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The Journal

The Journal of Spelean History (JSH) is the Association’s publication and is mailed to all members. JSH includes articles covering a wide variety of topics relating to man’s use of caves, including historical cave explorations, saltpeter and other mineral extraction, and show cave development. All members are strongly encouraged to contribute material and to comment on published material. ASHA assumes no responsibility for statements made by contributors.

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Front Cover: “POST OFFICE, Howe Cave, N. Y.” See the article on spelean post offices in this issue.
Spelean Post Offices of the United States: Part One

By Thomas Lera

From the earliest days of United States postage stamp production, one of the great concerns of the post office has been the prevention of the illegal reuse of stamps. This has generally been accomplished by applying a postmark or other cancellation to invalidate the stamp.

The terms "postmark" and "cancellation" have different meanings. A postmark is usually considered to be a marking applied by the post office to a piece of mail as it travels to its destination, including identification of the town of origin, as well as transit markings such as "PAID" or "FORWARDED." Some collectors prefer to think of a postmark as being only the portion of a marking that identifies the date and location from where the item was mailed, but that definition is generally too narrow. A postmark may be struck upon a postage stamp to invalidate it for future use, but may also provide additional information about the mail delivery.

Natural Bridge, Va. postmark with 5 cents rate indicating that the letter traveled less than 300 miles.

Postmarks were developed long before postage stamps, mostly to indicate the point of origin for a specific mail piece. The recipient, rather than the sender, paid for early mail. The postmark allowed the post office to calculate the distance the letter traveled and thereby determine the amount of payment due. In the 1800’s many communities were too small to have their own post office so their mail was sent from the nearest city. Letters from these towns can be called “forerunners” of a town that would soon get its own post office. An example of this kind of letter from Cave Spring, Kentucky is illustrated below.
Cave Spring, Kentucky, June 21, 1851

Mr. Thomas W. Jones

Via Washington City

Jefferson City, Pulaski County, Virginia

Cave Spring, Warren City, Ky., June 21, 1851

Letter from Cave Spring, Kentucky dated June 21, 1851 was carried to Bowling Green, Kentucky and posted on June 24. The Red “X” indicates 10 cents due upon delivery and the letter traveled over 300 miles.

Cancellation is a more specific term, which refers only to the portion of the postal marking that obliterates a postage stamp and indicates it has been used and prevents reuse. A cancellation, therefore, is always a postmark, but a postmark is not always a cancellation.

The first U. S. postage stamps were issued in 1847 and brought with them the concern that instead of buying new stamps, recipients might reuse stamps on mail received. To prevent this, the postmaster marked usage on each stamp by hand, indicating it could not be used again. This “manuscript” cancel postmark usually consisted of the name of the post office, state, and date. Occasionally, however, only the post office and state were handwritten, with the date noted by a one-line handstamp. This method of cancellation was very common on early stamped mail.
In 1859, Marcus P. Norton of Troy, N.Y, patented a hand-held duplex-style stamp-canceling device. This circular date stamp (CDS) imprinted the town stamp and the obliterating killer with a single motion, and created adjoining marks that both identified the sending office and obliterated the stamp. Prior to its standardization in the early 1890’s, postmasters at smaller post offices were required to purchase their own postmarking equipment from private vendors and, as one might imagine, there were many varieties of design and style.

Impressions made by the standardized CDS issued to small post offices consisted of a plain circular outline measuring 28 millimeters in diameter in which the name of the post office was centered at the top and the name or abbreviation of the state centered at the bottom. The date was located across the center and consisted of three or four lines which included month, day, year, and, for larger post offices, the hour.
The handstamp was constructed of a metal die attached to a wooden handle with removable slugs for the month, day, year, and time. Inverted dates were common as the postmaster occasionally slid the slugs in upside down and in inverted order. The style of lettering was usually block or sans serif.

The cancel issued by the government to be used with the standardized CDS consisted of four concentric rings. The outer ring, which measures 17 millimeters in diameter, is known as a “Target Killer” because it “killed” or prevented further use of the stamp.

Steel handstamps were initially issued to first and second-class post offices beginning about 1895. They consisted of a single, circular outline containing the name of the office and state, date and time, and an ellipse with a long vertical axis vertical as the cancel portion. The ellipse consisted of a barrel-shaped center section with a hollow center in the middle of which was a number. The barrel-shaped portion of this cancel led to the “barrel duplex handstamp” name of this device. The number in the center is believed to refer to a clerk’s number, canceling position number, or a way to keep track of the number of this type of handstamp within a particular post office.

Ovate Bar Duplexes were issued to third-class post offices in late 1898. The design of these handstamps featured a postmark dial (29–30 millimeters) with the post office name at the top, the state name or abbreviation at the bottom, and the date and time arranged vertically across the center. The cancel consisted of eight to ten short horizontal bars tapered at their ends to form an ellipse, giving rise to the term “ovate bar duplex.”
In some post offices throughout the country, postmasters and clerks used cancellation devices referred to as “fancy cancels.” These were often made from simple segmented corks elaborately carved with images depicting everything from insects and animals to geometric patterns, letters, and numbers.

In December 1899, the Post Office began testing a new type of hand “postmarker” for Rural Free Delivery Service. This new rubber handstamp had two distinct sections. The name of the parent post office, state, date, and the initials “R.F.D.” were designated in four lines on the left section. The right section consisted of a built-in cancellation composed of parallel bars and a number, which denoted the rural route source of the mail. General distribution of this type of postmarker/canceller was from early 1900 to July 1, 1903.

As the Post Office Department’s first attempt to improve the postmark legibility of rubber handstamps, the first 500 Type 1 experimental Doanes were issued in early 1903. Their very success led to permanent use of this type of postmarking tool for both old and new smaller 4th class post offices, where the receipts did not exceed $500 annually.
They were named to honor Edith R. Doane, a postal historian who became interested in these early 20th Century handstamps in the 1950’s, although she didn’t publish her first research until 1978.

Approximately 1600 Type 1 Doane 5-bar cancels were issued from August 28, 1903 to September 28, 1903.

Type 1 - Doane with 5 killer bars, subtype unknown
1a - smaller sans serif (Gothic) lettering (similar to 2b)
1b - lettering with serifs (similar to 2a)
1c - broad sans serif (Gothic) lettering (similar to 3a)

Type 2 Doane handstamp cancels have 2 sets of railroad track type bars with a number in them. Approximately 17,500 of these were issued from September 29, 1903 until June 30, 1905.

Type 2 - Doane with 4 paired line killer bars, lettering style unknown
2a - lettering with serifs (similar to 1b) (see Cave, GA)
2b - smaller sans serif lettering (similar to 1a)
(see Cavetown, MD and Bat Cave, NC)

Type 3 Doane cancels have 4 solid bars like the Type 1 handstamp, but also include a number in them. These cancels are very hard to see because of the green colored stamps of the period. Approximately 12,000 Type 3 Doane handstamps were issued from July 1, 1905 until the fall of 1906.

Type 3 - Doane with 4 solid killer bars, subtype unknown
3a - broad sans serif lettering (similar to 1c)
3b - normal sans serifed lettering, (as found in 4 bars,) "A" style unknown
3bf - normal sans serifed lettering, FLAT TOP "A" variety (similar to 4Ab 4 bars) (see Mammoth Cave, KY and Cave Creek, NV)
3bp - normal sans serifed lettering, POINTED "A" variety (similar to 4Aa 4 bars)

The number in the bars of all 3 types refers to Postmaster compensation in the previous fiscal year. A "1" meant annual compensation was less than $100, a "2" signified compensation between $100 and $200, and, for each additional $100 increment, the number increased by 1.
Most of these devices were used anywhere from 1-10 years and became worn or damaged from repeated use or improper handling. Some of them had had the killer bars replaced, or became dirty or distorted. It was sometimes hard to tell if they were truly Doanes. A few postmasters, however, took good care of their canceling devices. They were used throughout the 1930's, 1940's, and 1950's (see Cave, GA).

Table One
Spelean Cave Doane Cancels

<table>
<thead>
<tr>
<th>“Cave” Post Offices</th>
<th>Type</th>
<th>Number</th>
<th>Earliest Date</th>
<th>Latest Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cavecreek, Arizona</td>
<td>3</td>
<td>2</td>
<td>12/15/1906</td>
<td>01/08/1910</td>
</tr>
<tr>
<td>Cave, Georgia</td>
<td>2</td>
<td>1</td>
<td>01/10/1907</td>
<td>10/05/1940</td>
</tr>
<tr>
<td>Cave Creek, Arkansas</td>
<td>2</td>
<td>1</td>
<td>08/01/1908</td>
<td>01/01/1912</td>
</tr>
<tr>
<td>Mammoth Cave, Kentucky</td>
<td>3</td>
<td>3</td>
<td>06/07/1906</td>
<td>10/18/1908</td>
</tr>
<tr>
<td>Cave Town, Maryland</td>
<td>2</td>
<td>3</td>
<td>01/12/1906</td>
<td>09/09/1913</td>
</tr>
<tr>
<td>Bat Cave, North Carolina</td>
<td>2</td>
<td>2</td>
<td>08/06/1908</td>
<td>10/10/1910</td>
</tr>
<tr>
<td>Cavecreek, Nevada</td>
<td>3</td>
<td>2</td>
<td>07/05/1908</td>
<td>08/08/1909</td>
</tr>
<tr>
<td>Organ Cave, West Virginia</td>
<td>2</td>
<td>2</td>
<td>01/17/1907</td>
<td>08/19/1908</td>
</tr>
<tr>
<td>Rock Cave, West Virginia</td>
<td>3</td>
<td>4</td>
<td>09/10/1906</td>
<td>12/23/1911</td>
</tr>
<tr>
<td>Cave Spring, Virginia</td>
<td>2</td>
<td>?</td>
<td>05/14/1908</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

In the fall of 1906, the post office distributed the “Four-bar Handstamp” to newly established small post offices, and furnished them as replacement equipment to existing post offices. There are two types of four-bars. A Type-A four-bar is designed with vertical spacing of the four killer bars at typically 14 millimeters from the top of the uppermost bar to the bottom of the lowest bar. The type style is usually block or sans serif, although those issued from late 1908 to early 1910 tended to have letters with a bold, more squared-off appearance. The major difference in the Type-B four-bar is the wide 20-millimeter vertical spacing of the killer bars, although the type style also has a bold, squared-off sans serif appearance.

Four-bar Killers from Cave Dale, CA and Natural Bridge, KY
A variety of postmarks closely related to the manuscript type are termed “straight line postmarks.” These were used as provisional or emergency devices in the absence of standard postmarking equipment and served the same function as manuscript postmarks.

Today's hand cancels are primarily made from hard rubber or similar synthetic, unlike the steel, cork or wood devices used in the past. Metal machine cancels are most often used in canceling machines, which debuted in 1876, and consist of one section for the postmark and a second section for the cancellation. Cancellations made by machine had a greater variety of design than postmarks, including those with straight, horizontal, or parallel bars, wavy lines, and other designs. Below are circular postmarks with parallel wavy line cancels.

In the first part of the twentieth century the postal system experienced enormous growth in the sheer volume of mail it was required to process and deliver. Mail is normally “postcancelled,” meaning the cancel is applied after the stamps are placed on the envelope. To address the inefficiencies in the process created by increased volume and facilitate a speedier preparation of the mostly manual processing of outgoing mail, a technological innovation called “precancel” was introduced.

A precancel is really just what it sounds like—a stamp canceled before it is actually used. Precancels save time for the postal service because the mail on which they are used does not have to be sent through a canceling machine before delivery.
Many post offices regularly use slogan handstamp cancels that promote an event of regional interest. These are used for a 30-day period and then destroyed.

Local post offices use a variety of hand cancel devices every day, markings from which are shown throughout this article. One of the more common markings, the double circle cancel from a device known as a round-dater, is usually struck in red and is sometimes used on larger envelopes that cannot be sent through the Automated Face-Canceller (AFC). The same postmark device is often used to mark receipts, registered letters, and other USPS paperwork and is also seen most frequently in red. The Weyer’s Cave, Virginia postmark on a U.S. Postal Money Order is an example of the double circle cancel.
Sometimes the postmaster’s canceling device is manufactured incorrectly, creating a spelling error of the town name, as seen below in this “Hows Cave,” New York example.

Hows Cave, NY CDS and Target Killer.
The correct spelling is Howes Cave.

A recent addition to post office canceling devices is the meter, which imprints both the correct postage and a circle date stamp, as shown in this Grottoes, Virginia example.

Grottoes, VA Postage Meter Cancel

Most of the postmarks seen on mail today are applied by machine through a high-speed automated process that effectively conveys millions of pieces of mail each day. Letter mail is most often sorted and postmarked by the large and complex AFC machine, which properly positions each envelope face for automatic application of a postmark to the stamp. The AFC is able to accomplish this because most U.S. stamps printed since 1963 are tagged with a small amount of phosphorescent material that glows when exposed to short-wave ultraviolet light. The machine detects the phosphor in the stamp and positions the envelope so a metal postmarking cylinder will strike the stamp as the envelope passes it. Advanced as these machines are, however, some mail still cannot be processed by them and must be hand cancelled.

Lastly, private companies made postal machines that issued the correct postage when the item was weighed. One of the companies that made these postal meters for larger corporations was Pitney Bowes. An example of their meter stamps with a slogan cancel is shown below.
An example of a Pitney Bowes Slogan Meter Stamp from the Santa Fe Railroad promoting Carlsbad Caverns National Park in New Mexico.

There are more than 120 spelean post offices (town names with the word Cave, Cavern, Grotto, or Bat) in the United States, over 70 of which have known cancellations. I am grateful to William Halliday and Mr. Ronnie Nixon for sharing their insight and information on several cancellations and town names. It should be noted that many towns and cities, for instance Cave City, Kentucky, have been in operation for decades and may have over 15 different cancellations. I will not attempt to illustrate all of them, only a select few. In researching spelean post offices, the genealogy of the town name is important in that it may be related to a family or a geographic feature. I have not been able to locate information on all of the place names even from the various state experts. As such, I can only assume from that name that the post office was named from a local feature referenced on USGS topographic maps.

The State Tables show the town/city name and zip code (if available), the dates of operation (MM/DD/YY), and the county where the post office is/was located. Illustrations of cancellations are included where available. I have also included related spelean place names, with post offices needing additional research to determine if they fit into the classification of spelean post offices. I have not included every “mineral” town name post office, like sulfur springs, or gold fever. Classifications of this type are beyond the scope of this article.

Speleophilatelists may request “handbacks” (envelopes that are cancelled but not mailed) at local post offices, but remember, not every post office has every type of cancel discussed in this article.

Good Luck and Happy Hunting!!
ALABAMA SPELEAN POST OFFICES

CITY / TOWN / ZIP     DATE OF OPERATION     COUNTY
Cave Spring (s)      9/11/1856 – 7/25/1866     Fayette
Cave Spring (s)      6/12/1871 – 10/27/1887     Fayette
Cave Spring (s)      4/24/1888 – 7/25/1894     Fayette

ALABAMA SPELEAN-RELATED POST OFFICES

CITY / TOWN / ZIP     DATE OF OPERATION     COUNTY
Dolomite           1888 - 1901               Jefferson
Limestone          1886 – 1901               Madison
Lost Creek         1861                     Randolph
Natural Bridge     35577      7/17/1890 – OPEN     Winston

Ashcraft Corner, Alabama was first known as Cave Springs; however, throughout the years of operation of this post office, the “s” was omitted from “Springs.” The Cave Springs Post Office was located in the Ashcraft Mercantile Store. Samuel Richardson became postmaster on September 11, 1856, Simeon Hamil on February 22, 1861, Joel Ashcraft on June 12, 1871, Isaac Ashcraft on February 18, 1873, George Ashcraft on April 24, 1888, and finally, William H. Brown on June 9, 1893. Historians did not specifically mention the springs for which the town was named, only that there were several in the area thought to have medicinal qualities. No cancellations are known from this post office.

ALASKA SPELEAN-RELATED POST OFFICES

CITY / TOWN / ZIP     DATE OF OPERATION     COUNTY
Lost River          1951 – 1955
Cave Creek is located in Maricopa County, Arizona. Mainly because of the natural water supply, a wagon road was established through this area in 1865 for those traveling west seeking gold, and for the army, who traveled between Fort McDowell and Fort Whipple.

When, in 1874, William Rowe discovered gold on Gold Hill, northeast of Cave Creek, the town became more popular, and the Cave Creek Mistress Mine came into being. In 1877, Jeriah Wood chose Cave Creek (later to be known as Cave Creek Station) to establish a cattle ranch and eventually opened Overton Post Office. Subsequently, the first stamp mill opened nearby at the Golden Star Mine.

By the 1880's, Andrew Jackson Hoskin had taken over Cave Creek Station. Hoskin cleared the land and began growing crops which he irrigated with the plentiful water supply. Others eventually decided to come to the area and try their hand at both mining and ranching and by 1886 the town needed a one-room schoolhouse. During this same time the nearby Phoenix Mine grew enough in size to include the largest 100-stamp mill in Arizona. However, this boon was short lived and the mine eventually closed. In 1890, the first Cave Creek Post Office opened.

Ten years later, James D. Houck, a successful sheep rancher, bought Cave Creek Station and built a store. When regular stage service to Phoenix was established the area began to change. By 1908, Tonto National Forest had been established and new water regulations were set in place which made life so difficult for ranchers and their livestock, that they soon began to leave and eventually the school was closed.

It wasn't until 1928, when the land south of Black Mountain near Cave Creek opened for homesteading, that the area received a new influx of people. The school reopened in 1930 and the town experienced additional growth with the construction of Bartlett Dam in 1935, and Horseshoe Dam in 1940. In 1952, Scottsdale Road was extended to Cave Creek Road, resulting in another increase in the population of Cave Creek, and eventually in 1986, Cave Creek was incorporated. (Cavers should note that this is not the Cave Creek in the Chiricahua Mountains of southeastern Arizona, which is known for Crystal Cave.)

There are several types of canceling devices known including various circle date stamps, a standard canceling machine, a standard 4-bar killer, a standard double circle date stamp, and a 10-stamp precanceller.
Grand Canyon Caverns, located 210 feet underground near Peach Springs, Arizona, is a privately owned natural limestone cave tucked in among the yellow grasses along historic Route 66. The story of the 1927 discovery of the caverns is that a heavy rain widened the natural funnel-shaped opening to the upper level of an unknown system of caverns. Walter Peck, a woodcutter for the Santa Fe Railroad, found the entrance one evening on his way to a poker game at the nearby Yampai railroad siding house and decided to call them Yampai Caverns.

The next morning, Peck and several cowboys took ropes and lanterns and lowered one of their group into the cavern. One hundred and fifty feet of rope had been let out by the time the cowboy’s feet touched the floor and he found himself in a very large and dark cavern. Using a coal oil lantern, he began exploring, became excited when the light picked up some sparkle in the rocks, thinking he had found a very rich vein of gold. After gathering up a sack full of samples, he tugged on the rope and was hauled to the surface where he quickly showed his find. He also told of finding the remains of two humans and part of a saddle at the fifty-foot level. By the time the newspapers had finished with the story, there was no mention of the saddle and the remains were those of prehistoric cavemen. Soon scientists came from the East Coast to study the bones, during which time Peck purchased the property and caverns in preparation for gold mining.

Peck was eager to see the assay reports, however much to his dismay—there was no gold, only iron oxide, better known as rust! He had wagered his money on an empty, funnel-shaped hole, but being an entrepreneur he soon came up with a winning solution: he would charge 25 cents to enter the caverns where “cavemen” had been found. He quickly developed a very primitive “elevator,” whereby a person was tied to a rope and lowered into the hole with his own light source. Upon reaching the cavern floor one could explore on one’s own, but it would have been unwise to untie the rope and stray far, for, if the light failed, a person might not find the rope again! As it turned out, the “cavemen” were Hualapai Indians who had been out cutting firewood during the winter of 1917 when two members fell sick and died from the flu. Due to frozen ground and a need for immediate burial, the two fallen braves were dropped into a well-concealed hole, where, it was thought, no one would ever disturb them. Ten years later, Peck stumbled upon that same hole.

In 1936, during the Great Depression, the Civilian Conservation Corps (CCC) constructed a wooden staircase at the cavern entrance and a series of wooden ladders for the descent. A beautiful wooden swinging bridge was added in 1957 to allow access to the “Chapel of Ages.” The round-trip trek is estimated to be equivalent to walking up and back down a staircase in a fifteen-story building. After this phase of construction was completed, more than one person was able to enter the Caverns at a time and the admission price was increased to fifty cents. This was the only access to the caverns until 1962, when, after 3½ years spent blasting a shaft 210 feet deep, a modern elevator was installed. The original natural entrance was then sealed off forever, out of respect for the Hualapai Indians’ sacred burial site.
Exploration at the Grand Canyon Caverns is ongoing. Curious wafts of air seeping through niches and floor fissures suggest that other caverns await discovery deep below. Through seismic testing, uncharted caverns were discovered four levels below the present-day caves, the deepest at approximately 1500 feet. Since December 1949, cavers have been exploring regions in the caverns too dangerous for the general public to visit, in the hope of finding more rooms and passages. Over the years a number of unfortunate creatures have wandered into the caverns only to be trapped, their fate sealed in a slow death. Remains of “Gertie,” a 15-foot tall Giant Ground Sloth (*Glossotherium harlani*), were found and a model created. It is estimated that the living sloth, which became extinct between 11,000 and 20,000 years ago, would have weighed approximately 2,000 pounds. A mummified bobcat was found in 1950, and is believed to have fallen into the caverns about 100 years prior to its discovery.

The caverns have changed names several times. They were known as the Coconino Caverns until 1957 when they became Dinosaur Caverns. Since 1962 they have been called Grand Canyon Caverns. The owners arrived at this last name after researchers performed an experiment with smoke and reportedly discovered that air flowed in one part of the caverns and out 60 miles away in another part of the canyon.

The Rural Branch Post Office of Peach Springs was open at Grand Caverns for only a short time. Even though the caverns continued to attract visitors, it was closed and a simple mail collection box put in its place due to a lack of outgoing mail from the caverns.

Territorial Cancel dated Jan 8, 1900 with a Target Cancel Cave Creek Precancel issued December 1974 (PSS 841)

Cave Creek, AZ, Ovate Duplex Cancel.
ARKANSAS SPELEAN POST OFFICES

<table>
<thead>
<tr>
<th>CITY / TOWN / ZIP</th>
<th>DATE OF OPERATION</th>
<th>COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cave City (72521)</td>
<td>1892 – OPEN</td>
<td>Sharp</td>
</tr>
<tr>
<td>Cave Creek</td>
<td>1855 - 1895</td>
<td>Newton</td>
</tr>
<tr>
<td>Cavecreek</td>
<td>1895 - 1973</td>
<td>Newton</td>
</tr>
<tr>
<td>Cave Hill</td>
<td>1923</td>
<td>Warren</td>
</tr>
<tr>
<td>Cave Springs (72718)</td>
<td>1908 - OPEN</td>
<td>Benton</td>
</tr>
</tbody>
</table>

ARKANSAS SPELEAN-RELATED POST OFFICES

<table>
<thead>
<tr>
<th>CITY / TOWN / ZIP</th>
<th>DATE OF OPERATION</th>
<th>COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limestone</td>
<td>1894 – 1981</td>
<td>Newton</td>
</tr>
<tr>
<td>Limestone Valley</td>
<td>1876 – 1894</td>
<td>Newton</td>
</tr>
<tr>
<td>Lost Creek</td>
<td>1846 – 1859</td>
<td>Grant</td>
</tr>
</tbody>
</table>

Cave City on U. S. Highway 167 north of Batesville is named after Cave City Cave. It is a rare sandstone cave with 300 feet of passage ending at an underground lake, which provides the town’s water supply.

Cave Springs on U. S. Highway 62 north of Springdale is named after Cave Springs Cave, discovered by George Robbins in 1852.

Cave Springs, AR, Precancel (PSS 841 issued in September 1974)

Cave City CDS with Target Killer and a Four-bar Cancel
On March 9, 1847, the first post office in the western United States was established under John M. Shively, appointed postmaster of Astoria, Oregon Territory. This was followed less than three weeks later with David Hill's appointment as postmaster to Oregon City. Although prior to 1847 there were some rudimentary mail services, for nearly two years these were the only two United States Post Offices in the West.

The 1848 discovery of gold in California provided a big impetus for expanding the United States Postal Service (USPS). On November 1, 1848, William Van Voorhees, a Special Agent of the USPS, was dispatched to California charged with setting up post offices and appointing postmasters. He appointed William G. Marcy as the first official United States Postmaster in California on February 22, 1849, and by January 1, 1850, had established a total of 16 post offices in the West.

The 1850's brought increasing numbers of migrants to the Sierra Madre gold fields, as well as settlers to farm the rich valleys of the West. During this decade, another 761 post offices were established in the West, over half in California. Today there are over 4,297 post offices in California alone, with a total of 887 in Arizona, and another 709 in Nevada.

In 1850, Captain Taylor, a miner setting up targets for shooting practice on a rocky ledge, noticed a cool breeze coming out of the rocks. This lead to his discovery of Mammoth
Cave, now known as California Cavern. He later learned that Native Americans had inhabited the cavern, as indicated by the numerous grinding rocks found within. It is also believed they may have used the cave as a “dungeon” or holding cell, because the few bones found were in the fetal position, indicating death by hypothermia from the 55° cavern temperature, rather than from a fall.

Cave City mining camp was established and expanded adjacent to the cavern between 1859 and 1875. There were approximately 20 wood framed buildings, hundreds of tents, a school, and a population of 400 at its peak. Residents of Cave City installed a bar inside the cavern and used the underground room for dances, religious services, town meetings, and weddings. The post office opened in 1883 closed in 1887.

"Mammoth Cave” (California Cavern) Post Office was open for a short time during the late 1800's, although there are no known examples of cancellations from it. Many famous visitors toured the cavern, including Mark Twain, Bret Harte, and John Muir, who thus described the cavern in his book *Mountains of California*:

...the good people had much to say about the marvelous beauty of Cave City Cave, and advised me to explore it. This I was very glad to do... taking a trail... to the mouth of the cave, a small inconspicuous archway, mossy around the edges... with no appreciable hint or advertisement of the grandeur of the many crystal chambers within. Lighting our candles, which seemed to have no illuminating power in the thick darkness, we groped our way onward as best we could along narrow lanes and alleys, from chamber to chamber, around rustic columns and heaps of fallen rocks, stopping to rest now and then in particularly beautiful places—fairy alcoves furnished with admirable variety of shelves and tables, and round bossy stools covered with sparkling crystals. Some of the corridors were muddy, and in plodding along these we seemed to be in the streets of some prairie village in springtime. Then we would come to handsome marble stairways conducting right and left into upper chambers ranged above one another three or four stories high floors, ceilings, and walls lavishly decorated with innumerable crystalline forms. After thus wandering exploring, and alone for a mile or so, fairly enchanted... a charming little lake of unknown depth, never yet stirred by a breeze... its eternal calm excites the imagination even more profoundly than the silvery lakes of the glaciers rimmed with meadows and snow and reflecting sublime mountains.

Our guide... led us into the heart of the hill up and down, right and left, from chamber to chamber more and more magnificent, all aglitter like a glacier cave with icicle-like stalactites and stalagmites combined in forms of indescribable beauty. We were shown one large room that was occasionally used as a dancing hall, another that was used as a chapel, with natural pulpit and crosses and pews, sermons in every stone...

It was delightful to witness here the infinite deliberation of Nature, and the simplicity of her methods in the production of such mighty results, such perfect repose combined with restless enthusiastic energy...

The archways and ceilings were everywhere hung with down-growing crystals, like inverted groves of leafless saplings, some of them large, others delicately attenuated, each tipped with a single drop of water like the terminal bud of a pine tree. The only appreciable sounds were the dripping and tinkling of water falling into pools or faintly splashing on the crystal floor.

In some places the crystal decorations are arranged in graceful flowing folds deeply plicated like stiff silken drapery. In others straight lines of the ordinary stalactite forms are combined with reference to size and tone in a regularly graduated system like the strings of a harp with musical tones corresponding thereto: and on these stone harps we played by striking the crystal strings...
with a stick. The delicious liquid tones they gave forth seemed perfectly divine as they sweetly whispered and wavered through the majestic halls and died away in faintest cadence—the music of fairyland. Here we lingered and revelled, rejoicing to find so much music in stony silence, so much splendor in darkness, so many mansions in the depths of the mountains, buildings ever in process of construction, yet ever finished, developing from perfection to perfection, profusion without overabundance; every particle visible or invisible in glorious motion, marching to the music of the spheres in a region regarded as the abode of eternal stillness...

When we emerged into the bright landscapes of the sun everything looked brighter, and we felt our faith in Nature's beauty strengthened, and saw more clearly that beauty is universal and immortal, above, beneath, on land and sea, mountain and plain, in heat and cold, light and darkness.

In 1910, "Mammoth Cave" closed and remained abandoned until 1980, when it was re-opened as California Cavern.

Hornitos, California, was first settled in 1852 by Mexican miners who had been driven out of Quartzburg (Kernville). The original post office was established as Hornitas, June 18, 1856, with its name changed to its current spelling on August 20, 1877. The word Hornitos may be diminutive of “horno” meaning “bake oven or kiln.” In the volcanic districts of Latin America, “hornito” describes a low oven-shaped mound, but the name is probably a transfer from “Los Hornitos” in the Mexican State of Durango. In 1858, the place gained wide recognition when the Mount Gaines Quartz Mill built two arrastras driven by a 30 H.P. engine.

The often-related stories that the shallow graves of Mexican miners looked like “hornitos,” or that German miners built little bake ovens of stones and mud, belong in the domain of folk etymology. The little “hornitos” of brick in and near the cemetery give the impression of having been built in later years to justify the stories.

William Halliday suggests that the name Hornitos is cave related. A hornito is a splatter cone which develops on the surface of basaltic lava flows when the lava is forced up through an opening in the cooled surface then accumulates around the opening. In many cases, after the lava has cooled, the opening becomes the entrance to a lava tube cave.
### Colorado Spelean Post Offices

<table>
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<th>CITY / TOWN / ZIP</th>
<th>DATE OF OPERATION</th>
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<tr>
<td>Grotto</td>
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</thead>
<tbody>
<tr>
<td>Limestone</td>
<td>1857 - 1861</td>
<td>Hartford</td>
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### Delaware Spelean Post Offices

There are no known spelean or spelean-related post offices in the State of Delaware.

### Florida Spelean-Related Post Offices

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<tr>
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<td>Walton</td>
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<tr>
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<td>1905 – 1955</td>
<td>Hardee</td>
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<tr>
<td>Natural Bridge</td>
<td>1878 – 1908</td>
<td>Walton</td>
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<tr>
<td>Sink Creek</td>
<td>1919 – 1925</td>
<td>Jackson</td>
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Limestone, FL Four-bar Cancel

### Georgia Spelean Post Offices

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<tr>
<td>Blowing Cave</td>
<td>1854 - 1895</td>
<td>Decatur</td>
</tr>
<tr>
<td>Cave</td>
<td>1890 - 1940</td>
<td>Bartow</td>
</tr>
<tr>
<td>Cave Hill</td>
<td>1900</td>
<td>Washington</td>
</tr>
<tr>
<td>Cave Spring (s)</td>
<td>30124</td>
<td>Floyd</td>
</tr>
<tr>
<td></td>
<td>1841 - OPEN</td>
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Blowing Cave, now called Glory Hole or Wilder Cave, is located in extreme southwest Georgia not far from the Florida and Alabama borders. The cave was part of three counties. Prior to 1825 the entire southwest corner of Georgia was made into Early County. In 1825 the county was divided and the southern part became Decatur County. A year later part of Decatur County was split with the eastern part becoming Thomas County. In 1905, Decatur and Thomas Counties were split again, and adjoining parts of each became Grady County. The counties have held their shape since 1905, with Blowing Cave a permanent part of Grady County.

An article from the *Atlanta Journal Magazine*, March 22, 1931, discussed “breathing caves” in Georgia. “One of the caves,” it states, “is ten miles north of Whigham in Grady County. The cavern continuously inhales and exhalas great puffs of air. Accompanying its breathing is a shrill whistling sound, and at certain periods of the day and night the whistling changes to a long, rumbling groan, as though a giant is struggling to break through the stone walls that pens him in.” This phenomenon is due to slight changes in atmospheric pressure and the whistling sound can be heard more than 30 feet away from the cave. The total surveyed length of the cave is 14,300 feet or 2.7 miles.

While Blowing Cave (Wilder Cave, Glory Hole Cave) was in Early County, Decatur, Thomas, and finally, Grady County, the manuscript letter below was mailed when Blowing Cave was part of Decatur County.

Floyd County was formed from part of Cherokee County in 1832. Georgia's 82nd county was named after General John Floyd, a South Carolina Indian fighter and U. S. Congressman. Located fifteen miles southwest of Rome, on Hwy 411, is the City of Cave Spring, incorporated January 22, 1852. Cave Spring Cave, located in shady Rolater Park just off the town square, contains the natural limestone cave and spring that are its namesakes. Open to the public, the cave has impressive stalagmites and the legendary "Devil's Stool" formation. The spring water has won awards for purity and taste and is commercially bottled. The post office opened in 1841 and is still operating.
Anahola “Fish Poison Cave” was a boat landing site and small village at the northern end of the Kawaihau District on the river. Its first postmaster was Charles Griffiths, but unfortunately there are no known postmarks. William Halliday suggests the other two Hawaiian post offices are cave related since, when translated to English, Waialua means “spring cave” and Pukalani means “heavenly sinkhole.” This author found Waialua was also a stop on the overland mail route. In the 1890’s, the Waialua post office was located in a store with S. N. Emerson as postmaster, and was moved to the railway station in 1898. Since then, the area has become a resort community.
Geologist Willis T. Lee’s 1925 Visit to the Mammoth Cave Region of Kentucky

By Bob Thompson

Geologist Willis T. Lee’s visits to Carlsbad Cavern are well documented. During an expedition in 1923 and again in 1924 for the National Geographic Society, Lee explored the depths of Carlsbad Cavern and other features of the Guadalupe Mountains. His articles in *National Geographic* from 1924 and 1925 brought Carlsbad Cavern to the attention of the world. What has not been well documented was Lee’s visit to the Mammoth Cave region shortly thereafter.

Willis Thomas Lee was born in 1864 and grew up on a dairy farm in the small town of Brooklyn, Pennsylvania, where he remained until he was twenty-one. He went to high school at Wyoming Seminary in Pennsylvania and attended Wesleyan University, the University of Chicago, and Johns Hopkins University. Lee was a geology teacher before becoming a geologist for the U. S. Geological Survey. According to a newspaper article dated March 19, 1902, “on March 4, 1902, Willis T. Lee, a son of Mrs. Louesa Lee, of Brooklyn, was appointed a place on the staff of the U. S. Geological Survey, hydropathic department. He thinks his work for the early summer will be in Arizona.”

As a geologist, Lee wrote articles and books on some of our earliest national parks. Lee also took photos at many of the national parks as part of his field studies for the U. S. Geological Survey, including Yosemite (1904), the Grand Canyon (1904), Petrified Forest (1904 and 1905), the Rocky Mountains (1916 and 1921), Yellowstone (1921 and 1923), Carlsbad Cavern (1924), and the Mammoth Cave region (1925).

In the spring of 1925, Willis T. Lee visited the Mammoth Cave region for a month at the request of Congressman Maurice H. Thatcher of Kentucky. Lee was part of a commission consisting of six men appointed by Dr. Hubert Work, Secretary of the Interior, to study the caves of the region in an attempt to help establish the area as a national park.

In Willard Rouse Jillson’s *The Geology and Mineral Resources of Kentucky*, published in 1928, Willis T. Lee is shown in a May 1925 photo taken by Jillson in front of the Great Onyx Cave with other members of the National Park Commission, which included W. A. Welch, Harlan P. Kelsey, H. W. Temple, Glenn S. Smith, and W. C. Gregg. Jillson accompanied them as the personal representative of the Kentucky Governor during the inspection of the caves.

Lee wrote an interesting report of his findings in the Mammoth Cave region shortly after his month-long visit. The 1925 report, *A Visit to the Mammoth Cave Region of Kentucky*, details all the caves he inspected. He gives descriptions of Mammoth, New Entrance, Colossal, Salt, Great Onyx, Crystal, White, Proctor, Diamond, Hidden River, Mammoth Onyx, as well as a “new-opened” unnamed cave near Glasgow Junction that is owned by “Mr. Higginbottom.” Besides cave descriptions, illustrations, and a few maps, Lee’s report mentions characteristics of the caverns and how the caverns formed. Parts of his descriptions of Mammoth, New Entrance, and Colossal, were taken from Horace Hovey’s 1912 book on Mammoth Cave. Lee also uses Hovey’s map of Colossal Cavern.
Lee took over 100 excellent photos of the caves in the region. Some of these photos were published in his Mammoth Cave report with descriptive captions. A number of photos were also published in *The L&N Employees’ Railroad Magazine*, September 1926, as well as in Vernon Bailey’s *Cave Life of Kentucky*, published in 1933. Lee mentions that photographer Eugene J. Hall took a few of the photos in his report.

The U. S. Geological Survey has 106 photos of the Mammoth Cave region by Willis T. Lee and Eugene J. Hall on their website at [http://libraryphoto.er.usgs.gov/startlib1.htm](http://libraryphoto.er.usgs.gov/startlib1.htm). They mistakenly give credit for all the photos to Lee. There are gaps in the numbering of the images and it appears that other photos by Lee may exist. Some of these wonderful photos have never been published. Most were taken shortly after the Floyd Collins tragedy in 1925. The website has other photos by Lee, including Carlsbad Cavern.

Taking advice from the *National Geographic* a few years prior, Lee included people in his photos to show scale and human interest. Many of Lee’s photos of the Mammoth Cave region featured his daughter, Elizabeth. A few of the region’s cave owners also posed in Lee’s photos including George Morrison of New Entrance, L. P. Edwards of Great Onyx Cave, and Lee Collins of Crystal Cave. Lee himself is shown in a few of the photos, including one taken at the New Entrance and one at Mammoth Onyx Cave. Jillson may have taken the photos of Lee.

It is possible that Lee took photos at Mammoth Cave with the same camera he used at Carlsbad, a common plate camera. Even though he took a photo inside the famous Mammoth Dome, he did not capture the full magnitude of it. According to Lee, “Mammoth Dome is too large and complicated to be photographed successfully but does not differ essentially, except in size, from the smaller pits, such as Side Saddle Pit, Vaughan’s Dome in Colossal Cavern, and Hovey’s Cathedral Dome in the New Entrance to Mammoth Cave.”
Willis T. Lee mentions in his 1925 Mammoth Cave report a number of his personal observations of the caves he visited. He made the following comments:

“Mammoth Cave is only one of many caverns in this region. Some of these are large, others small as compared with Mammoth. Some of them are well cared for, others are neglected. Some, once open to visitors, have been abandoned.”

“Mammoth Cave is truly mammoth in its cavernous spaces. According to George D. Morrison, manager of the New Entrance to Mammoth Cave, this cavern and the land about it was once traded for an old flintlock and later was exchanged for a mule. On entering this region there is commonly little thought of other caverns, and unless the stranger is forewarned he is likely to be bewildered by the number of caverns offered for exhibit and by conflicting claims of superiority. It may be found in the just complaint that many a stranger desiring to see Mammoth Cave finds his way unwittingly into one of the neighboring caverns, and may depart without having seen Mammoth Cave at all.”

“As Mammoth Cave is almost wanting in material for specimens that may be carried away as souvenirs, the vendors are said to visit the smaller caverns regularly, and to carry the specimens obtained from them into Mammoth Cave and out again, in order that they may be able assure the purchases that the specimens came out of Mammoth Cave. Tens of thousands of names and dates decorate the cavern walls; there is scarcely a smooth face of rock within the cavern that is not marred by names scratched upon it. To many people the interest in Mammoth Cave has been materially lessened by this practice. The scenes in New Entrance are carefully guarded, and name scratching has thus been prevented.”

“The so-called rivers in Mammoth Cave seem to have a special fascination for some people. But strangely fascinating as they may be they are not beautiful. When Green River, into which they [Echo and Styx] flow, is in flood, the muddy backwater fills this part of the cavern and deposits silt, which remains gooey for a long time. Some of the avenues extend underground far beyond the limits of the property. But even this extent into neighboring property can not add greatly to the length of the avenues, for the valleys which were formed by the collapse of caverns surround the highland in which Mammoth Cave is situated.”

Colossal Cavern “is open to visitors and has been so extensively improved that a visit to it is easily made, but it has not been extensively advertised and exploited, and consequently has been seen by only a few who have visited this region. An evidence of few visitors to Colossal Cavern is found in the presence of great numbers of bats.” Hovey “notes finding cave pearls in Pearly Pool [Colossal Cave]. I found none. Possibly these delicate and somewhat rare cave jewels have all been appropriated by the vandals since Hovey’s time.”
“The main avenue in Salt Cave impressed me as unusually spacious, even for the Mammoth Cave region, and as indicating an unusually old cavern. The cavern opens on the property of the Blue Grass County Club, about two miles northeast of Mammoth Cave, and underlies the golf links of this club.”

Crystal Cave “is relatively small cavern and has only recently been opened to visitors. It received much publicity in 1925 when its owner, Floyd Collins, lost his life in an attempt to explore a neighboring cavern. Crystal Cave is used, as are many of the others of the Mammoth Cave region, for cold storage. Supplies of canned fruit and vegetables were observed near the opening in several of the caverns.”

Willis T. Lee died on June 16, 1926, at the age of 61. An article, “Memorial of Willis Thomas Lee,” published in the Bulletin of the Geological Society of America, March 30, 1927, mentions Lee’s many accomplishments and contributions as a geologist of the U. S. Geological Survey. As a result of Lee’s hard work, and that of others, Mammoth Cave became a National Park in 1941.

ACKNOWLEDGMENTS

Many thanks to Bill Napper for tracking down Willis T. Lee’s report of the Mammoth Cave Region.

Photo of Willis T. Lee and his daughter, Elizabeth, at the New Entrance to Mammoth Cave 1925, courtesy of the U. S. Geological Survey, Denver, CO

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Nymeyer, Robert, and Halliday, William, Carlsbad Cavern, The Early Years, 1991

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The Reverend Titus Coan’s View of Hawaiian Pseudokarst

By William R. Halliday

The Reverend Titus Coan was one of several well-educated early missionaries to Hawaii who wrote enthusiastically about geological subjects as well as religion. His accounts were welcomed by the scientific community of his times, and famed geologist James Dwight Dana dubbed him “The Chronicler of the Hawaiian Volcanoes.” Twelve of his geological reports are cited in Walther M. Barnard’s 1990 Mauna Loa: A Source Book.

As far as known, Reverend Coan never observed any karst, and the term “pseudokarst” did not appear for a generation after his death in 1881. But his understanding of what now is recognized as pseudokarst is strikingly similar to that of von Knebel in the latter’s 1908 introduction of that term (based on observations in Iceland). Coan wrote:

The whole district (Puna) is so cavernous, so rent with fissures and so broken by fiery agencies that not a single stream of water keeps above-ground to reach the sea. All the rain-fall is swallowed by the 10,000 crevices, and disappears, except the little that is held in small pools and basins, waiting for evaporation. The rains are abundant, and subterranean fountains and streams are numerous, carrying the waters down to the sea level, and filling caverns, and bursting up along the shore in springs and rills, even far out under the sea. Some of these waters are very cold, some tepid, and some stand at blood heat, furnishing excellent warm baths. There are large caves near the sea where we enter by dark and crooked passages, and bathe by torchlight, far underground, in deep and limpid water.

Coan was not the first missionary to describe such topography in Hawaii. Probably first was the famous William Ellis, a British missionary who came to Hawaii in 1823. In recent years relevant sections of Ellis’ notable 1831 journal have been widely quoted in the geological and vulcanospeleological literatures. But Coan had ready access to the most influential segment of American science, and to its journals. His contemporary influence thus may have extended as far as Germany, thus opening a window for von Knebel’s subsequent development of the entire concept of pseudokarst.

Perhaps some German reader of JSH has information on von Knebel’s access to American geological literature—or the lack of it?

REFERENCE

Preliminary Notice of the Rediscovery of LeSueur’s Saltpeter Caves in Minnesota

By Greg A. Brick

A 300-year-old mystery in speleological history, one that has been discussed at major saltpeter symposia, may recently have been solved. In Issue No. 1 of the *Journal of Spelean History*, in 1968, Bill Halliday, after reprinting one of several known versions of an extract from LeSueur’s journal describing saltpeter caves found in what is now Minnesota in September, 1700 wrote, “A little local research might be of great value here.” The suggestion was to slumber for a generation.

Taking Halliday’s suggestion for my inspiration, I began searching for LeSueur’s caves in 2003. Since no one has yet, despite repeated attempts, identified with certainty the exact locations of LeSueur’s more famous “Fort Green” and purported copper mine on the Blue Earth River, also in Minnesota, there was little reason to expect that his saltpeter caves would be any easier to find. Upon examining the USGS quads for the shores of Lake Pepin (an expanded reach of the Mississippi River), however, I was pleasantly surprised to find that there were really only a few good candidate locations matching LeSueur’s description.

In August 2004, narrow mechanical caves were identified by the author in Ordovician-age Oneota dolomite outcrops along the river bluffs in Goodhue County, Minnesota. The cave description given by LeSueur matches them as well as could be expected, given several centuries of slope-wasting processes. LeSueur’s journal suggests that he found actual saltpeter, rather than “petre dirt,” but no efflorescent salts were seen in these caves. Analyses of the cave sediments by Professor Calvin Alexander at the University of Minnesota, however, show nitrate concentrations of one percent—quite in line with those of Mammoth Cave. The origin of the nitrates is another matter (there is evidence of raccoon activity).

It must be emphasized that the results are preliminary. Identification and sampling of additional sites, laboratory analysis, historical research, and interpretation, continue. Calvin and I plan to publish the final results of our joint investigation in a future issue of the *Journal of Caves and Karst Science*, as well as in this journal.

REFERENCES


Addendum to “Kentucky Cave Postcards”

This page was inadvertently omitted from Bob Thompson’s table of postcards, published in the last issue (No. 125).

### CURT TEICH KENTUCKY CAVE POSTCARDS

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<td>Entrance, Looking Out</td>
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<td>A103123</td>
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Abstracts from the Spelean History Session
2004 NSS Convention, Marquette, Michigan
Session Chair: Dean Snyder

Quick Robin…to the Bat Cave! A Visit to Hollywood’s Bronson Caverns

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Nestled on the western border of Hollywood’s Griffith Park is an abandoned quarry. It contains a massive, forked tunnel that has been cut through a small hillside of basaltic rock. Located within a few minutes drive of most of the major film studios, this man-made California cave, known as Bronson Caverns, is perhaps the most heavily used film location in the world. Countless numbers of westerns and science-fiction features have been filmed there over the years. Even the infrequent TV watcher and moviegoer has undoubtedly seen some feature or commercial which has been filmed on this site. If you’ve ever witnessed the Batmobile lurching from the Bat Cave, or marveled at the Klingon prison camp in Star Trek VI, you’ve actually been viewing a bit of Hollywood magic, filmed in Bronson Caverns.

Cave Hoaxes and Nineteenth Century Archeological Theory

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American archeology in the nineteenth century was dominated by the Mound Builder myth, which held that the tens of thousands of earthen mounds seen around North America were constructed by a superior vanished race unrelated to the Indians. Several distinctive Mound Builder motifs appear in the nationally propagated Nesmith Cave hoax of 1866-67, which was based on an actual cave, Chute’s Cave, in Minneapolis, Minnesota. Specifically, there are close parallels between details in the cave hoax and Ancient Monuments of the Mississippi Valley, a classic of American archeology and the first publication (1848) of the newly founded Smithsonian Institution. The authors, Ephraim Squier and Edwin Davis, were squarely in the Mound Builder tradition. In excavating mounds they found stone coffins, skeletons that crumbled to powder, and sacrificial altars with calcined bones—all of which were also supposedly found in the hoax cave by the fictitious Mr. Nesmith. The latter concludes, as Squier and Davis had earlier, that “the relics found are not at all aboriginal in character, and may have been the work of a people existing long before even these prairies were the hunting grounds of the Indians.”
William Back, in his 1981 article, “Hydromythology and Ethnohydrology in the New World,” wrote “If used with caution, mythology can sometimes extend historical and archeological interpretation further back in time.” This principle was applied to Minnesota cave history. According to early missionaries, the indigenous Dakota people believed that the junction of the Minnesota and Mississippi rivers was the center of the Earth, positioned directly under the center of the heavens. Nearby was the dwelling place of Unktahe, Dakota god of waters and of the underworld, who was often depicted as a serpent. Mary Eastman, in her 1849 book, Dahcotah, or Life and Legends of the Sioux around Fort Snelling, wrote that “Unktahe, the god of the waters, is much reverenced by the Dahcotahs. Morgan’s Bluff, near Fort Snelling, is called ‘God’s House’ by the Dahcotahs; they say it is the residence of Unktahe, and under the hill is a subterranean passage, through which they say the water-god passes when he enters the St. Peter’s [Minnesota River]. He is said to be as large as a white man’s house.” Taken at face value, the subterranean god Unktahe constitutes the oldest cave reference for Minnesota, antedating the accounts of explorers such as LeSueur (1700) and Carver (1778).

History of the George Washington University Student Grotto

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NSS Grotto #134, the George Washington Student Grotto (GWU Grotto), existed from 1966 to 1974. The first grotto constitution had five elected officers, including a “Publicity Director.” The second constitution (1969) changed elections to April so that the now-three officers could plan the upcoming school year. The GWU Grotto primarily caved in Virginia and West Virginia. From 1966 through 1968, the club mapped caves for “Descriptions of Virginia Caves.” The first chairman, Hugh H. Howard, was the most dynamic. He tried to start the GWU Grotto in 1965, but had to first overcome a rule that any on-campus club could not be affiliated with a national organization. The grotto had 54 members in its first year and published The Colonial Caver. In the fall of 1967, Warren Broughton was elected chairman. The club published professional-looking issues of The Colonial Caver. Charles Pfuntner was elected chairman for the 1969-70 school year. The Vietnam War affected grotto membership. Paul Stevens was elected chairman for the 1971-72 and 1972-73 school years. Paul took the grotto and later the NSS by storm. The Foggy Bottom Caver was started. Grotto membership expanded to 35. Steve Stokowski was elected chairman for the 1973-74 school year. In 1974, the staff advisor felt GWU and all the GWU student members either graduated or left the university. After considering that advertising for new cavers without guidance may result in a cave conservation disaster, Stokowski dissolved the grotto.
The Roquefort Caves of St. Paul, Minnesota

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The Roquefort caves of France have a history dating back to Classical Antiquity. In 1933, Professor Willis Barnes Combs of the University of Minnesota began experimental ripening of a domestic Roquefort cheese in artificial sandstone caves at St Paul, Minnesota, which he determined had the proper combination of low temperature and high humidity. He stated that there was no commercial production of Roquefort in the United States at this time. After spectacular success at the University Cave, he boasted that St. Paul’s caves could supply the entire world demand for Roquefort. Made from the more plentiful cow’s milk, rather than from sheep’s milk as in France, the Minnesota cheese was initially called Roquefort but after complaints by the French Foreign Trade Commission was relabeled Blue Cheese. The production of Minnesota Blue did not really take off until 1940, however, when World War II cut off Roquefort imports from France. Kraft Cheese and Land O’Lakes then rented caves in St. Paul and ripened millions of pounds of blue cheese. For a brief moment, St. Paul was acclaimed the Blue Cheese Capital of the World. The University Cave, which ceased operations in the 1950s, was recently dug open by the author. Filled with debris that was pushed into it with a bulldozer years ago, the cave contains no obvious artifacts from the cheese-making era.
CAVES, and “antres dire,” are strange, uncanny, gloomy, but deeply interesting things. We hear of them with curiosity, and explore them when the chance occurs with mingled feelings of terror and pleasure. They are the first houses that our race ever inhabited; abodes built for them by the forces of nature long before rates and taxes were heard of, and in blessed days when ground rents had no existence. When we see a cave we see the primeval country residence of our remote progenitor. Here is where he sat in the shadows splitting bones to get their marrow, making bone needles out of the ribs of rats and sewing-cotton out of the sinews of squirrels, and when he was quite at leisure, after eating his raw reindeer steak, carving upon the antlers of stags and the tusks of mammoths spirited and artistic sketches of his animal world. In ancient caverns dwelt the people of the “flint period,” who split their knives and forks and spear-heads out of stones, and appear to have shared the shelter of those ancient domiciles pretty equally with antediluvian animals of the queerest kind. The biggest cave in the world is naturally in America—near Louisville, in the State of Kentucky. In 1809 a hunter, named HUTCHINS, was in pursuit of a wounded bear. She took refuge in an unexpected gap of a forest ravine above the Green River, and the astounded sportsman, following her, found himself in what may be called the very Metropolis of Gnome Land. A natural arch with a span of seventy feet admits one to the Kentucky Mammoth Cave; and from a ledge above it a cascade leaps fifty feet and then mysteriously disappears. Behind it is a narrow passage through which the air always violently rushes, and then you come to the main cave four miles long, with all sorts of branching chambers, covered with white stars on a black ground, and hanging columns, which may be the rocky drip for ever petrifying, or clusters of bats, hanging in festoons like swarms of bees. There are darkling domes that soar aloft out of sight and black pits answering to them which cannot be fathomed. In the Mammoth Hall a gloomy thunderous cataract falls two hundred and fifty feet, draped with stone tapestry. The “Egyptian Temple” has six massive columns, eighty feet high and twenty-five in diameter. “Lucy’s Dome,” a magnificent vault three hundred feet high, puts to scorn, by its dimension and effects of light and shade, St. Paul’s or St. Peter’s. The localities named “Cleveland’s Cabinet” and “Marion’s Avenue” are adorned with myriads of rosettes and curiously-twisted crystals, looking exactly like blossoms of the rock or mineral gardens. Great lakes sleep in these subterranean abysses, and a large river flows through them, fancifully styled respectively the Dead Sea, the River “Styx,” Lake Lethe, and so on. In the long vault through which “Echo River” runs the roof answers to a certain keynote of its own, producing harmonies of incredible deepness and sweetness. To traverse all the windings of the Kentucky Cave it is estimated would be a journey of one hundred and fifty miles. The dark and still underworld has its own fauna and flora. A
special fungus grows near the River “Styx”; there are blind, wingless grasshoppers, blind, colourless crayfish, and blind fishes, from one to six inches long.

It seems they have now discovered in the State of Oregon another such weird and awful cavern which may eclipse the wonders even of this pride of Kentucky. A San Francisco newspaper announces the discovery of an enormous cave in Josephine County, Oregon, at a point twelve miles north of California and forty from the coast. It has two openings, and contains many passages of great beauty. There are numbers of semi-transparent stalactites, several giant milk-white pillars, and a number of pools and streams of clear, cool water. A week was spent in exploring the cavern, and innumerable passages and chambers were discovered. On penetrating one of these passages for a distance of several miles the exploring party came across a large lake of clear water and a waterfall thirty feet high. All kinds of grotesque figures were found in the various chambers, but the only signs of animal life were discovered a short distance from the entrance, where a few bones were found indicating that bears had carried their prey there. The cavern appears to be fully as large as the Mammoth Cave in Kentucky. It is evident that even the grisly bears were terrified at the tremendous gloom which they had entered, and did not dare to explore it deeply. Caves, as we have said, are uncanny. The deadly silence, the cold air, the strange effects of light and shadow, the black recesses opening on either hand, and the fantastic architecture, as if Silence and Fear had built the place for themselves to dwell in, oppress with awe the strongest mind. In the Kentucky Cave there were found, near the entrance, some half-charred torches of cane and two skeletons, which might be two thousand or two million years old, for any change that would happen to them in the eternal stillness of that seclusion. None but bears, it would appear, have found out the Oregon Cave before the recent discovery, which is a pity from the point of view of our ancestors, who might have found much ample accommodation in the place, and might have left to us more interesting relics of their daily life. A whole chapter of the history of man has been already gathered from caverns by BUCKLAND, PENGELLY, LARTET, DAWKINS, and others; and it has been proved that our respected fore-fathers were fellow-countrymen with the hyena and the rhinoceros in the British Islands. The mammoth and the bison were certainly hunted in England by them as far north as Derbyshire, and musk-sheep grazed where Southdowns now wander. In truth, we learned as much about the “flintman” from the caves of Perigord and Dordogne as Herculaneum and Pompeii have told us of ancient Italy in the first century. Strangest of all, surely, is that artistic impulse of early humanity! Our museums possess pictures of an ox in outline, of a reindeer kneeling down, of a man standing by a horse’s head, and of a mammoth with spiral tusk and long mane, which would do credit to any advanced class at South Kensington. The British caves show that after the hyenas had done with them and finished eating their rhinoceroses, reindeer, and bears, the neolithic men took a lease of the premises, and left on the gray clay marrow-bones, broken pottery, personal ornaments, and fragments of woven grass-garments.

Still one feels that, at best, caverns have been unsatisfactory places of residence. They would generally have so large a front door that it was impossible to keep out wild animals or human enemies looking for a shelter. They were full of draughts and damp and weird noises, due to the underground contractions and the eternal dripping of the water through the roof. It is to this last cause that they owe their one charm of wild and splendid architecture. For the rain, taking up carbonic acid in the air, and still further
charged with it in percolating through the soil and rock, is always building in these subterranean palaces structures of fairyland. Bi-carbonate of lime is formed, which covers the sides of the cavern with a stony drapery like satin. Where the upper water, charged with the same material, drops persistently through a chink or hole, it creates a long icicle of rock, and beneath it a boss or mound of the same character, and these at last unite and form a fantastic and beautiful column. Such may be seen at Cheddar, in Somerset, and in Poole’s Cavern, at Buxton. The fairy architects, however, work with an exasperating slowness. Measurements made in the Ingleborough Cavern showed that a large stalagmite there grew only at the rate of a third of an inch in the year. Interminable, therefore, must have been the time taken to construct those colossal pillars described in the Kentucky Cave and this new wonder of Oregon, since in both there are examples of pilasters eighty and a hundred feet high. And how were these subterranean halls first hollowed? Undoubtedly the sea has been a great constructor of them, excavating long passages in the soft places of the cliff, such as Fingal’s Cave on the Island of Staffa. Volcanoes manufacture vast caverns like the Grotto del cane near Naples; but the largest and most important underground wonders are those cut out of chalky rocks by the rainwater and the subterranean streams which it feeds. These all open high above the sea in valleys and ravines, and these were the favourite and natural abodes of that uncomfortable and much-enduring person, our primeval ancestor. Yet he, too, had his privileges. He knew no landlord; he paid no income-tax; he never had to make a speech after dinner; the plumber and the glazier never vexed him; drainage and County Councils and Theology did not exist. An Englishman’s cave was his castle then more than now, if he could only keep out of it such visitors as the mammoth and the woolly horse. The change in fashions was represented for him by an extra wild beast skin in winter. His sole care in life must have been to fill his stomach. That once achieved, he was evidently in his way a person of leisure and of taste, occupying the first principally by chipping flint-stones into domestic cutlery, and leaving us evidence of the last by those wonderful drawings, which prove that sense of beauty existed even in his primitive soul.
This account of the ebbing and flowing spring of Giggleswick, a Yorkshire karst feature, was contributed by Bill Halliday. The spring is also mentioned in Trevor Shaw’s History of Cave Science (2nd ed), p. 95.

PARISH OF GIGGLESWICK.

The course of the Ribble through the parishes of Gisburne and Long-Preston is marked by no strong or striking features.

But the environs of Giggleswick are romantic and beautiful.—Here a deep and rocky valley begins to be formed, which, allowing sufficient space for a very fertile tract of meadow and pasture gradually expanding to the South, forms a bold and lofty rampart of grey limestone on the East and West, surmounted at a considerable distance by the enormous masses of Penigent and Ingleborough to the North. Immediately to the East, and almost overhanging the town of Settle, is Castleberg, a conical rock, backed by a cluster of rugged and protuberant craggs, and once undoubtedly crowned with a fortification.

The summit of Castleberg once formed the gnomon of a rude but magnificent sun-dial, the shadow of which passing over some grey self stones upon its side, marked the progress of time to the inhabitants of the town beneath; an instrument certainly more ancient in itself, and possibly as old in its application, as the dial of Ahaz itself.

But the hour-marks have long been removed, and few remember the history of their old benefactor, whose shadow now takes its daily tour unobserved.

The neighbourhood of this place, like most tracts abounding in limestone, exhibits some singular phaenomena. Of these the principal is an ebbing and flowing well, which issues from the face of a long ridge of rock skirting the road from Settle to Clapham.—The habits of this singular spring are extremely irregular: within the last four or five years it has been observed to rise and fall nineteen inches in the space of five minutes. The times of its flux and reflux are apparently unconnected with rain or drought, or any other external cause. Sometimes it is completely dry, and then on a sudden heard to issue from the recesses of its native rock, with a hollow gurgling sound.

I leave it to abler philosophers to determine how far these effects are to be accounted for upon the principle of the siphon, to which, until very lately, they were universally assigned.

Drayton’s account of the origin of this far-famed spring, had it been given in a classical language, or a better metre, would have been truly poetical.

“In all my spacious tract let them (so wise) survey
My Ribble’s rising banks, their worst, and let them say
At Giggleswick, where I a fountain can you show,
That eight times in a day is said to ebb and flow;
Who sometime was a nymph, and in the mountains high
Of Craven, whose blue heads, for caps, put on the sky,
Amongst the Oreads there, and Sylvans, made abode
(It was ere human foot upon those hills had trod)
Of all the mountain kind and since she was most fair,
It was a Satyr’s chance to see her silver hair
Flow loosely at her back, as up a cliff she clame,
Her beauties noting well, her features, and her frame,
And after her he goes; which when she did espy,
Before him, like the wind, the nimble Nymph did fly:
They hurry down the rocks, o’er hill and dale they drive,
To take her he doth strain, t’outstrip him she doth strive,
Like one his kind that knew and greatly fear’d his rape,
And to the Topic Gods, by praying, to escape,
They turn’d her to a Spring, which, as she then did pant,
When, wearied by her course, her breath wondrous scant,
Even as the fearful Nymph then thick and short did blow,
Now made by them a Spring, so doth she ebb and flow.”

POLYOLBION, Song 28th.

The Polyolbion was published in 1612; and the ebbing and flowing well of Giggleswick was, as far as I know, first noticed in this passage.

In the year 1791 a small pool of water suddenly appeared in a natural hollow of the ground, about a mile above the ebbing and flowing well, which has maintained its place with little or no diminution in the driest seasons from that time to the present. It is situated near the summit of a mountain, and surrounded on all sides with limestone-rock. The ground about it is remarkably dry; and though several springs, and among them the ebbing and flowing well itself, break out at the foot of the mountain, none of them appeared to be affected by the appearance of the pool.

I do not see much difficulty in accounting for these facts.—A casual fall of stones and earth might accidentally block up the course of the spring beneath the surface; by which means the water, after accumulating in this hollow, may easily be supposed to have found another channel, connected with the former, and to supply the springs beneath with the same uniformity and plenty as before.

At all events it is to be considered as a providential gift, since it supplies an herd of sixty cattle with water in the driest seasons, when they court the highest exposures, and had till this appearance, to descend, with great labour, for their refreshment, to the springs below.

The figure of the pool is nearly an ellipsis, of which the axis major is rather more than thirty yards, the axis minor rather more than twenty-three yards, and the greatest depth three yards three inches.

Above the village of Giggleswick is a tarn, partly natural and partly artificial; and the opposite side of the road to Clapham is skirted by along and hoary rock of limestone, finely relieving the deep green of the indigenous yew-trees which spring out of its clefts.

Aleutian Cave Mummies

As a follow-up to Larry Blair’s clipping about “Alaskan Cave Mummies” in the last issue, I came across the following gruesome account of Aleutian mummies in Corey Ford’s 1966 book, Where the Sea Breaks its Back, a biography of Georg Wilhelm Steller (1709-1746), the German naturalist who accompanied Vitus Bering’s 1741 expedition to Alaska and who is perhaps best remembered today for the eponymous Steller’s sea cow. The book’s title is the supposed meaning of the word “Alaska.”

The Aleutian chain is one of the loneliest and least-known spots on earth. Think of Alaska as a profile of Uncle Sam; the Seward Peninsula forms his angular nose, the Alaska Peninsula is the point of his jutting jaw, and his chin-whiskers waggle across the Pacific almost to Asia…

…During World War II a group of enlisted men, burying a fuel tank in the hillside behind Dutch Harbor, uncovered a circle of twenty-seven human skeletons arranged in a timeless council.

Mostly the early tribes buried their warrior-dead in the labyrinthine caves around the bases of the volcanoes. The bodies were carefully eviscerated, stuffed with wild rye (*Elymus*) and placed in a sitting position, the knees drawn up under the chin, the arms folded, the head bent forward in an attitude of brooding contemplation. The natural heat of the volcano dried and preserved the mummies; landslides and geologic disturbances sealed the entrances to the caves and locked away their secrets forever. Where this process of mummification originated is not known. The late Dr. Ales Hrdlicka, curator of anthropology in the Smithsonian Institution, estimated their age to be more than thirty-five hundred years and claimed the art was practiced in only two widely separated places in America: the Aleutians and Peru. Perhaps the original secret was brought by wanderers from Egypt who crossed the landbridge and migrated down the west coast of the continent to South America.

An earlier expedition of the Alaska Game Commission, on a similar summer count of the sea otter herds, discovered quite by accident the largest collection of mummies in the Aleutians. The party had been gathering bird specimens on Kagamil Island, in the Four Mountain Group, and as they were returning to the Brown Bear, working their way back along the south shore of the island, they heard a blue fox barking at them from a cave some fifty yards above the water. They marked the location by a live fumarole which was sending a steady jet of steam through a fissure in the rocks beside the cave, and climbed the loose mass of tumbled boulders to the entrance, a narrow V-shaped orifice. Mingled with the sulphurous odor of the fumarole was a curious death smell which issued from the mouth of the cave. The fox had fled, but the object on which it had been chewing lay at their feet. It was a section of a human arm.

Laboriously they wriggled and squeezed feet first into the vault. The ceiling was so low they could not stand upright, and caked with a hard white mineral deposit. The floor was littered with rubble, loose rocks, pieces of bone, the scat of numerous foxes, all of it covered with a fine fluffy brown dust, as soft as lint, which rose around their boots as they crept forward. It was uncomfortably warm in the cave—the dirt in places was actually too hot to touch—and the strange fetid smell gagged them. They crawled in single file on their hands and knees, hugging the wall for guidance in the pitch blackness.
Abruptly the leader halted with a gasp of fright. A hand reaching from the wall had raked its fingers across his cheek.

He struck a match. Before him, in the flickering light, he saw the withered arm of a mummy protruding from the dirt. It had been partly dug out of its earthly tomb by the ravenous foxes; the exposed portion of its leathery face had been eaten away, but the part still buried was intact.

The match went out; someone lit a second. Beyond them they made out another sunken grinning face, and still another. Both sides of the cave were lined with dry bodies, as far as they could see. Once they had been stacked in tiers, one upon another, supported by racks of driftwood. Most of them had been dislodged and violated by the foxes, and one or two mummies had been dragged onto the floor of the cave. They were of all ages: adult males and females, children, even a premature birth in a basket of pleated grass. Each body had been clothed in otter fur or a bird-skin parka, and wrapped in sea lion hide which was laced together with thongs of twisted kelp. They wore ivory ornaments around their necks and in their cheeks; one wrinkled monkey-face had a jaunty feather stuck through the lobe of his left ear.

All around them were crude artifacts, torn matting, shreds of woven mummy wrappings, bones, trinkets. Part of a skin kayak, interred with its owner, lay overturned on its side; paddles, war shields, stone lamps, delicate grass baskets were spilled in the dust. Still buried in the wall was a carved wooden dish, filled with the dried wings of birds, probably a funeral offering; an ornithologist in the party recognized the feathers of the pine grosbeak. A solitary skull lay in wicker basket lined with moss, shiny as an Easter egg, the top of the head neatly split by a stone axe.

I saw some of the specimens later in the Smithsonian Museum in Washington. The old boy with the feather in his ear grinned at me from his glass case; beside him hung a shrunken Jivaro head from Peru, a similar feather thrust through his left earlobe—further evidence of the link between the two remote cultures. Dr. Hrdlicka showed me a Peruvian wooden doll and a splintered portion of one from the Aleutians. They were almost identical in appearance. If he could ever find a whole Aleutian doll, Dr. Hrdlicka said, he was sure he could establish the truth of his theory.

I recalled his remark during the war, when I touched briefly at Dutch Harbor on my way down the Aleutians to join the Air Force bomber unit to which I had been assigned. A sergeant from Minnesota had been excavating for a gun emplacement, he told me, and his shovel had overturned a dozen wooden dolls in perfect condition. From his description, they were the same as the Peruvian doll I had seen in the Smithsonian. Here was the proof that anthropologists had awaited so long. “Where are they now, sergeant?”

“I sent ’em back to my little daughter in Minnesota, sir, she’s fond of dolls,” he said. “She never got the package, though. Prolly lost in the mails…”