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Presenter Information

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Recent Investigations at 15Ed23: Historic and Cultural Resources in a Disturbed Cave Environment

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Introduction

In late 2015 and early 2016, the authors began to examine the historic and cultural resources of 15Ed23, a large cave in the Mammoth Cave area. The cave was mined for saltpeter and commercialized as a show cave, both of which greatly modified the cave's natural environment and disturbed the site's archaeological record. Despite this, our investigation shows significant resources surviving from the cave's rich past. This paper introduces the cave site and presents our preliminary assessment of its prehistoric and historic resources. The archaeological components include saltpeter mining artifacts and evidence of early social and recreational visitation, both from the Nineteenth Century. We also found that Native Americans used the deep cave environment for extractive, mortuary, and ceremonial purposes in the Early Woodland Period.

15Ed23 is a lengthy and complex three dimensional maze cave in Edmonson County, located on private property in the rolling knobs south of Mammoth Cave National Park. It is developed in the Mississippian-age Girkin Formation and underlying Ste. Genevieve limestone. The cave has had many names in the past, so for clarity (and security) we refer to it by its Kentucky site file number. There is little documentary record for the site prior to the mid-twentieth century, but in 1949 organized cavers started to intensively explore the cave. These expeditions began a series of long-term efforts by Kentucky, Ohio, and other cavers to fully explore and map the cave, which continue to the present. Cavers in the 1950s and 1960s made important discoveries in the cave, but many aspects of the site's history have remained little known until recently.¹

Saltpeter Mining

Previous research at the cave indicated that it was mined for saltpeter for the gunpowder trade in the early 1800s, probably during the War of 1812. At that time the price of saltpeter increased greatly and numerous caves in the region were mined for nitrates, including nearby Hundred Dome Cave, where a large saltpeter boiling furnace was in operation at the entrance in 1813. In the early 1960s, cavers working in the cave found and photographed a side-handled wooden saltpeter paddle.² Handmade mining tools, paddles were used to remove dirt from under rocks and ledges and are diagnostic for saltpeter mining. Early cavers also photographed evidence of sediment removal, possible tally marks on the walls, and other possible mining implements. In his 1985 booklet *Gunpowder at Mammoth Cave*, Duane De Paepe gives one sentence to the saltpeter mining at 15Ed23, noting

that “a wooden saltpeter paddle was found a few years back, but it is doubtful that much mining occurred because there was no reliable source of leach water.”³ We do not know if De Paepe actually visited the cave.

A year later, in November 1986, Angelo George led a group of researchers to 15Ed23 on a brief trip to “inspect the cave for saltpeter activity.” The party examined passages in two areas, the Left Hand Maze and the Right Hand Maze, and George later reported that they found mining evidence in both areas, including “mattock marks, tally marks, maxi tally marks, many lamp seats, and a number of gluts.” He also noted that the blasting, digging, and filling associated with the commercialization of the cave in the 1960s had altered a number of passages. Although he did not identify a processing area where leaching vats had been located, George suggested that a large pool of water in the Left Hand Maze may have been used for leaching sediments. He concluded by directly disagreeing with De Paepe, saying the cave “must have been a major saltpeter site.”⁴

Our initial assessment of cave passages, while limited to areas without roosting bats, found abundant evidence for saltpeter mining in much of the upper cave, including both major maze areas. Like George, we saw metal tool marks on walls and sediment banks, and carbon wall marks from the miners’ pine torches. We saw many tally marks but most are atypical. There is one series of 40 evenly spaced short lines in the left maze. Nearby there are c. 92 long to very long thick gouged lines on the upper wall. One section of these is particularly intriguing, c. 16 very long incised lines which appear to overlay a historic smoked graffito, but at the top there are several horizontal lines crossing the vertical ones, making a grid pattern.

We noted a number of additional saltpeter mining features; there are piles of waste rocks on ledges and along the sides of passages in several areas. There are also sediment lines on walls indicating previous levels of dirt fill. We did not identify a sediment leaching vat (or processing) area. However, in an extensive wood rat area in the Left Hand Maze there are numerous small pieces of dried, hand-hewn wood, which when found in saltpeter contexts are generally interpreted as the remains of the clapboard side slats of V-shaped leaching vats. We also examined a wooden artifact attributed to 15Ed23, a saltpeter mining paddle, in the owners’ personal collection. This handmade scraping tool has a center-handle and is clearly different from the side-handle paddle photographed by cavers around 1962. At least two paddles came from the site, although one of them is currently lost. Overall, our assessment supports George; while access to the sediments was not easy prior to passage enlargement for tourism, much dirt was excavated by saltpeter miners, and perhaps initially processed in the cave. Although many of the details of the operation are obscure, like exactly who worked the site, the cave was a sizable source of valuable nitrates early in the early 1800s.

Social and Recreational Visitation

15Ed23 has several historic wall markings in various media from the Nineteenth and early twentieth centuries representing social and recreation visitation to the cave, some of which we recorded. In the Right Hand Maze are two inscriptions “J.U.B. 1815” but their authenticity is uncertain. From the antebellum era there are two well-preserved names and dates smoked onto the ceiling of the Left Hand Maze, probably by candle, “A F Brown 1842” and “L.H. Davis 1842”. Unfortunately the common surnames Brown

and Davis make identification difficult. Nearby is an undated, smoked ceiling mark, “J. W. Satterfield”. This was probably J. W. Satterfield (Nov. 17, 1831-Dec. 12, 1915) from Caldwell County, who “has always been a farmer and a very successful one.” By 1885 he owned “about 900 acres of land, and an interest in two gristmills.” J.W. Satterfield married Miss L. M. Boyd on February 17, 1858, and ultimately they had 10 children, though only three survived in 1885. J. W. Satterfield’s inscribed name was also recorded in Hundred Dome Cave. J. W. and his wife are buried in the Cedar Hill Cemetery in Princeton, Kentucky.⁵

Another graffiti panel at 15Ed23, while representing recreational cave visitation, injects a Civil War context into the social history of the cave. On the wall is written, in a black applied substance (probably carbon), “J. L. N[e]wman” and centered underneath the name is “1862”. This was made by Joseph L. Newman, a private in Company H of the 58th Regiment Indiana Infantry. From Princeton, Indiana, and possibly of Native American origin, Newman was mustered into the Union Army on December 16, 1861. The 58th Indiana was encamped at Bardstown, Kentucky when Newman joined the unit. Receiving marching orders in mid-February 1862, the 58th Indiana moved south through Munfordville to Bowling Green and on to Nashville, where they had arrived by March 13. We know that many Union soldiers visited numerous caves in Kentucky during 1862, including a member of the 58th Indiana Infantry who visited Long Cave. Joseph Newman probably visited 15Ed23 during mid-late February 1862 while encamped near Glasgow Junction (Park City today). But his unit was also in Kentucky later in 1862 in response to Morgan’s Raid, so the cave visit could have occurred then. Poignantly, Newman died on January 2,

1863, less than a year after visiting 15Ed23, after suffering a thigh injury in the Battle of Stone River.⁶

Normally, Union soldiers visited caves in social groups rather than alone, so we looked closely for additional soldier names. We found several inscriptions with the name “W. W. Blair” but none have a date or indicate a soldier status. This could be Dr. William Wylie Blair (1827-1916), a Princeton, Indiana physician who was commissioned as Surgeon in the 58th Indiana Regiment Indiana Volunteers on October 19, 1861. He joined the Regiment on December 17, which he served until his resignation on March 25, 1864. He went on to a prominent medical career in Indiana. However, this identification is far from certain, as there are numerous Blairs in Kentucky and the cave inscriptions provide very limited information. There is additional historic graffiti present, as yet unidentified, such as “W. H. Galloway 18__[?]”. There is also graffiti from the last sixty years which remains unrecorded.⁷

Native American Usage

In the mid-1960s, the landowner at the time opened 15Ed23 to the public as a show cave, and it remained open until the mid-1980s. At the same time, cavers continued to explore and map the cave. Both the landowner and the cavers found significant evidence of pre-Columbian use of the cave. While not kept secret, the Native American components were not well-studied, with the result that the site has not been appreciated for its significance. Basic information such as exactly what was found, where, and by whom, was lost, or almost so. The early knowledge dropped through the cracks, so to speak. National Speleological Society members Charlie and Catherine Bishop introduced us to the mystery surrounding

the site in September 2015 by showing us a scrapbook with a 1962 caver photograph of cave art, a bird.⁸ One of the main goals of our subsequent field work was to relocate this art and document any other American Indian presence. We were able to relocate the bird glyph and other previously noted features. We also found much new material, and we have been able to establish a chronological context for the Pre-Columbian activities. 15Ed23 was used for mortuary, ceremonial and extractive purposes, in the Early Woodland Period, and it contains significant cultural materials.

In 1963, mortuary use of the cave was discovered when three associated individuals were found interred in a pit a short distance inside the dark zone; one adult and two juveniles. The bones were probably exposed during trail building for commercialization. The cave owner notified the University of Kentucky Anthropology Department and donated the burials along with two bags of material from the site, one labelled “Surface of Village” and the other “cave entrance.” No formal inventory or study of the material was made, although Lee Hanson of UK registered the cave as an archaeological site, and in April 1964 he sent a brief letter to the owner outlining “the facts concerning the skeleton” for the cave guides. Hanson noted that the adult burial was a woman in her twenties. She was wearing a bone bead necklace and a bone hairpin. Hanson apparently personally viewed the burial site, as he wrote that discolorations in the soil suggested that she was interred in clothes or wrapped in a robe. As for chronology, he suggested a possible Late Archaic date.⁹

A recent examination of the donated collection shows that it consists mostly of chert flakes and tool fragments, with a couple of stone pestles and one Early Archaic McCorkle-type point. We know

nothing about the supposed surface village, which may have been destroyed by subsequent road construction. Due to caver Charlie Bishop’s knowledge, we were able to examine the actual burial location in the cave, but the dirt has been almost completely removed; sediment lines on the walls indicate the previous floor level. Surprisingly, on the upper edge of the burial location, we found a perfect projectile point with considerable age, based on its patina. We identify it as part of the Barbed Cluster, probably most resembling a Buck Creek Barbed point (Figure 1). The Barbed Cluster points date from the Late Archaic through the Early Woodland, approximately 3500 to 2600 years ago.

Although almost unbelievable from today’s perspective, but in keeping with Kentucky’s competitive show cave history, in early 1964 the skeleton of the young Native American woman found in the cave was taken deeper into the cave, put inside a glass display case, and placed alongside the tourist trail. The guides nicknamed her Zelda, and she was one of the cave’s attractions for the next decade. Bizarre enough, but then in January



Figure 1: “Barbed Cluster” projectile point found near burials in 15Ed23.

1975, the skeleton was stolen from the cave. The owners at the time suspected it was probably a show cave competitor, and the macabre story made the newspapers.¹⁰ But as far as we know, the skeleton was never found. If ever located, we could reinter her in the cave where she belongs, as the cave site is now secured.

In March 1960, the owner of the cave showed visiting cavers “pick marks made by Indians mining salts”¹¹ not far inside the cave entrance. A scrapbook from the early 1960s has two photographs that show gypsum deposits, partially mined, with vertical digging stick marks on them. Our recent investigations confirm that Native Americans mined minerals in the cave, primarily gypsum but perhaps others as well. While subsequent saltpeter mining and tourist development have modified the cave floors so much that any evidence for crystal mining in sediments has been destroyed, there is ample evidence for removal of wall gypsum. There is a low section of wall in the Right Hand Maze, beyond a pit obstacle (now filled), with a 2 meter area of removed gypsum plate or crust. The presence of metal tool marks on top of the bash marks indicates that some mining was historic but there was also an earlier episode of mining. There are stoke marks on the walls from bundled cane torches in all of the mined areas.

There is a second extraction area, with intensive gypsum wall mining, in a complex of small passages, also in the Right Hand Maze. This section was never developed for tourism, although dirt was removed by saltpeter miners. There are bash marks on the gypsum deposits, which range up to 2 meters in height, and bare patches of wall where minerals were removed. There are burnt river cane fragments and carbonized wood or weed stalks from the Native

Americans’ lighting technology lying on areas of undisturbed substrate. There are no metal tool marks on the mined areas. There are sediment discolorations on some of the gypsum deposits, suggesting a higher dirt level at one time, and thus a complex history of sediment and gypsum removal. We did not find any obvious hammer-stones. We place 15Ed23 alongside Salts Cave and the many others in the Mammoth Cave region which were utilized by Native Americans as a source of culturally important minerals.

Like at 12th Unnamed Cave in Tennessee, early organized cavers working in 15Ed23 found and recorded an example of prehistoric cave art long before American archaeologists began to take the field of rock art, including cave art, seriously. In July of 1962, caver Craig Rodemaker photographed a large bird image in the Left Hand Maze. Although mistakenly called a pictograph on the caption (it is a petroglyph), the cavers thought it was probably a turkey, and that it might be significant. News of the find spread, but there were few people interested in eastern rock art, and those few who were did not have the opportunity to visit the site. Frank Fryman, Jr. of the University of Kentucky wrote to California rock art scholar Campbell Grant in early 1965 that “at Ed 23 a petroglyph drawing representing a turkey(?) was found on the ceiling of a passageway...”¹² This letter was passed to Dr. Fred E. Coy, Kentucky’s premier rock art scholar, but as he wrote in 1997, “I have never been able to find the Ed 23 site...”¹³ That same year, Coy wrote to other Kentucky archaeologists inquiring about the turkey glyph but no-one had seen the art or knew exactly where it was. As far as we know, Dr. Coy never visited the site, and again 15Ed23 dropped through the scholarly cracks. The turkey is not mentioned in any studies of Kentucky rock or cave art.¹⁴

On November 27, 2015, after intensive searching, we relocated the turkey petroglyph, glyph #1, on a ceiling in the Left Hand Maze, less than 10 meters from mortuary location (Figure 2). By we of course, I mean Kristen Bobo. The glyph is incised into the limestone bedrock and measures 40 cm long and 27 cm high. It is executed by a skilled and confident hand. It shows a turkey at rest, and the feet are not visible. The artist uses a fine line technique at the back of the body to suggest long feathers, and a pecking technique inside the body to show texture. The latter is a common pre-Columbian technique. While there are several birds in Kentucky rock art, there are few turkey petroglyphs, and while turkeys are a large component in southeastern cave art, the turkey at 15Ed23 is atypical. In many Tennessee cave turkeys, for instance, the bird is shown flying or walking, the wings are crosshatched, and the feet are an important design component. There appears to be nothing else quite like it known in Eastern America.

So far, we have found four additional petroglyphs in the same portion of the Left Hand Maze as the turkey. By we of course, I mean Kristen Bobo. Glyph #2 is an incised image measuring 30 cm long and 23 cm high located on the ceiling at a passage intersection. There is no cane charcoal

present here or around any of the art; the floor was removed by saltpeter miners. The image has a series of parallel lines at angles at the bottom with lines running at two angles superimposed on top. The edges on the upper right are indistinct. It could represent an irregular shaped object, perhaps woven, or it may be an abstract image. The use of crosshatching is common in cave art and in Kentucky its use extends back to the Late Archaic Period.

Glyph #3 is incised in the ceiling about 30 cm east of glyph #1 and measures 31 cm long and 3 cm wide (Figure 3). It consists of a long narrow D-shaped design, which is bisected by c. 12 more-or-less perpendicular lines. The patina of the drawing is old. That it lies under smoked historic graffiti (two letters) attests to its age. We identify this as a variant of the oval-shaped “toothy mouth” glyph, so called because it sometimes forms part of a human head effigy. The “toothy mouth” cave glyph is associated with multiple human burials in caves in eastern North America, and examples are known from multiple sites in Tennessee, and from Georgia and West Virginia. This is the first example identified in Kentucky. Chronologically, the motif is known from Archaic, Woodland, and Mississippian sites. Glyph #3 at 15Ed23 was probably created in the Early Woodland Period.¹⁵



Figure 2: Glyph #1 Turkey.



Figure 3: Glyph #3 “Toothy Mouth” motif.

Glyph #4 is a fine line incised petroglyph located on the ceiling 4.5 meters south of glyph #1 (Figure 4). It is a round spiral with six bands, measuring 27 cm in diameter. Spiral and concentric circle shapes are common in eastern rock art. Some of the authors think it might represent a snake, with a diamond head, forked tongue, and raised rattle, but others remain doubtful. Although it is impossible to directly date petroglyphs, it is almost certainly Native American in origin.

Glyph #5 was discovered in early 2016 in the same general area as the others. It consists of six or more long horizontal lines intersected by nineteen or more shorter vertical line, making a rectangular grid pattern. Faint lines near the grid complicate the panel and will require additional study. The patina is old. Grids are common in rock and cave art, including at Adair Glyph Cave in Kentucky. Regionally, grid patterned cave art is known from the Late Archaic through



Figure 4: Glyph #4 Spiral or Snake.

historic periods. Our initial assessment is that 15Ed23 is an important Kentucky cave art site.

As noted above, there is abundant evidence of American Indian exploration of 15Ed23 in the form of river cane torch marks, cane charcoal deposits, and other material from their lighting technology, especially in the Right Hand Maze. A single radiocarbon date from a cane charcoal fragment yielded a calibrated date of 975 BC or 2925 BP (Table 1). While not a direct dating of the art or gypsum mining, it gives us chronological context for Native American activity in the cave. The Early Woodland Period date is contemporaneous with the exploration and mining of Mammoth Cave, Salts Cave and other caves in the region.¹⁶

Native Americans clearly utilized 15Ed23 intensively and for a number of important purposes. Despite the disturbed cave environment, the site still contains many significant resources. We look forward to continuing our research at the cave, where we hope to assess passages that were inaccessible in the fall and winter, obtain additional chronological data, and further explore the site's remarkable past.

Acknowledgments

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Table 1: Radiocarbon Results from 15Ed23. Calibrated using INTCAL 13. By convention, BP (Before Present) is keyed to the calendar year 1950.

Laboratory No.	Material	Measured Age	d13C	Calibrated Date BP	Date Range BP (1σ)
Beta – 425352	cane charcoal	2860 +/- 30	-27.2o/oo	2925 +/- 30	2875-2960

Footnotes

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10. Billy Reed, "Anybody Seen the Skeleton of Zelda?" *The [Louisville] Courier-Journal*, February 21, 1975, p. 5.
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