

Although numerous Nebraska towns are climbing toward the stars, none of them seem to have attractions which rival Lincoln’s Robber’s Cave. This gloomy cavern is located south of town and is replete with skulls and dead men’s bones. In it Frank James used to assemble his blood thirsty hordes and impress on them the necessity of moistening the earth with human blood. In it men have sunk to the floor with commodious carving knives to the person, with their glassy eyes turned to the bleak midwinter heavens which sent them no relief. In it ghosts hold grotesque orgies at the dread hour when churchyards yawn. In it are large blonde ghosts with flowing robes and hollow eyes. Lincoln has a right to point with glowing pride to the Robber’s Cave. It discounts anything between Nebraska City and the Dead Sea, and its specters are equal to the best.

From 1906 to 1990, four generations of the Scarborough family owned the cave, intermittently running it as a commercial attraction, giving tours, and renting it out for events, as documented by Green (2018). The name “Robber’s Cave” gained currency after 1906, as part of their efforts to market the cave tours (see back cover).

As for the length of Robber’s Cave, two figures are frequently quoted, 500 feet and 700 feet. If we can’t get that straight, what hope do we have of sorting out the legends that confronts us on all sides? In 1984, a professional survey of the cave was conducted but no total length reported. While the National Register nomination does not report a total length, it provides passage lengths which add up to 489.5 feet. So, 500 feet seems closer to the truth.

Geological Speculation

If Robber’s Cave did start with a natural cave, the geologic speculation as to its origin runs the gamut: Salt Creek floodwater invasion via sinkholes; artesian blowout (many water wells tapping the Dakota Sandstone are, after all artesian); even volcanic (based on the known sedimentary iron seen in the walls of the cave, mistaken for slag). But if there was a natural cave here originally, groundwater piping is almost certainly the cause. Flowing groundwater mechanically excavates the cave grain by grain. It seems odd to me, however, that among the welter of wild speculation on this cave’s origin, no author has explicitly mentioned this mechanism by name. To be sure, the National Register of Historic Places Registration Form for the cave (2019) claims that “The ceiling of Tunnel No. 1 has a peaked geometry that geologists have determined was formed through natural water-induced erosion,” but I strongly disagree with the unnamed geologists, based on my observations of the artificial sandstone caves of Minnesota, where peaked

ceilings of this kind are common. The ceilings often start out as rounded, but break upwards over time, until a stable “Gothic arch” configuration is achieved, minimizing void stress. It’s a natural collapse process, but has nothing to do with water erosion.

While piping caves are common in the arid West (Halliday, 2007), I was informed by Dr. Matt Joeckel, Nebraska state geologist, who has published widely on the Dakota Sandstone, that while he is aware of a natural cave in this formation in Kansas, he has not seen them in Nebraska (pers. comm, October 21, 2022). So, if Robber’s Cave is an enlarged natural cave, it must be very exceptional, indeed, one of a kind.

Comparative Cave Utilization

The sandstone caves of the Minneapolis-St. Paul area of Minnesota form a comparable urban cave area (Brick, 2009, 2017). Yet the sandstone is widely different in age: Cretaceous Dakota Sandstone versus Ordovician St. Peter Sandstone.

I was given a tour of Robber’s Cave by Joel Green on September 18, 2022, and found the general appearance of Dakota Sandstone caves and St. Peter Sandstone caves eerily similar. The sandstone is white with ochre banding, and friable in both cases. The cave even had that same earthy smell! The particular section of Dakota Sandstone exposed in the walls of Robber’s Cave has been deemed fluvial in origin by some geologists and marine by others (Fielding et al, 2019) and there are similar disputes about the St. Peter Sandstone. To me, it appeared that hummocky cross-stratification dominated the exposed stratigraphy, but given the brevity of my visit, I defer to researchers who have had the opportunity to conduct more detailed studies.

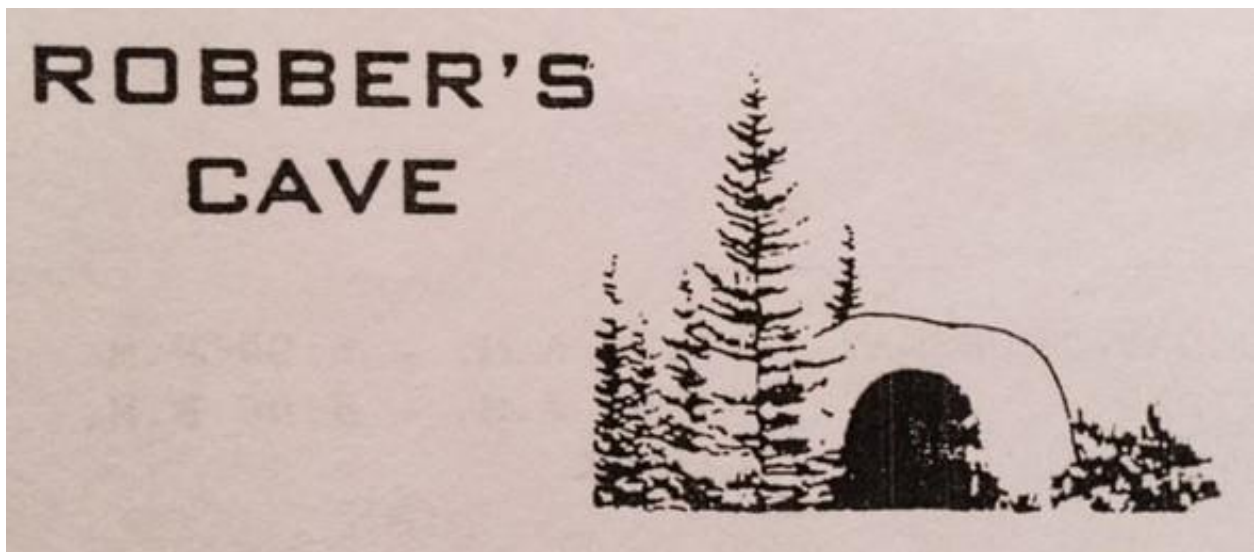
The apparent similarity of the sandstones inspired me to compare other aspects of the caves. In an attempt to quantify the results, I’ve identified two dozen distinct categories of cave usage in the table below, including both natural and artificial caves, based on Soule (2017), Green (2018), and Brick (2009, 2017). Only usages that were on-going are listed, not one-time events, and they must occur in the cave, not merely at the cave. While there are many other usages in the world at large, these are the ones relevant to the present comparison.

Of the 24 usages in the table, 16, or two-thirds, are found at Robber’s Cave, 3 of which are unique to it. On the other hand, the Minnesota caves had 8 usages not found at Robber’s Cave, but these are divided among several caves. No single Minnesota cave had such a wide array of usage. It does indeed appear that being the only cave in Lincoln, has led to Robber’s Cave becoming a jack of all trades.

CAVE USAGE	ROBBER'S CAVE	ST. PETER CAVE EXAMPLE (MINNESOTA)
Sacred space (Native American)	Y	Carver's Cave
Silica mining	Y	Many
Lagering	Y	Many
Mushroom gardening	Y	Many
Shelter (bombs, fallout)	Y	Many
Entertainment rental	Y	Wabasha Street Caves
Group meetings	Y	Wabasha Street Caves
Party cave	Y	Banholzer Cave
Games	Y	Heinrich Cave
Animal pens	Y	Horsethief Cave
Legendary outlaws	Y	Jesse James Cave
Habitation (tramps)	Y	North Star Cave
Connectivity legends	Y	Carver's Cave
Daycare facility	Y	N
Gun range	Y	N
Initiations	Y	N
Cheese ripening	N	Many
Rental storage	N	Villaume Caves
Nightclub	N	Mystic Caverns
Bowling alley	N	Fandell Cave
Brick-drying kiln	N	Echo Cave
Trout fishing ponds	N	Curtis Caves
Institutional busy work (digging)	N	Quarry Hill Cave
Vegetable storage	N	Quarry Hill Cave

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A strange, igloo-like image of Robber's Cave.

CALCULATING THE HISTORIC AMOUNT OF SEWAGE DISCHARGED THROUGH A ST. LOUIS CAVE

By Joe Light

The City of St. Louis, Missouri, was built on sinkholes, and as the city grew, the waste generated by the city needed to go somewhere. That somewhere was down into the ground. Unfortunately, many St. Louis caves and sinkholes have a soiled history of being utilized for sewage disposal.

It was never documented how many caves were used as sewers and how much waste was dumped into them, but using historical data, we can calculate the data for one cave, Minnehaha Cave.

The history of sewage disposal into the cave began after the cave was utilized by a brewery for a short time in the 1850s. A few decades after the brewing adventure, the owner of the land and cave, Dr. N. Demenil, decided to utilize the cave as a sewer for a row houses/flats that he was building in 1876.¹ “A new feature about them,” the local paper said of the row houses, “is that they are connected with a natural sewer, or cave, opening into the river just below the Arsenal.”²



The row houses that utilized Minnehaha Cave as a sewer. The buildings have since been demolished. Photo courtesy of the Missouri Speleological Survey.

The flats/houses were occupied and actively polluting Minnehaha Cave for 70 years. The pollution ended in 1946 when the buildings were vacated and repurposed for the Cherokee Cave Museum.³

DR. N. DEMENIL has built a fine row of two story brick houses at the corner of Cherokee and Seventh streets. A new feature about them is that they are connected with a natural sewer, or cave, opening into the river just below the Arsenal.

From the July 10, 1876 *St. Louis Globe Democrat* newspaper, page 4.

To determine the amount of sewage drained through the cave, we need to know several factors including how long the cave was used as a sewer and how many people utilized the cave sewer.

We know that construction took place in 1876 and the process of vacating the building for the construction of the Cherokee Cave Museum began in 1946.^{2,3}

The amount of sewage correlates with the amount of water being used. The amount of water correlates to the number of people in the buildings. The density of the occupancy varied over time, but a good average would be data from the 1920s. In 1921, the average family was 4.3 people.⁴

N = Number of people per unit. There was an average of 4.3 people per unit.⁴

U = Number of units. According to the 1909 Sanborn Fire Maps, there were 7 buildings, with a family per floor. This is 14 family units. This excludes two commercial store fronts.

W = Water usage which translates to sewage. In 1911, the average occupant of a large city at home used 30 gallons of water per day or 10,950 gallons a year.⁵

T = Number of years the buildings were occupied which was 70 years.^{2,3}

$$N \times U \times W \times T = 46,143,300 \text{ gallons of sewage}$$

An estimated 46,143,300 gallons of sewage was dumped into the Minnehaha Cave over 70 years!

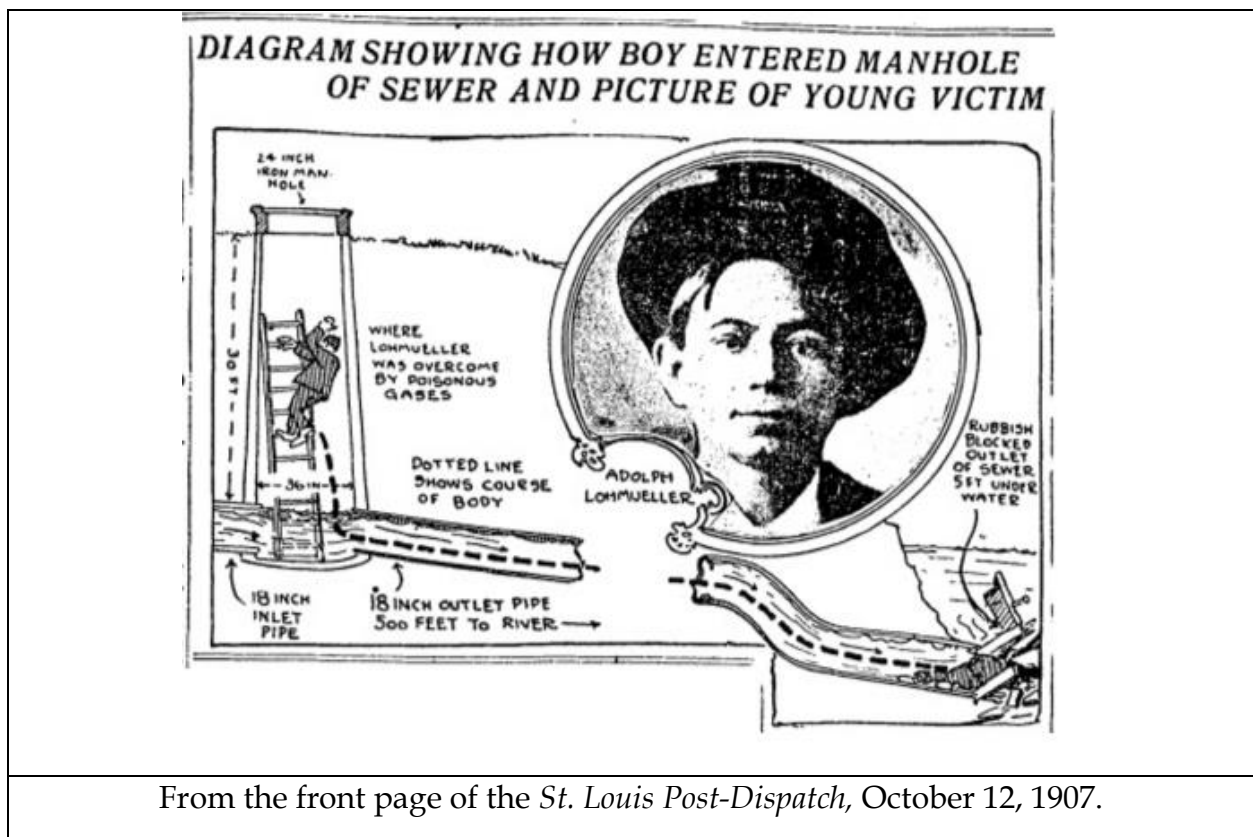
To grasp the amount of sewage, a couple of comparisons can be made.

- The average garden hose provides 5 gallons per minute. A garden would have to flow nonstop for 6,408 days or 17.5 years to equal this volume.⁶
- An Olympic sized swimming pool holds 660,000 gallons, thus just under 70 Olympic sized swimming pools worth of sewage went through the cave.⁷

- 42 gallons is held by an oil barrel, thus over a million barrels of sewage flowed through the cave.

The amount of untreated sewage pulsing underground through Minnehaha Cave was not just an environmental disaster, it was deadly for a young man. In 1907, a contractor offered young Adolph Lohmueller 25 cents to enter the sewer that connected to the cave that was the exit for the waste coming from Minnehaha Cave.

As he descended into the sewer, the fumes were so toxic and overpowering, that Adolph collapsed and tumbled to his death. As local officials attempted to dig down to the sewer to rescue the 17-year-old boy, 2000 people had gathered to watch. Eventually, the limp dead body was recovered and returned to Adolph's quietly sobbing father.^{8,9,10,11}

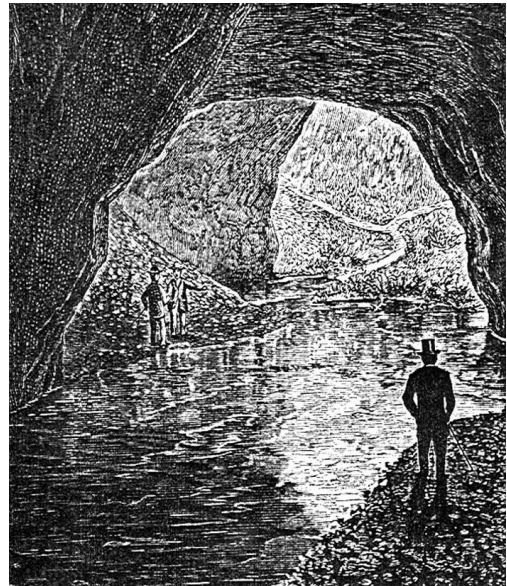


In 1989, the local sewer district rediscovered the sewer and the cave, now named Adolph Lohmuller Cave, which is the water exit for the Minnehaha Cave, and allowed cavers from the Meramec Valley Grotto to explore it. Although not as polluted as the days when Adolph Lohmueller died in the cave, the cave still suffers from pollution. Cave formations that should be a sterling white are black with staining and one formation is coated with a bright orange substance. The water had a distinct smell of solvents and felt oily to the touch.¹²

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Editor's Note: Fountain Cave, the earliest show cave in Minnesota (1850s), is another example of an historic cave that was used as a sewer. In this case, the Omaha railroad shops were built directly over the cave in 1880. The cave was sealed by highway construction in 1960, just as the present era of environmental awareness was dawning. Pollution histories like this demonstrate how attitudes toward caves have changed over time.



“WHITE AS THE DRIVEN SNOW”: NEPTUNIAN ECHOES FROM THE DEEP SEWERS

By Greg Brick

“Pretty soon, you begin to hear voices in the dripping water, too.” – Subterranean Twin Cities

Those of you who’ve had a geology course have probably heard of “Neptunism,” the extinct theory from the late 18th and early 19th centuries, usually attributed to Abraham Werner (**Fig. 1**). All rocks were deposited from water, according to Werner, precipitating from a primeval Universal Ocean. Yes, even granite, that classic igneous rock, was regarded as a seawater precipitate!

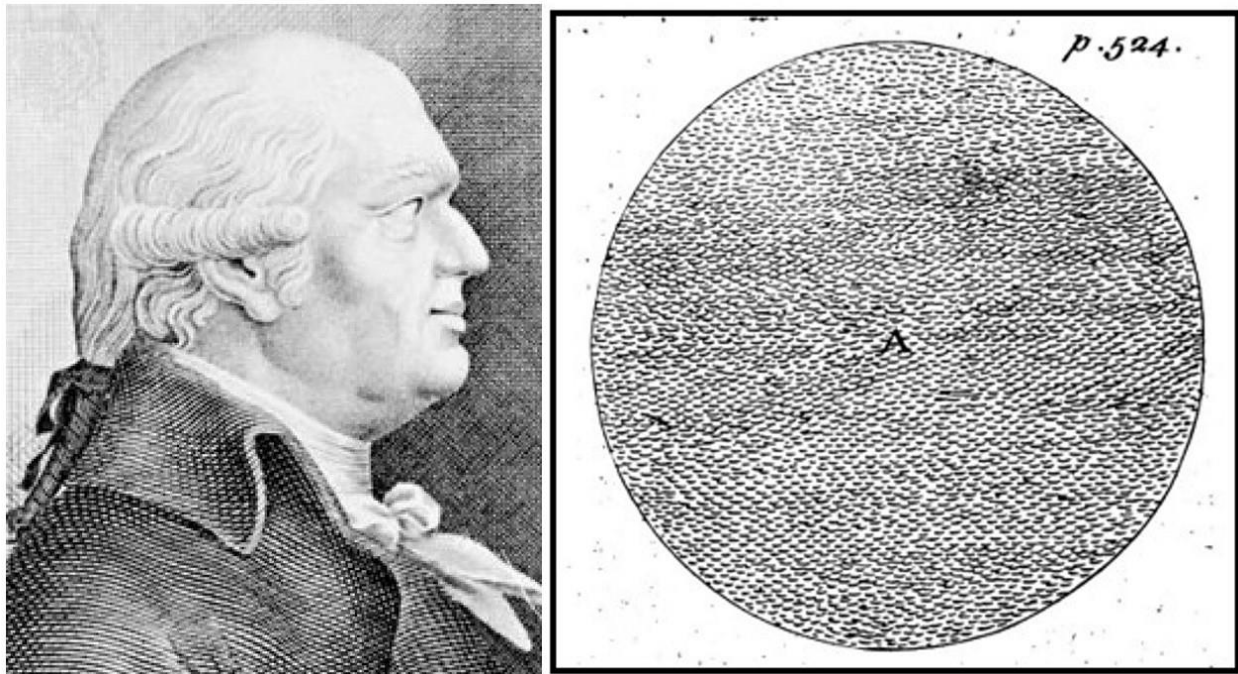


Fig. 1. Abraham Werner, father of Neptunism (left) and his water world, showing the Universal Ocean.

A recent issue of EARTH SCIENCES HISTORY magazine carries an article of mine on this topic, describing how Neptunism, originating in Germany, manifested itself locally, in Minnesota. William H. Keating, geologist to Major Stephen Long’s expedition up the St. Peter’s (now Minnesota) River, encountered the St. Peter Sandstone at Fort Snelling in 1823 (**Fig. 2**). On the basis of grain shape, he asserted that the sandstone was a chemical precipitate—analogueous to salt formation—from a primeval sea covering the Midwest (Brick 2022).

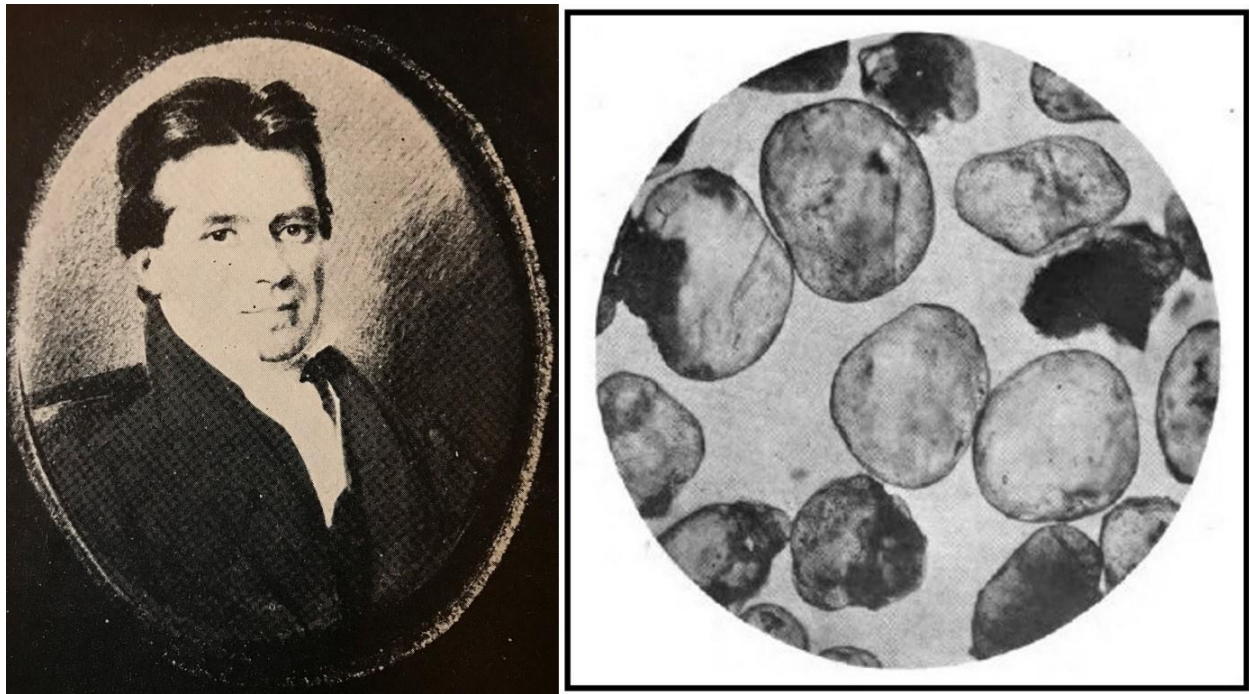


Fig. 2. William H. Keating, apostle of Midwestern Neptunism (left) and the first to examine St. Peter sand grains under the microscope.

Keating's claim was endorsed by others. Wisconsin antiquarian and topographer Increase A. Lapham investigated the St. Peter, in the last days of its anonymity before geologist David Dale Owen bestowed upon it the saintly moniker we cherish today. "The sandstone is mostly pure, and white as the driven snow," Lapham reported in 1846. "The grains appear to be perfect quartz crystals, and not beach sand smoothed and ground by the action of water and then hardened into rock." It should be noted that today we believe quite the opposite – that it was indeed beach sand!

Newton H. Winchell, who established the Minnesota Geological Survey, snuffed out the Neptunist claims when he found fossils in the St. Peter Sandstone, a half century after Keating's 1823 report. "They dispel the idea, which has been suggested, of the possible chemical origin of the St. Peter sandstone, as an oceanic precipitate," he asserted in 1876.

But although the Neptunist claims were no longer taken seriously by geologists, lay persons continued to echo them. George L. Wilson, City Engineer of St. Paul, Minn., gave talks to engineering societies in the 1890s in which he raved about the purity of the sandstone bedrock deep under the city through which his crews were busy carving sewer tunnels (**Fig. 3**). I've always regarded this juxtaposition of purity and impurity with some amusement!

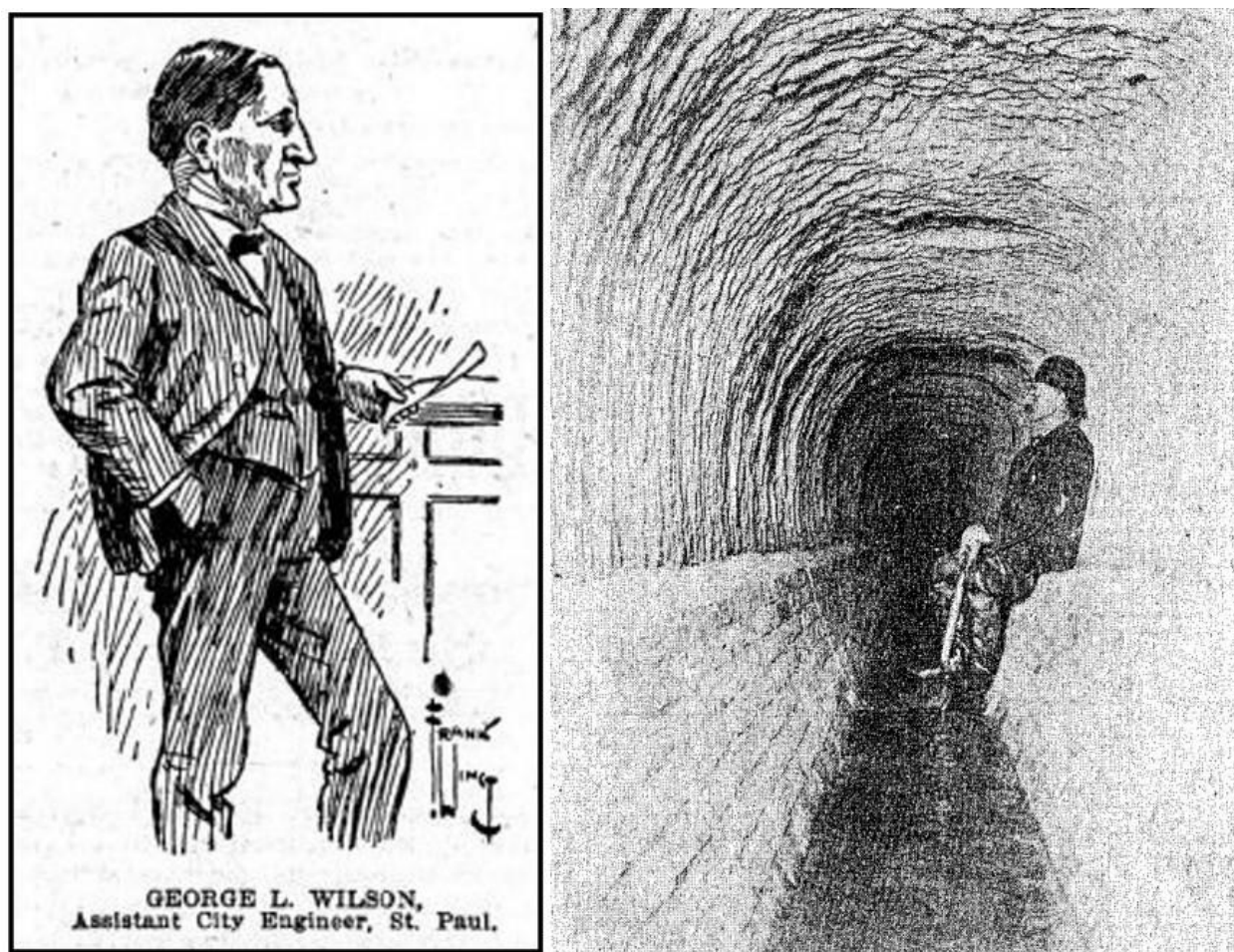


Fig. 3. George L. Wilson, apostle of St. Peter (left) and sandrock sewer under St. Paul.

In the 20th century there was a shift away from the word “purity,” which had commercial connotations, towards using the more neutral word “maturity.” Beginning in the 1940s, with the advent of compositional triangles for sandstone classification in textbooks, the word purity disappeared.

But a cultural echo of “purity” lives on in popular culture. The same purity of the St. Peter Sandstone that made it ideal for glass manufacture led to it being dubbed “the Ivory Soap of sediments” because the most commonly cited analysis of the sandstone gave 99.44% silica, this percentage being by coincidence the “purity” of Ivory Soap as touted in advertisements from 1882 onwards (**Fig. 4**). This story was told a century later in Ojakangas and Matsch’s 1982 textbook, *Minnesota’s Geology*.

But it puzzled me for years — what are the “impurities” of soap? The *New York Times* ran a brief story on this topic on May 22, 1994, which nicely answered the question:

99.44 Percent Pure What? The pages of a magazine for professional chemists have been all abuzz recently with conflicting reports on one of the pressing issues of quality control in the industry. Is Ivory Soap 99.44 percent pure? And pure what?

Various contributors to the weekly Chemical & Engineering News sent in old Procter & Gamble advertisements and folklore, stories heard from someone who knew someone. One old ad had original Ivory as 82.48 percent “true soap.” One story had it that the whole percentage purity thing was an accident. An ad man came into the lab and found a chemist at work whose analysis of the soap showed that all the ingredients added up to 99.44 percent of the whole. Before he rounded it off, the slogan maker seized on the number.

A Procter & Gamble archivist, Edward Rider, says that although the soap's history is shrouded in myth, the best source for the number is an analysis done Dec. 14, 1882, by a New York City chemist, W. M. Habirshaw, who found the soap to be 72.53 percent “fatty anhydrides,” 9.28 percent “soda combined” and 17.63 percent “water by difference.” If you add up the numbers you get 99.44 percent. And the first known ad to use this figure, a portion of which is shown below, appeared a week later.

The lower 85.48 percent figure is from an analysis that added up only the combination of fatty acids and soda--“true soap.” Missing from all the analyses is what, exactly, was in the water.

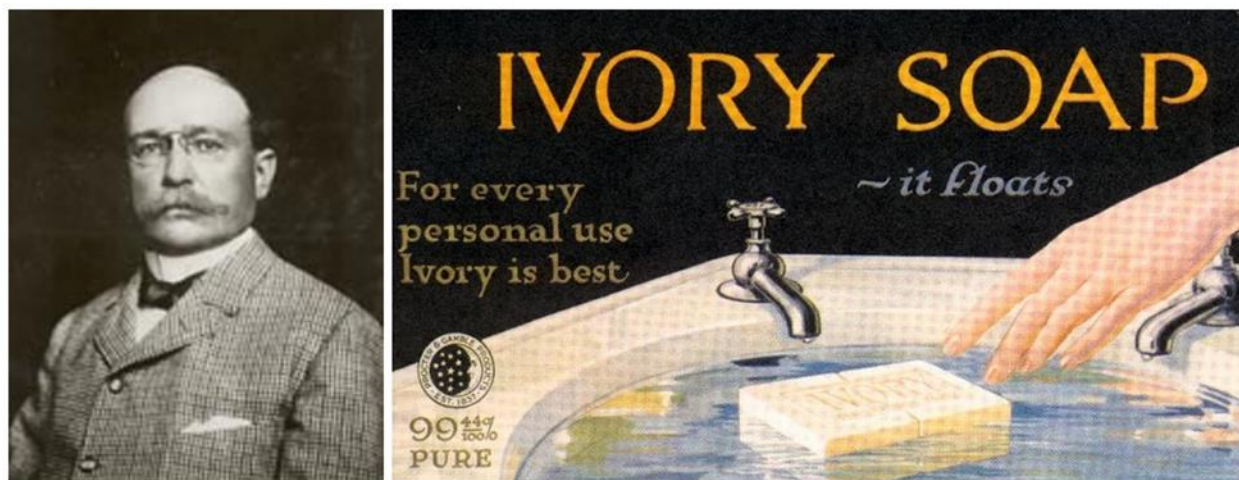


Fig. 4. Harley Procter (left) first used the 99.44% purity argument while marketing Ivory Soap in 1882. Some clean but nerdy geologist associated the soap with the ivory-white sandstone!

Finally, while pondering purity, it's important to get some historical perspective. Not all impurities are bad. In fact, glass-making depended on them at one time. The best glass sands of Antiquity were not the purest, but those which had the ideal combination of silica with soda and lime. Silica has a high melting point and to lower it into reasonable

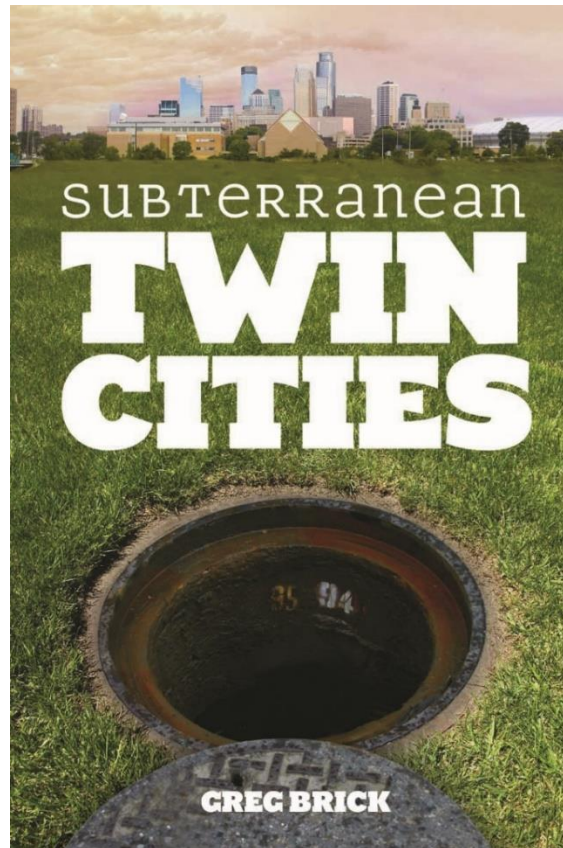
range, a flux such as soda was required. That's why pure silica glass, known as lechatelierite, such as is found in fulgurites (created by lightning strikes on sand dunes) has only specialty applications. But a simple soda-silica glass is easily corroded by water and so a stabilizer, such as lime, was also required. While all three components of soda-lime-silica glass can be brought together artificially, it was simpler to seek natural deposits that fortuitously had the right mixture to begin with. From there you could add various metals like cobalt to get colored glasses.

For colorless glass, by contrast, you must eliminate iron content, and indeed iron remained the most deleterious St. Peter impurity, as when casting automobile windows at the Ford Motor Company glass plant in St. Paul. And thus, I leave you with that last Neptunian echo, the honking of a Model T in the Mississippi River gorge!

Recommended Reading

Greg Brick (2009) *Subterranean Twin Cities*. Minneapolis: University of Minnesota Press

Greg Brick (2022) The Far Shoals of Neptunism: William H. Keating and the St. Peter Sandstone in the American Midwest. *Earth Sciences History* 41(1): 64-76



ABSTRACTS FROM THE SPELEAN HISTORY SESSION, NSS CONVENTION, RAPID CITY, SOUTH DAKOTA, JUNE 16, 2022

THE NATIONAL CAVE MUSEUM & LIBRARY, PARK CITY KENTUCKY

Gordon L. Smith, Jr. and John M. Benton

Groundbreaking for the National Cave Museum and Library occurred on October 20, 2015, at Park City Kentucky, on the grounds of privately owned Diamond Caverns, adjacent to Mammoth Cave National Park. Construction started June 2016 and finished in the fall of 2017. The current building has 4,800 square feet of floor space and future expansion is possible. The museum is the culmination of NSS caver Gordon Smith and his spelean collection originally started in 1968.

Thousands of cave related items are in the museum. Some examples are the William Halliday and Horace Hovey collections and the original 1812 Mammoth Cave saltpeter vat. Items on display and available for research include books, brochures, postcards, newspapers, stereo views, etc. Over 200 carbide lights are on display. There are large collections of various grotto newsletters from all over the United States. Some items are on loan to the Museum, such as the actual 26-pound rock that pinned Floyd Collins, and the restored Mammoth Cave stagecoach.

The National Cave Museum is a 501(c)(3) Private Operating Foundation and it is managed by a Board of 11 Directors. The museum is funded by Diamond Caverns which is 50% owned by the Museum. It is not open to the public on a regular basis, but is available to anyone by prior appointment. The Museum is located at exit 48 on I-65 in Park City, Kentucky, and the website is www.cavemuseum.org.

PRE-1820 HISTORIC GRAFFITI IN MAMMOTH CAVE, KENTUCKY

Joseph C. Douglas and Marion O. Smith

Although Mammoth Cave has many thousands of historic graffiti, the authors have only documented about twenty-five with dates prior to 1820. They are located in the major upper-level passages, including Broadway, Little Bat Avenue, Cyclops Gateway, Gothic Avenue, Indian Avenue, the Cataract, and Ganter Avenue. On both Standing Rock and Looking Glass Rock, pre-1820 graffiti are placed near (or on top of) conspicuous Native American art panels. However, others are in less accessible areas such as the small side passages related to Ganter Avenue. Three of the wall markings, from 1798, 1806, and 1811, may be inauthentic, mismarked, or represent birth dates. Another graffito, from November 13, 1811 by George Brown is probably authentic, as are the dozen or so marks from 1812, the most in the era. We documented single inscriptions from 1814 and 1816. Multiple visitors wrote their names in 1815, 1817, 1818, and 1819. Only a few have been identified, but it appears the post-1815 cave writers were primarily tourists, while some of the earlier visitors were more closely tied to the cave, including Hyman Gratz (the co-owner) and Aylett Buckner (from Hart County), as well as members of the Slaughter, Croghan, and Gatewood families. We know the names of several other visitors on the same trips. Some early graffiti are

initials, just years, or illegible. There are also undated names near the inscriptions which may be contemporaneous. No names of saltpeter miners have yet been identified, nor graffiti from early female visitors. Additional early wall markings are likely present but have been obscured by later overwriting.

JULES VERNE AND THE RUHMKORFF LAMP: A BRIEF HISTORY OF UNDERGROUND LIGHTING DEVICES

Dr. Cato Holler

Ever since primitive man first discovered fire and began fashioning torches of various kinds to illuminate his cave, the evolution of underground lighting has taken a long and sometimes convoluted pathway to where we are today. Torches, candles, various oil lamps, kerosene and Coleman lanterns, and carbide of course were all key steps in this early evolution of underground lighting. With the advent of electricity, things became much brighter. One of the more novel devices to come along was the Ruhmkorff lamp. Daniel Ruhmkorff, a German instrument maker, perfected, patented, and popularized the induction coil in 1851. Alphonse Dumas and Camille Benoit later took Ruhmkorff's coil and by combining it with Bunsen cells and a gas filled Geissler tube, invented a portable mining lamp. In 1858 Ruhmkorff was awarded the first Volta Prize from Napoleon III for his contribution toward the application of electricity. In 1864 (the same year in which Jules Verne's *Journey to the Center of the Earth* appeared) Dumas and Benoit received an award from the French Academy of Sciences for their invention, the Ruhmkorff Lamp. Verne always enjoyed incorporating the latest technology in his novels, so was quick to have his characters using the Ruhmkorff lamp in *From the Earth to the Moon*, also by Captain Nemo in *20,000 Leagues Under the Sea*, and of course by the intrepid explorers in *Journey to the Center of the Earth*. In reality however, Ruhmkorff's lamp was rather dim, somewhat fragile, and expensive. The advent of the incandescent lamp paved the way for Edison's mining lamps, and such mining essentials as the Koehler Wheat Lamp. Modern LED devices are commonplace now, and I'm sure even Jules Verne would be quite impressed!

A CAVE THROUGH TIME: HISTORIC ARCHAEOLOGY AT MAMMOTH CAVE, KENTUCKY

Kailey Alessi

Mammoth Cave, located in southern Kentucky, is the longest known cave in the world, with 420 miles of mapped passages. In addition to being a geological wonder, it has been visited by humans for thousands of years. Many projects have focused on the prehistoric archaeology of the Historic Entrance to the cave, but none have focused exclusively on the historic archaeology of this site. This presentation will seek to shed some light on the overlooked history and archaeology of the cave's historic period. The chronology of human modifications at the Historic Entrance, from saltpeter mining in the early 1800s to the development of tourist infrastructure during the twentieth century, will be considered. Particular attention will be given to the records of an ice

house located at the Historic Entrance sometime between 1839 and 1847, as well as to the fifty-foot pit referenced in Edmund Lee's 1835 map of the cave. The development of the gate and steps, from 1835 to the present, will also be discussed. Several conclusions can be drawn from this study. Firstly, historical records are often frustratingly vague. Secondly, archaeology can be used to fill in the gaps in the historical record. And finally, the history of the mundane, such as that of the steps and gates, is often lost or ignored. Taken together, these point towards the benefits historical archaeological studies can bring to our understanding of the history of human interactions with, and modifications to, cave environments.

HOW TO GROW A CAVE HISTORY BOOK

Catherine Bishop

If you have ever been involved in exploring and surveying a significant cave, you have probably heard the comment, "Somebody should write a book about this project!" If you enjoy writing, it might occur to you that the "somebody" should be you. Where do you start, and how do you progress to a favorable outcome? As in planting a garden, you need healthy seeds (the initial idea), rich soil with lots of nutrients (survey notes, trip reports, photographs, and first-person interviews), frequent cultivation and weeding (editors, proofreaders, critics), and plenty of time to wait for the harvest (nothing about writing a book occurs quickly, or on a rigid schedule). Once you decide to begin this venture, you may find it to be both easier and more difficult than you had anticipated, but it will certainly be interesting. Before I wrote *The James Cave Project: Sixty Years Inside Bald Knob*, a 500-page volume published by the NSS in late 2020, I gathered information from many sources, talked to lots of individuals, and spent three weekends poring over the archives of the NSS library. After at least two years, with more data constantly appearing, I put together an outline and began to write. I was fortunate to have a non-caving but tech-savvy sister who volunteered to do the layout, arrange photos, and prepare a file for the printer. It was difficult to find competent proofreaders so I did most of this myself, with the expected result of several errors making their way into print. The NSS did an excellent job of publishing, and the first 100 copies sold in just a few months. If you decide to preserve your project's history, go for it! You won't get rich, but your harvest will be invaluable.

COLORADO'S CYCLOPEAN CAVE "HOAX": WHERE HISTORY WENT WRONG

Donald G. Davis

At the very inception of organized caving in the state, we were told that Cyclopean Cave was a hoax. In 1952, in the new Colorado Grotto's *News & Notes*, at the bottom of the state's first cave list, Grotto founder William R. Halliday took pains to state "Cyclopean Cave and Red Cliff Cave do not exist. They were invented by a bored newspaper reporter [Orth Stein] in Leadville in the 1880's." The same judgment was made in Lloyd Parris's *Caves of Colorado* in 1973 in a chapter titled "Hoax, Humbug, and Orth Stein," by Lake County historians Don and Jean Griswold as late as 1996, and others.

Red Cliff Cave, a.k.a Stranded Ship Cave, was indeed a self-evident hoax. However, close examination of the series of articles about Cyclopean Cave, following soon after Stranded Ship, has shown to the satisfaction of Richard Rhinehart and myself that Cyclopean Cave *does* exist. Nothing Stein wrote about it was preposterous. We found that personal names in the stories were actual Leadville citizens in credible roles, and references continue for some years afterward. The stories give sufficient location detail that we have been able to find an abandoned vertical mineshaft matching the description of the Cyclopean entrance, though proof will require digging out an air-blowing blockage at the bottom.

Stein's prior Stranded Ship Cave hoax set the stage for suspicion of Cyclopean, but the final nail in its coffin was a dramatic declaration in a 1910 memoir by Stein's former editor C.C. Davis that Cyclopean was "fiction from headlines to tailpiece." Subsequent historians accepted this claim and dug no deeper. But Davis wrote that 30 years later, when old and ill, without using notes or references. The original sources tell us otherwise.

THE MAPS OF MAMMOTH CAVE FROM THE 1810s

Bert Ashbrook

The first three maps of Mammoth Cave were all made in the 1810s and reflect the evolving uses of the cave during that decade. None of the original maps is extant, but we know what each looked like from two or three contemporaneous copies. The original "eye-draught map" was made to interest investors in the cave as a saltpeter mine. The Ridgely, DuPont, and Jefferson manuscript copies of the eye-draught map were each drafted by future botanist Charles Wilkins Short, namesake and nephew of one of the cave's co-owners, and sent to interested parties back east. The "saltpeter working map" was used by saltpeter miners to assist the mining effort during the War of 1812. It was initially drafted by Aylette Buckner in 1812 and copied by Thomas Jefferson. As the miners' exploration progressed, the map was expanded by c. 1814 as shown by the Bogert manuscript copy, from which Samuel Mitchill made a woodcut that he published in spring, 1815. The Egnew manuscript copy in January 1817 added additional information. The original "Ward" map was drafted by Nahum Ward in c. April 1816, about five months after he visited the cave, to create publicity and encourage visitors from back East. Ward's map or a copy was received by a Worcester Massachusetts newspaper in May 1816, but the map's first publication was a woodcut print in the Boston Intelligencer newspaper in October, 1816. A manuscript copy of the Ward map at the American Antiquarian Society in Worcester is the most faithful copy of Ward's original map and may be the one earlier received in Worcester. The content of the copies of the three original maps, comparisons among and between them, and the circumstances of their creation all offer insight into the early historical exploration, mapping, and uses of Mammoth Cave.

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