

ARCHEOLOGY IN HERBERT HOOVER'S NEIGHBORHOOD:
1989 EXCAVATIONS AT THE L. MILES AND
E.S. HAYHURST HOUSES, WEST BRANCH, IOWA

By

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ABSTRACT

This report documents archeological excavations conducted by the Midwest Archeological Center, National Park Service, at two historic properties at Herbert Hoover National Historic Site (HEHO), West Branch, Iowa. This fieldwork occurred in 1989 in support of a major structural restoration program at the Laban Miles and E.S. Hayhurst Houses. These late nineteenth-century structures formed part of a West Branch neighborhood that would have been familiar to Herbert Hoover during his childhood years. Restoration actions were aimed at returning the structures to an earlier appearance, while adaptively restoring the structures' interiors for modern use. The 1989 archeological project was intended to collect data that might otherwise be lost during components of the restoration program that included ground disturbance around the houses. Those impacts were successfully mitigated through the 1989 archeological data collection program.

This report documents the field and laboratory archeological methods utilized in the project and describes the subsurface features and stratigraphic profiles discovered at the sites. Large numbers of recovered artifacts in a range of functional categories spanning the late nineteenth and early twentieth centuries are also tabulated and described. All artifacts and project records from the 1989 fieldwork are currently housed at the Midwest Archeological Center (MWAC), Lincoln, Nebraska under MWAC Accession 345, which is cross referenced as HEHO Accession 81.

ACKNOWLEDGMENTS

The success of the 1989 archeological project at the Laban Miles and E.S. Hayhurst Houses at Herbert Hoover National Historic Site was made possible by the hard work of the Midwest Archeological Center field team and the cooperation of the site staff. The summer field crew, consisting of Jim Kinley, Tim Meade, and Ann Scott, worked under my direction for the seven-week duration of the project. Forest Frost, Jay Satterfield, and Hawk Tolson participated in half of the summer project. Kristin Griffin assisted during the final hectic week of excavation. The crew toiled through the typically hot Iowa summer weather and completed all of the assigned tasks with good humor and maximum effort. Their contributions to the completion of the project are greatly appreciated. Forest Frost returned to the Miles and Hayhurst Houses on three occasions later in 1989 and conducted additional excavations. During those efforts he archeologically documented two cisterns and a well. Paul Stormberg assisted him on two of those projects. Their December fieldwork at the Hayhurst House was conducted under extremely difficult field conditions as temperatures dipped well below zero degrees Fahrenheit. Their excavation of the initial four meters of fill in the Hayhurst well went far beyond the "call of duty."

Although several of the crew members later helped wash and organize the large artifact collection, Todd Ahlman conducted the bulk of the analysis and curation. The tables in this report are among his many contributions to the project. Tim Meade sorted and analyzed the large collection of nails.

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INTRODUCTION

This report summarizes the results of archeological excavations at two nineteenth-century houses at Herbert Hoover National Historic Site in West Branch, Iowa. The work was undertaken during a primary seven-week field season during the summer of 1989, and during three brief return visits to the site during the fall and winter of that year. The Herbert Hoover National Historic Site was designated by Public Law 89-119 (79 Stat. 510) on August 12, 1965. The site preserves historically significant properties associated with the life of Herbert Hoover. The primary mission for management of the site is to provide, through preservation and interpretation of these historic properties, a biographical memorial depicting the life of the 31st President of the United States.

The park consists of a 186-acre parcel within the incorporated limits of the village of West Branch (Figure 1). Included are nearly 80 acres of restored prairie, the Presidential Library–Museum, Presidential Gravesite, numerous historic structures, and 52 acres of landscaped grounds. Among the 38 historic structures are Hoover’s Birthplace Cottage, 11 houses in various stages of adaptive restoration, and a variety of other features including fences, a barn, and sheds.

These structures frame and recreate a historic scene that Hoover would have known as a child in West Branch. Most of the structures in the site would have been familiar to him, although some have been moved, removed, or altered in later years. The years 1874 (Hoover’s birth) to 1884 mark the primary years for interpretation of the Hoover family’s life in West Branch and the re-creation of the historic Hoover neighborhood setting. Hoover’s long and productive life is extensively interpreted both at the site’s Visitor Center and the Presidential Library–Museum.

The adaptive restoration of historic structures has been a major management emphasis since the park was established. This ongoing program led to the archeological project at the site in 1989. Two historic houses, the Laban Miles House (Historic Structure 6, Figure 2) and the E.S. Hayhurst House (Historic Structure 10, Figure 3), were built shortly prior to Hoover’s birth. He would have been familiar with both houses, especially HS 6, since Laban Miles was his uncle. After a lengthy planning process, during which the chronological and architectural history and current conditions of the 11 houses in the core area of the site were documented, funds were obtained for adaptive restoration of the Miles and Hayhurst Houses. This major effort would restore these aging frame houses to their historic appearance while providing modern interior living spaces.

The relatively poor structural condition of the houses, particularly their foundations, and the need to upgrade utilities and remove recent structural additions would necessitate considerable ground disturbance around the perimeters of the buildings. In keeping with the Secretary of the Interior’s Standards for Historic Rehabilitation Projects, federal law, and National Park Service (NPS) policy, the grounds were evaluated for the presence of archeological resources well in advance of the actual restoration actions. The discovery of subsurface architectural features and

undisturbed nineteenth-century cultural deposits at each house led to the archeological project documented in this report.

The 1989 field effort occurred prior to and during the structural restoration process. Extensive archeological excavations were initiated at all areas where ground disturbance was later to occur during restoration. Most of this work was within or immediately adjacent to the houses. Today the houses are restored to a character compatible with the 1874-1884 period of primary site historic significance, matching their historic configuration and appearance as determined through historical, architectural, and archeological research.

This report documents the field and laboratory components of the archeological work at the Miles and Hayhurst Houses. The 1989 archeological work is placed in perspective in the Project Background chapter. The scope of the restoration project and the goals for the archeological investigation are summarized in the Project Description and Goals chapter. Archeological methods are detailed in the chapter Field and Laboratory Methods. The site occupation features and extensive artifact assemblage are analyzed in the Results section of the report. Finally, the contribution of archeological research to the overall project is summarized in the Conclusions portion of the report.

Archeological deposits at historic sites occupied over long periods seldom provide the specificity necessary to date materials to within a decade. A few items from the excavations, however, are certainly associated with the 1874-1884 period of primary interest. Furthermore, numerous occupation features and historic artifacts can be firmly placed between about 1870 and 1900. The latter portion of this broader span more closely matches the era to which the houses were restored. Significant features and artifact deposits from the nineteenth century were discovered and analyzed at both houses.

PROJECT BACKGROUND

Prior archeological investigations at Herbert Hoover National Historic Site (HEHO) were limited in scope. Most consisted of monitoring of small construction projects by archeologists from the Midwest Archeological Center (MWAC). Small-scale archeological test excavations have also occurred. Locations of previous trenches and excavation units as well as those of the 1989 project are shown in Figure 4.

The earliest work is the 1970 excavation of a single exploratory trench to determine the original location and condition of the Jesse Hoover Blacksmith Shop and the historic Penn Street road bed (Husted 1970). Archeological evidence for both features was identified in the test trench. The road location contained a hard-packed gravel surface, while the blacksmith shop site retained an intact packed clay floor and associated artifact scatter. The 1970 excavations revealed that utility lines had intersected and disturbed a portion of the original road, while the construction and the removal of a parsonage building had adversely impacted the blacksmith shop floor. Despite these disturbance factors, the archeological remains of the blacksmith shop were relatively well preserved.

This exploratory investigation was followed in 1971 by a more extensive excavation of the blacksmith shop site (Anderson 1973). The clay floor was exposed and numerous features were recorded. The size of the building was determined, along with the nature of construction and the placement of internal structural components. This work answered many questions regarding the original structure. The clay floor was left intact at the conclusion of excavation, and the site was backfilled. This project involved the most extensive excavations initiated at HEHO prior to 1989. In 1983, limited archeological excavations and construction monitoring were undertaken at the Mackey House (Sudderth 1983). There, structural restoration efforts included excavation of a new basement which impacted subsurface archeological remains. During the archeological project a cistern was recorded, and nineteenth- and early twentieth-century artifact deposits and features were identified and studied.

Other archeological work at HEHO has relied less upon excavation, and more upon preconstruction survey and construction monitoring. In 1987, MWAC staff monitored installation of an extensive drainage system, and conducted limited surveys at several small proposed project areas (Griffin 1989). Monitoring of excavation trenches for this system resulted in identification of four subsurface features (three cisterns and a trash pit). All but one of the features remain intact, since project plans were modified where feasible to avoid adverse impact to the newly-recorded features. An important result of the drainage monitoring project was the identification of stratigraphic profiles near several of the historic structures. This data will be of considerable utility, should additional projects be undertaken at those locales.

In 1988, limited archeological investigation accompanied architectural foundation studies and electrical cable installation at the Isaac Miles House, HS 11 (Griffin 1988). Archeological monitoring during backhoe excavation of small trenches was the primary field technique

employed. Information was collected relating to site stratigraphy and as evidence of modifications to the original structure.

Later in 1988, installation of underground lines for a telecommunication system was monitored by MWAC staff (Frost 1988). A chain trencher was used for some of this work, resulting in a narrow, linear zone of ground disturbance. A “plow” or “knife” used for most of the route caused even less disturbance. Several features were recorded during the project, and a rather sizable artifact assemblage was collected.

The archeological project most pertinent to the current restoration program was conducted in 1986 at the Laban Miles (HS 6) and Hayhurst (HS 10) houses in preparation for future restoration efforts (Richner 1986). In order for engineers to determine the condition of the foundations, small exploratory trenches were dug by backhoe at each house. The trenching was monitored, and the stratigraphy of each unit was recorded. At the Miles house, trenching adjacent to the southeast corner of the structure (kitchen area) exposed a cistern and stratified cultural fill to a depth of about one meter below the current ground surface. Trenching at the northwest corner exposed a segment of the original unmodified stone foundation. Most of the Miles House foundation was rebuilt and waterproofed in the mid-1970s, but this portion had not been altered or re-exposed since its initial construction. No archeological evidence of the historically documented 1901 move of the house 14 feet eastward was discovered in this trench. A final trench along the south ell revealed that disturbance from the 1970s foundation repair extends only about 40 cm out from the building in that location.

At the Hayhurst House, a backhoe trench positioned perpendicular to the south ell exposed a buried midden about 15 cm thick. This deposit extends under the crawlspace beneath the ell. The materials must predate about 1892 when the ell was reportedly built. This important deposit would be impacted by construction of a basement under the ell proposed in NPS restoration plans. A second trench was opened along the north side of the house at the west addition, and late nineteenth- and early twentieth-century materials were discovered. The cultural deposit is about 10-15 cm thick and appears to blend with the original A horizon of the prairie soil.

The 1986 backhoe trenching project provided evidence that significant archeological deposits, including subsurface features, occur within areas to be impacted by restoration actions scheduled at the houses in 1989. Given the houses' listing on the National Register of Historic Places and the presence of significant archeological features and artifact deposits, MWAC staff recommended that preconstruction excavations be undertaken at the Miles and Hayhurst Houses. This work was to be conducted prior to and/or during the structural restoration program. The excavations would have dual purposes. The first goal was to mitigate adverse impacts to archeological resources expected to occur during structural restoration activities. The excavations were further expected to provide new data regarding buried architectural features and cultural deposits relevant to the restoration program and to ongoing site interpretation. These project goals are more fully discussed in the next section of the report.

PROJECT DESCRIPTION AND GOALS

The 1989 fieldwork project at HEHO was conducted in conjunction with large-scale restoration efforts at the L. Miles (HS 6) and E.S. Hayhurst (HS 10) houses. The primary goal of fieldwork was to collect archeological data from areas under and around the houses where ground disturbance would occur during restoration activities. Based upon data from the 1986 foundation study, it appeared very likely that archeological deposits, probably including buried architectural features, from the primary historic period (1874-1884) would be present at both properties. This expectation was met through discovery of a variety of architectural features and other archeological deposits at both houses. Archeological data from this era, as well as from later nineteenth- and early twentieth-century occupations, were the focus for the project. The information was collected through controlled excavations of samples of the deposits expected to be impacted during the restoration project. Excavated samples from about 20 percent or more of each impact area were recovered during the archeological project.

Laban Miles House (Historic Structure 6)

Many of the houses now encompassed within Herbert Hoover National Historic Site have complex construction histories. Typically they began as small, simple frame homes and were expanded through addition of ells, porches and other components through time. In addition, changes in outbuildings, landscaping, and other aspects of the properties were often extensive. The Laban Miles house typifies that situation (Figure 5). There has been considerable research regarding the construction history of the Miles House (Bearss 1970; Wagner 1982). This study has included examination of historic documents and photographs, in addition to detailed investigation of the historic structural fabric. The occupation history of the house has also been examined, but in less detail than the architectural history (Bearss 1970, 1971; Wagner 1982). The existing documentation has not resolved all details about the initial construction date and early ownership, but it does provide a relatively complete summary of the history of ownership and structural modifications.

The Miles house was built between 1869 and 1872 on the north half of Lot 87A, Block 33, Cook's Addition (Bearss 1970:33-35). The presumed date of construction is based upon Bearss' study of available maps and property value changes. Originally a small two-story structure, the house was probably built by either Elisha Haines or Benjamin Miles (Bearss 1970:36). Bearss does not explain the possible connection with Benjamin Miles, but reports that Haines bought Lot 87A from Cook, and a few years later (June 1875) sold the property to Jonathan Wilson (Bearss 1970:21). The house had been built prior to the 1875 sale to Wilson, but the builder is not known. After only nine days, Wilson sold the property to Herbert Hoover's uncle, Laban Miles. Miles lived in the house for a brief time. He left West Branch in 1878, but maintained ownership of the house and used it as rental property from that date until 1886, when he lost the property after failing to fulfill a mortgage. The money from the mortgage helped finance his move to Indian Territory in 1878, where he was an agent to the Kaw and Osage. The

occupants of the Miles House from 1878 to 1886 include Reverend Wolfe, and later (after October 1884), Dr. L.J. Leech. Leech purchased the house at auction in February 1886 and owned the house until his death in 1937.

Dr. Leech was a physician in West Branch from 1882 until his death. Leech moved from the house in 1920, after he had a new house built on the south half of the Miles House lot. His son, Albert, occupied the house after 1920, and inherited the property at his father's death in 1937. He owned the house from that date until 1951. The Miles and Leech occupations are the primary ones represented in archeological deposits at the house.

No documentation or other evidence has been discovered of significant alterations to the Miles House prior to 1886. Apparently in anticipation of impending purchase of the house, Dr. Leech hired a carpenter in 1885, and in April 1886 began to modify the structure. The modifications made by Leech over the next 15 years were to provide the configuration which the house maintains today. In 1886, Leech had a one-story addition connected to the east facade. This addition apparently served as a kitchen, as well as having other functions. Based upon examination of Sanborn Fire Insurance Company maps, nail types, and other documentary records, Wagner (1982:103) concluded that Leech added a large bay window to the south elevation between 1886 and 1900. While Wagner's argument for placing the construction within that time frame is fairly convincing, it is worth noting that the 1885 Sanborn Fire Insurance Company map shows the bay window in place. Mistakes certainly occur on those maps, as evidenced by the lack of the bay window on the 1927 Sanborn map, even though the window has persisted to the present day. While the 1886 changes to the structure were significant, more extensive modifications were to follow in 15 years.

In 1901 the house was moved about 14 feet to the east. This was apparently accomplished to accommodate widening of Downey Street (Bearss 1970:41). However, historic photographs from 1890 through the 1930s show that a rather wide parkway was maintained west of the house prior to and after the move. It would appear that the move was not *necessitated* by the street widening, but was motivated more by a desire to maintain a small front yard between the house and the Downey Street boardwalk. Photographs of the McClellan house, which was positioned precisely the same as the original Miles house relative to Downey Street, show that the boardwalk passed immediately adjacent to that house after 1901, leaving no room for a front yard. Regardless of the precise impetus for moving the Miles house, the action left subsurface remains from the original foundation that were investigated archeologically in 1989. These remains were designated Feature 3 and are discussed on page 29 of this report.

In addition to the move, several important modifications were made to the Miles House from May to June, 1901 (Bearss 1970:41). A two-story ell was added on the southwest side of the house which altered both the west and south elevations. Further, a large veranda was placed across the west side. The placement of the veranda necessitated other modifications, including raising of second-story windows. As part of the move of the house and associated changes, an original basement niche which enclosed the original stairway from the first floor was modified through the construction of a brick arched "vault." Some modification of the basement was

needed, since the small western extension was no longer under the house after the move to the east. Apparently the brick arch was selected as a way of carrying the soil which would be filled over the newly exposed basement, while still preserving some useful interior basement space.

Documentary evidence indicates that relatively few substantial changes were made to the Miles House prior to NPS acquisition. Perhaps the most important modification was the addition of an attached lean-to which, when combined with a modified east elevation of the east wing, served as a garage. A portion of the basement floor apparently served as the garage floor. This modification was made during Albert Leech's occupation after 1920. No other significant changes were made to the house until 1974 when the NPS initiated repairs. At that time, most of the foundation was replaced (except for the original stone foundation under the westernmost portion of the house), the veranda was removed and replaced with a smaller porch more in keeping with the 1870-1900 period, and the garage addition was removed. Other work included interior stabilization, reroofing, and other necessary maintenance actions. It appears that the grade was also raised through addition of fill along the east wall after the garage was removed.

Very little is known with regard to outbuildings which may have stood on the Miles House lot. Sanborn Fire Insurance Company maps dating from 1895 to 1912 portray a small one-story outbuilding slightly east and south of the house. In 1895, this structure is rather small, but it is doubled in size on later maps. The structure is not depicted on the 1927 Sanborn map. However, a small white frame structure is present on a 1930s aerial photograph in the general area where the outbuilding was depicted on the earlier fire insurance maps. Based upon available documentary evidence, it can not be determined if the structure shown in the aerial photographs is the same one depicted on the maps. This area was investigated archeologically in an attempt to clarify the situation. The function of this structure(s) is unknown.

Prior to fieldwork, the location of one cistern was known with precision, since it was encountered during evaluative testing in 1986. The cistern is located near the southeastern corner of the house. A second brick structure, also believed to be a cistern, was discovered by park personnel between the south porch and the bay window along the south wall during installation of a telecommunication line in 1988. Interviews with retired HEHO maintenance worker Brack Parish indicated the presence of a third cistern under the foundation of the southwest ell. Given its location, it could have served the house prior to the 1901 move. All three cistern locations were investigated archeologically in 1989, with highly varied results. Historic accounts also suggest that a well was present near the southeast corner of the house.

Other outbuildings and features are poorly documented, but were known to be present at the house in 1900. There was a boardwalk from the veranda to the carriage step at the curb, as well as around the south side of the house to the kitchen and on to the privy (Bearss 1970:48). A privy was reported to be located south and east of the house in 1900 (Bearss 1970:49). Multiple privy locations likely occurred, since no interior plumbing was available in the house until the twentieth century. The precise locations of the boardwalks and privies were not known prior to fieldwork.

There were five related components of the proposed restoration plan with the potential to impact archeological deposits at the Miles House:

1. Removal and replacement of the stone foundation at the west end of the house,
2. Development of a new grade and surface contours in the small front yard west of the house,
3. Removal of basement concrete and dirt floors,
4. Installation of a perimeter drain around the entire structure, and
5. Installation of a storm sewer line through the east (back) yard of the property.

The grading proposed in the west yard would occur in an area where the original house was believed to have stood, prior to being moved 14 feet east in 1901. Therefore, archeological excavations were undertaken in the area to be graded to determine the nature of the original foundation (and basement, if any), as well as the unusual brick “vault” which occurs in this area. Further, the existing stone foundation along the west side of the house is the only remaining pre-1974 exterior foundation. Prior to restoration activities, it was estimated that approximately 130 square meters of the front yard area would be impacted by this component of the project, and archeological excavations were therefore rather extensive in the west yard. The features and other cultural deposits discovered there are described in the Results section of this report.

Since an agreement was reached with the restoration project contractor and the HEHO staff to limit the scope of ground disturbance for developing a perimeter drain around the remainder of the structure, and since most of the foundation was replaced in 1974, extensive archeological sampling of that narrow impact area was not required. However, archeological sampling was initiated along the south wall where three cisterns were thought to occur, and where test excavations in 1986 had revealed the presence of rather deep stratified fills. Previous impacts within one meter of the east and north walls precluded the possibility of intact features remaining in those areas. The older portion of the basement and the route of the proposed sewer line were also investigated archeologically in 1989.

The restoration project components listed above formed the primary focus for archeological excavations at the Miles House. A secondary goal was to attempt to locate features on the grounds which are mentioned or depicted in historical documents. These include various outbuildings and boardwalks. Focus for that aspect of the project was placed on the south and east yards. Since the south yard was much larger prior to 1920 when the Leech house was constructed, many activities at the Miles house were undoubtedly conducted in that area. Documentary records (Bearss 1970) emphasize that ice cream socials and other activities were commonly held on the grounds to the south of the house during the Leech occupation. Further, the large Leech barn, built in 1895, was located at the southeast corner of Lot 87A, outside the current project area. Despite the restricted lot size after 1920, features were discovered and

investigated in the south and east yards in 1989. Of particular interest is the rather large amount of fill recorded in those areas over the original (1870) grade.

E.S. Hayhurst House (Historic Structure 10)

The Hayhurst House (HS 10) was built between 1870 and 1872, probably by the same carpenter who built the Staples House (Bearss 1970:105; Wagner 1982:248). E.S. Hayhurst purchased several lots in October 1870, including Lot 25 which was later to contain his house. While no house is depicted on Lot 25 in an 1869 plat, a house is present on an 1872 drawing. Mr. Hayhurst was the first occupant of the house, but lost the property in 1878 when it was repossessed by the original landowner, Mr. Wetherell. The house was rented until 1890, when it was sold to Joseph Cook. Cook, in turn, sold the house to Martin Van Buren Butler in 1896. Butler owned the house until 1920. Later owners are of interest primarily with regard to the modifications they made to the original structure.

Like other houses that belong to the historic site, the Hayhurst House began as a modest home and was enlarged as the years passed (Figure 6). No major changes were made to the house until after 1890. It is thought that Cook made the first significant changes, adding an ell on the south, a “lean-to” kitchen addition on the west, and a separate structure of unknown function on the southwest corner about 1892. The northeast corner of the new structure appears to touch the southwest corner of the house. These improvements are depicted on the 1895 Sanborn Insurance Company map, suggesting that they predate 1895. Bearss (1971:179) has provided evidence from local newspaper accounts for a construction date (1906-1907) of the south ell which conflicts with the Sanborn map data. Wagner (1982) accepts the Sanborn maps as a more reliable source for dating the construction episode. The structure off the southwest corner of the house was apparently removed by 1906, as evidenced by the maps. Two east porches were added during Butler’s occupation between 1895 and 1900.

Numerous alterations to the house were made after 1918. Both the east and south porches were removed, and changes were made to the west addition, walks, outbuildings, and landscaping. Some of the modifications made after 1890 obscured evidence of the early occupation and construction history, including archeological deposits. In addition, the proposed removal or alteration of some of the later architectural components during the NPS restoration project was expected to impact archeological remains. These aspects of construction history and restoration plans provided logistic complexities for conducting excavations in portions of the project area.

At least six components of the Hayhurst House restoration plan were expected to include considerable ground disturbance. Prior to fieldwork, all of these were thought to have potential to impact archeological remains dating from 1870 to 1920. Each of the following project components were to be the focus for archeological data collection:

1. Improve drainage in the north yard (17 sq m impact area),

2. Install a perimeter drain and new foundation around the structure (minimum of 60 sq m impact area),
3. Excavate a new basement under the south ell and other portions of the house (80 sq m impact area),
4. Construct a new driveway on the west side of the property (60 sq m impact zone),
5. Remove the existing porches and reconstruct historic period porches (12 sq m impact zone),
6. Remove the existing driveway (size of impact zone not determined).

Due to the nature and scheduling of the restoration project, variable archeological emphasis was placed upon these project components. For example, limited sampling indicated that the north yard drainage project would have minimal impact upon cultural resources. For that reason, that project component was dropped from the archeological work plan. Other problems arose regarding removal of existing foundation elements, which made it impossible to examine areas under the existing house during the seven-week summer field season. Despite these changes, rather extensive archeological excavations were undertaken at the Hayhurst House in response to the large scope of ground disturbance expected to occur during the restoration project.

While the primary focus for excavation was to record and collect data which would otherwise be lost due to impacts from the restoration program, other goals were also addressed. These included attempts at determining the pattern of outbuildings on the property and comparing material culture remains that derive from different early occupants of the house. For example, it was anticipated that there would be considerable contrast in the content of household refuse from the Hayhurst and Butler occupations. The Hayhursts were Friends, and are assumed to have been quite conservative, while Butler has been described as “flamboyant.” Further, it was anticipated that there may be evidence of special uses of the house (e.g., Butler’s shoe repair shop) that could be examined archeologically.

FIELD AND LABORATORY METHODS

Field Methods

The field methods utilized in 1989 consisted of controlled excavation of numerous 1-m-x-1-m and 1-m-x-2-m units and archeological monitoring during digging of several narrow, exploratory backhoe trenches. Certain structural features such as cisterns and a well also formed specific collection units. Most of this work was accomplished in June and July, prior to initiation of restoration activities. Subsequent follow-up work included investigation of two cisterns at the Miles house during brief field efforts in September and October 1989. Monitoring and excavation were also conducted on a limited basis at the Hayhurst House after demolition of interior floors and during removal of a recent structural addition. This work was conducted in December 1989. Stratified nineteenth- and early twentieth-century cultural deposits and numerous subsurface architectural and occupational features were exposed and recorded throughout the four fieldwork phases. All of the field collection strategies were directed toward subsurface sampling of the various project impact areas defined in the previous chapter of the report. Vertical provenience was maintained in the excavation units within 10-cm arbitrary levels in some deposits, and following cultural/natural layering in other units. The presence of highly distinct, separate, cultural fill layers in several areas, particularly on the south side of the Hayhurst House and at the southwest corner of the Miles House, allowed cultural layering to form the basis for vertical control within several excavation units. Other areas lacked clear layering, and were excavated in arbitrary 10-cm levels.

The traditional field methods employed at the Hayhurst and Miles Houses were very successful in exposing, recording, and collecting archeological and architectural data from all of the restoration project impact areas. Since most of these impact areas were relatively small, it also proved possible to extensively sample all areas which later were to be disturbed during the renovation process. Of equal importance were attempts by the project contractor and the HEHO staff to limit ground disturbance to the smallest areas possible within these impact zones. The combination of rather extensive archeological excavation and the limited scope of disturbance has resulted in the collection of extensive archeological data and the *in situ* preservation of significant archeological and architectural remains.

All soil matrix removed during excavation was screened through one-quarter-inch hardware cloth. In areas where seeds, beads, or other small items occurred, soil samples were retained for flotation and fine-screen processing. The samples were later processed at the MWAC laboratory. These recovery techniques resulted in collection of very large numbers of ecofacts, and architectural, domestic, and personal artifacts dating from about 1870 to the 1930s. Materials from more recent cultural deposits (1940s and after) were also recorded, but not collected. Various records were maintained throughout excavation, including daily field notes, summary forms for each excavated level, profile drawings, and a variety of other cartographic and photographic documentation.

Laban Miles House

Fieldwork began at the Laban Miles House (HS 6) on June 6, 1989. A total of 60 person-days were expended conducting excavations there. Fifty-five square meters were excavated in 39 separate horizontal provenience units (Figure 7). Of that amount, about one square meter was excavated in 12 shovel tests. The remainder of excavation coverage was accomplished in larger square or rectangular units. Additional soil matrix was removed from within three brick cisterns which were discovered during the course of the project. Most of the excavation units measured 1 m x 1 m or 1 m x 2 m, but units of other sizes were also utilized.

The five project impact areas at the Miles house were summarized in the Project Description and Goals section of the report. The 27 excavation units and 12 shovel tests were positioned to investigate each of these impact zones.

One of the major impact zones was within the front (west) yard of the house. There, plans had been developed to replace the remaining original stone foundation and to remove the unusual brick arched vault which extended west from the stone foundation. It was positioned under the existing front porch of the house. In order to complete this component of the restoration project, it was anticipated that workmen would dig a ramp beginning near the Downey Street boardwalk. This ramp would slope down to the base of the west house foundation. It was further anticipated that much (about 42 sq m) of the small front yard would be disturbed and later recontoured through these actions. Since the impact was to occur where the original west half (front) of the house stood prior to its 1901 move 14 feet to the east, considerable excavation was undertaken in this area. Eighteen square meters were opened in 11 excavation units in the west yard of the house. Since the brick "vault" occupied a significant portion of the front yard (about six sq m), the excavated area comprised nearly 60 percent of the anticipated impact zone available for excavation.

As expected for a front yard setting, the shallow cultural deposit exposed in the 18-square-meter sample yielded a limited artifact assemblage. However, important data were recovered in the form of structural features, including a portion of the original house foundation which was abandoned when the structure was moved to the east. Further, the brick vault was examined and its function and age verified. The excavation in the front yard addressed restoration components 1 and 2, which were described previously.

While extensive excavation was conducted in response to restoration plans in the west yard, little archeological work was necessitated by restoration component 3, the removal of existing basement floors. Portions of the dirt floor in the brick vault area and in the west basement room were shovel scraped with negative results. These were the only original basement floors remaining in the structure in 1989. In addition, the entire area was examined with a metal detector, with negative results. No features or artifact concentrations would be impacted by replacement of the existing dirt floor with a new concrete floor. The easternmost concrete floor is modern (1974), and it was not removed during the archeological project. In the unlikely event that there was anything preserved under that floor, it would by necessity postdate 1901 when the

house was moved eastward and this component of the basement was dug. The remaining concrete floor was the focus for limited sampling (Figure 7). There, about eight sq m of thin concrete were removed by hand to expose a pattern of bricks. This brick floor had a limited distribution, and apparently served as a former furnace support. No additional sampling was undertaken in the basement.

The proposed installation of a perimeter drain around the entire building was the focus for limited excavation. Since most of the foundation had been recently (1974) replaced, an area extending out about one meter from the existing new foundation had already been disturbed (Richner 1986). No new ground disturbance would occur during installation of the drain along the north or east sides of the structure. In addition, the north side had been disturbed through installation and replacement of various underground utility lines over a long time period. The soil along the east facade had been extensively disturbed through removal of a former garage addition and by subsequent recontouring of the ground near the foundation. Therefore, neither the north or east foundations were subject to archeological excavation in 1989.

At the southern ell, a slightly different situation existed. No basement was present under the ell, which was supported by a shallow concrete block foundation and concrete footer. The south facade of the ell had settled appreciably over the years, apparently since the foundation was so shallow and poorly supported. This necessitated extensive foundation shoring/replacement and raising of the south side of the ell to its former position during the rehabilitation program. Although the ell's concrete block foundation dates to the 1974 replacement episode, that work did not address or solve the settling problem. Pouring of new footings and foundation replacement would be required while bringing the ell back into "plumb" with the remainder of the house. Four sq m (Units 13 and 15) were excavated along the ell foundation during the summer 1989 field season. This excavation exposed the entire exterior area along the ell expected to be impacted by repair and drain installation. The area under the ell could not be examined, since the interior flooring remained in place. Exterior excavation was terminated when the concrete foundation footing was reached, due to concerns regarding the instability of the ell. A burned area was exposed in Unit 13, and an additional one-square-meter unit (No. 23) was excavated to further sample that deposit (Figure 7). Since the edge of a pit was exposed in the floor of Unit 15, additional excavation was undertaken to the south and west (Units 17, 22, 25, and 26) to expose a portion of that feature. An additional 3.5 sq m were opened in these four units, exposing a very deep and extensive feature (No. 13). Although the feature appeared to lay outside the impact zone, its unusual form and apparent early age justified the additional sampling in that area.

After the summer 1989 archeological project had been completed, restoration of the Miles House was undertaken over the next several months. In October, a cistern was discovered under the southeast corner of the south ell during replacement and repair of the house foundation and ell flooring. The concrete footing for the 1974 brick foundation passed over this cistern. The cistern was mapped and photographed, and its contents were removed during a brief archeological investigation (Frost 1989b). The feature was found to contain only structural debris (bricks, nails, and other material) from the 1974 foundation replacement project. Apparently the then-empty

cistern was used as an on-site refuse pit for some of the material removed from the old foundation, and for waste construction material from the foundation replacement project. This cistern and the other features recorded at the Miles House are described in a later section of the report.

The final restoration-related component requiring archeological investigation was the proposed installation of a new storm sewer through the east (back) yard of the structure. The proposed route was marked, and the undisturbed segments were investigated through excavation of 12 shovel tests. Much of the proposed route had been previously disturbed through the installation of numerous underground utility lines, by a former gravel driveway, and by grading activities related to earlier structural restoration efforts. The discovery of brick fragments and numerous domestic and personal artifacts led to the excavation of a small test unit. Since a subsurface brick structure was discovered, this unit (No. 24) was expanded to 2.25 m x 2.25 m in extent. The brick feature (No. 15) exposed in this unit was subsequently determined to be a twentieth-century septic tank, and excavations were terminated. Stratigraphic profiles in this area further suggested that the artifacts recovered from shovel testing were mixed in a disturbed fill zone, so no additional excavations were undertaken for the storm sewer project component.

In addition to the units excavated to examine the five restoration project components described above, several units were positioned to examine various features known or believed to occur at the site. Historic photographs and maps indicated that a frame outbuilding formerly was located about halfway between the east facade of the house and the eastern property line. This structure is depicted on 1895, 1900, 1906, and 1912 Sanborn Fire Insurance Company maps. The structure is not present on the 1927 map. By that time, Dr. Leech had built his new home on the south half of the Miles lot. The approximate location of the structure was plotted on the ground based upon scaled measurements from the Sanborn maps, and a 2-m-x-3-m area was investigated in two 1-m-x-3-m units. An extensive artifact deposit was discovered there, including a wide variety of domestic, personal, and architectural items. Many of these occurred within in a layer of cinders. This area was obviously an important refuse disposal location. Various wooden structural remains, nails, a hinge, and other architectural items were also recovered. While no outline of a structure could be identified, these architectural remains likely relate to the structure which formerly stood in this location.

Additional excavations were also conducted along the south side of the Miles House a few meters away from the foundation (Figure 7). The 1986 backhoe investigation of the foundation had exposed a brick cistern near the southeast corner of the house (Richner 1986). In 1989 the cistern was quickly relocated by probing the soil with a steel rod. A 1-m-x-3-m unit (No. 14) was then placed across the feature. This unit was excavated to a depth of about 90 cm. While this did not expose the base of the cistern, the cylindrical shape of the feature was apparent, and the exterior plan of the feature was mapped. Work then began on emptying the cistern of its contents. After a small amount of soil was removed, brick, mortar, and concrete, which occasionally occurred in rather large chunks, were encountered. As these materials were being removed, a former HEHO maintenance employee reported that the cistern had been filled in 1974 when the foundation of the structure had been replaced (Brack Parish, personal communication

1989). He also suggested that debris from the basement would also occur in the cistern. As the removal of the structural material was underway, the presence of a white fabric was noted. Closer inspection indicated that this was heat duct insulation that appeared to contain asbestos fibers. The area was then carefully covered with plastic and closed to the archeological team and the public. Tests subsequently revealed a high content of asbestos in the fabric, and excavation at this location was terminated.

After the summer field project was completed, a contractor removed the contents of the cistern according to safety regulations governing the handling and disposal of asbestos. The contractor found that the entire cistern was filled with foundation and basement debris, and that no other cultural fill was present. The cistern was later investigated in greater detail, and was photographed and mapped (Frost 1989a). The large feature was then filled with sand and pea gravel to insure its future preservation.

Considerably different results were obtained from the discovery and excavation of another cistern positioned along the south side of the house. Park staff members suggested that an additional brick feature might be present a short distance west of the south facade porch. Brick had been hit in that area during installation of a shallow underground security system line. Since the line was dug with a chain trencher, it had not been possible to accurately observe the nature of the brick feature. Excavation Unit 19 was placed near the area where the brick had been discovered. The western side of Feature 12, a brick cistern, was exposed in this unit. A second unit, No. 20, was then opened to expose the entire opening of the feature. The feature was found to be filled to near the top with cinders. Within and on this deep cinder deposit were large numbers of domestic artifacts including many decomposed tin cans, complete and broken bottles, ceramic vessels, and a large number of zinc canning jar lids and glass inserts. A few architectural and personal items were also recovered. The age of these materials suggests that the cinder fill and artifacts were discarded in the cistern during the Leech occupation in the early twentieth century. Unlike the other cylindrical cisterns, this feature was bell-shaped, with its widest extent at the base. The feature was mapped after its contents were removed. It was subsequently filled with sand and is currently preserved at the site.

The last area excavated at the Miles House in 1989 was immediately south of the south facade porch. There, probing with a steel rod suggested that a walkway may be present leading to the south. Excavation of a 1-m-x-6-m unit exposed a limestone walk composed of about 14 separate stones. This was designated Feature 5. The southernmost one-meter segment of the unit beyond the walkway was excavated to a depth of about 90 cm. The stratified cultural fills exposed in this unit revealed that the grade at which the walkway occurs is well above the 1870 grade. The feature, and the stratigraphic profile of Unit 12 will be discussed in more detail in a later section of the report.

The fieldwork approaches used at the Laban Miles House resulted in recovery of a large and varied artifact assemblage. In addition, numerous features including an extensive former house foundation, three cisterns, a walkway, and a large pit were recorded. The field methods

adequately mitigated adverse impacts to the archeological deposits which occurred during the lengthy restoration phase.

E.S. Hayhurst House

The history of structural staging at the Hayhurst House is generally comparable to that at the Laban Miles House, but more diverse and complex. An important difference is that the Hayhurst house has a very small basement. Therefore, the structural additions that accrued to the west and south of the original portion of the house covered and preserved archeological deposits and features from the early years of occupation to a much greater extent than at the Miles House. A variety of features and cultural deposits were investigated through archeological fieldwork at the Hayhurst House around the perimeter of the house, and under two porches and two structural additions.

The field methods used at the Hayhurst House were similar to those applied at the Miles House. About 58 sq m were excavated in 26 rectangular units around the perimeter of the house (Figure 8). In addition, 24 shovel tests covering about 2.2 sq m were excavated in a two-meter-interval grid pattern in the west (back) yard. Finally, 5.5 sq m were opened in four units under the floor of a south structural addition during a December 1989 field phase (Frost 1989c). During the December excavations, part of the fill was removed from a well discovered under this addition. Four backhoe trenches of varying size were dug at the Hayhurst House during the summer field session. About 12 sq m were excavated in those trenches. Overall, about 78 sq m were excavated at the Hayhurst House during two field investigations in 1989.

Five restoration project components were the focus for archeological research at the Hayhurst House. A sixth component expected to result in limited ground disturbance (17 sq m) was initially defined as an area to be archeologically investigated, but was dropped for several reasons. This component was to involve drainage improvements in the north yard. However, trenching in this area during a sewer installation program revealed that minimal cultural deposits were present. Further, the plan for possible drainage improvements had not been fully designed when archeological fieldwork was underway, and there was uncertainty about the need for this work. In addition, the area had been previously disturbed by utility trenching and other grading. For these reasons emphasis was instead placed upon the other five components of the restoration plan which were expected to impact archeological deposits. In addressing one of those components, considerable excavation was undertaken in undisturbed portions of the north yard, a short distance west from the proposed drainage improvement zone.

The proposed installation of a new foundation for the entire structure, and the placement of a perimeter drainage system were a major focus for archeological excavations at the Hayhurst House. About 19.5 sq m were excavated immediately adjacent to the north and south house foundations (Figure 8). An additional 10 sq m were opened immediately adjacent to the east foundation. These units were positioned to investigate the foundation and porch removal and replacement impact areas. The north foundation of the original component of the structure was not archeologically investigated, since the area is crossed by numerous underground utility lines,

including sewer, water, telephone, and electric services. No undisturbed areas remain along this foundation. The west foundation was minimally sampled, since it is a very recent addition. Test Unit 1 revealed that the area at least 1 m west from this foundation was already disturbed. No additional sampling was undertaken in that area.

The units placed around the remainder of the foundation were surprisingly productive. They yielded evidence of various former porch locations, in addition to well-stratified nineteenth- and early twentieth-century cultural deposits. These deposits were considerably more shallow than those at the Miles house. This is probably due to the limited amount of spoil from the digging of the very small basement at the Hayhurst House. At the Miles House, many cubic meters of fill accrued around the House as extensive basement space was created under the original house component and various structural additions. Within the relatively shallow cultural fill at the Hayhurst House, very dense artifact accumulations were discovered and collected. Some of these high-density deposits are adjacent to the foundation.

The plans for excavation of a new basement under the Hayhurst House created considerable logistic problems for excavation. Since restoration had not begun when the archeological field season had been completed, there was no way to sample under areas covered by wooden floors and/or concrete slabs. However, as restoration was underway in December 1989, the floor and slab were removed under the oldest (circa 1890?) west addition of the house. Architects had suggested that the western component of the house shown on the earliest available Sanborn Fire Insurance Company maps was not original, but had little evidence from which to verify that assertion. The area covered by the “addition” had been modified several times over the years as yet additional, better documented structural components were added to the west. Excavation of about 5.5 sq m in this area (Figure 8) clearly confirmed that this area was not covered by an original structural component. Artifacts were scattered through a fill zone which rested on the original prairie soil grade. More importantly, stone porch supports and a well were also discovered and recorded. These artifacts and features all predate the earliest west addition to the House. The well was excavated to a depth of about 15 feet below ground surface, but was found to contain only recent (about 1950) material discarded within it during one of the numerous structural renovations which occurred in this area.

At a later date, the decision was made to remove the most recent west addition to the house, which had recently been used as a garage. Limited excavations were undertaken under the southern edge of the thick concrete floor of this addition during summer 1989. A cistern was discovered in that location (Figure 8). No additional excavations were undertaken under the slab floor, since there was ample evidence from exterior Unit 25 and the cistern area that the slab foundation had disrupted the entire artifact-bearing cultural fill zone. This is in considerable contrast to the situation encountered under the older west addition, where the original historic grade and later fill zone were well-preserved.

An additional renovation project component expected to adversely impact archeological remains was the removal of an existing driveway, and its replacement with a new drive. The existing driveway was on the south side of the property, leading into the newest western addition

described above. This area was investigated through four sq m of excavation in two units, and by opening two backhoe trenches. The cistern under the slab floor of the addition was discovered during this fieldwork. Some evidence of the southwest “detached” addition was also found, but no clear outline for that structure could be traced. After testing of the cistern fill was conducted, it was determined that the contents all dated to about 1950, when the garage addition and concrete floor were added. None of the very large trash accumulation (oil cans, bottles, tire inner tubes, and other materials) in the cistern was collected. The cistern was recorded archeologically and was later removed during the restoration program.

The proposed construction of a new driveway was also investigated archeologically. It was anticipated that the new driveway would enter the Hayhurst lot from the paved road at the west edge of the property. The new drive would cross the entire west yard and enter the westernmost addition (garage) through a new door to be constructed in the west facade. Therefore, it was anticipated that much of the west yard would be impacted by driveway construction. Initially the area was sampled with a single 1-m-x-2-m unit (No. 1) to develop information on the stratigraphic profile. No distinct fill zone was noted, with the sparse cultural material occurring in a dark loam which graded imperceptively into the prairie soil. Twenty-four shovel tests were then excavated in a two-meter grid across the entire west yard (Figure 8). Although a few artifacts were discovered in these tests, no evidence of features was recorded. The entire area was then probed in 1-meter intervals with a steel rod. It was hoped that features such as filled privies, etc., might be located by this method, through the presence of soil compactness changes. However, no features were discovered. The area was also surveyed with a metal detector, with negative results. As a final measure, two long backhoe trenches (Nos. 2 and 4) were dug from near the west facade of the house to the fill zone at the driveway. Two contiguous pits (Features 6 and 7) were discovered in Trench 2. Based upon the shape of the pits and their contents, these features are interpreted as privies.

After the summer archeological work was completed, NPS management made an important change in the restoration plans for the Hayhurst House. The decision was made to remove the westernmost, and most recent, addition to the house and delete the new driveway from the project. This would return the house to its historic appearance with only the earlier west addition being retained. For this reason, there was no need for additional archeological investigation of the west yard area, and any additional features which may occur there will likely remain undisturbed.

The planned removal of existing porches and reconstruction of historic porches formed an important focus for fieldwork. Much of the excavation for that project component was accomplished along with the foundation excavation described earlier. The major archeological effort regarding investigation of porch removal was focused under the large, concrete, cobble, brick, and flagstone front (east) porch which led to an entrance in the south ell. This porch dates to the mid-twentieth century. Removal was effected with backhoe, jackhammer, and considerable physical labor by a combined HEHO and MWAC crew. The raised concrete base of the porch was infilled with sand and large cobbles and boulders. After all the construction debris was removed, including cast concrete steps, extensive excavation was initiated under the area formerly

covered by the porch. About seven sq m were opened in this area. This work exposed segments of the original house component foundation and that of the south ell, in addition to numerous stone supports for the original porch(es). The original component of the house had no true foundation, but instead had brick “nogging” which infilled the space from the ground surface to the sill. The house was supported (poorly) by wooden piers which had been hastily shored or enveloped with concrete at some time in the past. The foundation for the ell was more substantial, but was very shallow. The pattern of stone porch supports (Feature 3) seems to suggest that a substantial wooden porch had been in use on the east facade of the south ell prior to construction of the modern concrete porch. This feature is described in more detail in a later section of the report.

Two additional excavation units were placed along the east facade of the original house component to search for evidence of a porch depicted on the Sanborn Fire Insurance Company maps. One of these units was placed in the area formerly covered by the concrete steps to the modern “ell” porch, while the other was placed at the northeast corner of the house. Two large stones were found in these units in locations matching the eastern extent of the original porch as determined from the fire insurance maps. The stones probably supported wooden posts or piers from the original porch.

Excavation was also undertaken after the concrete porch, steps, and walk were removed from the south facade of the older west addition. A well-stratified archeological deposit was discovered and excavated in that location. The excavation units there served the dual purpose of recovering data from under the porch and from the area which would be impacted by foundation replacement and perimeter drain installation.

Although no additional units were excavated with the intent of examining questions regarding porch construction history, evidence of a porch, or porches, was also recorded in Units 3 and 24 along the north wall of the older west addition, and under that addition in Units 30 and 27. In those units, large stones, apparently used for porch post supports, were discovered. They are similar to the stones recorded on the east facade of the house. These supports must reflect an early back porch which would predate any additions to the original structural component. Possible evidence for still another porch was recorded in Unit 20 at the southwest corner of the south ell. There, a roughly circular concrete feature (No. 5) was recorded (Figure 8). This feature is similar to the numerous rock porch supports recorded in other areas of the site. While the presence of a porch in that location was not documented through historical and architectural research, local residents recall that at one time in the twentieth century the Hayhurst house had porches around much of its perimeter (Brack Parish, personal communication 1989).

The removal and replacement of existing porches was expected to disturb about 16 sq m in two locations and the entire impact area was excavated. Results of that excavation were very successful, and revealed the pattern of historic era porches at the site. Further, excavations in other areas around and under the structure led to the discovery of archeological evidence of several other porches. At least one of these, partially located under the first structural addition,

is of a rather early age. It may date to pre-1880. All of the evidence for historic porch configuration is presented in more detail in a later section of the report.

Additional excavation was accomplished in the south yard of the Hayhurst House, off the western additions. A stratified cultural deposit was recorded in the units placed along the foundation and under the concrete porch, and this deposit continued to the south. It was known that a ramp would be needed to excavate the basement under the house, and it seemed likely that a southern approach would be used. Given the presence of the stratified fills, an additional 12 sq m were excavated in this area. In addition to an extensive collection of domestic and personal artifacts, these units revealed the presence of a former gravel driveway. This driveway predates the existing drive, and is to the east of it. Under the gravel drive was an earlier, stratified cultural deposit.

The excavations at the Hayhurst House were very successful in sampling all of the anticipated restoration project impact zones. Numerous features were recorded, including a well, a cistern, a privy, and a variety of stone and concrete porch supports. A large artifact inventory was also recovered, spanning the entire historic occupation.

Laboratory Methods

The large artifact inventory from the Miles and Hayhurst Houses was subjected to a variety of analytical procedures. Initial processing consisted largely of washing and sorting the collection by individual proveniences into functional groups consisting of categories including domestic, architectural, and personal items. Within those groups additional splitting was accomplished by general classes of items. For example, architectural items were separated into groups including nails, window glass, and brick fragments. For highly diagnostic items such as tea and table service fragments, bottle glass, and other domestic materials, additional subdivisions were made based upon paste characteristics, form, or decorative treatment. Extensive analysis was conducted of select artifact classes or types where such detailed study was thought to be warranted by the potential for addressing project goals. Other less temporally or functionally diagnostic materials were given limited treatment.

For the sites' ceramic and bottle glass assemblages, considerable sorting, reconstruction, and analysis was undertaken. For the bottle glass assemblage, all items were labeled and laid out on tables by provenience. Attempts to mend fragments within individual levels and units were followed with attempts to mend fragments from adjacent units. Finally, items were checked for potential mends across all excavated proveniences. This was undertaken to refine relationships between arbitrary and natural vertical provenience units and to consider trash discard activities across the sites. Where possible, glass vessels, including the numerous fragmentary ones, became the focus for analysis. Such an approach was considered to have much more analytical power than a mere tabulation of sherds within individual proveniences. Study of vessel function and age was therefore emphasized in order to examine temporal associations of

provenience blocks and to begin to address varying patterns of consumption and trash discard for limited temporal segments of the entire occupation era.

A similar approach was used for the ceramic assemblage. However, that research included paste characteristics as a further element for subdivision. The ceramic assemblage was divided into whiteware, yellowware, redware, stoneware, and porcelain subsets. Within those groups, the same approach to mending of sherds as described for bottle glass was applied. The ceramic sherds and vessels were also further analyzed with regard to decorative techniques. Within whiteware, various decorative types including handpainted, transfer print, edge decorated, decal decorated, and others occur. Different patterns within these groups could occasionally be identified by name and maker. Further, makers were occasionally determined from hallmarks on the base of vessels. As with the bottle glass assemblage, attempts were made to determine the form of ceramic vessels wherever possible. The data developed for the ceramic assemblage therefore includes decorative, functional, and temporal summaries in addition to information on place of manufacture.

Other artifact classes were analyzed on fewer levels than the bottle glass and ceramic assemblages, but were still afforded considerable attention. Materials within the architectural group serve as good examples of this level of study. Window glass was analyzed within individual proveniences, since the data collected in that manner could be synthesized by any combination of proveniences. Unlike ceramic sherds, there was no reason to attempt to mend window glass sherds or otherwise match sherds across proveniences. Window glass sherd thickness was measured with the intent of examining site chronology relative to known trends of increasing glass thickness through time (Chance and Chance 1976; Moir 1982; Roenke 1978; and Schoen 1985). It was hoped that relative sherd thickness might differ for groups of vertical proveniences and provide an indication of phases of structural modification and/or aid subdivision of the artifact collection relative to specific temporal parameters.

These and several other analytical schemes were applied to the varied materials collected at the sites in 1989. The data sets were collected and compiled on computer input and sorting programs including PC-File for ease of manipulation. In the Results section of the report, the data from the artifact analysis is presented for the Miles and Hayhurst Houses. Tabular data presentation is utilized where possible to reduce the length of the report. Further, extensive description of artifacts is not made. Rather, emphasis is placed upon developing summary and interpretive data from the artifact collection. Where appropriate, this information is closely tied to discussion of site occupation features.

The collections made in 1989 are stored at the Midwest Archeological Center as HEHO Acc. No. 81, which is cross referenced as MWAC Acc. No. 345. The objects have been cataloged into the National Park Service's Automated National Catalog System. Field notes and other records related to this project are also stored at the Midwest Archeological Center.

RESULTS

The excavation of 55 sq m at the Miles House and 78 sq m at the Hayhurst House exposed numerous occupation features and resulted in recovery of a very large collection of late nineteenth- and early twentieth-century artifacts. The features include four brick cisterns, a brick well, numerous stone and concrete porch supports, a stone walkway, and a very large pit. Large numbers of architectural, domestic, and personal artifacts were recovered from these features and from stratified cultural deposits around and under the structures. In the following pages, the features are described, and the large artifact assemblage is summarized and analyzed. Tabular presentation is used where possible for the artifact presentation in an attempt to limit purely descriptive narrative. Emphasis is placed on synthetic and analytical treatment of the various material culture classes. That approach emphasizes functional and temporal data.

Laban Miles House

Stratigraphy

In the west (front) yard of the Miles House, excavation exposed a relatively shallow (15 to 20 cm thick) dark brown cultural fill zone (Stratum 2). This fill occurs directly over the original ground surface, which consists of dark brown loam topsoil (Stratum 1a) that grades to compact yellow-brown clay loam subsoil (Stratum 1b). This profile is typical of local prairie soils. The prairie soil profile is interrupted by the original stone foundation (Feature 3) of the western half of the 1869-1900 era Miles House. This foundation was placed in a shallow trench dug into the 1a Stratum. The deeper foundation for the original basement under the eastern half of the pre-1901 Miles House was dug well into the yellow-brown 1b Stratum. The prairie soil zone, the fill zone, and a segment of Feature 3 were interrupted by a builder's trench (Feature 2) that was dug in 1901 when the house was moved eastward. This trench accommodated alteration of the original house foundation at the west stairway where a brick arch was constructed. Some disturbance of Strata 1, 2, and Feature 3 also occurred at the northwest corner of the original house foundation. There, a trench interrupted the foundation and soil profile (Figure 7). It is likely the trench was dug to provide access under the corner of the house for the 1901 move.

Limited trash discard was recorded in the west yard excavation units. This was anticipated, since a majority of primary and secondary trash discard usually occurred around the back door or rear grounds of late nineteenth-century houses. Most of the cultural materials recovered from the west yard derive from the loose fill of the Feature 2 builder's trench. Architectural items including nails were scattered across most of the units excavated in the west yard within Stratum 2.

In the south yard a situation very different from the west yard was encountered. Deep cultural fills and extensive trash discard activities were recorded in all of the units excavated

along the south site of the house. For most of the history of occupation, the “back door” was located along the south side of the house. Much deeper fills occur in the south yard than in the west yard, due to patterns of trash discard and disposal of construction debris and basement spoil. Up to 1.25 m of cultural fills cover original grade (Stratum 1) in the south yard. The deep fill extends well away from the house. At the south edge of Unit 12, historic fill is over one meter deep. One important source for the fill is spoil from excavation of the basement. The original small basement under the east half of the pre-1901 house was greatly expanded when the house was moved east. Much of the excavated material was spread across the south yard. Stratum 3 represents redeposited Stratum 1b from basement (and/or cistern) excavation. Extensive trash discard occurred in the south yard as the fills accrued. A wide variety of domestic, personal, and architectural materials was recovered from the south yard excavation units.

Several features (Nos. 6, 12, 13, and 16) were cut into the original grade (Stratum 1) in the south yard. All of these extended well into the yellow-brown B horizon (Stratum 1b) of the prairie soil zone. Installation of the three cisterns and digging of the Feature 13 pit displaced considerable soil. While Feature 13 was re-filled, the spoil from the other three features was apparently discarded in the south yard. This added considerable additional fill in that area. The remaining features in the south yard (Nos. 5, 7, 8, 9, 10, and 11) occur within fill zones over the original prairie soil.

Extensive twentieth-century ground disturbance has occurred near the east facade, due to structural changes (building and later removal of garage), foundation replacement, driveway installation, grading, and placement of utility lines underground. As one moves east from the house, the depth of fill declines. On the lower, flat ground east of the house where Feature 15 was recorded, fill is about 20 cm thick. Stratified fills occur southeast of the house, as evidenced in Units 18 and 21. There about 50 cm of fill were recorded over original grade, despite the considerable distance from the house (Figure 9). This area is an eastward extension of the south yard deposit. Included in the fills are a very large number of domestic, personal, and architectural items. Much of the cultural fill in Units 18 and 21 consists of cinders (burned coal). Among the cinders are large numbers of items discarded from the house. In the south yard, cinders are limited to Feature 12 fill. It is apparent that, with the exception of filling Feature 12, cinders from the Miles House furnace were routinely carried to the southeast yard where they were discarded.

Since no excavations were undertaken in 1989 in the narrow and highly disturbed north yard, no observations on the original strata in that area could be made beyond the previous identification of an essential lack of historic fill in that area (Richner 1986).

Features

Sixteen features were recorded at the Miles House during three fieldwork phases in 1989. These include substantial stone and brick architectural features and more ephemeral soil anomalies, including pits of various size. The features are summarized according to provenience, size, and function in Table 1.

Cisterns. Three cisterns were recorded in the south yard of the Laban Miles House. They are aligned roughly on an east-west line extending from the current southeast corner of the house west to the south ell. The easternmost cistern, Feature 6, was recorded during foundation investigation in 1986 (Richner 1986). Its extent was not determined at that time, although a portion of the dome-shaped top was exposed. During summer 1989, the exterior of the cistern was partially exposed in Excavation Unit 14 (Figure 10). While excavation was not carried to the base of the feature, or around its entire circumference, the eastern side of the feature was exposed so that its shape could be determined. The cistern is cylindrical in form, and is about 2.4 m in diameter. The dome-shaped upper one-third of the cistern curves in gradually to form a circular opening about 65 cm in diameter. The cistern is constructed with red brick, and the entire interior is parged with mortar. The cistern is in an excellent state of preservation. The opening is only a few cm below the current ground level.

The cistern was found to be filled to near its top with construction debris from the 1974 foundation replacement project. This debris included both material demolished during that work (large chunks of the former basement concrete floor, bricks from the old foundation, pipe or heating duct insulation, mortar, wood, and other debris from the basement) and waste material from the construction of the new foundation (including brick fragments and soft drink cans). As described earlier, excavation of the cistern's contents had just begun when the presence of asbestos was discovered in the insulation material scattered through the fill. Excavation was terminated due to safety concerns.

After the fill had been completely removed and properly disposed of by an asbestos removal team, the now-empty cistern was investigated further (Frost 1989a). The floor of the cistern sloped slightly to the center of the feature. The interior was found to contain a brick chamber which shares a floor with the cistern. This substructure is shaped similarly to the cistern, but is smaller, and is semicircular (Figure 11). It is about 1.3 meters high, consisting of 17 courses of brick. It is constructed of the same red brick as the wall of the cistern. This brick is relatively hard, but porous. Two iron pipes extend from the wall of the cistern into the brick chamber. A few bricks were removed from this structure so that its form could be better determined. The chamber's interior is not parged, and the iron pipes were found to extend down to within about 5 cm of the cistern's floor. It appears that the interior structural element is a water filtering device. The absence of parging would allow water to seep through the brick wall and fill the smaller chamber. Water could then be drawn out through the iron pipes via a pump. This is the only filtering system recorded in the numerous cisterns which have been discovered to date at Herbert Hoover National Historic Site. The presence of the filter suggests that this cistern provided potable water for the house.

It is difficult to determine the age of the cistern. However, there are two factors which suggest that it might not date to the initial occupation phase. First, its opening is well (over 1 meter) above original grade. It appears to have been constructed after grade had built up appreciably in the south yard. Its position out in the yard off the southeast corner of the post-1901 house configuration is also suggestive of a circa 1901 construction date, but that can not

be confirmed with available information. After study was complete, the cistern was filled with sand and pea gravel to aid in its preservation.

A well was a prominent feature at the intersection of Downey and Main streets for many years. This well was abandoned in 1912 when the shift to motor-driven vehicles required its removal. It is uncertain whether this well was used by the occupants of the Miles House, or whether they relied upon the filter-equipped cistern described above or an on-site well for their drinking water.

Feature 12 is a second brick cistern. This cistern is positioned adjacent to the southeast corner of the bay window (Figures 12 and 13). Unlike Feature 6, this cistern is bell-shaped, with the widest dimension (2.25 m) occurring at its base. The “neck” of the feature is slightly flaring, with a constriction below the mouth. Although the rim was slightly damaged by utility line trenching, the cistern is essentially intact. The cistern was constructed of orange-red bricks, which appear to be somewhat softer than the red bricks used in Feature 6. Like Feature 6, the entire interior surface of Feature 12 is parged with mortar. Unlike Feature 6, Feature 12 was abandoned and filled with trash during the historic occupation of the Miles House. The cistern had a small amount of soil and portions of its broken rim filling the opening. When those materials were removed, a small air-filled void consisting of much of the narrow neck of the feature was found. The remainder of fill occurred within the expanding body of the feature. Fill was highest in the center, and sloped down somewhat to the circular wall of the feature. On top of the cinder fill numerous broken and complete bottles were recovered. Below the bottles were numerous poorly preserved tin cans. These artifacts had rolled down from the center of the pile of cinders and collected along the walls of the feature. The numerous tin cans extended down into the cinders which filled the feature. Within the cinders, numerous zinc canning jar lids and glass lid inserts were found. Many glass inserts were also found on the floor of the cistern. Other artifacts including a few light bulbs, electrical insulators made of industrial porcelain, and numerous ceramic vessels were recovered. While many of the bottles are complete, the ceramic vessels are all broken.

The large amount of cinders which filled the cistern attests to extensive disposal of waste from a coal-fired furnace. The artifacts are largely unburned, and reflect primary discard of domestic and architectural items. The presence of the insulators suggests that some renovation of the house may have been underway while the feature was being filled. The chronology of filling of the feature will be addressed in more detail in a later section of the report. However, an early twentieth-century date is strongly indicated for the entire filling process. This was determined by the presence of numerous artifacts dating between about 1900-1920s. This places the filling of the cistern within the Leech occupation of the Miles House. The age of construction of the feature is uncertain. The soft brick and the location suggest that it predates Feature 6. If it predates 1886, it would have been positioned about 2.5 m off the southeast corner of the original component of the house, near a door in the east facade. This would place it adjacent to the original kitchen of the house. If the feature was present in 1886, when the 22-foot east addition was constructed by Dr. Leech, the cistern would have been adjacent to a south doorway from the new kitchen. It would have been located slightly southeast of the small porch

shown on the Sanborn Fire Insurance Company maps. After the structure was moved 14 feet east in 1901, the cistern would have been positioned relative to the house as it is today, west of the south kitchen door. Given this location, the cistern could have been built and used during any of the three main construction phases (1869, 1886, or 1901). It was likely constructed during one of the earlier phases. The nature and age of the fill indicates that it was not in use after about 1900.

Like Feature 6, this cistern was filled with sand and pea gravel and is preserved in the south yard of the Miles House. The fill is added to these features to provide internal support to reduce the chance for collapse.

The third cistern (Feature 16) recorded at the Miles House was exposed during foundation repair/replacement along the south bay window (Frost 1989b). The cistern was discovered under the southeast corner of the bay window. The 1974 bay window foundation had been constructed immediately over the opening of this cistern. The cistern fill had settled, leaving a portion of the foundation spanning an air-filled void. The cistern was roughly cylindrical in shape, with the walls tapering slightly from the base to the opening (Figure 14). Like Feature 12, the base is the widest section of the feature, and the opening is the most narrow portion. The walls are slightly convex, so the feature is neither truly cylindrical nor conical. It is shaped like an old-fashioned coiled straw bee skep. Unlike Features 12 and 6, the orifice of Feature 16 is only slightly constricted compared with its body. The opening was about 1.2 meters in diameter, while the base was about two meters wide. The feature was about 1.8 m deep.

Since this feature was to be removed during foundation repair, it was possible to investigate its construction in more detail than the other two features. The interior was parged with a 1.5- to 2-cm-thick layer of mortar. The parging was removed from a segment of the wall of the cistern to reveal that it was constructed of a single layer of red bricks placed edge to edge. The collar was made from two courses of brick laid face to face curving into the opening (Figure 14). Excavation of about half of the feature fill revealed that the contents were limited to construction debris (bricks, nails, and sand) and trash (soft drink cans) from the 1974 foundation replacement program.

The position of the cistern clearly indicates that its construction and use predate 1901 when the structure was moved eastward. It may have been used until that date, since it contained no evidence of historic cultural fill. It must have been abandoned in 1901 when the bay window foundation was positioned over it. It is also worth noting that the cistern was positioned deeper in the ground than were Features 12 and 6, suggesting that it was in use prior to extensive grade alteration around the structure. If the cistern was built during the initial construction phase (1869-1872), it would have been positioned about one meter south of the southeast corner of the original kitchen/dining area near a door in the east facade. After 1886, the cistern would have been located about one meter from the southwestern corner of a porch at the new south entrance to the kitchen addition. Although evidence is limited for precise chronological development, it appears that Features 12 and 16 predate Feature 6. However, the relative age of Features 12 and 16 remains undetermined. It is possible that they were constructed in sequence, but it is also

possible that they were in use concurrently. Oral history suggests that about 1900 or soon after, a cistern and a well were near the kitchen door (Bearss 1970:48). Since no well was found in this location, perhaps this reference refers to Feature 6, southeast of the porch, and to Feature 12, the cistern southwest of the porch. Feature 6 might have been called a well, since it was equipped with a filtration system. It is also possible that a traditional well is present, but remains undiscovered.

Other Features. Two other brick features were recorded at the Miles House in 1989. Feature 4 is a semicircular alignment of brick which was recorded in Units 3 and 8 in the west yard. The feature was covered with clay fill from basement wall repair, and lay directly upon the original prairie soil surface. The feature consisted of four courses of brick dry laid in an overlapping fashion. The feature had been intersected by Feature 2, a builder's trench. The trench dates to the 1901 construction of the arched brick vault which was developed to cover an original portion of the basement. This basement component had to be covered prior to construction of the veranda in 1901. Since the 1901 builder's trench intersected Feature 4, the brick alignment must predate 1901. While its function cannot be determined with certainty, it may have served as an informal window well for a former basement window, or as a decorative border for a small foundation planting. The relatively narrow arc of the feature suggests the window well function may be the most plausible explanation for the feature. It would seem that some source of light would have been needed for the narrow stair entry to the basement formerly present in this location, and a south-facing window would have provided a good source of natural light. Since the upper portion of the original stone foundation of this basement component was removed in 1901, there is no further evidence for assessing the function of Feature 4.

Feature 15 is a brick septic tank which was discovered during survey of a proposed drainage route in the east yard (Figure 15). This drain will carry water from the gutters of the house and from the underground perimeter drain installed at the base of the foundation to the town's storm sewer system. The septic tank was partially exposed through excavation in 1989. The sewer pipe entered the feature from the west (Figure 15). The top of the feature has been disturbed through previous trenching in the area, but the cylindrical feature appears to have had a dome-shaped upper portion. The original opening was not intact when the feature was exposed in 1989. The feature is about 1.7 m in diameter, and about 1.8 m deep. The age of the feature was not precisely determined, but it must postdate the early 1900s. Oral history indicates that the Miles House had no interior plumbing during the early years of the twentieth century (Bearss 1970:48). Prior to installation of sanitary facilities in the house, outhouses were in use on the property. The septic tank would have been installed when toilets were first placed in the house.

A few other "substantial" architectural features were recorded at the Miles House in 1989. Feature 1 is a concrete foundation footing which was encountered in several excavation units on the west and south sides of the house. It was poured under the 1974 brick foundation, and along the exterior of portions of the remaining original stone foundation on the west facade.

An important structural element, Feature 3, was recorded in several units in the west yard. This feature is the stone foundation which supported the original western half of the Miles House

prior to the 1901 move to the east. Most of the rectangular feature was exposed in 1989 (Figures 16 and 17). The western edge of the feature was relatively straight, and was exactly four meters west of the existing west stone house foundation. This suggests that the house was actually moved about 13 feet to the east, rather than 14 feet as reported in historic literature. However, Feature 3 is very distinct and leaves no doubt as to the essential accuracy of reports of the 1901 move of the house. The foundation was found to be intact, except for two areas. The first is at the northwest corner, where it was partially removed by a linear trench (Figure 17). This trench was likely dug to provide access to the house sill so that it could be elevated and moved eastward. The foundation was also interrupted on the south by a narrow builder's trench (Feature 2). This portion of the original foundation was purposefully removed to allow alteration of the small basement component formerly located there.

With the exception of the area of the small basement stair access area, the original west foundation was not very substantial. It was constructed of sandstone rubble placed in a narrow, shallow trench (Figure 17). The size of the rock rubble was quite variable, but many pieces were about "fist" size. Excavations inside the area encompassed by the rubble foundation clearly indicate that no basement was present under the northern 4.5-m-x-4-m portion of the original west half of the house. Under a shallow modern sod and fill zone, the original prairie soil was encountered throughout this area. A basement was present under the east half of the house. Access to the basement was provided by a stair from the first floor at the southwest corner of the old foundation. The remnant of this access was a 4-m-x-2.25-m segment of stone and brick foundation in the southern portion of the old west foundation. Although the stairway would have been removed in 1901, evidence for its former presence is indicated by first-floor framing elements including the arrangement of floor joists (Wagner 1982). Unlike the northern portion of the foundation, which was very shallow, this small westward extension of the basement had more substantial stone block walls. In 1989, only the west wall and the lower portions of the north and south walls were present.

Feature 2 consists of two narrow builder's trenches which relate to the modification of the small west basement component in 1901. This basement component had been under the southwest part of the house, but when the house was moved eastward, it was exposed. Rather than extending the existing wall to the south from the northeast corner of this component and filling the abandoned portion with soil, a different solution was reached. This allowed the small southwest extension of the basement to be maintained, but in modified form. Two narrow trenches were dug along the north and south walls of the west basement stair access area, and numerous blocks were removed. The courses were removed to a depth of about 95 cm. Below that level, the original foundation was retained. A brick arch was then constructed upon the remnant stone foundation. This was made of red brick, similar to that seen in the brick cistern (Feature 6). This arch created a vaulted ceiling for the former stair access area. The area was then covered with fill. Within the builder's trench fill, several artifacts were accidentally included, including domestic and architectural items. Over the now bricked-over vault the new veranda was built (Wagner 1982). Some additional modification was needed to join the brick vault to the existing stone foundation, but the result was the presence of a small room off the

southwest corner of the basement. The function of the small room after 1901 is not known. However, it would have been useful as a storage area.

A stone walkway (Feature 5) was discovered in Unit 12, extending 3.8 m south from the porch at the south door (Figure 18). This walkway consists of irregularly shaped limestone blocks. Considerable open space is present between the blocks. The surfaces of the stones are flat. Minimal deposition was present over the walk. Only a thick layer of sod covered the blocks. The walkway is about 50 cm wide. The walkway clearly dates to the post-1901 configuration of the house. In addition to its direct association with the current south porch and doorway, its position very near the modern ground surface also indicates a relatively recent age. In Unit 16 immediately adjacent to the walk at the porch, about 1.25 m of fill were recorded covering the original prairie soil horizon. A similar situation was found at the south edge of the walk. Therefore, the entire walk is positioned over at least one meter of historic fill. It is probable that the walk was in use until very recently.

Feature 11 consists of a dense layer of stone rubble surrounding the west side of Feature 12. It is superimposed on the original prairie soil horizon. The horizontal extent of the rubble was not determined, since no units were excavated adjacent to Unit 19. The rubble is the same material from which the original foundation of the house was constructed.

Feature 7 is more ephemeral than the other features described above. This feature consists of a lens of plaster in the soil profile at the south end of Unit 12. It is likely that this plaster is derived from the extensive 1901 remodeling episode, although it could derive from other structural alterations. The extent of the feature was not determined, although it was clearly exposed in profile.

Feature 8 is an amorphous midden deposit discovered at the southwest corner of the house. The extent of the midden appears to be at least 1.45 m x 0.8 m. The midden is about 10 cm thick. The deposit contrasts with the surrounding soil in terms of its darker color, and its artifact content. It contains numerous glass beads, buttons, and other items. The feature occurs above the three major fill zones in the large Feature 13 pit which extends over much of the area at the southwest corner of the house. Since Feature 8 is stratigraphically above Feature 13, it must postdate that larger feature. However, the midden appears to be relatively early in age, and may reflect discard activities related to the Miles occupation. The artifactual content of the midden will be discussed in more detail in a later section of the report.

Feature 9 consists of two narrow, parallel soil stains which extend west from near the south porch. While the origin of these stains was not confirmed, they may represent “sleepers” for a former boardwalk. A boardwalk is known to have been located in the south yard, although its precise position is not recorded (Bearss 1970). This walk apparently extended to a privy in the southeast yard. The “shadows” of the former wooden boards which form Feature 9 extend about 80 cm, and the centers of the stains are about 75 cm apart. This width would be reasonable for a boardwalk. Since excavations were not continued to the east, or to the west past Feature 12, the possible extent of the feature was not determined. Some suggestion of a

boardwalk was also recorded near the southwest corner of the house above Feature 13. There, highly oxidized nails were discovered in vertical orientation, suggesting attachment of treads to sleepers. However, no clear horizontal pattern of nails was discerned.

Feature 10 was a circular pit about 50 cm in diameter filled with loose dark fill. The feature occurred above Feature 13. The pit extended to about 43 cm below surface. It was roughly cylindrical in shape, with the diameter decreasing toward the base. The function of this feature was not determined.

The most interesting and enigmatic feature recorded at the Miles House in 1989 was a very large pit (Feature 13). The horizontal extent of the pit was not determined, although it extends south and west from the southwest corner of the south ell. One edge of the pit was exposed in profile in Unit 17. There, the eastern pit wall is essentially vertical, although it slopes gradually to the west from the top to the bottom. The pit is first visible at about 60 cm below surface in Unit 17 where it cuts through the original prairie soil horizon. The old humus zone may be truncated to some degree in this area. However, the 60 cm of fill over the original grade is typical for the south yard, where the fill often reaches over one meter in depth. Feature 13 has a relatively flat floor which was cut into the prairie subsoil at the rather surprising depth of about 210 cm below the current ground surface. Since the feature is known to extend east-west a minimum of 2.8 m and north-south at least 1.5 meters, its construction obviously involved extensive digging. The extent of the feature was not determined, since excavation to the south and west was terminated, and the area to the north could not be excavated, due to safety concerns in the area of the ell foundation.

The large pit contains three major fill zones (Figure 19). The lowest fill is a mottled brown loam with considerable yellow-brown clay throughout (Stratum 2a). This deposit is thickest to the east (64 cm) and thins considerably to the west where it is only 20 cm thick. Within this fill layer, at least one layer of stone rubble and mortar occurs (Figure 19). The rubble and mortar layer is highly variable in thickness, ranging from only a few cm to about 20 cm thick. The rubble is similarly variable, with very small pieces and very large cobbles present. The rubble and mortar layer does not rest on the floor of the pit, but instead occurs within the mottled brown loam and yellow-brown clay stratum. Artifacts are relatively numerous in this fill, especially on or near the rubble and mortar stratum. Domestic and personal materials were recovered from this deposit, including several items (edge-decorated ceramic sherds) which appear to reflect a pre-1870 manufacturing age. A very unusual brass belt buckle made from a clock face was also recovered from this deposit. These and the other artifacts from Feature 13 will be discussed in more detail in a later section of the report.

The second fill layer in Feature 13 is a compact yellow-brown loam (Figure 19). This stratum (3) slopes down perceptibly from east to west. Its surface ranges from 66 cm below surface at the east edge of Feature 13 to 150 cm below surface at the west wall of Unit 26. Despite the sloping nature of the yellow-brown loam stratum, its thickness is relatively constant at about 40 cm. The stratum is essentially devoid of artifacts, although a few brick fragments were recorded in this fill zone. The yellow-brown loam is redeposited prairie clay soil (Stratum

1b). It could originate from the basement of the Miles House, or from the digging of Feature 13.

The upper fill zone in Feature 13 is a dark brown loam (Stratum 2b). It not only fills the feature, but covers it and extends outside the area of the feature to the east. The extensive fill zone has a flat upper surface at 20-24 cm below the modern surface. The dark brown loam stratum contains some yellow-brown loam which increases in amount toward the base of the deposit. Artifacts are essentially absent from the portion of Stratum 2b which fills Feature 13, although a midden zone (Feature 8) occurs within this deposit above Feature 13. This midden occurs at about 30-40 cm below surface in Unit 22 and at about 30 cm below surface in Unit 26.

The function of Feature 13 is undetermined. Its shape is also essentially undetermined, since only one edge of the feature has been discovered. The floor of the feature is flat over most of its extent. Considerable effort was expended in digging this feature through the yellow-brown prairie clay subsoil and creating the flat floor. It is possible that the feature represents a former cellar, although it is located well south of the original component of the Miles House. There is no documentation for the presence of earlier structures on this property, so the feature can not be associated with any known structure. The presence of the stone rubble and mortar deposit might indicate that the pit was open when the Miles House was being constructed, and debris from foundation construction was discarded near the floor of the pit. However, this would not explain the function of the feature. A deep, flat-bottomed pit would not be needed for disposal of construction material. Nonetheless, much of the pit remains intact, and it may prove possible at some later date to determine the extent and shape of the feature. By defining the east and south edges of the feature, it might be possible to offer a more firm explanation of the function of Feature 13. Information on the possible age of the feature is presented in a later section of the report.

Feature 14 consists of some amorphous wooden structural elements which were exposed in Units 18 and 21. It is assumed that this wood is a remnant from the outbuilding which was known to stand in that location. However, no clear shape for the structure could be determined through the limited excavation there. The wooden elements do not appear to reflect major in situ structural components.

From the foregoing discussion, it is apparent that numerous structural and occupational features were discovered during the 1989 excavations at the Miles House. Several of these features (Nos. 5, 6, 11, 12, 13, 14, and 15) remain largely intact at the site after completion of the restoration project. Other features undoubtedly occur on the grounds in addition to the 16 which were recorded. Among those are likely to be several privies. These would span the era from 1869 through the installation of interior plumbing in the Miles House. The privies would be very important features since they are likely to contain a wide assortment of personal and domestic artifacts in a good state of preservation in addition to information relating to the diet of the occupants.

Cultural Material

A rather large number of artifacts was recovered from excavation of 55 sq m at the Miles House. These include a variety of architectural, domestic, and personal items. A surprising number of complete, or nearly complete, bottles and ceramic vessels was recovered. However, nearly all of those items derive from the cinder fill of Feature 12, the bell-shaped cistern in the south yard. These items are all associated with the Leech occupation, and appear to date to the initial decades of the twentieth century. The remainder of the cultural inventory from the site is considerably more fragmentary, although numerous temporal or functionally diagnostic items have been identified. These materials span the Haines, Miles, and Leech eras from about 1870 through 1930.

Architectural Items

Since the excavations were in close proximity to the Miles House, which was modified and expanded in several phases, it is not surprising that a large number of architectural items were recovered during excavation. Window glass sherds and nails dominate the architectural items from the Miles House.

Window Glass. All flat glass sherds were initially sorted from the large number of glass fragments from the site. The initial sort separated all flat sherds from curved ones. The flat sherds were further sorted into window glass, plate glass, and mirror fragments, based upon technological characteristics including presence of beveled edges, silvering, and thickness. Since a variety of studies have shown that window glass thickness has utility for dating based upon increasing thickness through time (Moir 1982; Roenke 1978; Schoen 1985; Walker 1971), the window glass from the Miles House was a focus for analysis. It was hoped that the stages of structural renovation known to have occurred at the house might be reflected in shifts of glass thickness through vertical levels at the site. If such shifts could be identified, it might then be possible to associate select strata and features with particular, brief segments of site occupation. Since chronology developed through examination of window glass thickness is essentially a relative dating technique, it was not anticipated that very specific dates could be assigned to these deposits, based solely upon study of window glass thickness.

The thickness of each window glass sherd was measured to the nearest 0.01 mm. The tint of each sherd (aqua, green, or colorless) was also recorded. The data were compiled on a computer data storage program (PC-File) for ease of manipulation.

Since about 1970, numerous studies have examined the relationship between window glass thickness and date of manufacture (Chance and Chance 1976; Demeter and Lowery 1977; Grosscup and Miller 1968; Grosscup 1972; Moir 1982; Roenke 1978; Schoen 1985; Walker 1971; Whelan 1985). While there is a lack of comparability between studies for providing the same calendrical date for a particular glass thickness measurement, all of the studies have clearly documented a trend toward increasing thickness throughout the nineteenth century. This direct relationship holds until about 1911 when production became automated. Several different

approaches and methodologies have been applied to these window glass thickness studies, resulting in a variety of formulae and other dating schemes.

Window glass dating schemes can generally be divided into two groups, since researchers have relied upon two different measures (mean or mode) in developing chronologies from window glass collections. Schemes based upon window glass thickness means have been aimed at determining the initial construction date of structures at archeological sites, while studies emphasizing modal values have focused upon determining the mean date of occupation or the phasing of structural additions. Both mean and modal values are utilized in the study of window glass from the Miles and Hayhurst sites.

The sample of excavated window glass sherds from the Miles House is relatively small (n=359). This averages to only about six sherds per square meter. This is a very low value and suggests that relatively limited pane breakage and replacement occurred over the years in the south and west yards where the bulk of excavation was focused. The small sample limits the ability to study thickness patterns relative to individual proveniences. However, samples are adequate to compare excavated levels across all provenience units (Table 2). From Table 2 it can be seen that there is no consistent trend in thickness values through the excavated levels. One would expect thinner glass to dominate the lower levels, and thickness means to increase toward the current ground surface. Instead, the mean values for Levels 4 and 5, the lowest excavated levels with adequate window glass sherd sample sizes, are essentially equivalent to the values from Levels 1 and 2. However, there is a small, but perceptible trend towards increasing thickness in Levels 3 through 1. Based upon Schoen's dating formula, the circa 2.10 mm thick glass from Level 1 dates to 1867, while the thinner (1.94 mm) glass from Level 3 dates to about 1857 (Schoen 1985). Two other dating schemes yield dates about 20 years more recent for window glass of these thickness means. The average thickness of window glass for the entire site, about 2.05 mm, dates to 1864 according to Schoen's formula. This is quite close to the known initial construction date (1869) for the Miles House.

Unfortunately, only 43 window glass sherds were recovered from site occupation features. Window glass sherds were recovered only from six site features, and sample sizes within each of those are too small for statistical treatment (Table 2). Feature 13 has the largest number of window glass sherds of any of the site features, but the sample size is still too small to provide a confident measurement summary. This small sample's mean (2.11 mm) matches the Level 1 mean. The relative lack of window glass sherds from site features precludes any attempt to order the features chronologically, or to relate them to particular building episodes.

Nails. Nails were extremely common in the Miles House excavation units. A total of 759 cut and 156 wire nails, complete and fragmentary, were recovered. About 16 nails were recovered per square meter of excavation. A large percentage of the cut nails (74 percent) are fragmentary. The tight textured soil led to poor preservation of nails, resulting in many rusted fragmentary specimens. In several units, completely oxidized nails were noted during excavation, but they disintegrated upon removal from the matrix. It is also possible that structural alterations and subsequent discard led to numerous fragmentary cut nails being incorporated in the site

deposit. Only 39 percent of the wire nails are fragmentary. Their more complete condition may be partially explained by their more recent age. Among the wire nails are 12 modern nails which have become incorporated in the upper levels of the site during recent repair and rehabilitation activities. Based upon manufacturing trends, it can be assumed that wire nails would have been extensively used in the West Branch, Iowa, area after about 1895, when they gained dominance over cut nails. However, there is not a precise date which marks a shift in the use of wire versus cut nails.

The differential representation of cut and wire nails through the deposit reflects time depth and the stratified nature of the site (Table 3). Complete and fragmentary cut nails extend through all excavated levels of the site. This reflects continuing discard and structural renovation of pre-1901 house components through the early years of the twentieth century. It is assumed that the 1901 modifications were all effected with wire nails. Wire nails have a much more limited distribution vertically through the site deposit than cut nails. Very few wire nails were recovered below Level 2 (Table 3). The few wire nails in Levels 3 through 6 were recovered from select units. Unit 3 contains wire nails into Level 6. This area was disturbed through foundation repair in 1974. Units 18 and 21 also have wire nails in their lowest levels, confirming that the outbuilding which formerly stood southeast of the house was constructed and/or modified in the very late nineteenth or early twentieth century prior to its removal. The earliest documentation for the structure is an 1895 fire insurance map. The Sanborn Fire Insurance Company map for 1900 depicts a structure doubled in size from that shown in 1895. Wire nails were recovered in Unit 12 to a depth of 40 cm, suggesting that twentieth-century discard activities account for about 40 percent of the cultural deposit in the southernmost portion of the south yard. However, the deeper levels excavated in Unit 12, as well as in Units 16 and 19 closer to the house, contained only cut nails.

With the exceptions listed above, the nail data indicate that cultural deposits greater than 20 cm below surface from general excavation units predate about 1895 when wire nails gained dominance over cut nails. In the south yard, all deposits below 40 cm are devoid of wire nails and apparently predate about 1895.

The poor and fragmentary condition of the cut nails precluded attempts to develop data on nail size and function. In addition, all of the nails were recovered from secondary trash contexts, rather than primary wooden structural remains, so there would be little to be gained from additional study of the cut nails from the site.

The horizontal distribution of nails from the Miles House excavations is summarized in Table 3. Some units have a relatively large number of nails due to discard activities. Unit 12 provides a good example of that pattern. No structures are known to have been positioned near Unit 12, yet 73 cut nails and fragments, as well as 4 complete wire nails, were recovered there. Most of these were recovered from Level 9. Since the unit also contained a concentration of plaster (Feature 7), it appears that dumping of waste material from initial construction, or later structural modification activities, occurred in this area at a relatively early date. Other nail concentrations can be more clearly tied to actual structural components. For example, Unit 18

contained 165 nails. That was the largest number recovered from any single provenience unit at the site. The nails from this unit likely derive from an outbuilding which was known to exist in that location by 1895. The remainder of the nails are essentially scattered across the site, although, as expected, they are more numerous in deeper excavation units and in units closer to the house.

Other architectural items include iron staples and hinges. A single asphalt shingle fragment was recovered from Unit 17, Level 2. This item is of recent age and was not retained in the collection. The provenience of other shingle fragments is listed in Table 4.

Many components from electrical lighting devices and wiring systems were recovered during excavations at the Miles House. These were recovered from the upper fill of Feature 12. Two industrial porcelain insulators are embossed with "Bryant Junior Pat'd June 9. 03. 2A. 125 V." Five other ceramic insulators are also present. Two plug converters, threaded plugs which convert a bulb socket to a cord plug-in, are embossed "P&S. N.Y. 3AMP. 250V. PAT. Feb 26 1907." Two other plug converters have embossed lettering, but lack patent information. Two ceiling fixture attachments are also present. There is also a heavy-duty electric rotator switch. The precise function of this switch is undetermined. Finally, there are two light bulb sockets and two light bulbs. One light bulb is complete and contains the words "Made In Holland" near the base of the glass bulb. The top of the bulb ends in a pointed gathering of glass where the vacuum tube was sealed. All of the light bulbs are made from lead glass and are manually blown. They were made prior to 1925 when lime was substituted for the potash used in lead glass (Bright 1972:353). Importation of potash was terminated by World War I. All of these electric service-related items date to the early twentieth century. By about 1900, the Miles House did not have electric service, so these items must relate to the post-1901 "finished" house configuration. They were likely discarded in the cistern during a structural renovation phase at the house. For example, the east addition to the house is known to have been modified several times after its construction in 1886. Unfortunately these changes have not been researched and verified "since they do not relate to the historic period and no restoration of the interior is anticipated" (Wagner 1982:106).

Two porcelain insulators were recovered from Unit 21 in the southeast yard, and single insulators were collected from Units 1 and 4 and Feature 2 (Unit 3) in the west yard. All of these are from shallow proveniences of recent age.

The remainder of the architectural items include fragments of brick, and samples of mortar, plaster, and concrete from a variety of proveniences (Table 4). Samples were recovered from Features 2, 13, and several general excavation levels. These samples were retained to allow future comparison of mortar mixes and brick types in use through the site occupation. No analysis of these materials has been undertaken.

Domestic Artifacts

Like architectural items, domestic-related artifacts were relatively numerous in the excavated sample from the Miles House. Bottle glass and ceramic sherds dominate this group, although a variety of other materials was also recovered. These artifacts reflect various subsistence and household activities. They entered the archeological record primarily through purposeful discard, usually after being broken. However, several complete items were also discarded within the fill of Feature 12. The domestic artifacts provide some details regarding the lifestyle and economy of the residents of the Miles House, and provide a limited view of local patterns of commerce relative to place of manufacture of select items.

Glass Containers. There are twenty-nine complete bottles and 296 sherds of varying size from a minimum of 19 other glass containers. Two of the complete vessels were reconstructed from sherds. The distribution of the glass sherds relative to horizontal provenience units is shown in Table 5. All complete vessels were recovered from Feature 12, a bell-shaped cistern. With regard to the fragmentary bottles, colorless and aqua color sherds dominate the collection (Table 5). Very few glass sherds from containers (n=13) were recovered from the west yard excavations. Similar to all artifact classes, the great majority of glass container fragments was recovered from units in the south yard.

A large number of the glass sherds (n=183) could be assigned to 19 individual containers. When these vessels are added to the complete/reconstructed vessels, the minimum number of vessels from the site is obtained. Among these vessels, a large number (n=164) of sherds were mended across and within individual proveniences (Tables 6 and 7). Most of the identified vessels were recovered from Feature 12, a bell-shaped cistern. The remainder are all from south yard proveniences. Fruit jars, medicine bottles, various food containers, a tumbler, two milk bottles, and other forms are present (Table 8). Neck finish and body portions are the most numerous (Table 11).

Embossed lettering occurs on the bodies of several of the identified vessels and on other sherds not assigned to individual vessels. At least five of the embossed vessels are fruit jars. Fragmentary lettering on an additional sherd may also represent a fruit jar. Four of those exhibit information for the original "Mason Jar" patent in 1858 (Table 9). Two others contain the word "Ball," another popular form of fruit jar. These jars were made by Ball Brothers Manufacturing (Table 10). The positioning and the style of the lettering on the fruit jars suggest approximate date spans for manufacture of these vessels (Munsey 1970:150; Toulouse 1969:5; 1971:67, 344-345). This dating provides terminal dates in the early twentieth century for several vessels from Feature 12. Vessel 15 was probably manufactured from about 1900-1915 (Munsey 1970:150). Vessel 8 from Feature 12 may have been made about 1920. This strongly indicates that Feature 12 was being filled with cinders and household refuse during Dr. Leech's occupation of the Miles House in the early twentieth century. The abandonment and filling of the cistern likely began soon after the major 1901 expansion undertaken by Dr. Leech and continued at least until construction of his new house in 1920. Dating based solely upon these vessels is tentative, since canning jars are often curated and reused long after their manufacturing date.

Glass fruit or canning jars are also represented by a very large number (n=67; includes 4 lids from above) of lid components. These include 65 fragmentary and complete zinc screw top lids and/or “opal” or colorless glass liners. Two complete zinc screw top lids with glass liners remain on the vessels described above. Although the jars were broken into many pieces, they were completely reconstructed. The lids were articulated with the jar finishes when they were discovered. The great majority (n=49) of the lids were recovered from the base of Feature 12. These items are among the first objects discarded in the cistern after its original function as a water storage container had been discontinued. Many of the glass lid liners rested directly on the floor of the cistern. Glass lid liners for top seal jars were developed in the 1860s. The first zinc caps with opal liners for top seal jars were patented in 1869 (Toulouse 1969:92), and these caps remained popular for many years. The glass liner was intended to separate the contents from the metal caps, thus preventing a “metallic taste” from being imparted to the food. Although the zinc and glass top seal lids were developed for Mason Jars in 1869, these opal liners were apparently not marked “Genuine Boyd Mason Cap” until about 1900 (Toulouse 1969:92).

There is relatively limited variability in the lids and liners from the Miles House. A single opal liner from Unit 21, Level 1 bears the mark of the Hero Fruit Jar Company. This liner dates from 1884-1909 (Toulouse 1969:37). A fragmentary liner from Unit 18, Level 4 may also derive from a Hero cap liner. Two complete glass liners are marked with a script “Crystal” and “Patented July 28, 1874.” This liner differs considerably from the typical convex or lens-shaped liners which fit tightly near the top of the zinc caps. The “Crystal” liner is more like a complete cap with a ledge which fits closely over the rim of the jar. This was held in place with a rubber gasket and a screw top lid. Both examples from the Miles House were from the base of Feature 12. These colorless glass lids may have been made by the Independent Glass Company of Pittsburgh, Pennsylvania (Toulouse 1969:20, 109). The terminal date for that company is about 1900.

Nineteen complete zinc lids with unmarked opal glass inserts were recovered from the base (Level 5) of Feature 12. These unmarked lids could date from about 1869 to 1900. Numerous unmarked opal glass inserts without associated zinc lids were also recovered. Feature 12, Level 5 contained 7 fragments and 6 complete specimens. Eleven additional fragments were recovered from Units 18 (Levels 3 and 4) and 24 (Level 1), Shovel Test 4, and Feature 15. All but those from Unit 18 are directly associated with Feature 15. A fragmentary marked, but unidentified, glass liner was recovered from Unit 18, Level 5. Four fragments from a single liner from Feature 12, Level 5 were marked “Boyd’s Genuine Porcelain Lined Cap.” Two complete inserts from that provenience were marked “Genuine Boyd Cap For Mason Jars.” An additional 10 complete zinc caps from the base of Feature 12 have liners with this embossed information. Apparently, even though the Boyd liner patent dates to 1869 for top seal Mason jars, the identifying lettering was not added to the inserts until about 1900. Finally, two zinc lids without inserts were recovered from Unit 18, Level 7 and Unit 21, Level 1.

The distribution of glass jar lid liners from the Miles House is highly patterned. In addition to the very large number from Feature 12, additional opal liners were recovered from

Feature 15 and the area around it (Unit 24 and Shovel Test 4), and from adjacent Units 18 and 21 in the southeast yard. The deposit in Units 18 and 21 shares a common fill with Feature 12. Both those units and the feature contained extensive cinder deposits, and it appears that the fill in the two areas may be roughly contemporaneous.

One bottle (Vessel 13) is marked with advertising for its contents — milk. However, that vessel does not contain information regarding the manufacturer. Two sherds which contain embossed lettering were too fragmentary to be identified.

Several other complete vessels from Feature 12 exhibit embossed lettering providing an indication of contents. A colorless bottle has “O-Cedar Made In USA” on the base. This bottle, which contained a popular household floor cleaning product has an Owens machine scar on its base, indicating manufacture after 1904. A colorless medicine bottle bears the remnant of a red paper label which is too fragmentary to identify. This bottle also has an Owens scar on its base. A colorless bottle has “Black Cat Stove Enamel New York NY” embossed on its side. This bottle also exhibits an Owens scar and still contains some of its original contents. There are five colorless Heinz ketchup bottles which bear similar embossed lettering and partially complete paper labels. Four are shape “162” and the fifth is shape “57.” Each of these bottles was made by the Owens Bottle Company of Toledo, Ohio, between 1911 and 1929 (Toulouse 1971:393-397). An additional ketchup bottle also bears the Owens Bottle Company mark, but lacks embossed lettering which would associate it with Heinz or any other food packaging company. A seven-sided colorless glass ink bottle contains only the embossed information “1 1/4 oz.” A colorless glass medicine (?) bottle maintains a remnant of its paper label which includes the words “Rexall Cream of Almonds.” Like many other bottles from Feature 12, this bottle was made by the Owens Bottle Company between 1911 and 1929 (Toulouse 1971:393-397). A second ink bottle is embossed “Sanford’s” on its base and “1 1/4 oz.” on its side. The fragmentary paper label includes the words “Sanford’s Library.” This bottle is not machine made.

A colorless glass medicine bottle is marked on the side for incremental volume units in ounces and cubic centimeters. The number “3” occurs in a circle on the neck of the bottle. This bottle was made by the Illinois Glass Company of Alton, Illinois, between 1916 and 1929 (Toulouse 1971:264). The Owens machine scar is also present. A colorless glass “jelly” jar is embossed “No. 63. PAT IN US. Dec. 22. 1903/ July. 17. 1906/ M22” on its base. Two small colorless glass bottles are embossed “Gets It” on their bases. These bottles originally contained “Gets It” corn remover. Both bottles have the Owens machine scar. Another very small bottle is a homeopathic medicine vial. Homeopathy is a curative system which has considerable antiquity and which was popular at the turn of the century. It involved administering minute doses of a remedy that would in healthy persons produce symptoms of the disease being treated. The final bottle from Feature 12 is an unmarked colorless glass medicine bottle with an illegible paper label. This bottle was machine made.

An embossed sherd may be the product of the Lorenz and Wrightman company (Toulouse 1971:338-339). If that identification is accurate, the vessel represented by this marked sherd may

have been made about 1871. Its position in Feature 8, above the deep Feature 13 pit, provides some suggestion that both features are very early in the site sequence.

The presence in the Feature 12 fill of numerous datable bottles indicates that deposition within the cistern was certainly occurring after 1916, and may have continued after 1920 during the Albert Leech occupation of the Miles House. None of the bottles can be dated to post-1929. Since temporally diagnostic vessels from the upper portion of the fill include ketchup bottles and other food containers, curation of the post-1911 and 1916 bottles is unlikely to have significantly skewed the apparent age range for final filling of the feature. The presence of post-1904 artifacts (“Gets It” bottle and others) at the base of the fill indicates that the filling process minimally spanned about 1904 to 1916, and may have begun somewhat earlier and extended a decade later. The presence of the marked “Boyd” glass liners at the base of the deposit strongly indicates that the filling of the feature did not begin until after about 1900.

As indicated in Tables 6 and 7, about 164 glass sherds were mended among 19 separate vessels. Several of these vessels were partially or completely reconstructed through this process. Most of these were recovered from Feature 12.

Tin Food Cans. Thirty-seven very poorly preserved tin food cans were recovered from Feature 12 between 70 and 115 cm below surface. The cans were distributed near the surface of the cinders which filled this feature. The poor condition of the cans is accounted for by the damp cinder fill in the cistern. The cans were so badly oxidized that they quickly deteriorated as they dried. They were measured and discarded on site. The approximate sizes and numbers of cans in each size are listed in Table 12. Nearly all of the cans appear to have held fruit or fruit juices. Fourteen cans apparently held either tomato or pineapple juice, while five held either fruit or juice, and three contained fruit. Eight apparently held vegetables, or possibly fruit. Two may have contained oysters. A single rectangular can was certainly a meat container. The contents of the remaining four small cans are undetermined.

The cans were recovered from the upper portion of the cinder fill. Many had rolled down the “cone” of cinders and accumulated along the wall of the cistern. The cans were among the last items discarded in the cistern. Several bottles were discarded on top of the cans, marking the last discard activity within the feature. It is important to note that all of the cans are the “sanitary” type. This modern can form replaced the hole-in-cap type which was widely used through most of the nineteenth century and in the first two decades of the twentieth century. Although the sanitary can was introduced in 1903, it did not become commercially viable until about 1914. By 1922, the sanitary can had become widely accepted. The large number of sanitary cans in the upper portion of the cistern fill strongly indicates that discard into the feature was occurring after 1914, and probably into the 1920s.

Ceramic Sherds and Vessels. Ceramic sherds and vessels are well represented in the Miles House collection. Forty-two vessels consisting of 203 sherds in four major ware groups were identified (Table 15). An additional 246 sherds could not be associated with a particular vessel. Among the 449 sherds, it was possible to mend 202 (Table 13). Unlike glass vessels,

which were mended primarily within Feature 12, considerable mending of ceramic sherds was accomplished within several excavation units. Numerous sherds were mended within Units 18, 19, 21, 23, and Feature 12. The high percentage of mended items from these proveniences, particularly Feature 12, is evidence for primary trash discard in the south yard of the house.

Whiteware. Four paste or ware groups are represented in the Miles House ceramic assemblage. Whiteware is the most numerous, with 324 sherds from a minimum of 29 separate vessels (Tables 13 and 14). No attempt was made to subdivide the whiteware group relative to minor differences in paste texture or glaze tint. Instead, emphasis has been placed upon examining the form of the vessels and the decorative treatments which occur on them. The whiteware group contains stark white sherds with colorless glaze, as well as sherds with a “steel gray” tint. There is ample evidence from a collection of complete ceramic vessels from the Steamboat Bertrand (1864) that contemporaneous vessels within individual shipping crates reflect significant variability in color and hardness of paste, and glaze tint. For example, cups with the same molded pattern range from very hard paste with a “cold steel-blue” color, to softer, pure white vessels (Leslie Perry, personal communication 1987). Based upon this situation, it was decided not to emphasize minor differences in surface color and paste characteristics within the whiteware assemblage.

Whitewares have been referred to by a rather bewildering variety of names (“stone china,” “imperial white granite,” “ironstone china,” and many others) in the nineteenth century and by present day collectors and archeologists (Miller 1980:4; Price 1979; Wetherbee 1980). Often, the name “ironstone” is applied to these late nineteenth-century vessels. In its initial usage, ironstone describes an innovation introduced as early as 1813 by Mason. However, the term has been defined in several ways, greatly reducing its utility. Wares defined as “ironstone” in other reports are subsumed under “whiteware” in this report. Late nineteenth-century potters used at least 61 descriptive terms, including ironstone, for their various whiteware paste mixtures (Wetherbee 1985:15). Most of these terms tend to connote hardness or durability, in an apparent attempt to portray them in an “improved” light compared with earlier nineteenth-century whitewares. While these “wares” certainly had different paste constituents and hardness, overall they are essentially similar in appearance.

At the Miles House, whiteware sherds were recovered from most of the excavated proveniences (Table 13). Like other artifact classes, whiteware was most numerous in the south yard area. Unit 22 contained the largest number of whiteware sherds (n=76). These derive from Features 8 and 13, and the fill above these features.

Several decorative treatments were applied to the whiteware vessels used and discarded at the Miles House. Handpainted, annular, edge-decorated, transfer-printed, decal, and molded designs are represented (Table 14). Since mold-decorated, but otherwise plain, whiteware was an important decorative technique in the late nineteenth century, it is not surprising that 69 sherds in a minimum of 11 patterns are present in the collection from the Miles House. Mold decoration on white vessels was a continuation of simple molded designs which were introduced on transfer-printed whitewares in the mid 1840s and 1850s. Several of those molded designs

occurred on otherwise plain white vessels in the 1850s and 1860s as the popularity of transfer-printed decorations began to wane. These molded “designs” featured rectilinear shapes, panels, or other patterns which were intrinsic to the basic shapes of the vessels. By the 1860s, a variety of more complex, raised, molded designs were applied to whiteware vessels. These designs did not form the basic shape of the vessels, but were instead added as decorative embellishments to the vessels’ rims and bodies. A wide variety of such designs were registered over the next few decades. During the 1860s various “harvest” themes such as the ubiquitous “wheat” or “ceres” pattern became popular (Wetherbee 1985:76). Many other floral, geometric, and abstract designs were also developed prior to and during the early years of the occupation of the Miles House. A few of these patterns were used at the Miles House, and three were identified by name and maker.

One of the raised floral patterns from the Miles House is “Bordered Hyacinth” (Wetherbee 1980:100; 1985:28, 108). The pattern depicts the English hyacinth, rather than the fragrant flower of the spring-flowering hyacinth known from American gardens. This pattern is known to have been made by W. Baker & Co. of Fenton, England. The firm has a very long history (1839-1932) (Godden 1964:51). Since the examples from the Miles House are not marked, it is not possible to provide refined dating for the pattern. This attractive pattern follows the edges of plates and other flat vessels, and covers portions of the bodies of hollowware forms. The single example of Bordered Hyacinth from the Miles House was recovered from Unit 5, Level 1 in the west yard. This pattern was also identified at the Hayhurst House.

A second floral pattern, Lily of the Valley, was recovered from Unit 23, Level 2 (Table 15). Fifteen sherds from a single vessel were recovered. Fourteen of these sherds were mended to partially reconstruct the vessel. The Lily of the Valley pattern was registered by James Edwards and Son of Burslem, England, in 1858 (Wetherbee 1980:99). This firm was in business until 1882 (Godden 1964:230). Other firms (Anthony Shaw) also used the Lily of the Valley name for very similar patterns (Wetherbee 1980:101).

The final molded design identified from the Miles House whiteware collection is Triple Border (Wetherbee 1985:41). This design is a simple, curvilinear type consisting of lines which follow the borders of vessels. The pattern was first made by J. Edwards, and has been reproduced recently by several factories. The single sherd of this pattern from the Miles House was recovered from Unit 16, Level 7. This deep context suggests that the vessel bearing this pattern was in use during the early years of occupation of the house. The Triple Border pattern was also recovered from the Hayhurst House. No other mold-decorated patterns could be identified from the Miles House whiteware assemblage. It should be noted that the identification of the Triple Border, Lily of the Valley, and Bordered Hyacinth patterns suggests that two English manufacturers (Edwards and Baker) not represented by hallmarked sherds produced some of the whiteware used at the site.

Only four transfer-printed whiteware sherds were recovered from the site in 1989. Although transfer-printed patterns are still available today on whiteware bodies, the peak era of popularity of transfer-printed designs was from the very early through mid-1800s. By the 1850s,

the busy, embellished transfer-printed designs which had dominated the middle- and working-class buying market for nearly 50 years were fading in popularity. They were replaced by simple molded and completely plain white-surfaced vessels. It seems likely that the shift in style was fostered by the ceramic producers, largely in the Staffordshire district of England, to stimulate sagging sales caused by a glut of romantic transfer-printed vessels. The new and simpler vessels were touted as being harder and more durable through the application of the variety of trade names discussed above. The shift in style was fairly rapid, and the plain vessels soon rivaled transfer-printed wares in cost as well as popularity. By the time the Miles House was constructed, transfer-printed wares were passé throughout much of the United States. Given this background, it is not surprising that few transfer-printed sherds were recovered from the site. However, black, blue, and mulberry-colored transfer-printed patterns are present in the whiteware assemblage. These all appear to be from the mid-1840s through circa 1860 era when imaginary, romantic scenes were the dominant transfer decorative style. None of the transfer-printed patterns from the Miles House could be identified by name or manufacturer.

Edge decoration is another decorative type which enjoyed its peak popularity prior to construction of the Miles House. Like transfer printing, edge decoration declined rapidly after about 1860 and is absent from most sales lists by about 1870. The small number ($n=2$) of edge-decorated sherds from the excavations at the Miles House reflects its circa post-1870 age. It is interesting to note that the edge-decorated sherds from the Miles House were recovered from the base of Feature 13 (Units 22 and 26), a very deep pit. This provides some suggestion of considerable antiquity for that feature. It is likely that other plain, undecorated sherds from this feature are body fragments from the edge-decorated vessel(s). Since only a very small area along the rim of edge-decorated vessels contains decoration, the majority of sherds from broken vessels are undecorated. It is likely that the vessel(s) from Feature 13 is a plate, since edge decoration was seldom applied to other vessel forms.

Decal-decorated whiteware sherds are few in number ($n=2$). Unlike the transfer-printed and edge-decorated types, there is no temporal reason for the near lack of decal-decorated sherds in the whiteware assemblage. Decal-decorated vessels were popular circa 1900 when discard was actively occurring at the site. Only a single vessel is present from the Miles House.

Most of the remaining decorated whiteware sherds from the Miles House are various painted forms. Twenty sherds from a minimum of three vessels contain painted designs. Included in this group are nine sherds from a single “tea leaf” luster-painted vessel.

The remaining 182 whiteware sherds bear no decorative treatment. Many plain whiteware vessels were produced throughout the late nineteenth century along with the mold-decorated forms described above. It is likely that most of these sherds derive from such undecorated vessels. Some of the sherds may also be from portions of various decorated vessels (especially edge and painted types) which were not covered with decoration.

A small number of whiteware sherds were marked by their manufacturer (Table 16). The majority of these were recovered from Feature 12, although a few were collected from other

south yard proveniences (Feature 13 and Units 18, 19, 21, and 26). Both United States and English manufacturers are represented. This situation was expected, since American manufacturers made major inroads into the British-dominated tea and table service market in the late nineteenth century. One reconstructed saucer (Vessel 14) from Level 3 of Units 18 and 21 was made by the Johnson Brothers. The mark indicates that this vessel was produced between 1883 and 1913 (Godden 1964:335). The vessel is mold decorated.

Several marked vessels were recovered from Feature 12. Vessel 7, a tea leaf pattern, luster-decorated plate, was made by Alfred Meakin LTD. Meakin's business was begun in 1875, but the "LTD." portion of the mark indicates that the vessel postdates 1891 (Godden 1964:423; Wetherbee 1980:120). Vessel 3, a mold-decorated saucer, was made by Carrollton Pottery (Lehner 1980:83). This company was in business from 1903 to 1930. Vessel 4, another mold-decorated saucer, was made by Knowles, Taylor, and Knowles. This firm was a major pottery producer in the East Liverpool, Ohio, area. Their mark on the saucer was used from 1890 to 1904 (Gates and Ormerod 1982:119). Another saucer, Vessel 8, with a molded and painted design was made by Maddock and Sons of Burslem, England. This vessel was made between 1855 and 1896 (Cushion 1986:525; Godden 1964:406). A bowl, Vessel 5, from Feature 12 was made by Edwin M. Knowles. This vessel appears to have been made about 1920 (Lehner 1980:237). Although a considerable temporal span is represented by the possible manufacturing dates for the six marked whiteware vessels from Feature 12, it is apparent that discard was occurring in the early twentieth century.

A single marked sherd from a vessel of undetermined form and decorative treatment bears the mark of James Reeves. This firm had a long span of operation (1870-1948) (Godden 1964:525). Unfortunately, this adds little information for dating Feature 13, from which it was recovered. A second maker's mark from a fragmentary plate from Feature 13 could not be identified despite extensive efforts. This mark depicts the Royal Arms. While that would appear to indicate English manufacture, many American firms also used variants of the Royal Arms in their marks.

Yellowware. Yellowware was being mass-produced in the United States in New Jersey, Pennsylvania, Ohio, New York, Vermont, and Maryland by the 1840s and 1850s (Leibowitz 1985:9). Its high level of popularity continued as production peaked in the 1860s and 1870s. By about 1900 its popularity had faded dramatically, although it was produced into the early twentieth century. It provided an improvement over the more fragile redware. It was fired at a higher temperature, and was harder and more durable. Yellowware vessels are seldom marked by their manufacturers. Given this background on yellowware, it is surprising that only five sherds were recovered from the Miles House in 1989. It appears that three vessels may be present, but only one, a Rockingham-like decorated bowl from Unit 19, Level 7 was sufficiently complete to allow identification of form. This vessel is represented by three sherds which mended. The two remaining sherds, one mold-decorated and one Rockingham-like mold-decorated fragment, could not be defined relative to original vessel shape.

Stoneware. Stoneware was used primarily for heavy utilitarian forms (including jugs, crocks, water coolers, and pans) in the late nineteenth century. Many stoneware vessels were used for food storage, rather than for preparation or serving. Stoneware typically has a dense paste which is fired at a high temperature making it impermeable to water. The interior of stoneware vessels was often covered with a clay slip (Albany) to provide a smooth surface of uniform color. Vessel exteriors were either left plain and then glazed through a chemical reaction process during which salt was added to the kiln during firing, or were glazed with colorless or other lead glazes. Decorative embellishments, often in cobalt blue slip, were occasionally added to the exterior of the vessels. Manufacturing or advertising information occasionally occurs on the bodies or bases of stoneware vessels.

At least eight vessels are represented by the 86 Miles House stoneware sherds (Tables 13 and 15). Thirty-six sherds were assigned to individual vessels (Table 15). Most of these sherds were mended to form larger pieces. Decoration is limited to single mold- and annular-decorated sherds. The form of the vessels remains largely undetermined, although one small bowl (Vessel 20) was reconstructed from 21 sherds. This vessel was recovered from several levels of Units 18 and 21 in the southeast yard. The base of the vessel contains the mark of the Peoria Pottery company, which operated from 1873-1904 (Lehner 1980:240). Adjacent excavation Units 18 and 21 contained 53 of the 86 stoneware sherds recovered at the site. Only two stoneware sherds were recovered from the west yard, with the remainder from various south yard proveniences.

Porcelain. The finest ceramic ware recovered from the Miles House was porcelain. Thirty-five porcelain sherds from a minimum of four vessels were recovered. Twenty-one of the sherds could be associated with the four vessels. Porcelain is usually the most expensive ceramic ware from nineteenth-century sites. The provenience of several of the porcelain sherds (e.g., Unit 24, Level 1, and Feature 12) suggests that some of the porcelain vessels date relatively late within the site sequence. The material in Feature 12 was deposited in the early twentieth century. However, others were recovered from relatively deep contexts (Unit 18, Levels 6 and 7) suggesting a nineteenth-century association for some of the porcelain vessels.

The porcelain vessels exhibit painted, decal, molded, and transfer-printed designs (Table 14). None of the designs could be specifically identified. No makers could be determined, although Vessel 31, a decal-decorated plate consisting of 10 mended sherds was marked "Japan." This vessel was recovered from Feature 12.

Relatively few vessel shapes could be positively identified from the Miles House ceramic sherd assemblage. Bowls and plates are most common (Tables 17 and 18). Ten of each are present. The plates are all whiteware and porcelain, while the bowls include stoneware and yellowware examples. Several other shapes may reflect other bowls, or miscellaneous hollowware vessels. There are six whiteware saucers, suggesting that the single identified cup is an underrepresentation of that vessel form in the collection.

Personal Items

A small but interesting group of personal items was collected during excavations at the Miles House. These include fragments from various clothing and adornment items, tobacco tins and pipes, spent ammunition, and toys.

Toys. Fragments from porcelain dolls, miniature tea sets, marbles, and slate board and pencil fragments were recovered from the Miles House. The doll fragments are quite limited in distribution, with six items recovered from Unit 24, or the fill in Feature 15 within that unit, and four fragments from Unit 18, Level 6. The doll fragments consist of eight body elements and two pieces from heads. The single diagnostic head element from Unit 24, Level 1 depicts a baby. It is likely that this doll dates to about 1880 or after, since earlier dolls usually depicted adults, rather than children. A cup and a saucer from miniature tea sets were recovered. The porcelain cup occurred in Unit 19, Level 8 and the saucer was found in Unit 26, Level 2. The cup is probably part of a set of miniature porcelain vessels which were often sold as inexpensive toys for children. Turn-of-the-century catalogs list undecorated porcelain or “china” toy tea sets for as little as fifteen cents for a dozen items (Sears, Roebuck and Co. 1969a:913). The saucer, which may be associated with the Feature 8 midden recorded at the southwest corner of the house, is made from a lead-based metal. It is decorated with a raised floral or leafy branch motif. Although the age of this item is not known with certainty, it probably was made in the late nineteenth century. Lead toys continued to be marketed well into the twentieth century. A similar saucer was recovered from a late nineteenth-century context at the Ray House at Wilson’s Creek National Battlefield (Sudderth 1992).

Three marbles were recovered. All are from proveniences along the south wall of the structure (Table 19). A glass German “swirl” marble was recovered from Unit 21, Level 4. These attractive handmade marbles were made in Germany and imported to the United States from the mid-nineteenth century until about 1914. The other two marbles are undecorated clay “commons” which were produced from about 1830 to 1914 (Carskadden and Gartley 1990). It is likely that these marbles were also made in Germany.

Slate pencils were recovered from several proveniences (Table 19). Four fragments were collected. These pencils were typically used on small slate boards which were often bordered with fabric and/or wood and were used for schoolwork or play. Slate pencils were in common use in the late nineteenth century, and were available into the very early years of the twentieth century. They were offered in the 1902 Sears and Roebuck Catalog (Sears and Roebuck 1969a), but were not available in the 1908 edition (Sears and Roebuck 1969b). They were replaced by graphite pencils and paper writing tablets. Twelve flat fragments of slate, which are probably fragments from slate boards, were also collected from the site (Table 19). With the single exception of a slate pencil from Feature 2 in the west yard, the remaining slate pencils and board fragments were recovered from south yard proveniences. Pencil and board fragments were recovered from Feature 8, a midden near the southwest corner of the house.

Clothing. Buttons and shoe fragments constitute the bulk of the clothing-related items from the Miles House. Thirty-eight buttons were recovered from a variety of contexts (Table 20). Similar to other artifact classes, most of the buttons were recovered from south yard contexts. Shell, bone, ceramic, and metal buttons are represented. Only three shell buttons were recovered. These are undecorated, utilitarian buttons made from fresh-water mussel shells. Fresh-water shell buttons, often called “pearl” in period trade catalogs, have a lengthy period of production and were available well into the early nineteenth century. A single bone button was collected from Unit 16, Level 7. Like shell buttons, bone buttons were still being offered for sale in the late 1920s. Ceramic buttons constitute the majority of the collection. Nineteen are plain, and are probably from shirts and dresses. Six have painted treatment, and two have molded designs. Five metal buttons were recovered. A single hard-rubber button bears the lettering “GOODYEAR PT. 1851 R CO.” The date is for a patent which improved the vulcanization process and which then allowed the production of hard-rubber objects such as buttons and combs. This patent information may have continued to appear on items long after the patent was granted in 1851. However, at that date, patents were good for a period of seven years, after which they could be renewed for an additional seven years. Unfortunately, the button is from a disturbed context.

Several other clothing fasteners were also recovered from the Miles House. An overall button or rivet from Unit 24, Level 1 is marked “Welch Cook Co.” The history of that company has not been researched, since the excavated context of the button is highly disturbed. A garter catch from Unit 18, Level 6 is marked “PAT MAY 1874.” Given the duration of patents, this item could date from 1874 to about 1890. Five guides and catches, most of which appear to be from suspenders, were recovered from various proveniences. A small buckle of undetermined function was found in Level 4 of Unit 12. Finally, a stick (hat?) pin was recovered from Unit 17, Level 4. In addition to the “permanent” clothing fasteners described above, two safety pins and a straight pin were recovered from Feature 8.

Fragments from shoes have a more restricted distribution than buttons, but are fairly numerous. Metal lace eyelets, a heel plate, leather fragments, and a leather heel were found in Unit 13, Level 6. There are 12 fragments from this provenience which appear to derive from a single shoe or boot. The remaining shoe fragments were recovered from Feature 12, the bell-shaped cistern. Actually, it would be more accurate to refer to these items as nearly complete shoes. It is probably not a coincidence that these shoes match rather precisely the style worn by Dr. Leech as depicted in several photographs.

The most unusual clothing item recovered from the Miles House is a heavy brass belt buckle (Figure 20). This buckle reflects modification and reuse of an item which originally had a much different function. The buckle consists of a large (10.4 cm x 5.4 cm x 0.15 cm) rectangular piece of solid brass. The buckle curves gently across its length. The undecorated concave back side has a small iron hook attached to it through a small hole in the buckle. The iron hook is very badly oxidized. This hook served as a catch to hold the buckle in a hole in a leather belt. The front convex face of the buckle is marked with numbers and various design elements. The rather fancy numbers (10, 20, 30, and 40) occur in a circular pattern. Ten deeply

engraved dots are evenly spaced above and between each number. The numbers and dots are enclosed by a single engraved line which forms a circle. The circle is interrupted, indicating that the buckle is a portion of what was originally a much larger object. Carrying the numbers to their logical conclusion given the spacing and symmetry of the design, there is only room in the missing portion of the circle for “50” and “60.” A tiny portion of the “5” is present. In the center of this circle of numbers is a small hole surrounded by an engraved device which appears to represent sun rays. The rays encircle a small engraved circular line. A second small hole is positioned near this area. Additional, incomplete engraved design elements are also present on the face of the buckle (Figure 20).

It appears likely that the engraved design is from the second hand portion of a very large clock face. It might also be possible that the original item was a face from some type of gauge or other instrument. However, the orientation of the numbers suggests that there would only be room for evenly spaced numbers from 10 through 60 in intervals of 10. This strongly suggests that the identification as a former clock part is the best explanation available for the original function of this unusual item.

The buckle was apparently made by cutting a rectangular portion from the heavy brass clock face, and modifying it with a rectangular slot for belt attachment and a small hook to catch the other end of the belt. The character of this piece, including the unique hand-engraved numerals and design elements, suggests considerable antiquity. It was collected from the base of Feature 13 in Unit 22 at 200 cm below the current ground surface. The other contents of this large and enigmatic pit (edge-decorated ceramic sherds, cut nails, and other items) also suggest a rather early date for the filling of the feature.

Grooming Items. Two teeth from a fine-toothed, hard-rubber comb were recovered from Feature 8 in Unit 17. These combs were available from the mid-nineteenth century through the first decade of the twentieth century. A portion of a bone toothbrush was discovered deep in the fill of Feature 13 in Unit 25. The “head,” or portion of the brush which held the bristles, is present. Like the comb, toothbrushes of this type were made in the late nineteenth and very early twentieth centuries.

Surgical Tools. A fragmentary ivory handle is from an unidentified object. It may be from a grooming item such as a toothbrush, but its very gracile and carefully crafted form suggests that it may be from a scalpel or other fine surgical instrument (Dammann 1983:25, 29; 1988:57). Ivory handles were used on various medical instruments, and for toothbrushes. However, the shape of this item bears more similarity to medical tools than grooming items. The fragmentary ivory handle has been burned, but a trademark is clearly preserved on it. This mark includes the superimposed letters “U” and “D” and another device encircled by the words “Sold Only at the Rexall Store.” This was the mark of the United Drug Co. (Periodical Publishers Association 1934) and was first used in 1903. Since the tool was recovered from deep in the cinder fill of Feature 12, it is apparent that the filling of the feature occurred during the early twentieth century. This was during Dr. Leech’s occupancy, lending further credence to the tentative identification of the medical instrument function.

A second fragmentary ivory instrument handle from Feature 12 is certainly from a medical tool. This handle has a "fluted" design which matches well with various mid-nineteenth-century surgical instruments (Dammann 1988:57).

Ammunition. Twelve spent cartridge cases were recovered from the Miles House. All are from various south yard proveniences. Five .22 caliber cartridges were made by the U.S. Cartridge Company of Lowell, Massachusetts. This firm had a relatively long history, and the cartridges could date from 1869 to 1936. Another .22 cartridge was made by Eley Brothers Limited, London, England. A long time span (1835-1918) is reflected for that firm. The cartridge was recovered from deep in the cultural deposit (Level 10) of Unit 12, suggesting considerable antiquity. Two .32 caliber cartridges were made by the Peters Cartridge Co. of King Mills, Ohio. A single .22 caliber cartridge was made by the Winchester Repeating Arms Co. of New Haven, Connecticut. Three cartridges, of .22, .32, and .44 calibers, were not headstamped.

Coins. Only two coins were recovered from the Miles House. Both are small cents. Unfortunately, the one from Feature 13 (Unit 17) is too corroded for identification. The second coin is an "Indian Head" cent, dating 1864. This coin was recovered from Unit 26, Level 2. It is likely that the coin is associated with the Feature 8 midden which was recorded in that area.

Tobacco-related Items. Six fragments from an undecorated white clay smoking pipe were recovered from Unit 18, Level 3. All these fragments mended to form a nearly complete bowl and a portion of the stem. The thick, diamond-shaped profile of the stem suggests that this pipe had a short, "stubby," rather than a long gracile, stem. The stem is oriented at a right angle to the bowl. The mold marks on the bowl have been obscured through vertical burnishing. An oval "button-like" spur occurs at the base of the pipe at the juncture of the bowl and stem. The lack of a maker's mark and decorative treatment limits the ability to identify the age and place of manufacture of the pipe. However, similar plain pipes with vertical burnishing were made in Gouda, Holland, through much of the latter half of the nineteenth century.

A second, nearly complete pipe bowl was recovered from Unit 26, Level 2. This pipe is made from gray stoneware, and has a shiny salt glaze over its interior and exterior surfaces. The pipe is made to receive a detachable reed stem. The stem is oriented at a right angle to the bowl. This pipe is certainly the product of an American company. Stoneware pipes were made at a variety of locations during the late nineteenth century. However, the example from the Miles House seems to best match a plain gray, salt-glazed example recovered from site 33SU86, the Akron Smoking Pipe Company factory site at Mogadore, Ohio (Sudbury 1979:276, Plate 23.8). The Miles House example matches the illustrated pipe even in location of flaws on the base and bowl. The Akron Smoking Pipe Company was formed in 1890 through the merger of four pipe-making firms in the Akron-Mogadore area of Ohio (Sudbury 1979:188). Huge numbers of pipes were made by the firms in the Akron area. In 1895, the Akron Smoking Pipe Company was producing 30,000 pipes per day. The plant apparently closed in 1896. This plant was built at the site of the Fenton & Co. plant which began producing pipes in 1883. Curtis Fenton was to become the vice president of the Akron Smoking Pipe Company (Sudbury 1979:188-189). Since the pipes from site 33SU86 were recovered from a looter's pit, one can not be certain if the pipes

illustrated by Sudbury (1979:276, Plate 23) were made by Fenton or by the Akron Smoking Pipe Company. Even given this uncertainty, if the pipe from the Miles house has been correctly identified, it dates within a maximum temporal span of 1883-1896.

The remainder of the smoking-related items from the Miles House are tobacco tins. Fourteen tobacco tins were recovered from Feature 12. These tins were in a very poor state of preservation, and many disintegrated after they were recovered. Only two examples retain their original form. The others were discarded. One of the cans has portions of the logo and lettering from "Velvet" brand tobacco remaining on the front of the tin (Richner 1986:51, Figure 20a). A second tin may also be from Velvet brand tobacco. Tobacco tins are a twentieth-century development. There is evidence to suggest that small pocket tobacco tins of the type from Feature 12 were developed in 1913 (Rock 1980a, 1980b). The tins became very popular by the end of the 1910s. The tobacco tins from Feature 12 were recovered from the upper part of the cinder fill zone, from 70-115 cm below surface. The tins are one of several temporally diagnostic artifact types which indicate that trash discard in Feature 12 continued at least into the second decade of the twentieth century.

Beads. Thirteen glass, copper, bone, and synthetic beads were recovered from Feature 8 in Units 15 and 17. These items were all recovered from about 30-40 cm below surface. The beads show a considerable variety in shape and style. Although beads were commonly used on a variety of Victorian-era clothing (dresses and purses) and home furnishings (pillows, lampshades, table coverings, and other items), the examples from Feature 8 are suggestive of aboriginal, rather than Euroamerican use. The most unusual example may not be a bead, but no other function for the item could be postulated. This item is made from a soft synthetic material which consists of small inclusions of various colors. The overall color of the item is a dark slate gray. Two holes are drilled across the piece. No comparable materials have been discovered.

A single, long, white, tube-shaped bead appears to be made from shell, although that identification is tentative. It is about 2.1 cm in length and 3 mm in diameter. The hole through the length of the bead is quite irregular in shape, and does not appear to have been drilled with a metal tool.

A single, copper, rolled bead is also present. The bead is 1.6 cm in length and only about 1 mm in diameter. It is slightly flattened in cross section. This shape may be a result of postdepositional actions, since the bead is very fragile. This bead, like the previous one, is irregular and may be of aboriginal construction.

The remaining beads are of more traditional form. They are all made from glass. Five very small white "seed" beads are present. These are embroidery beads which were very popular through much of the nineteenth century for embroidering designs on leather and cloth clothing and equipment. The beads are only about 1.5 mm in diameter, and are doughnut-shaped. They were probably made by the tube method, and were reheated and tumbled to create their final shape. Two small tube-shaped seed beads are also present. These are made from opaque black glass. They are about 2 mm in length. These beads were made by the tube method, and have

been tumbled to round off the edges. A larger patinated turquoise glass bead was also recovered. This is a wound bead about 8 mm in length and 8 mm in diameter. This bead is of a size that suggests it was a “necklace,” rather than an embroidery, bead. The final glass bead is also of wound construction, and is a translucent blue color. This doughnut-shaped bead is about 7 mm in diameter and 5 mm in length.

The discovery of the small number but wide variety of beads in Feature 8 is difficult to explain. Although they are associated with other personal and domestic trash, they do not appear to reflect nineteenth-century Euroamerican use. Since Laban Miles was actively involved with Native Americans through much of his career, it is possible that these beads are from items given to him by Indian friends or acquaintances. However, it appears that Miles and his family occupied the house which bears his name only from about 1875 through 1878, so there would be little opportunity for his family’s discards to accumulate on the property. Despite this limited time depth, there is no better explanation available for the source of the beads in Feature 8. It is possible that the items are from Native American costume or tools, but were incorporated into the site deposit during the period of rental of the house during Miles’ ownership (1878-1886) or during the lengthy Leech occupation and/or ownership (1882-1951).

E.S. Hayhurst House

Stratigraphy

Although the cultural fill deposits discovered at the Hayhurst House are not as deep as those at the Miles House, well-stratified deposits are present. In all areas nineteenth- and/or early twentieth-century fill covers the original (pre-1870) prairie loam soil surface. In some locations this fill exhibits extensive layering. In other areas the fill zone is relatively shallow and largely undifferentiated. The most complex stratigraphic profiles were recorded in the south yard, off the west wing. Multiple cultural fills were discovered there.

Figure 21 depicts the stratigraphic profile of the east wall of Units 11 and 9. This profile extends south 4.6 m from the foundation of the west wing (Figure 8). The northernmost 1.5 m of Unit 11 was formerly covered by modern cast-concrete steps and a walkway. These mid-twentieth-century structural components were removed by a combined HEHO and MWAC team prior to excavations in the south yard in 1989. Nine major strata and several minor soil lenses are present in the profile of Units 11 and 9. Several of these deposits occur throughout the south yard area, but only one is a horizon which extends across the entire site. These strata combine to form five distinct stratigraphic zones.

Four strata (Nos. 8, 10a, 10b, and 9) comprise the upper and most modern stratigraphic unit. The surface layer (Stratum 9) consists of grassy sod and a compact tan loam. This loam is a recent (post-1950) fill layer. It averages about 5 cm in thickness. Loam Stratum 9 covers a thick layer of gravel (Stratum 10). The gravel was subdivided into Strata 10a and 10b. The upper portion (Stratum 10a) consists of limestone gravel in a very compact tan silt matrix. This

stratum ranges from 6 to 14 cm in thickness. Stratum 10b consists of the same limestone gravel in a compact brown silt matrix. Strata 10a and 10b appear to represent two distinct, but functionally equivalent, fill episodes. Both served as surfaces for a driveway which formerly led to a garage in the mid-twentieth-century configuration of the west wing. The two strata were probably deposited during a relatively brief temporal span. The age of construction of the garage is not known with precision, but it was apparently developed after 1927 and before 1949 (Wagner 1982). The gravel fills must date within this span. After 1950, the garage area was again modified for use as domestic space, and a new drive and garage were added to the west facade of the west wing. The compact gravel zone was removed with picks and shovels and was discarded.

The gravel fills thin to the west and end in a brown clay loam (Stratum 8). This layer is about 15 cm thick. It contains pockets of gray and yellow clay. Stratum 8 appears to be construction fill. The post-1950 concrete steps and walkway rested directly upon Stratum 8. Strata 8-10 reflect mid-twentieth-century construction activities related to use and modification of the west wing of the house. No archeological materials were retained from these strata.

The second stratigraphic zone consists of Strata 2, 4, and 7. These strata make up the primary artifact-bearing deposit in the south yard, and appear to span the late nineteenth and very early twentieth centuries. The Stratum 10b gravel and Stratum 8 loam overlay a dark brown loam (Stratum 4). The demarcation between these layers is very sharp and distinct. Stratum 4 contained numerous artifacts. This stratum extended across the entire area of Units 9 and 11 and the adjacent units, but did not extend under the foundations of the west wing or the south ell. Stratum 4 ranged from 5 to 10 cm in thickness. Over most of the south yard area, Stratum 4 was superimposed on a thick layer of cinders (Stratum 7). The cinder stratum begins about 86 cm south of the west wing foundation and continues to the southernmost excavated portion of Unit 9. Large numbers of artifacts were scattered throughout the cinder layer. The cinder layer has a maximum thickness of 20 cm, but averages about 10 cm thick. Unlike Stratum 4, Stratum 7 extended under the foundations of the south wall of the west wing and the west wall of the south ell. The cinder stratum overlies a dark gray loam (Stratum 2), extensively mottled with lighter and darker colors of loam, which extends over most of the south yard area. Like the cinder stratum, Stratum 2 contains numerous artifacts. This layer ranges from 6 to 14 cm in thickness. Toward the house, Strata 4 and 2 are not separated by the cinder layer and “merge” to form a thick loam cultural zone (Figure 21).

Strata 2, 4, and 7 taken together are the primary artifact-bearing deposit in the south yard. Nearly all south yard artifacts were recovered from these strata. The presence of the thick artifact-bearing fills, including the extensive cinder deposit, in the south yard can be readily explained by the configuration of openings in the Hayhurst House and nineteenth-century trash disposal patterns. Through all but the earliest years of occupation prior to construction of the west wing, the “back door” of the house had been positioned along the south wall of the west wing. Although the location of this opening has changed slightly three times, it has been within a few meters of its current location (Wagner 1982). Throughout the nineteenth century a common pattern of trash discard was to toss household refuse out the back door. Such a pattern

was apparently practiced at the Hayhurst House for many years, leading to accumulated artifacts (trash) in the south yard. The cinders reflect discard of burned coal, possibly from a coal-burning furnace or from use of coal in wood stoves.

The third cultural fill zone represents activities related to Hayhurst House construction, rather than domestic trash discard. This zone consists of Strata 3 and 5. Under Stratum 2 is a compact yellow-brown loam which is essentially devoid of artifacts. This layer (Stratum 3) represents redeposited prairie soil B-horizon loam. The B-horizon prairie soil zone would have been encountered during digging of the well, cistern, foundation piers or footings, and small basement of the Hayhurst house. The backfill from some or all of those construction events was spread across the south yard. The maximum thickness of the redeposited B-horizon is 14 cm, although the deposit averages about 8 cm thick. This stratum extends under the foundations of the current south wall of the west wing and the west wall of the south ell. In Unit 11, the yellow-brown loam overlies a zone of sandstone rubble and mortar. This stratum (5) represents construction debris from stone foundation elements. The original foundation of the west wing has been replaced with poured concrete, so the material used for the foundation is undetermined. However, the south ell has a sandstone block foundation. The rubble and mortar of Stratum 5 might derive from the original house component, the west wing, or the south ell. Its position deep within the soil profile suggests an early age for the deposit, and for the foundation from which it is derived. Stratum 5 has a maximum thickness of 12 cm, but tapers rapidly to only 1 cm at the south edge of Unit 11. Excavations were terminated in Unit 9 before this deposit was reached.

The lowest level exposed in the profile of Units 11 and 9 is the original prairie soil A horizon (Stratum 1a). It is immediately below the limestone and mortar deposit. This dark loam is the weathered former prairie "topsoil." This soil formed the ground surface when the Hayhurst House was constructed. Few artifacts were recovered from this old surface, suggesting that fills were deposited over it soon after the house was built and before trash could accumulate on the ground surface.

The same pattern of cultural strata described for Units 11 and 9 holds throughout the south yard, except that certain layers like gravel and stone concentrations are localized. The other strata are consistently present, even under the west wing and ell foundations.

Figure 22 depicts the profile along the south wall of the west wing. Soil Strata 1, 2, 3, and 7 extend under the poured concrete and concrete block foundation. This foundation is clearly not an original structural element, but instead reflects the enclosure of the former south porch of the original west wing, the subsequent modifications of the wing for garage and domestic space, and the later (1950) expansion of the wing further to the west. Since several construction episodes are represented, it is not surprising that the foundation consists of four distinct components. The earliest remaining section occurs adjacent to the juncture with the ell foundation. The partially parged concrete blocks there do not occur in any other section of the wall. Only three courses of blocks are present in a two-block-wide segment, and there is no spread footer or other support for them. The blocks are laid on (in) the redeposited Stratum 3

prairie soil backfill layer. As one moves west along the profile, the pattern of construction changes considerably.

From 67 to 176 cm west of the juncture with the ell the foundation becomes even more shallow (only 46 cm) and is obscured with concrete parging. The surface of the parged layer has been brushed to create a textured effect. The nature of the wall construction material could not be determined, since it was completely covered by this parging. The foundation changes abruptly 176 cm west of the juncture of the west wing and south ell. There a poured-concrete foundation is present. This shift precisely matches the interior configuration of the west wing. It is west of this point where the poured-concrete floor for the pre-1950 garage occurs. Clear marks remain in the concrete showing the nature of the wooden forms used at the edge of the foundation when the concrete was poured (Figure 22). The narrowness (15 cm) of this foundation element reflects the footing for the garage floor. This footing was traced through the west wing after demolition of the concrete and wooden floors in that area. To the west is a similar, but more shallow concrete foundation. This foundation was developed in a second pouring episode which was probably essentially contemporaneous with the footing. There is a seam between these poured elements attesting to two separate pouring events. The concrete foundation component extends 265 cm west from the deeper footing. The extent of this foundation element matches the extent of the former concrete floor of the old garage. The foundation is relatively shallow (46 cm) and covers soil Strata 1, 2, 3, and a small truncated portion of Stratum 7.

Moving further to the west, there is a third concrete foundation component which is one meter wide. This ends at an informal cinder block retaining wall which separates the raised south yard from the lower modern driveway. The association of this narrow foundation element with concrete foundation elements to the east and west is uncertain. A clear seam separates it from the “old garage floor” concrete foundation. On the west it slopes up rapidly to a depth of only 34 cm. It passes over a large dressed stone foundation block which appears to be “floating” in soil Stratum 2 (Figure 22). Perhaps this stone is a reused remnant from the earlier west wing foundation. From this point to the west edge of the house, the newest foundation element is encountered. This steel-reinforced concrete foundation was poured about 1950 when the new garage component was added to the west wing.

The profile of the west wall of the south ell is not as complex as the south wall of the west addition. The foundations are similar in that they both rest on historic artifact-bearing cultural fills, and that they have poor footings or other underpinnings or none at all. The south ell foundation consists of a stepped pattern of dressed stone blocks which are deeper toward the southwest corner and more shallow toward the northwest corner (Figure 23). They rest directly upon a thick layer of cinders (Stratum 7). The portion of the foundation exposed above the current ground surface is parged with Portland cement. The parging has been scored to simulate a pattern of blocks. The foundation is rather poorly constructed. The lower course consists primarily of fragmentary blocks. There is no footing; the blocks rest on loose cinder fill. Under the cinders is Stratum 3, the prairie subsoil backfill. This rests on the original ground surface.

A simple stratigraphic profile was exposed over most of the remainder of the site. In Unit 10 along the south wall of the south ell, relatively deep (60 cm) but undifferentiated fill was discovered. This dark fill appears to be a blending of Strata 2, 4, and 7, along with a modern turf zone. Cinders are present in this deposit, but do not occur in a discrete layer, as they do farther to the west. The fill rests upon Stratum 1.

In the numerous units opened along the front facade of the house (east yard), cultural fill consists primarily of undifferentiated dark brown loam. This deposit is comparable to Strata 2 and 4, but is somewhat darker in color. In Unit 19 this stratum is 34 cm thick. Under this stratum was Stratum 3, the redeposited prairie soil. This was thickest in the area under the 1950 concrete patio, and thinned dramatically to the north and east. This stratum was underlain by the original prairie soil surface (Stratum 1). This pattern extended across all the east yard excavation units. It was disrupted only by the placement of concrete footings for the brick walls of the 1950 patio. The "foundation" of the east facade of the original component of the house is even less substantial than that of the ell. The house is supported on wooden piers, and the foundation consists of brick nogging which infills the space between the ground and the sill. Over most of its extent, the brick is parged with Portland cement. Where it was exposed at the corner of the ell after removal of the patio and the sand and rock fill which supported the patio, the crumbling condition of the old foundation became apparent. The foundation was not exposed in any other areas, due to its apparent unstable condition.

In the north yard along the wall of the west wing, the stratigraphic profile was quite simple. The modern sod zone covered a dark midden (combined Strata 2 and 4) which was a maximum of 25 cm thick. Under that was the undisturbed surface of Stratum 1. The midden zone contained a dense accumulation of artifacts. These must have accrued from discard from the original west door of the initial house component and from the early second configuration of the house after the west wing was added.

Features

Eight features were recorded at the Hayhurst House in 1989. These consist primarily of architectural elements, including a cistern, a well, and a series of stone and concrete porch supports. Two pits, interpreted as privies, were also discovered. Although the number of features recorded at the Hayhurst House was fewer than at the Miles House, the features add considerable information regarding the history of structural renovations and additions at the house. Artifact scatters were not recorded as features, but dense accumulations of artifacts were encountered in several areas, especially along the north and south sides of the original west wing.

Porch Supports. The most common archeological features recorded at the Hayhurst House are porch supports. At least four wooden porches once existed, but none of these porches survived after about 1950. Some were probably removed in the nineteenth century. Most of the supports are stone, occasionally with mortar added, although one is made of concrete. Porch supports were recorded on the east, south, and north sides of the house and under the west wing

(Figure 8). Thirteen separate supports were recorded. Since they occur in groups, they were awarded three separate feature designations (Features 1, 3, and 4).

Feature 1 was initially recorded in Unit 3 along the north wall of the west wing of the house. This support consists of a single rock, roughly triangular in plan, with a maximum length of 46 cm. The south edge of the rock is only 20 cm from the poured-concrete foundation of the most modern (1950) renovation of the west wing. The rock is about 10 cm thick. Its flat upper surface has remnants of mortar adhering to it. The surface of the rock is about 20 cm below current ground surface. A second rock with mortar remaining on its surface was discovered in Unit 24 (Figure 24). The south edge of this rock is about 36 cm from the west wing foundation. The center of both rocks, where the mortar occurs, is about 50 cm north of the house foundation. Given this alignment, the rocks in Units 3 and 24 may have formerly supported the same structure.

An additional portion of Feature 1 was recorded in December 1989, when the modern concrete slab floor was removed from the easternmost portion of the modified west wing of the house (Figure 24). This component of the house is believed to have been an addition (about 1892), based upon similarities of the Hayhurst House to the nearby Staples house (Wagner 1982). At that house, it was determined that the west room was a later addition to the house. Both houses were built by the same carpenter. However, Wagner had little primary data other than an overview map of the West Branch area from which to infer that the west room, known as the “west wing” or “lean-to,” was in fact an addition to the original configuration of the Hayhurst House. This area of the house was modified repeatedly into the mid-twentieth century, complicating matters appreciably. The concrete floor in this area had served as the floor for a garage until the west wing was last modified about 1950. Then the room was reconverted to domestic use and a new garage addition was added further to the west.

A large rock was discovered when excavations were initiated under the area formerly covered by the slab floor (Figure 24). Located in Unit 27, it is aligned parallel with the rock in Unit 3 relative to the original west wall of the 1870 component of the house. It is a large, 20-cm-thick, flat rock which rests on the original prairie soil surface. Like the rock in Unit 3, the rock in Unit 27 probably functioned as a support for a post or pier for a porch. It matches the size and shape of other rocks which occur at the corners of historically documented porches at the Hayhurst House.

Regardless of the interpretation of the function of the Feature 1 rock in Unit 27, the presence of late nineteenth-century domestic artifacts in Units 27-30 clearly indicates that the west wing was an addition which was constructed over trash which had accumulated around the back door of the original house component. This helps confirm Wagner’s interpretation of structural staging of the west wing at the Hayhurst House. The artifacts from this area will be described in more detail in a later section of the report.

Feature 3 consists of five groups of rocks which appear to have served as supports of a porch formerly attached to the east facade of the south ell (Figure 25). The precise date of

construction of the ell is unclear. Wagner uses Sanborn Fire Insurance Company maps to date the ell to pre-1895, prior to Butler's occupancy. Bearss has used newspaper accounts to date the construction of the ell to the winter of 1906-1907 (Bearss 1970:179) during Butler's occupation. Regardless of the precise age of the ell, photographs and maps depict a front porch on the east facade of the ell from about 1900 until 1950. At that date, the new occupant, Davis, removed the porch and replaced it with a large concrete, brick, and flagstone patio. The Sanborn maps indicate that the porch was about 16 feet long (N-S) and slightly over five feet wide (E-W). During fieldwork in 1989, the massive concrete, brick, and stone patio was removed through hand labor and jackhammer. The patio surface was positioned several feet above ground, and it was found to rest upon salvaged foundation stone, sand, and gravel. All of this fill was removed. A dark fill zone was exposed under the modern sand fill zone. The concrete footings for the patio were left in place (Figure 25). Excavation was initiated over most of the area formerly covered by the patio.

Three stone porch supports are centered on a north-south line about 1.52 m (4.99 ft) east of the ell foundation. Two are parallel with the north and south jambs of the front door, while the third is out from the south corner of the ell. There can be little doubt that these stones served as the main porch supports for the former wooden ell porch. Two additional stones are centered on a north-south line about 0.8 m (2.6 ft) east of the others. They are parallel with the front door like two of the others. These stones likely supported the original wooden stairs to the porch. The five porch supports constituting Feature 3 can be confidently identified as supports for the former wooden ell porch and stairs. The approximate extent of this porch is depicted on Sanborn Fire Insurance Company maps, and the placement of supports matches that shape rather precisely.

Another porch is represented by Feature 4. This feature consists of two stone porch supports aligned off the north and south corners of the east facade of the original component of the Hayhurst House (Figure 26). The supports are centered about 1.85 m (6.07 ft) east of the front facade of the house. Like the other porch on the east facade, this one was also depicted on Sanborn maps available after 1895. The door opening formerly present in the original house component's east facade has been sealed and covered with siding. However, during much of Butler's occupation, two front doors were in use at the house along with two wooden porches. For part of that period, one of the doors led to a "while-you-wait" shoe repair business operated by Butler. Bearss (1970:112) has described the wooden porch on the east facade as a "shed porch with a decorative gable. This porch extended the length of the front facade." There is evidence that the front porches were not built until after Butler added the south ell. Prior to that date (which is in dispute), the original front facade had only a small stoop. The front porch on the ell was apparently removed soon after 1950, when Tom Davis purchased the house. The large patio was added to the east facade of the ell at that time. The porch on the original facade had apparently been removed prior to 1949 (Bearss 1970:117).

Evidence of yet another porch was discovered in Unit 20 at the southwest corner of the south ell. There, a concrete porch support (Feature 5) was recorded. The feature consists of an oval dish-shaped area of concrete about 27 cm x 37 cm in extent. The concrete appears to have been poured into a prepared hole. No other supports of this type were recorded along the ell or

the west wing of the house. Historic information suggests there was a “wrap-around” porch in this area in the twentieth century, but documentation for the shape and extent of the porch is poor.

Cistern. Excavation under the existing blacktop driveway adjacent to the most recent portion of the west addition exposed a brick cistern (Feature 2). When the thin layer of blacktop was removed, an “apron” of four concrete slabs was exposed. The remainder (south portion) of the driveway is gravel. Close to the thick (20 cm) reinforced-concrete slab of the garage floor three large slabs were found to be broken in a roughly circular pattern (Figure 27a). The broken pieces had settled appreciably. When the slabs were removed, a rubble-filled depression was exposed. Excavation of the 2-m-x-2-m Unit 6 over this area revealed the presence of a brick cistern. The cistern extended well under the garage floor. To expose it for excavation, a portion of the garage floor was removed with considerable difficulty. Its modern poured concrete had reinforcing rod and wire embedded in it. Finally, an area was cut back, exposing about half of the cistern opening to view (Figure 27b).

A portion of the top of the cistern had been removed during previous construction episodes in this area. However, part of the dome-shaped top of the cistern remained intact. From 15 to 40 cm of the incurving dome remained intact under the concrete garage floor. The displaced bricks and concrete cap from the damaged portion of the cistern were recovered from the upper fill in the feature. This fill consisted of brick and mortar from the damaged portion of the cistern and very dense tan clay. At about 70 cm below surface inside the cistern, water was encountered under a tight clay zone, and hand excavations were terminated. The wall of the cistern was a single course of soft orange brick 9 cm in thickness. The interior was parged with a thin layer (2 cm) of mortar. Samples of the brick and mortar parging were collected.

As excavations continued in other areas of the site, NPS management determined that the cistern would have to be removed in order to complete the restoration of the structure. At that time it was anticipated that a new foundation would be installed directly through the area occupied by the cistern. After the removal proposal was agreed to by the Iowa State Historic Preservation Office, the cistern wall was breached with a narrow backhoe trench (Figure 27b). When the wall was partially removed, the water which filled the cistern flowed into the deep (2 m) backhoe trench. A very large amount of twentieth-century trash spilled out of the cistern when this water discharged. With considerable difficulty, a sample of bottles, cans, toys, and other materials was collected from the cistern and the backhoe trench. All the materials appeared to date to about 1950. A 1950 Iowa car license plate was recovered from the floor of the cistern. It is clear from this fill that the cistern was partially filled with debris during the Davis occupation, immediately prior to his construction of the garage addition. A small sample of the trash was temporarily retained to confirm the dating of the material, then all of these items were discarded.

When backhoe Trench 1 breached the cistern, its shape could be determined with more precision. The cistern had vertical walls, and is most similar in shape to Feature 6 at the Laban Miles House. The cylindrical wall extended about 1 m from the floor to the beginning of the

incurving dome. The dome extended a maximum of 40 cm above that point, but was incomplete. The interior diameter of the cistern was 1.87 m. The removal of the feature afforded an opportunity to examine a profile through cistern's floor. A layer of hard mortar parging about 9 cm thick covered a floor of stone rubble. Under the rubble was a thin layer (4 cm) of soft mortar. Finally, a single layer of brick formed the base of the feature. This brick was bonded to the brick walls of the feature. The purpose of the "double" floor is not readily apparent.

Given the location of Feature 2, it would not have been covered by Hayhurst House structural components until the garage was added to the west wing after about 1950. It appears likely that the feature remained intact, with its cap in place, until the floor of the garage was poured. No trash was discarded in the cistern until the Davis occupation.

Well. A brick well (Feature 8) was discovered when workmen undertook demolition of the wooden and concrete floors of the west addition (Figure 24). The well is positioned under the west footing for the concrete slab floor which was formerly present when the west wing was used as a garage (1920s-1950). A loose modern fill was present in the well. This fill had been removed to a depth of over 10 feet below surface when safety concerns led to the termination of excavations. Air-filled voids were encountered amidst the fill, suggesting that previous higher water levels in the well had floated portions of the fill to their current positions. Samples of the cultural fill were retained for analysis, although it was apparent that all of the material dated to the mid-twentieth century. Upon further analysis it appears that these materials are contemporary with the fill in the cistern (Feature 2) and date to about 1950. It appears that when Davis extensively modified the west wing, he exposed the west half of the well, and like the cistern, used it for extensive trash discard. Since the bottom of the well was not reached during excavation, there remains the possibility of earlier cultural fills below the excavated portion of the well.

Given the presence of the well under the west wing, it appears that the well was in use only during the early years of site occupation. Since the extent and age of the original west wing are not known with precision, it is difficult to determine if the well was abandoned when the west wing was initially constructed (about 1892), or whether it remained viable until one of the series of modifications to the wing was undertaken in the following years. The well would have been immediately adjacent to the south wall of the west wing, assuming that Wagner's 1982 drawing depicting the room size as 14.75 ft x 14.75 ft is accurate. A porch attached to the south side of this wing (as depicted on the 1895, 1900, 1906, 1912, and 1927 Sanborn Fire Insurance Company Maps) would have covered the well. However, it is possible that the well pump could have been mounted on the porch and the well could have been used through all or some portion of this period. The well must have been abandoned when the concrete footing for the first poured garage floor was installed. This was apparently accomplished between 1927 and 1949. When Davis expanded the west wing and added the new garage after 1950, the well was partially re-exposed and used as a trash receptacle.

Privies. Features 6 and 7 were discovered during excavation of backhoe Trench 2. This trench, along with Trench 4, was cut across the west yard to expose any features which might

occur there. It was anticipated that most of the west yard would be disrupted by construction of a new driveway. Due to an alteration of project plans, the driveway was not constructed. As the backhoe moved west, soft fill was encountered at about 25 cm below surface in two adjacent areas. After the backhoe trench was completed, these features (6 and 7) were the focus for controlled excavation. Although in plan view the features appeared somewhat irregular, in profile in the north wall of the backhoe trench they were found to have a very regular shape (Figure 28). The apparent irregular plan was partially a function of the excavation method used in this area. The northern halves of the features (north of the backhoe trench) were exposed in plan in Unit 26, while on the south the surface vegetation and soil matrix were not removed around the features. Initially, provenience was maintained in south and north subdivisions, since each feature was rather neatly bisected by the backhoe trench. However, for this report, the contents are lumped into broader feature designations, since the north and south divisions were purely arbitrary.

Feature 6 is a straight-walled pit which extends to a maximum depth of 60 cm below surface. The feature is roughly rectangular in plan, although the southwest side is of irregular shape. The maximum length of the pit is 132 cm (north-south) and the width is 88 cm. The pit has a flat bottom. The pit was cut into the yellow-brown loam prairie soil B horizon (Stratum 1b), and was filled with very loose brown loam. Within the fill were several large concentrations of unburned seeds. Large soil flotation samples were collected from Features 6 and 7 in the areas where the seeds occurred. Very large quantities of seeds were recovered from these flotation samples. Small amounts of ash were also recorded. Feature 7 is separated from Feature 6 by about 18 cm, and is very similar in form and content to Feature 6. Feature 7 has a maximum length of 144 cm and width of 84 cm. It is about 70 cm deep. The loose brown loam fill of the feature contained large numbers of unburned seeds which occurred in several distinct clusters. In addition, portions of a whiteware vessel, oil lamp chimney fragments, flat glass, nails, and other cultural items were recovered from the feature. The whiteware is a fragmentary chamber pot. Given the shape, location relative to the Hayhurst House, and content of the pits, they appear to be privies. The artifacts and seeds recovered from the features will be described in more detail in a later section of the report.

Cultural Material

The Hayhurst House excavations yielded a relatively large collection of late nineteenth- and early twentieth-century artifacts. The collection is extensive, due to two factors. First, a larger area was excavated at the Hayhurst House than at the Laban Miles House. Second, excavations were focused on areas where large numbers of artifacts usually occur (around back door areas). The materials include several temporally diagnostic ceramic and glass items. Considerable numbers of the cultural items can be associated with the Butler occupation.

Architectural Items

Similar to the situation at the Miles House, excavations at the Hayhurst House yielded large numbers of architectural items. This is due to the numerous expansions and modifications

made throughout the history of the Hayhurst House, and the position of many of the excavation units immediately adjacent to the structure.

Window Glass. Like most artifact types, window glass was much more numerous at the Hayhurst House than at the Laban Miles House. Window glass sherds from Hayhurst number 977 with an average thickness of 2.16 mm. Unfortunately, there is no strong shift in thickness means through the excavated deposits, and mean glass thickness from Level 1 is essentially equivalent to the mean from Levels 3 and 4 (Table 21). There is a minor trend of decreasing thickness given greater depth in the site, but this trend is not sufficient to aid in developing precise chronological control for the excavated proveniences.

Nails. Nails are extremely numerous ($n=2,822$) in the Hayhurst House assemblage. A total of 1,951 cut and 871 wire nails, complete and fragmentary, were recovered. About 36 nails were recovered per square meter of excavation. This is over twice the density encountered at the Miles House. Although both houses were extensively modified from their initial humble configurations, it is apparent that the more extensive and numerous changes at Hayhurst led to incorporation of greater numbers of nails in the site deposit. The percentage of fragmentary versus complete cut nails (74 and 26 percent, respectively) matches precisely the situation at the Miles House. Only about 50 percent of the wire nails are fragmentary, again matching the data from the Miles House.

The differential distribution of cut and wire nails through the deposit at the Hayhurst House reflects time depth and the stratified nature of the site (Table 22). Complete and fragmentary cut nails extend through all of the excavated levels at the site. This reflects continued structural renovation of the circa pre-1895 configuration of the house through the mid-twentieth century. Construction and renovation after about 1895 was probably undertaken with wire nails, which have a much more limited vertical distribution than cut nails (Table 22). As expected, wire nails are very common in Level 1, but drop rapidly in frequency below Level 2. This reflects the increasing age of the deposit with greater depth below surface. Based upon nails, one can assume that Level 4 contains only nineteenth-century deposits.

The relatively poor and fragmentary condition of the cut nails suggested that it would not be useful to develop data on nail size and function. In addition, the nails were derived from secondary trash deposits, rather than from primary functional contexts, so there would be little to be gained by detailed analysis of the nails.

The horizontal distribution of nails primarily reflects the accumulation of trash across the grounds immediately adjacent to the house. Like other artifact types, nails are very numerous in the south yard. Unit 16, located adjacent to the former location of an attached outbuilding and along the often-modified west wing contained a very large number of nails. The lack of wire nails in privy Features 6 and 7 appears to accurately reflect the nineteenth-century age of those features.

Other Architectural Items. While nails and window glass are the dominant architectural materials recovered from the Hayhurst House, other artifacts related to the structure are also present (Table 23). Doorknobs are rather common, with seven different ones (including complete and fragmentary examples) recovered from various excavated proveniences (Table 40). These are the typical “mineral” and white porcelain knobs commonly in use in the late nineteenth and early twentieth centuries.

Fragments of flat slate (n=71) were recovered from a variety of contexts. While some of these are probably from slate writing boards, others appear to be too large or heavy for that function. Since the house did not have a slate roof, the use of the remaining slate fragments is problematical. Brick fragments are also numerous, with 57 fragments collected from 33 proveniences. Along with the numerous mortar, concrete, and stone fragments, these items reflect either elements from construction or repair of the house foundation or various features such as the well and cistern. Other materials such as caulking were noted during excavation but were not collected. Fragments from asphalt shingles were recorded in Units 1, 6, 8, and 25. Fragmentary pieces of wood (n=15) were collected from several proveniences. Of possible interest are fragments of wood from site Features 3, 4, 7, and 8. These wood samples have been retained, but were not analyzed in the current report. Four fragments of the Hayhurst House electrical system were found in the form of industrial porcelain insulators.

A modern “Sentry” brand padlock was recovered from Unit 7, Level 1. Small hinges were found in Unit 9, Level 2 and Unit 15, Level 4. Finally, two roller shade brackets were recovered from the same provenience as the padlock.

Furnishings. Several fragments of items used in the house for lighting and other purposes were recovered from excavations around the Hayhurst House. Oil lamps are represented by several fragments of wick holder and advancement mechanisms. A nearly complete brass portion of a glass-bodied oil lamp was recovered from Unit 16, Level 1. This consists of the air distributor plate, wick tube, thumb wheel, spurred wick wheels, and the screw mount from a single lamp. No manufacturer’s or patent information is present on these items. Similar components, including an air distribution plate, wick tube, pronged chimney holder, and screw mount from a single lamp, were recovered from Unit 21, Level 1. Like those from Unit 16, no manufacturer’s data is present on these lamp components.

Oil lamps are also represented by a very large number (n=332) of thin, colorless glass chimney sherds. Over 150 of these sherds were mended to form 16 larger sherds. Included among this group are three reconstructed chimneys from the fill of Features 6 and 7.

A ferrous coat hook was recovered from Unit 29, Level 3. Although the age of this item can not be determined with certainty, its provenience strongly suggests it was deposited in the back yard midden prior to construction of the west addition (pre-1892).

A small half-sphere metal artifact may be a bell from an old telephone. It was recovered from Unit 5, Level 2. A small gear which may derive from a clock was found in Unit 14, Level 1. A plate upon which the works of a clock are mounted was recovered from Unit 2, Level 1.

Domestic Artifacts

Artifacts representing various household activities are well represented in the assemblage. The excavation of a relatively large block around the “back” door of the house led to the recovery of numerous broken and discarded ceramic sherds, bottle glass fragments, and other objects used by the families which occupied the Hayhurst House during the nineteenth and very early twentieth centuries.

Glass Containers. Glass containers are represented by 1,111 sherds in 11 colors (Table 24). There is considerable variability in this sample. Colorless glass sherds are the most numerous (57 percent), followed by aqua (29 percent). Other colors are represented by relatively few sherds. Of these, only the purple-tint sherds have temporal specificity (about 1880-1915). The other colors may have been used throughout any portion of the occupation represented by archeological materials.

The 1,111 sherds are distributed rather evenly across the site, although as might be expected, counts are very low in units located in the front yard of the house (Units 12, 14, 17, 19, 21, and 23). Relatively little trash discard occurred along the east facade of the house, near the original front doors and porches. Conversely, the numerous units associated with the multiple, previous back door locations all contain considerable numbers of glass sherds (Table 24). A similar pattern is reflected for all of the artifact classes recovered from the site in 1989.

It proved possible to accomplish considerable mending of the glass sherds. Mends were made within 21 different horizontal collection units totaling 287 sherds (Table 25). This helped considerably in identifying individual vessels within the glass container class of materials. Forty-six vessels were partially or completely reconstructed. These vessels account for 143 of the mended sherds (Table 26). Twenty-one of these vessels derive from multiple proveniences. In addition to the partially or completely reconstructed vessels, the original form and occasionally the function could be determined for a total of 104 vessels. These 104 vessels represent the minimum number of vessels in the collection. It is likely that many other vessels are actually represented by one or more sherds, but only 104 could be confidently identified. Vessel forms include jars, a wide variety of bottles, plates, dishes, a drinking glass, and wine glasses (Table 27). Glass vessel makers and identified portions are listed in Tables 29 and 30.

Embossed lettering occurs on the bodies and/or bases of several of the identified vessels from the site (Table 28). Most of this information is too fragmentary to allow accurate identification of manufacturer or product content, but a few vessels contained sufficient data to allow specific identifications to be made. These include several canning jars and bottles. Complete and fragmentary medicine bottles are among the more interesting items, since they provide some information on the health and curative practices of the former occupants.

One medicine bottle fragment (Vessel 29) contains the embossed lettering “Healy & Bigelow.” This fragmentary vessel was recovered from Unit 15, Level 4. This provenience places the bottle rather early in the site stratigraphic sequence. Since the bottle is fragmentary, it can not be positively associated with a particular Healy & Bigelow product. However, it appears likely that this bottle contained “Kickapoo Indian Oil” (Fike 1987:193). In 1882 John E. Healy and Charles Bigelow began their patent medicine business (Kickapoo Indian Medicine Company, Boston, Mass.) with “Indian Oil” and “Sagwa Indian Stomach and Liver Renovator” (Wilson and Wilson 1971:123). Sales started slowly, and in 1884 they added “Kickapoo” to the name. They hired Indians to go on the road to help promote the product. Sales picked up and continued at a brisk pace until the turn of the century. The claims made for the Kickapoo Indian Oil seem totally outlandish from today’s perspective, but are typical of advertising for nineteenth-century patent medicines. Kickapoo Indian Oil was advertised as (Wilson and Wilson 1971:51):

A safe, sure and speedy relief from all nervous and inflammatory diseases.

Quick cure for all kinds of pain, good for man and beast.

It has no equal. Its action upon the nerves is really astonishing. It stops pain as if by magic.

For toothache, headache, earache, sore throat, chilblains, burns, freezes, cuts, sprains, bruises, neuralgia and rheumatic pains, colic, cholera morbus, diarrhoea, dysentery, cramps in the stomach and limbs, and all sudden and acute pains, external and internal.

The contents of Kickapoo Indian Oil mirrored those of many similar products — camphor, tincture of capsicum, oils of turpentine, peppermint, wintergreen, water, and alcohol. By the late nineteenth century, it sold for \$0.25 per bottle or \$1 for five bottles. It may have been the alcohol content which caused it to be such a consistent seller. By the early years of the twentieth century, patent medicines were being exposed for what they actually were, and fines were levied for false or misleading advertising and other reasons. Healy and Bigelow was among the many firms to come under scrutiny and be fined for mislabeling and making false claims for their products (Cramp 1912).

Another medicine bottle from the Hayhurst House (Unit 9) formerly contained Burdock Blood Bitters (Fike 1987:189). This brand was distributed by several wholesalers, including Foster, Milburn, and Perry Davis and Son (Wilson and Wilson 1971:108). The claims for Burdock Blood Bitters were rather grandiose: “Cures ulcers, pimples, scrofula, jaundice, rheumatism, dyspepsia, liver complaints, weakness, debility, dropsy and all kidney diseases” (Ring 1980). Among the companies which distributed Burdock’s Blood Bitters was the Canadian firm of T. Milburn Co. LTD, Toronto, Ontario. They targeted Burdock’s Blood Bitters specifically to women as a cure for “all the distressing miseries from which two-thirds of all the women of America are suffering” (Ring 1980:109). The example from the Hayhurst House was apparently made by the Reed Glass Company of Rochester, New York, and dates to about 1881. Unfortunately the bottle was recovered from a disturbed context.

The third medicine bottle from HS 10 identified according to proprietor and contents is a complete, small aqua bottle which formerly contained Perry Davis Vegetable Pain Killer. The firm of Perry Davis and Son was started in Massachusetts in 1839 on the basis of the Vegetable Pain Killer and soon after was well established in Providence, Rhode Island (Baldwin 1973; Wilson and Wilson 1971:112). In 1840, Davis was awarded the exclusive use of the words “pain killer” by the courts for all of his line of medicines. The “Pain Killer” was a popular nostrum which was sold for more than 60 years. Like many other products, the Pain Killer was claimed to be a remedy for numerous ailments including rheumatism, neuralgia, cramps, cholera, diarrhoea, dysentery, sprains and bruises, burns and scalds, toothache, and headache (Wilson and Wilson 1971:31). The original contents are thought to have been gums of myrrh, opium, benzoin, guaiac, camphor, capsicum, and alcohol. Benzoin was eliminated by 1870, but it was not until 1880 that the opium was removed. The product continued in use under the same name until 1906. After that date it was marketed as a liniment for a few years (Fike 1987:130). The example from the Hayhurst House is from Unit 24, Level 2.

In addition to the three medicine bottles described above, several other complete glass containers and vessel fragments from the Hayhurst House contain some embossed lettering. This information is often very fragmentary, making identification of contents difficult (Table 28). Three vessels contain information relating to Mason’s 1858 patent for fruit jars (Table 28). All three vessels are fragmentary canning jars and date between 1858 and 1912. An additional fragmentary jar may have been from the Atlas Glass Company, dating from 1896-1964 (Toulouse 1971:55). A fifth fragmentary canning jar may be from the Ball Brothers Co. (Toulouse 1971:67). This jar must postdate 1888. A sixth jar fragment is certainly from the Hero Fruit Jar Company, and can be dated within the very tight chronological range of 1882-1884 (Toulouse 1969:38, 69). This vessel was recovered from Unit 15, Level 3. A fragmentary bottle is marked “J F Wilson & Co/ _enterpoint/ __wa.” No information on this firm was located.

A medicine bottle with the base mark “F A & C” appears to have been made by Fahnstock, Albree & Co. If that identification is correct, the bottle would date to the period 1860-1862 (Toulouse 1971:195). That date is somewhat earlier than one might expect, since construction of the Hayhurst house was not begun until about 1870, and it seems unlikely that a medicine bottle would be curated for several years prior to disposal. The bottle was recovered from Unit 29, Level 2. It is reasonable that the bottle would date from the earliest part of the site sequence, since it was found in the soil under the west addition floor. In that context, it would have been discarded prior to the construction of the west addition, as the result of back-door trash disposal from the earliest configuration of the house.

A bottle fragment bears information indicating that it was made by the Pennsylvania Bottle Co. This bottle was likely manufactured between 1929 and 1953 (Toulouse 1971:333). This recent age is in keeping with the provenience of the fragment in Level 1 of Unit 18.

A complete green glass beer bottle from Unit 6, Level 2 was made by the Streeter Bottle and Glass Co. This firm used the mark on the bottle base from 1881-1905. The crown cap

configuration of the bottle finish allows further refinement of vessel age to 1892-1905. This bottle was recovered in an upright position near the edge of Feature 2, a cistern.

A complete brown glass medicine bottle was recovered from Unit 29, Level 3, under the west addition of the house. This bottle was probably made between 1872 and 1930 and contained a product of Boericke & Tafel of New York (Fike 1987:155).

A complete, half-pint, colorless glass flask from Unit 18, Level 1 has a design patent dating to August 9, 1898. The manufacturer is not known.

A large number of complete bottles were recovered from the fill of Feature 8, a well, which was discovered when the floor of the west addition was removed. These bottles and the other materials from the well are not of primary interest for this report since they date so late (mid-twentieth century) in the site sequence. Since all of the bottles are marked, and can be dated to relatively accurate temporal spans, they will be very briefly summarized below. Several of these bottles bear the mark of the Owens-Illinois Glass Co. and appear to date between 1929 and 1954 (Table 29). At least three of these bottles appear to postdate 1940. Two others may postdate 1954. An "Avon" perfume bottle from the well postdates 1939 (Munsey 1970:233). A colorless glass bottle with dropper was made by the Hazel-Atlas Glass Co. between about 1902-1964. Another colorless glass bottle made by the Brockway Glass Co. may date to about 1928. A brown glass bottle with a white screw cap was made by the Armstrong Cork Co. Glass Division of Lancaster, Pennsylvania, between 1938 and 1969 (Toulouse 1971:24). The Foster-Forbes Glass Co. is represented by one bottle which postdates 1929. The date ranges for these bottles help confirm the rather recent age of the upper four meters of fill within the well.

Ceramic Sherds and Vessels. Ceramic sherds and vessels are numerous in the Hayhurst House collection (Table 31). A minimum of 102 vessels and 1,147 sherds are present. Two hundred eighty-four sherds are associated with 61 partially reconstructed vessels. Two hundred thirty-nine of those sherds were mended. Considerable mending of sherds was accomplished within and across individual provenience units.

The ceramic sherds and vessels from HS 10 essentially mirror those from nearby HS 6. Not only are the same makers represented in both collections, but the similarity even extends to the presence of the same molded whiteware patterns at the two sites. This is not surprising, since the houses (and their associated archeological assemblages) reflect nearly identical temporal frames. Further, the occupants would have likely acquired much of their table service and utility wares from the same merchants in West Branch. One might expect that some status differences would be apparent between the two sites based upon the quality and cost of tea and table services, especially contrasting the Dr. Leech (HS 6) and Butler (HS 10) occupations. Those occupations are of very similar temporal spans (mid-1880s into the 1920s), but Leech, a very popular physician, would have had considerably more income than Butler, who ran a series of shoe repair shops. Unfortunately, it is difficult to isolate the debris from those occupations and effectively separate them from material from the other occupants of the houses.

Whiteware. Of the five ware groups from HS 10, whiteware is by far the most numerous with 749 sherds and a minimum of 55 vessels present. Subdivision of the large whiteware group followed the system used for the Laban Miles House materials. Decorative treatment, rather than minor differences in paste characteristics, formed the basis for subdivision of the whiteware. Similar to the assemblage from the Miles House, undecorated sherds dominate the Hayhurst House whiteware assemblage (n=555) (Table 32). While some of these sherds may derive from undecorated portions of decorated vessels, most of the sherds appear to derive from vessels with no molded or color-added decorative treatment. The large number of undecorated sherds is typical for a site spanning the later years of the nineteenth century. Following the plain, undecorated sherds in frequency are various mold-decorated forms. Eighty-four sherds exhibit various simple geometric or more complex floral molded designs on white vessels which contain no other decorative treatment. The geometric patterns actually create the form of the vessels, while the floral and other raised designs constitute decorative elements on the rims and bodies of the vessels. The simple molded designs which are intrinsic to vessel form were developed on transfer-printed vessels in the 1840s, and are among the earlier designs applied to the otherwise plain whitewares which gained in popularity in the 1850s and 1860s. The raised floral and other designs were developed in the 1860s and 1870s.

Considerable overlap in molded designs is apparent in the whiteware assemblages from the Laban Miles and Hayhurst Houses. The Triple Border (Wetherbee 1985:41) and Bordered Hyacinth (Wetherbee 1980:100; 1985:28, 108) patterns are present at both sites. These patterns are in the form of rim and body decoration, rather than overall molded vessel shapes. Information regarding these patterns is presented in the discussion of the Miles House whiteware assemblage. At Hayhurst, all of the 31 sherds of the Triple Border pattern derive from a single vessel (Vessel 22). Sherds from this vessel were collected from Unit 11, Levels 3 (n=25) and 4 (n=8); Unit 13, Level 2 (n=1); and Unit 16, Level 1 (n=1). These units are contiguous along the south side of the west addition. The Bordered Hyacinth pattern is represented by three sherds from a single vessel of undetermined form from Unit 13.

The third identified mold-decorated pattern from the Hayhurst House is Columbia Shape (Wetherbee 1985:56-57). The pattern consists of a rather complex foliage pattern which covers the rim of flatware vessels and the entire body of various hollowware forms. The pattern was made by at least eight English potters during the heyday of "white ironstone." A single sherd of this pattern was identified from Unit 13, Level 2. The remaining mold-decorated sherds from the Hayhurst House could not be identified according to pattern name.

Transfer-printed sherds were relatively numerous at the Hayhurst House, with 20 sherds in five colors present (Table 32). The transfer-printed sherds are all "romantic" patterns which reflect whimsical scenes of exotic locations. The scenes bear no resemblance to the settings for which they are named. Instead they are formulaic designs which usually contain standard elements such as elm trees, winding rivers, classical buildings, urns, and similar features. Although transfer printing was popular over a relatively long time period (1790s to post-1860), the romantic patterns usually date from about 1843-1860. The initial date for these patterns reflects the passage of a copyright law which ended indiscriminate copying of published works

of art. Paintings and aquatints had been a primary source for the engraved plates which were used to produce transfer-printed designs on whiteware. After 1842, these sources could no longer be copied and each new pattern had to be registered. Many hundreds of generally similar patterns were developed as transfer-printed vessels were produced in enormous numbers for export and sale to the working class. This marks a period of proliferation and technical decline of the transfer-printing art compared with earlier nineteenth-century designs. Still, many of the vessels of this period are clearly printed and well made. Given the nature of these sherds from the Hayhurst House, all appear to have been made and purchased before the House was built. They were replaced in popularity by the plain and mold-decorated white vessels described above, beginning in the mid-1850s. By the mid-1860s, transfer prints were essentially passé, although some manufacturers continued to produce the wares through the nineteenth century. It is not surprising that a few earlier vessels would be broken and discarded at the Hayhurst House along with contemporary whitewares.

Only two transfer-print patterns from the Hayhurst House were complete enough to allow identification. One pattern is Rhone Scenery (Williams 1978:390). Two sherds from this pattern were found (Unit 28, Level 2 and Unit 30, Level 2). One of the sherds from Hayhurst was marked by their maker, John Thomas and Joseph Mayer, who were in business from 1843-1855. The precise age of the pattern is not known, but it clearly falls within the general period of romantic designs described above. The vessel would have been a minimum of 15 years old, and likely somewhat older, when it was broken and incorporated into the Hayhurst House backyard midden.

The second identified transfer-print pattern from the Hayhurst House is Athens (Williams 1978:193). This pattern occurs on a multi-sided vessel. Such forms were developed in the mid-1840s at the same time as the romantic patterns were proliferating. Although the sherds from Hayhurst are not marked, the Athens pattern is known to have been made by William Adams and Sons. This famous Staffordshire pottery company has a very long history (Godden 1964:21). However, the Athens pattern was registered by Adams on January 3, 1849 (Coysh and Henrywood 1982:29). Like Rhone Scenery, the vessel with the Athens pattern was discarded at the Hayhurst House two or more decades after it was manufactured. Two sherds of the Athens pattern were recovered from Unit 7, Level 2, and one was found in Unit 9, Level 2.

It must be noted that the remaining 15 transfer-printed sherds could not be identified by pattern or maker.

Two edge-decorated sherds were recovered from the Hayhurst House. Like transfer-print decoration, edge decoration had run its course of popularity by about 1860. In contrast to transfer-printed whiteware, edge decoration occurs mainly on plates and platters. Transfer decoration was applied to all tea and table service forms. Edge-decorated vessels were relatively inexpensive. They were slightly more costly than plain whiteware through much of the period from 1820 to 1860. Both edge-decorated sherds were recovered from Unit 29, under the west addition. This position places their discard very early in the site sequence, as might be assumed by their early date of manufacture. Like the transfer-printed vessels and patterns described

above, the edge decorated plate fragments in the site deposit reflect breakage of a vessel which was purchased before the house was built. The edge-decorated and transfer-printed vessels may have been used by the Hayhurst family, or one of the renters who occupied the house from 1878-1890.

In contrast to the Miles House whiteware collection, decal-decorated sherds were rather numerous (n=32) at the Hayhurst House. At least seven vessels are represented by these sherds. Decal decoration, often called decalcomania in the United States, is a decorative treatment which employs the application of lithographic decoration on a paper-backed sheet to a vessel body (Derven 1980; Savage and Newman 1985:180). The decal was usually applied over the glaze in direct contrast to transfer-printed designs. The paper backing was then sponged off. The designs are usually polychrome, which is also in contrast to typical transfer designs. The technique was developed about 1845 but was not extensively used until after 1860. Most of the decals were produced in Europe until the mid-twentieth century when U.S. decal production was expanded (Newcomb 1947:199). The decal designs from the Hayhurst house are typically floral polychrome, and occasionally occur on vessels which also have raised molded designs.

Sponge decoration, another inexpensive mid-nineteenth-century decorative treatment, occurs on a single sherd (Table 32). The remaining whiteware sherds are decorated with various painted designs. Among the painted sherds are 19 which are decorated with the popular luster, tea leaf pattern. This pattern was made in several similar variations by numerous potters. Anthony Shaw was apparently the first to use this design in the mid-1850s, and early advertisements refer to it as “Lustre Band with Sprig” or “Lustre Spray” (Wetherbee 1985:149). Initially, the luster designs were added to mold-decorated forms, but by about 1900 “tea leaf” began to occur as the only decoration on otherwise plain vessels. It is this later form which is present at the Hayhurst House. In the early years, the luster was applied over the glaze, following an underglaze pattern of varying hues. By about 1870, luster was placed under the glaze to prevent it from wearing off during use. Like the plain and molded whiteware on which it was applied, copper luster was made by numerous American as well as English companies.

Several whiteware sherds bear partial or complete maker’s marks. In addition to the Thomas and Mayer mark described above, the only other identified marks belong to the firm of Knowles, Taylor, and Knowles of East Liverpool, Ohio. Five different fragmentary or partially reconstructed vessels from various proveniences (Unit 14, Level 1; Unit 16, Level 1; Unit 18, Level 2; Unit 29, Level 1; and Shovel Test 29) bear a mark used by this firm from about 1890 to 1907 (Gates and Ormerod 1982:119). This firm was the largest pottery in the United States for most of its 50+ year history. A single vessel from the Miles House is also attributed to Knowles, Taylor, and Knowles. The remaining 12 fragmentary maker’s marks on whiteware sherds from the Hayhurst House could not be identified (Table 34).

Yellowware. Yellowware is much more numerous at the Hayhurst House than at Laban Miles. Sixty-five sherds in six patterns, representing a minimum of 12 vessels, are present in the Hayhurst ceramic assemblage (Tables 32 and 33). Background information on the ware is presented in the ceramic discussion for the Laban Miles House. Annular, slipped, mold-decorated, painted, sponge-decorated, and “Rockingham” glaze decorative types are present. All,

with the possible exception of painted, are common yellowware decorative treatments. The yellowware sherds are scattered across most of the excavated proveniences at the Hayhurst House in small numbers (Table 31). There is no apparent clustering of yellowware sherds in these units. Since yellowware is typically used for utilitarian forms such as mixing bowls, the sherds from Hayhurst probably reflect various food preparation vessels. The four partially reconstructed vessels are all bowls.

Stoneware. Stoneware sherds (n=270) and vessels (minimum number = 21) are common at the Hayhurst House, but decorative embellishments are essentially absent. Only two sherds from a single vessel bear sponge-applied decoration. The partially reconstructed stoneware vessels reflect bowls and other large hollowware forms (Tables 35 and 36). Stoneware sherds are widely distributed across the excavated portions of the site, although, as expected, the heaviest concentrations were recorded in the south yard and under the west wing (Table 31).

Porcelain. Porcelain vessels are fairly well represented at the site with 37 sherds from a minimum of 12 vessels (Tables 31 and 32). Transfer-printed, molded, decal, and painted designs occur in various combinations on the sherds. None of these patterns could be specifically identified or attributed to a maker. Relatively few vessel shapes could be determined with confidence, although partially reconstructed vessels include a cup, and a plate or saucer. At least one additional cup and two hollowware forms also appear to be present (Tables 35 and 36). Porcelain sherds occur primarily in south yard proveniences.

Redware. This terra-cotta utility ware is represented by 26 sherds from the Hayhurst House excavations (Table 31). Only two vessels could be identified within this group of sherds. These are a plain and a painted flower pot. The painted flower pot consists of five sherds. It is likely that all of the remaining sherds derive from simple, undecorated flower pots.

Cutlery. Utensils are rather poorly represented in the site collection. An undecorated spoon was recovered from Unit 20, Level 2. A badly rusted iron fork from Unit 30, Level 5 must have been discarded very early in the site occupation, since it is from the basal portion of the cultural deposit under the original west wing of the house. A silver-plated spoon discovered during removal of shrubs from the south wall of the west wing is marked "N.F. Silver Co. 1877." This mark (Niagara Falls) was used by the Oneida Silversmiths from 1877 through the modern era (Kovel and Kovel 1961:339). Another utensil is represented by a fragmentary bone handle from Unit 17, Level 1. Handles of this type were riveted to the shaft of common iron forks and knives. As late as 1902, a large variety of bone-handled cutlery was offered for sale. The least expensive cost about 70 cents for 12, while the better quality items were about two dollars per dozen (Sears, Roebuck and Co. 1969a:481-482). The example from the Hayhurst House appears to be a simple, relatively inexpensive form. All of the bone-handled cutlery was considerably more expensive than plain, iron-handled cutlery.

Personal Items

Items relating to personal use are not as numerous as architectural or domestic artifacts at the Hayhurst House, but they are well represented in the collection. These include fragments from toys, clothing, personal hygiene, adornment items, smoking pipes, and spent ammunition.

Toys. Toys include items used by both boys and girls at the Hayhurst House, and match very well with those from the Miles House excavations. Several fragments of porcelain dolls were recovered (Table 37). Most of these fragments are badly broken, and no manufacturers of specific dolls can be identified. Fragments from legs and arms as well as heads are present. The few face fragments seem to represent “baby dolls,” placing them after about 1880. Before that time, most dolls portrayed adult features in miniature. Two items from a miniature tea service, a cup and a portion of a lid from a second vessel, were recovered. Both are made from plain, inexpensive porcelain. The doll fragments, similar to most artifact types from the Hayhurst House, are rather widely distributed across the site (Table 37).

Marbles are also well represented at the Hayhurst House, with 14 complete specimens recovered from numerous proveniences (Table 37). Common, unglazed clay marbles are the most numerous, followed by machine-made glass examples. Two “china” marbles are also present. One has a painted design of concentric rings in a “bull’s eye” pattern.

Slate pencil fragments (n=14), commonly used on children’s slate boards, were recovered from 12 different site proveniences. As described for the Miles House, these items were replaced by “lead” pencils and paper pads in the first years of the twentieth century. Slate pencils were recovered from Unit 2, Level 3; Unit 3, Level 2; Unit 5, Level 3; Unit 13, Level 1; Unit 15, Levels 1 and 3; Unit 20, Level 3; Unit 27, Levels 2 and 3; and Unit 29, Levels 2 and 3. The presence of several slate pencils under the floor of the west wing (Units 27 and 29), which was built about 1892, is in keeping with the nineteenth-century association of these toys. Several of the numerous, flat slate fragments described under Architectural Items may actually derive from the writing slates on which these pencils were used.

Two dried and deteriorated rubber balls were recovered from Unit 10, Level 4 and Unit 23, Level 2. A very small pliers appears to be a toy, but it may be a novelty or salesman’s sample. It was recovered from Unit 13, Level 1, and may be of recent age.

Many other toys were noted to be present in twentieth-century deposits within the cistern and well. Included were a variety of metal and plastic toy vehicles, figurines, and other items. These were not collected.

Musical Instruments. This category is represented by two harmonica fragments. One partially complete harmonica was recovered from Unit 29, Level 3 under the floor of the west wing. This harmonica was made by the Ludwig Company. Ludwig harmonicas cost from 11 to 32 cents in 1902, depending upon the style and quality (Sears, Roebuck and Co. 1969a). A harmonica soundboard fragment was found in Unit 12, Level 1.

Clothing. Buttons and various clasps and fasteners constitute the bulk of the clothing items. Buttons are especially numerous, with 145 recovered from the site (Table 38). As with most artifact classes and types, the number of buttons from the Hayhurst site (n=145) is far greater than the number (n=37) from the Miles House. This is not merely a factor of differential extent of excavation at the two sites, since only 1.4 times as much area was opened at the Hayhurst site compared with Miles. The areas excavated at Hayhurst contained much more dense accumulations of artifacts than the excavated areas at the Miles House. The Hayhurst House buttons are of glass, hard rubber, metal, shell, bone, plastic, and ceramic construction. Shell and glass buttons are the most numerous.

Although a variety of styles and patterns are present, only rivet-style buttons from jeans or overalls bear manufacturer's information. A metal button from Unit 11, Level 1 contains the word "Lee." This is probably a modern rivet-style button from Lee jeans or overalls. An overall rivet from Unit 16, Level 1 bears the information "Galesburg Overall Co." Chronological data for this company was not researched, but the button appears to be modern. A similar, but unmarked, overall button was recovered from Unit 19, Level 1.

While the large button assemblage essentially lacks manufacturing information, several other clothing items contain manufacturing or patent data. Several fragments from suspender grip guides were recovered, and a few contain embossed lettering. One from Unit 2, Level 2 contains the words "Am. Susp Co." No information on this company was discovered during the course of analysis. Unmarked suspender guides were recovered from Unit 7, Level 1 and Shovel Test 12. Another from Unit 9, Level 3 bears information indicating that it was patented in 1863. Even given the length of time for which patents were in effect, this item would appear to date to the early occupation of the Hayhurst House. Another unmarked suspender grip was also recovered from Unit 9. A marked example from Unit 10 contains the letters "SOLIO." The significance of that mark has not been determined.

A garter catch was recovered from Unit 9, Level 1. That artifact bears the lettering "PERFECT HOSE SUPPORTER PAT. APRIL..." The patent date is not legible. Two fragments from a single garter catch from Levels 2 and 3 of Unit 25 have embossed lettering which reads "WARREN/PAT'D/1890."

Several small grommets are probably eyelets for guiding the laces of leather shoes. A single metal shoe heel plate was also recorded (Unit 28, Level 1). A modern rubber shoe heel was recovered from Unit 16, Level 1. Prior to excavation, it was assumed that numerous shoe fragments would be found at the site, given Butler's use of a portion of the structure for a shoe repair shop. Evidence for that function of the structure was not discovered archeologically.

Other clothing items include corset stays from Unit 5, Level 3 and Unit 2, Level 2, and a corset catch from Unit 1, Level 3. Finally, two small rivets of the type commonly used to reinforce seams or junctures of pockets on work jeans were recovered from Unit 11, Level 2.

Temporary fasteners include safety pin fragments from Unit 11, Level 2 (n=3); Unit 13, Level 2 (n=1); Unit 15, Level 2 (n=1); and Unit 16, Level 1 (n=8).

Grooming Items. Grooming and personal hygiene items include numerous fragments of combs and a bone toothbrush handle (Table 39). The combs include bone, plastic, and hard-rubber types in both fine-tooth and coarse-tooth configurations. Two of the fine-tooth hard-rubber combs are complete, and bear manufacturer and patent information: “L.R. COMB Co GOODYEAR 1851.” The identity of the manufacturer was not determined despite the presence of this information. The reference to the Goodyear patent for the hard-rubber vulcanization process occurs on various hard-rubber items, particularly combs, over a relatively long time span. Fine-toothed hard-rubber combs were available from the mid-nineteenth century through the first decade of the twentieth century. The bone combs from Unit 11 are probably of comparable age, while the single plastic comb probably postdates about 1950. One broken, but complete, bone toothbrush contains engraved or stamped manufacturer’s data: “150 H, ..EO...MORE 32 HARRISON AVE CORAL....” The lettering is obliterated in several areas, making both the manufacturer and location problematical. The toothbrush was recovered from Unit 24, Level 3 along the north side of the west addition.

Arms and Ammunition. This group of artifacts is poorly represented at the Hayhurst House, which is not surprising given the relatively small lot size and the “neighborhood” setting of the house. The single gun component is a trigger plate for a shotgun which was recovered in Unit 10, Level 4. The relatively deep context strongly indicates a late nineteenth-century age for the gun from which this plate derives. Ammunition includes seven .22 caliber cartridge cases. One was found in Unit 1, Level 2; four are from Unit 16, Level 1; one is from Unit 15, Level 2; and one is from Unit 23, Level 1. The only marked cartridges are from Unit 16 and bear the “US” headstamp. All of the cartridges appear to be of modern age. A single .22 caliber primer from Unit 15, Level 3 completes the ammunition inventory from the Hayhurst House.

Coins and Tokens. The most interesting item in this group is a store token recovered in Unit 8, Level 2. It is from Richmond, Indiana, and dates to 1888. Coins are limited to twentieth-century items. A 1919 penny was recovered from Unit 16, Level 1. A 1928 penny is from Unit 11, Level 2. Finally, a 1944 nickel was found in Unit 1, Level 2. None of the coins relate to the era of primary historic interest at the Hayhurst House, although they do confirm that the uppermost excavation levels span the early twentieth century.

Tobacco-related Items. Evidence for smoking activities is limited to the presence of four white clay pipestems. Single stems were recovered from four separate proveniences (Table 40). A single stem contains a manufacturer’s stamp. The stem is fragmentary, and the lettering which is present is poorly molded, making identification difficult. Although the company name could not be identified, the pipe appears to have been made in Muscatine, Iowa. This Mississippi River town is located southeast of West Branch. No published information was discovered regarding pipemaking firms in Muscatine. The marked and unmarked pipestems all appear to date to the nineteenth century.

Beads. Glass beads were discovered from two contexts at the Hayhurst House. A large, wound necklace bead was recovered from Shovel Test 5 in the west (back) yard. The age of this bead is undetermined. Thirty-four beads were recovered from Unit 10, Levels 5 and 6 (Table 40). This unit was positioned adjacent to the south wall of the south ell. The beads are a single type. They are multi-sided tube beads made from an iridescent black glass. The bead surfaces appear purple due to the weathering and nature of the glass. The considerable depth of the beads below the modern surface indicates that they may have been discarded rather early in the occupation sequence. This style of bead was commonly used for embroidery on dresses, purses, and other clothing items. They were also used on various household items (e.g., lamp shades). In contrast to the beads from the Miles House, which have been suggested to have a Native American association, the beads from the Hayhurst House all derive from Euroamerican products.

Jewelry. Several jewelry items were recovered from the Hayhurst House. Most of the items are simple and inexpensive, such as brass rings from Unit 3, Level 1 and Unit 11, Level 2, and Unit 15, Level 3. Others are of slightly higher quality. A silver-plate locket cover from Unit 10, Level 4 is an example of a “better” jewelry item. The same provenience also yielded an interesting thin metal frame in the idealized form of a pocket watch. While this artifact is listed under jewelry, it could be the front of a small picture frame or similar object. The most interesting jewelry item is a small pin in the shape of a star. The enameled front has had a small “gem” set into it. This stone appears to have been added, rather than being an original component of the pin.

Flora and Fauna

Seeds. During the hand cleaning of Backhoe Trench 2 numerous seeds were visible in the profiles of Features 6 and 7. The seeds occurred in distinct concentrations throughout the features. The seeds appeared to be in an excellent state of preservation. Given the apparent function of the features as privy pits, it is possible that the seeds were deposited in the features after passing through human digestive systems or were dumped with “spoiled” fruit. In order to obtain a collection of the seeds for analysis, bulk soil samples were obtained from Features 6 and 7. A soil sample weighing 22.25 pounds was taken from Feature 6 and another of 18.5 pounds was taken from Feature 7. All of the sample from Feature 7 was processed through flotation, while 13.5 pounds of the Feature 6 sample was similarly processed. Several thousand small seeds were collected from this processing. Although the actual number of seeds was not deemed important and was not quantified, species identification was undertaken for the two varieties present in the samples.

Nearly all of the seeds are from raspberry (*Rubus strigosus*). Given the large number present in the flotation samples, there must have been many thousands of raspberry seeds in the features. A few larger seeds are from a variety of grape, possibly muscadine (*Vitis rotundifolia*). These seeds are poorly represented in the flotation samples, with only a few examples present.

Fauna. Although a rich assemblage of faunal remains was recovered from excavations at both the Miles and Hayhurst Houses, those materials have not been analyzed to date.

CONCLUSIONS

The 1989 excavations at the Laban Miles and E.S. Hayhurst houses and subsequent data analysis and artifact cataloging efforts served to mitigate any adverse impacts to the archeological deposits that occurred during the structural restoration program. All project impact areas were extensively sampled through excavation. The work yielded a surprisingly large archeological data set that includes numerous structural and archeological features and two artifact collections. Significant portions of the archeological sites remained intact after the restoration program was completed since ground disturbance was largely confined to a narrow prism flanking the houses.

Several subsurface architectural features, notably a series of cisterns and wells, were recorded at both sites. The large number of these features indicates the importance of water storage and availability in this small prairie community in the years before modern, municipal water supplies were developed. At the Miles House, three cisterns that appear to have been built and used in sequence were discovered and documented. One of the earliest ones (Feature 12) was filled with debris that relates to Dr. Leach's occupation of the house. A surgical tool handle known to postdate 1903 was found at the base of the fill of this feature. That item can be associated with Dr. Leach with a high degree of certainty. A large number of temporally diagnostic items from this filled feature clearly indicate an early twentieth-century age for discard of the deep layer of cinders and artifacts into this cistern. Since cistern Feature 16 was inaccessible during the Leach occupancy, and since he was apparently responsible for filling Feature 12 during the first decade of the twentieth century, it is likely that the Feature 6 cistern was built during the Leach occupation. The fact that it was the only cistern recorded at either site with an internal filtration system might indicate that Dr. Leach had the cistern built to supply potable water after the nearby city well closed in 1912.

Other features recorded at the sites help to confirm, or augment, the historic record. The reported move of the Hayhurst House back from Downey Street was confirmed archeologically, as were the presence and shape of numerous porches at the Hayhurst House. Similarly, the pattern of modification and change of the small, humble houses at initial construction to more complex, larger houses through time was also confirmed through archeological study of foundations, stratigraphic profiles, and position of features and artifact scatters.

Although the site deposits were surprisingly well stratified in several areas, it was difficult to associate specific subsets of the artifact collections with activities that occurred in the brief period of primary historic interest when Herbert Hoover actually lived in West Branch. However, artifacts spanning the initial years of site occupation through the early twentieth century were identified and analyzed. A few items can be confidently associated with the earliest, primary owners of each site. Of these, a smaller number, such as several beads from the Miles House, may be associated with rather specific aspects of the lives of those house owners/occupants. A few of these artifacts indicate lifestyle differences that are notable in the small West Branch community of the 1870s-1890s. Many of the occupants were Friends, yet Hayhurst was reported to have exhibited personal characteristics well outside the norm for that conservative

group. The discovery of items such as wine glasses and identifiable medicine bottles including Kickapoo Oil and Vegetable pain killer (which all contained ample amounts of alcohol, and in some cases opium) in nineteenth-century contexts at the Hayhurst House are tangible archeological evidence of Mr. Hayhurst's departure from typical Friends' lifestyles.

Several temporally and functionally diagnostic items recovered from both the Miles and Hayhurst sites in 1989 appear to have relevance to a variety of park interpretive programs. For example, artifacts reflective of early technological advances, such as the electrical components from the first few years of the twentieth century, were recovered from the fill of cistern Feature 12 at the Miles House. Dr. Leach probably discarded these items, which include a well-preserved light bulb, as he renovated his house. These and other artifacts reflect a shift from traditional oil lamps, which are well represented in the site assemblages, to modern lighting systems. Other similar technological shifts are seen in the artifacts from both sites.

The surgical tool handle mentioned above is a rare example of a specific archeological discovery that can actually be associated with an individual, rather than with a broader "site assemblage." Other artifacts from the sites can similarly be associated with Hoover's uncle, Laban Miles, or with Mr. Hayhurst with considerable confidence. The large artifact collections also provide a glimpse of broader regional and national trends in nineteenth-century style and access to manufactured goods. The large ceramic collections include several decorative techniques (e.g., edge decoration and "romantic" style transfer printing) that were passé by the time the structures were built circa 1870. These items were likely purchased elsewhere prior to about 1860, only to be broken and discarded some years later at the sites. The bulk of the ceramic wares from the houses reflect the styles of the late nineteenth century, when plain white, mold decorated, and decal decorated types predominated. These items greatly contrast stylistically with the earlier wares.

Ceramic vessels and other artifacts in the archeological record can reflect local supply as well as national trends. For example, the numerous molded whiteware patterns seen at both sites clearly match general national stylistic trends of the 1870s and 1880s. However, the occurrence of specific, individual decorative patterns at both the Hayhurst and Miles Houses is as much a reflection of local availability and purchasing opportunities as of national stylistic trends.

The artifact collections from the sites also provide other hints about the structure and lives of the families who occupied the houses. Artifacts from the sites are not limited to broken domestic items such as ceramic table settings, but span a wide range of functions including toys, jewelry, clothing components, and household furnishings. It is hoped that some of these materials might be used by the park in future interpretive efforts to help park visitors better understand late nineteenth-century lifeways at West Branch.

Soon after the archeological fieldwork at the Hayhurst and Miles houses was completed, work began in restoring these structures to their earlier, historic appearance. Today, both structures stand adaptively restored and serve to set a neighborhood scene that would have been familiar to Herbert Hoover and also provide excellent space for housing and other purposes.

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Table 1. Features recorded at the Miles House (HS 6).

No.	Provenience Unit	Size (cm)	Function
1	1, 10, 3, 15, 17	30-40 cm wide	Concrete footer from 1974 foundation replacement and repair
2	3, 7, 8, 9, 10	325 x 40 x 95	Builder's trench for brick arched basement "vault" (1901)
3	1, 5, 11, 2, 4, 6, 7, 9	[see Figure 18]	Stone foundation for original west half of house 1870-1901
4	3, 8	76 x 9 x 23	Curved brick alignment, basement window well from pre-1901 era
5	12	380 x 50 x 10	Stone walkway (post-1901)
6	14	240 x 240 x 270	Cylindrical brick cistern (post-1901?)
7	12	undetermined	Lens of plaster
8	15, 17	145 x 80 x 10	Midden containing glass beads and other items
9	16	80 x 5 x 5	Parallel stains from rotted wood. Stringers from boardwalk(?)
10	17	50 x 50 x 43	Pit with loose, dark fill
11	19	>100 x >100 x 10	Rubble "pavement" around Feature 12
12	19, 20	225 wide, 245 deep	Bell-shaped brick cistern filled with cinders and artifacts
13	17, 22, 25, 26	full dimensions undetermined	Very large pit with rubble at base. Fill contains artifacts
14	21	80 x 10 x 5	Wooden remains from outbuilding
15	24	170 x 170 x 180	Brick septic tank
16	under south ell	120 x 120 x 180	Cylindrical brick cistern (pre-1901)

Table 2. Window glass counts and thicknesses, Miles House (HS 6).

Provenience	Count	Total Thickness (mm)	Mean (mm)
Excavation Level			
1	56	117.71	2.10
2	116	240.34	2.07
3	66	127.94	1.94
4	18	36.45	2.03
5	36	75.78	2.11
6	6	11.65	*
7	4	8.56	*
8	2	3.72	*
9, 10	6	12.22	*
Shovel Test			
3	2	3.24	*
7	2	3.85	*
10	2	3.76	*
Feature			
2	10	18.30	*
7	1	1.85	*
8	8	15.95	*
10	2	4.21	*
13	14	29.52	*
15	8	19.24	*
Site Totals	359	734.29	2.05

* mean not calculated due to small sample size.

Table 3. Nail forms and counts at the Miles House (HS 6).

Provenience	Cut Nails		Wire Nails	
	Fragments	Complete	Fragments	Complete
Excavation Level				
1	57	33	19	36
2	94	45	18	28
3	57	20	3	5
4	72	20	0	6
5	60	20	1	2
6	63	24	5	3
7	3	0	0	0
8	4	1	0	0
9	46	9	0	0
10	3	0	0	0
Excavation Unit				
1	10	16	-	8
2	-	4	1	2
3	43	13	2	16
4	5	6	7	7
5	10	13	1	5
6	7	1	3	9
7	1	1	-	-
9	3	2	-	-
11	1	3	-	-
12	58	15	-	4
13	17	5	-	-
14	1	2	1	2
15	6	1	-	-
16	6	1	-	-
17	81	12	5	2
18	108	44	5	8
19	7	4	-	-
21	7	7	1	-
22	39	5	7	7
23	9	2	-	-
24	13	4	7	6
25	1	1	-	-
26	26	10	6	4
Shovel Test				
2	-	-	2	1
3	1	-	-	3

Table 3. Concluded.

Provenience	Cut Nails		Wire Nails	
	Fragments	Complete	Fragments	Complete
Shovel Test (continued)				
5	1	-	-	-
6	1	-	2	-
7	1	-	1	-
8	1	-	-	-
9	-	-	-	1
10	1	1	-	1
11	1	-	-	-
Feature				
2	33	10	1	3
6	1	-	-	-
7	3	3	1	3
8	20	4	1	-
10	5	2	-	-
12	-	-	3	3
13	32	2	-	-
15	4	-	4	-
Site Totals	565	194	61	95

Table 4. Miscellaneous architectural items from the Miles House (HS 6).

Provenience		Coal	Mortar	Concrete	Brick	Other
Unit and Level						
1	1	-	-	+	-	shingle
	2	-	+	-	-	
	3	-	+	-	-	
2	1	+	-	-	-	
3	1	-	+	-	+	
	2	+	+	-	+	plaster
	3	-	-	-	+	plaster
	4	-	+	-	+	
	5	-	+	-	-	
	6	-	+	-	+	
4	1	+	-	-	+	shingle
5	1	+	-	-	-	
6	1	-	-	-	+	shingle
	2	-	-	-	+	shingle
7	1	-	-	+	-	
12	4	-	-	-	-	charcoal
13	5	-	+	-	-	
18	7	-	+	-	-	
21	1	-	-	-	-	door chain latch
Shovel Test						
3	-	-	-	-	-	sewer pipe
Feature						
2	-	+	+	+	+	wood
6	-	-	-	+	+	
7	-	+	+	-	-	
10	-	-	-	-	-	charcoal
12	-	+	-	-	-	
13	-	+	+	+	+	
15	-	-	-	-	-	charcoal

Table 5. Provenience of glass sherds from the Miles House (HS 6).

Provenience	Feature	Glass Color								
		aq	am	bl	bu	co	dg	gr	mg	pu
3	-	1	-	-	-	5	-	-	-	-
5	-	-	-	-	-	1	-	-	-	-
12	-	2	-	-	-	2	-	-	-	-
13	-	1	-	-	-	2	-	-	-	-
15	-	-	-	-	-	2	-	-	-	-
16	-	1	-	-	-	4	-	-	-	-
17	-	1	-	-	-	1	-	-	-	-
18	-	4	2	-	-	15	-	2	-	-
19	-	-	-	-	-	-	-	3	-	-
21	-	5	5	-	-	3	-	1	5	-
22	-	4	-	-	-	4	-	-	-	-
23	-	-	-	-	-	1	-	-	-	-
24	-	5	-	-	2	12	-	-	-	1
26	-	2	-	-	-	1	-	-	-	-
ST 2	-	1	-	-	-	2	-	-	-	-
ST 3	-	-	-	-	-	1	-	1	-	-
ST 4	-	-	-	-	-	-	-	-	1	-
ST 5	-	-	-	-	-	-	-	-	-	-
ST 6	-	1	-	-	-	-	-	-	-	-
ST 7	-	1	-	-	-	1	-	-	-	-
ST 8	-	1	-	-	1	-	-	-	-	-
ST 9	-	1	-	-	-	1	-	-	1	-
ST 11	-	-	-	-	-	1	-	-	-	-
ST 12	-	-	-	-	-	2	-	-	-	-
3	2	-	-	-	-	4	-	-	-	1
8	2	1	-	-	-	-	-	-	-	-
15	8	-	-	-	-	1	-	-	-	-
17	8	-	-	-	-	2	-	-	-	-
20	8	-	-	-	-	1	-	-	-	-
22	8	1	-	-	-	1	-	1	-	-
17	10	-	-	-	-	1	-	-	-	-
20	12	61	45	-	-	39	-	15	-	2
22	13	-	-	-	-	2	-	-	-	-
24	15	2	-	-	4	5	-	-	-	-
Totals (306)		96	52	0	7	117	0	23	7	4
aq = aqua		co = colorless		mg = milk glass						
am = amber		dg = dark green		pu = purple						
bl = black		gr = green		ST = shovel test						
bu = blue										

Table 6. Reconstructed glass vessels from the Miles House (HS 6).

Vessel Number	Provenience Unit	Level	Feature	Vessel Form	Sherd Count	Mend Count	Color	Technology
1	12	4	-	-	3	2	co	-
2	multiple		-	-	5	5	bu	-
4	20	2	12	-	2	2	aq	-
5	18	5	-	-	3	3	gr	-
6	20	2	12	dg	2	2	co	-
7	20	2	12	ja	6	6	aq	mm
8	20	2	12	ja	10	10	co	su
9	20	2	12	ja	15	15	gr	-
10	20	1	12	ja	16	16	am	mm
11	multiple			ja	26	26	am	mm
12	20	1	12	bo	5	5	co	su
13	20	2	12	mi	6	6	co	-
14	20	1	12	bo	3	3	co	su
15	20	1	12	ja	46	39	aq	mm
16	20	2	12	lc	2	2	aq	-
17	20	2	12	lc	3	3	aq	-
18	multiple		-	mi	2	2	pu	-
19	21	4	-	-	2	2	am	pr
20	20	2	12	-	3	2	co	-
21	multiple		-	di	6	-	co	pr
22	18	4	-	di	2	-	co	pr
23	24	1	-	mb	2	-	aq	-
24	multiple		-		3	3	co	pr
25	19	5	-	-	2	2	gr	-
26	18	6	-	-	3	3	co	-
27	21	3	-	mb	2	2	aq	-
29	20	1	12	dg	3	3	co	-
Totals					183	164		

Vessel Form

ja = jar
bo = bottle
jj = jelly jar
pl = plate
di = dish
dg = drinking glass
wg = wine glass
mb = medicine bottle
mi = milk glass
ch = chimney glass
ib = ink bottle
lc = lightning closure

Color

aq = aqua
su = suction mold
pr = pressed
am = amber
bl = black
bu = blue
co = colorless
dg = dark green
gr = green
mg = milk glass
pu = purple
ps = purple slag
ye = yellow

Technology

mm = machine mold
su = suction mold
pr = pressed

Table 7. Mended glass sherds from the Miles House (HS 6).

Provenience Unit	Feature	Glass Color										
		aq	am	bl	bu	co	dg	gr	mg	pu	ps	ye
12	-	-	-	-	-	1	-	-	-	-	-	-
16	-	-	-	-	-	1	-	-	-	-	-	-
18	-	-	-	-	-	3	-	3	-	-	-	-
19	-	-	-	-	-	-	-	2	-	-	-	-
21	-	2	-	-	-	-	-	-	-	-	-	-
22	-	-	2	-	-	2	-	-	-	-	-	-
24	-	-	-	-	1	-	-	-	-	-	-	-
20	8	-	-	-	-	1	-	-	-	-	-	-
20	12	52	42	-	-	31	-	15	-	2	-	-
24	15	-	-	-	4	-	-	-	-	-	-	-
Totals (164)		54	44	0	5	39	0	20	0	2	0	0
aq = aqua		gr = green										
am = amber		mg = milk glass										
bl = black		pu = purple										
bu = blue		ps = purple slag										
co = colorless		ye = yellow										
dg = dark green												

Table 8. Glass vessel forms, Miles House (HS 6).

Provenience		Feature	Vessel Form										
Unit	Level		ja	bo	jj	pl	di	dg	wg	mb	mi	ch	ib
3	1	-	-	1	-	-	-	-	-	-	-	-	-
16	4	-	-	-	-	-	-	-	-	1	-	-	-
18	1	-	-	-	-	-	-	-	-	1	-	-	-
21	3	-	-	-	-	-	-	-	-	1	-	-	-
23	3	-	-	-	-	-	-	-	-	1	-	-	-
24	1	-	1	-	-	-	-	-	-	3	-	-	-
26	3	-	1	-	-	-	-	-	-	-	-	-	-
26	8	-	-	-	-	-	-	-	-	1	-	-	-
22	1	8	-	-	-	-	-	-	-	2	-	-	-
20	1	12	3	2	-	-	-	1	-	-	-	-	-
20	2	12	4	-	-	-	-	-	-	-	2	1	-
20	3	12	-	-	-	-	-	-	-	-	1	-	-
24	1	15	1	-	-	-	-	-	-	2	-	-	-
Totals (30)				10	3	0	0	0	1	0	12	3	10
			ja = jar					wg = wine glass					
			bo = bottle					mb = medicine bottle					
			jj = jelly jar					mi = milk bottle					
			pl = plate					ch = lamp chimney					
			di = dish					ib = ink bottle					
			dg = drinking glass										

Table 9. Embossed glass from the Miles House (HS 6).

Provenience Unit	Level	Feature	Vessel Number	Embossment	Date Span
Information on bottle body					
18	1	-	-	"WES..."	-
18	5	-	-	"er/...er(?) Co"	-
24	1	-	-	Mason's Patent Nov 30th 1858	1858-1912
20	1	12	15	"Mason's Patent Nov 30th 1858"	1900-1915
20	1	12	-	[marks for measuring cup]	-
20	2	12	7	"Ball"	after 1890
20	2	12	8	"Ball"	ca. 1920
20	2	12	13	"ONE PINT/LIQUID/PURE MILK/ IS/NATURE'S/BEST FOOD"	-
20	2	12	9	"Mason's Patent Nov 30th 1858"	1880-1904
24	1	15	-	Mason's "Pa"tent "N"ov 30th 1858	1858-1912
24	1	15	-	[possible Ball jar]	-
Information on bottle base					
22	1	8	-	"L&W"	ca. 1871
20	1	12	12	"H.J. HEINZ CO."	1911-1929
20	1	12	14	"H.J. HEINZ CO."	1911-1929
20	1	12	29	[horseshoe on base]	-

Table 10. Glass vessel makers, Miles House (HS 6).

Provenience Unit	Level	Feature	Vessel Number	Maker	Date Span
18	1	-	-	undetermined	-
18	5	-	-	undetermined	-
24	1	-	-	undetermined*	1858-1912
20	1	12	15	undetermined*	1900-1915
20	1	12	-	undetermined	-
20	1	12	12	Owens Bottle Co.	1911-1929
20	1	12	14	Owens Bottle Co.	1911-1929
20	1	12	-	undetermined	-
20	2	12	7	Ball Brothers Manufacturing	after 1890
20	2	12	8	Ball Brothers Manufacturing	ca. 1920
20	2	12	13	undetermined	-
20	2	12	9	undetermined*	1880-1904
22	1	8	-	Lorenz & Wrightman	ca. 1871
24	1	15	-	undetermined*	1858-1912
24	1	15	-	undetermined	-

* embossed mason jar

Table 11. Glass vessel portions from the Miles House (HS 6).

Provenience Unit	Feature	Portion of Vessel											
		ba	bo	ha	li	ne	nf	nn	sh	sn	sg	st	wh
3	-	-	-	-	-	-	1	-	-	-	-	-	-
18	-	-	2	-	-	-	1	-	-	-	-	-	-
23	-	-	1	-	-	-	-	-	-	-	-	-	-
24	-	-	2	-	-	-	1	-	-	-	-	-	-
26	-	-	-	-	-	-	2	-	-	-	-	-	-
22	8	1	-	-	-	-	1	-	-	-	-	-	-
20	12	1	1	-	-	-	2	-	-	2	-	-	9
24	15	1	3	-	-	-	-	-	-	-	-	-	-
Totals (31)		3	9	0	0	0	8	0	0	2	0	0	9

ba = base
 bo = body
 ha = handle
 li = lip
 ne = neck
 nf = neck finish

nn = neck and neck finish
 sg = stem of glass
 sh = shoulder
 sn = shoulder and neck
 st = stopper
 wh = whole

Table 12. Tin cans recovered from cinder fill, Feature 12, Miles House (HS6).

Shape	Dimensions (inches)		Count	Size
Cylindrical Food Cans				
	Diameter	Height		
	4 1/16	4 11/16	3	No. 2 1/2
	3 7/16	4 9/16	8	No. 2
	3 1/16	4 11/16	5	No. 1 tall
	3	4 7/16	3	No. 300 x
	3	4 9/16	11	No. 300
	2 11/16	4	2	-
	2 7/16	1 7/16	1	-
	2 7/16	2 7/16	1	-
	2 7/16	2	1	-
	3 1/16	2 11/16	1	-
Tobacco Tin				
	Width	Height		
	3	4 1/2	14	-
Rectangular Meat Can				
	Base	Height		
	4 3/8 x 3	4 1/2	1	-

Note: All cans deteriorated rapidly after exposure to the air and were discarded at the site. Some measurements may be incorrect due to the deteriorated condition of the cans.

Table 13. Provenience of ceramic sherds from the Miles House (HS 6).

Provenience Unit	Feature	Ware					Sherd Count	Mend Count
		po	rw	sw	ww	yw		
1	-	-	-	-	1	-	1	-
2	-	-	-	-	3	-	3	3
3	-	-	-	-	3	-	3	2
5	-	-	-	-	2	-	2	2
6	-	-	-	1	2	-	3	-
7	-	-	-	1	-	-	1	-
12	-	-	-	5	9	-	14	4
13	-	-	-	1	1	-	2	-
16	-	-	-	4	5	-	9	2
17	-	-	-	-	11	-	11	2
18	-	6	-	25	44	-	75	54
19	-	1	-	7	12	3	23	13
21	-	2	-	28	35	-	65	32
22	-	-	-	-	73	-	73	8
23	-	-	-	-	20	-	20	14
24	-	8	-	6	11	-	25	-
26	-	-	-	2	3	-	5	-
ST 4	-	-	-	-	1	-	1	-
ST 6	-	-	-	-	1	-	1	-
ST 7	-	-	-	-	3	-	3	-
ST 8	-	-	-	-	1	-	1	-
ST 9	-	-	-	2	1	-	3	-
ST 10	-	-	-	-	2	-	2	-
ST 11	-	-	-	1	4	-	5	-
ST 12	-	-	-	-	1	-	1	-
3	2	-	-	-	1	-	1	-
8	2	-	-	1	-	-	1	-
12	6	-	-	-	4	-	4	4
15	8	-	-	-	2	-	2	-
17	8	2	-	-	4	-	6	2
22	8	-	-	-	2	-	2	-
20	12	13	-	-	46	1	60	56
17	13	-	-	-	1	-	1	-
22	13	-	-	-	1	-	1	-
25	13	-	-	1	4	-	5	4
26	13	-	-	-	3	-	3	-
24	15	3	-	1	7	-	11	-
Totals		35	0	86	324	4	449	202

po = porcelain
rw = redware
ST = shovel test

sw = stoneware
ww = whiteware
yw = yellowware

Table 14. Ceramic decorative types, Miles House (HS 6).

Decorative Type	Sherd Count	Minimum Number of Vessels	Number of Different Patterns
Whiteware			
annular	1	1	1
black transfer print	1	1	1
blue transfer print	2	1	1
mulberry transfer print	1	1	1
brown slip	3	1	1
decal	2	1	1
edge decorated	2	1	1
gilt decorated	1	1	1
molded	69	16	11
molded, painted	11	2	1
painted	11	3	3
tea leaf	9	1	1
plain	210	-	-
Subtotals	323	30	24
Yellowware			
molded	1	1	1
molded, rockingham	1	1	1
rockingham	3	1	1
Subtotals	5	3	3
Stoneware			
annular	1	1	1
molded	1	1	1
plain-albany slip	84	-	-
Subtotals	86	2	2
Porcelain			
decal	10	1	1
gilt decorated	1	1	1
gilt painted	2	1	1
molded	3	1	1
molded, decal	3	3	3
painted	2	2	2
plain	15	-	-
Subtotals	36	9	9
Totals	450	54	38

Table 15. Ceramic vessels from the Miles House (HS 6).

Vessel Number	Provenience Unit	Level	Feature	Sherd Count	Mend Count	Decorative Type (Pattern Number)
Whiteware						
1	20	-	12	2	2	decal (114)
2	20	-	12	7	7	painted (105)
3	20	-	12	4	4	molded (106)
4	20	-	12	6	6	molded (107)
5	multiple		-	7	7	-
6	20	-	12	2	2	-
7	multiple		-	9	9	tea leaf (72)
8	20	-	12	3	3	mold,paint (108)
9	20	-	12	3	3	painted (109)
11	multiple		-	16	9	-
12	21	3	-	2	2	-
13	multiple		-	3	3	brown slip (110)
14	multiple		-	18	18	molded (111)
15	22	3	-	8	8	molded, painted
16	17	1	-	3	2	molded (116)
17	23	2	-	15	14	molded (114)
18	18	5	-	2	2	-
19	12	4	-	4	4	-
21	18	7	-	4	4	-
25	19	5	-	2	2	-
28	19	5	-	3	3	-
30	multiple		-	4	4	-
33	12	-	6	4	4	-
34	17	-	8	2	2	-
35	17	-	8	2	2	-
37	16	6	-	2	2	-
38	multiple		-	2	2	-
40	3	4	-	2	2	-
41	2	1	-	3	3	-
Subtotals				144	135	
Stoneware						
10	18	6	-	2	2	-
20	multiple		-	21	21	albany slip
23	multiple		-	2	2	-
24	19	8	-	2	2	-
26	multiple		-	3	3	-
32	21	3	-	2	-	-
39	18	4	-	2	2	-
42	21	3	-	2	2	-
Subtotals				36	34	

Table 15. Concluded.

Vessel Number	Provenience Unit	Level	Feature	Sherd Count	Mend Count	Decorative Type (Pattern Number)
Porcelain						
22	24	1	-	5	5	painted, gilded
27	multiple		-	4	4	-
31	20	-	12	10	10	decal (117)
36	24	1	-	2	2	molded
Subtotals				21	21	
Yellowware						
29	19	7	-	3	3	rockingham (116)
Subtotals				3	3	
Totals				203	193	

Table 16. Ceramic vessel makers, Miles House (HS 6).

Provenience Unit	Level	Feature	Vessel Form	Vessel Number	Maker	Date Span
18	3	-	saucer	14	J.Bros	1883-1913
18	5	-	bowl	20	P.P.	1873-1904
18	6	-	bowl	20	P.P.	1873-1904
19	8	-	-	-	und	-
19	9	-	-	-	und	-
21	3	-	bowl	20	P.P.	1873-1904
21	3	-	saucer	14	J.Bros.	1883-1913
21	4	-	bowl	20	P.P.	1873-1904
21	4	-	-	-	und	-
26	2	-	-	-	und	-
20	1	12	plate	7	A.M.	after 1891
20	2	12	saucer	3	C.P.	1903-1930
20	2	12	saucer	4	K.T.K.	1876-1904
20	2	12	bowl	5	E.M.K.	about 1920
20	2	12	plate	7	A.M.	after 1891
20	2	12	saucer	8	M.Sons	1855-1896
20	2	12	bowl	2	E.M.K.	ca. 1920
20	3	12	bowl	5	E.M.K.	about 1920
20	4	12	bowl	31	Japan	-
26	1	13	-	-	J.R.	-
26	1	13	plate	-	und	-

J.Bros. = Johnson Brothers	C.P. = Carrollton Pottery
P.P. = Peoria Pottery	M.Sons= Maddock and Sons
A.M. = Alfred Meakin LTD.	J.R. = James Reeves
K.T.K. = Knowles, Taylor, Knowles	und = undetermined
E.M.K. = Edwin M. Knowles	

Table 17. Ceramic vessel forms, Miles House (HS 6).

Provenience		Feature	Vessel Form										
Unit	Level		bo	ch	cu	fl	ha	ho	ju	pl	po	sa	st
1	1	-	-	-	-	-	-	-	-	1	-	-	-
12	4	-	-	-	-	-	-	-	-	-	-	1	-
16	6	-	-	-	-	-	-	1	-	-	-	-	-
16	7	-	-	-	-	-	-	-	-	1	-	-	-
17	1	-	-	-	-	-	-	-	-	1	-	-	-
18	3	-	-	-	-	-	-	-	-	1	-	1	-
18	4	-	-	-	-	-	-	-	-	1	-	-	-
18	5	-	1	-	-	-	-	-	-	-	-	-	-
18	6	-	1	-	-	-	-	1	-	-	-	-	-
19	5	-	-	-	-	1	-	1	-	-	-	-	-
19	8	-	-	-	-	-	-	2	-	-	-	-	-
19	9	-	-	-	-	-	-	1	-	-	-	-	1
21	3	-	2	-	-	-	-	-	1	1	-	1	-
21	4	-	1	-	-	-	-	-	-	1	-	-	-
23	2	-	-	-	-	-	-	-	-	1	-	-	-
20	1	12	-	-	-	-	-	-	-	1	-	-	-
20	2	12	3	-	1	-	-	-	-	1	-	3	-
20	3	12	3	-	-	-	1	-	-	1	-	1	-
Totals			11	0	1	1	1	6	1	11	0	7	1
bo = bowl			ju = jug										
ch = chamber pot/lid			pl = plate										
cu = cup			po = pot										
fl = flat			sa = saucer										
ha = handle			st = strainer										
ho = hollow													

Table 18. Ceramic vessel wares and forms, Miles House (HS 6).

Vessel Form	Stoneware	Whiteware	Porcelain
bowl	5	6	-
cup	-	1	-
handle	-	1	-
plate	-	10	1
hollow	4	2	-
jug	1	-	-
strainer	-	1	-
flat	-	1	-
saucer	-	7	-
Totals	10	29	1

Table 19. Toys from the Miles House (HS 6).

Provenience Unit	Level	Feature	Doll and Doll Furniture	Marbles	Writing Slate Fragments	Slate Pencil Fragment
12	4	-	-	-	2	-
16	3	-	-	-	3	-
18	4	-	-	-	-	2
18	5	-	-	1 clay common	-	-
18	6	-	4 body fragments, mounded	-	-	-
19	4	-	-	-	3	-
19	8	-	porcelain miniature tea cup	-	-	-
21	4	-	-	1 glass German Swirl	-	-
24	surface	-	2 body fragments	-	-	-
24	1	-	1 head, 1 body fragment	-	1	-
26	2	-	1 pewter miniature saucer	1 clay common	2	-
8	-	2	-	-	-	1
17	-	8	-	-	1	-
22	-	8	-	-	-	1
24	-	15	1 head fragment 1 body fragment	-	-	-
Totals			11	3	12	4

Table 20. Buttons from the Miles House (HS 6).

Provenience Unit	Level	Feature	Shell	Bone	Ceramic				Metal	Shanked	Hard Rubber
					pl	co	pa	mo			
1	0	-	-	-	1	-	-	-	-	-	*1
3	4	-	-	-	1	-	-	-	-	-	-
16	1	-	-	-	-	-	-	-	1	-	-
16	7	-	-	1	-	-	-	-	-	1	-
17	0	-	-	-	-	-	1	-	-	-	-
17	2	-	-	-	1	-	-	-	-	-	-
18	3	-	1	-	-	-	-	-	-	-	-
18	4	-	-	-	2	-	-	-	-	-	-
18	5	-	-	-	1	-	1	1	1	-	-
19	1	-	1	-	1	-	-	-	-	-	-
19	8	-	-	-	1	-	-	-	-	-	-
21	4	-	-	-	2	-	-	-	-	-	-
21	5	-	-	-	1	-	-	-	-	-	-
22	3	-	-	-	-	-	-	-	-	1	-
24	1	-	1	-	-	-	-	-	-	-	-
26	2	-	-	-	-	-	1	-	-	-	-
8	1	2	-	-	1	-	-	-	-	-	-
15	4	8	-	-	-	-	1	1	1	-	-
17	2	10	-	-	1	-	-	-	-	-	-
22	1	8	-	-	4	1	-	-	-	-	-
17	2	13	-	-	-	-	2	-	-	-	-
22	1	13	-	-	1	-	-	-	-	-	-
22	3	12	-	-	1	-	-	-	-	-	-
Totals (38)			3	1	19	1	6	2	3	2	1

pl = plain

co = colored

pa = painted

mo = molded

* = inscribed "GOODYEAR P.T. 1851 R CO."

Table 21. Window glass counts and thicknesses, Hayhurst House (HS 10).

Provenience	Count	Total Thickness (mm)	Mean (mm)
Excavation Level			
1	417	911.71	2.19
2	249	536.49	2.16
3	208	448.42	2.16
4	57	120.05	2.11
5	9	20.50	*
6	5	9.66	*
7	0	0	*
Shovel Tests			
1	1	2.58	*
10	1	1.38	*
11	1	2.63	*
12	1	1.68	*
13	1	1.66	*
14	1	2.21	*
19	2	3.07	*
20	1	2.65	*
23	1	3.13	*
25	1	1.68	*
Features			
3	5	8.37	*
7	5	10.38	*
8	2	4.72	*
misc./other	9	21.22	*
Site Totals	977	2,114.19	2.16

* mean not calculated due to small sample size.

Table 22. Nail forms and counts at the Hayhurst House (HS 10).

Provenience	Cut Nails		Wire Nails	
	Fragments	Complete	Fragments	Complete
Excavation Level				
1	510	182	313	291
2	448	136	71	79
3	176	122	27	30
4	168	27	-	-
5	24	5	-	1
6	14	2	-	-
7	-	-	-	-
Excavation Unit				
1	19	19	3	12
2	37	19	7	31
3	33	22	9	16
5	156	39	9	16
6	13	8	-	-
7	159	62	33	52
8	46	20	4	25
9	92	13	37	30
10	42	7	3	6
11	98	89	60	61
12	10	3	9	1
13	97	35	23	22
14	21	6	8	8
15	70	15	35	23
16	297	46	161	75
17	-	4	4	9
18	-	-	-	4
19	8	3	10	10
20	-	-	-	1
21	2	2	1	-
22	1	12	-	1
23	8	8	3	3
24	32	20	7	20
25	24	3	3	3
27	79	23	2	2
28	6	7	-	-
29	8	7	-	-
30	5	2	2	2
Shovel Test				
1	-	1	-	-
4	-	-	1	-

Table 22. Concluded.

Provenience	Cut Nails		Wire Nails	
	Fragments	Complete	Fragments	Complete
Shovel Test				
5	-	-	1	-
6	2	-	-	-
15	1	-	-	-
16	1	-	-	-
19	-	-	-	1
22	1	-	-	-
25	4	2	-	-
Feature				
2	4	-	-	-
3	10	1	2	-
6	7	-	-	-
7	58	2	-	-
Site Totals	1,451	500	437	434

Table 23. Miscellaneous architectural items from the Hayhurst House (HS 10).

Provenience		Coal	Mortar	Brick	Other
Unit and Level					
1	1	-	+	+	caulk*, shingle†
	2	-	+	+	shingle
	4	-		+	-
2	1	+	+	+	wood
2	-	+	-	-	
	3	-	-	-	wood
3	1	-	+	-	-
	2	-	+	-	-
	3	-	-	+	wood
4	1	-	-	+	-
5	2	-	-	-	linoleum*
	3	-	-	-	ceramic door knob
	4	-	+	+	-
6	1	-	-	-	shingle
	2	+	+	+	-
7	1	-	+	+	-
	2	-	-	-	wire*
	4	+	-	-	-
8	1	+	-	+	shingle
	3	-	-	+	-
9	1	+	-	+	ceramic door knob
	2	+	+	+	wood
	3	-	+	-	-
10	1	-	+	-	-
	2	+	+	-	-
11	1	+	-	-	wood
	2	+	-	-	-
	4	-	+	-	-
12	1	-	+	+	wood
13	1	-	-	+	ceramic door knob
	2	-	-	-	wire*
	4	-	+	+	-
	5	-	+	+	-
14	1	-	-	-	cinder*
15	1	-	-	+	wire*, staple
	2	-	+	+	-
	3	-	+	-	-
	4	-	+	-	-
	5	-	+	-	-
16	1	+	+	-	ceramic door knob & shank
19	2	-	+	+	-
	3	-	-	+	-
20	1	-	-	+	-
21	1	-	+	+	wood

Table 23. Concluded.

Provenience		Coal	Mortar	Brick	Other
Unit and Level					
22	2	-	+	+	-
24	1	-	+	+	-
	3	-	+	+	-
25	1	-	+	+	limestone
25	2	-	-	+	shingle
27	0	-	-	-	limestone
	2	-	+	-	ceramic door knob, wood
	3	-	-	+	caulk*, limestone
28	1	-	+	-	-
2	-	-	-	limestone	-
29	0	-	+	-	-
28	2	-	-	-	wood
30	1	-	-	+	-
Features					
2		-	+	+	-
3		-	-	-	wood
4		-	-	-	wood
6		-	-	-	shingle
7		+	-	+	wood
8		-	+	-	2 ceramic door knobs
				w/shank, wood	
Shovel Tests					
2		-	+	-	-
11		-	+	-	-
15		-	-	+	-
22		-	+	-	-
24		+	-	-	-

* item discarded

† all shingles are the asphalt type

Table 24. Provenience of glass sherds from the Hayhurst House (HS 10).

Provenience Unit	Feature	Glass Color										
		aq	am	bl	bu	co	dg	gr	mg	pu	ps	ye
1	-	18	-	-	1	34	1	1	-	10	-	-
2	-	-	2	-	-	33	-	-	1	1	-	-
3	-	8	2	-	-	33	-	-	-	-	-	-
5	-	26	4	-	-	75	-	-	9	3	-	4
6	-	5	-	-	-	14	1	-	2	-	-	-
7	-	21	1	-	-	73	-	8	2	1	-	-
8	-	1	-	-	-	17	-	-	-	-	-	-
9	-	19	2	-	-	26	-	2	-	2	1	-
10	-	11	1	-	-	25	-	1	1	-	-	-
11	-	2	12	-	-	24	-	1	1	-	-	-
12	-	1	3	-	-	8	-	-	-	-	-	-
13	-	17	-	-	1	17	-	6	-	-	-	-
14	-	5	-	-	-	10	3	-	3	1	-	-
15	-	74	3	-	1	50	1	-	3	2	-	1
16	-	18	7	-	-	46	-	1	3	1	-	-
17	-	-	-	-	-	4	-	-	-	1	-	-
18	-	1	-	-	-	3	-	-	-	-	-	-
19	-	-	-	-	-	2	-	-	-	-	-	-
20	-	11	-	-	-	10	-	-	1	-	-	-
21	-	1	-	-	-	-	-	-	-	-	-	-
23	-	10	-	-	-	5	1	3	-	2	-	-
24	-	4	1	-	-	16	-	-	1	-	-	-
25	-	13	-	-	-	6	-	-	-	1	-	-
27	-	9	-	2	3	28	-	10	-	-	-	-
28	-	3	-	-	-	12	-	-	-	-	-	-
29	-	24	-	-	-	15	-	-	2	-	-	-
30	-	8	1	-	-	16	-	1	-	-	-	-
ST 1	-	1	-	-	-	-	-	-	-	-	-	-
ST 2	-	-	-	-	-	-	1	-	-	-	-	-
ST 3	-	1	-	-	-	1	-	-	-	-	-	-
ST 4	-	-	-	-	-	1	-	-	1	1	-	-
ST 6	-	-	-	-	-	1	-	-	-	-	-	-
ST 8	-	-	1	-	-	1	-	-	-	-	-	-
ST 13	-	-	-	-	-	1	-	-	-	-	-	-
ST 14	-	-	-	-	-	1	-	-	-	-	-	-
ST 20	-	1	-	-	-	-	-	-	-	-	-	-
ST 21	-	1	-	-	-	-	-	-	-	-	-	-
ST 25	-	-	-	-	-	1	-	-	-	-	-	-
14	3	1	-	-	-	8	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-
	6s	-	-	-	-	-	-	-	-	-	-	-

Table 24. Concluded.

Provenience Unit	Feature	Glass Color										
		aq	am	bl	bu	co	dg	gr	mg	pu	ps	ye
26	7	-	-	-	-	3	-	-	-	-	-	-
	7s	1	-	-	-	8	-	-	-	-	-	-
26	7n	-	-	-	-	-	-	-	-	-	-	-
	8	1	1	-	1	9	-	-	3	-	-	-
Totals (1,111)		317	41	2	7	637	8	34	33	26	1	5
		aq = aqua					mg = milk glass					
		am = amber					pu = purple					
		bl = black					ps = purple slag					
		bu = blue					ye = yellow					
		co = colorless					st = shovel test					
		dg = dark green					n = north					
		gr = green					s = south					

Table 25. Mended glass sherds from the Hayhurst House (HS 10).

Provenience Unit	Feature	Glass Color											
		aq	am	bl	bu	co	ch	dg	gr	mg	pu	ps	ye
1	-	-	-	-	1	2	-	-	-	-	-	-	-
2	-	-	-	-	-	9	-	-	-	-	-	-	-
3	-	-	2	-	-	8	-	-	-	-	-	-	-
5	-	-	-	-	-	4	-	-	-	1	-	-	4
6	-	-	-	-	-	3	-	-	-	-	-	-	-
7	-	2	-	-	-	2	2	-	-	-	-	-	-
11	-	-	-	-	-	-	2	-	-	-	-	-	-
12	-	-	-	-	-	2	-	-	-	-	-	-	-
13	-	-	-	-	-	2	-	-	-	-	-	-	-
15	-	5	-	-	-	13	30	-	-	1	-	-	-
16	-	2	4	-	-	10	2	-	-	-	-	-	-
20	-	4	-	-	-	-	-	-	-	-	-	-	-
23	-	2	-	-	-	-	-	-	2	-	-	-	-
24	-	-	-	-	-	3	-	-	9	-	-	-	-
27	-	4	-	2	2	10	-	-	-	-	-	-	-
28	-	1	-	-	-	2	-	-	-	-	-	-	-
29	-	15	-	-	-	-	1	-	-	-	-	-	-
30	-	-	-	-	-	2	36	-	1	-	-	-	-
	6s	-	-	-	-	-	5	-	-	-	-	-	-
	7s	-	-	-	-	4	65	-	-	-	-	-	-
	8	-	-	-	1	-	-	-	-	2	-	-	-
Totals (287)		35	6	2	4	76	143	0	12	4	0	1	4
aq = aqua		gr = green											
am = amber		mg = milk glass											
bl = black		pu = purple											
bu = blue		ps = purple slag											
co = colorless		ye = yellow											
ch = chimney glass		s = south											
dg = dark green													

Table 26. Reconstructed glass vessels from the Hayhurst House (HS 10).

Vessel Number	Provenience Unit	Level	Feature	Vessel Form	Sherd Count	Mend Count	Color	Technology
1	27	3	-	mb	4	4	aq	-
2	27	2	-	di	2	2	co	pr
3	multiple		-	bo	11	10	gr	-
4	27	2	-	di	2	2	bu	pr
5	multiple		-	pl	2	2	bu	pr
6	multiple		-	mb	4	4	am	-
7	multiple		-	mb	7	6	co	mm
8	multiple		-	di	9	9	co	pr
9	multiple		-	mb	6	6	co	mm
10	6	1	-	mb	3	3	co	pb
11	multiple		-	bo	2	2	bl	-
12	multiple		-	-	2	2	mg	-
14	multiple		-	ib	17	16	aq	pb
15	1	-	7s	mb	3	2	co	pb
16	16	1	-	mb	3	3	co	-
17	1	1	-	ja	2	2	co	-
18	multiple		-	mi	2	2	co	-
19	5	4	-	-	4	4	ye	pr
20		1	8	di	3	3	mg	pr
21	multiple		-	di	2	2	co	-
22		1	7s	-	2	2	co	-
23	24	1	-	-	2	2	co	-
24	3	2	-	-	2	2	am	-
26	multiple		-	-	9	5	co	bg
27	multiple		-	ja	5	5	aq	bg
29	15	4	-	mb	2	0	aq	-
31	multiple		-	ja	9	5	co	pr
33	28	1	-	-	5	2	co	-
35	7	3	-	-	2	2	co	-
38	27	3	-	-	2	2	co	-
40	16	1	-	-	4	4	co	-
41	5	4	-	-	2	2	co	-
42	7	1	-	ja	2	2	aq	bg
43	multiple		-	-	2	2	co	-
44	multiple		-	di	4	4	co	pr
45	multiple		-	di	2	0	co	pr
46	15	3	-	-	3	2	co	-
47	23	1	-	ja	2	2	aq	-
48	multiple		-	di	2	0	co	pr
50	5	3	-	-	2	2	co	-
51	15	3	-	ja	2	2	aq	-
54	multiple		-	mb	3	2	gr	-

Table 26. Concluded.

Vessel Number	Provenience Unit	Level	Feature	Vessel Form	Sherd Count	Mend Count	Color	Technology
55	20	4	-	mb	4	4	aq	-
56	multiple		-	-	11	0	am	-
57	multiple		-	-	3	0	dg	-
64	30	5	-	-	2	2	co	-
Totals					180	143		

Vessel Form	Color	Technology
ja = jar	aq = aqua	bg = burst off and grind
bo = bottle	am = amber	dg = drinking glass
jj = jelly jar	bl = black	lc = Lightning closure
pl = plate	bl = blue	mm = machine mold
di = dish	co = colorless	pb = post bottom mold
dg = drinking glass	dg = dark green	pr = pressed
wg = wine glass	gr = green	su = suction mold
mb = medicine bottle	mg = milk glass	
mi = milk bottle	pu = purple	
ch = chimney glass	ps = purple slag	
ib = ink bottle	ye = yellow	

Table 27. Glass vessel forms at the Hayhurst House (HS 10).

Provenience		Feature	Vessel Form										
Unit	Level		ja	bo	jj	pl	di	dg	wg	mb	mi	ch	ib
1	1	-	1	-	-	1	-	-	-	-	-	-	-
2	2	-	-	-	-	-	-	-	-	1	-	-	-
2	3	-	-	-	-	-	2	-	-	1	-	-	-
3	2	-	-	-	-	-	2	-	-	-	-	-	-
5	1	-	-	-	-	-	1	-	-	-	-	-	-
5	3	-	-	-	-	-	-	-	-	1	-	-	-
5	4	-	-	-	-	-	-	-	-	1	-	-	-
6	1	-	-	1	-	-	1	-	-	1	-	-	-
7	1	-	4	-	-	-	-	1	-	1	-	-	-
7	2	-	-	-	-	-	-	-	-	-	1	-	-
8	2	-	-	-	-	-	1	-	-	-	-	-	-
8	3	-	-	-	-	-	1	-	-	-	-	-	-
9	3	-	-	-	-	-	-	-	-	1	-	-	-
10	2	-	-	-	-	-	-	-	-	-	-	1	-
10	4	-	1	-	-	-	-	-	-	1	-	-	-
10	5	-	1	-	-	-	-	-	-	-	-	-	-
11	1	-	1	-	-	-	-	-	-	-	-	-	-
11	2	-	-	-	-	-	-	-	-	-	-	1	-
11	3	-	-	-	-	-	-	-	1	-	-	-	-
12	1	-	-	1	-	-	-	-	-	-	-	-	-
13	2	-	-	-	-	-	1	-	-	-	-	-	-
13	3	-	-	-	-	-	2	-	-	-	-	-	-
15	2	-	1	1	-	-	-	-	-	-	-	-	-
15	3	-	3	-	-	-	-	-	-	-	1	3	-
15	4	-	-	-	-	-	-	-	-	1	-	1	-
16	0	-	-	-	-	-	-	-	-	1	-	-	-
16	1	-	2	-	-	-	1	-	-	2	1	1	-
18	1	-	-	1	-	-	-	-	-	-	-	-	-
18	2	-	-	-	-	-	-	-	-	1	-	-	-
20	1	-	-	-	-	-	-	-	-	1	-	-	-
20	3	-	-	-	-	-	1	-	-	-	-	-	-
20	4	-	-	-	-	-	-	-	-	1	-	-	-
21	1	-	-	-	-	-	-	-	-	1	-	-	-
23	1	-	1	-	-	-	-	-	-	2	-	-	-
23	3	-	1	-	-	-	-	-	-	1	-	-	-
25	1	-	-	-	-	-	-	1	-	-	-	-	-
27	1	-	-	1	-	-	-	-	-	-	-	-	-
27	2	-	-	2	-	-	2	-	-	1	-	-	-
27	3	-	-	1	-	-	-	-	-	2	-	-	-
28	1	-	-	-	-	-	-	-	-	-	-	-	1
28	2	-	-	-	-	-	-	-	-	-	-	-	1
29	0	-	-	-	-	-	-	-	-	1	-	1	-

Table 27. Concluded.

Provenience		Feature	Vessel Form										
Unit	Level		ja	bo	jj	pl	di	dg	wg	mb	mi	ch	ib
29	1	-	-	-	-	-	-	-	-	-	-	-	1
29	2	-	-	-	-	-	-	-	-	1	-	-	1
29	3	-	-	-	-	-	-	-	-	2	-	-	-
30	2	-	-	2	-	-	-	-	-	1	-	-	-
30	4	-	-	1	-	-	-	-	1	-	-	2	-
30	5	-	-	-	-	-	-	-	-	-	-	1	-
-	2	6s	-	-	-	-	-	-	-	-	-	2	-
-	1	7s	-	-	-	-	-	-	-	1	-	3	-
-	1	8	2	1	1	1	1	-	-	-	-	-	-
Totals (104)			18	12	1	2	16	2	2	28	3	16	4
ja = jar			wg = wine glass										
bo = bottle			mb = medicine bottle										
jj = jelly jar			mi = milk bottle										
pl = plate			ch = chimney										
di = dish			ib = ink bottle										
dg = drinking glass			s = south										

Table 28. Embossed glass from the Hayhurst House (HS 10).

Provenience Unit	Level	Feature	Vessel Number	Embossed	Date Span
Information on bottle body					
1	1	-	17	possible Ball	1888-
2	1	-	-	"PATE.../MCH..."	
5	4	-	-	"...XTURE"	
7	1	-	-	MASON'S PATENT NOV. 30th	
				"185"8	1858-1912
9	0	-	-	BURDOCK/BLOOD/BITTERS	ca. 1881
9	3	-	-	"M..."	
10	4	-	-	MASON'S PATENT "NO"V 30th 1858	1858-1912
11	3	-	56	undetermined	
12	1	-	-	undetermined	
14	1	-	57	undetermined	
14	2	-	-	undetermined	
15	2	-	-	MASON'S PATENT NOV 30th 1858	1858-1912
15	3	-	-	symbol for Hero Fruit Jar co.	1882-1884
15	3	-	-	undetermined	
15	3	-	56	undetermined	
15	4	-	29	HEALY & BIGELOW	ca.1889
18	2	-	-	undetermined	
20	4	-	-	"BUF..."	
23	1	-	-	"...EIL"	
23	1	-	57	undetermined	
23	3	-	-	"...TOR"	
23	3	-	-	undetermined	
24	1	-	-	"...SON SOAP"	
24	2	-	-	undetermined	
25	2	-	-	MASON'S PATENT NOV 30th 1858	1858-1912
27	3	-	1	"J F WILSON & Co// ...ENTERPOINT//...WA."	
29	0	-	-	possible Ball jar	
29	3	-	-	"O.L.&G.N.Y."	
30	2	-	-	possible Atlas jar	1896-1964
30	2	-	-	"CENTER..."	
Information on bottle base					
7	3	-	-	"...EN"	
18	1	-	-	mark for Pennsylvania bottle company	1929-1953
29	2	-	-	"F A & C"	1860-1862
-	-	8	-	mark for Owens-Illinois Glass CO.	1929-1954
-	-	8	-	horseshoe with star	

Table 29. Glass vessel makers, Hayhurst House (HS 10).

Provenience Unit	Level	Feature	Vessel Number	Maker	Date Span
1	1	-	17	Ball Brothers Manufacturing	1888-
2	1	-	-	undetermined	
5	4	-	-	undetermined	
7	1	-	-	undetermined*	1858-1912
7	3	-	-	undetermined	
9	0	-	-	Reed Glass Company	ca. 1881
9	3	-	-	undetermined	
10	4	-	-	undetermined*	1858-1912
11	3	-	56	undetermined	
12	1	-	-	undetermined	
14	1	-	57	undetermined	
14	2	-	-	undetermined	
15	2	-	-	undetermined*	1858-1912
15	3	-	-	Hero Fruit Jar Co.	1882-1884
15	3	-	-	undetermined	
15	3	-	56	undetermined	
15	4	-	29	undetermined*	ca. 1889
18	1	-	-	Pennsylvania Bottle Co.	1929-1953
18	2	-	-	undetermined	
20	4	-	-	undetermined	
23	1	-	-	undetermined	
23	1	-	57	undetermined	
23	3	-	-	undetermined	
23	3	-	-	undetermined	
24	1	-	-	undetermined	
24	2	-	-	undetermined	
25	2	-	-	undetermined*	1858-1912
27	3	-	1	undetermined	
29	0	-	-	Ball Brothers Manufacturing	ca. 1890
29	2	-	-	Fahnstock, Albree and Co.	1860-1862
29	3	-	-	undetermined	
30	2	-	-	Atlas Glass	1896-1964
30	2	-	-	undetermined	
-	1	8	-	Owens-Illinois Glass Co.	1929-1953
-	1	8	-	undetermined	

* = embossed mason jar

Table 30. Glass vessel portions from the Hayhurst House (HS 10).

Provenience Unit	Feature	Portion of Vessel											
		ba	bo	ha	li	ne	nf	nn	sh	sn	sg	st	wh
1	-	-	1	-	-	-	-	-	-	-	-	-	-
2	-	-	3	-	1	-	2	-	-	-	-	-	-
3	-	-	-	-	1	-	-	-	-	-	-	-	-
5	-	-	3	-	-	-	1	-	-	-	-	-	-
6	-	1	-	1	-	-	1	-	-	-	-	-	-
7	-	1	3	-	2	1	2	-	-	-	-	-	-
8	-	-	-	-	-	-	1	-	-	-	-	-	-
9	-	-	1	-	-	-	-	1	-	-	-	-	-
10	-	-	1	-	-	-	-	1	1	-	-	-	-
11	-	1	2	1	-	-	-	-	-	-	1	-	-
12	-	-	1	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	2	-	-	-	-	-	-	-	-
14	-	1	-	-	-	-	-	-	-	-	-	-	-
15	-	2	7	-	-	-	1	-	3	-	-	-	-
16	-	-	5	1	-	-	3	-	1	-	-	-	-
18	-	1	1	-	-	-	-	-	1	-	-	-	-
20	-	-	2	-	-	-	-	-	-	-	-	-	-
21	-	1	-	-	-	-	-	-	-	-	-	-	-
23	-	3	3	-	-	-	-	-	-	-	-	-	-
24	-	1	1	-	-	-	-	-	-	-	-	-	-
25	-	2	1	-	-	-	-	-	-	-	-	-	-
27	-	4	2	-	-	-	1	-	1	-	-	-	-
28	-	-	-	-	-	-	-	-	-	1	-	-	-
30	-	2	5	-	-	-	-	1	1	-	-	-	1
14	3	-	1	-	-	-	-	-	-	-	-	-	-
-	6s	2	-	-	-	-	-	-	-	-	-	-	-
-	7s	3	2	-	-	-	-	-	-	-	-	-	1
-	8	2	1	-	-	1	1	-	-	-	-	-	-
Totals		27	46	3	6	2	13	3	8	1	1	0	2
ba = base		nn = neck and neck finish											
bo = body		sh = shoulder											
ha = handle		sn = shoulder and neck											
li = lip		sg = stem of glass											
ne = neck		st = stopper											
nf = neck finish		wh = whole											

Table 31. Provenience of ceramic sherds from the Hayhurst House (HS 10).

Provenience Unit	Feature	Ware					Sherd Count	Mend Count
		po	rw	sw	ww	yw		
1	-	-	1	10	20	-	31	2
2	-	1	1	18	39	10	69	24
3	-	-	-	18	19	1	38	11
4	-	1	-	1	4	-	6	2
5	-	7	3	28	61	1	100	21
6	-	1	2	12	28	1	44	5
7	-	9	-	22	61	1	93	19
8	-	-	-	6	12	-	18	2
9	-	5	-	14	31	4	54	4
10	-	-	4	4	20	1	29	2
11	-	1	-	12	58	3	74	14
12	-	-	1	-	-	-	1	-
13	-	-	6	7	18	11	42	12
14	-	1	1	5	11	-	18	1
15	-	1	1	32	59	2	95	15
16	-	3	-	20	62	5	90	7
17	-	-	-	1	3	1	5	-
18	-	-	-	2	12	-	14	-
19	-	-	-	1	-	-	1	-
20	-	1	2	9	20	9	41	12
21	-	-	-	-	3	-	3	1
22	-	-	-	-	3	-	3	-
23	-	-	3	1	9	1	14	2
24	-	-	-	22	22	6	50	9
25	-	-	-	9	31	7	47	10
27	-	2	1	7	32	-	42	13
28	-	-	-	1	11	1	13	1
29	-	2	-	-	46	-	48	27
30	-	-	-	2	16	-	18	5
ST 1	-	-	-	3	1	-	4	-
ST 7	-	-	-	-	1	-	1	-
ST 11	-	-	-	-	1	-	1	-
ST 14	-	-	-	-	2	-	2	-
ST 16	-	-	-	-	1	-	1	-
ST 25	-	-	-	1	-	-	1	1
6	2	2	-	-	9	-	11	2

Table 31. Concluded.

Provenience Unit	Feature	Ware					Sherd Count	Mend Count
		po	rw	sw	ww	yw		
14	3	-	-	-	3	-	3	-
	6s	-	-	1	-	-	1	-
26	7n	-	-	-	1	-	1	-
	8	-	-	1	20	-	21	18
Totals		37	26	270	750	65	1148	242
		po = porcelain		yw = yellowware				
		rw = redware		sw = stoneware				
		ww = whiteware		st = shovel test				
		n = north		s = south				

Table 32. Ceramic decorative types, Hayhurst House (HS 10).

Decorative Type	Sherd Count	Minimum Number of Vessels	Number of Different Patterns
Whiteware			
black transfer print	1	1	1
blue transfer print	11	7	7
brown transfer print	2	2	2
mulberry transfer print	1	1	1
red transfer print	4	1	1
cobalt blue slip	2	1	1
decal	27	5	4
edge decorated	2	1	1
green slip	1	1	1
mocha	6	1	1
molded	84	25	21
molded, decal	4	2	4
molded, painted	18	1	2
molded, painted, decal	1	1	1
painted	9	3	3
sponge decorated	1	1	1
tea leaf	19	1	1
plain	555		1
Subtotals	750	55	54
Yellowware			
annular	10	5	4
green slip	3	1	1
molded	4	3	3
painted	1	1	1
rockingham	11	1	1
sponge decorated	2	1	1
plain	34	-	1
Subtotals	65	12	12
Stoneware			
sponge decorated	2	1	1
plain/Albany slip	268	20	1
Subtotals	270	21	2

Table 32. Concluded.

Decorative Type	Sherd Count	Number of Vessels	Number of Different Patterns
Porcelain			
blue transfer print	4	1	1
gilded, painted	1	1	1
molded	5	4	4
molded, decal	3	1	1
molded, painted	4	1	1
painted	7	4	4
plain	13	-	1
Subtotals	37	12	13
Redware			
painted	5	1	1
plain	21	1	1
Subtotals	26	2	2
Totals	1148	102	83

Table 33. Reconstructed ceramic vessels from the Hayhurst House (HS 10).

Vessel Number	Provenience Unit	Level	Feature	Vessel Form	Sherd Count	Mend Count	Decorative Type (Pattern Number)
Whiteware							
1	-	-	8	flower pot	16	16	molded, painted
2	-	-	8	cup	2	2	molded, painted
3	multiple		-	bowl	11	11	plain
4	3	2	-	-	2	2	plain
5	multiple		-	-	5	5	plain
9	multiple		-	bowl	4	4	molded (64)
11	24	2	-	-	2	2	plain
17	7	2	-	-	8	8	plain
18	7	1	-	-	2	2	molded (1)
20	7	4	-	hollow	2	2	molded (68)
21	multiple		-	cup	10	10	plain
22	multiple		-	saucer	10	6	molded (67)
23	multiple		-	-	2	2	plain
26	multiple		-	-	2	2	plain
27	15	3	-	-	2	2	plain
29	multiple		-	saucer	4	4	plain
30	multiple		-	cup	12	10	tea leaf (72)
31	multiple		-	-	3	3	plain
33	29	1	-	plate	22	22	decal (61)
36	multiple		-	hollow	5	2	plain
37	6	-	2	cup	2	2	plain
40	multiple		-	-	2	2	molded, decal
42	multiple		-	chamber pot	3	2	plain
43	6	1	-	-	2	2	cobalt blue
45	1	2	-	saucer	2	2	plain
49	5	4	-	-	3	3	plain
55	13	1	-	handle	2	2	plain
56	4	1	-	-	2	2	plain
57	multiple		-	hollow	6	6	plain
59	multiple		-	hollow	3	3	plain
60	15	3	-	-	2	2	plain
61	15	2	-	hollow	2	2	plain
62	multiple		-	-	2	2	plain
63	20	3	-	-	2	2	plain
64	multiple		-	-	4	2	red transfer
65	multiple		-	flat	2	2	molded, decal
Subtotals					167	155	

Table 33. Concluded.

Vessel Number	Provenience Unit	Level	Feature	Vessel Form	Sherd Count	Mend Count	Decorative Type (Pattern Number)
Stoneware							
6	multiple		-	bowl	4	4	plain
7	multiple		-	hollow	11	10	plain
12	multiple		-	hollow	7	7	plain
15	multiple		-	-	4	2	plain
19	7	2	-	-	2	2	plain
25	multiple		-	-	11	6	plain
35	multiple		-	hollow	10	5	plain
38	multiple		-	-	13	5	plain
44	multiple		-	bowl	10	6	plain
46	multiple		-	-	2	2	plain
51	multiple		-	bowl	7	6	plain
52	11	2	-	-	2	2	albany slip
53	16	1	-	-	2	2	plain
54	multiple		-	bowl	2	2	plain
58	5	4	-	-	2	2	plain
Subtotals					89	63	
Porcelain							
16	multiple		-	flatware	3	2	molded, decal
28	multiple		-	cup	3	2	painted (71)
50	multiple		-	hollow	4	3	molded, painted
Subtotals					10	7	
Yellowware							
8	13	2	-	bowl	7	7	plain
13	multiple		-	-	2	2	rockingham
39	9	1	-	-	2	2	green slip (73)
47	multiple		-	-	3	2	annular (50)
Subtotals					14	13	
Redware							
14	23	1	-	flower pot	2	2	painted (24)
48	20	2	-	flower pot	2	2	plain
Subtotals					4	4	
Totals					284	242	

Table 34. Ceramic vessel makers, Hayhurst House (HS 10).

Provenience Unit	Level	Vessel Form	Vessel Number	Maker	Date Span
2	1	bowl	3	undetermined	
2	2	bowl	3	undetermined	
2	3	-	9	undetermined	
5	4	saucer	-	undetermined	
7	2	-	-	undetermined	
9	1	-	-	undetermined	
9	2	-	-	undetermined	
11	0	-	64	undetermined	
11	4	-	64	undetermined	
13	2	-	64	undetermined	
14	1	-	-	Knowles, Taylor, Knowles	1890-1907
16	1	-	-	Knowles, Taylor, Knowles	1890-1907
16	1	-	-	undetermined	
18	2	-	-	Knowles, Taylor, Knowles	1890-1907
18	2	-	-	undetermined	
21	1	-	-	registry mark	1842-1867
24	2	-	64	undetermined	
28	1	saucer	29	undetermined	
28	2	plate	-	John Thomas, and Joseph Mayer	1843-1855
29	1	plate	33	Knowles, Taylor, Knowles	1890-1907
29	3	-	29	undetermined	
ST 14	-	-	-	Knowles, Taylor, Knowles	1890-1907

ST = shovel test

Table 35. Ceramic vessel forms, HS 10.

Provenience		Feature	Vessel form									
Unit	Level		bo	ch	cu	fl	ha	ho	ju	pl	po	sa
1	2	-	-	-	-	-	-	-	-	-	-	1
2	1	-	1	-	-	-	-	1	-	-	-	-
2	2	-	2	-	-	-	-	3	-	-	-	-
2	3	-	1	-	-	-	-	-	-	-	-	-
3	2	-	3	-	-	-	-	2	-	-	-	-
3	3	-	1	-	-	-	-	-	-	-	-	-
5	4	-	-	-	1	-	-	2	-	-	-	1
5	5	-	-	-	1	-	-	-	-	-	-	-
5	6	-	-	-	1	-	-	-	-	-	-	-
6	1	-	1	-	-	-	-	-	-	-	-	-
7	1	-	-	-	-	1	-	-	-	-	-	-
7	2	-	-	-	-	-	-	2	-	-	-	-
7	4	-	-	-	-	-	-	1	-	-	-	-
8	1	-	-	-	-	-	-	1	-	-	-	-
8	2	-	-	-	-	-	-	1	-	-	-	-
9	1	-	-	-	-	-	-	1	-	-	-	-
11	2	-	-	-	-	-	-	1	-	-	-	-
11	3	-	-	-	-	-	-	2	-	-	-	-
11	4	-	-	-	-	-	-	1	-	-	-	-
13	0	-	1	-	-	-	-	-	-	-	-	-
13	1	-	-	-	-	-	1	-	-	-	-	-
13	2	-	2	-	-	-	-	1	-	-	-	-
14	1	-	-	-	-	1	-	-	-	-	-	-
15	2	-	-	-	-	-	-	1	-	-	-	-
15	3	-	1	-	1	-	-	-	-	-	-	-
16	1	-	1	-	2	-	-	-	-	-	-	1
16	2	-	-	-	-	-	-	-	-	-	-	1
17	1	-	-	-	-	-	-	-	-	1	-	-
20	2	-	1	-	-	-	-	-	-	-	1	-
20	3	-	1	1	-	-	-	-	-	-	-	-
20	4	-	1	-	-	-	-	-	-	-	-	-
21	1	-	-	-	-	1	-	-	-	-	-	-
23	3	-	-	-	-	-	-	-	-	-	-	1
24	2	-	1	-	-	-	-	3	-	-	-	-
24	3	-	-	-	-	-	-	2	-	-	-	-
25	2	-	1	-	-	-	-	1	-	-	-	-
27	1	-	-	-	1	-	-	-	-	-	-	-
27	2	-	-	-	-	-	-	1	-	-	-	-
27	3	-	-	-	-	-	-	1	-	-	-	-
28	1	-	-	-	1	-	-	-	-	-	-	1
28	2	-	-	-	-	-	-	-	-	1	-	-

Table 35. Concluded.

Provenience		Feature	Vessel Form									
Unit	Level		bo	ch	cu	fl	ha	ho	ju	pl	po	sa
29	2	-	-	-	1	-	-	-	-	1	-	-
29	3	-	-	-	1	-	-	-	-	-	-	-
30	1	-	-	-	1	-	-	1	-	-	-	-
30	2	-	-	-	-	-	-	-	-	1	-	-
30	4	-	-	-	-	-	-	1	-	-	-	-
ST 25	1	-	1	-	-	-	-	-	-	-	-	-
6	1	2	-	-	1	-	-	-	-	-	-	-
-	1	8	-	-	1	-	-	-	-	-	1	-
Totals			20	1	13	3	1	30	0	4	2	6
			bo = bowl ch = chamber pot/lid cu = cup fl = flat ha = handle ho = hollow ju = jug pl = plate po = pot sa = saucer st = shovel test									

Table 36. Ceramic vessel wares and forms, Hayhurst House (HS 10).

Vessel Form	Stoneware	Whiteware	Yellowware	Porcelain
bowl	16	3	1	-
chamber pot lid	-	1	-	-
cup	-	11	-	2
handle	-	1	-	-
flatware	-	3	-	-
hollowware	17	11	-	2
plate	-	4	-	-
pot	-	2	-	-
saucer	-	5	-	*1
Totals	33	41	1	5

*identification uncertain; possibly plate or saucer

Table 37. Toys from the Hayhurst House (HS 10).

Provenience		Doll Fragments	Marble Type		
Unit	Level		Clay Common	Glass	Ceramic
1	1	-	-	1	-
2	1	1	-	-	-
2	3	1	-	-	-
2	4	1	-	-	-
3	1	2	-	-	-
5	1	-	-	1	-
5	4	1	-	-	-
6	2	-	1	-	-
7	1	2	-	-	-
8	1	1	-	-	-
8	2	-	1	-	-
9	1	-	1	-	-
9	2	1	-	-	-
10	1	2	-	-	-
10	5	1	-	-	-
11	0	-	-	1	-
11	2	-	2	-	-
11	3	1	-	-	-
13	1	1	-	-	-
15	1	-	-	1	-
15	4	2	-	-	-
16	1	-	1	-	-
19	2	-	1	-	-
20	1	-	-	1	-
22	1	1	-	-	-
24	1	1	-	-	-
29	1	1	-	-	-
30	4	-	-	-	*1
ST 25	-	-	-	-	1
Totals		20	7	5	2

* bullseye shooter

Table 38. Buttons from the Hayhurst House (HS 10).

Provenience		Ceramic				Other Types						
Unit	Level	Plain	Colored	Colored/ Molded	Painted	Shanked	Plastic	Shell	Bone	Metal	Hard Rubber	Glass
1	1	-	-	-	-	-	-	-	-	-	-	1
1	2	-	-	-	-	-	-	-	-	-	-	1
2	1	1	-	-	-	-	-	-	-	-	-	1
2	2	-	-	-	-	-	-	-	-	1	-	-
2	3	-	-	-	1	-	-	-	-	-	-	-
2	4	-	-	-	-	-	-	-	1	-	-	-
3	2	1	-	-	-	1	-	-	-	-	-	-
3	3	-	-	-	-	-	-	-	1	-	-	1
4	1	-	-	-	-	-	-	1	-	-	-	1
5	1	-	-	-	-	-	1	-	-	-	-	-
5	3	-	-	-	-	-	-	-	1	-	-	-
5	4	-	-	-	-	-	-	-	-	-	-	1
5	5	-	-	-	-	-	-	-	-	-	-	1
7	1	2	-	-	-	-	-	3	-	2	-	1
7	4	-	-	-	1	-	-	-	-	-	-	-
8	1	-	-	-	-	-	1	-	-	-	-	-
8	3	1	1	-	-	-	-	-	-	-	-	1
9	1	-	-	-	-	-	-	3	-	1	-	-
9	2	-	-	-	-	-	-	-	-	-	-	1
10	2	-	-	-	-	-	-	-	-	-	-	1
10	4	-	-	-	-	-	-	1	-	-	-	-
10	5	-	-	-	-	-	-	-	1	-	-	1
11	1	-	-	-	-	-	-	1	-	1	-	2
11	2	1	-	-	-	-	-	7	3	-	-	6
11	3	-	-	-	-	1	-	-	-	-	-	-
11	4	-	-	-	-	1	-	-	-	-	-	-
13	0	-	-	-	-	-	-	5	-	2	-	-
13	1	-	-	1	-	-	-	3	-	-	-	1

Table 38. Concluded.

Provenience		Ceramic				Other Types						
Unit	Level	Plain	Colored	Colored/ Molded	Painted	Shanked	Plastic	Shell	Bone	Metal	Hard Rubber	Glass
13	2	-	-	-	-	-	-	-	-	-	-	2
13	3	-	-	-	-	-	-	1	-	-	-	-
14	1	-	-	-	-	1	-	-	-	-	-	2
14	2	-	-	-	-	-	-	-	-	1	-	-
15	1	-	-	-	-	-	1	1	2	-	1	-
15	2	-	-	-	-	-	-	-	-	-	-	1
16	0	-	-	-	-	-	-	1	-	-	-	-
16	1	-	1	-	-	1	3	4	3	6	1	7
18	1	-	-	-	-	-	-	1	-	-	-	1
18	2	-	-	-	-	-	-	-	-	-	-	2
20	1	-	-	-	-	-	-	2	-	1	-	-
21	1	-	-	-	-	-	-	1	-	-	-	-
23	1	-	-	-	-	-	-	-	-	-	-	1
24	1	-	-	-	-	1	-	-	-	-	-	-
24	3	1	-	-	-	-	-	-	-	-	-	-
27	2	-	-	-	-	-	-	-	-	1	-	1
27	3	-	-	-	1	-	-	1	-	-	-	-
27	4	-	-	-	-	-	-	-	-	-	-	1
28	2	-	-	-	-	-	-	1	-	-	-	-
29	3	-	-	-	-	-	-	1	-	-	-	-
29	4	-	-	-	-	-	-	3	-	-	-	1
30	1	-	-	-	-	-	-	1	-	-	-	2
2 Feat.	7	-	-	-	-	-	-	-	-	-	-	1
ST 15	-	-	-	-	-	-	-	-	-	-	-	1
Surface	-	-	-	-	-	-	-	1	-	-	-	-
Totals		7	2	1	3	6	6	43	12	15	2	44

Table 39. Grooming items from the Hayhurst House (HS 10).

Provenience		Comb Fragments				Toothbrush Bone Handle
Unit	Level	Hard Rubber Comb Frags	Fine-tooth Comb	Plastic Comb	Bone Comb	
3	1	-	-	-	-	1
5	3	1	-	-	-	-
5	4	1	-	-	-	-
5	5	-	1	-	-	-
7	1	-	-	-	-	1
9	1	1	-	-	-	-
9	2	-	1*	-	-	-
10	5	-	-	1	-	-
11	1	-	-	-	2	-
11	3	-	1*	-	-	-
13	2	2	-	-	-	-
13	3	1	-	-	-	-
15	1	1	-	-	-	-
16	1	1	-	-	-	-
24	3	-	-	-	-	2
27	2	1	-	-	-	-
6	Feat. 2	1	-	-	-	-
-	Feat. 8	-	-	1	-	-
Totals		10	3	2	2	4

* Patent of "L.R. COMB Co GOODYEAR 1851"

Table 40. Miscellaneous artifacts from the Hayhurst House (HS 10).

Provenience Unit	Level	Pipestem Fragments	Jewelry, Beads	Grommet	Eyeglass Lenses	Door Knobs
2	1	-	-	-	-	-
2	2	1	-	-	-	-
5	3	-	-	-	1	1
7	1	-	-	-	1	-
9	1	-	1	-	-	1
10	5	-	25	-	-	-
10	6	-	9	-	-	-
11	3	1	-	-	-	-
13	1	-	1	-	-	1
14	1	-	2	1	-	-
16	1	-	3	-	-	1
16	2	1	-	-	-	-
18	2	-	1	-	-	-
23	2	1	-	-	-	-
27	2	-	-	-	-	1
-	Feat. 8	-	-	-	-	2
ST 6	-	-	-	1	-	-
ST 25	-	-	-	-	-	2
Totals		4	42	2	2	9

Figures

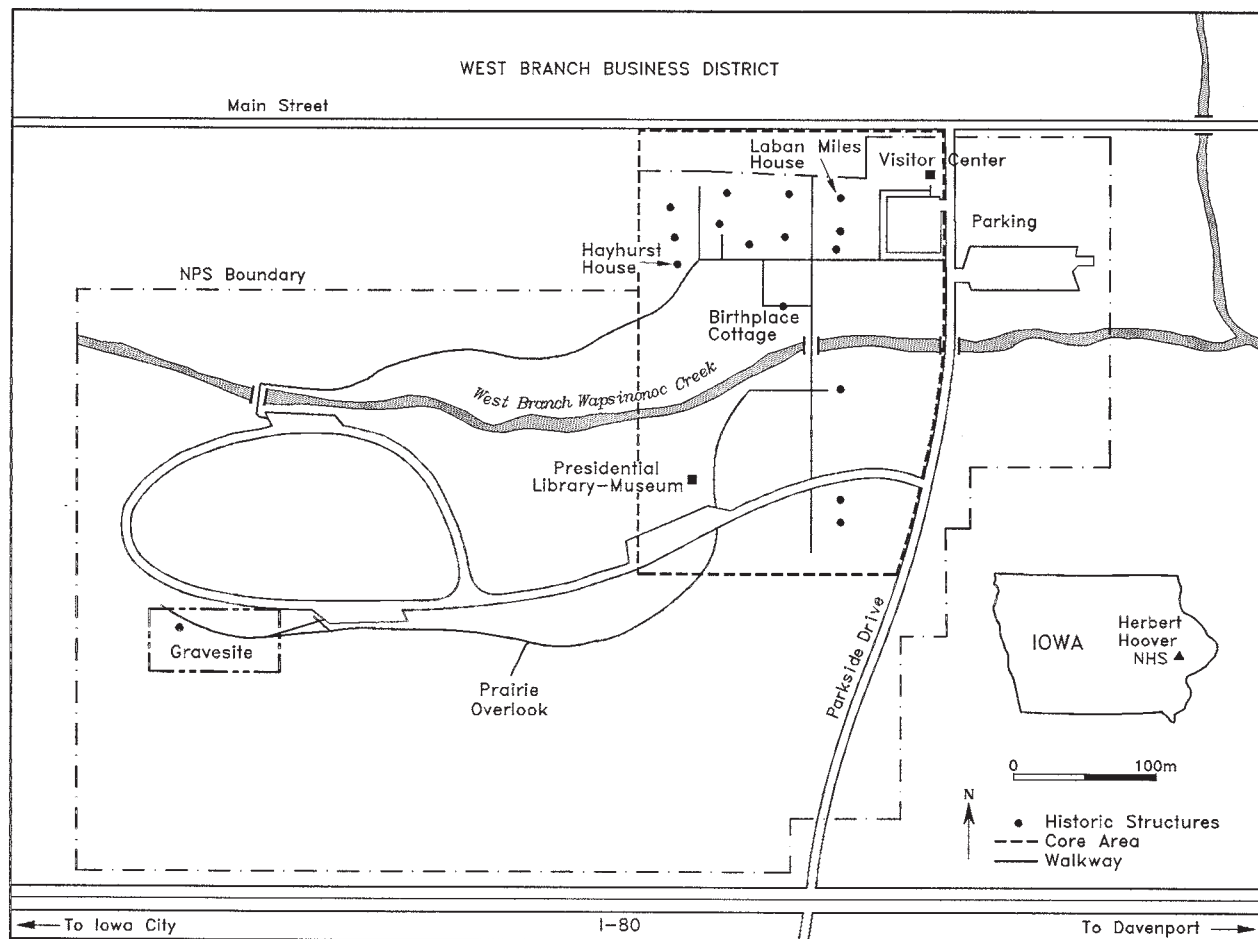


Figure 1. Project area map.



Figure 2. L. Miles House prior to restoration.



Figure 3. E.S. Hayhurst House prior to restoration.

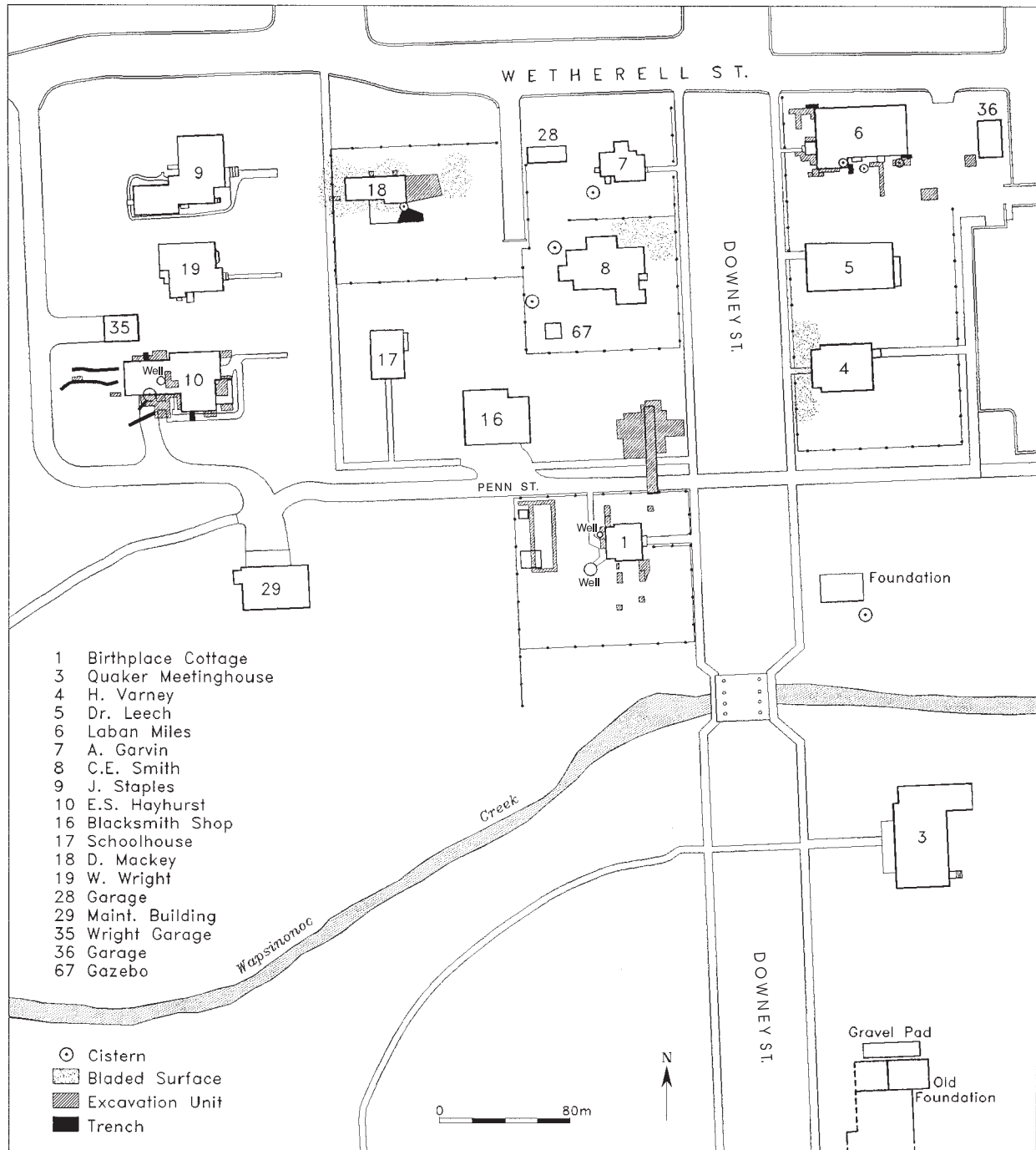


Figure 4. Archeological projects through 1989.

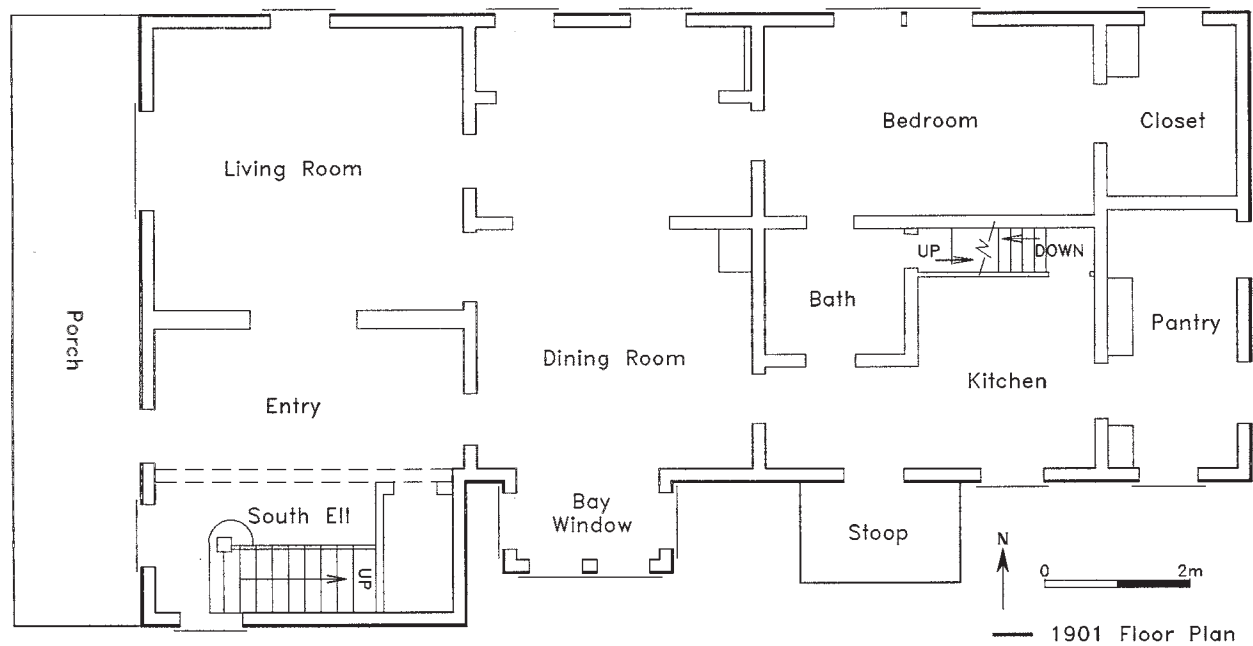
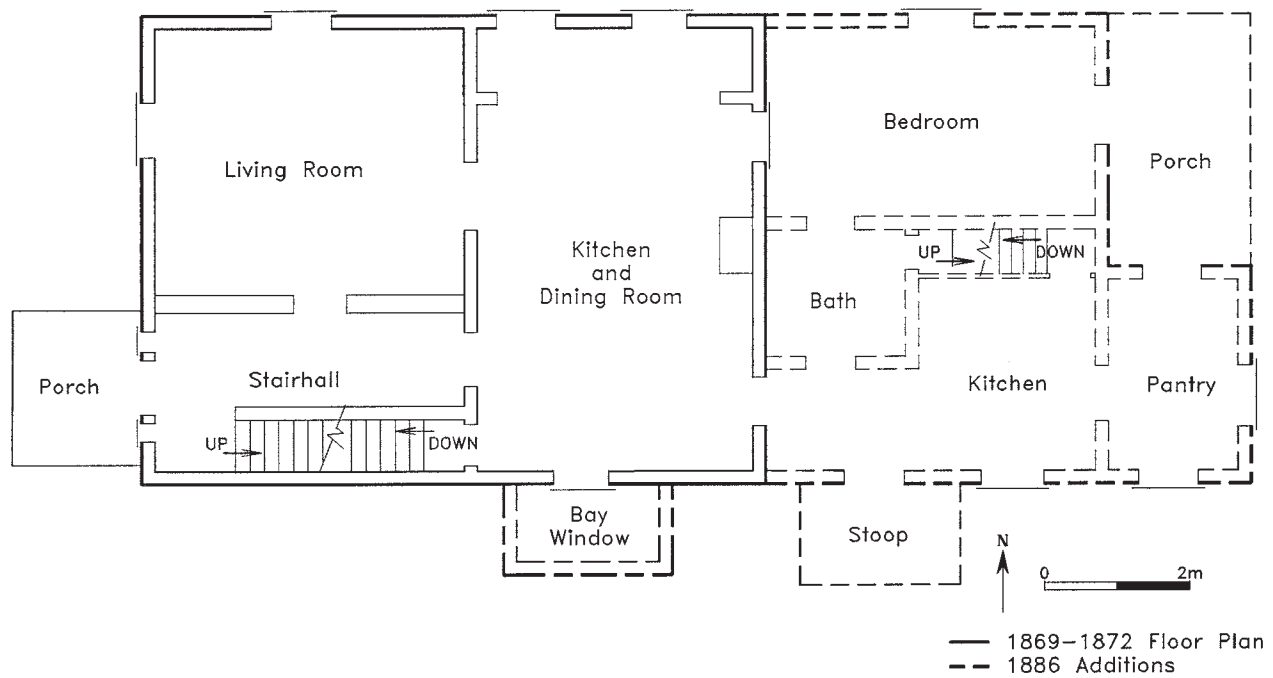


Figure 5. Construction history and staging, HS 6, 1869 to 1901.

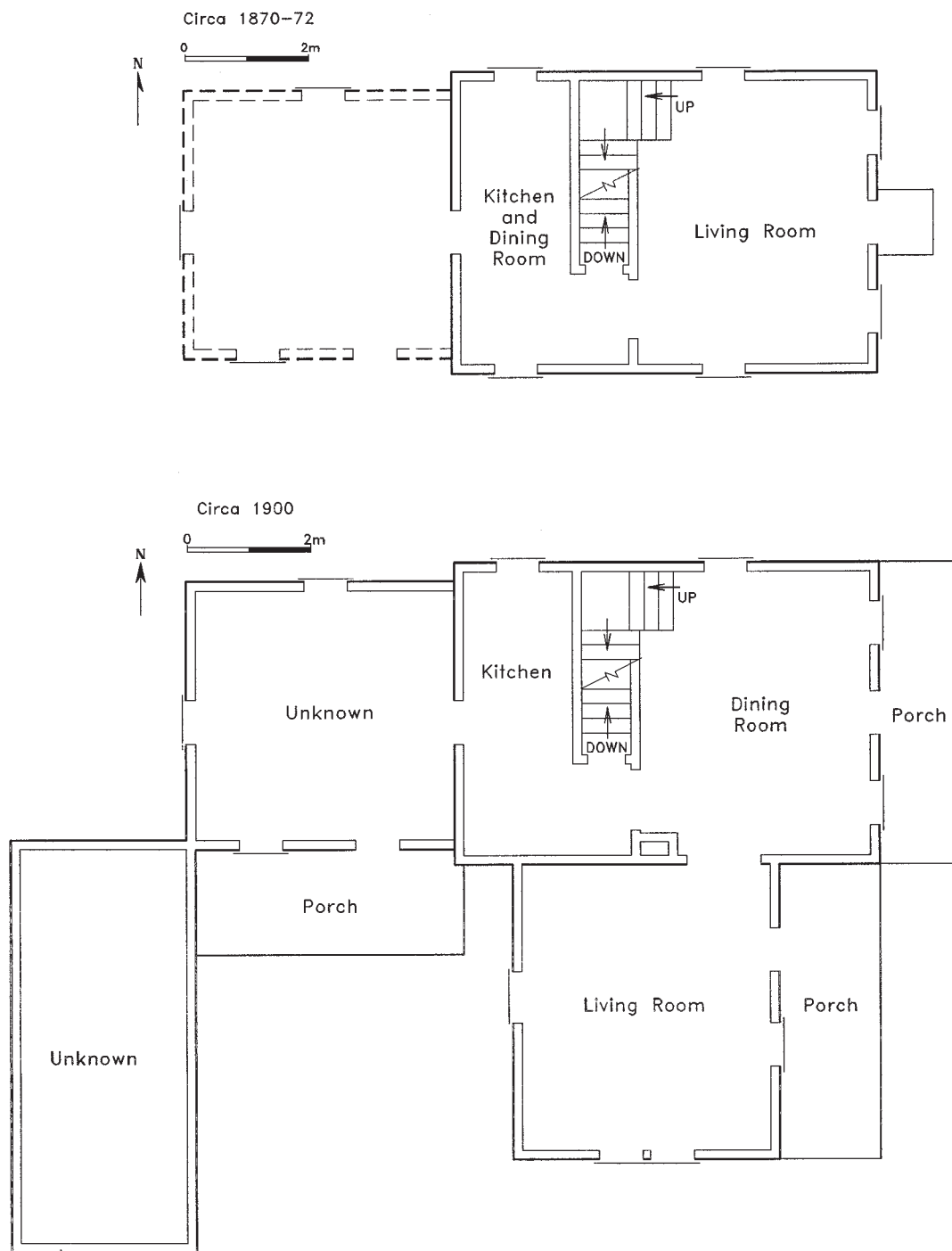
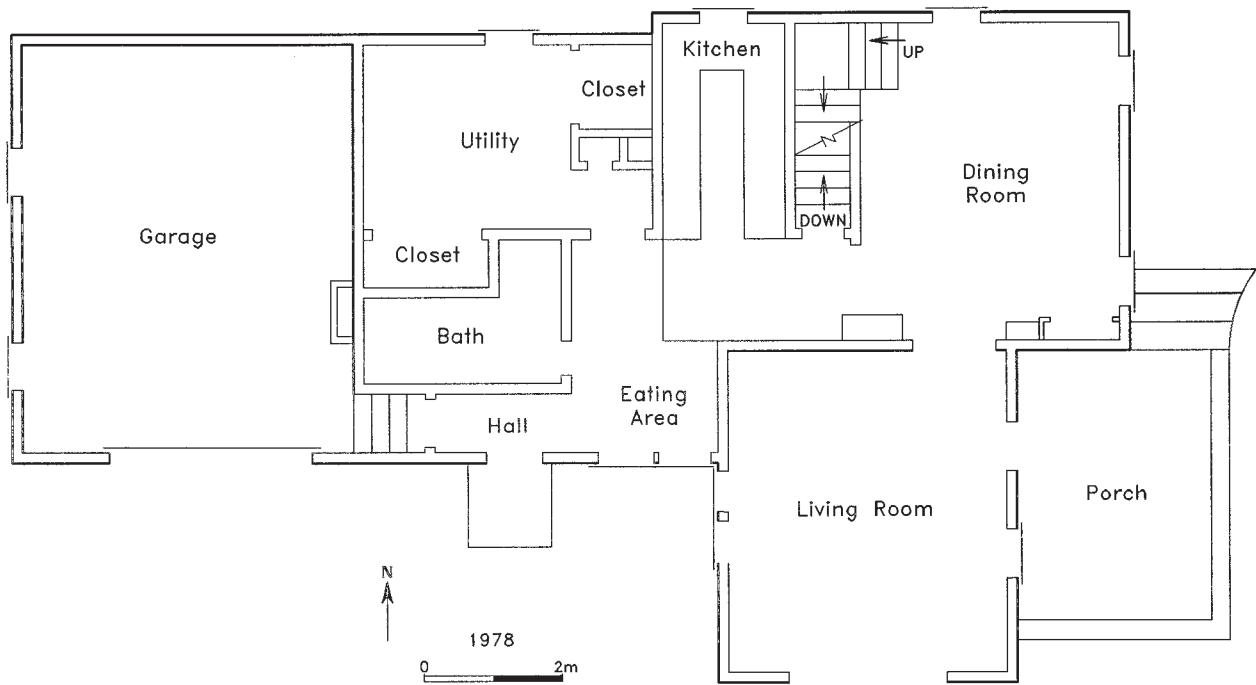
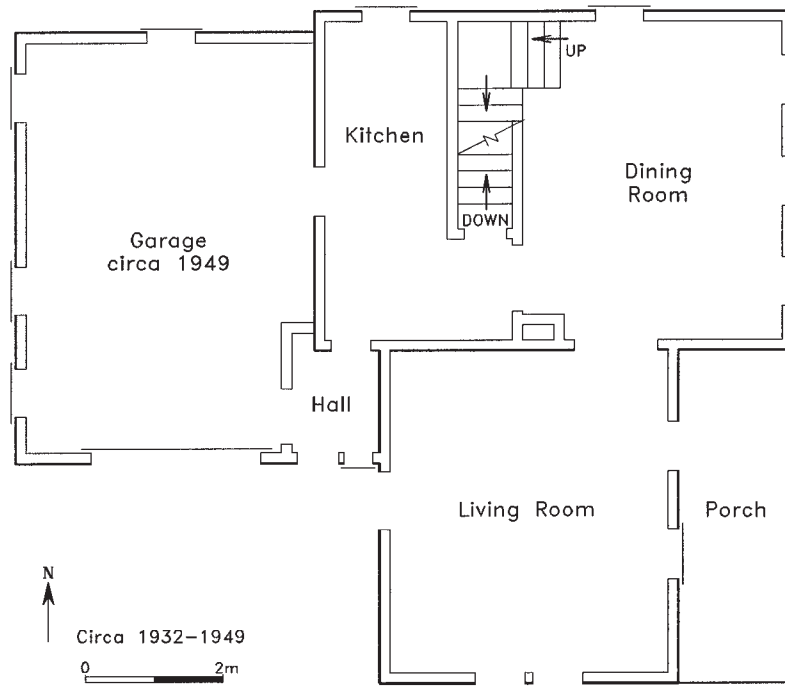


Figure 6. Construction history and staging, HS 10, 1870 to 1978 (above and facing page).



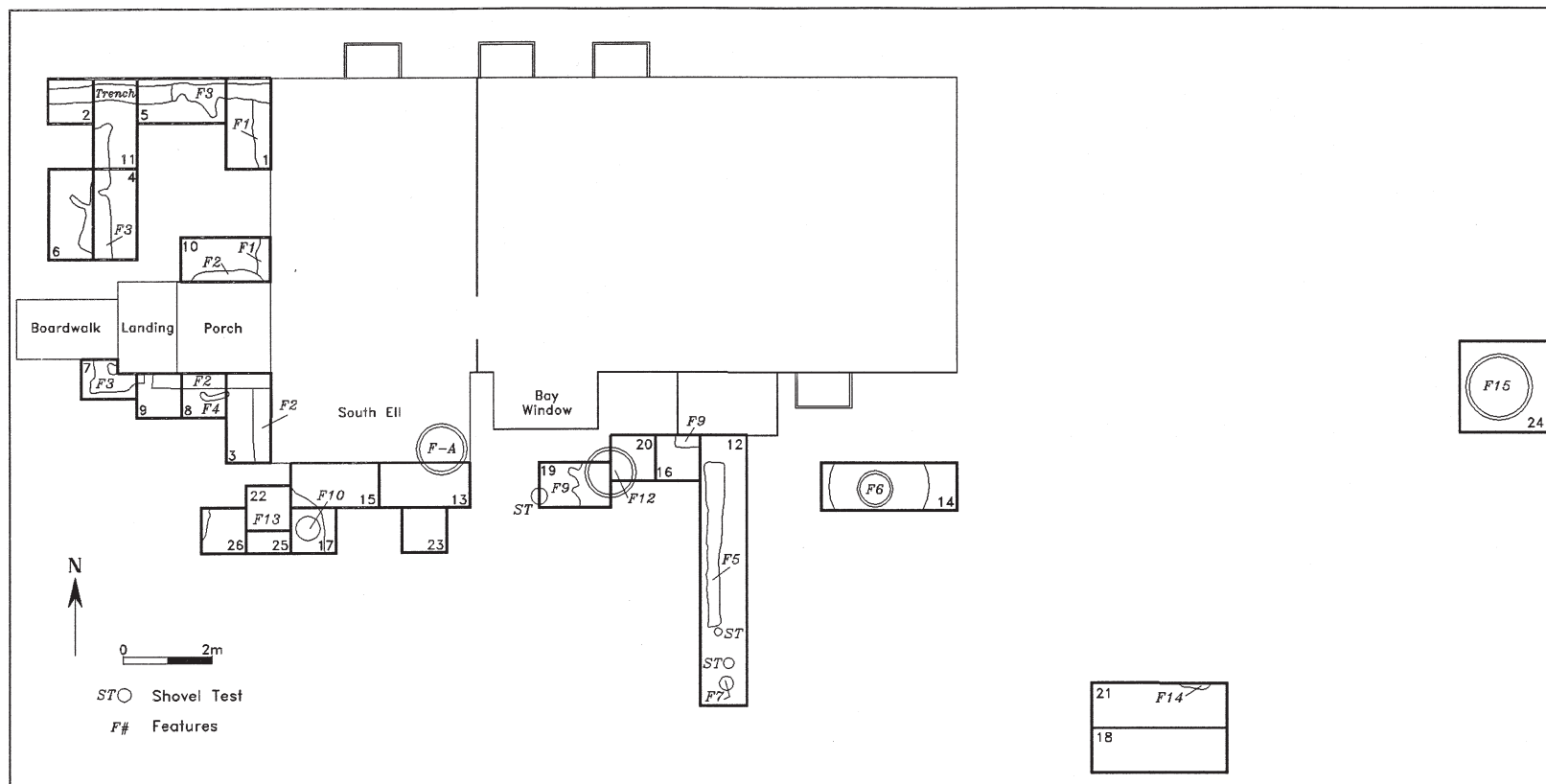


Figure 7. Excavation plan, Miles House.

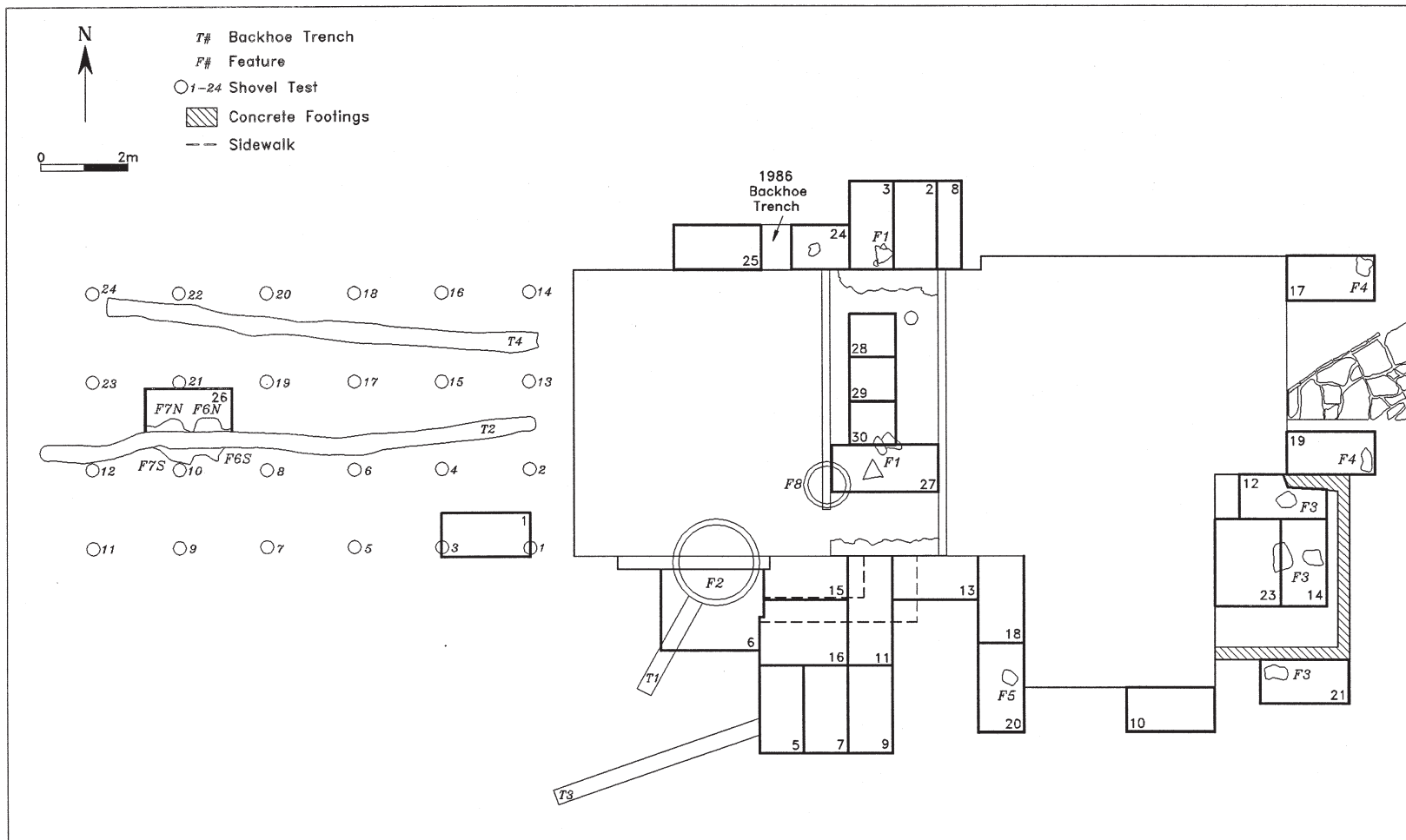
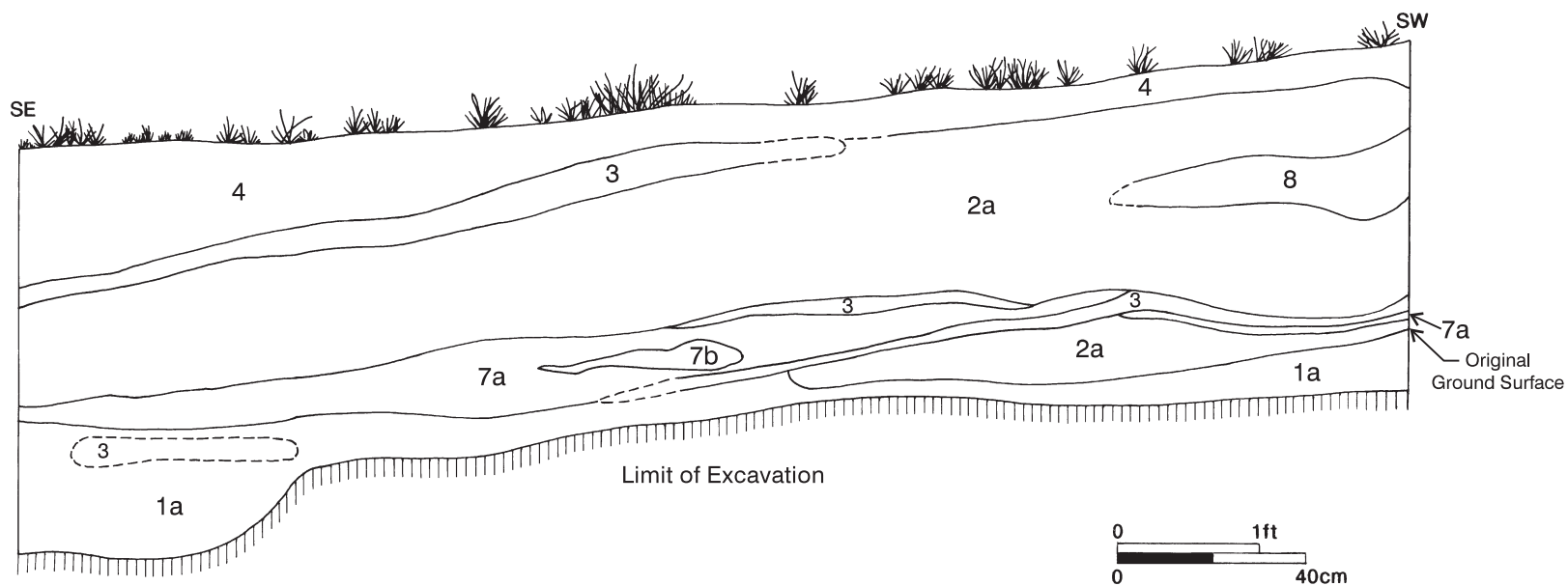


Figure 8. Excavation plan, Hayhurst House.



- 1a Dark brown loam (buried A horizon)
- 2a Brown loam with mottled yellow-brown loam (redeposited Strata 1a and 1b)
- 3 Yellow-brown loam (redeposited Stratum 1b)
- 4 Brown loam (modern humus)
- 7a White cinders
- 7b Red cinders
- 8 Black loam

Figure 9. South wall profile, Unit 18, HS 6.



Figure 10. Cistern, Feature 6, HS 6.



Figure 11. Interior of cistern, Feature 6, HS 6 after excavation. Note filtration chamber.



Figure 12. Cistern, Feature 12, HS 6.

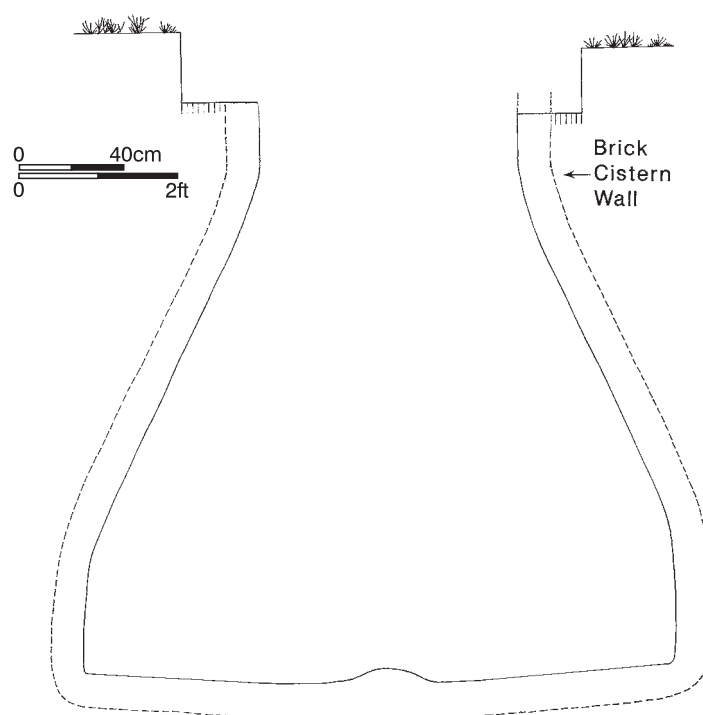


Figure 13. Cistern, Feature 12, HS 6 profile.



Figure 14. Cistern, Feature 16, HS 6.



Figure 15. Septic tank, Feature 15, HS 6. Note arrow points south (view to the west).



Figure 16. Original foundation, Feature 3, HS 6, looking down from porch roof.



Figure 17. Original foundation, Feature 3, HS 6.

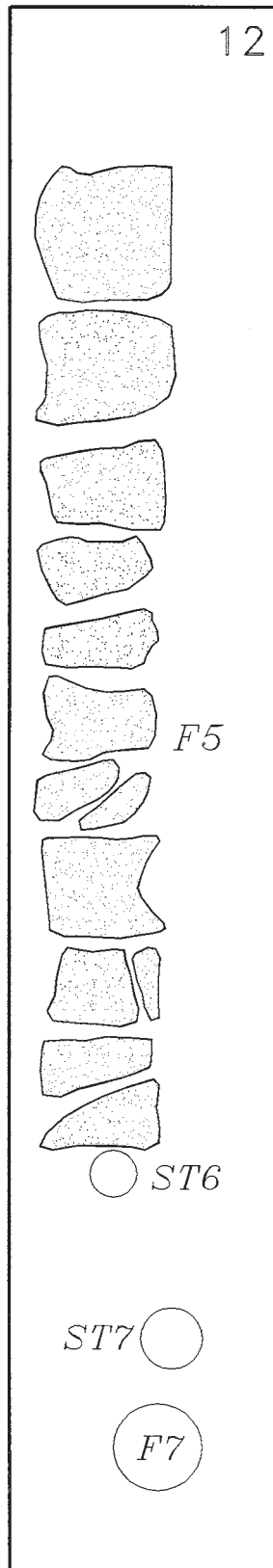
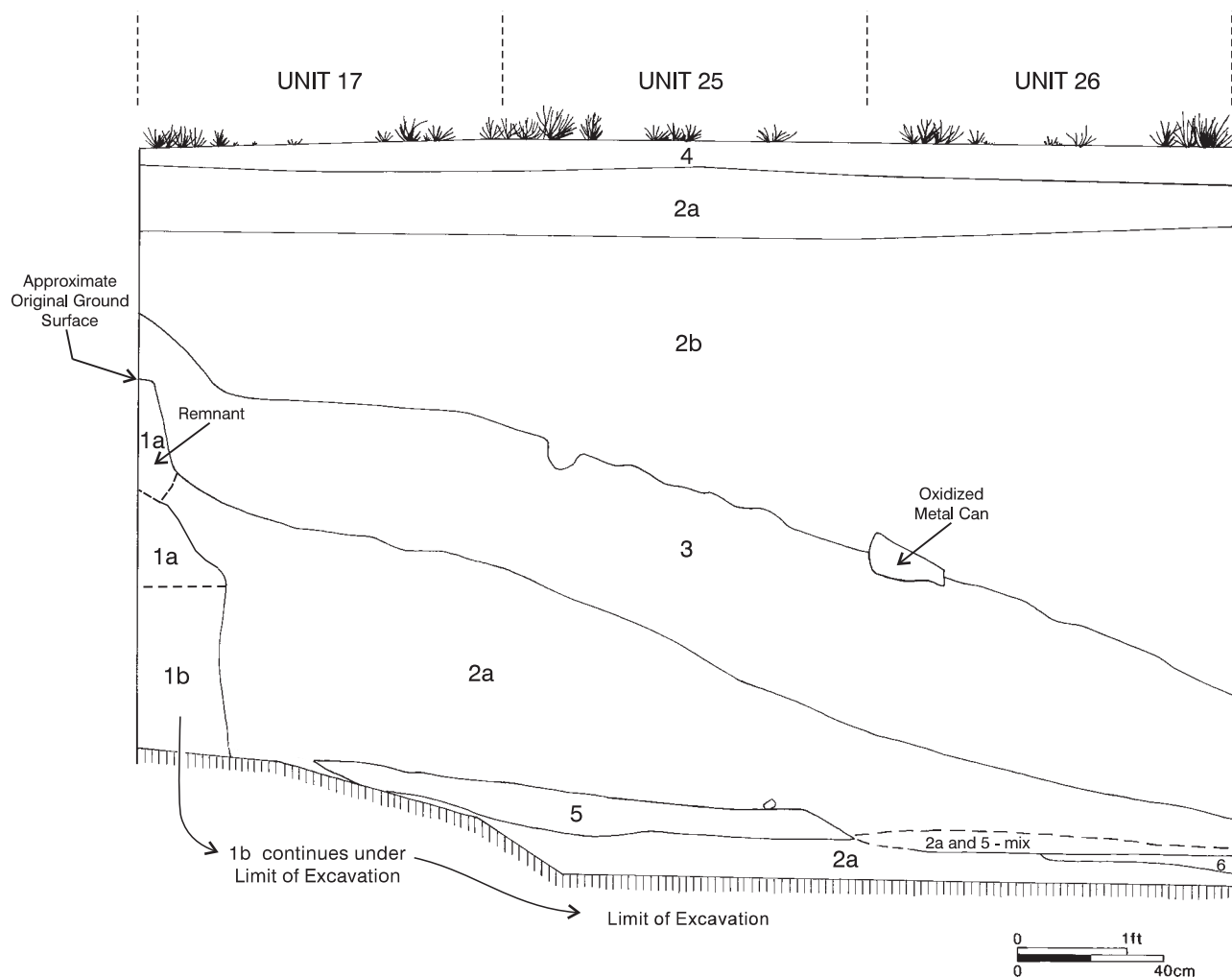


Figure 18. Walkway, Feature 5, HS 6.



- 1a Dark brown loam (buried A horizon)
- 1b Yellow-brown loam (B horizon)
- 2a Brown loam with mottled yellow-brown loam (redeposited Strata 1a and 1b)
- 2b Dark brown loam with mottled yellow-brown loam (redeposited Strata 1a and 1b)
- 3 Yellow-brown loam (redeposited Stratum 1b)
- 4 Dark brown loam (modern humus)
- 5 Limestone rubble with some mortar
- 6 Mortar

Figure 19. Pit profile, Feature 13, HS 6 (south wall of Units 17, 25 and 26).

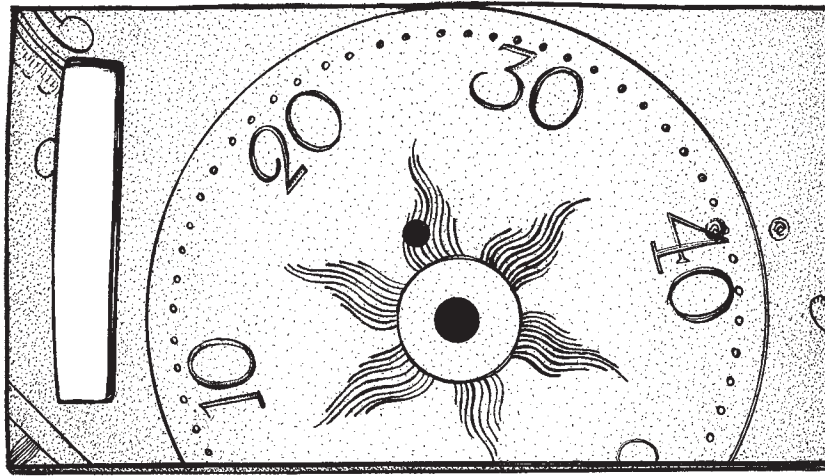


Figure 20. Brass belt buckle made from clock face, HS 6.

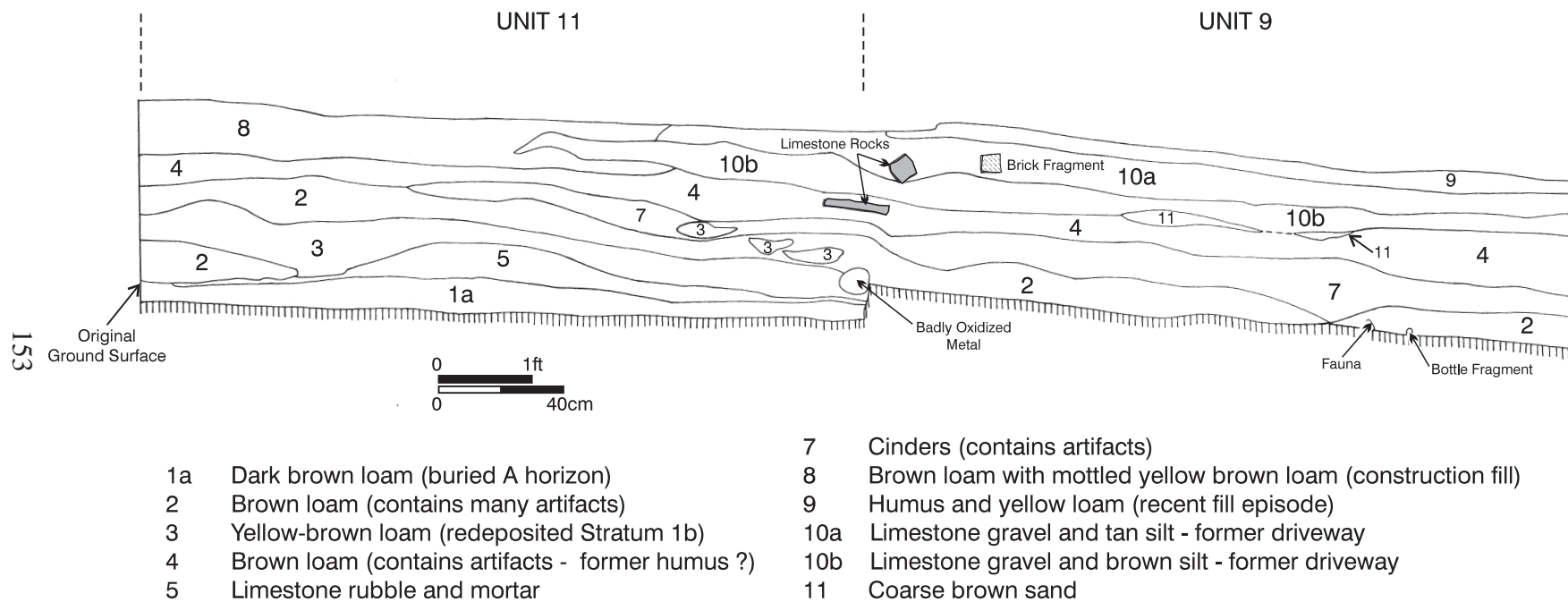


Figure 21. Profile, east wall, Units 9 and 11, HS 10.

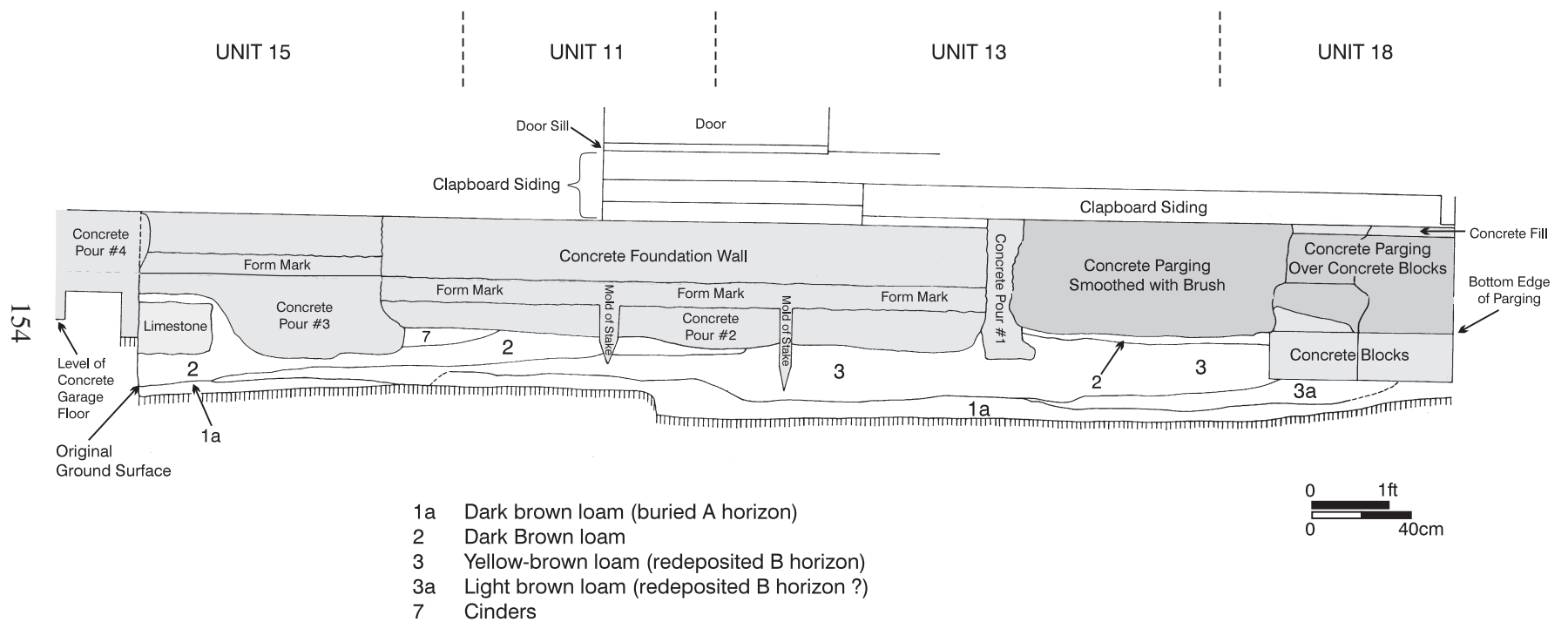


Figure 22. Profile, south wall of west wing, HS 10 (north wall of Units 15, 11, 13, and 18).

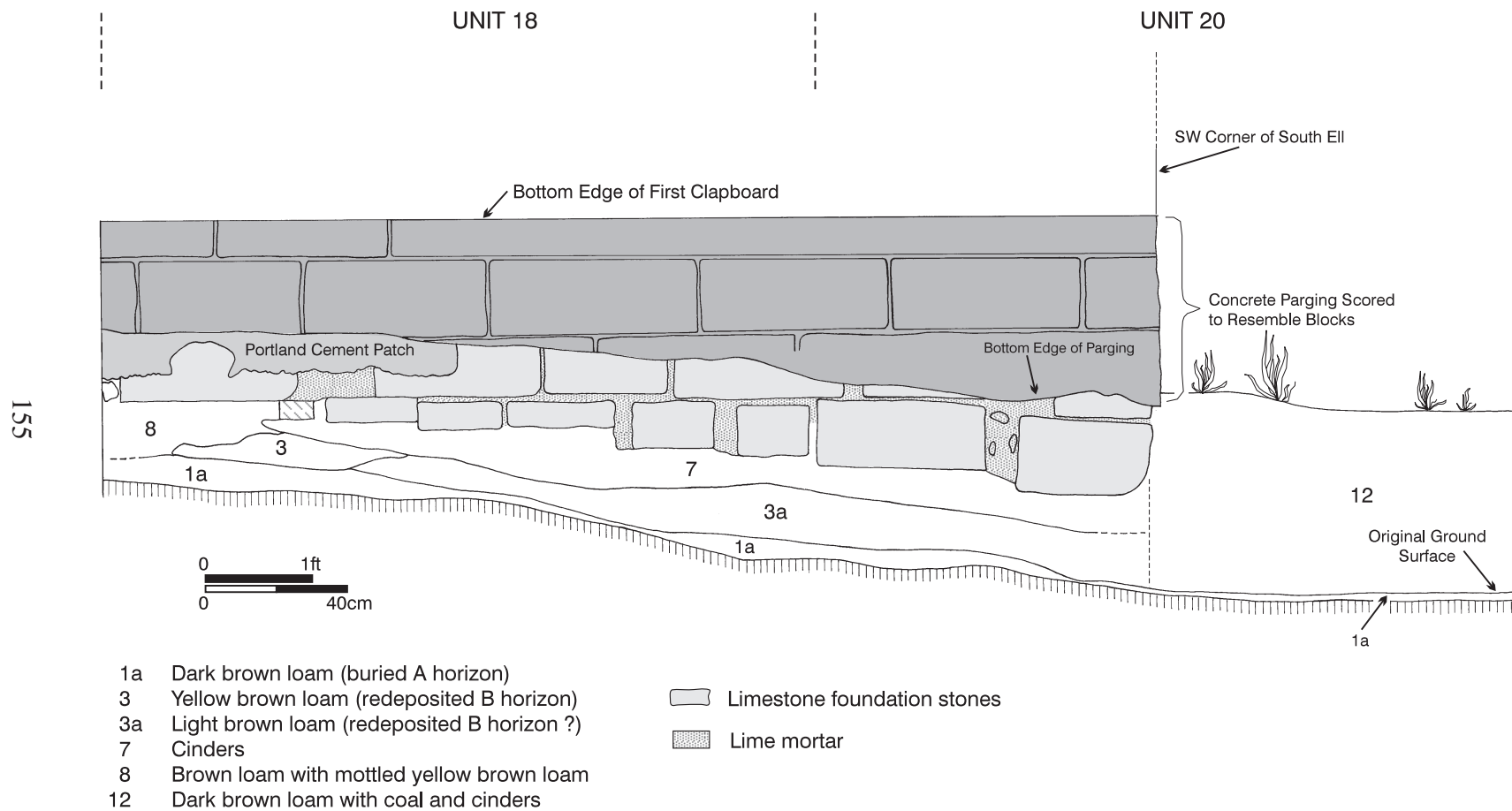


Figure 23. Profile, west wall of south ell, HS 10 (Units 18 and 20).

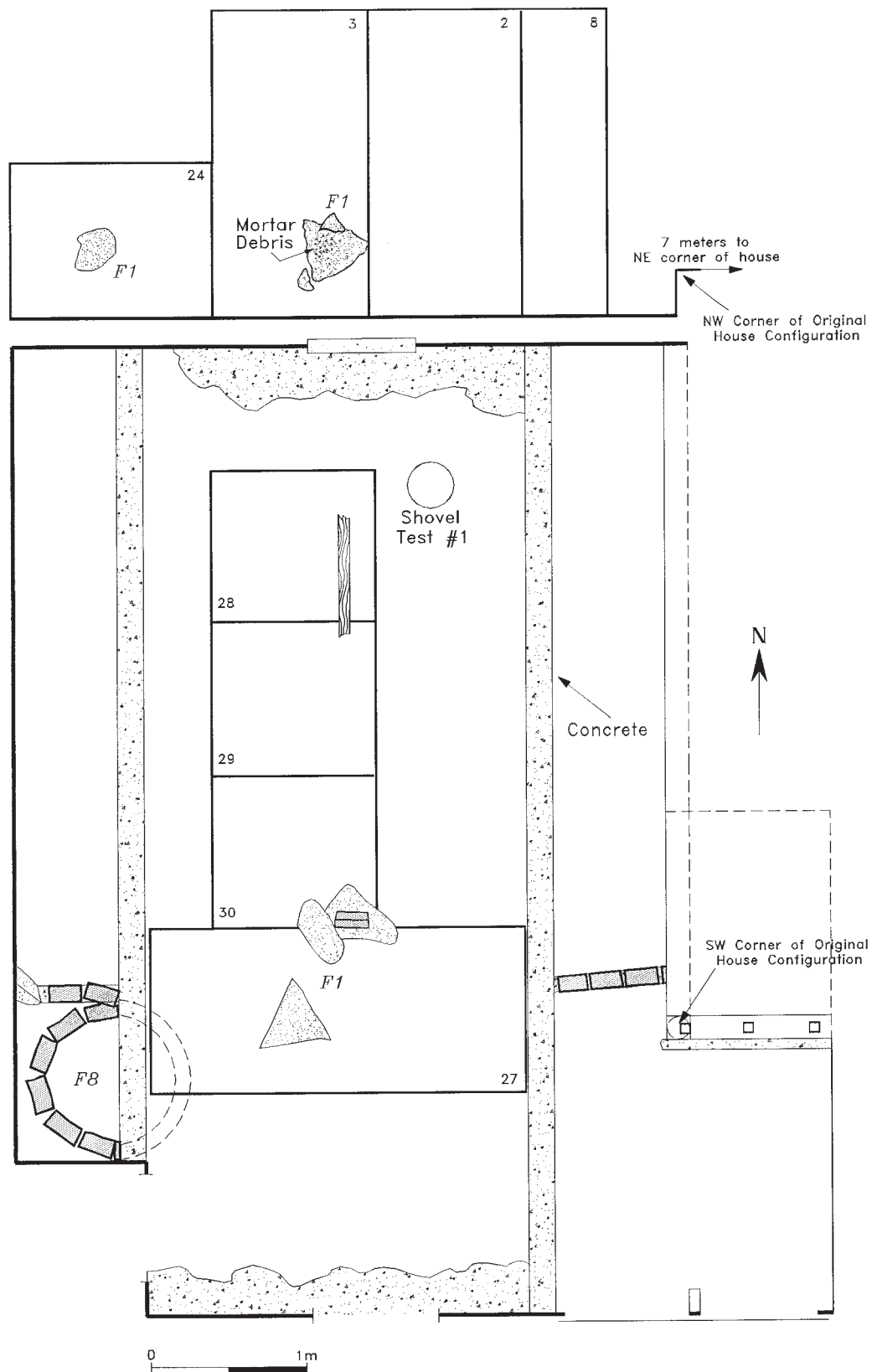


Figure 24. Porch supports, Feature 1, HS 10.

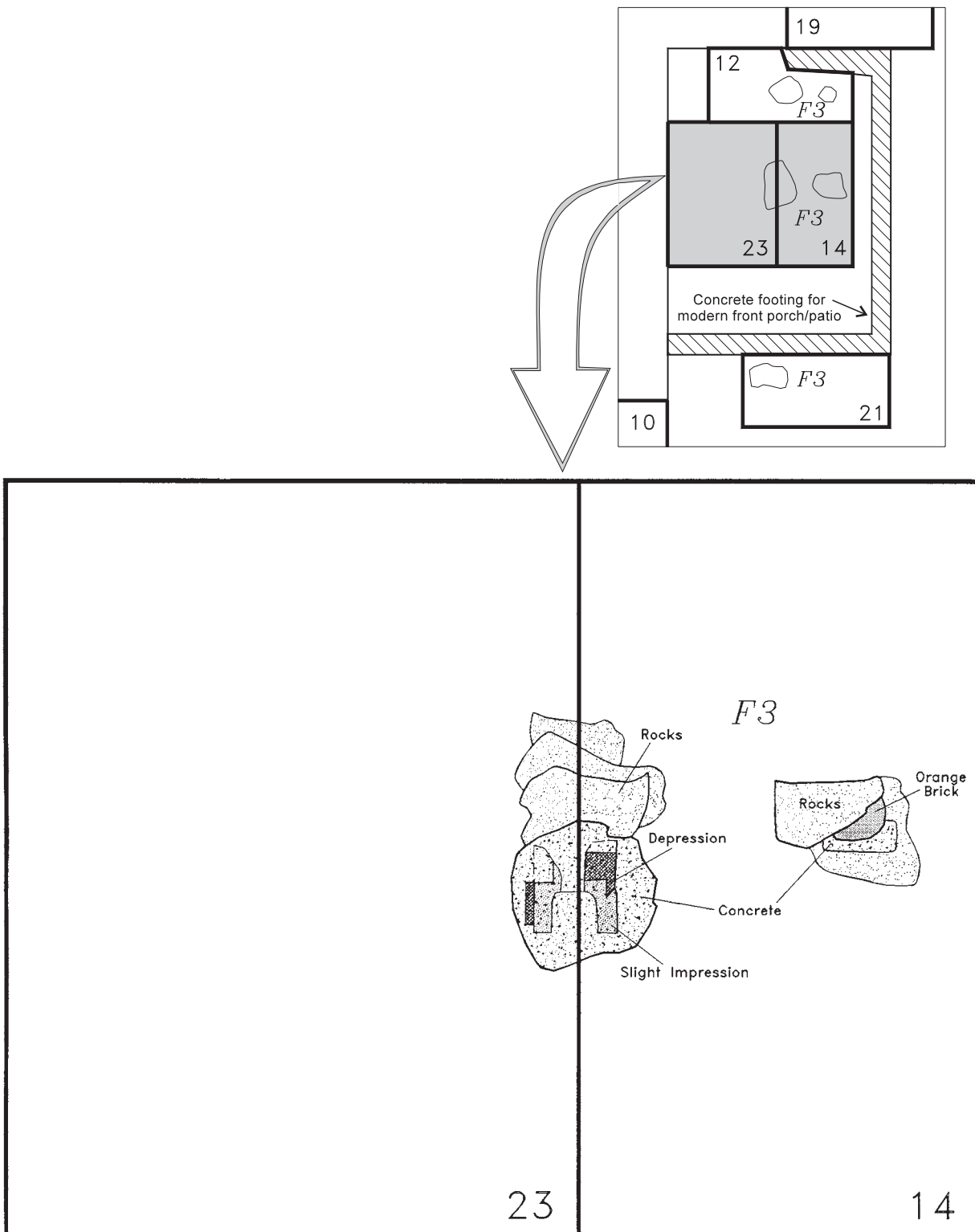


Figure 25. Porch supports, Feature 3, HS 10.

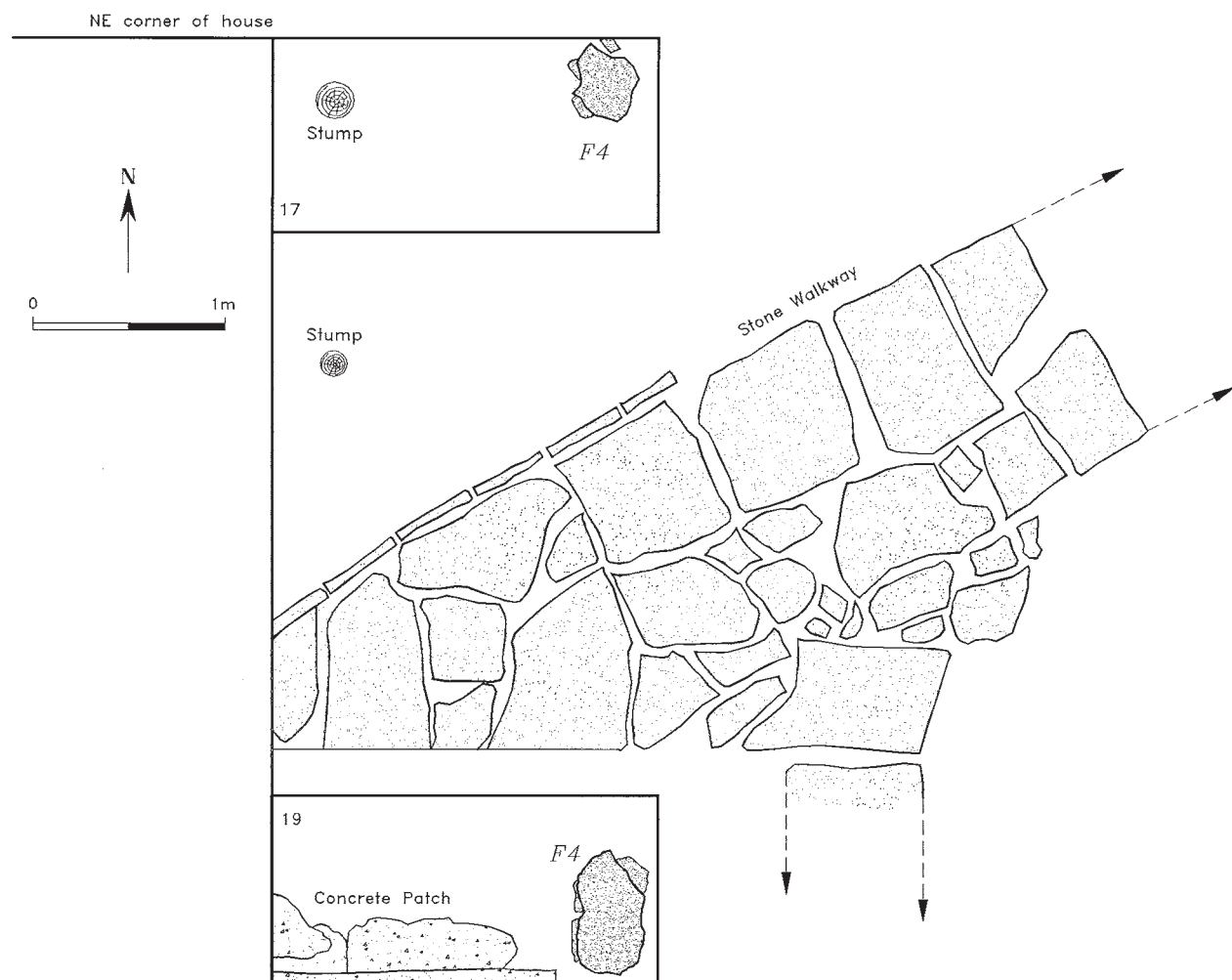


Figure 26. Porch supports, Feature 4, HS 10.

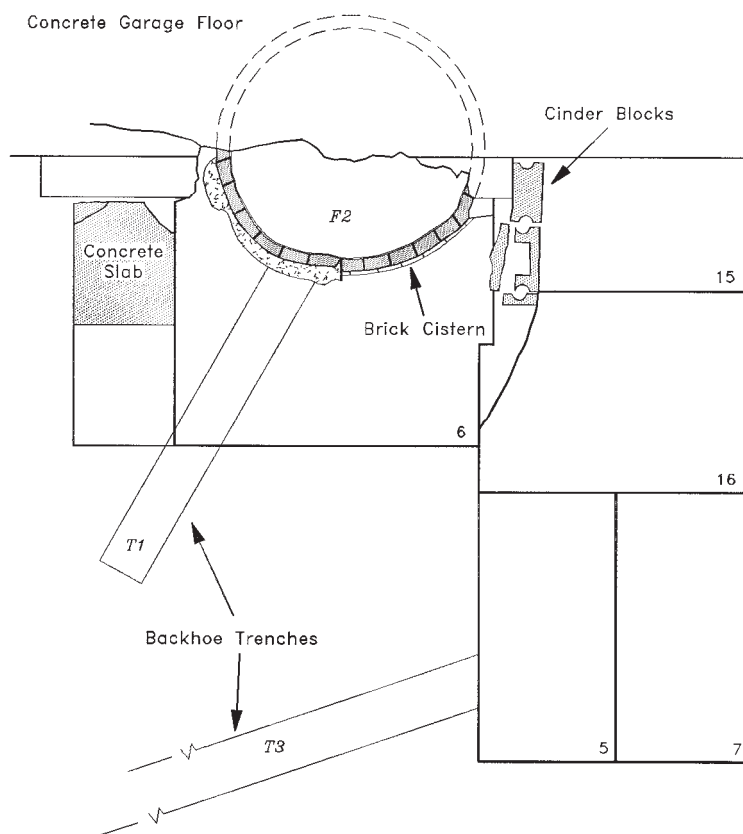
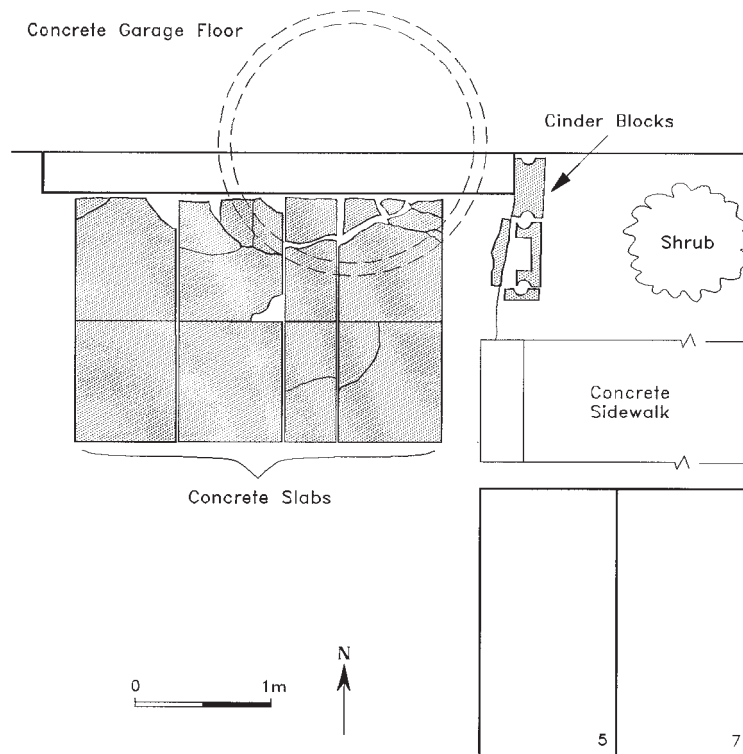


Figure 27. Cistern, Feature 2, HS 10.

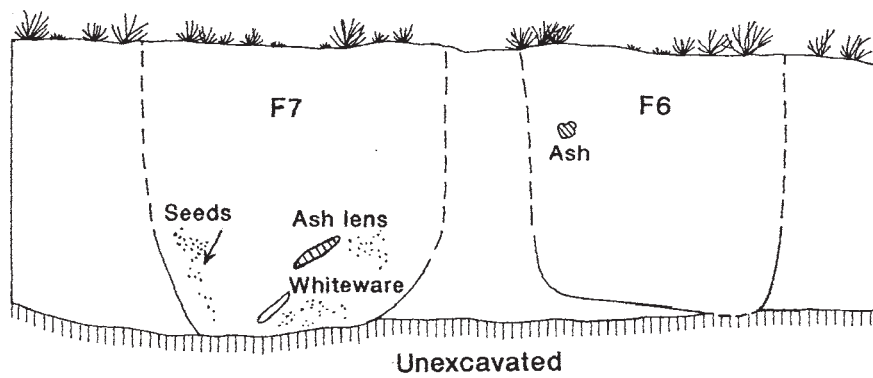
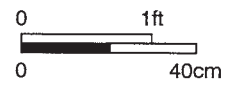
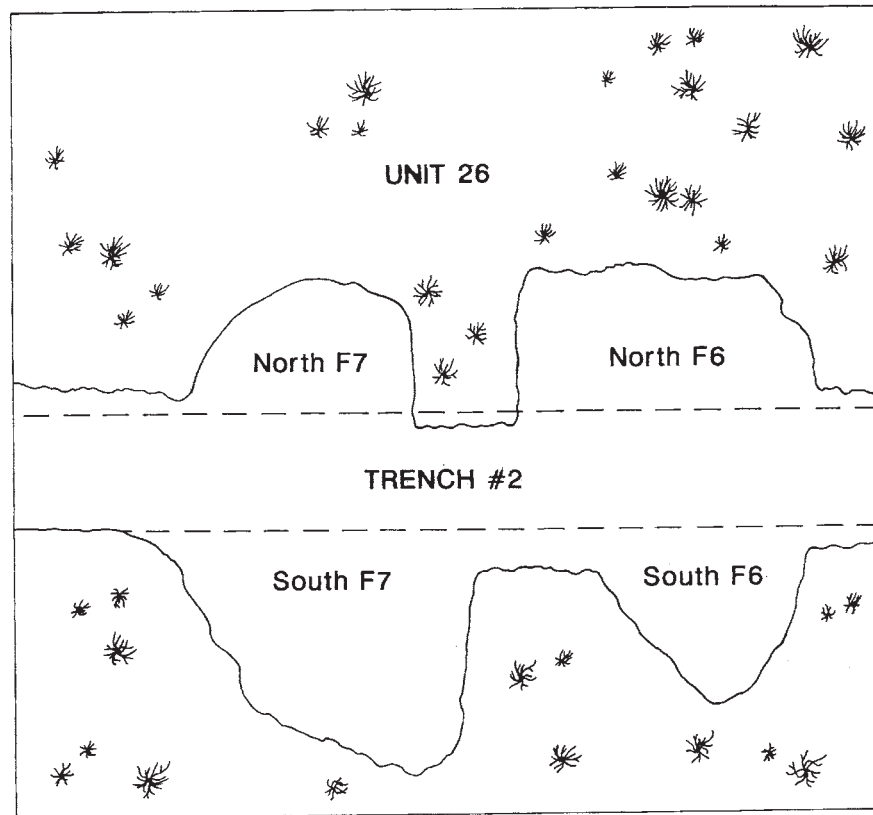


Figure 28. Plan view and profile, Features 6 and 7, HS 10.