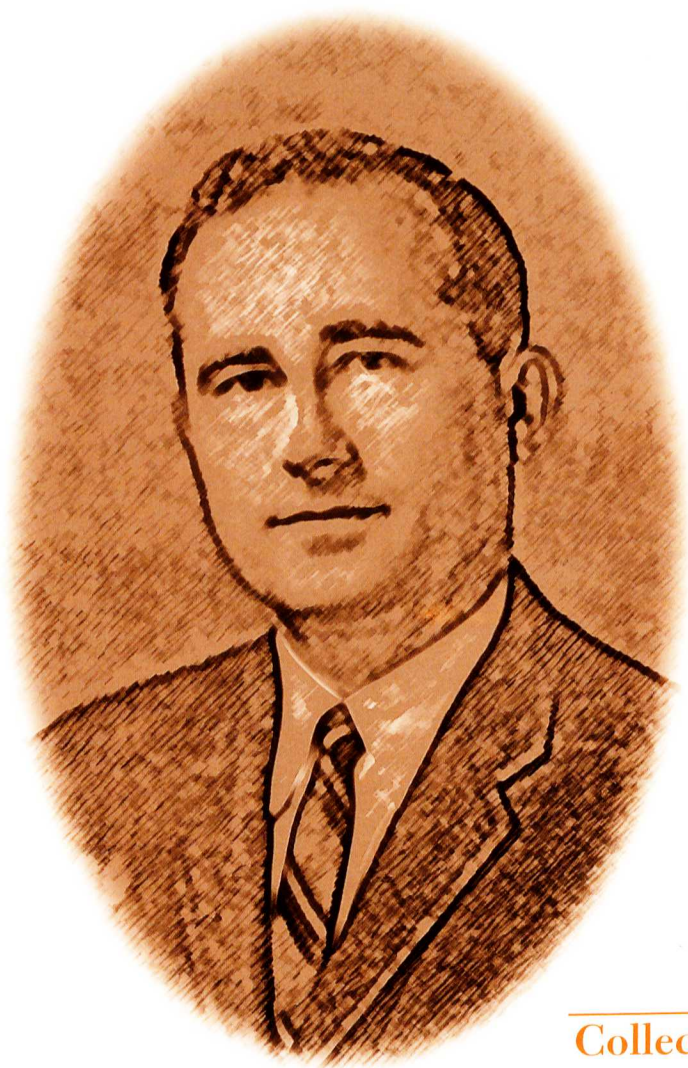


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Historical Archaeology in Arrow Rock, Missouri

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Arrow Rock, Mo., founded in 1829, is located in central Missouri on the western bluffs of the Missouri River in Saline County. During the antebellum period, Arrow Rock was a major Missouri River port and a starting point on the Santa Fe Trail in Missouri's plantation district with an 1860 population of approximately 1000 citizens (Dickey 2004; Fisher et al. 1988; Hamilton 1972; Van Ravenswaay 1959). Famous historical figures associated with Arrow Rock include George Caleb Bingham, a 19th-century Missouri painter; Dr. John Sappington, who popularized quinine; and three Missouri state governors. Today, the town of Arrow Rock is designated as a National Landmark site with a population of about 70 people. Despite its small population, Arrow Rock has been transformed in the 21st century into a major state historic site with over 200,000 annual visitors generating over one million dollars in revenue.

This transformation began in 1912, as the Daughters of the American Revolution (DAR), in association with the National Old Trails Road Association, furnished a room in Arrow Rock's Huston Tavern (Figure 1) with period furniture and historical objects "as a means of teaching Missouri history to the passerby" (Van Ravenswaay 1959:223). In the early 1920s, the DAR then began a restoration project of the entire Huston Tavern resulting in the tavern's purchase in 1923 by the state of Missouri. The Huston Tavern then became the first state-owned historical building to be restored and opened for heri-

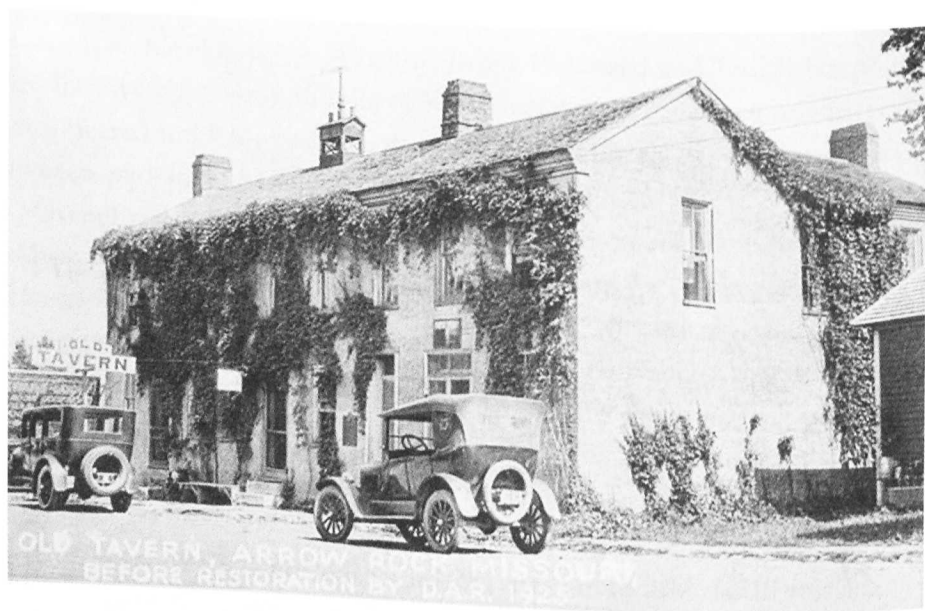


Figure 1. Huston Tavern prior to restoration in the 1920s (source: Historic American Buildings Survey, Lester Jones, photographer. HABS, MO,98-ARORO,2-1).

tage tourism. During the 1930s, the Works Progress Administration (WPA) assisted in developing this new historical site, which is now called the Arrow Rock State Historic Site, for historical interpretation and recreational use. At this time, the park included nearly 34 acres concentrated on the south side of Arrow Rock comprised of the Huston Tavern, the George Caleb Bingham home, the Big Spring, the Academy building, a stone jail, and the surrounding natural environment. Since this time, the park has expanded to over 100 acres in size and has added additional historical properties with the assistance of The Friends of Arrow Rock, Inc., the local historic preservation society.

The Friends of Arrow Rock was created in 1959 to preserve the history and structures of Arrow Rock primarily outside the park boundaries. This new group concentrated on purchasing and restoring historical structures including the Old Courthouse, the Christian Church Chapel, the IOOF Lodge Hall, the John Sites gunsmith shop and home, the Brown Chapel, and others. Working with the Arrow Rock State Historic Site, many of these sites have been incorporated into a historical walking tour of Arrow Rock. In 1984, the

Friends of Arrow Rock added a new level to their historic preservation efforts by starting an education program, introducing children to folk crafts and Arrow Rock's rich heritage. This education program continues today averaging 2,000 children during a six-week period during April and May, and 1,500 children for the Children's Craft Festival in September.

In 1989, the Missouri Department of Natural Resources made a large financial commitment to Arrow Rock's heritage by funding a one-million-dollar visitor center and museum. The grand opening occurred September 27, 1991, establishing Arrow Rock as a historically significant site that will be visited by thousands of tourists for generations to come.

As part of Arrow Rock's preservation efforts and transformation into a Missouri State Historic Site, the town has promoted some of the first historical archaeological excavations in the state. The majority of the archaeological work has been sponsored by the Arrow Rock State Historic Site and/or by the Friends of Arrow Rock. Overall, historical archaeology in Arrow Rock has followed national research trends in the discipline which include 1) a humanistic approach, 2) cultural resource management, and 3) anthropological studies.

Humanistic Approach

Nationally, historical archaeology began as a humanistic approach, filling in gaps of time for historians and assisting in reconstruction efforts of historical structures. Utilizing this approach, Robert Bray at the University of Missouri was the first archaeologist to work in Arrow Rock. Two of his projects include the George Caleb Bingham Home and the John Sites Gunsmith Shop (Figure 2).

George Caleb Bingham Home

The Bingham house site was the home of the famous Missouri artist George Caleb Bingham between 1837 and 1845 (Figure 3). In the 1930s, the WPA conducted an initial restoration of the Bingham home, which included the demolition of a frame ell addition. In 1963, the University of Missouri attempted to determine the house's original layout and identify any inaccura-

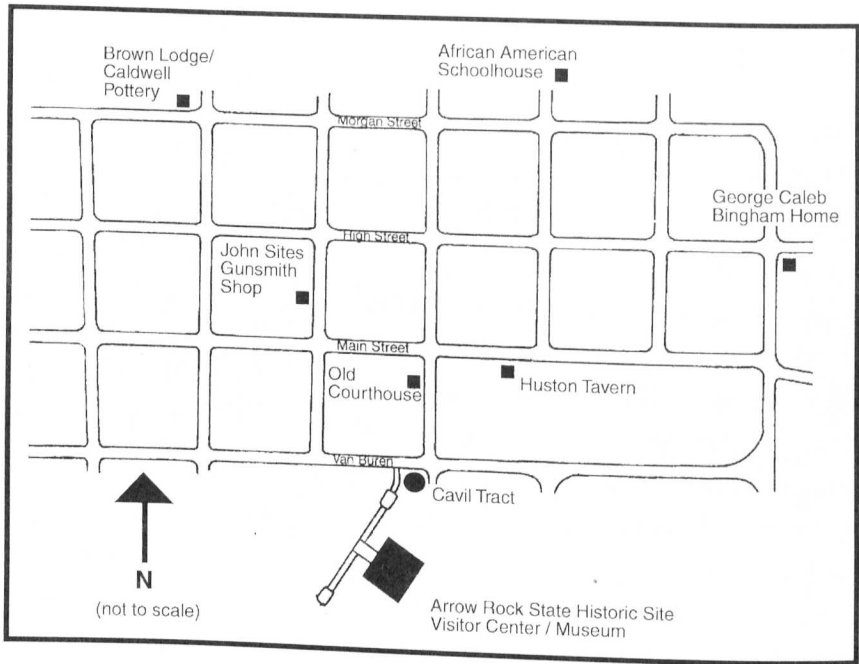


Figure 2. Map of archaeological sites in Arrow Rock, Mo.

cies in the 1930s restoration (Rucker 1963). Five avenues of research were conducted to determine the Bingham House's architectural history which included 1) historical documentation, 2) oral history, 3) photographs, 4) the extant structure, and 5) archaeological data.

Archaeological excavations were conducted for one week and focused on the razed ell demolished during the 1930s restoration project (Rucker 1963:13–17). Excavations were concentrated immediately south of the standing home, opening a 43-x-16-ft area uncovering three foundation corners and associated builder's trenches of the razed ell. Foundation remnants in the builder's trench included small, unmortared limestone rock. The original limestone foundation of the ell was removed by the 1930s restoration effort and was likely reused in the restoration or at other projects in the Arrow Rock State Historic Site.

A cellar was identified within the limestone foundation with a maximum depth of 6.9 ft below the surface, and filled with primarily early 20th-century



Figure 3. George C. Bingham House, 1940 (source: Historic American Buildings Survey, Lester Jones, Photographer, HABS, MO,98-ARORO, 1-2).

artifacts. Excavation trenches were also placed between the block excavation and the extant Bingham home to help identify how the ell foundation connected to the home. “The trench parallel to the south wall of the brick house and west of the back porch failed to uncover any traces of [how] the ell foundation [connected to the house]...However, this trench did reveal remains of the foundation of a large two-story porch, which ran across the south side of the brick portion of the house” (Rucker 1963:15). A small trench was also excavated along the interior west foundation wall to find a possible chimney foundation (Rucker 1963:12). Excavations were inconclusive due to the heavy disturbance from the 1930s restoration that included cement to strengthen the limestone foundation and to support a new floor. Other features recorded within the block excavation included a cistern, a drainpipe, a stone walkway, a stone pier, and a stone and brick concentration of unknown function.

Thousands of artifacts were collected from these excavations, but most dated to the early 20th century and the last occupation of this house. Due to the volume of artifacts, a detailed analysis was not conducted. Rucker's (1963:20–21) report only highlighted a small number of artifacts that may date to the Bingham occupation during the mid-19th century. Overall, the cellar fill suggested that it was left open after the ell demolition and was used as a dump. Artifacts from this fill included “automobile parts, mason jars, nails, broken window glass, fragments of china, earthenware, and porcelain, etc” (Rucker 1963:20). Rucker (1963:12–13) also concluded that the majority of window glass collected from the ell excavation was the same “thin, bluish glass” found in the 27 original window panes still present in the extant Bingham home.

In conclusion, Rucker (1963:22–25) suggested three hypotheses for the ell. First, since no foundation was found connecting the ell to the main house, the ell may have originally been a detached kitchen and/or a slave quarter that was later attached. Second, Rucker suggested that the original ell may have been two rooms deep, but a full basement was only constructed under one room. Thus, a substantial foundation was only constructed with the cellar and under one room. Last, Rucker suggested that the original frame ell was only one room deep adjacent to the main house. Due to the small size of this room and the fact that it was only a story tall, a substantial foundation was not needed. After reviewing the archaeological data, historical documentation, photographs, and oral history, Rucker believed that the third hypothesis was most likely. As for the cistern, Rucker suggested that it may have been original and should be restored, but the drainpipe and walkway were not. Based on these recommendations, the Bingham House, including the ell addition, has been restored and furnished with materials associated with George Caleb Bingham's ownership and is operated as a historical house museum by the Arrow Rock State Historic Site.

John Sites Gunsmith Shop

In 1967, Robert Bray (1967c) conducted excavations at John Sites Gunsmith Shop for the Friends of Arrow Rock. Between 1846 and 1902, John Sites smithed, repaired, and sold firearms to local townspeople, farmers, and

western travelers along the Santa Fe Trail. Excavations were concentrated on the interior of this structure and revealed an original earthen floor (Figure 2). Artifacts recovered from this trampled floor included gunsmith-related objects of “pinfire, shotgun shells, a rifle butt plate, a whetstone, iron tongs, files, a hatchet, a padlock, a table knife, lead pieces and shot, and a hacksaw blade (Bray 1967c:7). Based on the presence of soil stains, deteriorating wood, and cut nails atop the earthen floor, Bray also detected portions of nine floor joists that once supported a wooden floor. The joists ran north to south with an occasional limestone pier at each end. In the early 20th century, the wooden floor was removed and a concrete floor was poured to accommodate an automobile. This was the condition of the shop at the time of the investigation in 1967. Excavations in the rear of the shop revealed brick walls, a forge base, and a large concentration of charcoal. Bray suggested that, due to the heat of a forge, this rear portion retained its earthen floor and was never covered by a wooden one.

Based upon Bray’s recommendation and the archaeological data collected, the John Sites Gunsmith Shop has been restored and is operated as a historical gun shop museum by the Friends of Arrow Rock. Period actors portraying John Sites are frequently used to explain the process of gun manufacture and repair. Artifacts from the excavation have been supplemented with period guns in display cases as well as modern replicas of gunsmithing tools and a working forge.

Cultural Resource Management

Since the National Historic Preservation Act of 1966, most historical archaeology in Missouri has been conducted as part of a cultural resource management (CRM) project by local, state, and federal agencies. In Arrow Rock, the Missouri Department of Natural Resources has initiated several CRM excavations to document historical sites prior to their possible destruction by future development activities. Two of these projects include the Old Courthouse site and the Cavil Tract (Figure 2).

Old Courthouse Site

In 1986, the Missouri Department of Natural Resources contracted with the American Archaeology Division of the University of Missouri–Columbia (MU) to conduct archaeological investigations near the Old Courthouse site in Arrow Rock before the construction of a new public bathroom (Holland and Pulliam 1987, 1990). Testing concentrated on three areas north, south, and east of the standing courthouse on Block 23. The northern area included the eastern half of Lot 75 on Block 23 located at the southwestern corner of Main and Fourth streets. The southern area encompassed the south half of Lot 76 in Block 23 located at the northwest corner of Van Buren and Fourth streets. The eastern area consisted of the southwest quarter of Lot 63 in Block 17 located at the northeast corner of Van Buren and Fourth streets.

The highest priority was placed on the southern area to record a 19th-century stable at this location. Holland and Pulliam (1990:68) stated that their objectives were to locate the “structural remains of the stable in order to determine building size, orientation, and layout as well as information on building materials, activity areas within and surrounding the structure, and the time of occupation.” A secondary importance was placed on the northern and eastern areas due to time and money concerns. The eastern area was not expected to record any significant cultural resources, but testing was needed to confirm that no archaeological deposits would be impacted. Unlike the eastern area, cultural resources were expected in the northern area based on historical maps that identified buildings on this lot.

Archaeological work in these three areas included one or more of the following: a proton-magnetometer survey, probing, shovel testing, trenching, and unit excavation. The proton-magnetometer survey recorded magnetic anomalies below the ground surface. A solid probe survey was then conducted to flag subsurface foundation and features across these areas. Information gathered from these surveys and shovel testing was used to determine unit excavation. The southern area, which was the primary focus of these excavations to locate a 19th-century stable, as well as the eastern area, were found to be nearly devoid of any significant cultural resources. Thus, the majority of archaeological work

was concentrated on the northern area. A total of 16 1-x-2-m and 1-x-1-m units was placed in the northern area opening a total of 23 m². All test units were dug as single levels and only one of the units' fill was screened. These excavations uncovered the remains of a limestone foundation measuring approximately 8 x 9 m. Most of this foundation had been robbed or salvaged and was only identifiable by small and undesirable pieces of stone. Limestone steps leading to a cellar/basement and a concentration of brick from a chimney were also recorded along the building's south wall.

A total of 5,940 artifacts were collected which included nails (30%), window glass (19%), container glass (17%), ceramics (16%), metal (7%), faunal remains (7%), artifacts related to clothing manufacture/repair (2%), brick (<2%), and miscellaneous objects (e.g., toys, personal objects, coins) (<1%) (Holland and Pulliam 1990:73-78). The ceramic assemblage was used to determine a general date range from 1830 to the early 1900s. The faunal remains consisted of primarily domestic animals: pigs, cows/oxen, sheep/lamb, and chickens/turkeys including 352 mammal-bone fragments (86%), 53 bird fragments (13%), and 4 fish elements (1%) (Holland and Pulliam 1990:74). Artifacts of sewing manufacture and repair included 88 buttons and "21 other items of straight pins, needles, thimbles, scissors, and an iron" (Holland and Pulliam 1990:78).

Overall, Holland and Pulliam (1990:82) interpreted this structure as a one- or two-story frame structure dating between 1830 and the early 1900s with a basement/cellar and a rear chimney. They suggested that the building functioned as a general store and not a family dwelling because of its location on Main Street, foundation size, and because of the wide range of artifact types and styles (e.g. ceramics), which they also suggested is not normally expected from a domestic household (Holland and Pulliam 1990:83). Additional archival work could provide needed information to prove or disprove a "general store" interpretation. Since these excavations, the Old Courthouse lots have not been impacted, as the new public bathrooms were not constructed. Information collected from these excavations has not been incorporated into the heritage tourism programs.

Cavil Tract

In fall 1989, construction began on the Arrow Rock State Historic Site's new visitor center, which included the removal of a 20th-century home on Lot 77 of Block 24 at the southwest corner of Van Buren and Fourth streets (Grantham 1991). This house was located directly across from the south project area studied in 1986 by MU (Holland and Pulliam 1987, 1990). Deed records document three major occupation periods on Lot 77. Between 1855 and 1881 this property was used as a store in conjunction with a livery stable on Lot 76. After 1881 this property was used as a residence by William Edison until 1922. The last occupants were an African-American family headed by Lucien Cavil, who lived at this address until Mr. Cavil's death in 1958.

As the house was dismantled, an earlier limestone foundation was identified below the razed 20th-century home. Larry Grantham, an archaeologist for the Missouri Department of Natural Resources, mapped this older foundation and additional surface features. The plans for the visitor center were slightly modified to avoid disturbing the earlier foundation so that it could be used in an outdoor exhibit. The altered plans were still going to disturb two additional surface features: 1) a concrete and limestone concentration and 2) a large depression. Further evaluation of the construction material was that it was modern and not considered culturally significant. The large depression was tested with two 1-x-1-m units uncovering a cistern. The units were excavated in 10-cm levels to a depth of 60 cm. Materials collected were of a 20th-century origin and related to Lucien Cavil's death in 1958 and his wife moving out of the home. A cross section of the cistern was then cut recording that the cistern was 8 ft, 9 inches in diameter and was constructed of a thin layer of mortar directly on dirt walls. "Only large materials were saved, identified, and then field discarded" back into the cistern (Grantham 1991:4).

Early in 1990, additional excavation plans were also made to expose more of the foundation. Grantham excavated two test units, one on the interior and one on the exterior, but further excavations exposing the foundation were delayed until the next year. In , summer and fall, 1991, Larry Grantham continued these excavations planning to entirely excavate the interior and a row

of 1-x-1-m units outside the foundation. These units were dug in 10-cm levels and screened with a ¼-inch mesh. A total of 49 m² was excavated.

Overall, excavations revealed multiple brick and limestone foundations associated with the three major occupations. The first building episode was a store constructed between 1847 and 1850 of half brick and half log and with a north-south long axis. The brick half was constructed with a limestone foundation. The log half was identified by “the presence of chimney wings” and chinking mortar that had been whitewashed (Grantham 1991:23). An eastern porch was also identified by a limestone landing with two possible doorways. A north façade also had a stone landing and was identified as the main store entrance. The second building episode occurred after 1881, when William Edison purchased the property for \$175 and before 1896, when a historical map identified a different structure orientation. Grantham suggested that the earlier structure was torn down and portions of the original limestone were reincorporated into a frame structure that had an east-west long axis. The final building episode was after 1922 and is associated with the Lucien Cavil family. Grantham suggested that the Cavil family tore down the Edison home in the 1920s and rebuilt a new home using primarily recycled materials. This home was demolished in 1989 as part of this project.

Of the artifacts collected, the majority consisted of architectural remains (70–80%) and most dated to the 19th century. Stone, brick, and mortar were washed, weighed, and discarded. Only the 20th-century artifacts collected from the cistern and a porcelain doll have been directly associated with the Cavil occupation. Grantham stated that the porcelain doll is typical of those from the late 19th century and prior to the Cavil occupation in 1922, but its arms and face are painted black possibly suggesting that it was owned by an African-American child in the Cavil family. Due to the intact archaeological remains uncovered on Lot 77, the Arrow Rock State Historic Site modified its construction plan for the visitor’s center preserving this site and leaving a limestone and brick foundation visible on the surface for visitor interpretation. Despite this, no interpretive signage has been placed at this site.

Anthropological Studies

Since 1996, Timothy Baumann at the University of Missouri–St. Louis (UMSL) has conducted archaeological research in Arrow Rock in collaboration with the Arrow Rock State Historic Site and the Friends of Arrow Rock, assisting in their preservation and heritage tourism efforts. This research, however, was not geared toward restoring a building or documenting a site before its potential destruction, but instead was driven by anthropological research that addressed the town's cultural diversity and the rise of industrialization.

African-American Heritage

Despite the historical consciousness of Arrow Rock's citizens, previous historic preservation efforts have been negligent in telling the town's whole story, particularly that of its African-American heritage. Throughout much of Arrow Rock's history, African Americans have constituted between one-fourth and one-half of the town's population. In 1996, the Friends of Arrow Rock received a Missouri Humanities Council grant to begin an African-American heritage program to correct this bias and to tell a more complete story of the past.

Historian Gary Kremer of William Woods University led the history component of this project to document how African Americans struggled to establish their own lives and community in post-Civil War Arrow Rock. Research was conducted to gather primary records including census data, newspapers, deed and probate records, photographs, and oral histories. Initially working with the Missouri Archaeological Society in 1996, Timothy Baumann directed the archaeological component of this project. The primary archaeology goal was to document the entire postbellum African-American community with broad research questions addressing racism and ethnic identity from slavery to the modern era. Excavations have explored multiple households, an African Methodist Episcopal Church, a schoolhouse, a speakeasy, an emancipation-day picnic field, a restaurant/bar, and a Masonic lodge called the Brown Lodge No. 22 of Ancient Free and Accepted Masons. Additional funding for this work has been provided by the Missouri Archaeological Society, the Missouri Department of Natural Resources, and the Friends of Arrow Rock. The 2000 field season

was also partially funded by the Missouri State Coordinating Board of Higher Education through an Eisenhower Professional Development grant, which incorporated an archaeology program for middle-school teachers.

Excavations at the African-American schoolhouse and the Brown Lodge will be highlighted here to examine African-American life during the Jim Crow Era (Figure 2) (Baumann 2001; Kremer et al. 2003). Post-Civil War African Americans struggled to obtain equal citizenship through property ownership, fair treatment in the legal system, the right to vote, consumer choice to patronize any business they desired, and equal education. In their quest for equal rights, education became the stepping stone to black independence and was one of the first things sought after emancipation. The first publicly supported school for African Americans in Arrow Rock was established in 1869 at the Brown Chapel with the help of James Milton Turner. Turner, a prominent black leader, was employed by the Freedmen's Bureau and the Missouri Department of Education to establish schools for African Americans throughout Missouri. Turner's visit to Arrow Rock was a dangerous mission, as a black man had been lynched in Arrow Rock in 1859 and another lynching of a black man would occur in 1873 (Dyer 1995a, 1995b; Kremer 1991).

The school that was established during fall 1869 served the entire Arrow Rock Township. According to the 1870 federal census, there were 66 persons attending the school. It is interesting to note that many of these students were adults who had been denied access to education prior to or during the Civil War. Of the 66 students enrolled in 1870, 11 (almost 17%) were 20 years old or older. Another 14 (21%) were between the ages of 15 and 19, ages that we think of today as being beyond the elementary school age (Kremer and Hoaglin 1997).

The first school building for African Americans was not constructed until 1892 at the end of north Third Street and outside the city limits. The school was made from recycled materials from the first white school after it was torn down and replaced that same year. This first African-American school burned down in the 1930s and was rebuilt with brick. In 1948, this second schoolhouse burnt down and was rebuilt again using recycled materials and the same foundation from the 1930s building. The third schoolhouse is still standing today and was

converted into a residence in the 1950s after desegregation. The final school was a one-room schoolhouse constructed of brick with a full basement. In the basement, burnt timbers are still visible from the 1930s burning. How and why this school burnt down twice is unknown, but it is very suspicious.

Preliminary excavations at this schoolhouse site (23SA516) were conducted during the 2000 UMSL archaeological field school (Figure 4). Data collection was obtained through 15-ft interval posthole tests and five 3-x-3-ft excavation units around the standing schoolhouse. Excavations uncovered a cistern and a number of artifacts related to school activities (e.g., pencil, slate, toys) as well as general refuse debris (e.g., ceramics, food remains). Additional analysis of these artifacts is currently being conducted at UMSL. Future research will compare these results to excavations at the First Schoolhouse site (23SA509), Arrow Rock's Euro-American schoolhouse, by Bray and Earl Lubensky in 1977 and 1980 (Kremer et al. 2003; Lubensky et al. 1980).



Figure 4. African-American schoolhouse site (23SA516) in Arrow Rock, Mo.

The social struggle for equal rights and self-governance also led to the formation of African-American fraternal lodges in Arrow Rock, like the Brown Lodge No. 22 of Ancient Free and Accepted Masons (23SA451) (Figure 2). The Brown Lodge was established in 1881 on city Block #30 at the northwest corner of Morgan and Sixth streets. The Brown Lodge was the place where black males congregated to participate in Masonic rituals, to make decisions relating to the relief and burial funds, to discuss and decide allegations of un-Masonic conduct, and, generally, to socialize away from the scrutiny of whites (Kremer and Hoaglin 1997). Membership rolls from the early 1880s indicate that there were approximately 27 members of the Brown Lodge. The downstairs portion of the Masonic lodge was used as a restaurant and bar during most of the 20th century, but how the first floor was used originally is unclear. By 1940, the restaurant was run by Jim Edwards and then, in the mid-1940s, by William Huston Van Buren.

Archaeological work around the lodge was conducted between 1996 and 2002 identifying several features and artifacts associated with the communal activities of this structure. Analysis of the Brown Lodge materials suggested that most artifacts collected are associated with the restaurant and bar on the first floor and very few artifacts can be linked to the Masonic Hall. Architecturally, the Brown Lodge generally conforms to the Masonic building codes and rituals, but material evidence of Masonic activity at the Brown Lodge was very limited due to its secretive and ritualistic nature (Mackey 1917). Two objects, a button with a crescent moon and star and a pendant with an Egyptian motif, were the only artifacts that could be definitively linked to Masonic rituals or interpretation. Labor activities were identified through cooking artifacts and food remains, but also included a high frequency of sewing-related items, buttons in particular. Similar button concentrations have been identified in other African-American contexts and have been associated with occupational patterns of black women in the late 19th and early 20th centuries. Social activities at the Brown Lodge were highlighted in the archaeological record through gaming objects of a homemade game board, gaming pieces, marbles, and a doll's leg. Many of these objects and the Lodge itself were made partially or completely from recycled or salvaged materials, which highlight the economic and social difficulties of the Jim Crow Era.

Overall, this research project has been, and continues to be, a collaborative effort between the local historical society, the descendant community, and the Missouri State Parks, resulting in a renewed sense of community identity. This is most visible in the creation of new heritage events and exhibits. For example, descendants of Arrow Rock's black community have begun annual Juneteenth and Homecoming festivals in Arrow Rock to celebrate their heritage, an exhibit on Arrow Rock's black community was created for the Missouri State Museum in Jefferson City, and the Missouri Historical Society in St. Louis has developed new African-American history tours to Arrow Rock and central Missouri. The Friends of Arrow Rock are also restoring the Brown Lodge as an interpretive center for African-American heritage. Both the historical research and archaeological data from this African-American heritage project will be displayed in this interpretive center with funding supplied by the State of Missouri's Neighborhood Assistance Program and the National Endowment for the Humanities.

Industrialization

Prior to the construction of the Brown Lodge on Block #30, this was the site of a stoneware pottery factory operated by Newton G. Caldwell between 1855 and 1863 (Fisher 1995; Jacobson et al. 2004). Caldwell, who came from a potter family, emigrated from Kentucky with his father to Callaway County, Mo., where he worked in the family pottery before establishing the Arrow Rock factory. The 1860 industrial census indicates that Caldwell had \$4,000 invested, 200 cords of wood worth \$500, a horse (probably for a pug mill), and 5 employees and a slave who helped produce 35,000 gallons of salt-glazed and slipped stoneware valued at \$2,800 (Baumann 2001:81). The exact roles of Caldwell's employees and the enslaved African American within the daily operations of the pottery factory are at this point unknown.

Overall in 1860, there were a total of 17 pottery factories in Missouri that produced \$49,670 worth of product manufactured by 60 male employees. Total expenditures included \$18,550 of general capital investments with material and labor costs of \$8,572 and \$17,112, respectfully. Nationally, Missouri potteries consisted of 3.1% of the total number and 2% of pottery produced in 1859.

The Caldwell Pottery site was the second largest pottery-producing factory in Missouri at this time. The largest Missouri pottery in 1859 was operated in neighboring Boonville, Mo., by George Vollrath, who out produced the entire state by himself with over \$25,000 worth of pottery. In 1863, Newton Caldwell sold the pottery factory to William Price, a local physician, who owned and operated this business until his death in 1865. After Caldwell sold the factory he moved back to Callaway County and went into business with his brother, John Boyd Caldwell, operating a pottery business until the 1880s.

Why Caldwell sold his pottery in Arrow Rock is unknown, but there are several factors that may have influenced his decision. The primary factor may have been his relationship with his mother, Eleanor Boyd Caldwell, who died in 1863—the same year as the sale. Newton was the youngest of six siblings and never married. He may have sold his business to come back home to be with his mother before she died. A second reason for his move may have had to do with his economic success. As stated above in 1860, Newton invested \$4,000, but his products for that year were only worth \$2,800 resulting in a deficit of \$1,200. Arrow Rock was also immediately upstream from Boonville, in Cooper County, where George Vollrath produced \$25,000 worth of pottery in 1860. The competition from Vollrath may have forced Caldwell out of business. Lastly, in 1863, Missouri was divided by the Civil War, which affected most Little Dixie businesses. Thus with the death of his mother, possibly the overwhelming competition from the Boonville potteries, and the effects from the Civil War, Newton sold his business and moved back to Callaway County.

Archaeological studies at the Caldwell Pottery site (23SA451) began in 1996 and continued until summer 2002. Research at this site is the first archaeological study of Missouri's early pottery industry. This research project included 1) developing a methodology to determine the various sizes, functions, and forms of stoneware pottery and kiln furniture produced and used at this site, 2) defining the technology used at the Caldwell factory to produce these stoneware vessels and then to compare this technology with other 19th-century pottery sites, 3) viewing the Caldwell pottery factory within the broader historical theme of industrialization focusing on the underlying mechanisms that transformed a family-operated cottage industry into a full-blown mechanized

factory, and 4) studying Arrow Rock's trade networks from the distance that Caldwell's stoneware was traded from its production source.

Excavations to date have unearthed portions of a bottleneck kiln (Figure 5) and associated workshops, as well as thousands of stoneware pottery sherds and kiln furniture, ceramic objects used to stack and space the pottery during firing. The bottleneck kiln was constructed of brick and measured 16 ft in diameter. There are two fireboxes located on the north and south ends. Ash remains at these locations suggest that the kiln was wood fired. A linear air chamber stretches between these hearths resulting in two half-moon brick sub-floors. The outer wall of the kiln is one course thick with a circular air chamber immediately inside. This brick kiln is also enclosed by a continuous limestone foundation that measures 18 x 18 ft, which suggests that the kiln was within and partially covered by a structure.



Figure 5. Bottleneck kiln at the Brown Lodge/Caldwell Pottery site (23SA451).

On the east side of the kiln, a workshop was identified approximately 10 ft east and was uncovered below the standing Brown Lodge. This workshop likely shared a roof with the kiln with a semi-open breezeway between the two. The workshop had a continuous limestone foundation with a compact soil on the interior, suggesting that the workshop had a dirt floor. A shallow pit partially lined with limestone was also uncovered within the workshop measuring approximately 3.5 ft. This pit likely functioned as storage for slipping material as this was found at its base. A second workshop or drying shed was documented immediately south of this first workshop and was identified by a continuous brick foundation. After probing, it was found that the foundation extended beyond these units and measured approximately 15 x 30 ft.

A preliminary sample of approximately 450 stoneware sherds and 300 kiln furniture pieces has been analyzed for form, size, and function utilizing John Wathall et al.'s (1991) methodology for two 19th-century pottery factories in Alton, Ill. The analysis concluded that the Caldwell pottery factory produced primarily functional vessels, such as jars, jugs, bowls, and crocks. Less than 10 sherds analyzed had a stamp, mark, or paint applied to the vessel. Those that were stamped were done so on the lip of the vessel marking the volume, but the most common marking was done with a pointed stick or tool that incised the volume numbers on the vessels below the lug handles on crocks. Painted sherds have simple cobalt blue designs likely of floral or animal patterns. No sherds have been found with a formal maker's mark, but Newton and his brothers often marked their pots from their Callaway County factory after the Civil War. The kiln furniture analysis recorded that short or tall saggars and pads or bars were the most common types, with dumbbells or dog bones and wads the next in frequency. Most of the kiln furniture types were used for stacking vertically, which corresponds to the limited floor space found in bottleneck kilns.

In sum, the Caldwell factory in Arrow Rock provided relatively inexpensive salt-glazed and slipped stoneware pottery for utilitarian use. In comparison, the Caldwell pottery produced vessels of similar style and function as that found at contemporaneous factories in Illinois (Gums et al. 1997; Mansberger 1997; Walthall et al. 1991). Through the lens of industrialization, the Caldwell

Pottery site marks the transition from a cottage industry to a fully industrialized pottery (Pultz 2001; Thelen 1986). The traditional potter operated their factory with family labor as a cottage industry supplementing their primary income. Newton's father, Thomas Caldwell, operated his factory in Callaway County in this matter, supplementing his agricultural products. In contrast, Newton Caldwell operated in factory in Arrow Rock as his sole source of income with non-family labor. This would make Caldwell and his pottery factory a keystone linking traditional potting methods and techniques with modern pottery manufacturing.

Today in Arrow Rock, Missouri

Still applicable today, Charles Van Ravenswaay's (1959:203) description of Arrow Rock in 1959 stated:

The Village of Arrow Rock on the Missouri River is today almost a ghost town. Time and change have long since passed it by, but its old white frame and red brick buildings, its historic Tavern, and even brooding and crumbling stores, are reminders of the years when the town's Main Street was part of the Santa Fe Trail, and a remarkable group of [people] living in and near the village helped to shape state and national history. The town's economic decline and its isolation from railroads, and major highways have preserved it from the intrusion of the twentieth century. Not a gas station, a ranch house, or a movie theater, exists in the town. It remains, for all its air of decay and shambling charm, a museum piece of Missouri's frontier years, expressed in the idiom of the middle-South from which most of its early settlers came. There is no other town in the state so well preserved, or which expresses so well this particular part of our history, and which presents such an opportunity for a large scale preservationist project.

Today, Arrow Rock has redefined itself from a thriving antebellum river town supplying nearby plantations and westward travelers on the Santa Fe Trail into a state and national historical treasure preserving its structures and archaeological remains and using its historical status to teach tourists and school groups about the past. Historical archaeology has been and continues to be a vital player in Arrow Rock's preservation and heritage tourism efforts.

First used to fill in gaps of time and reconstruction efforts, historical archaeological now serves as a research tool to understand the town's cultural diversity connecting the past to the present community. The prognosis for Arrow Rock's historical and economic survival into the twenty-first century is excellent. The town's heritage continues to be overseen by the watchful eyes of the Arrow Rock State Historic Site, the Friends of Arrow Rock, and the Daughters of the American Revolution to preserve the past for the future.