ENCOUNTERING THE SHAKERS OF THE NORTH FAMILY LOT, UNION VILLAGE, OHIO

A Clean and Lively Appearance — Landscape and Architecture of the North Family Lot

VOLUME 2 OF A 4-VOLUME MONOGRAPH SERIES

Submitted by
Hardlines Design Company
4608 Indianola Avenue
Columbus, Ohio 43214

Submitted to
Ohio Department of Transportation
Office of Environmental Services
1980 West Broad Street
Columbus, Ohio 43223

January 30, 2009

ENCOUNTERING THE SHAKERS OF THE NORTH FAMILY LOT, UNION VILLAGE, OHIO

A Clean and Lively Appearance— Landscape and Architecture of the North Family Lot

Submitted to

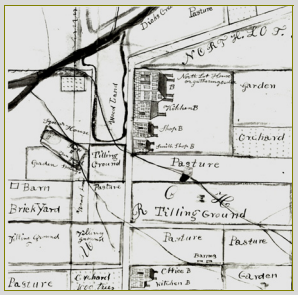
Mr. Paul Graham
Ohio Department of Transportation
Office of Environmental Services
1980 West Broad Street
Columbus, Ohio 43223

Submitted by

Hardlines Design Company
4608 Indianola Avenue
Columbus, Ohio 43214
614.784.8733
www.hardlinesdesign.com

Prepared by

Andrew R. Sewell
Roy A. Hampton III
Rory Krupp



Volume 1: A Corner of Wisdom's Paradise — The North Family Lot Archaeological Project
Volume 2: A Clean and Lively Appearance — Landscape and Architecture of the North Family Lot
Volume 3: Tracing Prosperity and Adversity — A Social History of the North Family Lot
Volume 4: Simplicity Comes in All Forms — The Shaker Ceramic Industries of Union Village

January 30, 2009

ABSTRACT

This volume is the second in a four-part monograph series on the archaeological excavations and archival research undertaken at the North Family Lot of Union Village, the hub of Western Shakerism in the nineteenth century, located in Turtle Creek Township, Warren County, Ohio. This series is the result of a joint effort between the Ohio Department of Transportation–Office of Environmental Services (ODOT-OES), the Ohio Historic Preservation Office (OHPO), and Hardlines Design Company (HDC). A curve on State Route 741, which passes through the former location of Union Village, was slated for realignment; as designed, the realignment passed through the front portion of the North Family Lot. HDC was contracted in October of 2004 to perform a geophysical survey at the site and in March of 2005 to perform a Phase III data recovery, which included intensive archival research and archaeological excavation within the area affected by the curve realignment. This excavation uncovered the remains of several Shaker buildings and evidence for landscape use and modifications by the Shakers.

This volume presents the results of the archival research and archaeological excavations that pertain to the Shaker development and perception of architecture and landscape at the North Family Lot, with a broader eye to the architecture and landscape at Union Village as a whole. It includes an overview of the historical development of the landscape of the North Family Lot, focusing on the four-acre location of the residential core that was subjected to geophysical survey and archaeological excavations. We examine the Shaker landscapes, with special emphasis on the built environment, and present an architectural analysis based on historical maps, photographs, archaeological data, and comparisons with Shaker buildings at other communities. We attempt to place the landscape and architecture of the North Family Lot within the context of the Shaker values concerning order—including possible reactions against or deviations from those values—and discuss the potential for future landscape studies based at Union Village.

VOLUME DESCRIPTIONS

Volume 1: ***A Corner of Wisdom's Paradise—The North Family Lot Archaeological Project***
This volume presents an overview of the project—its goals, methods, and a summary of its results—and suggests future avenues for research at Union Village.

Volume 2: ***A Clean and Lively Appearance—Landscape and Architecture of the North Family Lot***
This volume gives an overview of the historical development of the landscape of the North Family Lot, focusing on the four-acre location of the residential core that was subject to geophysical survey and archaeological excavations.

Volume 3: ***Tracing Prosperity and Adversity—A Social History of the North Family Lot***
This volume focuses on the social and economic history of the North Family Lot and how that history illuminates the culture of Shakers at Union Village as a whole.

Volume 4: ***Simplicity Comes in All Forms—The Shaker Ceramic Industries of Union Village***
This volume discusses the Union Village ceramic industry by examining the Union Village Pottery, concentrating on four specific ceramic products: redware pottery, smoking pipe bowls, drainpipes, and bricks, with a special emphasis on the first two items.

ACKNOWLEDGMENTS

This volume would not have been possible without the assistance of the following people. The 2005 field crew consisted of Steve Martin, April Boyer, Terry Glaze, Johnny Hendrix, Brooke Shouse, Rory Krupp, Katy Mollerud, Krista Wagner, Andy Muskopf, Don Stone, Marsha Pataky, Jay Baril, Vivian Honsinger, Elizabeth Seay, Pat Roach, Seweryn Kosmala, Epie Pius, Sarah McIntyre, Nicole Osswald, Erin Meekhof, Tracy Pattelena, and Ben Stewart. The 2004 geophysical survey crew included Steve Martin and Johnny Hendrix of Hardlines Design Company (HDC) and Duane Simpson and Ryan Peterson of AMEC Earth & Environmental, Inc. Roy A. Hampton III and Rory Krupp performed most of the archival research for this project. Anne B. Lee provided logistical support. Susan Maughlin and Mej Stokes lent their expertise in editing technical documents to this monograph series. The staff of ODOT District 8 provided immense support in the field, from handling media inquiries to acquiring heavy machinery and aiding in the excavation.

Finally, we greatly appreciate the assistance of interested researchers who have focused on the Shakers, without whom this document would be far less informative: the members of the Western Shaker Study Group; Mary Lue Warner of Otterbein Homes, Cheryl Bauer, Dr. Kim McBride, David Starbuck, Jerry Grant of the Shaker Museum and Library, Shirley Ray, Director of the Warren County Historical Society Museum, and Charles Muller, former editor of the *Ohio Antique Review*.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1. THE SHAKER LANDSCAPE: LANDSCAPE STUDIES AS A METHOD OF INQUIRY

Introduction

The goal of this volume is to examine how the landscape of the North Family Lot of Union Village (Ohio archaeological site number 33WA407) evolved over time, using both archival and archaeological evidence. By examining this single Shaker family lot in detail, we hope to apply the information we learned about Shaker landscapes at the North Family Lot to Union Village as a whole. Located in Warren County, Ohio (Figure 1), Union Village was founded in 1805 by a small group of Shakers, and it rapidly grew into a thriving community, peaking in the 1830s with more than 600 people occupying 4,500 acres.

Figure 1. Location of Union Village in Warren County, Ohio

This volume includes:

- An overview of the Union Village landscape, placing the North Family Lot into context
- A discussion of the historical landscape development of the North Family Lot
- Detailed examinations of the buildings present at the site, drawing on data from archival and archaeological research
- An examination of how Shaker landscapes reflect Shaker values and illustrate the hierarchy of families within the village
- A proposed agenda for future research across all of the Union Village landscape

Landscape Studies

According to cultural geographer Pierce F. Lewis, "all human landscapes have meaning" (Lewis 1999:176). Landscapes are not simply a passive backdrop against which human existence is played out but rather a dynamic and important component of culture. Landscape studies attempt to examine culture on a broad scale, looking at how human culture is represented in terms of the way humans affect their environments, both intentionally and unintentionally.

Lewis presented several ideas about the human landscape in an essay entitled "Axioms for Reading the Landscape: Some Guides to the American Scene," which this report draws upon to discuss the Shaker landscape (Lewis 1999:174–182). First, a group's culture will reflect upon the landscape it inhabits, both intentionally and unintentionally; every human act that modifies the landscape is the result of a choice made in the context of a particular culture. Second, people generally will not modify a landscape unless under some sort of pressure to do so. This pressure may be related to environmental factors, such as a reaction to the effects of a natural disaster, or to cultural factors, such as a change in ownership or a shift in cultural rules. Third, when a landscape appears different from surrounding landscapes, then the culture that shaped it differs from the surrounding culture as well; different cultures will have different preferences in how their landscapes should appear. In a similar vein, when two landscapes begin to resemble each other, then the corresponding cultures also begin to converge. The change in one landscape to resemble another landscape may be due to imitation. Finally, most of the components of a landscape are equal in value as data about the culture associated with that landscape. The white picket fence in front of a farmhouse is as important to understanding the culture of farming as the farmhouse. Lewis uses the analogy of an iceberg with many tips visible above the surface of the water—each tip may look like a separate iceberg, but below the surface, the tips are part of a greater whole (Lewis 1999:179).

Because of the large amount of information available on how the Shakers perceived and shaped their landscapes, landscape studies have great potential to test ideas about how the Shakers used the environment. The Shakers deliberately constructed their landscapes, and their culture is intentionally reflected in the orderly layout of buildings and walkways. The Shaker values of order and cleanliness can be perceived in the physical layout of their family lots, as well as by the general lack of trash found in the basements of buildings built and occupied by Shakers. Shakers were well known for expressing their religious values in the routines of their everyday life, including such tasks as building maintenance and waste disposal.

In some cases, the Shakers did not always strictly follow the Millennial Laws, a set of behavioral rules issued by the central Shaker ministry in New Lebanon, New York. During the 2005 archaeological excavations at the North Family Lot, we discovered a pattern of artifacts that were disposed of in an open area rather than in refuse pits, which is contrary to the exhortations in the Millennial Laws against disposing rubbish in yards. The Shakers also appeared to have used substandard building materials, such as warped and overfired bricks, in their shops and dwellings, which would appear to be out of step with the Shakers' perceived high standards of craftsmanship.

Other Shaker Landscape Studies

This volume follows in the footsteps of other pioneering studies of Shaker landscapes, notably McBride's study of the importance of order at Pleasant Hill, Kentucky, (1995) and Starbuck's examination of the Shaker community of Canterbury, New Hampshire (2004). Robert Emlen's study of Shaker-produced maps (1987) was also extremely helpful in understanding how Shakers may have viewed their communities.

CHAPTER 2. THE LANDSCAPE OF WESTERN SHAKER COMMUNITIES

The Landscape of Union Village Before the Shakers

Before the Europeans settled in Warren County, the land was occupied by various Native American Indian groups. Although no known groups of Native American Indians were present at the location of Union Village at the time of its founding in 1805, the Shakers did meet briefly in 1807 with members of the Shawnee tribe in an attempt to convert them to the Shaker faith. Shawnee tribal members visited Union Village in turn, a cause of some alarm to Union Village's neighbors. The War of 1812 effectively ended any further involvement between the Shakers and Native American Indians. Only one further meeting between the two groups is documented, when a group of about 30 Native American Indians passed through Union Village on June 30, 1868 (Sharp 1805–1880:302). The traveling Native American Indians may have been a remnant band of Shawnee.

Several small prehistoric archaeological sites have been documented within the former landholdings of Union Village, including a reported burial mound. At the location of the North Family Lot, evidence for a brief Native American Indian occupation was found during the 2005 excavations. The archaeologists recovered prehistoric artifacts such as flakes from stone tool manufacture and maintenance and projectile points, which indicate that this location was a Late Archaic temporary hunting or collecting camp (4000–2000 B.C.). No evidence was found for any long-term, permanent occupation of the Union Village area. However, only a small fraction of the 4,005 acres owned by the Shakers has been examined in any detail for prehistoric sites. The rolling topography and the descent of Dicks' Creek into a former wetland in the western portion of the Shaker land holdings would have provided a diversity of plants, game animals, and fish for prehistoric inhabitants to use in this section of Warren County.

European settlement in the southwestern portion of Ohio began in earnest after the American Revolution. The land that became Union Village was part of the Symmes Purchase, which initiated the second region in Ohio to have permanent American settlement (Hurt 1996:160). Occurring in 1787 when John Cleves Symmes and two associates bought a million acres of Ohio land from Congress, the Symmes Purchase included a significant portion of Hamilton County, the southeast corner of Butler County, and part of the southwestern corner of Warren County. The early development of Warren County included a blockhouse that became the hub of a small community known as Beedle's Station, erected in 1795 and located just south of Union Village (Bauer and Portman 2004:23). Lebanon was founded in 1802, the same year that Richard McNemar, one of Union Village's founders, became the pastor of the Presbyterian Church in Turtle Creek.

The landscape of ca. 1800 was one of large sections of wooded areas and scattered single-family farms with associated agricultural fields. A pollen sample taken from a pre-Shaker soil layer during the 2005 fieldwork at the North Family Lot indicated that the site was still

lightly wooded when the Shakers began to develop the lot. The presence of pollen from both oak trees and cereal grains in the sample indicates the nearby presence of agricultural fields, and suggests that fields were planted with wheat or a similar grain while trees were removed from the area of the North Family Lot. This land use is consistent with journal entries that mention that before the Shakers occupied the site of the North Family Lot, it was the location of a frame farmhouse and outbuildings owned by Isaac Morris.

By 1829, when an anonymous Shaker produced a map of Union Village that is the only truly detailed overall site plan of the community, the landscape reflected the order that the Shaker community had imposed. Scattered woodlots were still present, but the majority of the landscape was neatly divided into rectangularly shaped sections containing orchards, meadows, tilling grounds for agriculture, gardens, pastures, two "Shugar Camps," two brick yards, four mill ponds, and nine family lots. The locations of the nine family lots are presented in Figure 2, which shows the general locations of each lot's main cluster of buildings. Some lots, such as the three western lots, the Grist Mill Family, and the Square House Family, were placed based on comparisons with nineteenth-century maps and early twentieth-century USGS quadrangle maps. Their exact locations need to be confirmed through future fieldwork.

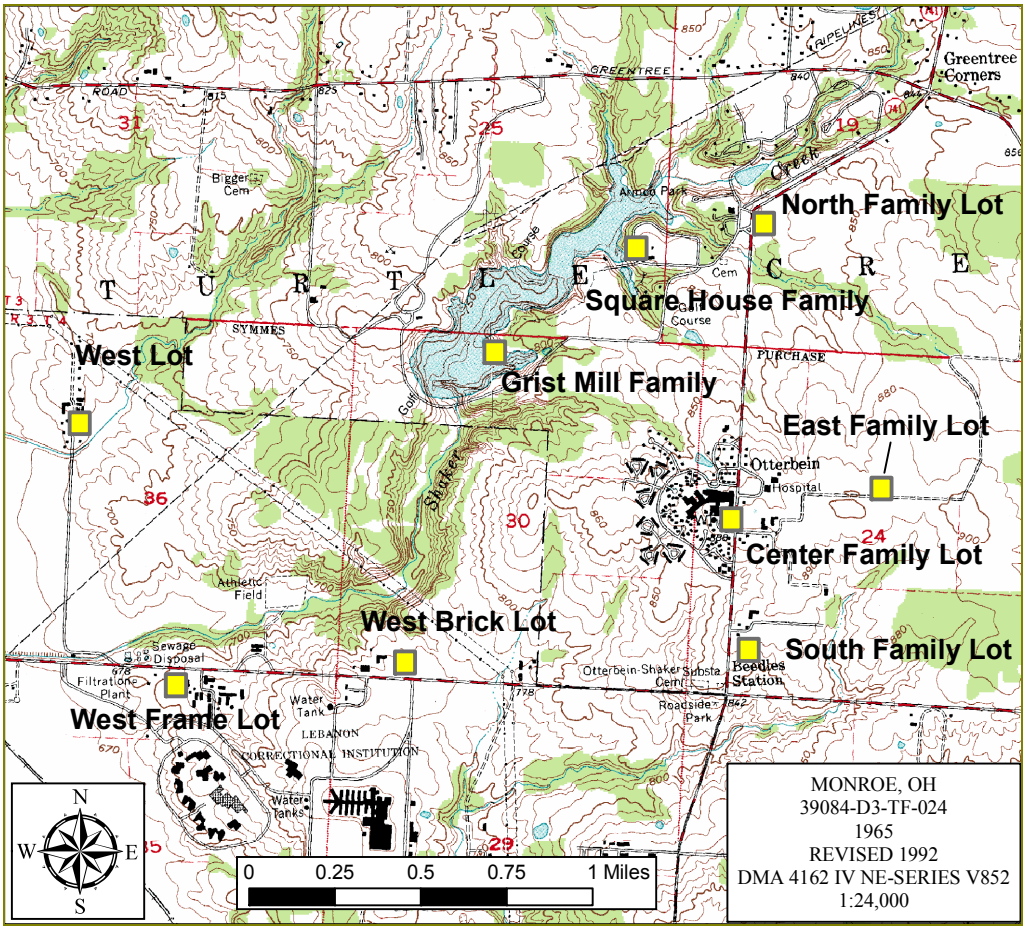


Figure 2. Former Shaker family lot locations at Union Village on the modern landscape

Site Planning

The organization of the Shaker family structure, and the activities carried out within each family's social network, were a principal and practical factor in the layout of Shaker family lots. The typical Eastern Shaker village site plan crystallized by the beginning of the nineteenth century under the leadership tenure of Joseph Meacham, who codified fairly detailed Shaker living procedures in the Millennial Laws. These tenets of Shaker life were transplanted to the newly founded Western Shakers communities. As the initial Western Shaker settlement and eventually the bishopric of all the Western Shaker communities, Union Village was to serve as a model of adherence to the rules and regulations. The founding of the North Lot Family at Union Village in 1815 and the initial development of a communal dwelling and shops at the North Family Lot from 1823 to 1826 represents only one part of the overall village plan.

The Shaker village was meant to be a metaphor of the foursquare Temple of Solomon, with a core temple surrounded by a series of courtyards and an outer wall with twelve gates (Hayden 1976:34). The village plan served to link the devoted Shakers of the earthly world with the coming of the heavenly New Jerusalem during the rapture. The foursquare temple pattern oriented Shaker villages on an orthogonal pattern, and the twelve points of new architecture in the Millennial Laws represent the twelve gates (Krueger 1988:25). The Center or Church Family Lot represented the core temple of the most devoted, while the surrounding family lots, usually distinguished by cardinal direction, served as the inner courtyard of less devoted members and as a buffer to the outside world. Lastly, the boundary of the entire Shaker community was fenced to symbolize the separation of the sacred Shaker domain from the profane world of non-believers.

This symbolic and idealized village setting served as a backdrop for the social interactions of the devoted and converts as they prepared themselves for the rapture and the coming of New Jerusalem. For all members to successfully achieve this goal, a balance between communal and personal space was necessary. As such, the village had to be dynamic in order for the community to practically accommodate its location and development. Making the landscape conform to a vision of the Temple of Solomon required compromises in design and implementation of the plan. Such changes allowed community members to creatively express themselves, both individually and cooperatively, thus fostering group consensus and cohesion (Hayden 1976:40). How well the landscape of the North Family Lot reflected this compromise with the ideal is explored in this volume.

Western Shaker Community Site Planning

Western Shaker site planning largely adhered to the concept of a settlement as a series of linear clusters of buildings oriented along roads, with additional buildings placed parallel or at right angles to core structures. The north-south axis tended to be the dominant orientation at these communities (Krueger 1988:27). All Shaker communities were planned with their meeting house at the center of the village. Many Shaker communities were located along streams with sufficient falls of water to support water-powered mills, and Union Village was no exception. Large, prominent masonry buildings were clustered along prominent roadways,

possibly for the impressive visual effect. Shops and offices were often located close to the communal dwelling for convenience. Barns and other farm buildings were fairly close to the communal dwelling but usually with some distance between the dwelling and agricultural buildings. This may have been an attempt to place less emphasis on these visually less impressive wood buildings, or it may have been desirable to place some distance between barns and the communal dwellings for reasons of hygiene, since some of the barns held livestock.

Shaker settlements were divided into families, which held populations ranging from 30 to about 150 people. Each family submitted to the authority of the central ministry of their village, especially in religious matters. However, each family had its own elders and deacons, and its own farmland, livestock, and shops; and each family was responsible for its own economical needs. Families were sometimes relocated from one tract of land to another, usually due to reorganizations ordered by the village ministry or by the authorities at New Lebanon. Families were also sometimes dissolved and members integrated into other families, a process that became more common after 1830, when populations at many Shaker settlements began to decline, and their economic priorities changed.

Shaker family lots and their physical facilities served several basic needs. Prior to the steep Shaker population decline in the late nineteenth century, the typical family lot had to provide living space for a large number of men, women, and children. Since communal living and community property were important cornerstones of Shaker life, a large communal dwelling was the centerpiece of most family lots. The dwellings contained sleeping, eating, and sometimes, meeting facilities. Food preparation facilities were usually included, although they were sometimes constructed as a separate summer kitchen building. Due to the relatively large size of many Shaker families in the 1820s–1830s period, most of the communal dwellings built in the Western Shaker communities at the time of the construction of the North Family Lot dwelling in 1823 were large house-like dwellings of two or three stories.

Buildings were constructed in clusters at Shaker family lots, with a series of shops usually centered on the communal dwelling. Further away from the dwellings were additional shops and agricultural buildings. Structures were almost always arranged in parallel or right-angled compositions, although exceptions are known to exist, such as at the Grist Mill and Square House family lots at Union Village. Up to the end of the Civil War, most Western Shaker shops, meeting houses, and dwellings resembled large houses with side-gabled roofs and rectangular windows. New buildings were constructed but re-use of old buildings was also very common in Western Shaker communities. Old settler cabins that pre-dated the Shakers were often retained, and when Shaker families were dissolved, their buildings were frequently moved to other family lots, or materials from the existing buildings were used in building new ones.

Union Village Site Planning

The best documentation of the early layout of Union Village, in terms of the initial buildings, is Richard McNemar's 1806 map of the existing pioneer homesteads, established prior to Shaker purchase of the land (Figure 3). His map of Union Village shows buildings along the

north and south sides of an early road to Lebanon. The intersection with the road to Cincinnati would later serve as the Center Family Lot. Richard McNemar's farm is the cluster of buildings on the north side at the eastern end of the road. Malcolm Worley's farm is the group of two buildings on the east side of the road to the north. These two individuals were the driving force in the conversion of the neighboring farm families to Shakerism. Some of the houses on the map are identified according to the Shakers who occupied them, including Malcolm Worley, David Darrow, Samuel Rollins, Ithamar Johnson, and Calvin Morrell. These buildings formed the nucleus of Union Village. At the time of this map, the farm families remained in their original homes and cooperatively farmed the land, with those closest to the core being the most cooperative (Bakken 1998:101).

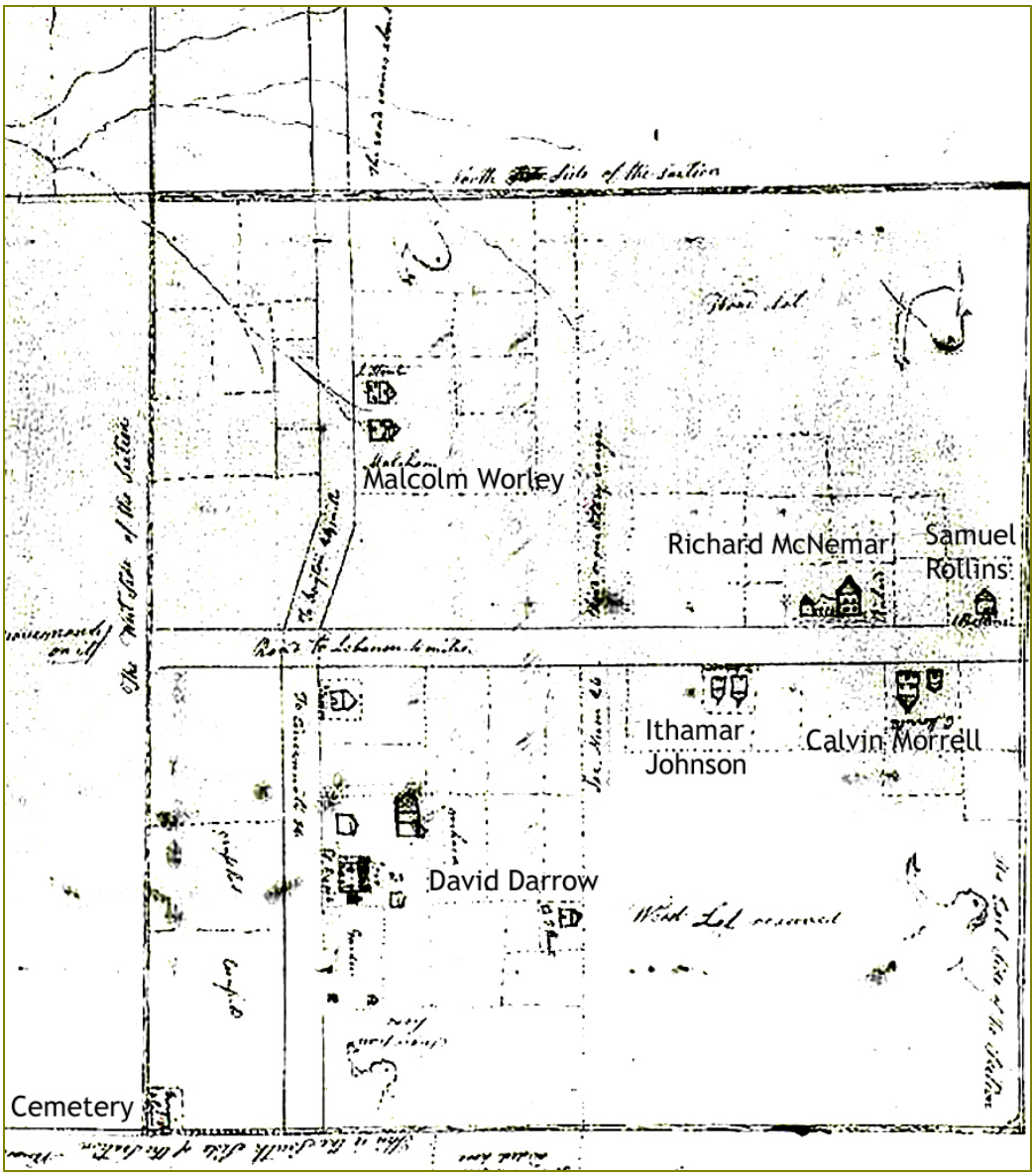


Figure 3. Detail of Richard McNemar's map of Union Village, ca. 1806
Ink on paper, Collection of the Shaker Museum, Old Chatham, New York. Labels added by HDC.

Within a year, more families were converting, and the Eastern Shakers were funding the construction of buildings and the purchase of additional farms. An 1807 plan of Union Village produced by an unknown Shaker (Figure 4) is very similar to McNemar's map, but it appears more orderly, lacking the spirit effigies in the corners and the small figures of dancing Shakers at McNemar's house. The Union Village plan was developed based on McNemar's 1806 map and is probably the work of the Eastern Shakers living with McNemar. The meeting house is centered on the southeast corner of the main intersection forming the core of the community. To the south is the newly constructed South Family House for the Eastern Shaker elders, as well as some of the new shops and barns. The partitioning of the fields and woods shows the orderly and orthogonal orientation. In addition to being a development plan for the community, the map served to communicate to the Eastern Shaker communities the success of their initial western investment and encouraged additional and continued support. The details of this map foreshadow a later map of Union Village at its fullest point, after two decades of expansion and development.

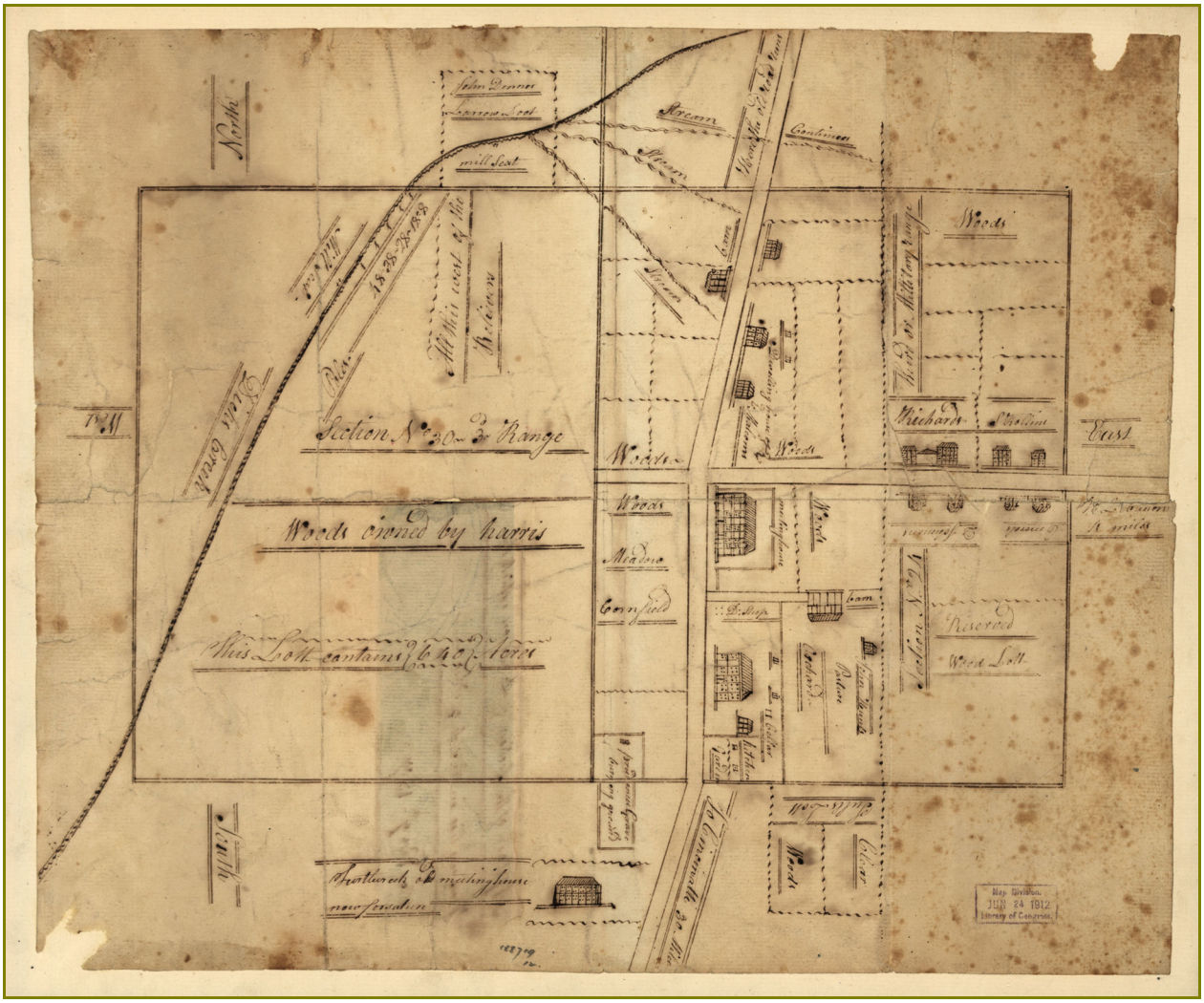


Figure 4. 1807 Map of Union Village
Image courtesy Library of Congress

By the time the 1829 *Map of Union Village* was completed (Figure 5), development of the landscape had expanded considerably—there were family lots at the original East Family and Center Family locations, a South House and shops, a house and shops at the North Family Lot, and three lots on the western side of the village: the West Brick House, West Frame House, and West Lot House, with the West Brick and West Frame equipped with shop buildings. Two other family lots that appear on the 1829 map are the Square House and the Grist Mill House; both were located along Dick's Creek in the northern half of the settlement.

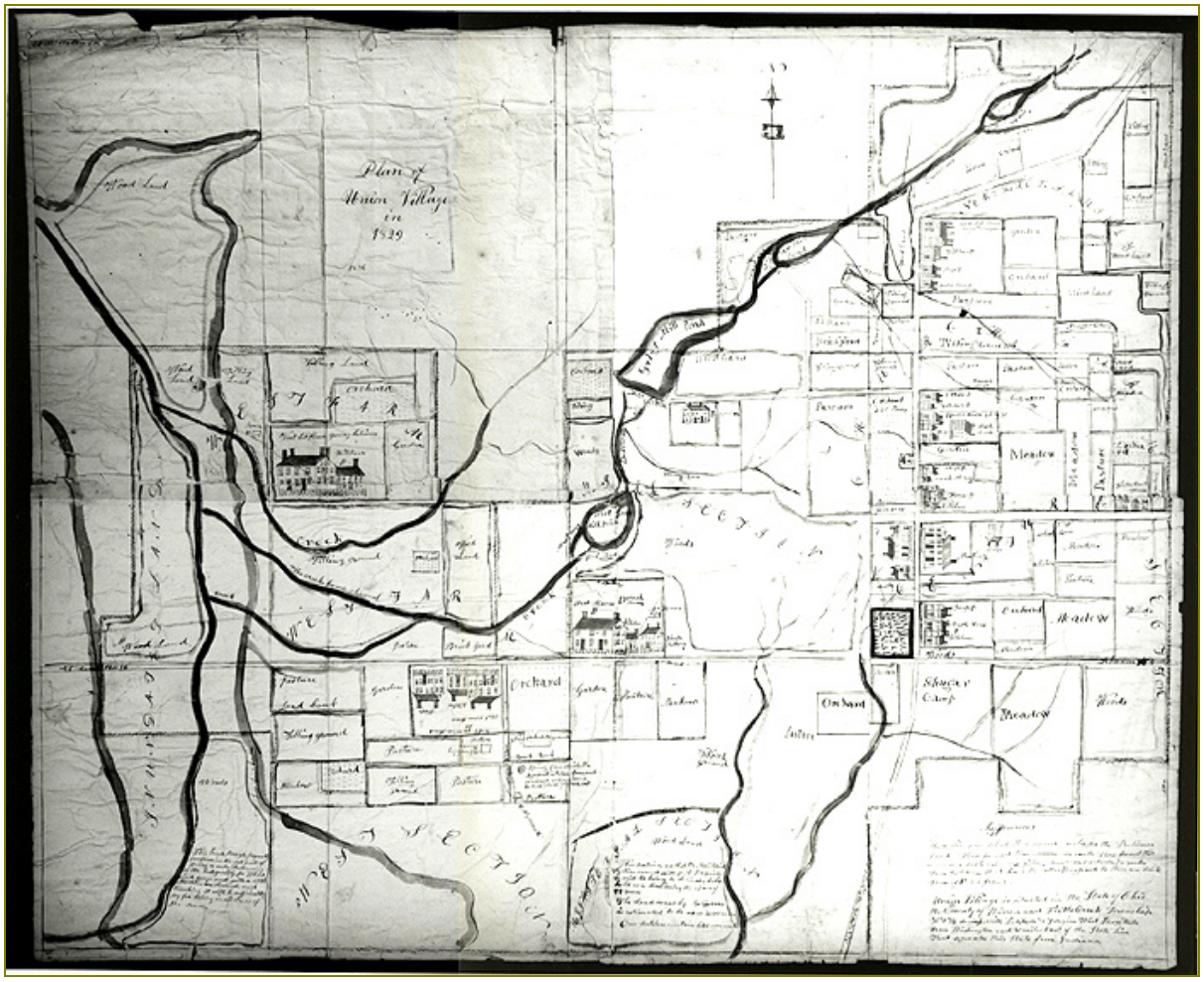


Figure 5. Union Village, unidentified artist, 1829
Ink on paper, Western Reserve Historical Society Archives/Library, Shaker Manuscripts, 1723-1939

Nearly all of the expansion occurs to the west and southwest of the core area with limited northern expansion along the main axis road. Consequently, the original intersection no longer serves as the physical center of the village, but it does remain the spiritual center. In fact, the road could not be practically extended westward because of Dick's Creek and a swampy lowland. To the east, the road to Lebanon was eventually abandoned at the eastern end of the Shaker property, and served as a farm lane. The new east-west axis was

established at the southern end of the original nucleus of the village and extended west to link with the three western family lots.

This newly formed intersection had more to do with communication between the Shaker village and the world than with the internal ordering of the village. Warren County began improvements to the north-south road in 1807 to connect Mason and Springboro, and to the east-west road beginning in 1809 to connect Lebanon and Hamilton (Bogan 1992:71). These roads would eventually become State Route (SR) 741 and SR 63. The Shakers helped build the section of the Lebanon-Hamilton Road that went through their property and one mile towards Lebanon (Bakken 1998:108); they also lined it with fencing to demarcate their property and symbolize their success.

The 1829 map (Figure 5 above) is especially useful in identifying land use at Union Village, as the function of almost every portion of Shaker-owned property on the map is labeled. Nine different sections are labeled:

- The Center Section: Includes the Center Family, Meeting House, East Family, and South Family
- The Church Farm: Includes the North House Family (not to be confused with the North Family Lot) and the Office
- The North Lot Family: Includes, obviously, the North Family Lot, but also perhaps the Square House and its associated tan yard and brick yard
- The Mill Section: Includes all the mills along Dick's Creek
- The West Section: Seems to include only the West Frame Lot
- The West Brick Lot: Is probably associated with the southern West Farm label on the map
- The "West Lot House," home to the Young Believers in 1829: Is associated with the northern West Farm label on the map
- The Ministerial Section: A small area of woodland south of the West Brick Lot; the map has a written comment noting that while not owned outright by Union Village, the land was subject to a 99-year lease held by the Shakers
- The label "Inundated Land": Refers to a section on the western edge of Union Village with poor drainage; a comment on the map notes that this land could be productive year round, if it were cleared and trenched

Thirteen different landscape divisions and/or features are labeled on the 1829 map. They are presented in Table 1 and shown in a color-coded version of the 1829 map prepared for this report (Figure 6), which also labels the locations of the main Shaker lots that existed when the map was produced.

Table 1. Landscape features on the 1829 *Map of Union Village*

Landscape Feature	Number	Map Color/Symbol
Woods/Wood land	10	Dark green
Gardens	9	Light green
Orchards	14	Light red
Meadows	11	Light orange
Pastures	18	Light yellow
Sugar Camps	2	Light blue
Tilling Grounds/Lands	11	Light brown
Mills and mill ponds	4	Red diamonds
Brickyards	2	Pink
Graveyards	1	labeled
Sand Banks	2	labeled
Springs	4	Blue drops

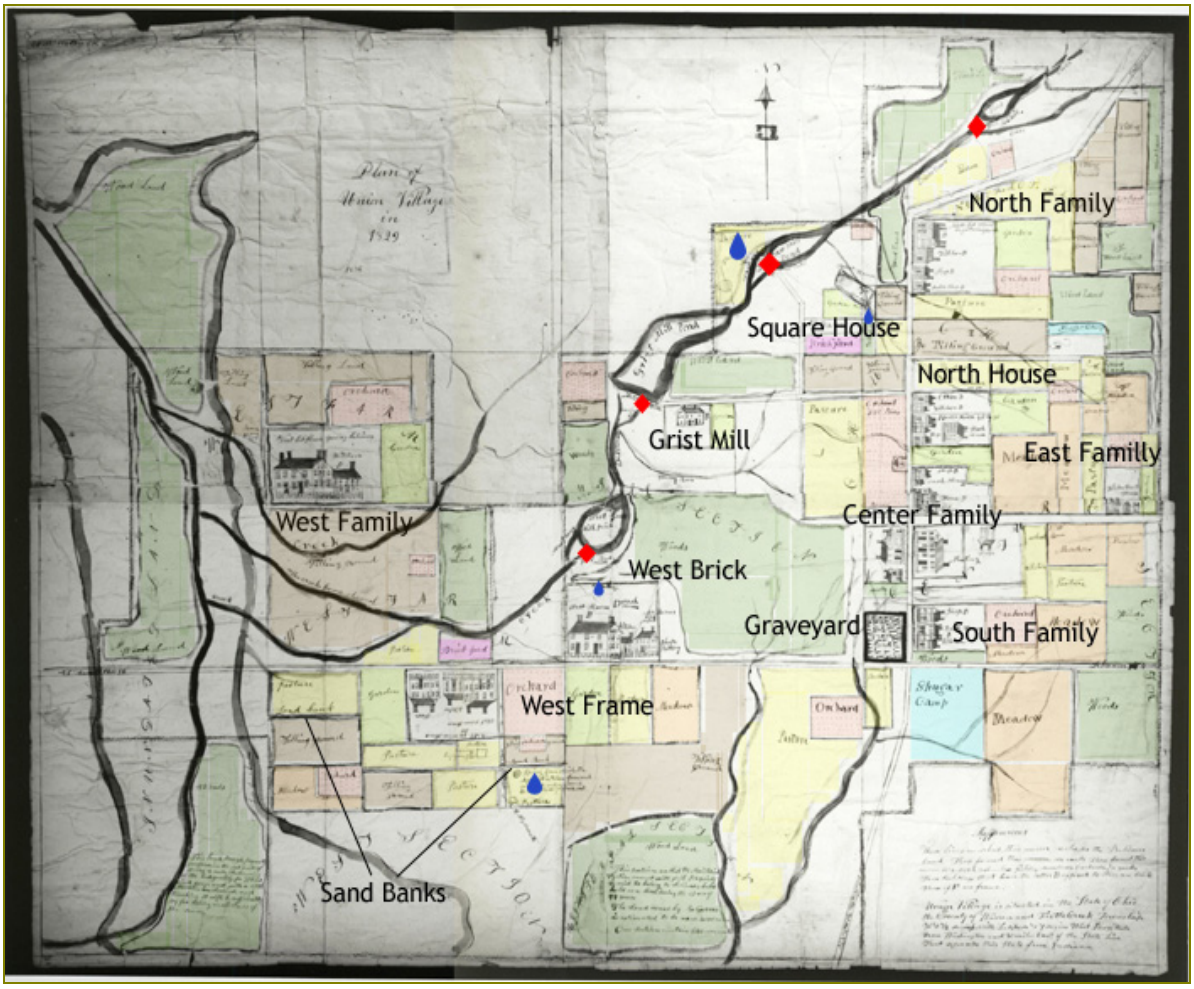


Figure 6. Color-coded version of the 1829 *Map of Union Village*
(Labels and colors added by HDC in Photoshop)

The term "woods/wood land" probably refers to uncleared sections of the original woodland covering. The largest section of woodland within Union Village was that of the Mill Section. This is possibly due to the topography of the section, which is characterized by ravines and slopes, and thus was less suitable for agricultural use than were other parts of Union Village. The wooded areas of Union Village served as a resource for both building material and firewood, and the Shakers probably gathered wild berries and herbs there as well. Gardens are for the most part located immediately adjacent to Shaker family lots, with the exception of the South Family, which apparently lacked a garden as part of the lot at the time the 1829 map was produced.

Orchards are deliberately planted groups of fruit-bearing trees, and these were found throughout Union Village. The 1829 map makes special note of two orchards: a large one containing 1,000 trees and a small one containing peach trees, both located at the Church Section. The use of the term "Meadow" on the map is unclear, but it may refer to a fallow field taken out of crop rotation or pasturage. All the meadows on the map are next to either pastures or tilled fields. Pastures are the most common landscape feature identified on the map, reflecting the importance of rearing livestock at Union Village. The only family lot without a pasture is the West Lot/Young Believers, which appears from this map to be the least developed lot at Union Village. Sugar camps (spelled "Shugar Camp" on the map) refer to stands of maple trees dedicated to producing maple syrup.

The tilling grounds on the map are the agricultural fields devoted to monoculture crops, such as wheat and corn, and are found in association with the outlying family lots at Union Village. The Center, East, and South lots did not have active tilling grounds depicted on this map. Mill ponds are the impounded artificial ponds that the Shakers created to provide water power for the various mills present at Union Village. Brickyards are areas located near sources of clay and represent where the majority of bricks used at Union Village were produced. Although some lots may have made and fired bricks on site, the sheer number of bricks required for all the brick buildings at Union Village would have required dedicated brick production facilities, such as is represented on the 1829 map. One graveyard is shown on the map. A second graveyard was established closer to the North Family Lot after this map was produced. Finally, natural features that were important resources to the Shakers are labeled on the map, including springs and two sand banks, which presumably were the source for the sand used in mortar and plaster at the village.

Fifty-eight individual buildings are depicted on the 1829 map. The types of buildings shown are listed in Table 2, below. The "Unique Buildings" category in the table refers to the five buildings that were not identified more than once on the map per their building type: the Smith Shop (at the North Family Lot), the Office, Meeting House, and School (all at the Center Family), and the Pottery (at the West Brick Family). The most common building type on the 1829 map is the shop (n=11), followed closely by communal dwellings (n=10), barns (n=8), and kitchens (n=8). The identification of some buildings, such as kitchens, depended solely on the map label. Communal dwellings are more clearly identified because of their distinctive form, and the two dwellings at the Center Family were included in the communal dwelling category, although they lack specific labels.

The category "Unidentified Buildings" refers to buildings on the map without a label or obvious context that would identify their function. Some buildings, like the communal dwellings and brick shops, were represented by sketches, while others were depicted as crude rectangles or simply a label. Some of the buildings present at the time were not included on this map. The North Family Lot, for example, has only four buildings shown, while we know from contemporary Shaker journal entries that at least seven structures were present. Perhaps the most puzzling omission on the 1829 map is the Square House. While the Square House Lot is labeled as such, and includes symbols for two shops and a barn, the Square House itself is not shown. This omission is especially odd considering the building was constructed of brick, making it possibly the only brick structure at Union Village in 1829 that is *not* shown on the map. The accuracy of the building sketches is questionable, as later drawings and maps show different configurations for buildings. For example, on the 1829 map, the Smith Shop at the North Family Lot is depicted as a two-story building, while all other lines of evidence show this structure as only one story. This discrepancy is discussed in more detail in the section on the Pottery/Broom Shop on page 91.

Table 2. Buildings depicted on the 1829 *Map of Union Village*

Building Type	Total Number of Buildings
Communal Dwelling	10
Kitchen	8
Shop	11
Barn	8
Mill	7
Wash House	4
Unique Building	5
Unidentified Building	5

The spatial distribution of the landscape features on the 1829 map reflects for the most part the developmental history of Union Village, and hints at one reason why the Second Family was established at the North Family Lot in 1836. The most highly developed portion of Union Village is the section between the North Family Lot and the South Family Lot, and between the Center Family and the East Family. Few sections of woods are present in this area, which consists of pastures, meadows, orchards, and tilling grounds. In contrast, the three western lots on the 1829 map have areas of developed land near the house lots, but they are also bounded by wide sections of unimproved land. The decision to base the Second Family at the North Family Lot in 1836 was likely influenced by the level of improvement already established at the property.

In terms of architectural representation, Isaac Youngs' drawings of Western Shaker communities made in 1834 are more detailed than the 1829 *Map of Union Village*. Isaac Youngs was a prolific diarist who lived at the central Shaker ministry in New Lebanon, New York, and traveled to the Western Shaker communities in the early 1830s. He made sketch maps of the villages he visited, which are among the only detailed representations of individual family lots for many of the villages Youngs visited during his journey (Wergland 2006). Where the 1829 map shows only major communal dwellings and shops in any detail, Youngs' maps show smaller frame and log buildings as well as agricultural buildings.

However, Youngs' maps do not contain any useful data on the landscape as a whole at Union Village. Youngs' maps do allow for some comparison of the layouts of various family lots at Union Village and other Western Shaker communities, including Whitewater, Watervliet, North Union, South Union, and Pleasant Hill, and they also allow for a rough approximation of the total numbers and types of buildings present at Union Village at the time of his visit.

Youngs' sketches of the various family lots at Union Village were more thorough in labeling the various buildings he observed during his visit in 1834. Youngs' original drawings have been lost, but copies of the drawings were made in 1835 by fellow Shaker George Kendall at Harvard, Massachusetts, and these copies have survived. Thus, all the copies of Youngs' maps used in this report are actually Kendall's reproductions. A total of 96 individual buildings can be found in the Kendall reproductions of Youngs' sketches. Only the West Family Lot, home to the Young Believers subdivision of the Gathering Order, was not included in Youngs' survey. Apparently, Youngs was so unimpressed with the physical state of the West Family Lot that he didn't bother to sketch the buildings there, although the communal dwelling of that family is shown on the map he made to show the locations of each family lot at Union Village (Figure 7).

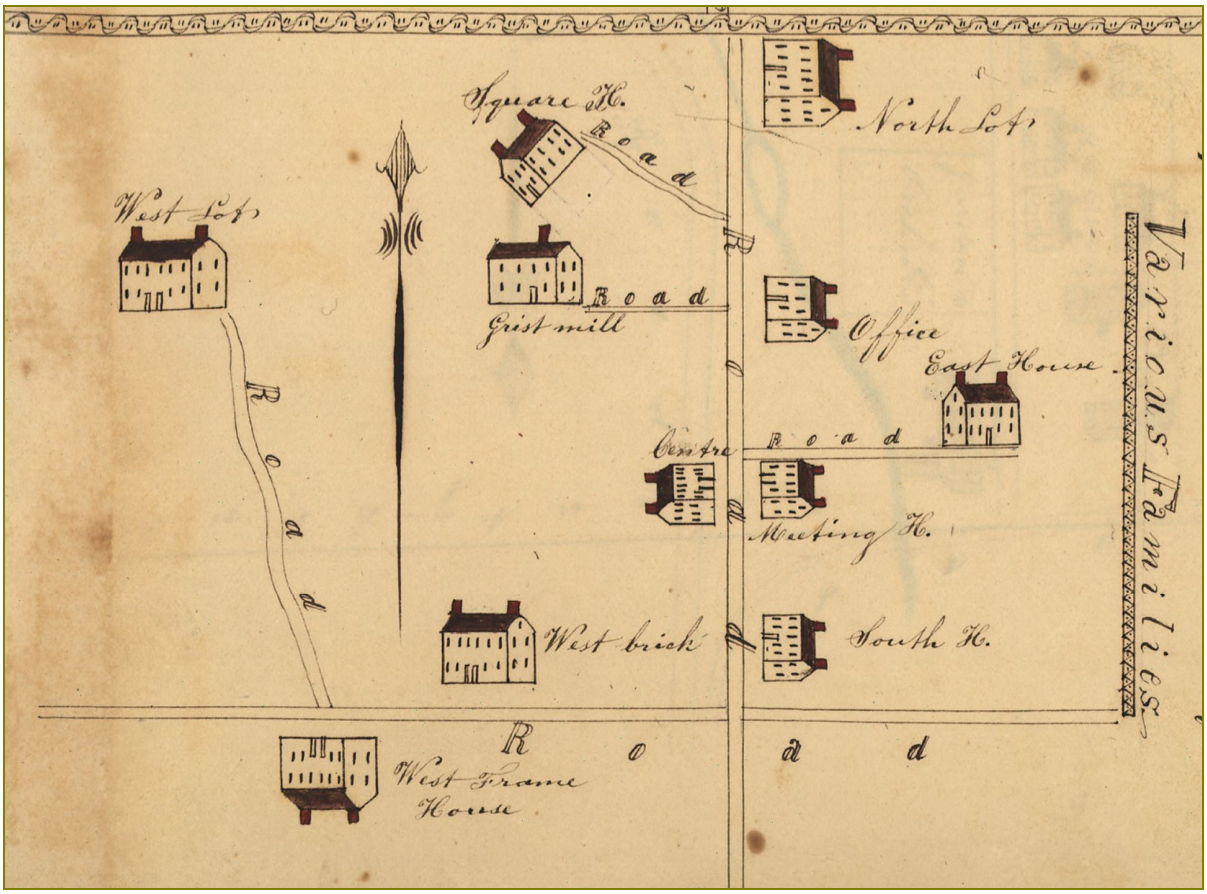


Figure 7. Youngs' 1834 sketch of Union Village family lot locations, as reproduced by Kendall in 1835
Image courtesy of Library of Congress

In total, Youngs' various maps included depictions of 11 communal dwellings, 12 shops, 7 wash houses, 21 barns, 2 sheds, 2 wagon sheds, 2 corn cribs, 2 spring houses, 2 bee houses, and 10 unidentified buildings. Several unique buildings on Youngs maps were distinguished with labels at the different family lots, including ones at the following lots:

- Center Family: the Meeting House, the Office, a tin shop, a cooper shop, and a dye house (Figure 8)
- North Family Lot: a garden shop, a log shop, and a log house (Figure 9)
- South Family Lot: "Blind Daniel's house," a house for an elderly blind Shaker (Figure 10)
- West Frame Lot: a horse stable and a brick house (Figure 11)
- West Brick Lot: the Pottery, a kiln, and a store (Figure 12)
- Square House Lot: a bark house and a clothiers' shop (Figure 13)
- Grist Mill Family: a grist mill and an oil mill (Figure 14)
- East Family Lot: a house apparently used by only a single gender (from its solitary door), a house identified as Richard McNemar's old house, and a dry house (Figure 15)

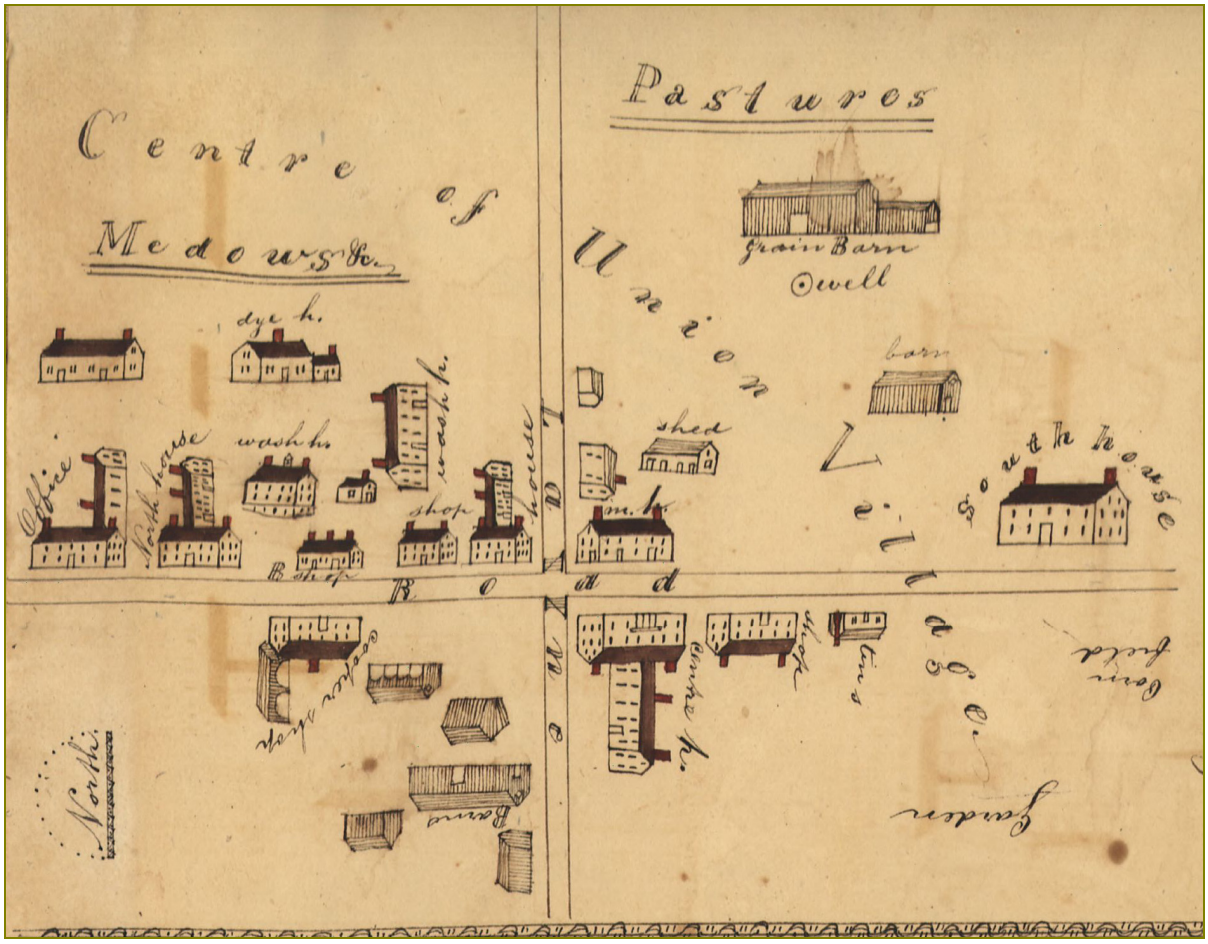


Figure 8. Youngs' 1834 sketch of the Center Family, as reproduced by Kendall in 1835
Shows the South Family house (right side of map) in relation to the Center Family.
North is to the left side of the map. Image courtesy of Library of Congress.

For this project, we examined in detail the Shaker journals associated with the North Family Lot and assessed the accuracy of Youngs' sketches by comparing the buildings present on his map with the buildings that should be present according to the journal entries. Youngs' sketch shows 14 buildings present at the North Family Lot at the time of his visit in 1834 (Figure 9). Through archival research, we have identified 16 buildings that would have been present at the North Family Lot at that same time: the Communal House, the Kitchen (a separate building from the Communal House at the time), the Brothers' Shop, the Smith Shop, the Slitting Mill, a dry house, the Morris House, the Wagon House, the Grain Barn, a cow barn, a horse stable, a corn crib, a Sheep House, the Garden House, the Matthew Houston House, and the Joseph Babbitt Log Cabin.

Comparing the sketch with the list of buildings known to be present in 1834, the Communal House and Kitchen are obvious correlates between the two sources. The larger shop building (on the near right) on Youngs' sketch is the Brothers' Shop, and the smaller one (far right) corresponds to the Smith Shop, which was converted into the Pottery just two years after Youngs' visit. The building labeled "garden s." on the map is probably the Garden House, which was moved to the east and out of the residential core shortly after his visit.

The two log buildings (upper left) most likely correspond with the small houses that were located somewhere on the North Family Lot before the construction of the Communal House in 1823. One of the log buildings could be Isaac Morris' former dwelling, occupied by the North Lot Family Young Believers from 1815 to 1823, although this structure was referred to as a frame structure by Shaker elder Daniel Miller (Miller 1835:371–372). The other log building may be the Joseph Babbitt Log Cabin, which was supposedly a log house, or it could be the Matthew Houston House. We found no information as to the exact locations of the last two houses during archival research, and their direct association with the North Family Lot is somewhat tenuous.

The building labeled "shed" (far left) on the map is most likely the Wagon House, which was moved across the road in 1836. The large barn (upper left) to the northeast of the Communal House is likely the Grain Barn. The group of buildings labeled "barns" (lower left) across the road from the Communal House probably includes the Cow Barn, Horse Stable, Sheep House, and the corn crib. Finally, the long one-story building (near right) between the two shop buildings is likely the Slitting Mill, which was moved across the road in 1838.

Not present on Youngs' map are the dry house and one of the three small houses that were supposedly present. Additionally, the geophysical survey performed in 2004 and the 2005 excavations at the North Family Lot failed to locate any evidence for buildings matching the orientations of the Garden House and the two log structures in the areas where they are depicted in Youngs' sketch. The lack of physical evidence for these structures is probably related to the fact that the Shakers moved the buildings after the map was drawn and built or placed other structures in their general locations (for example: the Green Shop, Wash House, and Nurse Shop). Nevertheless, the 1834 sketch map closely corresponds to the journal entries for the North Family Lot in the number and types of structures. This level of accuracy at the North Family Lot probably means that Youngs' record of 96 buildings at Union Village in 1834 is likely close to the number of buildings present at that time, which must have been well over one hundred structures (taking into account the lack of attention paid to the West Lot Family by Youngs).

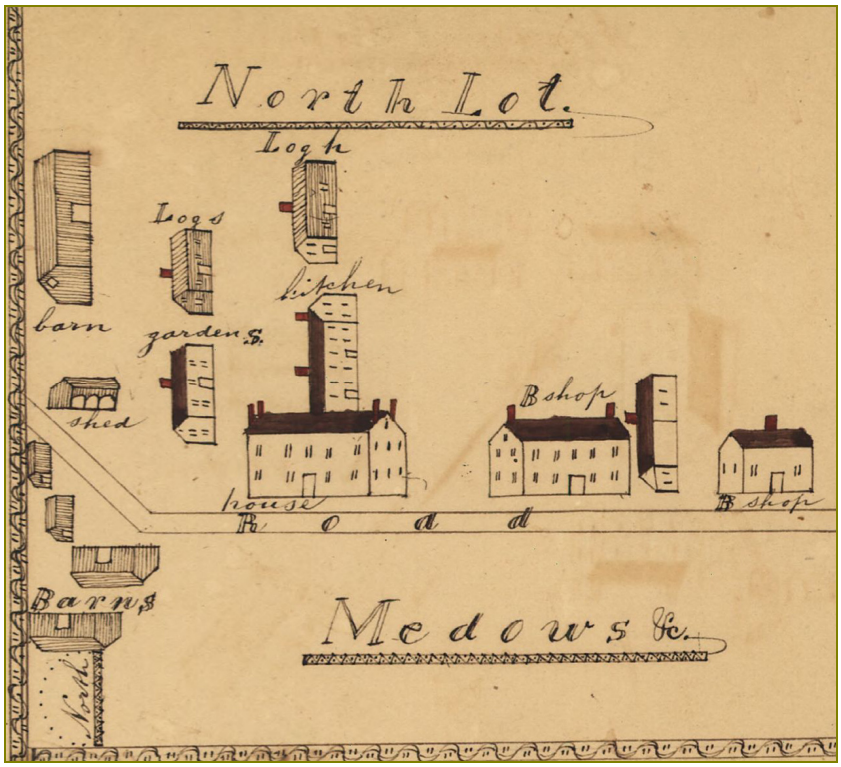


Figure 9. Youngs' 1834 sketch of the North Family Lot, as reproduced by Kendall in 1835
Image courtesy of Library of Congress. North is to the left of the image.

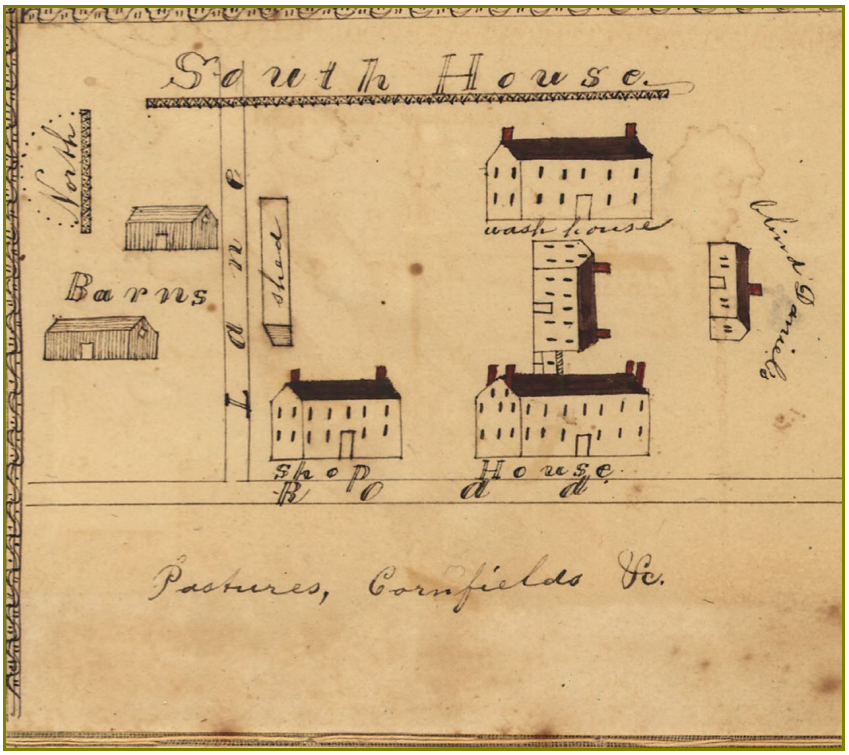


Figure 10. Youngs' 1834 sketch of the South Family Lot, as reproduced by Kendall in 1835
Image courtesy of Library of Congress. North is to the left of the image.

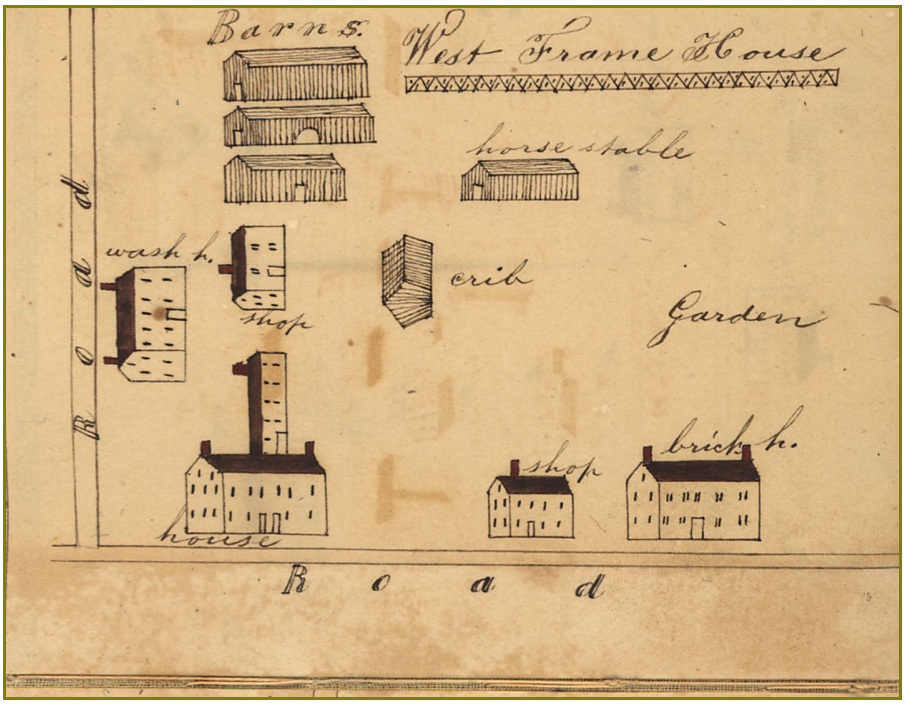


Figure 11. Youngs' 1834 sketch of the West Frame Family Lot, as reproduced by Kendall in 1835
Image courtesy of Library of Congress. North is toward the bottom of the image.

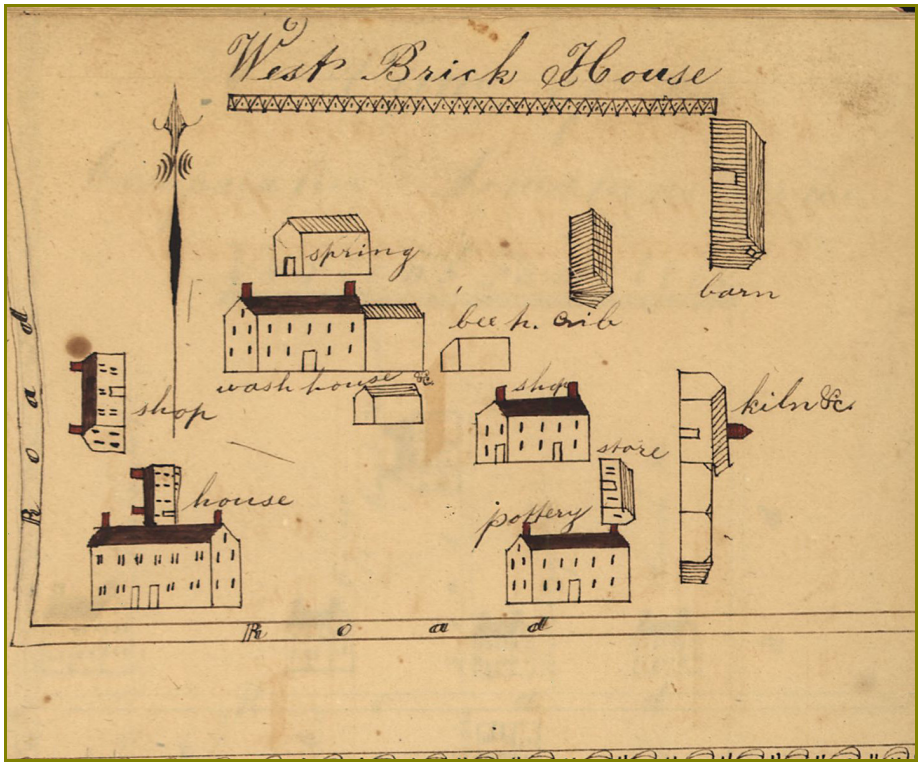


Figure 12. Youngs' 1834 sketch of the West Brick Family Lot, as reproduced by Kendall in 1835
Image courtesy of Library of Congress

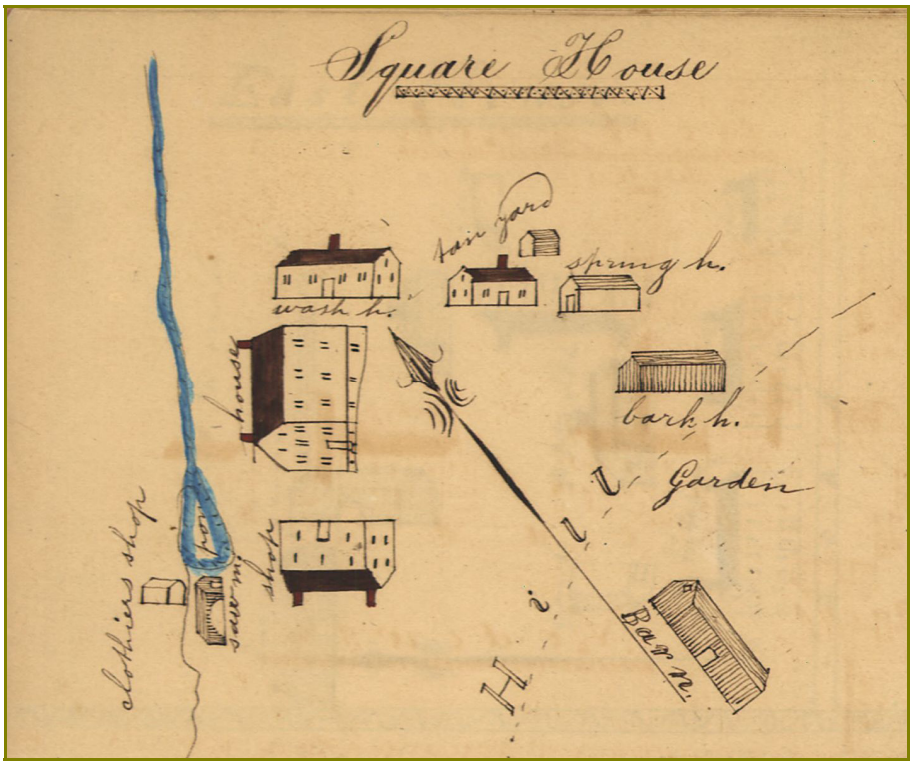


Figure 13. Youngs' 1834 sketch of the Square House Lot, as reproduced by Kendall in 1835
Image courtesy of Library of Congress

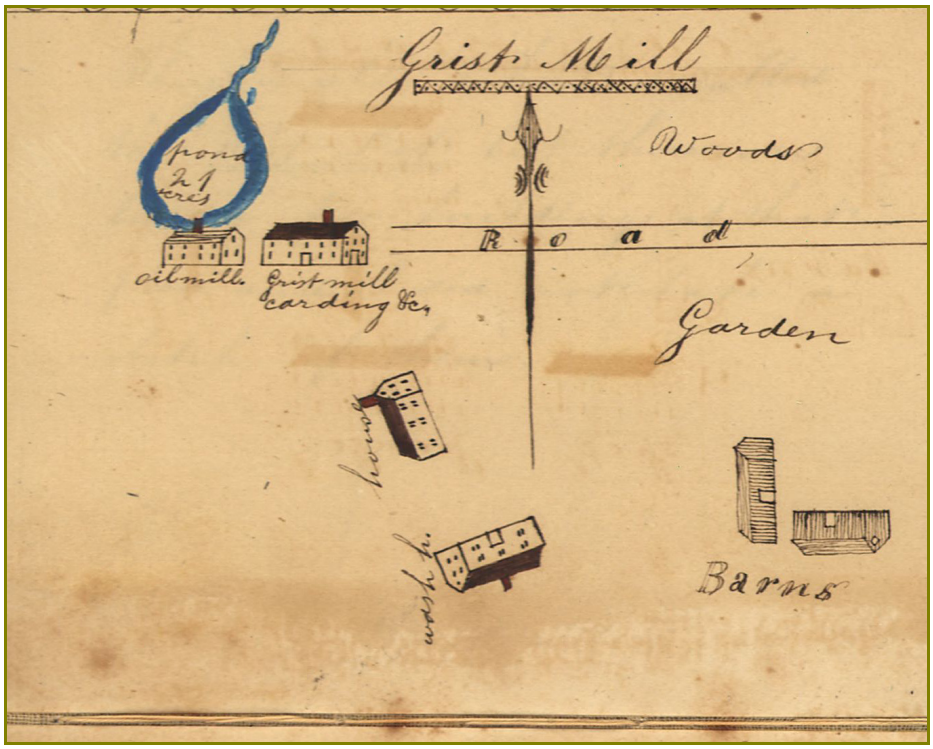


Figure 14. Youngs' 1834 sketch of the Grist Mill Family, as reproduced by Kendall in 1835
Image courtesy of Library of Congress

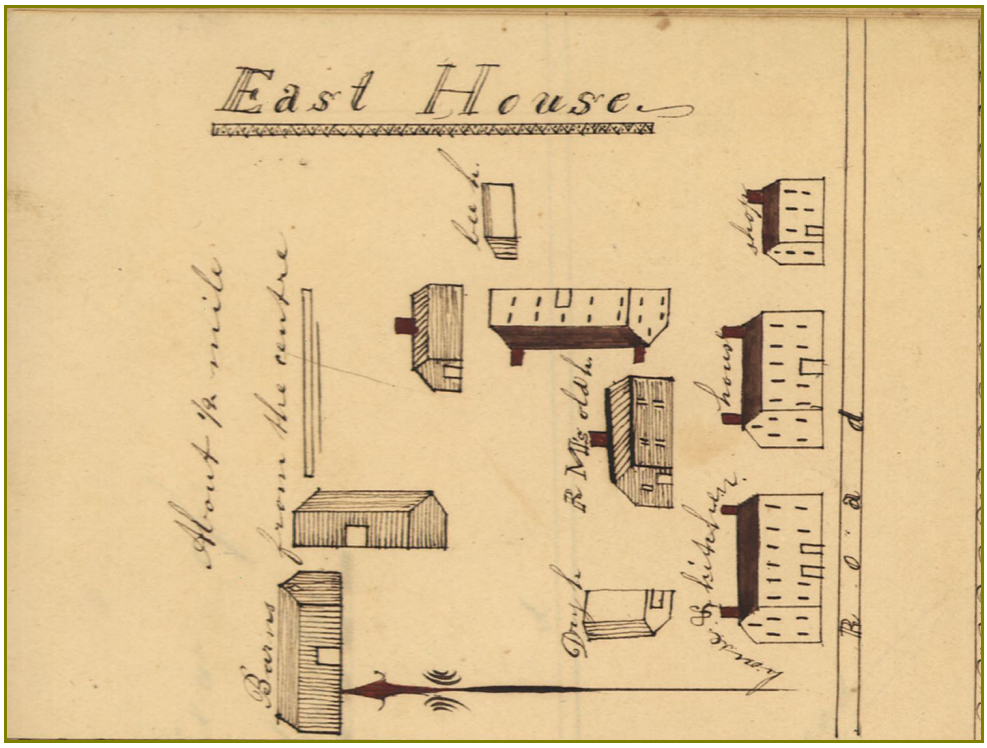


Figure 15. Youngs' 1834 sketch of the East Family Lot, as reproduced by Kendall in 1835
Image courtesy of Library of Congress. North is to the left of the image.

Youngs' maps reveal some common patterns of site planning found in many of the family lots at the southern Ohio Shaker settlements of Union Village, Whitewater, and Watervliet. Youngs' depiction of the Center Family at Union Village (Figure 8 on page 17) can serve as an example of the Shaker site pattern. Family lots generally faced a road, and a large communal dwelling was almost always placed close to the road with its long axis and main entrance facing the road. The communal dwelling was also often placed at or near an intersection, and it was often flanked on one or both sides by gabled shop buildings of varying sizes. These shop buildings were usually oriented with the long side of the building facing the road. Sometimes, additional shop buildings were placed behind the communal dwelling and the shops that lined the road, and barns and sheds were placed in a cluster some distance from the masonry buildings. The Western communities built many shop buildings and dwellings with brick, which often faced the road, while wood-frame buildings were placed behind the masonry structures.

In Figure 8, the Meeting House is on the southeast corner of the intersection of the two roads—this position is a focal point on the landscape and a natural choice for the placement of the community's most important structure. The positions of the four dwelling houses also are shown in the figure: the South Family house, the Center or Church Family house, a second Center Family house, and the North House (not to be confused with the North Family Lot house). All four dwellings face the road, with their gable ends oriented north-south. Note also that the shops and the Union Village office on the map face the road. Buildings on the map not fronting the road are arranged on apparent grid lines, either parallel or perpendicular to the main north-south road.

In comparison, the communal dwellings of the major families at the Shaker community of Pleasant Hill, Kentucky, were oriented with the gable ends of the buildings facing in the east-west direction (Figure 16). Houses from the colonial era up into the nineteenth century were commonly placed so that the long side of a building faced north-south, so that a larger surface had a southern exposure to the sun and could generate more warmth during the winter. This factor may have influenced building placement at Pleasant Hill (Lancaster 2001:50).

It is not completely clear whether the communal houses at Union Village were placed to receive winter sun exposure. Dwellings at the West Brick, West Frame, and possibly the West Family and East Family had the long sides of the communal houses facing in the east-west direction, but the other dwellings at Union Village are not oriented in this manner. Placing the dwellings to face the main road was more important to Union Village planners than was taking advantage of the winter sun. Also, a southern exposure may have been more important for the kitchen ells on the buildings. In particular, the North Family Lot Kitchen had dormer windows present only on the southern exposure, which may have reflected a desire to use sunlight to supplement heating in the colder months of the year.

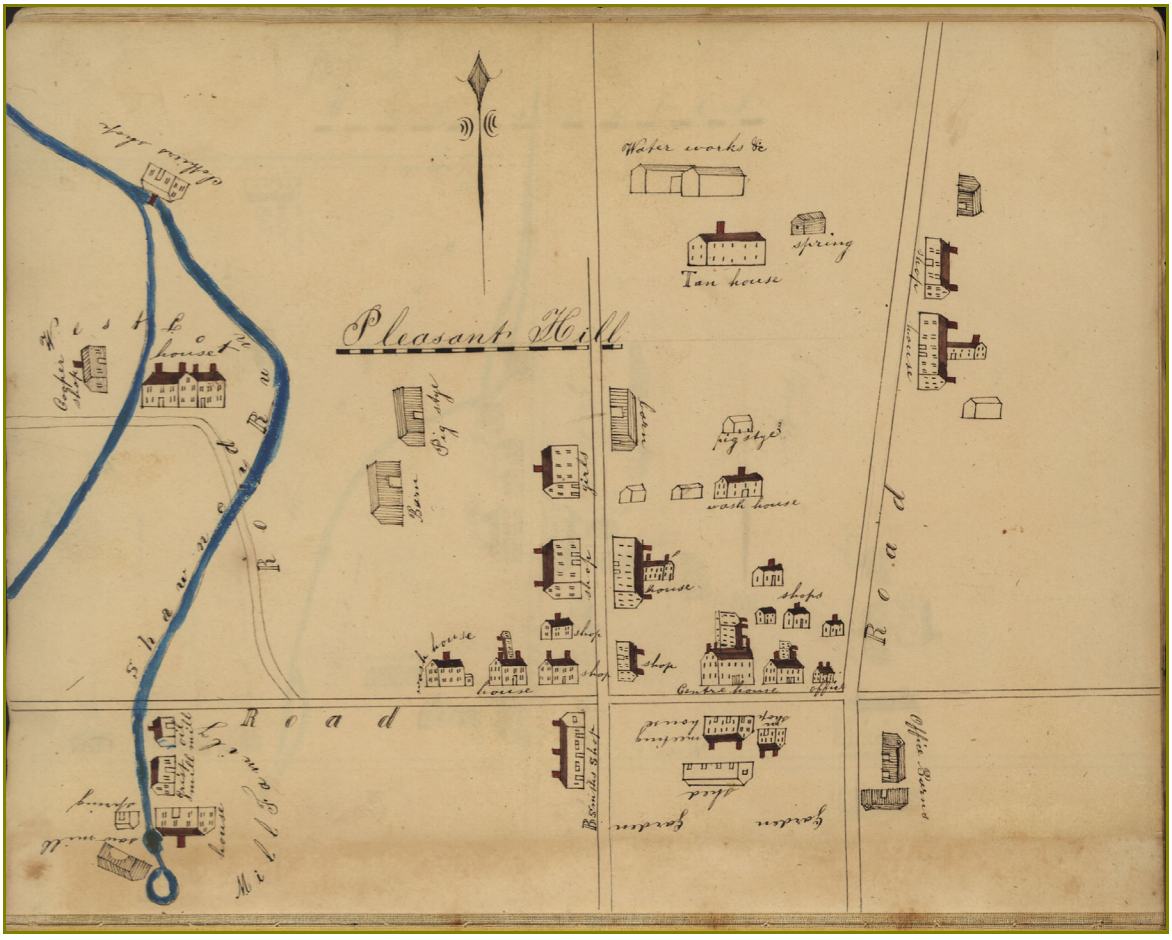


Figure 16. Youngs' 1834 sketch of Pleasant Hill, Kentucky, as reproduced by George Kendall in 1835
Image courtesy of Library of Congress

One of the most common planning characteristics of Western Shaker villages is this placing of dwellings and masonry shops to front a road, with barns and other frame buildings towards the rear of a lot. In general, the Union Village North Family Lot conforms to this pattern, with the main dwelling and brick shops placed along the road, and additional barns, shops, and smaller log buildings placed either behind the communal dwelling or in a cluster on the opposite side of the road from the dwelling and shops. Other examples of this pattern at Western Shaker family lots include the Center Family (Figure 17) and East House complexes at Union Village, the Main House grouping at Watervliet, Ohio, and the Center Houses at both Pleasant Hill and South Union, Kentucky.

Barns, sheds, and other agricultural buildings were generally placed with their gabled or long sides facing the road. Most buildings were placed parallel to each other or at right angles. Although diagonal placement of buildings was unusual, it did occur, such as at the Square House Lot (Figure 13 on page 21) and the Grist Mill Lot (Figure 14 on page 21). In the case of the Square House Lot, the grid orientation of the lot is not placed according to the cardinal directions but is instead parallel to the course of Dick's Creek, which feeds into a mill pond on Youngs' sketch of the lot. The lot's barn is oriented north-south, but it is located away from the main cluster of buildings on top of a hill. With the Grist Mill Lot, the dwelling and the wash house are oriented 20 degrees west of north, as indicated by the directional arrow on the sketch map. The other buildings are aligned on a grid oriented to the cardinal directions. Topography may have been a factor in the differing alignment of the dwelling and wash house at the Grist Mill Lot.

Figure 17. Aerial view of Center Family buildings, orchards, and fields, ca. 1930
Image courtesy of Otterbein Homes Museum & Library

In the case of the North Family Lot, building locations may have been guided by a grid with intervals of 25 feet. Other authors have noted the even spacing and grid-like patterns of building placement within Shaker communities (Fiegel 1995, McBride 1995). After we identified as many definite building locations as possible at the North Family Lot, we experimented with overlaying grids of different intervals on the site plan to look for evidence that the buildings were aligned along a grid. We tested various types of measurements that the Shakers may have used—chains, rods, and feet—and measured the distance between the three earliest buildings (the Communal House, the Brothers' Shop, and the original smithy foundation of the Pottery/Broom Shop). Experiments with chains and rods did not result in a grid interval that fit the arrangement of buildings, but we noted that several buildings seemed to have long axes that were close to 50 feet in length (the Communal House, Brothers' Shop, Green Shop, Nurse Shop, Pottery/Broom Shop addition, Sisters' Shop, and an unidentified structure found in the southeast corner of the lot during geophysical survey).

A superimposed grid with 50-foot intervals, centered on the northwest corner of the Communal House, revealed several points of coincidence between structure locations and grid intervals, suggesting that feet were indeed used as the standard measurement in laying out the North Family Lot. However, the 50-foot grid seemed to leave several elements of the lot off grid lines, so we reduced the grid spacing to 25 feet, as shown in Figure 18. This grid spacing clearly shows that nearly every structure and landscape element we have identified as Shaker in origin either falls on or close to a grid intersection or follows a grid line, strongly suggesting that the Shakers laid out the lot on a 25-foot grid, and that they used the same grid spacing throughout their occupation of the lot. While it seems likely that the use of this grid spacing was not limited to the North Family Lot, the 25-foot grid has not been tested at other family lots at Union Village; we cannot at this time say that it was the standard at this Shaker community.

Western Shaker Building Types

Shaker buildings have several distinct types, each with a specific design. While some standardized plans may have existed for certain building types, local building customs and materials also influenced the form and layout of the buildings. In general, most Western Shaker buildings could be characterized as dwellings, residential support buildings, shops and offices, worship facilities, or agricultural buildings.

Dwellings and Residential Support Structures

The communal house formed the nucleus of most Shaker family lots. In Western Shaker communities, these dwellings often had a two- or three-story, side-gabled main block and a gabled kitchen wing at the rear. Buildings were solidly constructed, often using locally obtained hardwood timber and bricks that were fired on site or in nearby brickyards. The majority of Shaker houses in the west were built from about 1810 to 1840, a time period dominated largely by the Federal style of architecture, a style that was influenced by the graceful neoclassical design tendencies of English architect Robert Adam.

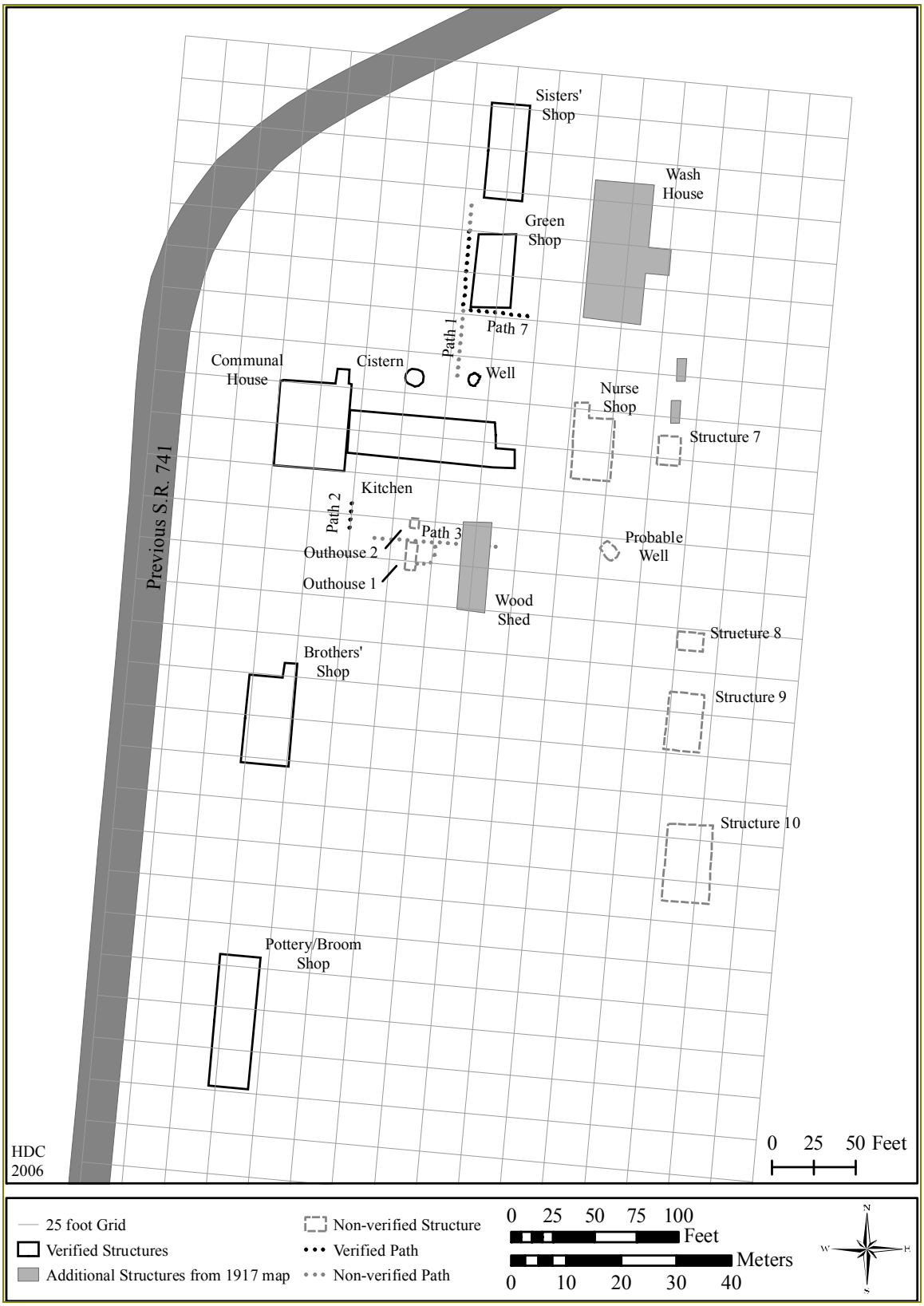


Figure 18. North Family Lot plan with 25-foot grid

However, buildings at most Western Shaker communities showed little evidence of Adamesque embellishments, most likely because of the Shaker emphasis on simplicity and their avoidance of non-functional ornamentation. Buildings at Union Village generally did not show overtly Adamesque features. The situation at Pleasant Hill, Kentucky, was slightly different; there, Shaker engineer and builder Micajah Burnett incorporated barrel vaults, fanlights, and other Adamesque features.

The communal houses of the 1820s and 1830s were designed to enforce Shaker discipline and Shaker daily living practices. Although the houses were usually inhabited by both sexes, the buildings were divided into male and female halves to provide some separation. Men and women did interact some within the communal dwelling, but their contact was limited to an amount acceptable to Shaker authorities. Dwellings inhabited by both sexes had separate doors for men and women, and dual staircases were common as well (Nicoletta and Morgan 1995:50–51). In some dwellings, separate male and female bedrooms and staircases were located on the opposite ends of the building to discourage unnecessary interaction between the sexes (Nicoletta and Morgan 1995:54).

Western Shaker communal dwellings usually contained communal dining and meeting facilities. A single communal dining room was generally located on the first floor or in the basement. For convenience, the dining room was usually next to the kitchen, which in Shaker family lots was typically positioned in the dwelling's rear wing. Most communal houses also contained a large meeting room, often on the second or third floor of the rear wing, that was used for daily worship and meetings within the family. In the latter half of the nineteenth century, as the fervent religiosity of Shaker life began to decline, these spaces were often used for lectures or even small pageants or theatrical productions (Nicoletta and Morgan 1995:56). This type of arrangement of rooms can still be seen at most of the existing family dwellings at Pleasant Hill, Kentucky.

Smaller, supplemental dwellings were also present at Shaker family lots. These were often frame or log houses used for additional living space when the communal dwelling could not accommodate the entire population of a lot. Usually reserved for only one gender, these dwellings often housed younger believers. At the North Family Lot, there is documentary evidence for at least three buildings thought to represent supplemental housing: the Back Brethren Houses, the Little Sisters' House, and the Boys' House, all built or moved to the lot in the 1840s (Union Village Diarist 1836–1857).

Communal dwellings and small cabins were not the only residential buildings located on Western Shaker family lots. There are documented cases at Union Village and other Shaker settlements of Shaker children and their caregivers residing in upper floors of shop buildings or in specially constructed dwellings. At the North Family Lot, the second floors of the Wash House, Brothers' Shop, and Green Shop housed children at various times. This type of arrangement was a common Shaker practice, a way to physically remove children from the adults residing in the main communal dwelling (Nicoletta and Morgan 1995:70). In Shaker communities, children were usually separated from adults, in terms of living space—boys were segregated from the adults until they reached age sixteen, girls until they reached age fourteen. Children were also segregated by sex, with boys and their male caregivers residing in the brothers' shops and girls residing in the sisters' shops.

The smaller houses that once served as additional housing for Shakers were often later used by paid laborers or tenant farmers, mainly in the late nineteenth and the early twentieth century. These paid laborers and tenants were not Shakers and did not live a communal lifestyle. They were brought into the family lots to provide labor, especially from 1870 onward, when there were not enough Shaker men of working age to complete all of the farm work and maintenance. Although the Shakers became more dependent on hired help in the last quarter of the nineteenth century, archival research for this project suggests that the use of hired help and contractors to complete undesirable or large-scale tasks was common well before the Civil War (Union Village Diarist 1836–1857).

Shaker family lots also included support buildings for day-to-day housekeeping activities that could not be accommodated in the communal dwelling. Smaller support buildings were usually located close to the communal dwelling and included outhouses, wood sheds, and wells. A common type of larger support building was the laundry, or wash house, which was often a two-story, side-gabled building used for cleaning the believers' clothes; however, at some families, these structures were rather large, up to four stories tall, with dedicated cisterns and wells. With some families having over 100 members, laundry-related activities required ample space. The wash house was often located close to the communal dwelling for convenience. The blacksmith shop was another common support building at some family lots. The blacksmith repaired broken tools, shoed horses, and even made nails, tools, and architectural hardware.

Worship Facilities

Shaker worship facilities were limited to the meeting rooms in the communal dwellings at the individual family lots; a meeting house used by all families was located at the Center Family complex. Since a meeting house did not exist at the North Family Lot, we will not discuss this building type extensively in this report.

One type of worship facility that did not always include a building was a sacred site—an outdoor gathering place removed from the main portion of the village. These sacred sites were a component of the Era of Manifestations and were used only from the 1840s through the 1850s. A small frame shelter would have been the only building present at most of these sacred sites, where the focus of worship activities was outside. At Union Village, the sacred site was called "Jehovah's Chosen Square," and it was located to the southeast of the North Family Lot.

Shops and Offices

Most family lots manufactured products that Shakers either used within the village or marketed to the outside world and other Shaker communities. Offices and shop buildings supported these activities.

The trustee office was a building type often associated with the First Family or Church Family at Western Shaker communities, and served as the locus of the community's financial activities. For smaller families, trustee offices were sometimes located in shop buildings or in the communal dwelling. While the Center Family had a large office building at Union

Village, historical accounts indicate that the North Family Lot trustee offices were located in the middle south room of the main Communal House until early 1840, when they were relocated to the second floor of the Brothers' Shop (Union Village Diarist 1836–1841:332). Perhaps increasing commercial activity led to placing the trustee office in a more isolated setting.

Shop buildings accommodated the various Shaker crafts and industries, and in some cases, residential and office uses as well. These buildings could range from tiny to very large, depending on the scale of the industry at a particular family, as well as on how much space the industrial activities required. When possible, the Shakers put workshops in plain, symmetrical, side-gabled buildings that resembled their communal houses, but usually on a smaller scale. Some shops were brick; others were wood frame. Separate shop buildings were generally provided for men and women, since the sexes were assigned different tasks, and separation of the sexes was considered desirable (Nicoletta and Morgan 1995:104–105), although there is a record of the sisters at the North Family Lot raising silkworms in the basement of the Brothers' Shop in 1848 (Union Village Diarist 1836–1857:438).

At Union Village, major shop buildings were commonly constructed of brick, although some were wood frame. Early shop buildings would have been all wood frame or log construction. Brick shops were constructed after Union Village became more established, with several brick shops constructed in the 1820s. Most shops were one or two stories tall. The Sisters' Shop at the North Family Lot, built in 1854, appears to be the only shop building at Union Village that was larger than two stories. Some shop facilities were also expanded through additions, a good example being the North Lot Family's Pottery/Broom Shop. This building was constructed in 1826 as a small one-story smith shop; it was expanded in 1836 to accommodate a pottery workshop, and enlarged to two stories in 1852 to hold a broom shop.

At times, the shops served multiple purposes. A side-gabled, two-story shop building might hold trustee offices, a variety of craft and industrial shops, and even living spaces for children or adult Shakers. Most cottage industries at Union Village were housed in these buildings. At the North Family Lot, shop buildings ranged in size from two-story frame buildings, outwardly indistinguishable from a dwelling, to the large factory-like, three-story, brick Sisters' Shop.

Some other craft and industrial facilities required more specialized construction. Mills, for example, had to accommodate a mill wheel and accompanying machinery. Some industries such as pottery manufacture also required facilities like kilns and drying sheds that had to take on a specific form based on the needs of the facility. Drying buildings were also built to serve the fruit and corn packing industry, and in some cases these buildings had a specialized design, with stoves on the first floor and staging areas for the fruit and corn on the second floor. Other drying facilities were small one-story, brick buildings. For the most part, Shaker shop buildings followed the symmetrical side-gabled format that was the hallmark of Western Shaker architectural design.

Agricultural Buildings

The Shakers were known for many agricultural activities, from animal husbandry to crop farming. They also dedicated agricultural activities to support cottage industries, including raising plants for a variety of uses, such as ingredients used for medicines, seeds that were sold on the market, and raw materials that were used to make craft items, such as broom corn. Shakers also dehydrated fruit and corn and packaged these items in barrels for commercial sale. Cattle were also an important part of Western Shaker farming activity, and an area for which Union Village was particularly well known.

Farm buildings included barns, sheds, stables, and corncribs. Often the designs were typical Shaker side-gabled construction, but sometimes unusual plans or configurations were used, such as the famous round barn at Hancock, Massachusetts. Farm buildings at Union Village tended to follow a rectangular, gabled format and were often influenced by local vernacular farm-building construction techniques (Nicoletta and Morgan 1995:89). Many of these buildings may have been constructed as pole barns, which would leave little evidence of their presence in the archaeological record. Buildings built with the pole barn technique could be identified from the post holes left after the sheds or barns were dismantled. Other agricultural buildings would have had stone foundations, such as large dairy or grain barns, and milk houses.

Cemeteries

There are two Shaker cemeteries at Union Village. The first cemetery was plotted in 1806 at what is now the northwest corner of the intersection of SR 741 and US 63. A second cemetery was in place sometime after 1829. The second cemetery was located near the Square House and North Family Lot, and is currently within the boundaries of ARMCO Park. Shaker cemeteries are generally characterized by a lack of individual headstones, although some burials dating to the end of the Shaker occupation do feature headstones.

CHAPTER 3. SHAKER ARCHITECTURAL STYLE AT UNION VILLAGE

Design Characteristics of Western Shaker Communities

Most pre–Civil War Shaker architecture was plain and symmetrical, and often well proportioned and solidly constructed, with a high degree of craftsmanship. Much attention was paid to planning and designing shops, meeting houses, and communal dwellings, and although symmetry prevailed, less prominent structures sometimes had asymmetrical door and window arrangements.

Shaker architecture of the antebellum period (pre-1861) evolved over time. At first, Eastern Shakers favored an Anglo-Dutch style harking back to Colonial times. Gambrel-roofed buildings were common, such as the ca. 1794 meeting house at Sabbathday Lake, Maine (Figure 19). Later Shakers employed a simple Federal style, with side-gabled roofs, plain exteriors, and symmetrical window and door openings. Some Shaker builders stayed with this plain Federal vernacular long after the outside world turned to more ornate Victorian styles; however, if we look closely at Shaker buildings, we'll find influences of contemporary architectural trends and regional vernacular building styles and types.

Figure 19. Meeting house at Sabbathday Lake, Maine
Image courtesy of Library of Congress

Western Shaker buildings were set apart from Eastern Shaker architecture. Eastern Shakers favored wood-frame construction and at one time tried to mandate wood frame for all Shaker buildings. In contrast, Western Shakers preferred brick and stone, especially for communal

residences and shops (Nicoletta and Morgan 1995:28–30). At Union Village, most communal dwellings and many shops were brick. Warren County had plenty of brick-making clay, and the 1829 Union Village map shows two brickyards. Solidly constructed brick and stone dwellings were more practical than wood structures, especially since they did not need the frequent exterior painting required of wood-frame buildings.

The pre–Civil War Western Shaker vernacular features broad roof gables and horizontal proportions. The style's most striking feature is the use of small, short, boxy windows, widely spaced, producing large expanses of plain wall. The Union Village Meeting house was a good example of this style, built in 1806 (Figure 20). This conservative tendency provided each building with plenty of solid structure, and fewer and smaller windows may have also made the buildings cheaper and faster to build. It is not clear where this style originated, but it echoes early nineteenth-century vernacular traditions. Eastern Shakers may have brought this vernacular style to Ohio, influenced by late eighteenth and early nineteenth-century New England timber-frame residences, or these features might also derive from the ca. 1805–1820 Kentucky and Ohio frontier aesthetic. Design on the frontier retained early vernacular and Late Georgian characteristics, and the small, widely spaced windows of log cabins may have also influenced the style.

Figure 20. Union Village meeting house
Image courtesy of Otterbein Homes Museum & Library

The Federal style also influenced the Western Shakers. Federal style buildings often had arched fanlights, Palladian windows, turned balustrades, ornamental cornices—elements popularized by designer Robert Adam. Most Shaker builders avoided overtly Adamesque features, but more subtle Federal refinements did make their way into Western Shaker buildings. Adam's decorative features were often tall and attenuated, so many high-style Federal houses had vertical proportions and larger, taller, more closely spaced windows than their Georgian predecessors. The taste for tall proportions and increased window area

influenced some Shaker builders of the 1815–1860 period. A quick look at the tall, large windows of the West Farm Dwelling at Pleasant Hill, Kentucky, (see Figure 28 on page 53) shows the Federal influence on Western Shakers.

Comparison of Union Village and Pleasant Hill

Each Western Shaker community had its own design tendencies and characteristics. These individual qualities were affected by the skills and training of individual Shaker builders, local vernacular building traditions, and the availability of building materials. As the two largest of the Western Shaker communities, Pleasant Hill (Kentucky) and Union Village (Ohio) are good candidates for comparing architectural style; these two communities have very noticeable differences in architectural style in their antebellum buildings.

At Pleasant Hill, an evolution took place in the architectural style. Early buildings dating to ca. 1810 have the typical horizontal proportions and the small, boxy, widely spaced windows of the Western Shaker vernacular. While shop buildings continued to be constructed in this style at Pleasant Hill, subtle high-style Federal influence appeared in the communal dwellings at an early date. Several communal houses built from 1816 to 1822 at Pleasant Hill have tall, vertical, closely spaced windows, giving the houses more of the feel of the high-style Federal aesthetic.

By 1824, Micajah Burnett, a Shaker builder and engineer at Pleasant Hill, was experimenting with Federal architectural forms that included high-style Adamesque elements. Pleasant Hill shop buildings continued to be built in a plain, conservative style with small widely spaced windows well into the 1840s. At the same time, Burnett's designs for dwellings took on more grand and worldly Federal architectural features. Pleasant Hill buildings with these features include the fourth Center Family House (1824–1834) and the Trustees' Office (1839–1841). These two buildings have features like arched and three-part windows, mullioned fanlights, sidelights, balustrades, interior barrel vaults, and other graceful ornamental features typical of the Federal style (Nicoletta and Morgan 1995:65–67).

In contrast to Pleasant Hill, conservatism and adherence to the early Western Shaker vernacular are the defining stylistic characteristics of pre-1860 Union Village architectural design. At Union Village, the early nineteenth-century Western Shaker vernacular style—with its low proportions and sparse, small windows—was consistently used for dwellings and shop buildings. Union Village shop buildings continued to be constructed in this conservative style as late as the mid-1850s, with one of the last examples being the 1854 Sisters' Shop at the North Family Lot, the last major construction event at Union Village. Between 1810 and 1830, the South Family Lot, North Family Lot, West Brick Family Lot, and North House communal houses were all built in this style. The overall architectural format of these houses is highly uniform. The massive Center House built in 1844–1845 is one of the few antebellum Union Village buildings that deviate from this style, as it possesses some Greek Revival and Italianate features. Other antebellum Union Village buildings had a uniformly conservative style.

It is not clear why the architecture of Union Village was more stylistically conservative. No references were found that indicated the designer of these buildings. The Second Family at the North Family Lot had a mason, Joseph Eastwood, who was of working age during the 1830s and 1840s, but most diary accounts mentioning Eastwood record him mending stone sidewalks and doing other small masonry jobs; he does not seem to have been a builder and designer. Possibly, Union Village simply did not have any individuals with the creative architectural talents of Micajah Burnett at Pleasant Hill, or it could be that as the Western bishopric, Union Village was more conservative and had closer ties to the more regimented Eastern Shakers. This association may have created an orthodox environment in which architectural expressions of the kind seen at Pleasant Hill would have been discouraged as being too worldly.

The American pioneer architecture associated with the existing settlements and the settlers who formed much of the nucleus of early Union Village, including the original farm buildings of Richard McNemar and Malcolm Worley, may have had a lasting influence on Union Village building styles. Eastern Shakers may also have brought early New England architectural influences. Unfortunately, little evidence on this subject was found in Shaker historical accounts and diaries as part of this study.

Shaker Building Styles After the Civil War

Shaker buildings constructed after the Civil War often reflect Shaker liberalization and the desire of many Shakers to conform to the styles and conveniences of the outside world. Several communities like Sabbathday Lake, Maine, and New Lebanon, New York, have examples of Victorian buildings with more ornate Italianate, Queen Anne, and Stick Style designs.

As of this writing, only one Shaker building at Union Village is known to have been built after the Civil War, the train station, which opened in 1892 (Figure 21). The last major building constructed at Union Village was the 1854 Sisters' Shop, and it was designed in the plain, conservative, Western Shaker vernacular style.

The only example of lavish post–Civil War design at Union Village is the still-extant Church Family Office, now known as Marble Hall. This frame building started out as a typically plain Shaker vernacular building (Figure 22), but under the direction of Union Village trustee and first elder Joseph Slingerland, it was remodeled in the early 1890s with elaborate Eastlake trim, corner turrets, and a Mansard roof (Figure 23). The apparent intent of the renovations was to attract new members to Union Village, by showing off the communal wealth of the society and emphasizing the modernity of the society, which at the end of the nineteenth century had relaxed many of the stricter behavioral rules and was allowing more freedom to individual members. However, the architectural renovations and the attempts to found new Shaker communities in Georgia failed to attract substantial numbers of new converts to keep Union Village viable. Slingerland was removed as head elder at Union Village in 1902 under a cloud of allegations of financial mismanagement. To Slingerland, the Victorian style of Marble Hall represented Shaker modernity. Today, the building represents to some a period of decline, in which Western Shaker values were diluted by acceptance of

popular Victorian-era social and aesthetic trends. More modest renovations took place at the same time as the architectural overhaul of the Church Family Office, which included the construction of a front porch on the North Family Lot Communal House.

Figure 21. Union Village Train Station
Image courtesy of Otterbein homes Museum & Library

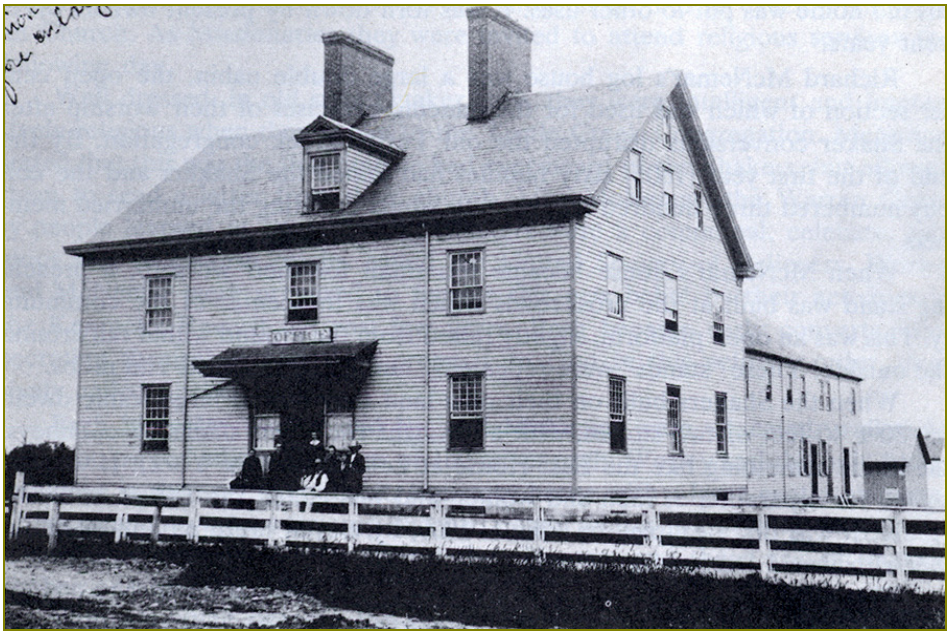


Figure 22. Center Family Office before the remodeling in 1890s
Image courtesy of Otterbein Homes Museum & Library

Figure 23. Center Family Office after remodeling
Image courtesy of Otterbein Homes Museum & Library

CHAPTER 4. HISTORICAL DEVELOPMENT OF THE BUILT ENVIRONMENT OF THE NORTH FAMILY LOT

This chapter presents a discussion of the evolution of the built environment on the landscape of the North Family Lot from the period of its occupation by the Shakers through the final abandonment of the site by Otterbein Homes in the 1960s. The discussion is organized by the following chronological periods, based on the change of occupants:

- 1815–1828, Young Believers
- 1828–1835, Gathering Order
- 1835–1906, Second Family
- 1906–1912, Tenant Farmer
- 1912–1947, Otterbein Homes

1815-1828, Young Believers

The North Family Lot was founded in 1815 as an offshoot of the Union Village Gathering Order (Miller 1835:371–372). The amount of archival information available that documents the earliest years of the North Family Lot is small. However, some speculative anecdotal evidence was found to document this period of the North Family Lot's existence. Shaker Susanna Cole Liddel stated that a house was specifically built for Matthew Houston in November of 1815, and while the church record does not state the exact location, Liddel believed the house was situated at the North Family Lot (Liddell 1844:507).

David Miller stated in 1835 that North Lot Family residents in the early years of the lot lived in an old house built by Isaac Morris, who had sold the Shakers the land for the North Family Lot. The lot at this time was occupied by a group of the "young believers," who had been split off from the Gathering Order Family at the East House because of crowding (Miller 1835:371–372). Although the term "young believers" was initially used to refer to Shakers converted in the west, as opposed to old believers from the Eastern communities, the meaning of the term changed sometime in the 1820s to instead identify Shakers who were new to the community. Oliver Hampton's history of Union Village states that the Young Believers lived in log cabins before the main dwelling house was built (Hampton 1900:398).

The north-south road through the North Family Lot was completed by the time the lot was founded in 1815, and this road formed an axis for later development at the lot. The early Union Village maps do not cover the North Family Lot area, so it is not clear where the original locations of the Morris House or early Shaker-built buildings were. Small buildings of this type were not shown on the 1829 *Map of Union Village*, and these buildings may have been moved or demolished by the time of Isaac Youngs' more comprehensive 1834 map of

the North Family Lot, although the two log buildings and the garden shop on his map may have been intended to represent these early structures.

The group of Young Believers established at the North Family Lot in 1815 remained at the lot until an 1828 reorganization of Union Village, at which time the Gathering Order group from the East House relocated there. The overall layout of buildings constructed on the lot during the Young Believers' tenure featured buildings facing the county road that had been built through the lot by the Warren County Trustees. Major buildings, generally constructed of brick, faced the highway, while smaller buildings and frame structures were built behind the masonry buildings, to the east.

Based on a building list compiled by Daniel Miller in 1835, we know that the North Family Lot gained several more structures between the completion of the Communal House and Kitchen in 1823 and the transfer of the lot to the Gathering Order in 1828. These buildings were mainly shops for housing craft industries and farm buildings, including the Grain Barn, built in 1825; the Brothers' Shop and a Smith Shop (the building converted to the pottery in 1836), both built in 1826; and a wagon house/shed built in 1827. Other buildings present during this time period with uncertain construction or removal dates include the Morris House, the original frame cabin built by previous land-owner Isaac Morris before the occupation by the Shakers; a sawmill built north of the main cluster of buildings; a dry house; and a garden house. Some structures may have been present at the North Family Lot but lack enough corroborating presence to definitely place them there, such as Matthew Houston's House (built in 1815) and the Joseph Babbitt Log Cabin (built in 1817).

Five of these buildings correspond to buildings present on the 1829 *Map of Union Village*: the Communal House, Kitchen, Brothers' Shop, the Smith Shop, and the Sawmill (Figure 24). In the layout at this time, the communal dwelling faced the road, and the Brothers' Shop and Smith Shop were located south of the communal dwelling, also facing the road. It is not completely clear where the grain barn and a wagon shed mentioned in Miller's list were located, although in many cases, frame outbuildings were not represented on the 1829 map, and it does not always accurately portray the buildings on the map. The Smith Shop, for example, is shown as a two-story building with chimneys on either end, when it was actually a one-story building, probably with a central chimney. Based on evidence from the 1834 map, the wagon shed may have been north of the communal house, and the grain barn could have been northeast of the communal house. The west side of the road was still shown as a woodlot on the 1829 map, so it seems unlikely that buildings were located in this area in the 1820s.

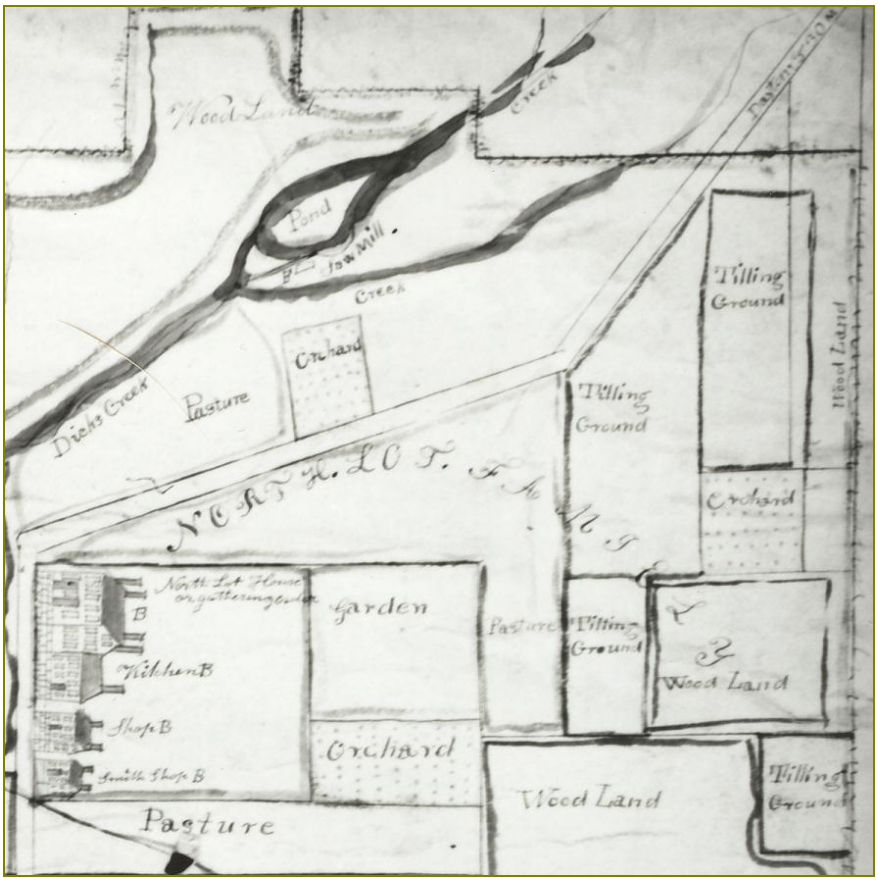


Figure 24. Detail of 1829 *Map of Union Village* showing North Family Lot
(Union Village Mapmaker 1829)

1828–1836, Gathering Order

From 1828 to 1836, the North Family Lot housed the Gathering Order, which included men and women who were relatively new to Shaker life but were considered more committed than the group of Young Believers that they replaced. When the Gathering Order began occupying the lot in 1828, the physical plant already had most of the components of a typical Western Shaker family lot: a large communal dwelling, shops, and agricultural outbuildings.

According to Miller's 1835 building list and diary accounts, a moderate amount of buildings were constructed at the North Family Lot during the Gathering Order's tenure, most of which were agricultural buildings and small shops. The layout of the main portion of the lot near the communal dwelling did not undergo significant alteration at this time, but outlying areas of the lot that were used for agriculture gained a large number of new buildings.

A corn house was built in 1829, and the Kitchen was attached to the Communal House, with an addition completed in 1831. A horse stable was added in 1833, and a sheep house and cow barn were completed in 1834 (Miller 1835:371–372); the location of these buildings is not clear, but they were likely included in the group of agricultural buildings located northwest of the Communal House, across the road. The Green Shop was built north of the Communal

House in 1835, after the visit by Isaac Youngs, so it is not on his sketch map of the North Family Lot.

The arrival of the Union Village Gathering Order may have had strong implications for the early land-use history of the North Family Lot. The new population of the lot may have consisted mainly of men and women who were not trained or extensively experienced in the crafts and cottage industries important to the community economy. Therefore, it appears likely that at least some residents of the North Lot Family in this time period would not have focused solely on specialized craft production, instead participating more in farm labor, or in the case of women, washing or basic cooking and sewing tasks. The types of craft production that did occur at the North Family Lot during the Gathering Order's occupation were not very diverse. We know from an 1829 letter to Matthew Houston, written by an unknown individual at the North Family Lot, that the shop buildings at the North Family Lot accommodated rug weavers, blacksmiths, window blind makers, and a wagon shop (Union Village Correspondent 1829:406–407).

In 1834, Isaac Youngs and Rufus Bishop of New Lebanon, New York, visited the Western Shaker communities, including Union Village. At each of the Shaker villages, Youngs wrote down observations about the settlement and made a drawing of the layout of the settlement, as well as of individual family lots. Youngs' original drawings have been lost, but copies of the drawings were made by George Kendall at Harvard, Massachusetts in 1835, and these copies have survived. The maps are crude but represent the only graphic delineation of Union Village and its individual family lots from the 1830s. The North Family Lot map shows five brick buildings, two log buildings, three barns, and three other buildings that appear to be small farm-related buildings, one of which was labeled as a shed (Figure 9).

The largest building on Youngs' sketch map of the North Family Lot is the Communal House. The Kitchen is shown behind the house. South of the Communal House, the Brothers' Shop and the Smith Shop are shown in the same positions they occupied on the 1829 map. A third building is located between the Brothers' Shop and Smith Shop, with its gable end facing the road. The building seems to have an open shed front. The identity of this shop is not given, but it may have been a frame shed that housed a slitting mill that operated at the North Family Lot, which was relocated across the road after the map was drawn.

North of the communal dwelling is a moderately sized, two-story building labeled as the Garden Shop, possibly made out of brick. This shop may be the garden house that was moved to the east in 1836. Two log buildings, a shop and a house, are also shown. The log shop is northwest of the communal dwelling, and the log house is located east of the communal dwelling. These log buildings may be the original dwellings that housed the Young Believers in 1815. Further to the north is an open-fronted shed that may be the Wagon Shed built in 1827, and a barn, which may be the grain barn or another undocumented barn. On the west side of the road are two additional barns and two smaller wood-frame buildings that may be the horse stable and sheep house mentioned by Miller.

The 1834 Youngs map was produced at a time when the North Family Lot was still being altered to accommodate the Gathering Order. The layout is similar to representations by Youngs of the other Union Village family lots, but there is one major anomaly about the

North Family Lot representation: no building is labeled as a wash house. Every other family lot at Union Village is depicted with a wash house in the Youngs drawings. With at least 70 people living at the North Family Lot at this time, a large space would have been needed for doing laundry. It is not clear if a wash house did not exist at all, or if one of the buildings on the map was a wash house and was mislabeled or not labeled. Another possibility is that basement space in either the Kitchen or Communal House was used for a laundry. A wash house built in 1833 at the East House Lot was moved to the North Family Lot in 1836, giving credence to the idea that the North Family Lot may not have originally been equipped with a wash house.

1836-1860, Second Family

The Second Family occupied the North Family Lot for a period of 70 years, between 1836 and 1906. The time between 1836 and 1860 at the North Family Lot is the best-documented period. The archival records are mute regarding any changes to the North Family Lot during the post-1860 period of its Shaker occupation. Two anonymously authored diaries connected to the North Family Lot were found in the Library of Congress collection, one (Union Village Diarist 1836–1857) appearing to be a copy and continuation of the other (Union Village Diarist 1836–1841). The difference between the two diaries is that the former diary covers a longer period of time, and for some reason, the final sentences in several of the copied entries were omitted. We also examined a copy of the diary of North Family Lot Elder Ann Slater, which covers part of this period (Slater 1845–1890).

The Union Village Second Family replaced the Gathering Order at the North Family Lot in January, 1836. The Gathering Order in turn occupied the West Brick and West Frame lots. Bauer and Portman state that the reorganization of the family lots was done to bring Union Village in line with the physical and hierarchical structure of the religion's main village, New Lebanon, New York (Bauer and Portman 2004:139). The shuffling of families between the various lots may also represent a deliberate change in the linear alignment of Union Village. Before the mid-1830s, the more prestigious families in Union Village included the Center or Church Family, the West Brick Family lot, and the East Family, which was the location of Elder Richard McNemar's original homestead. However, the East Family lot was largely vacant by the mid-1830s, having recently housed the Children's Order, and the relocation of the Young Believers segment of the Gathering Order to the West Family Lot in 1828 may have upset any east-west hierarchy at the community.

The location of the newly formed Second Family at the North Family Lot may have been intended to restore a sense of order in the alignment of families in the linear arrangement of Union Village, with the least experienced Shakers (and those most likely to apostatize) removed to the western fringes of the settlement, and the more prominent families set up on a north-south line. Possibly, traffic increased along the north-south road that bisects Union Village (currently State Route 741), motivating the Shakers to present their best face to the outside world along this route. Another major factor was the massive flood of 1835, which destroyed the mills and affected the pottery operations at the West Brick Family.

At the time of the village reorganization, the Center Family was split into two groups: the First Order and the Second Order. The First Order was the same as the Church Family, and they retained the members with the highest status. The Second Order (not to be confused with the Second Family) occupied the North House of the Center Family, along with another dwelling, and acted as a distinct family group, although one still under the aegis of the Center family. References to the Second Family and Second Order need to be scrutinized to affirm which group is being discussed; fortunately, the context of census data, diary entries, and letters is usually sufficient to distinguish the two groups.

The Second Family was second in status only to the First (Center) Family, and was composed of advanced Shakers from both the West Frame and West Brick families. Some notable members of the Second Family included numerous skilled individuals, such as Stephen Easton (broom maker), Daniel Serring (carpenter), Timothy Bonnell (carpenter and general mechanic), and Eli Houston (possibly pottery). The Second Family inherited a fairly well-developed family lot and added substantially to the North Family Lot facilities during their years there. As more experienced Shakers, the Second Family members likely had more sophisticated craft skills. During the Second Family's tenure, the North Family Lot had a higher level of industrial activity, with textiles, broom making, and pottery making up the major occupations. Other craft-related activities include the production of herbal extracts. Census records from the 1850s and 1860s confirm that tradesmen and tradeswomen lived at the North Family Lot, and North Family Lot products are recorded on federal industrial census records of 1850 and 1860.

Since many Second Family members who settled at the North Family Lot in 1836 came from the West Brick Family, it is valuable to examine the physical facilities of that lot as represented on the 1834 Isaac Youngs sketches. The 1834 sketches confirm that the Union Village Pottery was located at the West Brick House Lot at that time, depicting a building labeled as the pottery. The West Brick Family pottery shop was a two-story building similar to the building labeled "B Shop" on the North Family Lot map, indicating that it was likely a standard Shaker shop building. A separate kiln structure is also shown at the West Brick House; from the crude graphic delineation, it appears to be a gabled building with a wood shed attached. The building is labeled "kilns & etc." and likely contained a kiln and a drying shed that sheltered pottery while it dried before firing. Due to the danger of fire from the kiln, the kiln was located away from the main pottery shop building at the West Brick Lot. There are other shops present on the Youngs drawing of the West Brick Lot, but the map does not indicate their functions.

A large amount of construction was undertaken after the January 1836 occupation of the North Family Lot by the Second Family. Since no Shaker maps of the lot are known from the post-1835 years, it is difficult to characterize exactly how this construction affected the layout of the North Family Lot. The changes to the lot's landscape began as early as January 1836, as the old Wagon Shed was moved from the north side of the Communal House to the west side of the road (Union Village Diarist 1836–1857:368). In February of 1836, a bee house was moved from the West Brick House to the North Family Lot (Union Village Diarist 1836–1857:368), and a frame house from a property known as the Hall Place was moved to a location south of the Brothers' Shop. The Shakers began to put up pottery sheds and a kiln in

spring of 1836, and the old Smith Shop was fitted with a 45-foot long addition in May 1836 to accommodate the main Union Village Pottery shop.

The lack of a sizable wash house at the North Family Lot was remedied by the Second Family soon after it arrived. A large frame shop and a 30-foot-by-30-foot, two-story, timber-frame wash house were moved from the recently dissolved East Family to the North Family Lot in August 1836. A wash mill shed was also added at the side of the wash house to accommodate a wash mill that also came from the East House. In October of 1837, the old Isaac Morris House was moved from a spot south of the brick house to a location east of the garden. An ox barn was also moved from the East House to the North Family Lot (Union Village Diarist 1836–1857:369–370).

The Second Family continued landscape modification in 1838; they constructed a smokehouse in 1838 and relocated the slitting mill that sat south of the Brothers' Shop to a position south of the wagon shed. By 1839, focus shifted from building new buildings and relocating old buildings to constructing additions and remodeling existing North Family Lot buildings. The Second Family's sawmill was restored in 1841 after the damage of the 1835 flood (Union Village Diarist 1836–1857:458); the lack of a sawmill at hand for the Second Family may have been a factor in the decision to move and re-use existing buildings rather than construct entirely new structures. An extension of a cow barn at the North Family Lot was built in 1843 (Sharp 1805–1880:235). Various sheds were moved in 1844, and a Nurse's Shop was built behind the Kitchen. A few small sheds and dry houses were the only construction reported from the years 1845 to 1848. A second floor measuring 22 feet by 30 feet was placed on the Garden House in 1849 (Miller 1848–1854:146, Union Village Diarist 1836–1857:452), and a new cow barn was built in May 1851 (Union Village Diarist 1836–1857:466). The original Smith Shop, altered to accommodate a pottery shop in 1836, was converted to a broom shop in 1852, with a second story added to the structure (Union Village Diarist 1836–1857:490). A shed 26 feet by 40 feet was put up west of the cow stable in 1854 (Miller 1848–1854:257).

One of the largest construction projects of the Second Family era at the North Family Lot was the three-story brick Sisters' Shop, erected in 1854. It was the last new large-scale building constructed at Union Village and was positioned north of the communal dwelling. As a large masonry shop building, it would have had a major effect on the character of the North Family Lot.

The period from 1836 to 1860 also marks the first effort at landscaping and the delineation of public spaces. A pine board fence was installed in front of the dwelling house separating the dooryard from the road in 1838. In 1842, limestone walks were installed between the main dwelling house and the brick shop, and the network of walks was extended to the Green Shop through the dooryard. The construction of flagstone paths continued until 1853, along with the addition of new buildings. Fencing construction continued throughout the 1840s and 1850s. The North Family Lot brethren and/or hired hands fenced the peach orchard, the mill race and the areas around the cow barns. In addition, rows of trees were planted at the North Family Lot. During the spring of 1841, a row of locust trees was planted between the dwelling house and the center of the village, and a row of 12 cedar trees was planted north of the dwelling house (Union Village Diarist 1836–1857:377).

The Second Family continued to function at the North Family lot after 1860, although due to the decline of Shaker industry, the family undertook no new building construction projects after 1860. Amy Slater's diary accounts indicate that the Second Family was still functioning at the North Lot in the early 1890s, but no later records were found for new construction, relocation of buildings, or other major alterations to the layout of the North Family Lot were found from 1860 to 1900.

1906–1919, Nichols Occupation

The obituary of Clymena Miner, the last eldress at the North Family Lot, states the inhabitants joined the Center Family in 1906, marking the end of Shaker occupation at this site (*Western Star* 1916). Six years later in 1912, Union Village was sold and passed out of Shaker control. A tenant by the name of Nichols occupied the front half of the Communal House almost as soon as the Shakers left, and remained there until Otterbein Homes moved him into the old Nurse Shop in 1919 as part of plans to convert the North Family Lot into a dwelling for the elderly. Little is known about the Nichols family or their brief occupation of the North Family Lot.

1919-Present, Otterbein Homes

In 1912, the United Brethren Church acquired all of Union Village in order to use it as a retirement center and home for the elderly, orphans, and the infirm. A few Shaker women were allowed to continue living in the Trustee Office building until they were relocated to Canterbury, New Hampshire, in 1920. Most remaining buildings at Union Village were likely vacant by the time of the 1912 sale, except for any buildings that may have been used by the few remaining Shakers or by non-Shaker tenant farmers. The twentieth-century development of the former Shaker landscape of Union Village saw the ultimate destruction of all but a few Shaker buildings. Otterbein Homes, as this United Brethren facility is known, kept records of some of the physical changes at the North Family Lot.

In particular, a survey map produced by Otterbein Homes in 1917 of the North Family Lot contains some clues to changes that must have occurred before ownership of Union Village changed. The 1917 map shows 16 structures present at the North Family Lot (Figure 25). Seven buildings are definitely Shaker in origin: the Communal House, Kitchen, Pottery/Broom Shop, Sisters' Shop, Nurse Shop, Wash House, and the Wood House/Timber Shed. Numerous agricultural outbuildings are likely Shaker in origin, but it is uncertain if they correspond directly to any of the buildings mentioned in Shaker journals, or if they are replacements of these buildings.

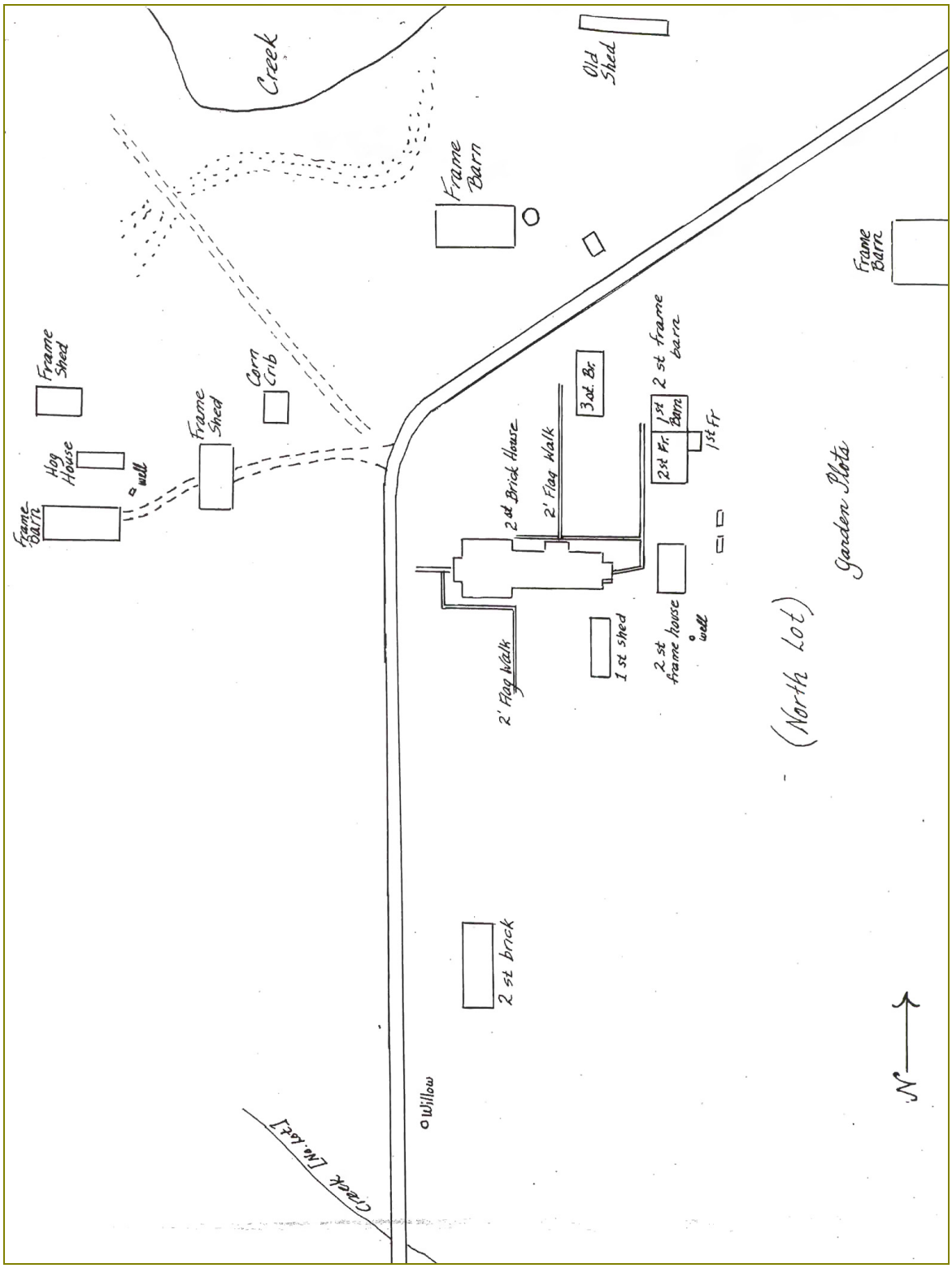


Figure 25. 1917 Otterbein Homes survey map of the North Family Lot
Image courtesy of Otterbein Homes archive

Notable by their absence on this map are the Brothers' Shop and the Green Shop, as well as the buildings arranged along the eastern boundary of the lot, as documented by the 2004 geophysical survey performed as part of the archaeological investigation of the site. The exact dates these structures were demolished or removed is unknown, although archaeological evidence suggests a demolition date of ca. 1900 for the Brothers' Shop. The records are largely silent for the years between 1913 and 1916. However, a 1919 account indicates that a decision had been made two years earlier in 1917 to convert the North Family Lot communal house into a home for aged and infirm people. A tenant farmer was living in the communal house at the time, so alternate quarters had to be found for this individual before work could begin on converting the communal house to a home for the aged and infirm (Aument 2005:1).

Otterbein Homes continued to alter the North Family Lot to fit their needs from 1917 through the 1950s. In 1917, a battery lighting system was installed, and the wood-frame laundry house was cut in two and converted to two frame houses for farm workers. The Nurse Shop, a ten-room wood frame building, was also moved from the rear of the Communal House to the west side of the road. Orion Nichols, a tenant farmer, moved into this structure, having resided earlier in part of the brick house that had served as the North Lot Family's communal dwelling. The facility for the aged and infirm was known as the Good Samaritan Home and was dedicated in 1918 (Aument 2005:1).

After the 1918 dedication, there were several proposals to update additional North Family Lot buildings, mainly the Pottery/Broom Shop and Sisters' Shop. These included a 1919 proposal to connect the Communal House and Sisters' Shop, and a 1920 proposal to turn the Sisters' Shop into an annex for the Good Samaritan facility and the Pottery/Broom Shop into a hospital. All of these plans were delayed because of lack of funds. Some additional reports of frame buildings being relocated and remodeled into three tenant farm houses were made in 1921, which may refer to the split wash house buildings and other unknown buildings. Additions were made to a tenant house and a barn in 1922, and after a fire, the Nurse Shop was refurbished into a tile and stucco tenant farmhouse in 1924. The 1920s accounts in the Otterbein Homes annual reports continued to document a lack of progress on the proposed renovations of the Sisters' Shop and the Pottery/Broom Shop (Aument 2005:2–3).

Otterbein Homes annual reports on the North Family Lot from the 1930s indicate tenant farming continued. The Communal House was re-roofed and had new gutters installed in 1937 (Aument 2005:4). Otterbein Homes reportedly demolished two of the brick buildings at the North Family Lot in 1940, probably the Pottery/Broom Shop and the Sisters' Shop, the only brick buildings on the 1917 Otterbein Homes survey map, aside from the Communal House. However, informants at ARMCO Park, a private recreation park operated for the enjoyment of steel workers and their families, thought the Sisters' Shop was demolished in the 1950s. Interior renovations were made at the Communal House in 1945, while at the same time, Otterbein Homes officials were mulling over an idea to move the Good Samaritan Home to a new facility. Additional renovations were completed at the communal house in 1946 (Aument 2005:5). At some point in the 1940s or 1950s, a small garage was built at the former location of the Nurse Shop, behind the Communal House.

Finally, in 1965, the Communal House was demolished after being deliberately burned for a local volunteer fire department training exercise. The Communal House was the last Shaker structure standing on the site at the time. After the demolition, the entire lot was sodded over and has been maintained as an open grassy field to the present day.

Although the information from the Otterbein Homes era is not relevant to the discussion of the site as an example of Shaker site planning and architecture, it does show how the North Family Lot site continued to be changed and adapted by Otterbein Homes to suit their needs, while still serving as a form of communal living. The changes made to the site during the Otterbein era are reflected in the archaeological evidence found at the site as part of this study.

Today, Union Village–era buildings can be found at Otterbein Homes and include Bethany Hall (the communal dwelling built between 1842 and 1846), Marble Hall (the former Trustees' Office), and a brick building that housed a boiler, as well as a brick outbuilding that may have been associated with the West Frame Family, now located on property associated with a medium-security prison (Bauer and Portman 2004:260). The location of the Square House and Grist Mill family lots, along with the northern Shaker cemetery, is now part of ARMCO Park. Medium-security prisons and associated prison farms occupy the land farmed by the West Frame Family, West Brick Family, and West Family Lot. Other parts of Union Village are simply agricultural fields, owned by Otterbein Homes. The location of the East Family Lot is in an actively farmed agricultural field, but examination of recent aerial photographs taken of the Otterbein Homes area (accessible at http://local.live.com; type "Otterbein Homes" in the search bar) revealed two rectangular crop marks that almost certainly mark the locations of former Shaker buildings at the East Family Lot. The archaeological record of Union Village is largely unexplored, but using the North Family Lot as an indicator, the information potential for future work that focuses on the landscape is very high.

CHAPTER 5. THE BUILT LANDSCAPE AT THE NORTH FAMILY LOT

The following discussions present the different structural elements of the landscape identified at the North Family Lot through archival research, geophysical survey, and archaeological excavation. Each individual section presents the results of archival research, includes summaries of the geophysical and archaeological results, if applicable, and then concludes with a discussion of the structure, drawing from all the available lines of evidence. The discussions are grouped by function:

- Part 1: Dwellings
- Part 2: Shops
- Part 3: Agricultural buildings
- Part 4: Other support buildings and structures
- Part 5: Non-building elements, including pathways and water-management infrastructure

Figure 26 is an overview map of the North Family Lot, showing all the major landscape elements that we were able to verify through archival research and archaeological investigations. Not shown are elements that were too small to be clearly visible on the map at its current scale, such as water pipes and non-Shaker landscape features like twentieth-century paths and drives. The following conventions are used to represent the buildings and pathways in the map:

Buildings

- Solid black outlines and no fill—structures excavated during the 2005 field session
- Gray dashed outlines and no fill—structure locations indicated through geophysical survey only
- Gray fill—structures known from the 1917 Otterbein Homes survey map but not verified through any physical testing

Pathways

- Black dashed line—paths verified through archaeology
- Gray dashed line—paths indicated through geophysical testing
- Solid gray line—paths shown on the 1917 survey map but not found through either archaeology or geophysics

The locations of the structures that were on the 1917 map but were not tested through archaeology or geophysics are most likely not in the exact physical locations, especially those further out from the main group of residential buildings. This probable discrepancy is due to the process of matching the 1917 map to the actual locations of excavated buildings, which resulted in a warping of distant buildings. The warped buildings were corrected to more closely approximate the appearance of the 1917 map, but actual physical testing will be required to verify their locations.

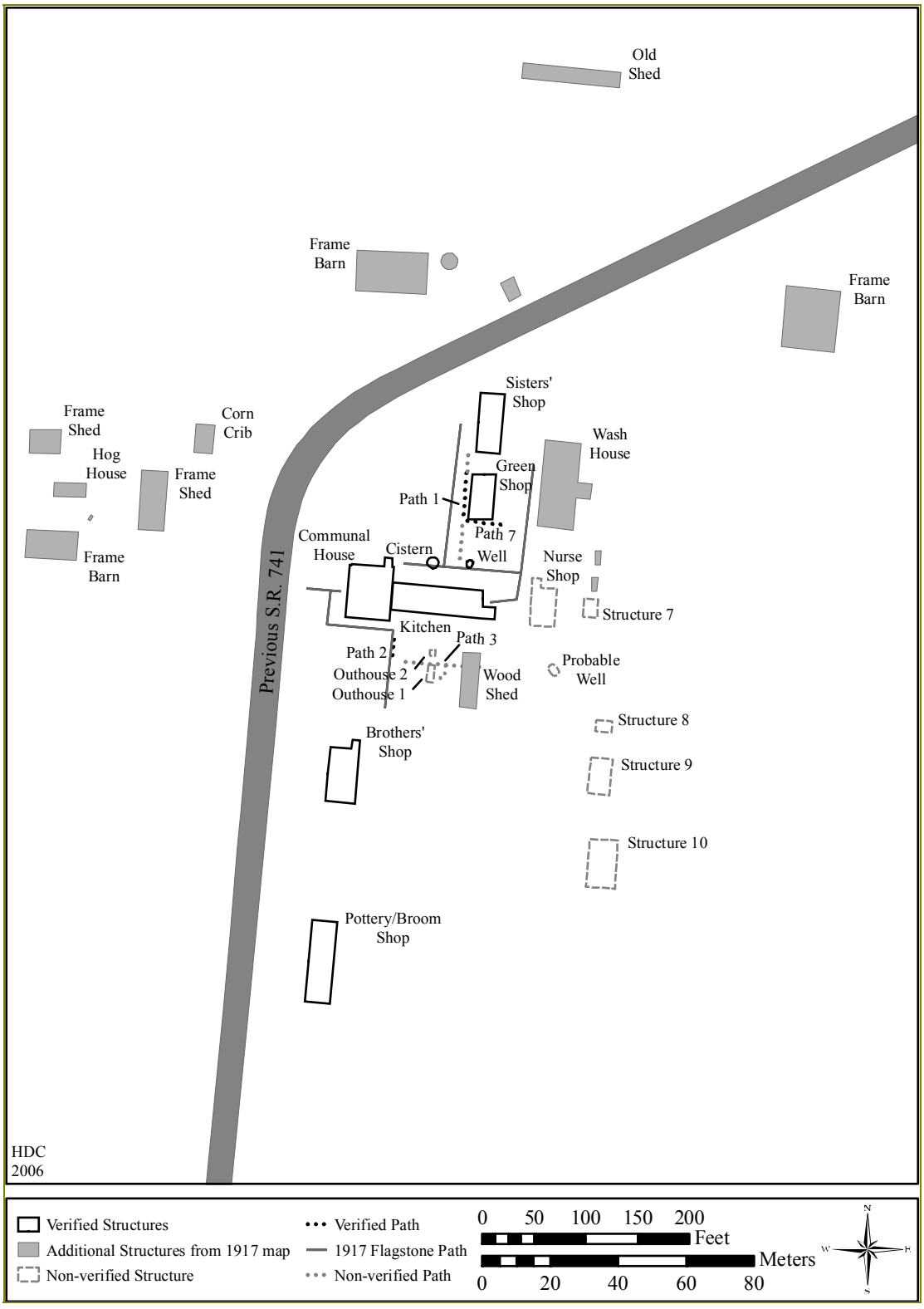


Figure 26. Overview map of North Family Lot, showing verified locations of buildings and other landscape features

PART 1: Dwellings

Part 1 discusses the Communal House and Kitchen, Hall Place, Morris House, Back Brethren House, Boys' House, Little Sisters' House, and the Matthew Houston House.

Communal House and Kitchen

The Communal House and Kitchen, although built at first as separate structures, are discussed together here, as they essentially functioned as a single building for the majority of their existence. Separate sections describing the geophysical and archaeological testing of the two buildings follow the archival research section. Built during the years 1823 and 1824, the Communal House served as the main dwelling for the members of the North Family, although portions of several other buildings were also used for living space at various times, such as the Brothers' Shop. The building continued to serve this purpose throughout the history of the North Family Lot. Its side-gabled layout and brick construction are typical of the Western Shaker communities.

Nicoletta and Morgan indicate that the Shakers built large dwellings of this type because the individual family units had large populations, and it was more economical to house such groups in one large building rather than in a series of smaller buildings (Nicoletta and Morgan 2003:360). Nicoletta and Morgan also describe Shaker communal houses as buildings that were constructed to allow for order and neatness, as well as control of individual Shakers by the Shaker leaders. Nicoletta and Morgan compare these tendencies to the reform movement planning of prisons and asylum structures.

Without any surviving floor plans or the intact building itself, it is difficult to pinpoint specific architectural features of the North Family Lot communal dwelling that would have been geared toward behavior modification, although the results of the archaeological excavation hint at such. Historical photos of the building show the former locations of the double entrances that were intended to keep men and women separate (these were later converted by Otterbein Homes into a set of windows flanking a central door). The bell cupola on top of the Kitchen may have been used as an observation point to note any Shakers who were late answering the summons for meals and meetings. Analysis of surviving Shaker dwellings at Pleasant Hill suggests that interior features geared toward order, neatness, and social control were included in the floor plan of the North Family Lot Communal House, such as built-in storage units, multi-person dormitories, and separate staircases for men and women (Nicoletta and Morgan 2003:366–371).

Description

Several surviving photographs of the Communal House document its exterior appearance. Although the 1829 and 1835 maps of Union Village show the house, the representations of the exterior features appear to be somewhat schematic, and it is not clear that they are accurate on either map. A floor plan for the building was not found, but it was likely similar in layout to other Western Shaker communal dwellings built at about the same time.

The house was a side-gabled, four-bay house, stylistically a plain example of the Federal style. A photograph included in a 1915 United Brethren Church newsletter shows four bays on the front of the building, with two windows inserted in the former location of the twin central doors, and a new single doorway in between the former door locations (Figure 27). The porch is a late nineteenth-century Shaker addition, probably installed about the same time as the Center Family Office underwent its renovation into a Victorian-style building. A single roof dormer was present on the front façade of the building. The side elevations of the house had three windows per floor: large windows on the first and second floor, three smaller windows on the attic floor, and a small window at the apex of the roof gable. On both side walls were double brick chimneys with corbelled tops. The roof had a slight overhang. No cornices or other decorative features are visible on the exterior of the house. At Pleasant Hill, Kentucky, several side-gabled dwellings of this type featured arched fanlight transoms and other Adamesque details; however, the plain style represented in the North Family Lot Communal House at Union Village is more typical of Shaker domestic design of the era.

Figure 27. Main Dwelling House at the North Family Lot, ca. 1915
(Otterbein Homes 1915)

The photograph shows one-over-one wood windows, but the original wood windows would have had the six-over-six, six-over-nine, nine-over-nine, or twelve-over-twelve format that was common for residential windows in the 1820s. Iron numbers representing the construction date of 1823 are visible on the gable of the house; similar construction dates can be seen on archival photographs of other buildings constructed at Union Village.

The building's walls were brick, set in the Flemish bond pattern, resting on a limestone foundation that extended about two feet above the ground surface. Window sills were made of local limestone, but most lintels were constructed with brick soldier courses. The house was built in two stages; the rear kitchen wing was formerly a separate building and was attached to the Communal House by a two-story addition constructed in 1831. The Kitchen was two stories tall but shorter in overall height than the main house. The rear wing had a series of rectangular windows and at least one door on the south side. Dormers were present, but only on the southern exposure of the roof. A cupola containing a bell was present on the roof of the Kitchen, along with chimney stacks at its approximate midpoint and on the eastern end of the building.

In some ways, the exterior form of the North Lot Family communal house is similar to the second West Family dwelling at Pleasant Hill, Kentucky (Figure 28). The Kentucky structure is a side-gabled brick house with three-bay side elevations and double chimneys on the side walls, although with a shorter rear kitchen ell. The West Family dwelling at Pleasant Hill was also constructed from 1821 to 1822, so it is contemporary with the North Family Lot communal dwelling at Union Village.

Figure 28. West Family communal dwelling at Pleasant Hill

The floor plan of the Pleasant Hill West Family House (Figure 29) may therefore give us some idea about how the North Family Lot communal dwelling was constructed. The first floor of the Pleasant Hill West House includes a center hall with two staircases. There are three dormitories for sisters on the right side of the house, two large and one small, and a

similar arrangement for the brothers on the left side of the center hall. The layout also includes four closets. A small hallway at the back of the main block of the house leads to two doors that provide access to a dining room in the rear wing. A kitchen with two fireplaces and a baking kitchen with two ovens are located behind the dining hall. The symmetrical interior layout is similar to but not identical to the first-floor plan of the Pleasant Hill East Family House, built between 1816 and 1819. The East Family House features only two first-floor dormitories each for the sisters and brothers, and it does not feature a separate bake kitchen, which is a small bakery with bread ovens set into the rear chimney. However, the first floor includes an amount of closet space that is nearly equal to the first-floor closet space of the West House (Lancaster 2001:52–55).

The Communal House of the North Family Lot at Union Village had two entrances and was very plain, as is typical of Shaker communal houses. No plans were located for the structure, but its interior likely followed the lines of other Shaker communal houses that were divided in half to discourage interaction between the sexes, like the West House at Pleasant Hill. The houses normally featured a central stair hall, often with double stairs. Dining spaces were usually on the first floor. Sleeping dormitories were usually located on the upper floors, including the second floor and the attic level, and were segregated by sex. Typically, several Shakers of the same sex and sometimes age shared a dormitory room. Archival evidence indicates that at least two Shakers inhabited each room, with one person functioning as room leader. The separate staircases minimized opportunities for men and women to mingle, and dormitory sleeping arrangements minimized privacy and enhanced the abilities of the elders to enforce Shaker discipline (Nicoletta and Morgan 2003:366–371).

At the North Family Lot, it appears that each floor was used as living quarters except the south middle room on the first floor, which was the trustees' office until 1840 (Union Village Diarist 1836–1857). The location of the office suggests that each floor had six rooms, three to a side. The elders of the North Family Lot lived in the garret room initially but moved in 1845 to the south middle room of the second floor. Interior features were plain and functional, with plain moldings and traditional six-paneled or four-paneled doors. In other Union Village residential structures, exposed columns and other structural woodwork were made with black walnut, probably from trees felled in Shaker woodlots in the area. Windows and doors were commonly made of yellow pine. The Union Village communal houses had interior walls composed of hand-split wood lath and hand-applied plaster. Woodwork consisted of baseboards, chair rails, and a higher wood rail with pegs to hang tools and furniture.

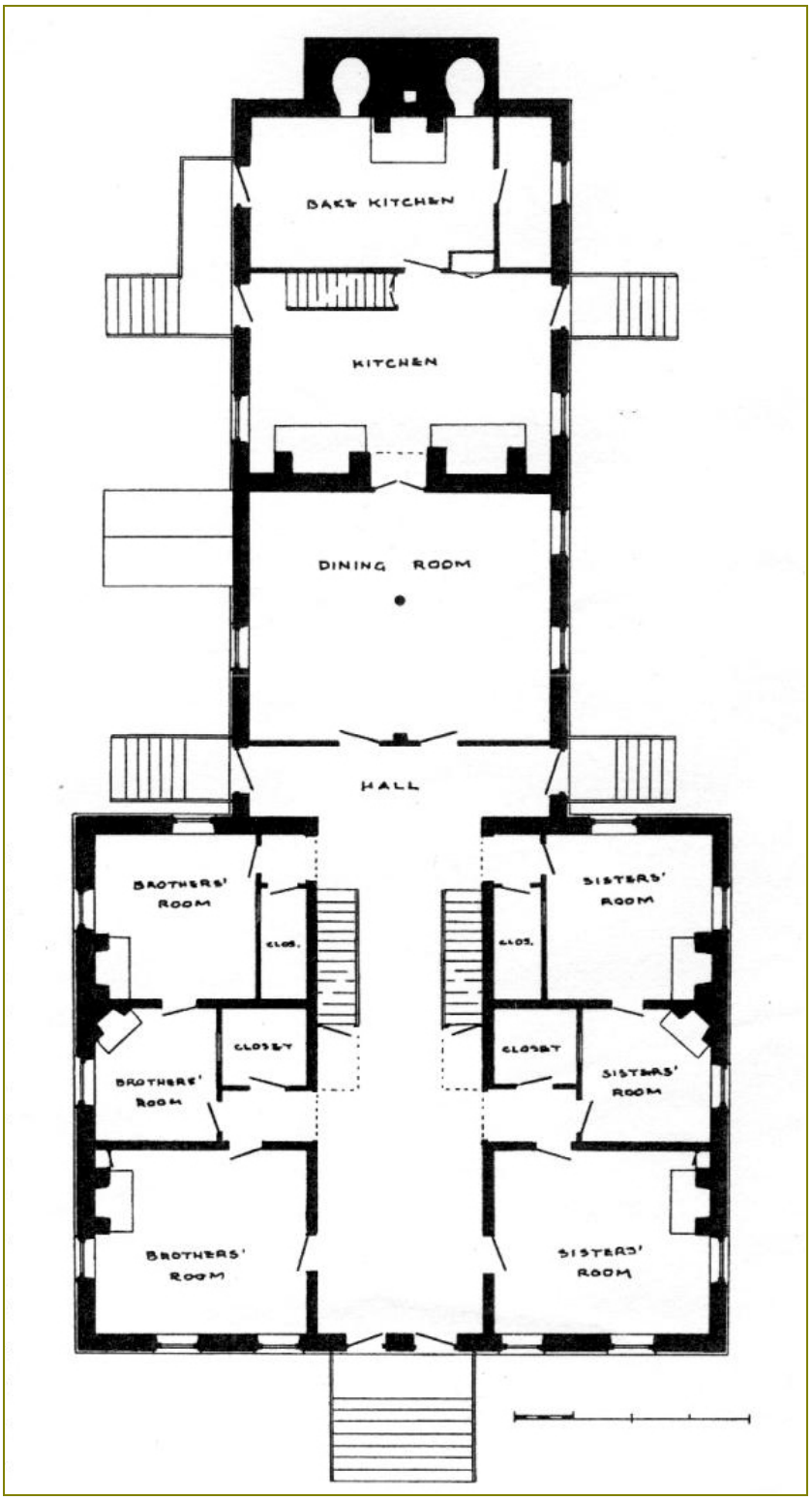


Figure 29. First-floor plan of West Family communal dwelling at Pleasant Hill
(Lancaster 2001)

History

When construction began on the Communal House on September 2, 1823, the North Family Lot was home to a group of Young Believers that had in 1815 been split off from the main Gathering Order at the East Family Lot because of overcrowding. Peter Boyd reported that the dwelling was completed and occupied on November 23, 1824 (Boyd 1805–1850:176–179). This construction span was somewhat shorter than that of the West Family communal house at Pleasant Hill, which began on May 29, 1821, and was completed on November 26, 1822 (Lancaster 2001:124). However, the kitchen wing of the Pleasant Hill house appears to have been constructed during the original construction phase. The North Family Lot Communal House at Union Village was not originally attached to the Kitchen, which may account for the faster construction time.

Diary accounts indicate that the construction of the Kitchen addition extended from 1829 through 1831. David Miller dates the Kitchen to 1830 in his 1835 tally of Union Village buildings. The kitchen appears on the 1829 *Map of Union Village*, and from the map appears to have been attached to the rear of the building at that time. An 1829 letter to Matthew Houston refers to the Kitchen, stating that its construction drew labor away from cottage industries at the North Family Lot, suggesting that the project was perhaps scaled back to prevent significant additional debt to the lot's accounts (Union Village Correspondent 1829:406). There are also references to carpenters from the Center Family assisting with finishing work at the kitchen in April 1831 (Dennis 1834:252), indicating that possibly the exterior walls and roof that attached the Kitchen to the Communal House were completed at the time of the 1829 letter, but that interior work continued through 1831. Diary accounts indicate that it was common for building construction at the North Family Lot to be carried out in the summer and fall of one year, with plastering and other finishing work performed the following spring.

Later information about the Communal House consists of accounts of improvements or maintenance on the building. The anonymous North Family Lot diary included an entry about a new pump installed in the Kitchen in 1838, and a skylight was added on June 30, 1841; the roof was re-shingled on August 25, 1847, and the sisters painted the window sashes on April 12, 1848 (Union Village Diarist 1836–1857). Miller noted that the gables, shutters, and doors of the Union Village dwelling houses of the village were yellow, while the sashes and windows were painted white. New pipes were installed in the Kitchen on September 2, 1848, and trash was removed from a nearby well that served the building in November 1848. A cistern was dug north of the building in November 1856.

Renovations continued during the Otterbein Homes period. Several proposals were made between 1919 and 1924 to expand the Good Samaritan facility by building an attachment between the Kitchen and the Sisters' Shop, but these never came to fruition. Records from the 1920s indicate that the building's heating boiler was replaced sometime between 1926 and 1927. The house was re-roofed and new gutters were installed in 1937, and new wood floors were installed in several locations in the building in 1945, along with new dining room lighting fixtures. The first porch placed on the building was replaced sometime before the 1940s with a newer porch (Figure 30). Plans also surfaced from this time to move the Good Samaritan

facility to a new building. This plan was eventually carried out, leaving the communal house empty by the 1960s. In 1965, Otterbein allowed a local volunteer fire department to burn the communal house as a training exercise, after which the brick shell of the house and kitchen was demolished and pushed into its cellar as fill.

Figure 30. Communal House, ca. 1940
Image courtesy of Otterbein Homes Museum & Library

Architectural Design

The architectural character of the building was conservative. The form of a main side-gabled house with a kitchen wing at the rear is a well-established Ohio vernacular format for large houses, but such house forms were also found at South Union and Pleasant Hill, Kentucky, as well as at several Eastern Shaker villages, including Watervliet, New York; Alfred, Maine; Canterbury, New Hampshire; and Hancock, Massachusetts. This common plan suggests that the communal dwellings at Union Village may have been following a house plan common to Shaker communities, rather than adhering to a regional vernacular. The plain character of the house and relative lack of ornament of the building in its original form can easily be related to the Shaker tenets of simplicity and order and a desire to avoid worldly influences. The house's wide spacing of broad squat windows, with large amounts of wall space in between, suggests a lingering influence of Ohio pioneer design features or even early New England domestic vernacular design. This aesthetic can be seen in early masonry dwellings in Ohio, and in the earliest communal houses at Pleasant Hill, constructed ca. 1809–1820; it is also evident in photographs of the masonry dwellings constructed at the Shaker community at Watervliet, Ohio.

While more contemporary architectural designs began to appear in dwellings constructed at Pleasant Hill in the 1830s and 1840s, architectural design at Union Village continued to adhere to the pioneer Federal models. This adherence to an earlier aesthetic—long after these architectural forms had passed out of fashion for domestic design in the outside world and even at Pleasant Hill—suggests an architectural conservatism at Union Village. Perhaps as the bishopric for the Western Shaker communities, Union Village had closer ties to New Lebanon and discouraged their builders from experimenting with the more worldly design elements that occurred at Pleasant Hill in the 1820s and early 1830s.

Geophysical Signature

The geophysical survey easily identified the location of the massive Communal House. The results of the magnetometry indicated that the structure was built of either stone or brick and that the fill contained similar materials. The resistivity results clearly outlined the building and indicated the presence of a cellar entrance on the northeast corner. The resistivity also provided the first clues that the Communal House and Kitchen were originally built as separate structures, not as one whole building, as previously assumed: the resistivity data showed a lack of a definite foundation signature between the two buildings. A foundation was present in the location of the addition, but it seemed ephemeral compared to those for the Communal House and Kitchen. The resistivity also showed what turned out to be a subterranean passage linking the cellars of the Communal House and the Kitchen.

Like the Communal House, the Kitchen was also highly visible in the geophysical data. The magnetometer results indicated that the structure was built of brick and/or stone, and the fill within the cellar was likely the same material. The resistivity results demonstrated that the structure had a cellar. A projection on the southeast corner resembles a cellar entrance but did not seem to extend into the cellar itself. The projection, which lies outside the project right-of-way and was not excavated, may instead have served as a “mud room” kind of entrance for the kitchen. Alternatively, demolition of the structure could have distorted the resistivity signature enough to make identifying the depth of the projection unclear.

Archaeological Results

A combination of hand-dug excavation units and heavy machinery was used to examine the Communal House and Kitchen (Figure 31, Figure 32). The units allowed the archaeologists to assess the condition of the foundation and to guide the removal of the demolition debris in the cellar by a backhoe. After all of the fill was removed from the Communal House and the portion of the Kitchen within the project right-of-way, we were able to observe numerous details about the construction and use of the buildings. The Kitchen was excavated in two phases of fieldwork: the western end during the main fieldwork session in the spring of 2005, and a portion of the middle of the Kitchen during the June 2005 fieldwork.

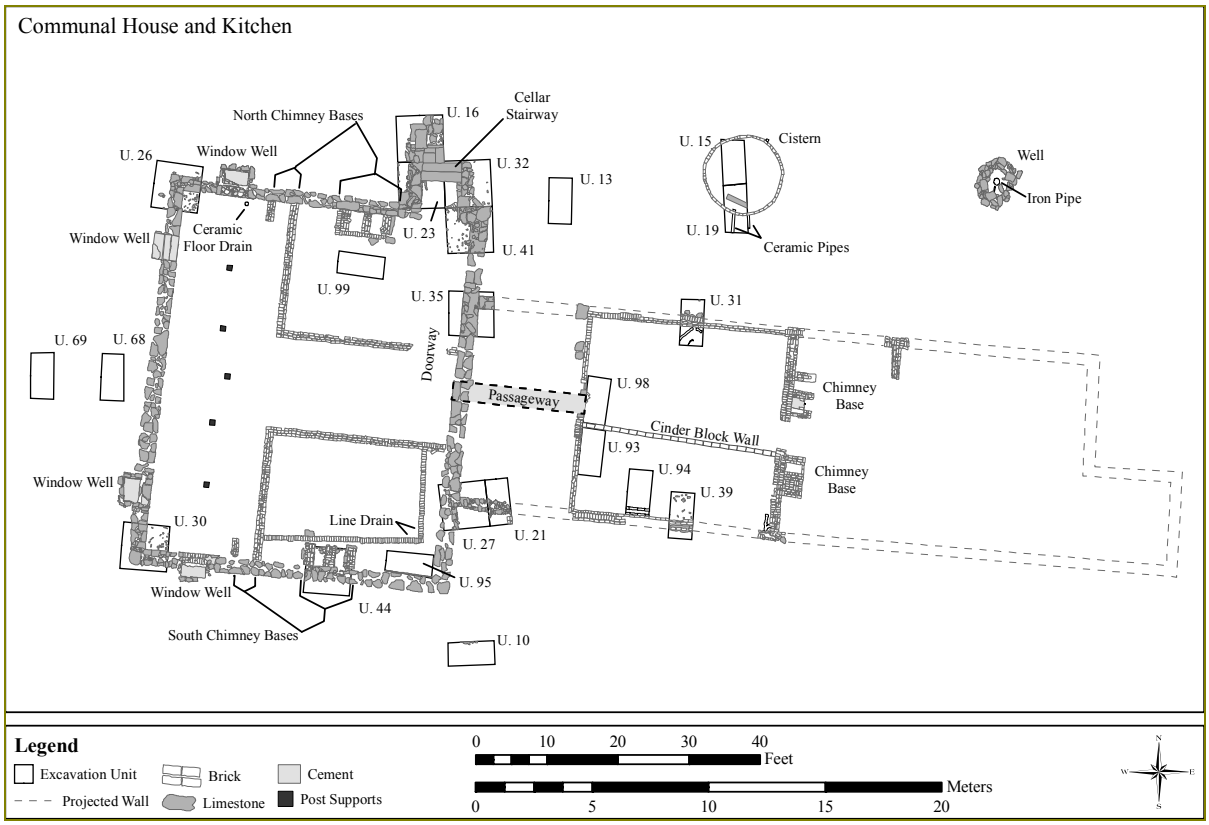


Figure 31. Communal House/Kitchen foundations, as excavated

Figure 32. Communal House after excavation, facing west

Communal House

The two-foot-thick foundation of the Communal House was made of stone blocks and had brick interior walls. The stone foundation retained traces of plaster on the vertical faces of the walls. Intact cellar windows were present on the front corners, but the condition of the foundation elsewhere precluded identification of the other window locations. The front windows were designed so that they were partially below the ground surface, with a recessed well built into, and extending out of, the foundation. Analysis of the ca. 1915 photograph (Figure 27 on page 52) revealed that the cellar windows towards the rear of the structure were smaller and set above the ground surface, which explains why we found no evidence for windows at the rear of the foundation. The window well on the north wall still contained an intact, enameled metal flowerpot and the fragments of a ceramic flowerpot. The window-well dimensions were 41 inches long by 43 inches wide on the interior, and the wells projected 31 inches out from the foundation. The intact window wells were cemented over on the bases and extended up the sides of the wells, which was likely done the same time as the cellar floor. No trace was found of a prepared surface that predated the cement. A brick sill was present on the south window, but not on any other window. The use of brick may have been to make the base of the window well level with the other windows, as the stones below it were not high enough.

The main cellar floor was poured cement, likely dating to the late 1940s. A newspaper impression was found on the bottom of a chunk of cement floor, and although we could not discern any dates, we could see the style of a woman's haircut in a photograph and a long list of men recently discharged from the Navy, leading us to believe that the newspaper dates to shortly after World War II, and possibly to the unspecified 1946 Otterbein Homes renovations. The brick chimney rooms had no prepared floors, only bare dirt. The dirt floor was laid on top of two layers of fill. The upper layer consisted of dirt with brick fragments, and likely dates to the construction of the brick interior walls and chimneys. The lower layer consisted of dirt with small fragments of limestone and probably dates to the laying of the main foundation. All brick features within the cellar were constructed with hand-made bricks, which we interpret as indicating that the brick features were all constructed at the time the Communal House was built. Removal of the fill revealed a passageway between the house and kitchen, not formally lined with stone or brick, and filled with ash and cinder from the fire. The rear foundation wall of the structure was almost completely destroyed, removing any evidence for the entryway into the passage from the house cellar. This passage may have been excavated during the Otterbein Homes period, judging from the presence of cinder blocks lining the entrance on the western kitchen wall. Also, we found no mention of this passage in Shaker journals, which otherwise seem to consistently document repairs and major additions to the buildings at the North Family Lot.

The cellar entrance was fairly well preserved; only the upper portions are missing. Three steps made from massive stone blocks were still present when the cellar was excavated (Figure 33). The northern end of the entry was fairly disturbed, and it is likely that one or more steps were originally present at that location. The interior width of the cellar entrance was 5 feet, 3 inches. The cellar entrance projected 8.5 feet out from the main foundation. An electrical conduit pipe was installed through the south wall of the cellar entrance, likely one of numerous twentieth-century renovations. The floor at the bottom of the cellar entrance stairwell was poured concrete.

Figure 33. Cellar steps, facing north

Two sets of three brick chimney piers were present on the north and south walls, with slight differences in construction technique. These sets of piers represent the chimney bases for the eastern chimneys. The north set of piers, Feature 67 (Figure 34), had a brick foundation partially enclosing the piers, which was not present on the south set. As with all the brick chimney piers found at the site, the chimney piers in the Communal House were set on limestone footers. The southern set of chimney piers (Figure 35) was the smaller of the two. The entire chimney was 6.5 feet wide and extended out 33 inches from the foundation wall. Each individual pier was 11 inches wide. The space between the west and middle piers was 20 inches, and the space between the middle and eastern piers was 21 inches. Due to damage from the demolition of the structure, original heights for the piers could not be determined. The actual heights of the piers as recorded during excavation were as follows: west pier, 45 inches; middle pier, 16 inches; east pier, 12 inches.

The northern pier was slightly larger, and also much less intact. The entire chimney measured 80 inches wide and extended out 37 inches from the foundation wall. Each individual pier was 12 inches wide. The spaces between the piers measured 21 inches. Due to damage from the demolition of the structure, original heights for the piers could not be determined. The actual heights of the piers as recorded during excavation were as follows: west pier, 36 inches; middle pier, 35 inches; east pier, 5 inches. The brick foundation that partially enclosed this set of chimney piers consisted of a single course of bricks, set side to side and 7 inches wide. This brick foundation was present on the west and south sides of the chimney.

Figure 34. Northern set of eastern chimney piers, Communal House

Figure 35. Southern set of eastern chimney piers, Communal House

The eastern chimney base locations were set apart from the rest of the basement in separate rooms, built with brick walls set in common bond. These walls were butt-joined against the stone foundation and not built into the wall, indicating that they were built after the stone foundation was completed. The northern room's wall extended 19 feet south from the north foundation wall and turned 90 degrees to the east, where it extended another 24 feet to the location of a doorway in the wall (Figure 36). The doorway was indicated by a break in the brick wall, with unbroken cement flooring in place. The doorway was 4 feet wide and was aligned with the cellar entrance. The wall continued on the east side of the doorway another 4 feet, 6 inches to join the eastern foundation.

Figure 36. Northern cellar room wall and north solitary pier, Communal House

The only portion of the wall that was intact above the level of the floor was the part that extended out from the north foundation wall. The southern room's wall extended 19 feet, 1 inch north from the south foundation wall and turned 90 degrees to the east, where it extended for another 25 feet (Figure 37). The maximum height of the wall at its most intact point was 35 inches. The wall was 13 inches wide. Only about a third of the wall was still intact enough to remain standing, with most of the wall along its eastern extension demolished to floor level, obliterating any obvious indications of a doorway in that location.

Figure 37. Southern cellar room wall and southwestern chimney pier, Communal House

Solitary brick piers were set on the north and south walls, between the windows in the north and south walls and the interior brick walled rooms. Feature 72 was the north pier (Figure 36) and Feature 68 was the south pier (to the right of the southern room wall in Figure 37). Original heights for these piers can be determined from the fact that the north pier was built with a butt-join into the foundation, with a foundation stone extending over the top of the pier. The piers would have been identical in construction, with a height of 37 inches, a width of 13 inches, and a length of 35 inches. At first, these piers seemed out of place, and we were unsure of their function. A close examination of their location in the cellar in relation to the windows, and a comparison of the excavation plan with historical photographs of the house, revealed that the piers may have been supports for the western sets of chimneys, with the walls enclosing the three-pier chimney bases that served as additional support. Oddly, the western chimney supports did not feature the three-pier system that we documented for the other Shaker chimney bases that we found during the 2005 excavation. Another possible explanation for the solitary piers is that they represent stairway supports.

A 9-inch-diameter floor drain constructed with a glazed coarse earthenware ceramic pipe was present near the northwest corner, west of the northern solitary brick pier (Figure 38). The pipe was identical to those found in use as drain tiles elsewhere on site, and also to the ones installed in the cistern. Either the Shakers or later Otterbein Homes tenants could have installed this drain. The drain was almost completely covered by a mass of semi-melted lead window sash weights, which may have been stacked here after structural salvaging, before the fire; or, the weights may have just accumulated in this location as the structure collapsed.

Figure 38. Ceramic pipe drain, Communal House

A brick line drain was present in the southern chimney room (Figure 39). This line drain was constructed by setting a single course of hand-made brick at the bottom of a trench 8 inches wide and deep, then setting bricks on end lengthwise on either wall of the trench, and capping the trench with another single course of bricks. The drain began near the junction of the south chimney room wall with the eastern foundation wall and extended south 21 feet, where it turned to the west and continued another 14 feet, 10 inches, terminating just before it reached the south chimney room wall again. This drain is almost certainly a Shaker construct, but it is unclear when it was installed.

Figure 39. Brick line drain, Communal House

A series of five brick post supports were found in the front section of the cellar (Figure 40). The centermost post was slightly offset from the main line of posts, about 8 inches to the east. The post supports each consisted of two hand-made bricks set side by side in the floor, and the square posts would have measured approximately 8 to 9 inches square. Although bricks were present as bases, we do not know if the posts themselves were wood or brick.

Figure 40. Series of posts in Communal House Cellar, facing north

Kitchen

The Kitchen cellar had a stone rubble foundation lined on the interior with brick (Feature 36), with a single course of the brick structural wall still present on top of the foundation. This brick course indicates that, unlike the Communal House, the Kitchen was not built on a raised foundation. The foundation was 20 inches wide. The cellar had at least two interior brick walls, with at least one and possibly two cinder-block walls dating to the twentieth century. The placement of the interior walls indicates that at least three separate rooms were present during the Shaker occupation, with an additional room constructed during the Otterbein Homes phase. The eastern interior brick wall was found at the eastern limits of excavation during the second phase of fieldwork. This wall was 12 inches wide and built with bricks set in common bond. The existing wall was 39 inches tall and was intact to the same height as the main structure foundation. The wall was set on a brick foundation and had remnants of plaster/mortar applied over the face of it to cover the bricks. A circular metal base was set into the floor near this wall and likely was the base for a hot-water heater.

The cinder-block walls were discovered during separate phases of excavation and given separate feature numbers, but it is probable that the portions of the walls excavated represent the same cinder-block wall. This wall or set of walls was located in the south half of the cellar and was built with two sizes of cinder blocks, one block size measuring 8 inches by 16 inches with three holes, and the other block size measuring 8 inches square with one hole. The cinder-block holes measured 3 inches square. The width of both walls was only one course of block. The cinder-block wall in the western portion of the cellar excavation extended 6.5 feet from the west wall to the location of a doorway, and continued into the eastern limit of the excavation at that time. This cinder-block wall had only one course of cinder blocks still intact. The wall sat on top of the cement floor (Figure 41). The cinder-block wall found during the second phase of excavation at the Kitchen extended east from the south chimney base for 33 inches to the limit of that excavation (Feature 104). This cinder-block wall was intact to a height of 28 inches, the same level as the chimney base. If the two cinder-block walls were actually sections of the same wall, they would have enclosed an interior room in the basement roughly 12 feet wide and 28 feet long.

The use of cinder blocks dates the construction of the room to no earlier than the early 1900s, when the blocks became more common in use. Interestingly, the wall was not built exactly parallel with the long axis of the structure but instead was built with each end terminating just south of an entranceway, resulting in a slightly skewed appearance in plan view.

Figure 41. Cinder-block wall in Kitchen cellar

The center chimney bases were built into what is probably an interior structural wall with a doorway in the middle (Figure 42, Figure 43). Each chimney base consisted of a set of three brick piers, built against the east face of the wall. These chimneys originally had brick floors in between the piers, the only intact example of which was present in the space between the southern and middle chimney piers of the southern base. A cast-iron ash box was present in the northern chimney base between the southern and middle piers and resembles in form Shaker-produced, cast-iron stoves, although we are uncertain of the date it was installed (Figure 44). An iron pipe was set into the floor in front of the ash box door, which would have prevented the door from fully opening. The floor between the middle and northern piers was cemented over when the cement flooring was put in, which could also be when the pipe was installed at the ash box door. No floor at all was present between the middle and southern piers of the southern chimney base.

Curiously, what appears to be a hiding space was present in the wall between the middle and northern piers of the southern chimney base. Someone deliberately made this hole by removing several courses of bricks from the wall. No artifacts were present in the hole, and it

is unclear as to when it could have been in use. Most likely, the hole was not in use when the chimneys were active, and so may have first been used in the twentieth century after a switch to a more modern furnace system. The dimensions of the chimney bases as they were encountered are as follows: The wall of the southern base was built with the common bond brick pattern and at its most intact point was 1.5 feet thick and 2 feet, 10 inches tall. The wall was a total of 11 feet, 10 inches long from the southern foundation wall to the doorway between the chimney bases. Mortar impressions on the south foundation wall of the Kitchen show that the wall was originally at least as tall as the existing foundation, and we can reasonably assume that the wall extended from the floor to the ceiling in its original state. The first chimney box for the southern base, consisting of the southern and middle piers, was located 5 feet, 2 inches north of the southern foundation wall. The second chimney box, consisting of the middle and northern pier, was located 9 inches south from the central doorway. The maximum height of the most intact chimney pier was 31 inches. Each chimney base pier measured 3 feet long by 13 inches wide, and had an interior width of 1 foot, 5 inches between piers. Each pier was set on a small limestone foundation.

The northern chimney base was similar but not a mirror image of the southern chimney base. The northern chimney base had the same dimensions for the chimney boxes and chimney piers, and the wall was the same width. The distance between the northern chimney pier and the northern Kitchen foundation wall was 4 feet, 10 inches, slightly shorter than the distance between the first chimney pier and the foundation on the southern chimney base. The total length of the wall the chimney bases were set against was 12 feet long, slightly longer than the southern wall. The doorway between the chimney bases was 43 inches wide.

Figure 42. Southern set of chimney boxes, Kitchen cellar

Figure 43. Northern set of chimney boxes, Kitchen cellar

Figure 44. Cast-iron ash box door, Kitchen cellar

The west wall of the cellar had a partially intact brick arch built into it (Figure 45). The purpose of arches such as these, built into walls, is usually to distribute the load of the building over an open space, such as an interior cistern. An architectural engineer examined this arch during a field visit and determined that the arch was likely abandoned as a functioning part of the structure while the building was under construction, and was bricked up before the structure was completed. The partial arch was 4 feet, 10 inches long and 2.5 feet tall. By projecting the continuation of the arc of the arch on the west wall of the Kitchen cellar, we determined that the original intact arch would have had an exterior length of 83 inches and an interior width of 69 inches. The reason for the presence of this arch is unclear, as no sign of a subfloor cavity was found in the arch location. We did find a fragment of an anonymous letter to Matthew Houston dated April 20, 1829, discussing the North Lot Family's finances and mentioning that the design of the Kitchen had to be scaled back from a budget of $5,000 to a budget of $2,500. The arch may have been a component of the original design that was abandoned as contributing too much debt to the project.

Figure 45. Brick arch and passageway entrance in west wall of Kitchen cellar

The passageway entrance between the Communal House and Kitchen cellars was present in the west wall, and was lined with cinder blocks similar to those used in the cinder-block walls (one of which is visible in Figure 45 as the low gray wall in the lower left of the photograph). This entrance cut through the earlier brick arch and measured 35 inches wide. We believe that this passageway was built during the Otterbein Homes occupation, as no mention of what would have been a significant renovation to the Communal House and Kitchen was located in any of the Shaker journals and diaries that we consulted for this project.

Two lines of Shaker-made drainpipes were present along the south wall under the flooring in the southwest corner. These pipes were hand-thrown redware and were likely produced at the

pottery located at the North Family Lot. Two different types of pipe were used, one type for each drain line. The piping present closest to the south foundation wall was made from cylindrical pipes laid end to end. Each individual section of piping was a straight cylinder, with no tapering or flaring present at either end, and measured 12 inches long with a 4-inch diameter. The piping set to the north of the first set of pipes consisted of pipes made to join together with "male" and "female" ends. Each pipe measured 14 inches long; the female or flared end was 5.5 inches in diameter and 0.75 inch thick, and the male or tapered end was 3.75 inches in diameter and 0.5 inch thick. Both sets of pipes were set in the same excavated trench and may have been installed at the same time (Figure 46).

The pipes could be the new piping mentioned in the North Lot Family diary entry for September 2, 1846. The dual set of pipes may indicate that each pipe was connected to a separate source of wastewater and may have had separate outlet points as well. A twentieth-century iron water pipe was present entering the cellar on the west side of the chimney wall on the south end, and likely was attached to a utility line identified in the geophysical survey in this general location.

Figure 46. Shaker-made water pipes in Kitchen cellar

Summary

Throughout its existence, the Communal House functioned mainly as the primary residence for the North Lot Family, and subsequently for Otterbein Homes residents. The middle south room of the Communal House was used as the office for the North Family Lot but was moved to the Brick Shop in 1840. The only other activity noted for the Communal House in the Shaker journals consulted for this project was that it was the location of the nightly worship meetings, and it served as the weekly meeting location when the weather was too bad for the North Lot Family to travel to the meeting house. Singing meetings were sometimes held here as well, although it appears that the North Lot Family most often traveled to one of the western family lots for such meetings. No other activities aside from domestic activities can be inferred from the artifacts recovered here.

The basement of the dwelling was partitioned into one large room and two smaller rooms. The two smaller rooms enclosed the locations of the chimney bases and apparently were associated with heating the structure. No information on other uses for these rooms has been found, or indeed, any references at all as to how the North Lot Family Shakers used their basement. During the Otterbein Homes period, the large window wells that projected from the foundation allowed enough light to grow potted plants, and it is likely that this source of lighting was very important to the Shakers as well. A pair of staircases leading from the first floor to the basement could have been present at the locations of the solitary brick piers. If these piers are indeed related to staircases, then they likely indicate separate staircases for men and women.

The main function of the Kitchen throughout its existence was food preparation and consumption for the North Lot Family, and subsequently for the Otterbein Homes residents, with the second story perhaps serving as a dormitory, although it is possible that the meeting room was located here instead. The cellar was originally subdivided into a minimum of three rooms. No functions for the rooms on either side of the chimney bases can be established, but it seems obvious the central room with the chimney bases served as the heating utility for the structure. Besides containing the chimney bases, a hot water heater dating to the Otterbein Homes period was also present in this room.

Although we know from the 1829 anonymous letter fragment addressed to Matthew Houston that the original design of the Kitchen was far grander than what was actually constructed, we found no mention in the historical record of the specifics of the original design. One clue is the abandoned arch present in the west wall of the cellar. As discussed on page 72, this arch may have been an intended component of a subfloor cavity, such as an internal cistern. Having an internal water storage facility like a cistern would have involved infrastructure such as a complex piping system to direct rainwater from the outside of the building into the cellar without flooding the cellar, which in itself would have contributed significantly to the cost of construction. If similar in construction to the kitchens at Pleasant Hill, the very rear of the North Family Lot Kitchen would have contained a bake kitchen.

Known Shaker renovations at the Kitchen include the attachment to the Communal House in 1831, the installation in 1841 of a skylight in the roof and new cabinets in the dining room. New pipes were put in the cellar in 1846. No further improvements are noted in the North

Lot Family journals after 1846. Renovations related to Otterbein Homes renovations include the construction of an additional room in the basement using cinder blocks, the installation of a hot water heater, and possibly the construction of the corridor between the basements of the Communal House and Kitchen.

The Communal House was not the sole dwelling for Shakers at the North Family Lot. Beginning in 1839, diary and journal entries note that the Green Shop was used for housing the girls of the North Family, and in 1842, a note refers to Martin Babbitt being appointed to be in charge of the boys and the move to the southeast room of the Brick Shop, which we can interpret to mean that the North Lot Family boys were living there as well. The North Family Lot journals note the presence of buildings identified as the Little Sisters' House in 1843 and the Boys' House in 1848, which shows an attempt to not only physically separate the dwelling places of the mature and immature Shakers, but also to keep the Shaker girls and boys physically apart, with their dwellings at one point separated by the Communal House. At least a few of the mature Brothers were living in the Brick Shop as well, and the journals also note two separate buildings (one built to replace the other) referred to as "Brothers' Houses."

Increasingly over time, it appears that the Communal House became primarily a domain of the North Lot Family Sisters, although the artifact assemblage revealed no artifacts that we could definitely associate with a specific gender. Note, however, that assigning gender functions to artifacts is normally difficult, and is even more so with the Shakers, as they did not completely segregate traditional gender tasks. For example, needles and pins might normally be associated with the female gender at nineteenth-century sites, but at the North Family Lot, both genders were involved in making and repairing clothing, and we therefore cannot assign these artifacts to a gender at this site.

Hall Place

The Hall Place was a frame house that was moved to the North Family Lot in February 1836 and placed "south of the brick shop" (Union Village Diarist 1836–1857:368). No other references to the Hall Place appear in the documentary record. The exact location of this house is uncertain. The stated location of the building as south of a brick shop is vague and could refer to either the Brothers' Shop or the Pottery/Broom Shop. There was no geophysical evidence for any buildings between the Brothers' Shop and the Pottery/Broom Shop locations. One of the gate guards at ARMCO Park stated during a field visit that he remembered a bulldozer running through the area between the two southern shop buildings sometime in the last 30 years, which could have removed any building remnants; however, the geophysical survey did not indicate any massively disturbed soils in the location that would have been caused by heavy machinery. The location of the house may have been south of the Pottery/ Broom Shop, in the woodlot area not tested by this project.

The demolition or removal date of the building is unknown, but may predate 1917, as no building is shown south of the Pottery/Broom Shop on the 1917 Otterbein Homes survey map. However, close examination of the 1930s-era aerial photograph of Otterbein Homes shows a small, one-story frame building located southeast of the North Family Lot that may be this

structure (Figure 47). This building does not show up on any twentieth-century maps, though, so it is uncertain whether this building actually represents a Shaker building that was simply overlooked by surveyors due to its out-of-the-way location, or a twentieth-century building constructed by tenant farmers.

Figure 47. Detail of ca. 1930s aerial photograph

Arrow in the lower right corner points to a small frame building southeast of the main building cluster of the North Family Lot. Enlargement shown at right.

The Morris House

Description

The original house associated with the previous owner of the land, Isaac Morris, was retained at the North Lot and relocated in 1837. This building was a frame house; however, the 1835 Kendall reproduction of the 1834 Youngs map does not show any frame houses identified as the Morris House.

There are no early detailed descriptions of this house, other than an account in Daniel Miller's journal stating that the North Lot Family was first established in 1815 in a wood-frame house originally owned by Isaac Morris (Miller 1835:371–372). Miller's listing of North Family Lot buildings recorded that a frame shop and a garden shop were at the lot built by Morris, as well as his house. No dimensions were given for any of these buildings (Miller 1835:371–372). Miller noted that these buildings were repaired and moved, presumably off the lot.

History

The North Family Lot land was purchased in 1808 from Isaac Morris (Clarke 1805–1900:276). Miller states that the North Family was established in Isaac Morris' wood-frame house in 1815 (Miller 1835:371–372). An 1837 account (Union Village Diarist 1836–1857:370) stated that the Morris house was located south of the brick house (the communal dwelling). Both of the buildings shown south of the main dwelling on the 1829 *Map of Union Village* are labeled brick shops and could not have been the wood-frame Morris House. It appears that wood-frame buildings at the North Lot were not considered important enough to represent on the 1829 map.

Two one-story log buildings are on the 1835 map that might be good candidates for the Morris House, although they are not wood-frame houses and are located to the east and northeast of the communal dwelling. A building labeled the "Garden House" on the 1835 map may also represent the Morris House. The latest related entry in the known documentary record for this building is a reference in the anonymous North Family Lot diary to the relocation of the Morris House to east of the garden on October 6, 1837. This entry tends to discount any of these three buildings as possible candidates (Union Village Diarist 1836–1857:371). A fourth unidentified building is present south of the Brothers' Shop on the 1835 map, but its form suggests it was not a house. The North Lot Family diarist reported that the Morris House was moved to a location east of the garden on October 6, 1837 (Union Village Diarist 1836–1857:371). Based on the 1829 map's placement of the garden to the east of the communal dwelling, the Morris House would be far to the east of the communal dwelling and the cluster of shops that surrounded it, possibly in the location of a small cluster of farm buildings that was present east of the North Family Lot up to the 1940s (now the location of the runway for a local radio-controlled model airplane club). This cluster of farm buildings is visible in the upper right portion of Figure 47.

However, it is possible that the reference to the garden in 1837 is to a different garden than what is shown on the 1829 map. The geophysical survey identified three building locations east of an area in the southern half of the North Family Lot survey area that might have been a garden. Although no archaeological excavations took place at these building locations, two are of a size that makes them possible candidates for the Morris House.

Back Brethren House

One Shaker journal entry refers to a building known as the Back Brethren House. In June of 1850, the Shakers began "framing a back house for the brethren" (Union Village Diarist 1836–1857:466). No other mention of this house is made in Shaker journals. From the one journal entry, it seems the building was of frame construction and probably located along the eastern end of the domestic cluster of buildings. The Back Brethren House appears to have been intended as supplemental housing for male Shakers, and it is a potential candidate for one of the unidentified structures in the southeast corner of the area tested through geophysical survey.

Boys' House

One diary entry refers to a "Boys' House" being whitewashed on October 28, 1848 (Union Village Diarist 1836–1857:444). No other mention is made of this structure. We can infer that it may have been frame construction because it was whitewashed, but its location remains a mystery. The apparent function of the building was to house male children at the North Family Lot.

Little Sisters' House

A brief entry in a North Family Lot diary in 1843 mentions the moving of a building called the "Little Sisters' House"—presumably this refers either to a small building that housed some of the sisters at the North Family Lot, or to a building that served as a residence for young Shaker women. No further mention is made of this structure. The location and construction of the building is unknown.

Matthew Houston House

Shaker Susanna Liddel Cole, in a summary of events at Union Village, recorded that a house was built for Matthew Houston in 1815, speculating that this house was built at the North Family Lot location (Liddel 1844:506). No other reference is made to a building constructed for Houston, who was the elder at the East Family Lot at the time of the building's construction. One possibility is that Houston led the Young Believers in their founding of the North Family Lot, and supplemental housing was required beyond the Isaac Morris house. The Houston house could be one of the log houses present on the 1834 Youngs sketch map as reproduced by Kendall of the North Family Lot.

Joseph Babbitt Log Cabin

An entry for July 5, 1817, in Peter Boyd's journal of events noted the raising of a log cabin for a Young Believer named Joseph Babbitt. No other reference has been found that positively relates to this building, although it could be one of the log houses present on the 1834 Youngs sketch map as reproduced by Kendall of the North Family Lot. We are not even certain if this cabin was actually located at the North Family Lot; however, its association with a Young Believer with the last name Babbitt leads us to believe that the North Family Lot is indeed a fairly likely candidate for the location of the building. The cabin could have been built to house newly converted members of the Babbitt family, many of whom became dedicated Shakers.

PART 2: Shops and Related Buildings

Part 2 discusses the Brothers' Shop, Pottery/Broom Shop, Kiln and Pottery Sheds, Sisters' Shop, Green Shop, and Wash House.

The Brothers' Shop

This structure was one of the major buildings of the North Family Lot. Originally constructed in 1826 as a two-story brick building, it served as both dwelling space and shop space, and had several different shop uses during the period when cottage industries were active at the North Family Lot.

Description

No archival photographs were found depicting this building. Miller's 1835 record of buildings at the North Family Lot states that the building measured 30 feet by 55 feet. Diary references to the building in the 1840s indicate that it had a basement used for craft industries. Representations of the exterior features on the 1829 map of Union Village and the 1835 maps of the North Family Lot appear to be somewhat schematic in their representation of the building and may not reflect the actual features of the Brothers' Shop as it existed at the time. Both maps show a two-story, side-gabled, brick building with chimneys at each of the gable ends. The 1829 map shows a building only three bays wide, while the 1835 map represents it as a five-bay structure. Given the 55-foot width reported for the original building, and the typical window and bay dimensions of brick buildings at Union Village, it appears the five-bay configuration is the more likely of the two representations. The Brothers' Shop probably closely resembled the East Family Brethren's Shop at Pleasant Hill, Kentucky, which was also a two-story, five-bay, brick shop building (Figure 48).

Figure 48. East Family Brethren's Shop, Pleasant Hill, Kentucky
(Photo by Roy Hampton, October 2005)

History

The building was originally constructed in 1826, south of the Communal House. An 1829 letter to Matthew Houston states that the construction of shop facilities had added considerable debt to the North Lot Family finances, probably referring to the construction of this relatively large building (Union Village Correspondent 1829:406).

The Brothers' Shop was the largest shop building at the North Family Lot built during the pre-1836 era. The function of the structure was to contain workspace for shops in the basement and on the first floor, with living quarters for brothers on the second floor. The wagon shop that operated during the occupation of the Young Believers and/or Gathering Order was located in the basement of the building; the wagon parts were worked on in the basement, and the wagons would then have been assembled outside the structure.

During the tenancy of the Second Family, the North Family Lot trustees' office was moved from the Communal House to the northwest room on the second floor of the Brothers' Shop on January 30, 1840. On March 14, 1840, Timothy Bonnel and James Darrow divided the basement's south end into two rooms, completing the project on June 1 of that year (Union Village Diarist 1836–1857:373). James Sooker moved his shoe shop bench and tools into the southwest room of the basement from the second floor on June 13, 1840 (Union Village Diarist 1836–1841:333), and on August 6, 1842, Martin Babbitt and "the boys" moved into the southeast room of the second story (Union Village Diarist 1836–1857:382). Possibly, the family's contingent of male children was moved into this building in order to segregate this potentially noisy group of individuals from the older members in the Communal House.

Another reference to the building indicates that Elder Harvey taught future First Elder Aaron Babbitt to cut cloth in this building on October 19, 1847, and that the tailor table was moved into this building from the garden house for that specific purpose (Union Village Diarist 1836–1857:429). In May 1848, the sisters were using the basement of this building as their location for raising silkworms (Union Village Diarist 1836–1857:438). Silkworm raising was part of a silk industry that had previously existed at the West Brick House before the Second Family's 1836 occupation of the North Family Lot (Union Village notes 1835–1842:468). The diary entry mentioning the silkworms refers to the basement room as the old wagon shop, indicating that the wagon shop and wagon construction was separated from the Wagon Shed, which was a different building that served to store the North Family's own wagons and carts. In addition, a church journal entry refers to wagon parts being moved from the Brothers' brick shop basement. It is also likely that the basement of the Brothers' Shop was used for broom production before the Pottery was converted into the Broom Shop (Union Village Correspondent 1829:406–407).

No diary references or histories were found that mention any additions to the Brothers' Shop. No accounts past 1850 were found that specifically mention this building.

Geophysical Signature

The geophysical survey results for the Brothers' Shop identified a structure that was similar in construction to the Communal House and Kitchen. The resistivity data indicated a cellar of comparable depth to the Communal House, with an entry on the northeast corner. In contrast to the Communal House and Kitchen, both the resistivity and magnetometry data seemed to identify a difference in the fill of the structure. The magnetometry showed a more subdued signature than for either the Communal House or Kitchen. At the time of the geophysical survey, this difference was interpreted to suggest that the Brother's Shop contained less brick and stone than the Communal House or Kitchen. The resistivity indicated an area along the southwestern edge of the structure that was interpreted to be a compacted fill, lacking brick or stone in comparison to the rest of the structure.

Excavation revealed the reason for the subdued geophysical signature of the Brothers' Shop when compared to the other structures mentioned above. Unlike the Communal House and Kitchen, both of which had substantial amounts of large iron artifacts in the cellar fill, the Brothers' Shop lacked such artifacts but had a comparable amount of brick fill. The presence of the metal artifacts was not known during the geophysical survey, which meant that the geophysical signature of the bricks in the fill of the Communal House and Kitchen was interpreted as having a more robust signature than it actually possessed. In addition, the area inside the Brothers' Shop cellar identified as having a compacted fill was found to be the location of roughly two dozen glacial erratic boulders, probably dumped in the cellar by the Shakers after the building was mostly filled in with brick rubble, in order to level out the depression in the landscape. Duane Simpson, the geophysical specialist that directed the geophysical work at the North Family Lot, interpreted the less robust geophysical signature of the Brothers' Shop as possibly indicating that the Shakers were responsible for its demolition and filling, in that the Shakers likely took as much salvageable material from the structure as possible. This idea was born out in excavation, when the archaeologists found that the stone foundation of the structure had been almost completely removed before the cellar was filled.

Results of Excavations

Two excavation units were placed to examine the condition of the Brothers' Shop, and then the fill was removed by backhoe. Sixteen excavation units were placed in the dirt floor of the cellar to recover Shaker-period artifacts (Figure 49).

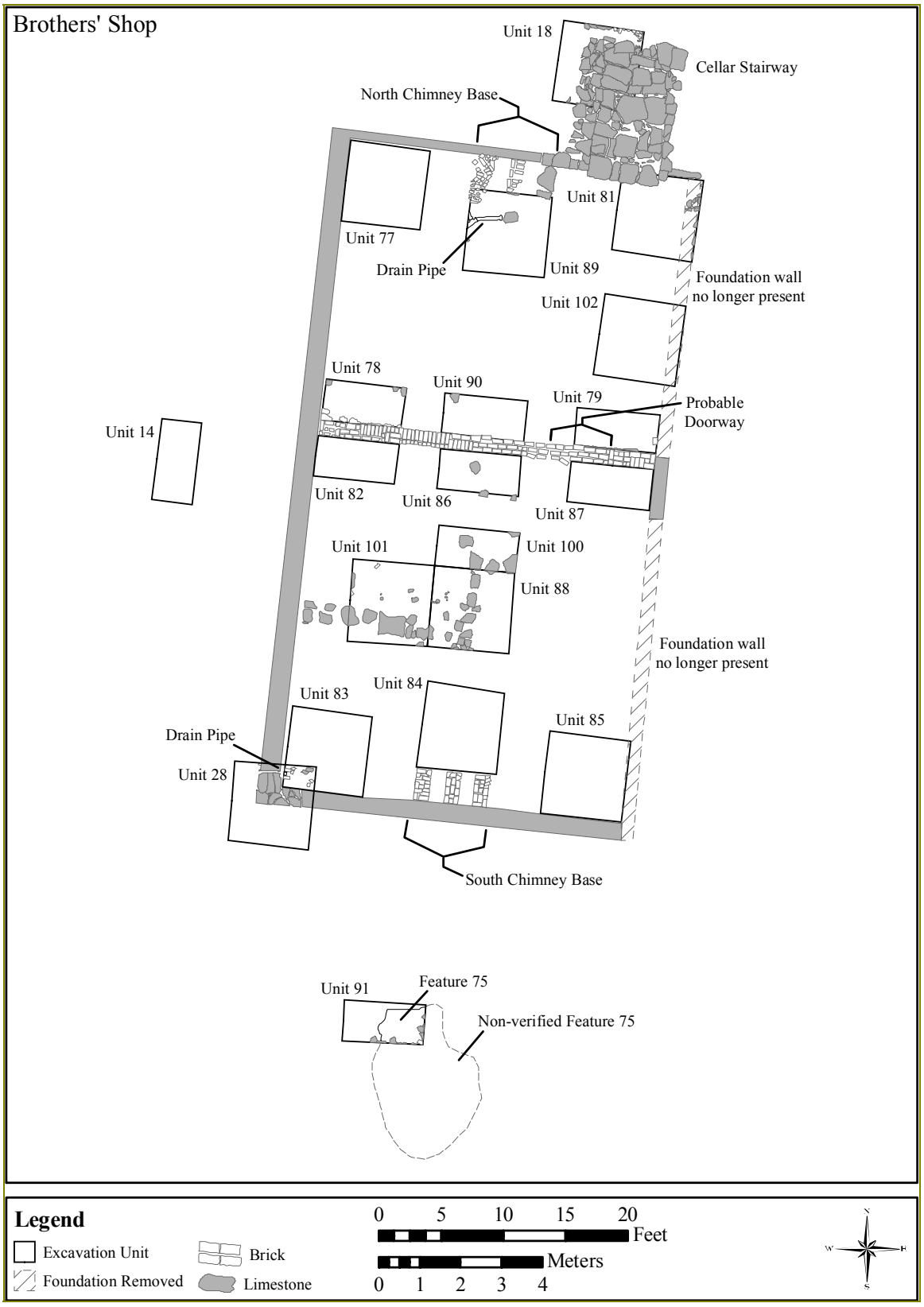


Figure 49. Brothers' Shop plan, as excavated

Physical Description of Excavated Structure

Archival evidence for this structure indicates that the two-story brick building likely had four rooms on each floor and at least three rooms in the cellar. Shaker sketch maps of the North Family Lot show a symmetrical western façade, with chimneys on the north and south sides. The central door suggests a centrally located hallway and a stairway to the second floor.

The limestone foundation was found to be in extremely poor condition after the brick fill was removed; nearly all the foundation stones had been removed, and the cellar stairs was knocked out of alignment, probably by the Shakers or hired hands late in the nineteenth century (Figure 50). The eastern foundation wall was almost entirely absent, with only one to two courses of stone left elsewhere on the foundation. The 22-inch-wide foundation had a nicely dressed interior face but exhibited a rough-hewn exterior face. No information was found as to whether this facing pattern extended to include the portion of the foundation that would have been above ground surface.

Figure 50. Aerial photograph of excavated Brothers' Shop facing northwest, showing missing foundation

The cellar entrance was as extensively salvaged as the foundation, and it is difficult to determine how many steps may have been present. As excavated, there were two apparent steps present at the north end of the entrance (Figure 51). The entrance itself measured 11 feet, 2 inches long, with an exterior width of 8 feet and an interior width of 5 feet, 2 inches. The apparent steps began at the north end and ended 7 feet from the south end of the entrance. The top of the highest remaining step was at 26 inches below modern ground surface. The depth of this step and the rather short length of the steps within the entrance suggest that the steps may be only the remnants of a larger set of steps that extended further into the cellar entrance.

Figure 51. Cellar entrance, Brothers' Shop

The central dividing wall was made of brick set in common bond, with a doorway on the east side, and was set on a limestone foundation, suggesting that the wall was originally load bearing. This wall was heavily affected by demolition, such that in most places only a few courses of bricks remained intact (Figure 52). The wall measured 28 feet, 4 inches long and was 1 foot wide, with a maximum height of 47 inches. The most intact section of the wall was at the east end, where 11 courses of brick were still present. The height of the wall at its western terminus was seven courses of brick, and the number of intact courses along the rest of its length ranged from one to five courses. A hole through the limestone foundation of the wall was present at the western end, two feet east of the structural foundation; the hole measured 7 inches tall by 18 inches wide.

The doorway was located 39 inches west of the east foundation and was approximately 55 inches wide. The presence of the doorway was indicated by a very smooth, even, west face of the tall wall remnant at the east end, which lacked any mortar impressions that would indicate a continuation of the wall. Exact measurements of the doorway width were not possible because of the poor condition of the wall, which had only one to two courses of brick present for some distance west of the eastern edge of the doorway. The width measurement of 55 inches was taken from the point west of the east edge of the doorway where the brick wall exhibited more than one course of intact brick.

After looking at the distribution of broken window glass in the cellar, we found window glass was only present north of the central dividing wall. This distribution suggests that windows were present only in the northern part of the cellar. Why the southern half of the cellar apparently had no windows remains a mystery.

Figure 52. Central wall in Brothers' Shop cellar, facing east

A stone alignment found in the southern half of the cellar might have supported a floor. The alignment consisted of a central north-south line of rough-hewn limestone blocks, with secondary lines of limestone blocks extending to the west on the south end of the central line and to the east on the north end of the alignment (Figure 53). The alignment was not completely intact, and stones were missing. The alignment may have served as floor supports for the rooms in the southern half of the cellar, with the central line also serving as an interior frame wall support. We assume that the central wall originally extended from the interior brick wall south to the chimney base, but no stones associated with the alignment were found in either of the excavation units to the north and south of the intact alignment.

The total length of the central line of stones as excavated was 7.5 feet. The western secondary line of stones was mostly intact in length and measured 16 feet, 5 inches long. The eastern secondary line of stones was only 20 inches long. The width of the alignment was hard to determine precisely, due to variations in the individual width of the stones in the alignment, but they seemed approximately 12 inches wide in most places.

An entry dated May 5, 1840, in the North Lot Family diary noted that "James Darrow and Timothy Bonnel are working in the brick shop cellar making two rooms in the south end" (Union Village Diarist 1836–1857:373); it is almost certain that the stone alignment was part of this construction event. These rooms were finished on June 1, 1840 (Union Village Diarist 1836–1857:375).

Figure 53. Stone alignment in south half of Brothers' Shop cellar, facing east

Two chimney bases were constructed on the north and south sides of the structure, each consisting of a set of three brick piers set on stone footers. The southern chimney base was the more intact of the two bases (Figure 54). The piers were set on limestone footers and placed with 17-inch-wide gaps between the piers. The piers each measured 30 inches long by 13 inches wide. The piers had been affected by the demolition of the structure and were of varying height when uncovered. The west pier was 19 inches tall, the center pier 24 inches, and the east pier 9 inches. The entire chimney base was 61 inches wide.

Figure 54. Southern chimney base, Brothers' Shop

The northern chimney base was in much worse condition when uncovered (Figure 55). Only the center pier had intact bricks, set in five courses to a height of 12 inches. The eastern pier consisted only of a limestone base, and the west pier had collapsed to the southwest. Like the southern base, the northern chimney base piers were also each 13 inches wide and 30 inches long, placed 16 to 17 inches apart. The total width of the chimney base is difficult to determine accurately because of the collapsed west pier, but it seemed to be between 69 and 77 inches wide.

While similar in basic construction and plan to the Communal House and Kitchen chimney bases, the chimney bases in the Brothers' Shop had different dimensions. The overall width of the chimney bases was 10 inches shorter than the chimney bases at the Communal House, and the space between piers was 3 inches shorter. Interestingly, the piers themselves were 1 to 2 inches wider, but 3 to 7 inches shorter in length. The Kitchen chimney bases had more similarities to the chimneys at the Brothers' Shop, having the same pier widths of 13 inches and the same space between piers at 17 inches, but they were slightly wider as a whole at 63 inches, and they projected further from the wall at 36 inches.

Figure 55. Northern chimney base, Brothers' Shop

A drain found in the southwest corner of the cellar had a hand-thrown redware drain cover, likely a product of the pottery on site. The drain was set under the west foundation in the southwest corner, and consisted of the drain cover bracketed by two sets of two bricks on either side (Figure 56). The drain cover was 4.25 inches in diameter and was perforated with 14 holes, 12 of which were 1/2 inch in diameter, while two had a diameter of 5/8 inch. The east wall of the unit that uncovered the drain had a dip in the stratigraphy of the cellar floor layer, which probably corresponds with a drain line leading to the drain in the corner.

A later, mass-produced ceramic drainpipe was present in front of the north chimney base, likely a late-nineteenth-century addition (see Figure 55, lower left corner). This pipe had a flat limestone block at its eastern end, which may have supported some sort of drain cover set into a raised wood plank floor (if one was present). The entire length of this drain was not uncovered, but a second pipe segment joined the first one and angled southwest, with another pipe joined to it at a 90-degree angle and heading northwest.

The structure was probably demolished around 1890, and involved extensive salvaging of building stone from the foundation, then filling the cellar with brick debris from the superstructure. The cellar was not cleaned before it was salvaged and demolished, as numerous remains of wooden casks, buckets, and intact or once-intact ceramic vessels were present throughout the structure.

Figure 56. Ceramic drain in southwest corner of Brothers' Shop

Over 4,300 historical artifacts were recovered from the units placed in the cellar floor alone. No structural timbers were found in the fill; although if present, they could have already rotted away. However, considering the trouble that was taken to salvage the foundation stones, it is more likely that the wooden elements from the building were salvaged as well. After the bricks from the superstructure were dumped back into the cellar hole, the large glacial erratic boulders were rolled in, and at least one episode of household waste disposal occurred here; rubbish was strewn over the center of the cellar hole on top of the brick fill.

Although we do not know exactly when the building was demolished, several of the artifacts in the waste disposal date to after 1892, suggesting that the building was still standing in the 1890s. No mention of the structure's demolition is found in Shaker or Otterbein Home documents, and the building does not show up on the 1917 Otterbein Homes survey map. J. M. Phillippi noted in 1917 that there were four brick buildings no longer present on the landscape because they were demolished or destroyed in some manner, with one of the brick buildings partially intact (Phillippi 1917:7). Phillippi mentioned that of the brick buildings no longer present: "One was burned by a member of the Shaker society, who became deranged. Another was torn down in the belief it was haunted. Another was demolished because the Shakers saw no further need for it, and the same is true of a part of a fourth" (Phillippi 1917:7). The Brothers' Shop is almost certainly one of these brick buildings mentioned by Phillippi.

Function

The Brothers' Shop served numerous functions over its occupational lifespan. The apparent primary function was to serve as a workspace for the Shaker brothers at the North Family Lot, but it also served to house some of the male population as well. Archaeological evidence of craft production in the cellar indicates tin working, haberdashery, stone working, and possibly medicinal herb preparation. Numerous artifacts were found that related to craft production by Shakers, including a probable hat form made of copper, some bone pottery tools, bone "blanks" that were in the process of being worked into scales for utensil handles, remains of brushes, wooden tubs and casks, stoneware and glass containers, and possible stone-working tools.

How the Young Believers and Gathering Order specifically used the Brothers' Shop during their tenure is not well documented, although a reference dating to the Second Family occupation was found that mentions the former location of the wagon shop as being in the basement of the Brothers' Shop (Union Village Diarist 1836–1857:438). A wagon part found in the cellar helps to corroborate this function. Other Young Believers/Gathering Order crafts that could have taken place in the Brothers' Shop include window blind construction, shoe making, and tailoring, but neither archival nor archaeological evidence confirms these activities at the Brothers' Shop.

Craft functions for the Brothers' Shop are better documented after the Second Family took up residence at the North Family Lot. The high concentration of items related to the pottery in the southern half of the cellar, including vessel wasters, sagger fragments, and possible bone pottery tools, suggests that the potters were briefly using the south room in the Brothers' Shop as a temporary workspace while the addition was being put on the Smith Shop (the Pottery/Broom Shop building) to convert it into the pottery. The North Family Lot office was moved to the northwest room on the second floor in early 1840, and soon after, the southern room of the cellar was divided into two smaller rooms. James Sooker occupied the southwest cellar room in June 1840, for use as the shoe shop. The southeast room on the second floor was converted to a dormitory for the North Family Lot boys in 1842. The North Family Lot tailor moved to the cellar in 1847, and the sisters were raising silkworms there in 1848. If the shoe shop was still active in 1847 and 1848, that means that the likely location of the tailor was the southeast room, and the silkworms were raised in the north room. The silkworm concern only lasted until about 1852, when the silk thread the Sisters were producing was found to be incompatible with the newer sewing machines. Other activities at the Brothers' Shop probably included packing and shipping goods, as indicated by the stencils and stamp.

Evidence for post-1850s activities in the Brothers' Shop is scarce. The function of the shop may have shifted towards a more primary use as administrative and housing, with craft activities dwindling to those that could be performed by single craftsmen.

The Pottery/Broom Shop

This building was originally constructed as a one-story brick smith shop in 1826. It was converted to a pottery shop in 1836 and then to a broom shop in 1852. The 1836 and 1852 functional conversions also included physical additions to this building.

Description

There are no written descriptions of the shop in its original form, other than its dimensions of 25 feet by 36 feet. It was a brick shop, built as a side-gabled, one-story, brick building—we know it was originally one story because diary accounts mention the addition of a second story in 1852 as part of the building's conversion to a broom shop. The building is represented on the 1829 *Map of Union Village* and the 1835 Kendall reproduction of the 1834 Youngs map, but the depictions of buildings on these maps are of questionable accuracy and may not reflect the actual features of the building at that time.

A ca. 1920 postcard of a building labeled as the "Former broom shop" is a photograph of this building (Figure 57), and it shows a side-gabled, two-story brick building with a low-pitched roof. Although partially obscured by a tree, seven windowed bays and a central wood door with a transom are visible on the long axis of the building. The short axis has two bays, with two windows on each of the full floors and two windows on the gabled attic level. The roof has a modest overhang, and the sills appear to be composed of brick. A small plaque visible on the short end of the building may have contained the construction date for the broom shop addition.

Figure 57. Broom Shop, postcard photo ca. 1915
Image courtesy of Otterbein Homes Archive

The 1852 broom shop addition is indicated by the contrasting shade of the bricks between the first and second story in the photograph. However, the building shows no similar contrast between the original 1826 structure and the 1836 addition associated with the pottery, probably because the bricks used in the 1836 addition were made at Union Village, whereas the bricks for the 1852 renovation were obtained from an outside source that presumably used a different clay source for their manufacture. Admittedly, the tree in the foreground of the photograph obscures the point of the building where the 1826 shop and the 1836 addition meet, discouraging any comparison of the north and south portions of the building.

The visible examples of original windows in the photo appear to be twelve-over-eight, double-hung types with wood sashes. In the photo, most of the first-story windows have been boarded up or shuttered, and the side windows at the attic level appear to have been removed or smashed out. The second-story windows on the short axis of the building also appear to be in poor condition. The area around the building is overgrown. All of these features indicate that the building was vacant at the time of the photograph and may have been so for a long time before that.

Interestingly, this shop does not feature a symmetrical façade, unlike most other Shaker buildings. With the doorway as the building center, the building has four windows in the northern half of the western elevation and three in the southern half. The three bays of the southern half match the depiction of the shop on the 1835 Kendall reproduction of the 1834 Youngs map. Why the Shakers built an asymmetrical façade for the pottery shop is unknown.

History

David Miller referred to the construction of a 25-foot by 36-foot smith shop at the North Family Lot in 1826 (Miller 1835:371–372). The building shows up south of the Brothers' Shop on the 1829 *Map of Union Village*. This map shows the building with the same configuration as the Brothers' Shop, with central entrance and two stories with three bays on the front of the building and two bays on the side. However, this representation is inaccurate. Diary accounts clearly indicate that the original building was one story tall. The configuration represented on the 1829 map appears to be a conventional representation of a typical shop building rather than anything that was accurately observed. The building is labeled on the 1829 map as the Smith Shop. An anonymous Shaker indicated in an 1829 letter to Shaker Elder Matthew Houston that the North Family Lot blacksmith shop had been closed after two blacksmiths eloped and a third went insane (Union Village Correspondent 1829:406–407). Blacksmithing at the North Family Lot seems to have lasted less than three years.

The smith shop also appears on the 1835 Kendall reproduction of the 1834 Youngs map of the North Family Lot. The shop is shown on this map as a one-story shop with three bays on the front that consist of: one central door and two windows, two bays on the side elevation, and a central chimney on the side-gabled roof. This depiction matches the physical evidence of the excavations and the historical photograph.

The function of the building changed when the Second Family arrived at the North Family Lot in 1836. Immediately after their arrival, the building was converted for use as a pottery

shop. Some idea of the likely character of the North Family Lot pottery facilities can be gained by looking at the pottery shop facilities at the West Brick House as depicted on the 1835 Kendall reproduction of the 1834 Youngs map. The 1835 reproduction map of the West Brick House Lot show a large pottery shop building and a separate kiln building with attached open sheds for air-drying pottery before it was fired. A similar setup likely was constructed for the new pottery at the North Family Lot, which would have required a considerable amount of labor, even if all the kiln buildings and materials were simply transported from the West Brick Lot instead of constructing them new. For a more detailed discussion of the pottery layout, see Volume 4 of this monograph series on the ceramic industries of Union Village.

On the topic of converting the North Family Lot's smith shop to a pottery, Shaker diarists state that construction of the potters' sheds was underway on April 25, 1836. By May 21, James McNemar reported that a 45-foot addition had been constructed on the smith shop at the North Family Lot, and the facility was to be fitted up as a pottery shop, with the overall length of the building at 80 feet (McNemar 1835:303). The roof of the potters' shed was shingled in June 1836, and construction of a kiln was completed on August 22, 1836 (Union Village Diarist 1836–1857:369). However, archaeological evidence suggests that the kiln may have been in use before its recorded completion date, as the builders' trenches for the addition's foundation were filled with waster sherds from the pottery. Second Family records indicate that tobacco pipe bowls, drain tiles, sugar crocks, and other pottery wares were made here.

The pottery shop was converted to a broom shop in 1852. A North Lot Family diarist reported that the old pottery sheds were removed on August 20, 1852, and that bricks for construction work at the building were drawn from the village of Red Lion (located north of Union Village) on the same day (Union Village Diarist 1836–1856:490). It is interesting to note that the bricks were not made at Union Village as they were for earlier buildings, indicating that the pottery was not the only ceramic industry at Union Village that had been in decline.

A diary entry on October 8, 1852, reports that the roof was taken off of the former pottery shop in order to add another story, and that on October 28, Stephen Easton started for Cincinnati to obtain covering material for the broom shop (Union Village Diarist 1836–1857:490). On November 9, the same diarist reported that they began papering the broom shop for cold tar, and on November 10, began tarring and graveling the broom shop in the new manner of covering, with tarring complete by November 12. The History of Principal Events at Union Village seems to record this instance of roofing, but erroneously dates it to September 17, 1852. The text states that:

> On the 17th of September the Second Family raised a new shop and put on it a flat roof and covering of tar and sand for an experiment. But it seems not to have given satisfaction, and it was removed in the process of time and was never repeated in the society (Union Village Diarist 1836–1857:428).

On November 20, the diary reported that the shop was far enough along to allow broom making to resume, even though the building was not completely finished. Flooring of the broom shop began on December 17. A reference to plastering of the broom shop appears in

the same diary in the entry for June 2–9, 1853. On December 5, 1856, the school began in the evenings with boys in the upper part of the broom shop, and on December 8, "the boys" and Dennison arranged for sizing broomcorn in the north end of the shop (Union Village Diarist 1836–1857:531).

The shop is not mentioned again in any later entries in the journals we examined for this study. The Shakers likely left the building vacant after broom manufacturing was abandoned at the North Family Lot sometime after 1886. Broom production for the North Lot Family appears in federal industrial census data from 1850, 1860, and 1880. Brooms continued to be made by the Center Family as late as 1886, and Amy Slater referred to a broomcorn harvest as late as 1890 (Slater 1845–1890). Slater also mentions only nine family members present at a worship meeting in 1890, suggesting the population at the North Family Lot was low by this time. Federal census data for 1890 was destroyed, preventing any identification of North Family Lot members or population at this time in the history of Union Village. Given the declining population and advanced age of most of the Shakers at the North Family Lot by 1880, it seems likely that broom production probably ceased in this building by the early 1890s at the latest.

After Otterbein Homes took over the Union Village in 1912, they developed several proposals to convert the Pottery/Broom Shop into a hospital or annex for the Good Samaritan Home facility for the infirm at the North Family Lot. These plans were proposed several times between 1919 and 1924 but were always abandoned because of insufficient funds. A 1940 account indicates that two old brick buildings were demolished by Otterbein in the Good Samaritan facility, which probably included the Pottery/Broom Shop (Aument 2005).

Geophysical Signature

The geophysical data for this structure indicated a stone and brick foundation with no cellar present. A line of piers appeared to be present running the center long axis of the building in the resistivity data, which also identified two parallel interior walls that correspond to the central hall of the structure. The structure appears different in the two sets of resistivity data, as more detail is evident in the 50-cm-deep data set, whereas only the northern foundation walls show up in the 100-cm-deep data set. No building outline at all was evident in the magnetometry data, which simply indicated a scatter of magnetic anomalies across the location of the building. The geophysical data actually matches quite well with the archival documentation of this structure. This building was expanded in 1836 to accommodate the pottery, and the foundation for the addition corresponds to the foundation observable in the 100-cm-deep data set.

There are details of the building construction that were documented during excavation that were not apparent in the geophysical data. For example, the line of piers in the 50-cm-deep resistivity data was in fact a shallow brick interior foundation wall that ran the length of the foundation. Another feature of the structure that was not apparent in the geophysical data was a small cellar excavated into the southeast corner of the foundation. This cellar may have been overlooked because, unlike the other cellars on the site, it had brick-lined walls with no stonework at all. The fill of the cellar was mostly dirt with some brick, whereas the other

cellars had nearly solid brick fill. In hindsight, the thin walls of the cellar can be determined in the geophysical data.

Results of Excavations

The building foundation was initially excavated by hand, using nine excavation units to expose structural details of the west foundation wall (Figure 58). In the June 2005 fieldwork session, archaeologists removed surface soil over selected parts of the foundation outside of the project right-of-way, using a Gradall excavator to expose part of the exterior face of the south wall while a fiber optic line was installed.

The purpose of the units excavated at the Pottery/Broom Shop was to expose the small portion of the foundation thought to be within the project area and to recover any evidence for the activities that were associated with this building. The goals of excavation included determining if the archival documentation for the renovation of the blacksmith's shop into a pottery building referred specifically to this structure, and if so, identifying which part of the building was the original structure and which was the addition.

The June 2005 excavations were required because a subsurface fiber optic line was relocated to run through unexcavated portions of the site, including the location of the Pottery/Broom Shop. To accommodate the needs of the company installing the fiber optic cable, archaeologists from HDC and ODOT used a Gradall excavator to dig a trench along the center long axis of the building and to expose portions of the foundation not explored by the units. This trench was approximately four feet deep, and revealed an unsuspected cellar in the southeast corner of the structure. To preserve the integrity of the structural remains of the Pottery/Broom Shop, the archaeologists first used the Gradall to expose elements of the structure on the surface, then excavated the trench in sections to avoid cutting through any foundations that were perpendicular to the long axis of the structure. Then, the archaeologists excavated tunnels under the perpendicular foundations for the fiber optic line to thread through and connect with the lines already in place outside of the structure (Figure 59).

The tunnels allowed the exposed foundations to remain in place. Elements of the structure that were exposed by the Gradall include a central foundation placed on the long axis of the structure, a post support built into the central foundation, and a brick-lined cellar. The surface area of the cellar outline was hand excavated to provide information on its construction and relation to the main foundation of the structure. The eastern junctions of the main foundation to the interior foundations that were placed perpendicular to the long axis of the building were also exposed by hand to see if they were similar to the junctions on the west side of the building. After the fiber optic line was installed, the exposed portions of the structure were reburied.

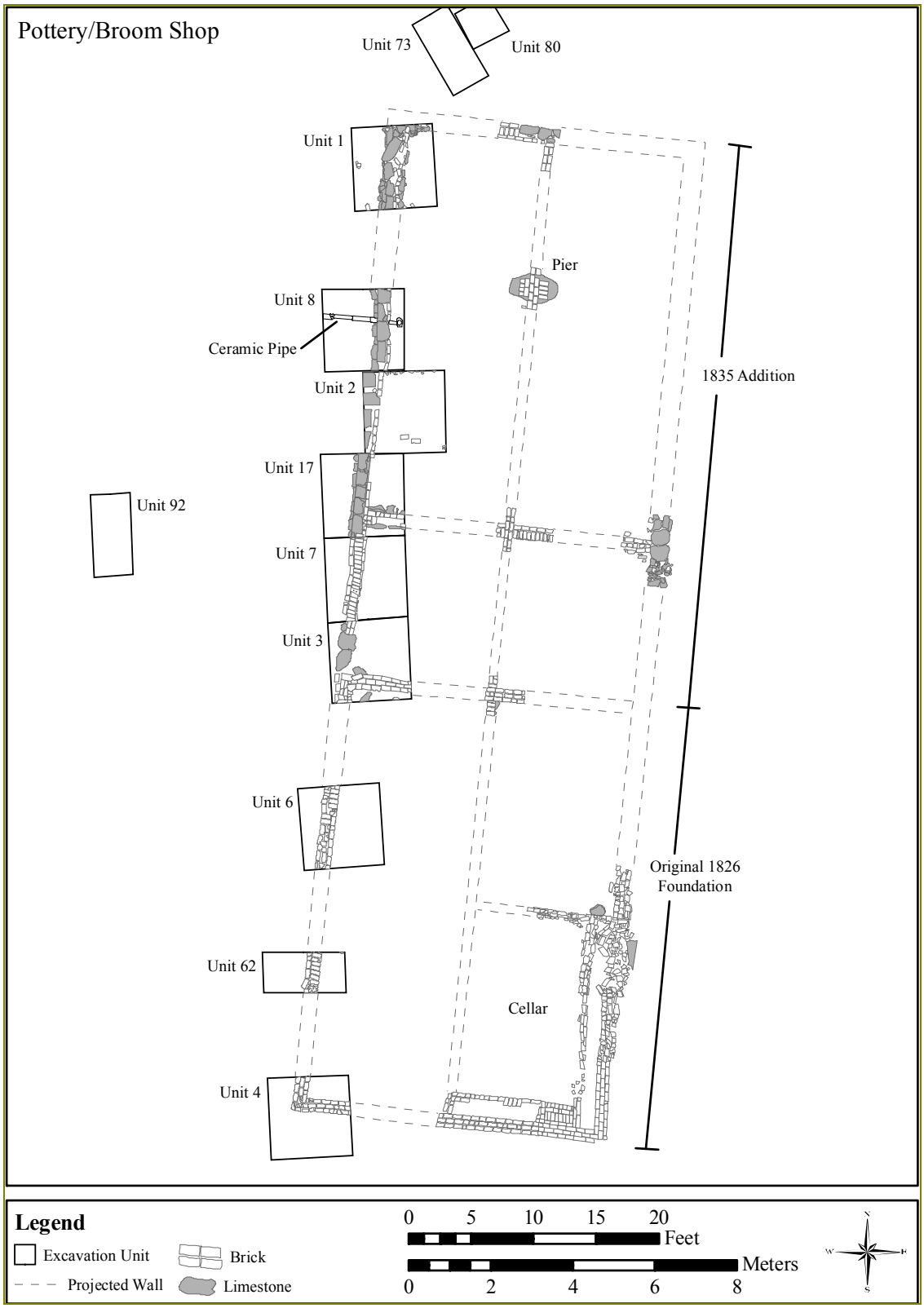


Figure 58. Pottery/Broom Shop plan view, as excavated

Figure 59. Pottery/Broom Shop, southwest corner of original 1826 smith shop brick foundation, with June 2005 fiber optic tunnel

Summary

The Pottery/Broom Shop began its existence as a small one-story brick shop that housed the blacksmith shop for the North Family Lot and was known as the Smith Shop. The original foundation was laid in 1826 and was made of brick (Figure 59). The foundations were laid into small builders' trenches. Unlike the other brick buildings built about the same time, the Smith Shop did not have stone foundations. The building plan measured 25 feet by 36 feet.

The Pottery/Broom Shop building held three primary functions over its occupational history: blacksmithing, pottery production, and broom manufacture. The names the Shakers assigned to the building changed with the primary function. The shop was constructed in 1826 as a blacksmith shop and was known as the Smith Shop. Some of the blacksmithing activities that took place at the Smith Shop included repairing tools and manufacturing nails, and may have included making some of the wrought iron architectural elements of the North Family Lot buildings, such as window shutter latches.

The shop may have been vacant from 1829 to 1836, when the potters with the Second Family occupied it and began renovating the building into a pottery shop. Gaps in the documentary record preclude any knowledge of what function, if any, the building served in the seven years between the cessation of blacksmithing and the arrival of the potters. The building served as the pottery shop from 1836 to 1852, when it was converted to broom manufacture. Pottery tasks associated with this building likely include throwing pots, applying glaze, and packing finished pottery to transport to the market. Diary entries indicate that at least two or

more sheds were erected for other pottery-related activities, one of which was specifically associated with grinding materials for glaze mixing. The other may have been used for temporary storage of materials and/or green ware before firing, or it may have been used for mixing clay.

The kiln was also in a separate location from the pottery shop. No evidence for the locations of these other pottery-related buildings was found during either archaeological or archival research; however, discussions with Greg Shooner, a local redware potter and student of southwestern Ohio's historical redware industry, revealed that a low circular mound is located in the woodlot immediately south of the North Family Lot. This mound may be a good candidate for the kiln location (Greg Shooner, personal communication 2006).

The addition of a second floor to the building when it was converted from a pottery to a broom shop gives us a clue about the intended scale of production. If the structural analysis of the archaeological features is correct, the Pottery/Broom Shop had at least four rooms, and perhaps as many as six rooms, that were intended to be used for manufacturing brooms. The actual scale of production in relation to use of the shop is not well understood, but a diary entry from 1856 notes that boys at the North Family Lot attended school in the evenings on the second floor, and broomcorn bristles were sized in the north end of the shop (Union Village Diarist 1836–1857:531). Diary entries indicate that a likely date range for broom manufacture at the North Family Lot is 1852 through ca. 1880. Population decline at the North Family Lot probably led to the decline and cessation of broom manufacture. After broom making ended in the 1880s, the use of the building is uncertain, and it may have simply stood vacant until it was demolished in the mid-twentieth century.

We found evidence during our excavations of the various renovations this building underwent as it changed functions. The original brick foundation of the Smith Shop was still intact, but renovations to convert the structure into a pottery involved removing all interior structures related to blacksmithing, such as the forge, anvil base, troughs, and fuel bins. The 1835 addition for the pottery was evident by a 45-foot-long stone foundation tacked onto the brick foundation (Figure 60). In a frugal manner, the former north foundation of the Smith Shop became an interior support wall, with another interior support wall built to the north. These walls correspond to the central hall of the building.

An interior support foundation of brick and stone was built along the long axis of the building, with a post base present in the center of the north half (the foundation is visible in Figure 59). A small cellar was excavated into the southeast corner of the building and had brick-lined walls (Figure 61). The cellar was likely a component of the pottery, used for storing raw clay. A possible brick stair support for a cellar entrance was also present in the southeast corner, and a possible chimney base was located on the south foundation wall, inside the cellar and west of the stair support.

The Shakers installed a subfloor drain pipe near the northwest corner, as part of the renovations for the pottery. The drain pipe consisted of a catch basin set upright and attached to hand-thrown drain pipes that led to the west in a trench that underlay the foundation. This drain system may have been specifically designed to handle wastewater from the pottery production process, although there is little evidence to support this speculation. The drain

may have been only present on the first floor; a whiteware bowl set over the opening for the catch basin expediently capped the pipe. When the bowl was removed, exposing the pipe, stagnant water was present in the catch basin. Strangely, a modern paper bottle label was in the catch basin, which perhaps indicates that until recently, the drain was open to the road ditch, and the label may have washed up into the catch basin during a heavy rain.

Figure 60. Pottery/Broom Shop western foundation, as exposed through unit excavations, facing south

Figure 61. Pottery/Broom Shop cellar, June 2005 excavations

The 1852 renovation of the pottery into the broom shop involved adding a second story to the structure. The only archaeological evidence for the 1852 renovations that could be identified during excavations is the post base constructed on the interior foundation, which would have supported the second floor. We know from diary entries that the Shakers used bricks purchased from a brickyard in Red Lion, north of Union Village, for the second-story addition, instead of making their own bricks as they had in previous years. The Shakers attempted to use a new type of roof, flat with gravel and tar roofing; for unstated reasons, they found this roof unusable and instead placed an end-gabled roof on top of the structure.

The final form of the building probably included a stairway in the central hall leading up to the second floor. Each floor likely contained large northern and southern rooms. The cellar may have been accessible only from the exterior of the shop, although a trapdoor could have been present in the floor of the southern room. The eastern wall of the cellar may have been a load-bearing wall, as it is much thicker than the simple single-brick lining on the other walls of the cellar; if so, then the southern half of the building may have contained two rooms on each floor, divided by the load-bearing wall.

The Broom Shop operated for a number of years, but the building was empty and decaying by the time Otterbein Homes acquired the North Family Lot. The structure was probably demolished sometime around 1940, according to Otterbein Homes records. Demolition probably included some salvaging of materials, with the shop location graded over after the superstructure was torn down. Brick fragments were present as a solid layer just below surface not only on top of the structure location but also spread out around the area.

Kiln and Pottery Sheds

We were not able to determine the location of the kiln and the pottery sheds associated with the pottery, either through documentary research or fieldwork at the site. The kiln and sheds are most likely located in the woodlot to the south of the open field surveyed in 2005. The kiln was likely a small bottle kiln, similar to others operated in the mid-nineteenth century in the Midwest. The pottery sheds were likely small frame buildings, with one or more open sides. The sheds were used for air-drying green pottery, and one housed the glaze mill. The exact number of sheds is unknown, but diary references to the sheds consistently refer to them in the plural, so at least two were present.

Sisters' Shop

This shop is associated with the Second Family occupation of the North Family Lot, and it appears to have been the last major construction project undertaken at Union Village. The building was likely constructed as a shop for carding and other industries carried out by women. The shop was built while the community's wool production business was still operational, and the population of the Second Family was still around 80 to 100 members.

Description

This building was constructed in 1854 as a three-story shop (Figure 62). A HABS delineation of the building was completed in 1937 (Figure 63) and gives ample detail on the construction and form, although it erroneously identifies the structure as the South Family house, with a mistaken location as well. The HABS drawing shows a three-story, brick building with six bays. The main elevation had a side-gabled roof, a central entrance, and six bays of nine-pane wood windows (see page 106 for a discussion of the change from the 20-light windows shown in Figure 62). The door had eight panels, with a four-light transom above. There was a chimney on each gable end of the roof, and a small plaque on the main elevation contained the year of construction. The foundation was composed of Dayton limestone in horizontal courses, and the steps were constructed of the same stone. Sills and lintels were sandstone. The building had log gutters that were lined with lead. A basement with an earthen floor was accessed by a set of steps with a bulkhead door on the south elevation of the building. The roof had slate shingles with a lead ridge cap.

The interior had a staircase in the middle of the building, slightly off-center, and each story had two large rooms. Floors were wood. In addition to the brick load-bearing walls, support for the roof was provided by walnut posts and pilasters. Wood trim appears to have been minimal, although some rooms on the first and second floor had chair rails, and each room had the typical Shaker peg rail that was used to hang tools, chairs, clothing, furniture, or other items.

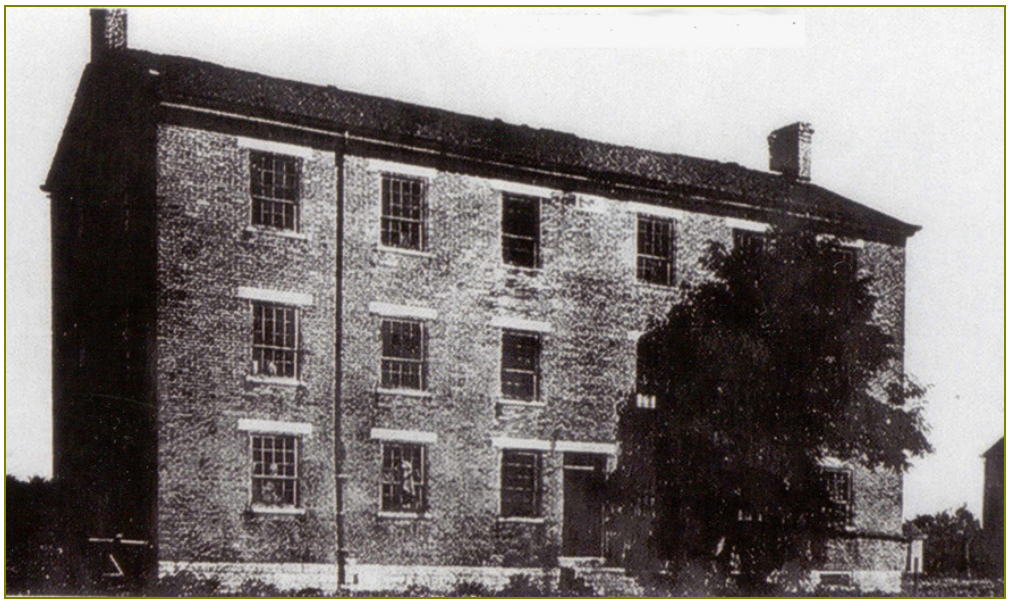


Figure 62. 1916 photograph of the Sisters' Shop
Image courtesy of Otterbein Homes Museum & Library

Figure 63. 1937 HABS delineation of Sisters' Shop, longitudinal section

History

Shaker sisters handled fiber-based production activities like spinning, carding, weaving, and dyeing, and the years preceding the construction of the Sisters' Shop saw a large amount of fiber craft activity among the sisters of the North Family Lot. The diary and work record of North Lot Family elder Amy Slater, dating to 1845–1890, describes a variety of fiber-based craft activities performed by her and other sisters at the North Family Lot (Slater 1845–1890), including processing wool and flax, spinning yarn, dyeing fabric, making clothes, weaving rugs, and growing silkworms. Given the large amount of space devoted by Slater to fiber craft in her diary, these activities must have been very prevalent at the North Family Lot in the years before the Sisters' Shop was built. Although no correspondence was found specifying why the Sisters' Shop building was constructed, it seems likely that the large amount of fiber crafts activity at the North Family Lot required additional space. The sister's fiber crafts activities provided clothing and rugs for the Union Village community, as well as items like cloth, rugs, and piece goods (gloves, mittens, stockings) to sell to the outside world. In addition, palm-leaf bonnets were a popular craft item produced at the North Family Lot, with production beginning soon after the Second Family became established at the lot in 1837.

Construction on the building began in the summer of 1854. Diarists referred extensively to the Sisters' Shop during its construction. The building was constructed, to a large degree, from brick recycled from the Square House, a Union Village family communal dwelling that the Shakers vacated during the 1836 reorganization of the village and then briefly rented to a non-Shaker miller and his family (Sharp 1880:203). The brick shop at the Square Family lot had been torn down for its brick as well (Miller 1848–1854:258). On July 26, 1854, the Shakers removed a drying house to make way for the new Sisters' Shop. On August 28, 1854, Stephen Easton and an unidentified elder Shaker went to Cincinnati to arrange for roofing slate for the Sisters' Shop (Union Village Diarist 1836–1857:508). The same diarist indicates that the number of workers at the shop construction site was increased to six. The Shakers obtained slate for the roof from Amanda, Ohio, on September 18, 1854, and slating of the roof began on October 23, 1854 (Union Village Diarist 1836–1857:508). The Shakers plastered the inside of the building the following spring, from March 28 to May 26, 1855. The sisters cleaned the shop on June 7, and Stephen Easton went to Lebanon, Ohio, on September 27, 1855, to obtain stoves for the shop (Union Village Diarist 1836–1857:518).

We did not locate any further Shaker accounts of this shop. The shop was referred to during construction accounts only as the Sisters' Shop or Sisters' Brick Shop, and the diarists did not specify the crafts or industries to be carried out in the building. Considering the typical industries that involved Shaker sisters, it is likely that the shop's function involved textile-related activities: wool carding, wool and flax processing and spinning, cloth cutting, weaving, and other similar activities. It is also likely that the Shaker sisters practiced various craft industries in this shop, such as palm bonnet weaving and carpet making. In 1861, knitting machines were introduced to Union Village, and the large Sisters' Shop would be a likely candidate for the location of one of these machines. By 1869, the Shaker woolen industry was diminished by the closing of the Center Family's woolen factory. The drop in demand for woolen goods after the end of the Civil War likely had a negative effect on the

profitability of the Shaker woolen concern, especially as they competed with worldly factories that had ramped up production to fill wartime woolen requirements.

Large, three-story, side-gabled shop buildings were also constructed at New Lebanon and Watervliet, New York, and the Sisters' Shop at Union Village is very similar in overall configuration to these buildings. The Union Village North Lot Family Sisters' Shop is similar in exterior configuration to the Church Family Sisters' Workshop at Watervliet (Figure 64); both buildings featured a three-story, side-gabled format with a low-pitched roof; six window bays on the main elevation with a central entrance not aligned to any of the windows; and chimneys at each gabled end of the buildings.

Figure 64. Ca. 1837 Sisters' Shop at Center Family, Watervliet, New York
(Schiffer 1979:20)

While the buildings are similar in overall format, there are enough differences to suggest that they were not developed from a single standard set of plans and elevations. The roof pitch of the Watervliet building is higher, and window spacing for the buildings is different. The Union Village building is executed in brick, while the Watervliet building is constructed from massive blocks of stone. The Union Village building is also more conservative in terms of architectural style; it has low, broad proportions and wide, short windows that seem to hearken back to early New England Vernacular design, or possibly Ohio pioneer architecture, and it appears to stylistically match older buildings at Union Village. The longer, more narrow windows of the Watervliet shop building suggest some familiarity with high-style Federal design, or Early Victorian styles like Greek Revival or Italianate. The Watervliet Sisters' Shop also has a more elaborate molded cornice with returns, as opposed to the plain, flat cornice of the Union Village shop, again suggesting more influence of Victorian

architectural trends at Watervliet. Even the ca. 1844 Center Family House at Union Village seems to show more Greek Revival/Italianate influence than the Sisters' Shop at the North Family Lot.

A second Shaker shop building was identified that is similar in appearance and format to the Sisters' Shop: the Church Family Machine Shop at Enfield, New Hampshire, dating to 1849 (Figure 65). In addition to reflecting older New England domestic vernacular styles, the large, squat windows of these buildings might also reflect an East Coast industrial vernacular design, in which functional mill buildings were constructed with maximum window space for lighting.

Figure 65. Church Family Machine Shop at Enfield, New Hampshire (1849)
(Schiffer 1979:136)

However, the Union Village building still appears to have retained a sense of horizontal proportion that seems strikingly more of an early nineteenth-century vernacular form, even when compared to the Enfield Machine Shop. The reason for this is not clear but may have reflected conservative architectural taste at Union Village, the use of a very old set of plans to build the structure, or some desire on the part of North Family Lot leaders to blend the Sisters' Shop with the early major buildings of the lot that had been constructed ca. 1823–1827. Construction may have also been cheaper and quicker with fewer and smaller window openings, although the resulting loss of natural light would seem undesirable for a shop building. In constructing communal houses and other buildings, Union Village designers seem to have adhered to a conservative early nineteenth-century vernacular aesthetic long after it was abandoned by the outside world and even by many other Shaker communities.

The Sisters' Shop was the last major North Family Lot construction project. The building construction occurred during a relatively prosperous time in the history of the North Lot Family, in which many of the family industries were still viable, and population was still fairly high. However, the decline of industry at Union Village began a rapid acceleration about seven years after the construction of this building. Nordhoff indicated that wool yarn production at Union Village had ceased by the time of his 1874 visit to the community (Nordhoff 1875:201). It is likely that wool production was discontinued due to the aging of the Union Village community and the inability to compete with larger, more mechanized woolen mills in the surrounding area.

The HABS documents for the building suggest some changes were made to the structure, possibly during the Otterbein Homes era (Historic American Buildings Survey 1937). The earliest historical photo of the building shows 20-light windows with four columns and five rows of panes, which were almost certainly the original windows (see Figure 62 on page 102). By the time of the 1937 HABS recordation, these windows had been replaced by nine-pane double hung windows (Figure 66), possibly by the Otterbein Homes organization during their use of the building. Otterbein records indicate that proposals were floated from 1919 to 1924 to renovate this building as an annex for the Good Samaritan Home, a facility for the aged and infirm that was housed in the nearby North Family Lot communal house. However, Otterbein records indicate that these plans were repeatedly delayed due to lack of funds. Archaeological evidence strongly supports an active use of the building in the 1920s–1930s, with numerous electricity-related artifacts present in the cellar, along with a possible water heater base. Otterbein records from 1940 indicate that two old buildings were demolished at Good Samaritan at this time, and one of these may have been the Sisters' Shop (Aument 2005:1–5).

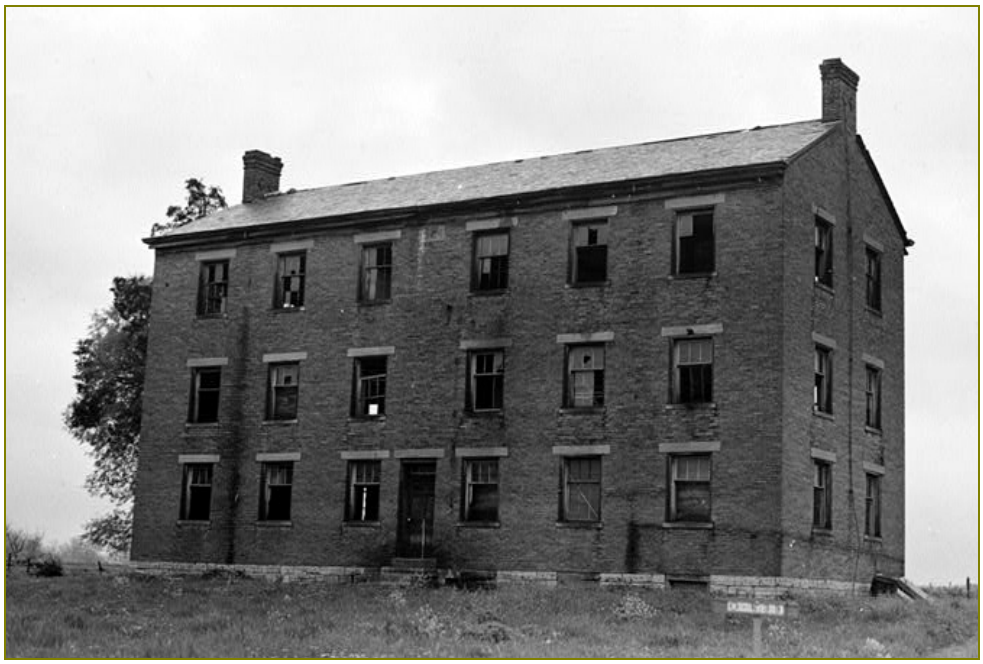


Figure 66. Sisters' Shop 1937 HABS photograph
(Image cropped to show detail)

Geophysical Signature

The geophysical data for this structure indicated that the building seemed divided, with the southern half possessing a basement or cellar with an entrance on the southeast corner. It also indicated that there was not a substantial amount of brick and stone present in the northern half. The northern half seemed to have piers or foundation remnants, but not an intact foundation. Excavation revealed that the building, like the Brothers' Shop, was extensively salvaged, with only small portions of foundation remaining in the locations of the supposed piers. The cellar was filled with brick rubble, but the remainder of the structure location had little rubble present, mainly a thin layer over the structure and concentrations in the wall trenches where the foundation had been removed.

Results of Excavations

The units excavated on the Sisters' Shop revealed a lack of integrity of the physical remains of the structure, likely due to scavenging of building materials when the building was demolished (Figure 67, Figure 68). Foundation remnants associated with the Sisters' Shop were located in only nine out of 16 excavation units, although the former location of the foundation walls could be determined through the presence of shallow, rubble-filled trenches where the foundation stones had been removed. A pair of foundation remnants that were smaller than the foundation for the Sisters' Shop was found in the units placed near the northwest corner of the Sisters' Shop. These smaller foundations are remnants of either the Wagon Shed or the dry house that was once present in the same general location as the Sisters' Shop. The cellar was filled with rubble from the demolished building, along with farm-related junk, including a cast-iron tractor seat and a steel fuel drum. A shallow dirt floor was present under the rubble fill in the cellar, ranging in thickness from one to two inches above the subsoil.

The portion of the dirt floor at the northwest corner of the cellar contained three thin but distinct layers. The top layer of the floor was approximately half an inch thick and may represent a twentieth-century accumulation. The middle layer may have been deposited during Shaker use of the building, and the bottom layer, which contained stone and brick fragments, may be related to deposition during construction of the building. A stack of slate shingles was found under the rubble in a unit placed roughly where the building entrance would have been located. The stack may be unused building material from the construction of the building. The stack of shingles was located inside the foundation and may have been left there accidentally by the hired hands that erected the building. The soil that would have been under the superstructure when the shop was standing did not seem to have been used as a crawlspace. Artifact analysis suggests that the soil represents the topsoil present before the Sisters' Shop was constructed in 1854.

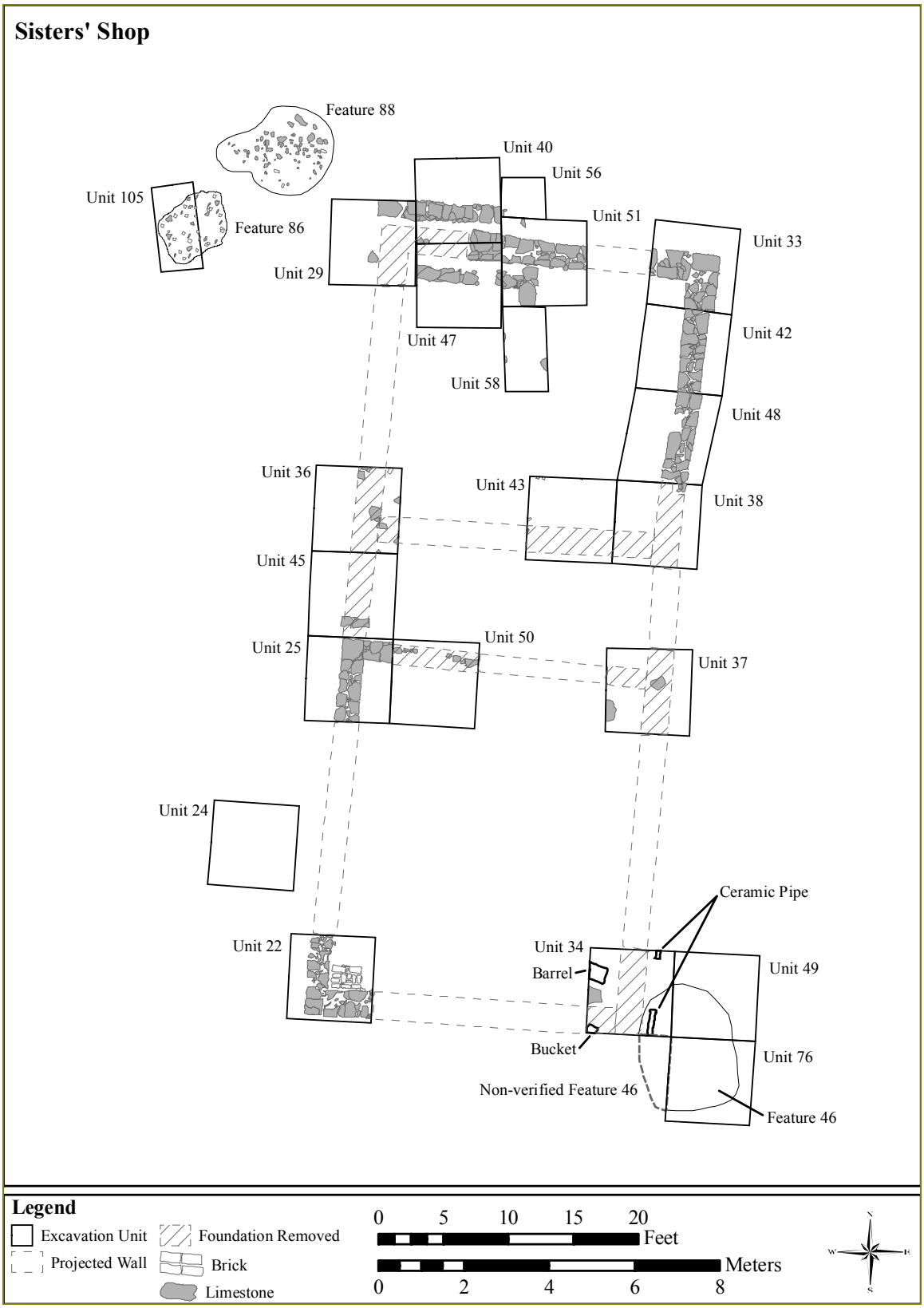


Figure 67. Excavation plan of the Sisters' Shop

Figure 68. Overview photograph of Sisters' Shop excavations, north at right of photograph
Cellar location indicated by arrow. Note the missing portions of the foundation.

Physical Description of Excavated Structure

The Sisters' Shop was built in the Federal Style prevalent at Union Village. The building had a small cellar with a dirt floor present in the southern half. As with the Brothers' Shop, the building was heavily salvaged as part of demolition, with only a portion of the foundation left in place, at the northeast corner of the building and in the western end of the cellar. A brick pad was present in the southwest corner of the cellar, likely a water heater stand; and two concrete pads were present to the east of the pad, which were possibly furnace supports. Evidence for a possible earlier structure in this location was found near the northwest corner, where the main foundation was laid between two smaller, rubble foundation remnants. Discussions with one of the gate guards across State Route 741 at ARMCO Park revealed some details about the building, as the guard recalled that the building was salvaged before it was demolished, and that he was inside this particular structure just before it came down. Large structural beams made of black walnut, and other structural elements of red oak and black cherry, were taken and apparently made into furniture. Obviously, the foundation was salvaged for its stone at this time.

Function

The Sisters' Shop was originally built in 1854 to serve as workspace for the North Family Lot sisters, who were involved in wool production and other crafts assigned to them. Very few Shaker-related artifacts were found during excavations, and certainly some of those

artifacts were deposited before the Sisters' Shop was constructed. Most of the artifacts with datable attributes relate to the use of the building as a dormitory for bachelor tenant farmers during the 1920s, including all the artifacts related to electric utility, fragments of vessels from the Wellsville China Company, and an Otterbein Homes milk bottle and Klee beverage bottle. A spoon from the National Home for Disabled Veteran Soldiers is also probably from the early twentieth-century occupation, as there are no known records of disabled Civil War veterans joining the North Family Lot. The tools found in excavations are also likely from the twentieth-century occupation.

The Green Shop

The Green Shop was a small, non-descript, frame-shop building, located just south of the Sisters' Shop and north of the Kitchen. The shop was apparently built to serve as a general purpose shop building, and it housed many different craft activities during its functional lifespan. The shop was erected in 1835, but no record exists to identify the date of its removal. It was definitely gone from the North Family Lot by 1909, as the building is clearly absent from a photograph taken that year that includes the Sisters' Shop, Wash House, Nurse Shop, and Communal House/Kitchen (see Figure 72 on page 116). The shop was encountered during the excavation of the North Family Lot and was identified as the Green Shop after closely examining the documentary record. This association is based on the structure's proximity to flagstone paths (which were associated with the Green Shop in the North Lot Family diary) and a notation that the Green Shop was located north of the kitchen.

Description

The building was not described in great detail in diary accounts, but available information indicates that in its original form, it was a two-story, timber-frame building. It was built too late to be represented on the 1829 *Map of Union Village* or to be sketched by Youngs in 1834. The building is not present on the 1917 Otterbein Homes map. No photographs of this building are known to exist. All that is known about the physical layout of the building comes from brief mentions in journals and the archaeological excavation of the structure. The exact form of this building is undetermined, but it was likely symmetrical and measured 46 feet long by 23 feet wide. The building had a sill foundation made of irregular stone cobbles, and stone pads on the north and south sides represented chimney bases, with a lightning rod base still in the soil at the south chimney location. The building had no cellar.

History

The Green Shop was raised at the North Lot on March 21, 1835 (Pigg 1824–1842:261). Sallie Sharp noted the construction of a frame shop north of the kitchen at the North Family Lot in her March 28, 1835, diary entry (Sharp 1805–1880:193). The building was constructed when the North Family Lot was still occupied by the Gathering Order and was a two-story, wood-frame structure originally used for shop and living space (Union Village Diarist 1836–1857:467; Union Village Diarist 1836–1841:332). A diary account in 1838 noted that "Timothy begins to paint the white shop. Green." (Union Village Diarist 1836–1857:378). This entry is the only one to refer to a "white shop" and is the first of many references to the

Green Shop in the North Lot Family diary. A diarist stated that the Second Family began making partitions in the second floor of the Green Shop on December 3, 1839, and that the girls were to live on the second floor of the building (Union Village Diarist 1836–1841:332). The diarist further reported that Phoebe Babbitt and Eunice Parkhurst and the girls moved into the Green Shop on January 15, 1840 (Union Village Diarist 1836–1841:332). It appears that the second-story residential component of this building and of the Brick Shop may have been an effort to segregate young children (boys and girls) from the adults living in the North Lot's main communal dwelling. The housing of girls in the building suggests that it served originally as a Sisters' Shop, since girls were usually housed in shop buildings that would not have been regularly frequented by male Shakers. This building may have been the predecessor of the Sisters' Shop that was constructed in 1854, just to the north of the Green Shop.

On October 27, 1840, fire broke out in the Green Shop, caused by a candle used by a young Shaker, Mary Song. On October 30, the same diarist reported that Mary Song was taken to her mother's house in Cincinnati, apparently expelled from Union Village because of the accident (Union Village Diarist 1836–1857:376). On May 10, 1845, the girls moved from the Green Shop to the second floor of the Wash House (Slater 1845–1890:594).

In 1852, Isaac Newton Houston moved his shoe shop out of the Green Shop to make room for "strangers," possibly the hired hands who erected the second story on the pottery to convert it to a broom shop (Union Village Diarist 1836–1857:491). The shoe shop presumably was moved from the basement of the Brothers' Shop in 1845, when Houston arrived at the North Family Lot to assume shoe-making duties. On October 12, 1854, lightning rods were installed at the Green Shop (Union Village Diarist 1836–1857:509); this mention of the Green Shop is the last one in any known Shaker records.

Geophysical Signature

This building was not identified during analysis of the geophysical data. A geophysical anomaly in the resistivity data is present in this location and corresponds to the northeast corner of the foundation, which was where the most foundation stones were still present. We can attribute the lack of a strong geophysical signature to the ephemeral nature of the foundation remnants, which amount to crude lines of limestone cobbles. The lack of foundation remnants suggests the Shakers removed and/or salvaged the building, as they were known to not only move buildings frequently but also to salvage them for usable materials, and then bury the remnants so that no one could tell a building had been present.

Results of Excavation

Spurred by curiosity about the aforementioned geophysical anomaly, we uncovered the remains of the Green Shop late in fieldwork. The sod was removed from over the foundation, following the lines of stones that remained from the foundation. Sod was not removed from the center of the structure location. Once the sod was removed, the foundation was cleaned using hand tools. One excavation unit was placed within the interior limits of the foundation near the northeast corner to locate any evidence of a cellar. As the structure was found very late in the fieldwork, no further work was performed here.

The foundation was very ephemeral, no more than a simple line of limestone cobbles, with limestone pads at the north and south ends that likely correspond to chimney bases (Figure 69, Figure 70). A base for a lightning rod was still in place at the southern chimney base. No evidence for a cellar was found during the excavations. A total of 223 artifacts were recovered from excavations of this structure. Curiously, this structure was the only one that yielded archaeological evidence of children: a porcelain doll arm, a porcelain toy teacup, and a tiny metal toy wrench. Interestingly, an entry in the North Lot Family diary recorded that the Second Family girls moved into the second floor of the Green Shop in 1840. These toys almost certainly belonged to some of the younger girls.

Figure 69. Green Shop foundation remnants facing north, with paths 1 and 7 in foreground

Function

The Green Shop was a two-story, frame shop/dwelling built in 1835. Craft activities associated with clothing production seem to be the main function for this structure: the shoe shop occupied the building sometime after 1845 until 1852, and the records indicate that thieves made off with clothing from the shop in 1850 (Union Village Diarist 1836–1857: 467). Other functions served by the building include living quarters for the North Family Lot girls and temporary housing of hired hands.

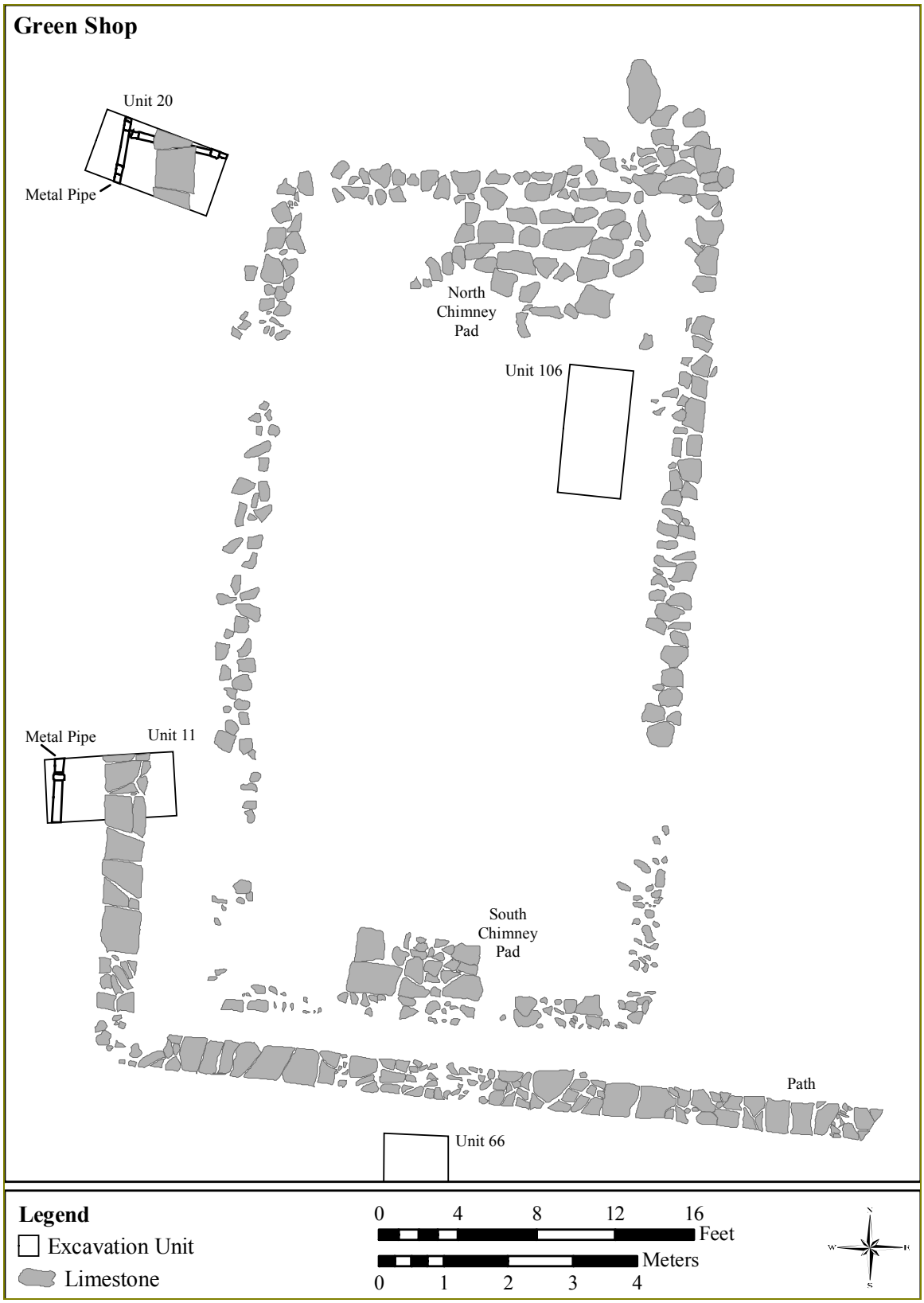


Figure 70. Green Shop foundation as excavated

Wash House

By the late 1820s, most of the large family lots at Union village had a wash house that was used to launder the clothes of the family members. Wash houses at other Shaker settlements ranged in scale from a large single-family dwelling to even larger structures, like the Center Family Wash House at Pleasant Hill, that were the size of some of the more substantial Shaker industrial buildings. At some Eastern Shaker settlements, space for the wash house was combined with industrial shop space in the same building. It is quite possible that some of the cloth dyeing that took place at the North Family Lot was carried out at the Wash House, so this structure is discussed here in "Shops and Related Buildings" instead of in "Other Structures."

The North Family Lot communal dwelling was not originally built with a wash house, which was somewhat unusual for Union Village at the time. In 1834, there were at least two wash houses at the Center Family compound, and the South, West Frame, West Brick, Square, and Grist Mill houses all had wash houses labeled on the 1835 *Map of Union Village*. The 1835 map did not depict a wash house at the East Family, but Daniel Miller noted that one was constructed there in 1833, shortly before the East Family Lot was abandoned in the community reorganization of 1836 (Miller 1835). We located only one photograph that shows an early Union Village wash house in its entirety, that of the South Family (Figure 71). The South Family wash house was a small, two-story, frame building with three bays, a side-gabled roof, and chimneys at either end, and was built in 1806 for use as the elders' house before it was converted to laundry facilities. The size of the building probably reflects a small population at the South Family.

Figure 71. Photo of South Family Wash House, ca. 1900
Image courtesy of Otterbein Homes Archive

Description

In 1836, the Shakers moved the East Family wash house to the North Family. It is not clear why the original North Family Lot physical plant did not include a wash house, although it is possible that one of the original dwelling structures was converted to a laundry after the Communal House was completed in 1823. The small size of the South Family's wash house demonstrates that a small house could easily handle laundry facilities. As the family was in debt during the period from 1828 to 1829, they may have decided to delay additional construction of domestic-related buildings until after the communal dwelling's kitchen addition was completed in 1831.

A building simply labeled "house" at the East Lot on Kendall's 1835 reproduction of Youngs' 1834 map may have been this wash house. The building as shown on the map has five frontal bays and two side bays, although this representation is schematic and may represent a generic building of this size rather than accurately depicting the actual window arrangement of the building. The building is not marked "brick" on the map, so presumably the building is wood frame. The 1917 Otterbein Homes survey map shows the Wash House, but the labeling is confusing. This map shows a large building that appears with three subdivisions, located to the east of the Sisters' Shop. The southern subdivision is labeled "2 st Fr" (two-story frame), and the northern subdivision is labeled as a "1 st. Barn" (one-story barn), with the small eastern subdivision identified as "1 st Fr" on the map. A label next to the building identifies it as a "2 st frame barn."

We identified this building on the 1917 map as the Wash House by examining archival records and photographs, which clearly indicate that the Wash House was indeed still present at the North Family Lot at the time of the 1917 survey. The contemporary photographs that shows the Wash House in place (discussed below) indicates that the building in the location of the "2 st. frame barn" on the 1917 map was in fact a frame shop building. The confusion on the map about the "barn" identification probably extends from a shed addition built onto the original Wash House building in 1836, which correlates to the "1 st barn" subdivision. The "1 st fr" subdivision is likely a frame addition that enclosed a cistern at the Wash House location. The "2 st. Fr." subdivision represents the original Wash House building.

The Wash House appears in three photographs before Otterbein Homes divided it in two around 1918. The first photograph shows the North Family Lot in 1909, and was taken from the bend in the road, facing southeast (Figure 72). This photograph shows the Communal House and Sisters' Shop in the foreground, with the roofs of the Wash House and Nurses Shop visible in the background, partly obscured by small trees in the yard space north of the Communal House.

Figure 72. View of the North Family Lot in 1909, facing southeast
From left to right: Sisters' Shop, Wash house (chimney and roof visible immediately to right of Sisters' Shop), Nurse Shop, Kitchen, and Communal House. Image courtesy of Otterbein Homes Museum & Library.

The next photograph that shows the Wash House is also the best known view of the structure (Figure 73). The photograph was taken ca. 1910 and shows the Wash House in the center of the frame, with a privy and the Nurse Shop visible to the right of the building. The shed porch attached to the Kitchen is just visible at the right edge of the picture. The Sisters' Shop is barely visible through the small orchard on the left, and the cistern can be discerned as a low circular weedy area with a large pump handle just in front of the Wash House.

The ca. 1910 photograph shows that the Wash House was a two-story frame structure with four bays of windows with six-over-six panes. The two doors visible on the west face of the building break up the otherwise symmetrical façade of the building, set very near to the left sides of the two center windows. Two brick chimneys are present on the gable ends of the building, protruding from the roof. The one-story shed addition is barely visible on the north end of the building.

Figure 73. Wash House, ca. 1910
Image courtesy of Otterbein Homes Museum & Library

The southern end of the Wash House also is visible in the background of a 1918 photograph of the front of the Communal House, which details the building's tall stone foundation and a lightning rod present on the south chimney (Figure 74).

Figure 74. Detail of 1918 photograph of Communal House showing Wash House in background
Image courtesy of Otterbein Homes Museum & Library

The Wash House appears in three more photographs, but only after the building was split in two in 1917 and moved north across the road in 1921 to serve as housing for tenant farmers:

- A ca. 1930 aerial photograph of Otterbein Homes at the Center Family location, with the North Family Lot visible in the background (shown as an enlarged detail in Figure 75)
- A ca. 1930 view of the North Family Lot taken from the middle of the road, facing southwest (Figure 76)
- The 1937 HABS photograph of the Sisters' Shop, with the Wash House in the background (Figure 77)

Figure 75. Detail of ca. 1930 aerial photograph, showing the North Family Lot; split Wash House shown in upper right corner
Image courtesy of Otterbein Homes Museum & Library

Figure 76. View of North Family Lot, facing southwest, ca. 1930
Image courtesy of Otterbein Homes Museum & Library

Figure 77. Detail of 1937 HABS photograph, showing one half of the former Wash House
Image courtesy of Otterbein Homes Museum & Library

The three photographs above suggest that only the original frame-shop portion of the Wash House was used for housing. The original structure may have been five bays by two bays in size, with the central bay removed in 1917 by the split, leaving each half of the structure as a two-bay by two-bay building. The ca. 1930 photographs shows the houses were whitewashed. By 1937, only one of the buildings constructed from the former Wash House was still standing, and it appeared dilapidated. Otterbein Homes likely demolished the last remnant of the Wash House sometime shortly after the photograph in Figure 77 was taken.

History

The Wash House was originally constructed in February 1833 at the Union Village East House Lot. The 1835 map of the East House Lot shows a second building in addition to the communal dwelling; it is simply labeled as "house" and may have been the Wash House (Figure 15 on page 22). This building was located to the east of the communal dwelling. It is represented on the map as a two-story, side-gabled building with chimneys at each gable end. The main elevation has a central entrance and is five bays wide; the side elevations appear to be two bays wide. Another unlabeled building at this lot has a similar configuration and may have been the Wash House; this unlabeled building sat northeast of the communal dwelling.

The Wash House was relocated to the North Family Lot in 1836. The relocation appears to have been a result of the Second Family's move to the North Family Lot, and part of the somewhat controversial dispersal of East House Family buildings after the dissolution of that family by Shaker leadership in January 1836, as part of an overall reorganization of the village (Union Village Diarist 1836–1857:187). On August 26, 1836 a diarist reported that hired hands were sent to the East House to tear down the Wash House chimney in preparation for relocating the building (Union Village Diarist 1836–1857:369). In her diary, Sallie Sharp reported that a large frame shop and a two-story wash house measuring 30 feet by 40 feet was moved on September 9, 1836, on trunk wheels drawn by 24 oxen and 2 span horses (Sharp 1880:198). On November 16, 1836, plastering began at the Wash House, with a wash mill shed built on November 26, using roofing from the old sawmill. The actual wash mill machine was moved from the old East House to the new shed on December 6, 1836 (Union Village Diarist 1836–1857:370).

In January 1837, a diarist wrote that the Wash House chimney had caught fire (Union Village Diarist 1836–1857:370). A new cistern was dug at the Wash House in August 1839 by hired hands, and a new pump was installed in this cistern on November 26, 1839 (Union Village Diarist 1836–1857:373). A well was dug at the Wash House between October 20 and 25, 1848. After digging was initially completed, the Shakers attempted to make the well deeper, but the well filled with water before they could excavate the shaft much further (Union Village Diarist 1836–1857:444). Children were moved into the second story of the Wash House in 1845 (Slater 1845–1890:594). No later discussion of the Wash House at the North Family Lot was found in Union Village diary accounts examined for this study.

Otterbein Homes records indicate that the North Family Lot laundry was cut into two pieces in 1917 and each half of the building was used as the core for two new wood-frame, tenant-farmworker houses that were across the road from the lot (Aument 2005:2). These worker houses were removed by 1940.

Geophysical Signature

No definite trace of the Wash House was detected during the geophysical survey. An area of vague disturbance is present in the general location of the Wash House, which may be associated with the removal of the structure and subsequent covering of the former location with sod or earth. The location of the Wash House was outside the project limits and was not excavated.

PART 3: Agricultural Buildings

Part 3 discusses the Grain Barn, Ox Barn, Ox Houses, and other smaller agricultural buildings associated with crops and animal husbandry.

Grain Barn

Shaker journals use the terms "Grain Barn," "Threshing Barn," and "Machine Barn," which may have been three separate names for the same structure. It appears that "Grain Barn" and "Threshing Barn" may refer to a barn constructed in 1825, and "Machine Barn" may refer to either the same building or a later structure that was completed in 1848 to replace or supplement the earlier buildings. The term "Machine" probably refers to a threshing machine, powered at first by horses and later by a windmill.

David Miller reported construction of a 36-foot-by-55-foot grain barn at the North Lot in 1825 (Miller 1835:371–372). There are also numerous references in the anonymous North Family Lot diary to the threshing barn on the North Lot in the 1840s and 1850s, and it may have been the same building as the Grain Barn (Union Village Diarist 1836–1857). The 1829 *Map of Union Village* does not show any wood buildings at the North Lot. The 1835 Kendall reproduction of the 1834 Youngs map shows one barn northeast of the communal dwelling, and two full-size barns and two smaller barns or sheds on the west side of the road. The Grain Barn may have been at either location, although we feel that the barn northeast of the Communal House is the best candidate for the Grain Barn, as it would be closer to the agricultural fields and removed from the structures housing the farm animals, which would reflect the Shaker concern with order. A barn is present in this location on the 1917 Otterbein Homes survey map as well. The barn was either demolished or moved to a different location by ca. 1930, as no barn is visible in the Grain Barn location on the ca. 1930 aerial photograph.

A diary reference in 1846 refers to broomcorn scraping in the Threshing Barn during times when this activity could not be completed at the North Family Lot sawmill (Union Village Diarist 1836–1857:413). This activity was an important materials-processing component of broom manufacturing, which at the time was becoming an important craft industry at the North Family Lot. Stephen Easton brought a windmill for the Threshing Barn from Dayton in 1846 (Union Village Diarist 1836–1857:407). A later entry mentions that a threshing machine broke the windmill in July 1850 (Union Village Diarist 1835–1857:467). No additional references were found describing this building.

Diary accounts mention that North Family botanists began to grind cicuta at the Machine Barn in June 1848 (Union Village Diarist 1836–1857:442). Cicuta is derived from water hemlock; it is highly poisonous to humans and can also harm livestock, but its roots were also used for homeopathic remedies for epilepsy and meningitis (*Plants for a Future* 2004). It is also possible that the Shakers were processing cicuta into poison for pest control.

Ox Barn

The Ox Barn was another building that was salvaged from the East House Family after it was dissolved by Shaker leadership in January 1836. The 1829 *Map of Union Village* does not depict any barns at the East House Family Lot. The 1835 Kendall reproduction of the 1834 Youngs map of the East House does show two wood-frame barns located north of the main house, one of which is likely the Ox Barn.

The Ox Barn was moved to the North Family Lot between October 7 and October 9, 1837. At the North Family Lot, it was placed southwest of the horse stable, on the west side of the north-south road that is now State Route 741. The relocation of the Ox Barn was opposed by Richard McNemar, who felt that the action violated Ohio law, as well as the tenth commandment, which forbids coveting the property or wife of one's neighbor. McNemar did not agree with the dispersal of the East House property but reported that he submitted to the authority of the deacons in the matter (Union Village Diarist 1836–1857). The East House had been McNemar's original farmstead, which explains his objections to the dissolution of this property. No additional references were found to the Ox Barn.

Dry Houses

The dry house played an important role in Shaker food-processing industries. Bauer and Portman report that a major Union Village industry was dehydrating and processing fruit and corn for commercial sale outside the community. Sometimes items could be dried outdoors in the sun, but when this was not feasible, buildings were constructed for this purpose (Bauer and Portman 2004:186). At least four different dry houses were built at the North Family Lot.

In the drying process, the corn was removed from the cob, or the apples were cut and quartered, and then the fruit or corn was dried. Some of the dry houses appear to be buildings where the items were allowed to air-dry naturally. Bauer and Portman also describe two-story drying houses where a stove on the first floor provided heat to artificially dry the items that were placed on the second floor. After the food was dried, it was placed into barrels to sell to commercial clients (Bauer and Portman 2004:186).

North Family Lot sources make numerous references to dry houses. The earliest reference found was a diary entry about a dry house that burned in February 1835 at the North Family Lot (Sharp 1880:193). A dry house was moved from the Square House to the North Family Lot on September 2, 1837; it must have been a fairly small building, since it was moved using only two oxen (Union Village Diarist 1836–1857:372). A Second Family diarist also reported a dry house was completed on August 20, 1840 (Union Village Diarist 1836–1857:375). A diarist also reported that Timothy Bonnel began framing a house for drying apples on July 3, 1848 (Union Village Diarist 1836–1857:442). The furnace and shingles for this building were obtained on August 8, 1848, and brick was obtained on August 12. The equipping of the building with a furnace seems to suggest that it was one of the larger drying houses in which artificial heat was used to accelerate the drying process.

The dry house was moved on July 26, 1854, to make way for construction of the Sisters' Shop, and an old fruit-drying house was repaired on August 24, 1854 (Union Village Diarist 1836–1857:508). Overall, diary accounts indicate that the North Family Lot had at least four drying houses between 1835 and 1854. Diarists also record that drying houses frequently caught fire and were destroyed at many of the Union Village family lots. This type of building probably had frequent accidental fires—the heat furnaces used for drying were located near combustible materials such as wood flooring and framing, and dehydrated corn and fruits.

A HABS photograph of a drying house at the South Union, Kentucky, Shaker settlement shows a small one-story, gabled brick building with a chimney on the end (Figure 78). The building is the size of a small one-car garage. A dry house is represented on the 1835 Kendall reproduction of the 1834 Youngs East House map as a small gabled, one-story building. No definite archaeological evidence was found for a dry house at the North Family Lot, although the foundation remnants located at the northwest corner of the Sisters' Shop may be related to the dry house that was moved in 1854. Also, a small building identified through the geophysical survey that was located east of the Nurse Shop could have been a dry house.

Figure 78. Dry house at Center Family, South Union, Kentucky
(Historic American Buildings Survey 1971)

Other Agricultural Buildings

Since farming occurred at the North Family Lot, the Shakers there had a large number of small-to-medium-sized, wood-frame buildings used for crop production and animal husbandry. Little description was discovered for these buildings, but it appears that most were typical gabled or shed-roof, timber-frame structures with wood cladding. The majority of Shaker agricultural buildings at the North Family Lot were constructed or moved to the lot by 1860. After 1860, tenant farmers may have added farm buildings to the landscape as well; however, we found no documents recording any such buildings. One tenant-related structure is the silo at the North Family Lot, which was built for tenant use by Otterbein Homes in 1916 (*Otterbein Homes Annual* 1916 (2):21) and is visible in an undated historical photograph of the dairy barn (Figure 79). The silo appears to be a monolithic concrete structure, which became common on farms after 1905 (Wyatt 1986).

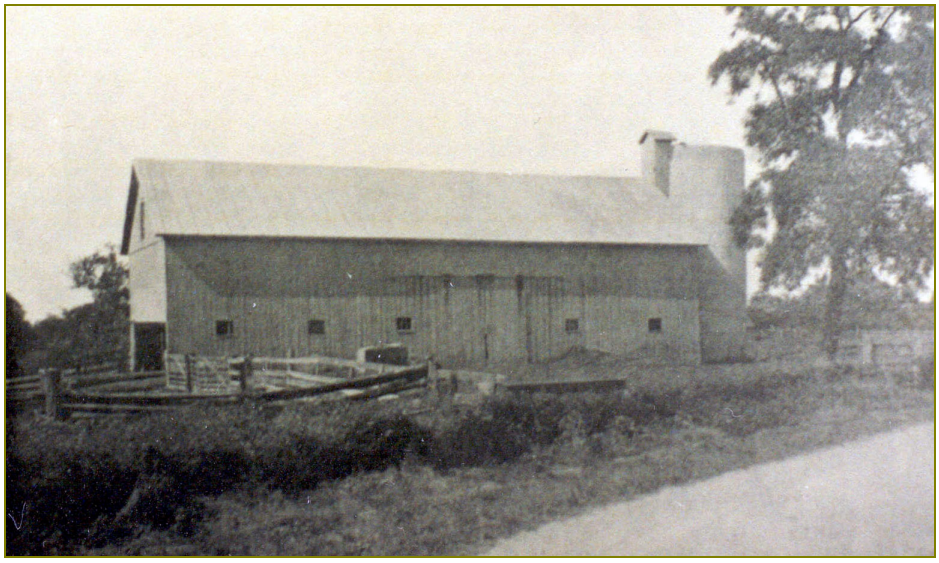


Figure 79. Dairy barn and silo at North Family Lot, ca. 1930s
Image courtesy of Otterbein Homes Museum & Library

Miller mentions the construction of a corn house in 1829, presumably a corncrib-type structure used to store corn (Miller 1835:371–372). Miller also reported the construction of a horse stable in 1833, measuring 28 feet by 36 feet (Miller 1835:371–372). A 20-foot-by-88-foot sheep house was built in 1834, one of the largest of the agricultural buildings constructed at the North Family Lot (Miller 1835:371–372). The wool industry was important at Union Village through the 1860s, and the construction of this large sheep house may have supported a large sheep population kept for wool production. Yarn and cloth production and rug weaving were cottage industries practiced by North Family Lot women, which likely depended on the ready supply of wool.

After the Second Family took possession of the North Family Lot in January 1836, additional small agricultural outbuildings were constructed or moved to the lot through the mid 1850s, reflecting an emphasis on improving the farms owned and operated by the Shakers during the first decades of the Second Family tenure. A bee house was moved from the West Brick

House to the North Family Lot on February 17, 1836, using two oxen. This action was part of the transfer of the newly organized Second Family from the West Brick Lot and West Frame Lot to the North Family Lot. Construction of a hen house and milk house at the North Family Lot was reported by a diarist in 1839. A milk house was plastered on June 27, 1839, which indicates the production of dairy products at the lot (Union Village Diarist 1836–1857:372).

In 1845, agricultural construction at the North Lot included a new hog pen and corncrib, built next to each other (Union Village Diarist 1836–1857:404). Several agricultural buildings were built at the North Family Lot in the 1850s, including the construction of a new cow barn in 1850 (Union Village Diarist 1836–1857:467), a shed near the cow barn in 1854 (Miller 1848–1854:257), and a new horse stable in 1856 (Union Village Diarist 1836–1857:524).

The diaries we examined for this project contained no reports of the construction of additional North Family Lot agricultural facilities dating to later than 1856. After 1860, population at the North Family Lot was declining and aging, making it likely that agricultural activity began to slow down. With less farming activity, the demand for new agricultural buildings would also have been less. As Shakers aged and their numbers were not replenished with new members, agricultural buildings fell into disuse or may have been used by tenant farmers. Tenant farming for the village became more widespread at the end of the nineteenth century when aging Shakers could no longer perform the agricultural work themselves. The Nicholls family occupied the North Family Lot after the Shakers left in 1906, and continued to farm the North Family Lot lands, using the old Shaker buildings for much the same purposes as the Second Family had in the nineteenth century. The Nicholls were among the most prosperous tenants when Otterbein Homes acquired the property.

PART 4: Other Structures

Part 4 discusses the Nurse Shop, Sawmill, Wagon House, Garden House, Slitting Mill, outhouses, and other miscellaneous structures.

Nurse Shop

The Nurse Shop was constructed in 1844. Located behind the Kitchen, it was a two-story frame building with ten rooms and a basement. The shop resembled a typical Shaker frame shop building and measured 38 feet by 25 feet. The function of the Nurse Shop was to house and take care of ill Shakers, and to separate Shakers with contagious diseases from the general population. The building stood at the North Family Lot until 1919, when it was moved across the road to house a tenant farmer. A fire in the 1920s damaged the building, but it was later renovated and probably was occupied up until the ARMCO Park was established in the mid-twentieth century. The only known photographs that focus on this building are from after it was moved by Otterbein Homes (Figure 80, Figure 81).

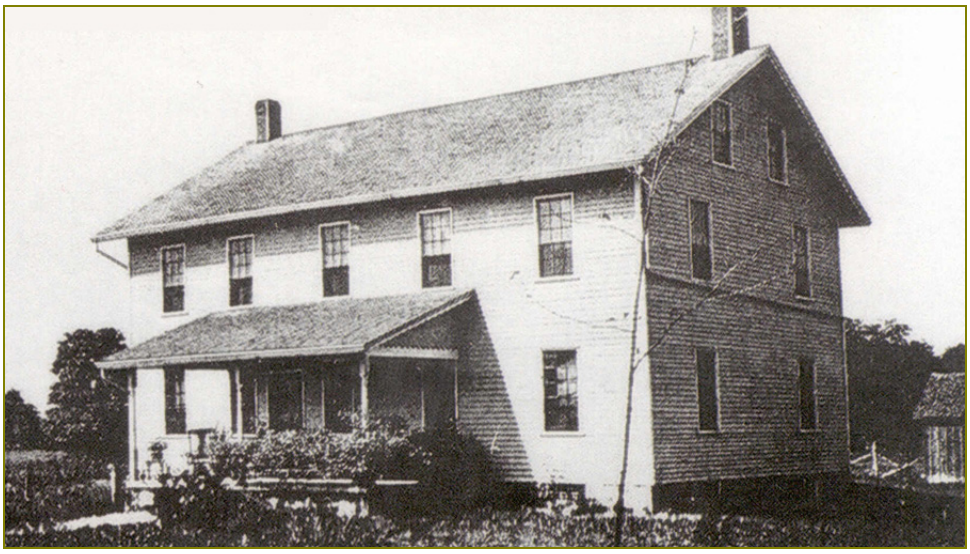


Figure 80. Former Nurse Shop, ca. 1920, in new location across from Communal House
Image courtesy of Otterbein Homes Museum & Library

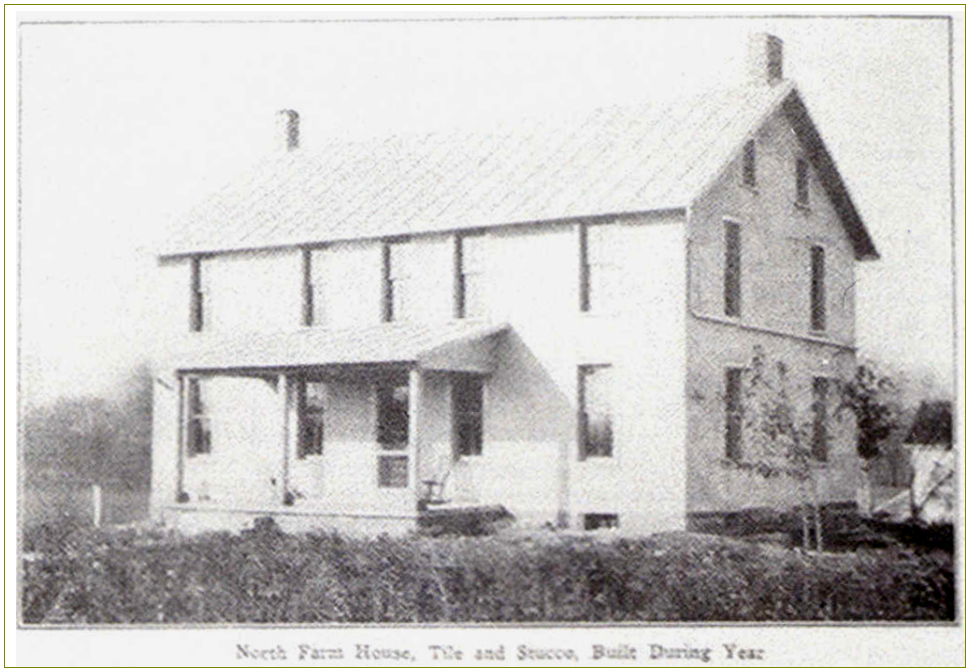


Figure 81. Former Nurse Shop after ca. 1930 renovations
Image courtesy of Otterbein Homes Museum & Library

Geophysical Signature

This building showed up clearly in the resistivity survey, but its outline appeared somewhat vague in the magnetometry data, most likely because of the nature of the fill in the old basement, which is probably building debris from one of the brick buildings that was torn down in the twentieth century, such as the Pottery/Broom Shop.

Sawmill

There were several water-powered mills present at Union Village, all located along Dick's Creek (later known as Shaker Creek). The 1829 map shows three mill ponds with six mills: three sawmills, a grist mill, a carding mill, and an unidentified mill. The northernmost sawmill was associated with the North Family Lot and was located almost directly north of the Dairy Barn. The 1835 Kendall reproduction map of the North Family Lot does not extend far enough north to show this mill, and the overall schematic map of Union Village as reproduced by Kendall in 1835 does not indicate the locations of mills. We found no photographs of the North Family Lot mill during research for this study.

The 1835 flood likely damaged or destroyed the North Family Lot's mill race and dam, and possibly the mill building as well. Sallie Sharp recorded in her diary that a new sawmill was built at the North Family Lot on November 5, 1836, which indicates the old mill was probably too heavily damaged by the 1835 flood to repair (Sharp 1880:198). In November 1841, another story was added to the sawmill (Boyd 1841–1844:458). A Second Family diarist reported that floor joists were placed on October 18, 1845, for a second-floor addition to the sawmill (Union Village Diarist 1835–1857:404). The North Family Lot mill was repaired in September 1853; this entry is the last mention of the sawmill in Shaker documents (Union Village Diarist 1836–1857:500).

The North Family Lot's mill was used for a variety of purposes, including cutting custom lumber orders for local homebuilders, scraping broomcorn, and grinding herbs. However, the mill was an unreliable source of power. On several occasions, power failures occurred at the North Family Lot mills because of low water and ruptures in the mill race and dam. A September 1849 account indicated a failure at the mill caused by low water, and the broomcorn had to be taken to the threshing barn for scraping (Union Village Diarist 1835–1857:413). The second-floor addition built in 1845 was probably constructed expressly for housing the machinery used to process herbs.

The Wagon House

David Miller reported that a wagon shed measuring 24 feet by 30 feet was built at the North Family Lot in 1827 (Miller 1835:371–372). The 1835 Kendall reproduction of the 1834 Youngs sketch of the North Family Lot shows a small, wood-frame shed with three bays and side gables located north of the Garden House and the communal dwelling. This illustration likely depicts the Wagon House. The shed is represented with three large openings, which would have been useful for bringing wagons in and out of the building. The representation of the building with vertical lines on the map also suggests that it was probably constructed in the manner of a barn or agricultural shed. Heavy timber-frame construction with vertical plank siding seems to be the most likely construction method used for this building.

In January 1836, several days after the Second Family took control of the North Lot, they moved the Wagon House from the dooryard on the north side of the dwelling house to the west side of the road (Union Village Diarist 1835–1857:368). This description of its original location corresponds with the representation of the shed with three openings on the 1835 map.

No geophysical data was present in the northwestern corner of the surveyed area that would indicate a structure similar to the Wagon House. However, the two anomalous foundation

remnants found at the northwest corner of the Sisters' Shop are candidates for remnants of this structure, although they could be related to a later dry house as well.

The Garden House

The Garden House is something of an enigma. A brick or frame building labeled as the "garden s." (garden shop) is shown on Kendall's 1835 reproduction of the Youngs 1834 sketch of the North Family Lot, located north of the communal dwelling with its long axis parallel to the kitchen. No evidence for such a structure of that configuration and location was found in either the geophysical survey or the archaeological excavations, even though a concerted attempt was made to find evidence for this structure. An excerpt from Daniel Miller's diary reminisces about the founding of the North Family Lot in 1815, stating that the family first lived "in the frame house built by Isaac Morris…The frame shop and the garden shop were built by Morris and moved and repaired" (Miller 1835:371–372). This reference indicates that that garden shop was built before 1815, and also that this shop and two other buildings labeled "log" on the 1835 replica map may represent some of the original Morris buildings occupied by the Shakers.

If the location of the Garden House is accurate on Youngs' map, then it must have been relocated when the Green Shop was built in 1835. The Garden House is not referenced in North Family Lot journals until 1849, when the construction of a frame addition to the building was recorded. It is possible that the Garden House is one of the two larger buildings in the southeast corner of the area included in the geophysical survey.

The Slitting Mill

The Slitting Mill is referred to only once in North Family Lot journals; a diarist notes that the mill was moved in 1838 from its location "south of the brick shop to south of the wagon shed" (Union Village Diarist 1836–1857:372). The wagon shed, or Wagon House, was moved across the road in 1836, as noted above. A building that could be the Slitting Mill is shown on the 1835 replica of Youngs' 1834 sketch map, in between the Smith Shop and the Brothers' Shop. This building is represented as a low, one-story structure, presumably frame construction, with a roofed-over construction on the front of the structure. The presence of a slitting mill at the North Family Lot is intriguing. The term "slitting mill" normally refers to a machine used in splitting long bars of wrought iron into rods. The rods were often then cut and used in manufacturing nails, which may have occurred at the Smith Shop, where archaeologists found a nail header. However, these mills are not normally found by themselves, but are usually part of an ironworking complex. No such complex is known to exist at the North Family Lot, or at Union Village as a whole, although steel and iron manufacture was attempted in the 1810s but abandoned. It is possible that wrought iron was imported to Union Village for the sole purpose of manufacturing nails. If this is the case, then the slitting mill undoubtedly relied on animals for power, as it was not located at the mill seat north of the lot's core. Another possibility is that the term "slitting mill" actually referred to a machine used to split wood into planks, but there is so little evidence about the building that any discussion of its actual function must remain speculation.

No geophysical or archaeological evidence for a building in the location of the presumed Slitting Mill on the 1835 replica of Youngs' 1834 map was found during fieldwork.

Outhouses

According to our map analysis and geophysical survey, at least four outhouses were likely present at the North Family Lot. The 1917 Otterbein Homes map shows two small rectangular structures at the rear of the lot that could be outhouses. The geophysical survey located what appears to be two more outhouses, south of the Kitchen. These two outhouses included a rectangular structure and a smaller, square building.

The Shakers may have had a common form for their outhouses, as shown in the following three figures: a photograph of a privy from Pleasant Hill, Kentucky, built in 1858 (Figure 82); a HABS survey photograph of a privy at Harvard, Massachusetts (Figure 83); and a HABS drawing of a privy at the West Family at Watervliet, New York (Figure 84). These three representations of Shaker privies show rectangular frame buildings with side-gabled roofs and a central door. Two small windows are present near the roof line on either side of the door. The privy at Harvard, Massachusetts, also featured a large window at the rear of the structure that apparently was designed for removing the waste in the containers below the seats. Small vent holes would have been present near the peak of the roof on each end of the privy. These privies were intended to be used by several people at the same time, possibly up to five or six people at once. Compare the three photographs below to Figure 73 on page 116, which shows a similar structure located to the south (right) of the Wash House at the North Family Lot. The 2004 geophysical survey indicated a possible privy at that location; however, we could not confirm it as it was located outside of the right-of-way.

Figure 82. Privy at Pleasant Hill, Kentucky, built in 1858
(Historic American Buildings Survey 1963)

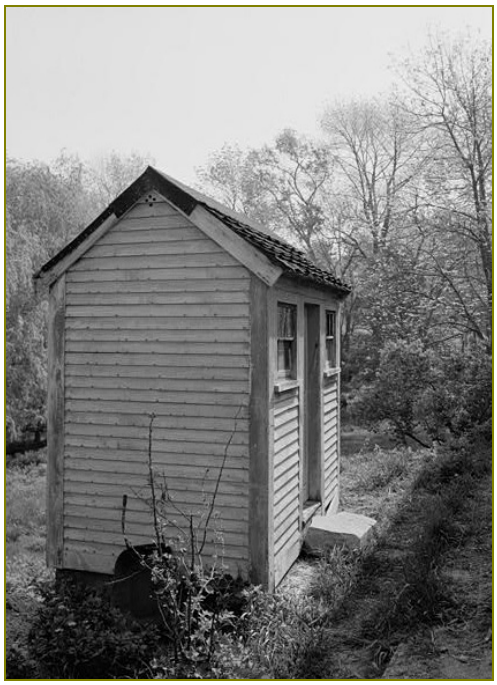


Figure 83. Shaker privy at Harvard, Massachusetts
(Historic American Buildings Survey 1969)

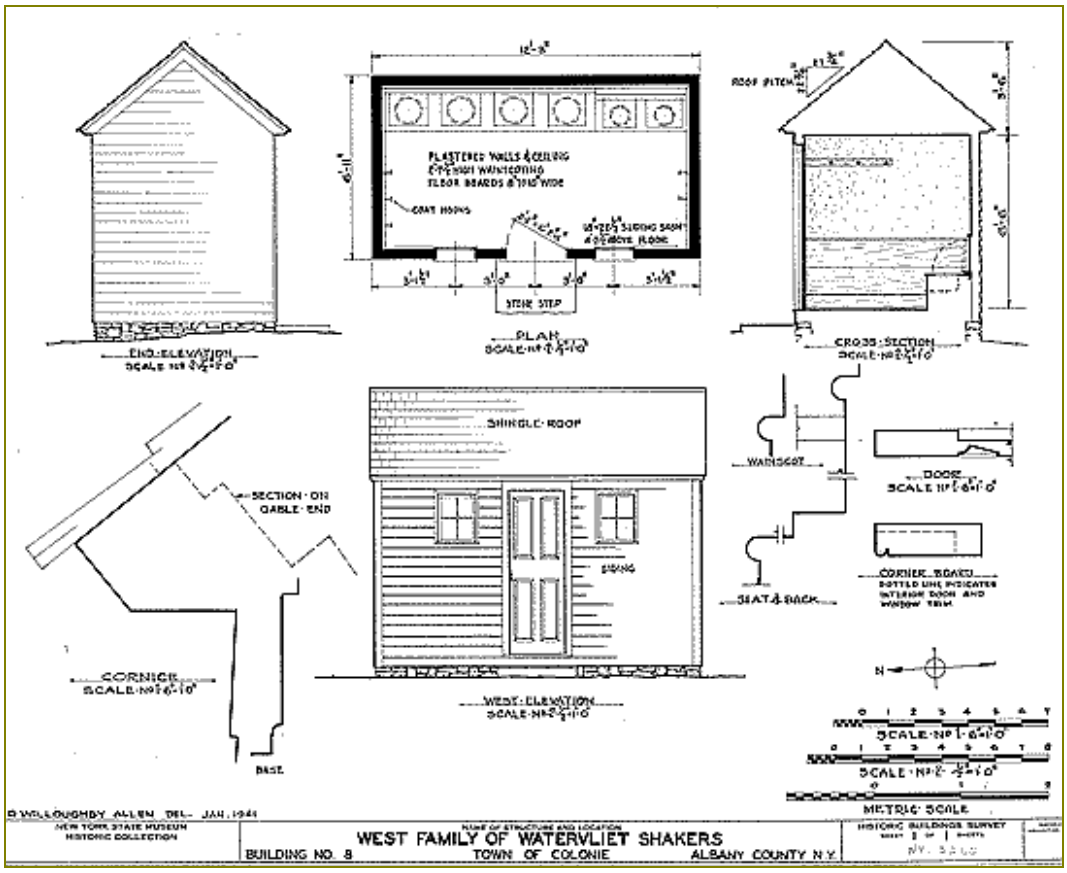


Figure 84. HABS drawing of a Shaker privy at Watervliet, New York
(Historic American Buildings Survey 1941)

Miscellaneous Structures

Structures Identified Through Archival Research: Smokehouse, Wood House, Lime Kiln, Ash House, and Still Houses

A frame smokehouse was built in January of 1838 at the North Family Lot (Union Village Diarist 1836–1857:371), but its location was not mentioned in any journal entries, and it is not mentioned further in any other North Family Lot journals. The building would have served for smoking and drying meat from animals slaughtered at the lot.

The Shakers also built a wood house (also known as a timber shed) at the lot in 1838, to store firewood. The structure would have been a simple frame structure, possibly open on one elevation to make it easier to move firewood in and out of the building. The original location of the Wood House was east of the Kitchen, but the Shakers moved it in 1844 to south of the Kitchen to make way for the Nurse Shop. The Wood House is shown on the 1917 survey map as a long, one-story shed south of the Kitchen. The proximity of the structure to the Kitchen speaks to the daily requirement of fuel wood for cooking.

The Shakers constructed a lime kiln at the lot in 1839 (Union Village Diarist 1836–1857:373), which was likely used to produce agricultural fertilizer and ingredients for whitewashing, a yearly activity at the lot. An ash house was completed in 1847 (Union Village Diarist 1836–1857:423). Ash houses were generally used by the Shakers in producing lye for soap (Schiffer 1979:30). One or more still houses were present at the North Family Lot, which held equipment used in the distillation of medicinal extracts from herbs. One still house burnt down in 1861 (Sharp 1880).

Structures Identified Through Geophysical Research: Structures 7, 8, 9, and 10

Four more Shaker structures need to be discussed here, albeit briefly. Labeled for this project as Structures 7–10, these buildings were identified through geophysical research and were located along the eastern edge of the four-acre geophysical study area (see Figure 18 for their location). The archival record contains good candidates for each of these structures, but each has more than one possible choice for its identity. These buildings were not present in 1834 when Isaac Morris made his sketch of the North Family Lot; therefore, they either were present and removed before 1834, or they were constructed after 1834 and demolished or moved before 1917, when Otterbein Homes surveyed the lot. The geophysical signatures indicate the physical constructions of these buildings, but as they were located outside the project right-of-way, they were not verified through excavation.

The remains of Structure 7 are located behind the Nurse Shop. The geophysical data suggests the remnants of the structure include a probable limestone foundation measuring 18 feet north-south by 14 feet east-west. The building could have been either of brick or frame construction. It is too small to be a shop or supplemental dwelling, and likely candidates for its function include the smokehouse, the ash house, the bee house, or one of the dry houses.

Structure 8 is the first in a row of three structures in the southeast corner of the four-acre residential core. The geophysical data indicate that this structure had some form of cellar; the structure remains were visible in resistivity readings that were focused at a depth of 100 cm below the surface. The geophysical consultants believe the readings indicate a fill of compacted earth, rock, and metal artifacts, suggesting that the structure was likely salvaged of usable building materials during demolition and was probably demolished during the Shaker occupation. The building measured 12 feet north-south by 16 feet east-west. The construction type of the structure is unknown. Because of its small size, possible candidates for this structure from archival research are similar to those for Structure 7, and include the smokehouse, ash house, bee house, and a dry house. However, the presence of a probable cellar seems inconsistent with all four of the above candidates. The building seems too small to have been supplemental housing for the Shakers, but it could possibly have been one of the pre-1820 structures at the lot, such as Joseph Babbitt's log cabin, Matthew Houston's house, or even Isaac Morris's old cabin. Any of these structures would have been too small for the Shakers to use as communal housing, but one might have been converted to something like a small shop.

Structure 9 was identified in the geophysical data as a relatively shallow rectangular anomaly, measuring 34 feet north-south by 22 feet east-west, and was interpreted as probably the remains of a frame or log structure, lacking a cellar. Structure 10 was a larger building

located just south of Structure 9, with a similar geophysical signature. Structure 10 measured 46 feet north-south by 28 feet east-west. Buildings 9 and 10 were likely relocated or demolished by the Shakers, resulting in a less visible presence in the geophysical data than the more prominent buildings with cellars. Possible candidates for either of these structures include the Morris house, the Babbitt cabin, the Houston house, the Little Sisters' House, the Boys' House, one or both of the Back Brethren's House (if one replaced the other on the same location), the Garden House, and the Hall place.

A simple open-sided garage or car port was built sometime in the 1950s at the site, visible in a ca. 1960 photograph of the communal dwelling (Figure 85). This structure represents the last building constructed at the North Family Lot.

Figure 85. Communal House, ca. 1960, with garage visible at rear of house
Image courtesy of Otterbein Homes Museum & Library

PART 5: Non-Structural Landscape Features of the North Family Lot

The landscape of the North Family Lot can be separated into two main spheres: the residential core, which contained the communal dwelling, shops, and other attendant buildings, along with open space between the buildings; and the agricultural plots, which included all outlying tilled fields, orchards, pastures, and meadows under the control of the North Family Lot, along with the agricultural buildings associated with the use of those plots. The sawmill, mill pond, and woodlands that were on the North Family Lot represent a minor third component of the Shaker landscape at this location.

Besides built environment, another important aspect of the North Family Lot landscape was the use of space around the buildings. By synthesizing information from historical maps, geophysical data, and the results of excavations, we can gain insights into the Shaker use and development of the landscape within the boundaries of the North Family Lot. We have noted elsewhere in this volume that the Shakers clustered buildings according to general function and gender association, but they may have also developed other portions of the landscape using the same logic as well. In particular, the placement of gardens, orchards, lawns, fences, pathways, wells, cisterns and agricultural fields was governed by the same set of values that informed Shaker construction and layout of buildings.

Unfortunately, the archival record does not reveal much about the use of the spaces between buildings at the residential core of the North Family Lot. There appear to have been three open areas between the buildings along the road: the first between the curve in the road and the Communal House; the second between the Communal House and the Brothers' Shop; and the last between the Brothers' Shop and the Pottery/Broom Shop. For convenience, we originally labeled the northern area Yard 1, with the middle area called Yard 2 and the southern area Yard 3. Maps and a historical photograph of the Yard 1 area from 1909 (Figure 72) indicate that the area may have been used as a garden early in the history of the North Family Lot, and then later as an orchard. Therefore, we decided to refer to Yard 1 as the Garden Area instead.

Another large open area was present in the south half of the residential core, between the Brothers' Shop and the Pottery/Broom Shop on the west and the three unidentified structures (Structures 8–10) identified through geophysical survey on the east. The geophysical survey noted that this open area may have been enclosed by a fence, and faint bands in the survey data indicate some slight disturbance, possibly from some form of agricultural activity. The geophysical survey consultants labeled this large open area "Anomaly 3" (Simpson 2005:65).

Archaeological testing of these open areas was limited to the recovery of soil samples for pollen and phytolith analysis in test units placed within the right-of-way and a series of seven shovel probes placed in the large open area of Anomaly 3 on Otterbein Homes property. Otterbein Homes gave permission to take the samples, but requested that we not collect any artifacts from locations on their property.

Open Areas

Garden Area

The open area bordered by the Communal House on the south, the road to the west and north, and the Green Shop and Sisters' Shop to the east was identified as a garden, based on the 1835 reproduction of the 1834 Youngs map placement of the Garden Shop in this general location. The area is close to the Kitchen and to the building identified as a garden shop, making it plausible that a small herb garden could have been present here. The Garden Area covers roughly half an acre, and because it was suspected to be the location of the Garden Shop structure on the 1835 replica map, the area was more intensely excavated than any of the other open areas at the North Family Lot, with 12 units excavated in this location. The goals were to examine this area for any evidence of old garden beds, to look for evidence for the Garden House (indicated to be near this area by the 1835 replica map), and to recover information on artifact disposal patterns in an open area used by the Shakers. In addition, five shovel probes were excavated to recover pollen/phytolith samples.

The units in the garden area revealed a general soil sequence consisting of modern topsoil; a layer of older A-horizon silt loam, possibly relic garden soils; a transitional layer consisting of the old garden soil turning into the lower B horizon soil; the B horizon; and finally, the clay loam subsoil. A possible fence line and associated shallow ditch were present on the western edge of the area. Two square postholes were found in units 57 and 63, apparently in line with each other. A round posthole was found next to the square posthole in Unit 63, suggesting that the fence line was torn down and replaced at least once. In addition, a possible ditch running parallel to the fence line axis was present in units 63 and 67. The fence line axis is in line with the western edge of the cellar entrance to the Communal House. No other features were found, and no indisputable evidence for a structure was found in this area, although a relatively high amount of architectural artifacts were found near the center of the area. An interesting artifact disposal pattern seems to be present in the Garden Area, indicating a short-term episode of household waste disposal. This type of waste disposal pattern is atypical for Shakers, who were exhorted by community rules and mores to keep neat and clean all the open areas between the buildings in each family lot. The aberrant disposal pattern is discussed in detail in Volume 3 of this monograph series.

We submitted two soil samples from the Garden Area to Dr. Linda Scott Cummings of Paleoresearch, Inc., for pollen/phytolith analysis. Her full report is presented in Appendix A, but the results are summarized here for this discussion. The pollen record indicates that the Shakers were engaged in activities that promoted weed growth in this area. The pollen/phytolith samples analyzed included evidence for the types of trees present near the North Family Lot and various weeds possibly present in the Garden Area itself. The trees identified include oak, hickory, cypress, pine, and elm. The most common pollen type recovered was from weedy plants such as dandelion, grasses, and ragweed. Possible medicinal plants represented in small quantities in the Garden Area samples include wormwood and astragalus. No evidence in the pollen/phytolith record suggests a concentrated use of the area for cultivation of plants for food or medicinal purposes; instead, the record indicates that the Garden Area was dominated by cool season plants and grasses. Oddly, the historical photograph that demonstrates a small orchard in this area has no

correlating pollen/phytolith signature in the samples sent for analysis (Figure 72). Although the area was identified as a former garden, the results of the pollen/phytolith analysis cast doubt on this idea; however, the lack of evidence for the possible fruit trees in the 1909 photograph suggests that the pollen/phytolith records may have been somehow compromised in the last century.

Yard 2

The open area we refer to as Yard 2 was located between the Communal House and the Brothers' Shop. Five excavation units were placed in this area. No Shaker features were found in this area during excavations, although we did find evidence for a twentieth-century gravel driveway and utility trench. The driveway is no longer present on the surface of the site, but it is visible in a ca. 1960 photograph of the Communal House (see Figure 85 on page 131). A total of 207 artifacts were recovered from the five units excavated in Yard 2. The artifact assemblage suggests a gradual accumulation of domestic waste from about 1820 through the 1850s, with architectural artifacts deposited well into the twentieth century. The discard was likely casual and unintentional, with artifacts deposited as a result of accidental loss over the years as rubbish was carried to a disposal location. No evidence was found for any structures in this location, and it is likely the space was never used for any formal function.

Yard 3

Yard 3 was the area between the Brothers' Shop and the Pottery/Broom Shop. One structure may have been present here: the long, low structure shown on the 1835 reproduction of the 1834 Youngs sketch map, tentatively identified as the slitting mill. Only two units were placed to examine this area because it was close to the route used by the dump truck when it carried the fill from the right-of-way to the established dump zone on Otterbein Homes property. One unit was placed to test a geophysical anomaly south of the Brothers' Shop, which turned out to be a large, irregularly shaped, shallow pit filled mainly with limestone cobbles but with some Shaker artifacts as well. The other unit was placed about 33 feet south of the Brothers' Shop and showed a soil profile that sloped to the south, matching the ground surface. A possible post mold was present in this unit. One of the gate guards at ARMCO Park, who was also an area resident, recalled a bulldozer that had run through this approximate area back in the 1940s, which may have been related to the demolition of the Pottery/Broom Shop. The possible post mold in Unit 96 could be related to the unidentified structure on the 1835 reproduction of the 1834 map of the North Family Lot.

Anomaly 3

There is a large open area with no evidence for buildings, located between the shops fronting the road and the three buildings along the edge of the south half of the four-acre open area of the North Family Lot; this area may have been used for a special purpose. A large portion of this area—measuring 200 feet north-south by 150 feet east-west and labeled as Anomaly 3 in the geophysical survey—may have been enclosed by a fence and used for an agricultural function, such as a garden or orchard. The geophysical survey report noted that this area exhibited a "series of medium and low resistance bands within the 50 cm resistance survey"

that may represent old plow furrows (Simpson 2004:65). No distinct cultural anomalies are present within the boundaries of Anomaly 3, suggesting the area was deliberately not used for building locations.

Although this area was outside of the project right-of-way, we obtained permission from Otterbein Homes to excavate shovel probes and retrieve soil samples for pollen/phytolith analysis. Starting about five meters west of the midpoint of the Brothers' Shop, one of the archaeologists excavated a series of six shovel probes on a 10-meter interval transect that headed east across the area of Anomaly 3. The archaeologist retrieved a soil sample from the A and B soil horizons of each probe, and noted any artifacts he observed in the course of excavating the shovel probes. The shovel probes were excavated to a depth that would allow easy sampling of the B horizon soils, which meant that each probe was roughly 40 cm deep. The archaeologist observed brick fragments in the probe closest to the Brothers' Shop and in one of the probes in the center of the tested area. Single ceramic sherds of unknown types were observed in three of the probes, at distances of 25 meters, 65 meters, and 75 meters west of the Brothers' Shop. The last two probes were taken close to the locations of the three buildings in the southeast corner of the four-acre open portion of the North Family Lot. Overall, no evidence suggesting a building location was noted in any of the probes, nor did artifacts occur in any significant numbers.

Two pollen samples from the western edge and the middle of Anomaly 3 were submitted to Paleoresearch, Inc., for analysis. The results of the analysis indicate a mixture of short and tall grasses and weedy plants were present in the area, representing areas of shade and areas of direct sunlight, suggestive of an orchard. No pollen or phytoliths directly identifiable as from a fruit tree were recovered, but small quantities of pollen from members of the rose family were found in the samples. Many fruit trees are members of the rose family; however, their pollen generally exhibits a distinct form that serves to identify them, none of which were recovered in the samples. Evidence for cultivated plants in the pollen samples was not present to a degree that would strongly support a strictly agricultural function for this area, but at the same time, we cannot rule out such a function.

Paths

We found evidence for two types of paths at the North Family Lot: flagstone paths put down by the Shakers, and gravel paths and drives associated with the post-Shaker occupation in the twentieth century. We knew from the 1917 Otterbein Homes map that flagstone paths were present at the North Family Lot, and mid-twentieth-century photographs of the Communal House show a gravel driveway (Figure 85 on page 131). A potential drive or path is visible in the 1937 HABS photograph of the Sisters' Shop (Figure 86), although it is unclear if this is actually a former drive or simply where some vehicles have driven over the lawn.

Figure 86. Uncropped 1937 HABS photograph of the Sisters' Shop, showing possible drive in lower right corner

The geophysical consultants identified six potential paths from the magnetometer and resistivity surveys, and labeled them as Paths 1–6 (Figure 87). The geophysical consultant interpreted Paths 1–3 as paths from the Shaker period, with Path 1 and Path 2 being flagstone paths and Path 3 a footpath lacking flagstones. The remaining paths were interpreted as post-Shaker in origin. Archaeological excavations verified that Paths 1 and 2 were indeed flagstone paths (Figure 88, Figure 89). Path 3 was not within the project right-of-way and was not tested. Path 4 appeared to be a combination of a utility trench and gravel path. Path 5 was the gravel drive visible in the 1960s photograph of the Communal House, and Path 6 turned out to be a line of drain tile and not a pathway.

Interestingly, all the post-Shaker paths identified in the geophysical survey also had utility trenches associated with them. A third flagstone path, Path 7 (Figure 90), was found during excavations at the Green Shop. This path was not identified by the geophysical consultants in the survey data, but the location of Path 7 in the resistivity data does reveal a faint line that corresponds to this path. Other flagstone paths known to have existed at the North Family Lot, as indicated by the 1917 Otterbein Homes map, were not found, although test units were placed in their locations.

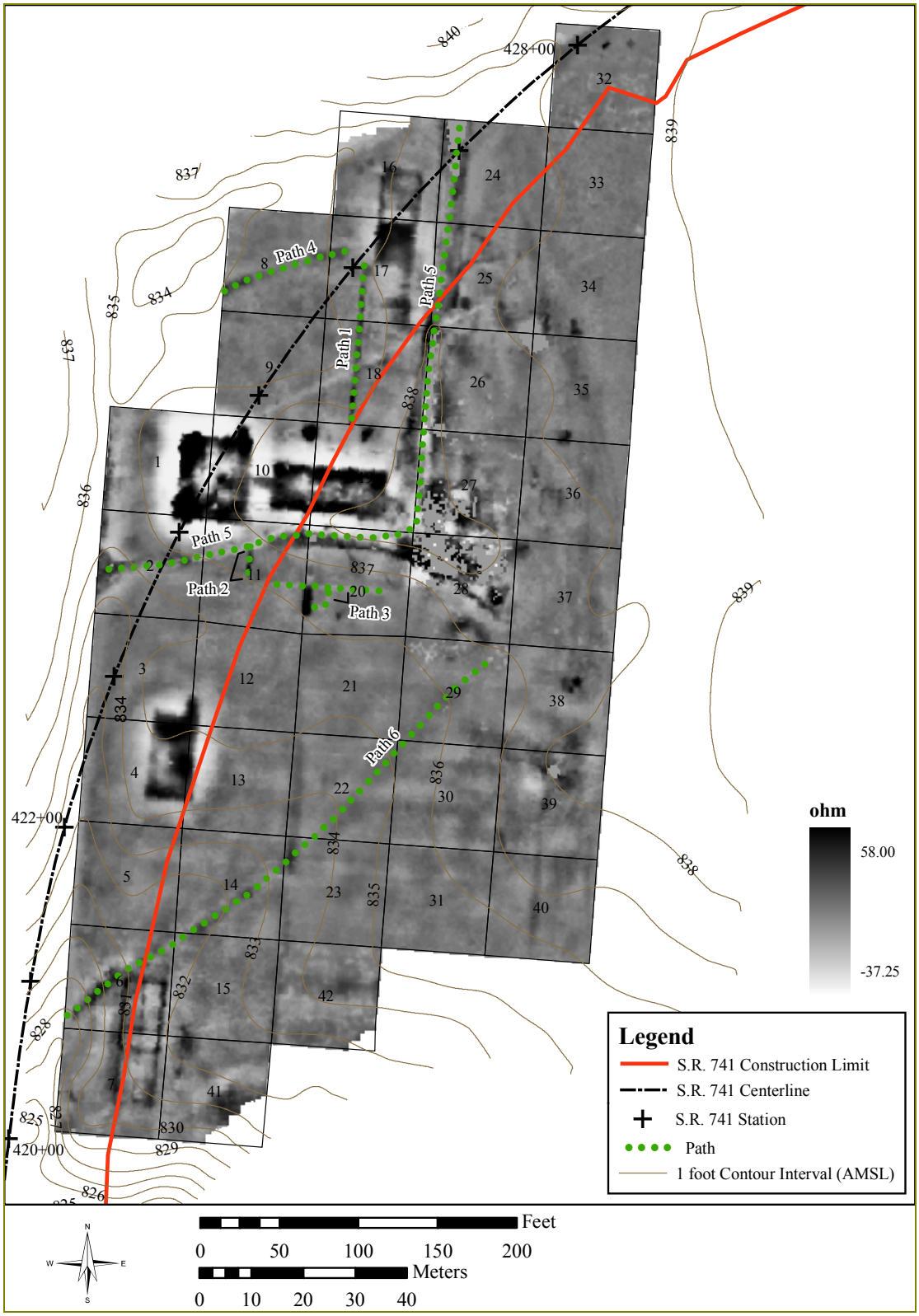


Figure 87. Path interpretations overlaid on the 50-cm-deep resistivity survey data

Figure 88. Path 1, as exposed by Unit 20, facing north

Figure 89. Path 2, exposed in Unit 9, facing north

Figure 90. Path 7, facing west

The flagstone paths at the North Family Lot were made from locally available limestone and were two feet wide. We do not know for sure when the first flagstone paths were installed, but Shaker journals first mention their existence in 1842: "June 9: We finished laying the stone walk between the dwelling house and the brick shop" (Union Village Diarist 1836–1857:377). On June 11 of that year, another flagstone path was completed leading to the Green Shop, probably corresponding to Path 1 (Union Village Diarist 1836–1857:377).

On August 10, 1846, two of the North Lot Family brothers repaired a water pipe leading to the Wash House cistern, apparently damaged by a "pin driven (through). . . the walk down into the pipe" (Union Village Diarist 1836–1857:412). In 1853, stone was obtained for more flagstone walks, but the diarist does not mention where the new walks were installed (Union Village Diarist 1836–1857:498). In 1856, the flagstone path between the Communal House and the Brothers' Shop was apparently replaced, according to this journal entry: "We commence making walk from the dwelling house to the brethrens brick shop and along the Southside of the kitchen (of stone)" (Union Village Diarist 1857:523). The new flagstone

path mentioned in the journal is likely the one identified at the site as Path 2. The 1856 reference is the last reference to flagstone paths at the North Family Lot in Shaker Journals. Only one photograph is known to exist that specifically shows a flagstone path at the North Family Lot, and it is an undated photograph in the collections of the Western Reserve Historical Society, probably taken in the early twentieth century. We were not able to acquire a copy of the photograph, but it shows what appears to be Path 2 leading north to a doorway in the 1831 addition to the Communal House that connected it with the Kitchen.

Water Management Infrastructure

This section deals with the physical remains of Shaker water management techniques at the North Family Lot, namely wells, cisterns, and water and drain pipes. To our knowledge, there were at least four wells and two cisterns present at the North Family Lot, along with a system of subsurface water pipes that directed rainwater to the cisterns. Shaker journals refer to wells north of the Kitchen and associated with the Wash House. In addition, two other wells were present, one southeast of the Nurse Shop and one in the cluster of agricultural buildings to the northwest of the residential core. Cisterns were present north of the Kitchen and in association with the Wash House. A series of interconnected ceramic water pipes were located in close association with the location of the Sisters' Shop and in the units that uncovered Path 1, including Unit 11 (Figure 91) and Unit 20 (Figure 92). The apparent purpose of some of these pipes was to direct water away from the buildings, and some of them may have been connected to the cisterns at the Wash House and Kitchen.

Drain pipes were also installed inside of buildings, such as at the Communal House, Kitchen, Brothers' Shop, and Pottery/Broom Shop. A historical photograph of the Sisters' Shop shows a downspout on the front of the building that probably connected to a drain pipe found during excavations in the same general location along the front side of the building (Figure 93). Another line of pipes was present on the east side of the Sisters' Shop (Figure 94). None of the ceramic water pipes found outside of buildings appeared to be of Shaker construction. One set had a manufacturer's stamp on it, located near the northwest corner of the Pottery/Broom Shop in Unit 73 (Figure 95). The stamp read "GENERAL TILE-SHALE" (Figure 96) and remains unidentified, as we found no company with a similar name when we researched the mark. This water pipe line was identified in the geophysical survey as Path 6. Most, if not all, of the water pipes found during excavations were probably installed during the Shaker tenancy, as indicated by the journal entry referenced above that noted a water pipe was damaged in 1846 by a pin driven down through a walkway. This description of water pipes as associated with walkways fits with the archaeological findings.

During excavations, we were able to investigate the cistern and well associated with the Kitchen. The other cisterns and wells on the North Family Lot property were outside of the project right-of-way. Detailed discussions of the excavations of these two water management features are presented beginning on 144.

Figure 91. Unit 11, showing ceramic water pipe placed parallel to Path 1, facing north

Figure 92. Unit 20, showing junction of two ceramic water pipes in association with Path 1, facing north

Figure 93. Unit 24, showing angled water pipe, facing south

Figure 94. Unit 34, showing water pipe on east side of Sisters' Shop foundation, facing south

Figure 95. Unit 73, facing southwest, showing drain pipe

Figure 96. Detail of drain pipe in Unit 73, showing stamped company name

Cistern

The cistern appeared in the geophysical survey as a circular anomaly 10 feet in diameter, showing up in both the results of the magnetometry and the soil resistivity surveys. The anomaly was identified as a possible well or cistern and was labeled as Ancillary Structure 3 in the geomorphology report (Simpson 2005:53). The magnetometer data indicated that the anomaly contained a high level of brick or stone fill, and the resistivity data indicated a depth of greater than three feet below the surface. A slight circular depression was present on the surface in the location of the anomaly.

Two test units measuring 1 meter by 2 meters were excavated over the cistern to confirm its identity, retrieve information about its contents and construction, and determine the exact diameter of the cistern. A backhoe was used to uncover the area around the cistern, exposing it fully so archaeologists could record the architectural details of the cistern. The backhoe excavated a deep trench on the north side of the cistern, in an attempt to determine the actual depth of the feature. Bedrock was detected at approximately 15 feet below ground surface, which may correspond with the depth of the cistern.

The cistern had been used as a repository for demolition debris from the brick buildings on site, and was full of broken bricks and pieces of stone windowsills. The rubble was likely pushed in with a bulldozer after the Communal House and Kitchen were demolished in 1965. The fill may also contain materials from the Sisters' Shop, but since the cistern is close to the Communal House, that structure is the likeliest source of the rubble. Artifacts recovered and noted from the unit excavations consisted almost entirely of material from demolished buildings, with a few sherds of historical-period ceramics and glass included in the fill.

The cistern (Figure 97) was 11 feet in diameter and was built with handmade bricks with a beehive-style cap. On the northeast and southern exterior faces of the cistern were two machine-extruded ceramic pipes, each 4 inches in diameter. Directly opposite of the existing pipes were square holes that may have also held pipes. The pipe on the southern side was located 8 inches below the ground and was 2 feet long, and attached to another pipe that extended straight down into the earth. The southern end of the horizontal pipe was sealed with concrete. The arrangement of this set of pipes indicates that their purpose was to channel overflow water out of the cistern and down to the water table. The cistern extended to a depth of approximately 15 feet below surface, although the actual depth could not be confirmed because of safety concerns related to the depth of excavations.

The cistern served as a water storage facility for the North Family Lot, primarily to service the Kitchen and Communal House. Runoff was directed to the cistern by a system of pipes, which were probably connected to gutter drains at the main structures, but we cannot confirm this. The first reference to this particular cistern was found in the North Family Lot diary entry for November 7, 1856: "John Delany and his hands came here today to dig a cistern on the north side of our kitchen" (Union Village Diarist 1836–1857:530). Previous diary entries that mention a cistern refer to one that was dug to supply water to the Wash House. The cistern associated with the Communal House was finished on November 17, 1856: "Today we finish our cistern on the north side of the kitchen" (Union Village Diarist 1836–1857:531). An entry concerning the pipes for the cistern was made on December 9, 1856:

"Pipes for the cistern, we got them at Dickeys today they cost between 8 and 5 cent according to size, (We bought them in Cincinnati)" (Union Village Diarist 1836–1857:531). The cistern does not appear again in any of the documents we researched for this project.

Figure 97. Cistern located north of Kitchen, facing south

Well

The well near the Kitchen appeared in the geophysical survey results as an anomaly in a rectangular ovoid shape measuring approximately 11.5 feet north-south by 7 feet east-west; it was labeled Anomaly 6. Resistivity indicated a probable brick or stone construction and a considerable depth to the anomaly, indicating a shaft feature. A massive dipole signature was present in the magnetometer data, indicating a large amount of metal within the anomaly. The geophysical consultants suggested the anomaly probably represented a well or privy shaft.

We investigated the well during the June 2005 fieldwork session. The excavation of a fiber optic trench clipped the east edge of the feature, revealing a stone-lined shaft. A Gradall excavator was used to strip the sod off the surface of the location, and to remove soil in bulk from the north, west, and south sides of the well to allow excavation of the shaft contents. Soil was removed until the outline of the well became apparent. As the soil removal progressed, a trench extending south from the edge of the well was noted. The stone shaft of the well was most intact on the north and west sides, with disturbance evident on the west side from the fiber optic trench and on the south from the excavation of the trench. The interior of the well shaft was excavated to a depth of roughly 8 feet below ground surface. We stopped removing the fill from the shaft at a point where we determined we had reached a depth unsafe to continue excavation.

The interior fill of the well consisted entirely of stove clinkers, the slaggy byproduct of using coal for fuel. Several complete or partially intact ceramic and glass vessels were recovered, along with broken ceramic sherds, pieces of animal bone, and fragments of metal objects. The fill was of a consistent character from the top of the well to the base of excavations, suggesting that the filling of the well took place over a short period of time.

The very top portion of the stone lining for the well was destroyed and spread over the area of the well shaft, which resulted in a larger geophysical anomaly size than the actual size of the well, which was roughly 6 feet wide on the exterior diameter and 3 feet wide on the interior diameter (Figure 98). The limestone lining was approximately 1.5 feet wide. A large iron pipe was found in the center of the shaft and is the remains of a water pump. A lead pipe that had been crimped shut and bent down was present, protruding from the south wall of the well, in line with the trench observed on the south side of the well. This pipe was likely installed by Shakers after the well was constructed and would have supplied water to the kitchen, which was located just south of the well location.

This well was likely dug sometime before the 1840s. A diary entry from November 17, 1848, is the only reference we found to this well in Shaker journals: "Today the brethren clean out the well between the house and the kitchen being a great deal of sand and trash accumulated in it" (Union Village Diarist 1836–1857:448). It seems unlikely that a recently dug well would have accumulated enough refuse and sand to require cleaning. This entry refers to the well between the "house and kitchen" and fits the close proximity of this well to the Kitchen. This well was in active use as late as the 1930s, as Otterbein Home records note that it was cleaned out and had its pump repaired in 1931 (Aument 2005).

Figure 98. Well located north of the Kitchen, facing west

The well artifact assemblage aptly demonstrates the concept of time lag in artifact deposition. Time lag refers to the period of time between when an artifact was made and when it enters an archaeological deposit. In some cases, this period of time can be quite long, if the artifact is durable and/or recyclable. The artifacts found in the well were deposited after 1931, when the well was known to have been cleaned. A drinking glass base with the Anchor Hocking company mark dates the deposit to post-1938, which pushes the date the well was filled to ca. 1940s or later. A canning jar made by the Star Glass Works has a terminal manufacture date of ca. 1900—it took at least 40 years for this canning jar to enter the archaeological record from its date of manufacture, demonstrating the concept of time lag in artifact deposition. A plate sherd bearing the mark of the Vodrey China Company has a time lag effect of at least 10 years from the date of manufacture to the date of deposition.

Refuse Pits

We discovered four different refuse pits during our excavations and assigned them feature numbers. Two pits were completely excavated (Features 86 and 88); one was sampled with a test unit (Feature 75); and one was excavated completely, except for a small portion of the pit that was left in a unit wall to allow for a profile drawing of the pit deposits (Feature 46). Feature 46 was the first refuse pit found, and it was located at the southeast corner of the Sisters' Shop; the corner of the Sisters' Shop clipped the edge of the pit feature. Features 86 and 88 were found near the northwest corner of the Sisters' Shop. Feature 75 was found south of the Brothers' Shop and is discussed above in the section for Yard 3 (page 134). What is remarkable about all four pit features is that all were found close to buildings. Refuse pits close to buildings seems to run contrary to Shaker values of order. Pit features 86 and 88 may be directly related to the construction of the Sisters' Shop, but pit features 46 and 75 probably served as general waste depositories unrelated to any building use.

Rubbish Pit (Feature 46)

Feature 46 was not identified from the geophysical survey, but it is faintly visible in the soil resistivity data in the southwest corner of the Sisters' Shop. The rubbish pit was first noted in the east wall of a unit placed on the southeast corner of the Sisters' Shop. Two units each measuring 2 meters by 2 meters were excavated to expose the pit. Soil samples and pollen/phytolith samples were taken from individual strata of the pit.

Results of Excavation

The rubbish pit was present below three layers of soil and fill: debris from the demolition of the Sisters' Shop, a topsoil layer that developed after the Sisters' Shop was built, and another brick debris layer, possibly from the demolition of a structure that pre-dated the Sisters' Shop. One possibility could be that the lower debris layer is from the Garden Shop, a possible brick shop located in the general area of the pit feature on the 1835 replica of the 1834 Youngs map of the North Family Lot. Very little is known about this shop, although diary entries indicate a new frame garden house was constructed at the North Family Lot in 1849. No archival resources that specifically discuss the brick building north of the Communal House on the 1835 replica of the 1834 Youngs map could be located.

This pit feature was 9.5 feet long by 6.5 feet wide and 2 feet, 2 inches deep (Figure 99). The top of the pit feature was located 1 foot below the ground surface. The top three soil layers of the pit are likely not original to the initial excavation and filling of the pit. One of the ash layers may be associated with a demolition event that predates the destruction of the Sisters' Shop, and may have affected the integrity of the upper layers of the pit. The top layers may have been deposited in the 1890s, perhaps after a nearby building was removed or the drain pipe was installed along the east side of the Sisters' Shop, on the edge of the pit. Artifacts in the lower layers of the pit seem to be undisturbed by this event.

Figure 99. Rubbish pit at southwest corner of Sisters' Shop (Feature 46)

Eight different soil layers were identified in the pit itself (Figure 100). The top layer of fill was a dark brown silt loam. The next layer was a yellowish brown silty sand layer with a very high mortar content, present in the center of the pit. Under this layer was dark yellowish brown clay, present in the northern portion of the pit feature, representing an out of place layer in this pit, due to the fact that it contained a canning jar lid that postdated 1886; the rest of the pit contained artifacts dating to the 1830s and 1840s. An ash deposit present in the southern portion of the pit feature contained the bulk of the recovered artifacts. Below this layer was a very dark grayish brown silt with high amounts of charcoal and ash. Another ash deposit with a silty texture was present below the charcoal and ash-rich dark grayish brown silt. A pocket of silt with a high mortar content was present in the southern portion of the pit. The last stratum of pit fill was a brown silty clay loam.

Figure 100. Rubbish pit at Sisters' Shop, showing profile of soil layers

The artifacts recovered from the pit are mainly architectural, domestic, and industrial in nature. Significantly, several pottery wasters were recovered, including a sagger (a vessel used to protect ceramic wares in a kiln during a firing process) that contained smoking pipe bowls and apparently collapsed in the middle of firing. All of the pottery wasters occurred in the apparently intact layers in the pit. The disturbed or later soil layers did not contain any pottery wasters. Interestingly, only the anomalous layer contained glass vessel fragments. The remainder of the domestic assemblage for the pit consists of ceramics, mainly pearlware and whiteware sherds, with some redware vessel sherds as well. All of the ceramics are consistent with a depositional date in the 1840s. The presence of a high amount of architectural debris within the pit may indicate that the pit was filled around the time of either the construction of a new building or the demolition of an old one.

Function

The artifact contents and profiles of the soil layers within the pit indicate that the pit was dug and initially filled sometime in the 1840s. The large number of wasters present in the lower layers suggests the pit was first filled while the pottery was active, sometime between 1836 and ca. 1850. Taking the time lag effect into account, the pit was likely dug and filled in the 1840s. A small deposit with artifacts dating to the late 1880s is anomalous, with the remainder of the layers containing only artifacts dating to the 1840s. The anomalous stratum is located in Unit 49, and the south wall profile of that unit offers a possible explanation for it. The thin layer consisting solely of demolition debris that was found directly above the southern portion of the pit occurs at roughly the same depth as the upper three soil layers of the pit in the northern half. The demolition event associated with this debris may have affected the pit feature through some sort of earth moving, although likely not mechanical in nature, as the pit was not highly disturbed. This event may have involved removal of earth south of the Sisters' Shop, followed quickly by the return of the earth as disturbed fill in the same location. The anomalous layer may have been laid down, with a broken canning jar tossed in, right before original fill material from the pit was shoveled back into the pit. The

event could have been the removal of the Green Shop, directly south of the Sisters' Shop. Another possibility is that the cellar entrance to the Sisters' Shop was not built until later in the shop's existence, and the disturbance is related to that. Finally, the disturbance could be related to the installation of drain pipes in this area, such as was identified just west of the pit.

Pollen/phytolith analysis of five samples taken from the pit indicates the presence of cereal grains and mint plants. The cereal grains may be from discarded baked goods, and the mint may be related to the growing of medicinal herbs at the North Family Lot. Mustard plants were apparently discarded in the pit as well. Ethnobotanical analysis of charred plant remains from this pit was performed by Dr. Annette Ericksen, who identified black walnuts, corn, and beans. Dr. Ericksen's full report can be found in Appendix B. A sample of the ash layers for pollen indicated a low pollen count versus a high charcoal count, suggesting the ash was from a wood-burning stove and not caused by burning food remains. Other pollen remains suggest the presence of weedy plants, grasses, grains, and trees in the area of the pit. Tree pollen identifies the presence of willow, oak, pine, elm, and hickory in the nearby woodlots, as well as lesser frequencies of maple.

Rubbish Pit (Feature 75)

Located south of the Brothers' Shop, Feature 75 showed up faintly in the magnetometer data but not in the resistivity data. The feature was not identified as a potential anomaly during the geophysical survey, but it was selected for investigation toward the end of excavations. Since the anomaly did not show up in the resistivity data, we initially interpreted it as a possible collapsed chimney.

A single test unit was placed over the location of the anomaly. The pit first appeared at 31 cm below surface as a darker stain in the eastern half of the unit. No further units were excavated on the feature after the feature type was determined, and a sufficient number of datable artifacts were recovered from the single unit.

Results of Excavation

This pit feature was shallow and filled mainly with rubble from a demolished structure. Limestone rubble (171.8 lbs) and brick fragments (61.6 lbs) were present in large amounts, representing most of the pit fill. Only the northernmost edge of the pit was investigated. A total of 93 artifacts were recovered from the pit, consisting of 38 pieces of metal and 55 ceramic sherds.

Based on comparisons of the excavation and magnetometer data, the entire feature was a large, shallow, irregularly shaped pit, with maximum dimensions of 16.5 feet by 8.25 feet. The pit had a relatively flat bottom, and was only 9 inches deep (Figure 101). The magnetometry data suggests that the contents and depth of the rest of the pit is similar to what was excavated.

Figure 101. Rubbish pit south of the Brothers' Shop

Function

This pit was likely an expediently dug receptacle used to contain waste from the demolition or removal of a nearby building, possibly the building shown just south of the Brothers' Shop on the 1835 replica of the 1834 Youngs map. The identity of this building is suspected to be the slitting mill, and if the rubble within the pit can indeed be associated with the structure, then it may have featured a stone foundation and brick superstructure. The pit was probably dug quickly and filled in rapidly after it was excavated. The primary purpose was to dispose of building debris, and secondarily to dispose of ceramic and metal artifacts.

Building Debris Pits (Features 86 and 88)

The building debris pits located near the northwestern corner of the Sisters' Shop (Features 86 and 88) were not initially identified as archaeological features in the geophysical survey. When we were excavating the Sister's Shop, we noticed two oval anomalies in the soil resistivity data that possibly indicated subsurface features located by the northwest corner of the building.

Results of Excavation

As we did not identify the anomalies in the geophysical data until late in the excavation of the North Family Lot, we excavated them near the end of fieldwork. The backhoe removed the topsoil in the area of the anomalies, revealing what appeared to be two large pits. We excavated a 1-meter-by-1-meter unit over the west half of one of the possible pits, which had a large amount of brick rubble in it (Feature 86). The other pit, Feature 88, did not have a formal unit placed on it but was excavated completely after removing the sod over its

location. Few artifacts aside from construction debris were present in the pits, although some whiteware and redware ceramic sherds were present.

The southern pit, Feature 86, was 5 feet, 2 inches long by 3 feet, 11 inches wide and 1 foot, 6 inches deep (Figure 102). Three distinct soil layers were present within the pit. The majority of the pit was filled with mixed construction material, mainly brick rubble with some slate shingle and limestone cobble fragments. Under the rubble layer was a stratum of yellowish brown clayey silt loam with grayish brown mottles, present to the base of the pit in the south half of the pit but capping another stratum in the north half. The stratum at the base of Feature 86 in the north half was a yellowish brown clayey silt loam with light gray mottles.

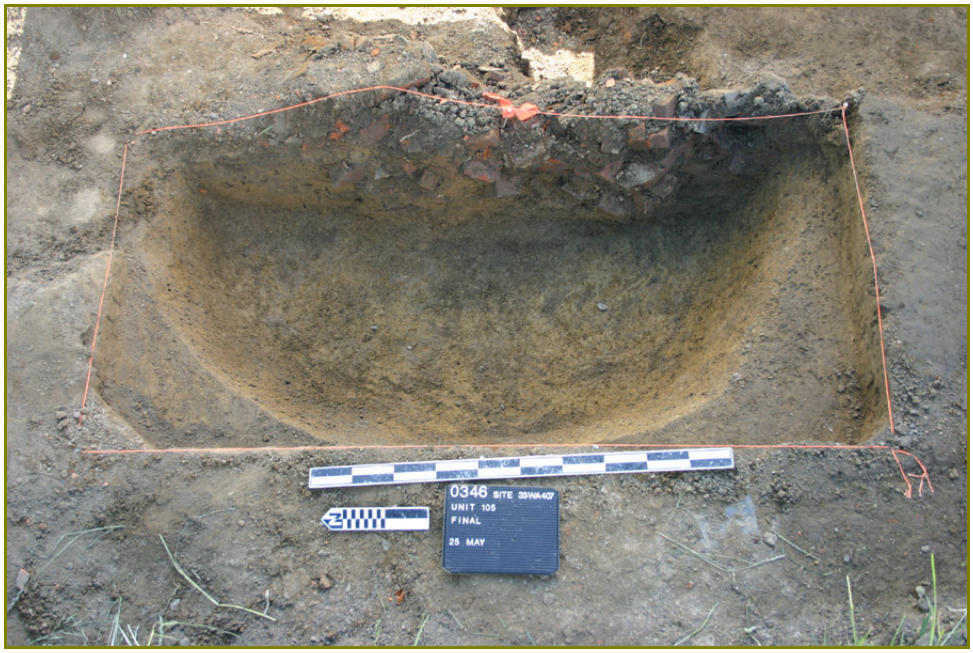


Figure 102. Feature 86, brick-filled construction debris pit

The northern pit, Feature 88, was a shallow basin with a deeper pit present in the western end of the feature (Figure 103). Feature 88 had maximum dimensions of 7 feet, 2 inches by 6 feet, 1 inch; with dimensions of 4 feet, 9 inches by 6 feet, 1 inch for the basin portion and 2 feet, 5 inches by 3 feet, 8 inches for the pit. Using the elevation of the very eastern edge of the pit, which was not severely affected by the backhoe, we can estimate the depth of the basin portion of the feature was 1 foot, 4 inches, and the depth of the pit portion was 2 feet, 1 inch.

Figure 103. Feature 88, limestone cobble-filled construction debris pit

Function

These two pits may have served as expedient refuse pits for construction material left over or rejected from the construction of the Sisters' Shop. The pits, although next to each other, show a segregation of building material, with brick in Feature 86 and limestone cobbles in Feature 88. The segregation of building material points to an association with the construction of the Sisters' Shop, not its demolition; it seems fairly unlikely that twentieth-century contractors would bother to both segregate demolished material and bury a small quantity of it on site. Feature 88 may also originally have been used for mixing mortar for the Sisters' Shop in the deeper portion of the feature, with the basin portion representing an expansion of the original pit to accommodate the volume of unusable limestone cobbles. The odd gritty clay stratum in the base of the deep pit in Feature 88 may be related to mortar manufacture. The date ranges for the historical artifacts, specifically the white earthenwares and the Shaker-produced redwares, fits well with a presumed excavation and fill date of ca. 1854 for the pits, based on the time lag effect in artifact deposition and the known date of construction of the Sisters' Shop.

CHAPTER 6. CONCLUSIONS: SHAKER LANDSCAPES, SHAKER VALUES

A Landscape of Order

One of the central ideas guiding much of the archaeological research at Shaker communities is that the Shaker landscape and architectural features will reflect the values that Shakers considered to be important, that the Shaker emphasis on such values as order and moral righteousness can be seen in the way they managed their landscapes. Their concern for the appearance of order can be seen in some of the Millennial Laws of 1845:

> "No kind of filthy rubbish, may be left to remain around the dwelling houses or shops, nor in the dooryards, or streets in front of the dwelling houses or shops."
>
> "Ye shall throw no dirty rubbish into the dooryards, or highways, as apple cores, or parings, broken glass or earthen(ware), etc. etc."
>
> "It is not orderly to cut up the dooryards into little cross paths, and by roads, but when consistent, all should keep on the walks." (Andrews 1963:280–283)

Kim McBride, an archaeologist who excavated at Pleasant Hill, Kentucky, suggests that the concept of order was a very important factor in Shaker landscape design. McBride felt that the term "order" as used by Shakers referred less to improving efficiency than it did to promoting group cohesiveness and harmony (McBride 1995:394). Thus, the imposing of order onto a group can be seen as a way of enforcing core Shaker values. That such a concept required enforcing is demonstrated by the specific forbidding of certain methods of waste disposal, such as in the 1845 Millennial Laws cited above, or in the way entire western villages were physically and hierarchically reorganized to align them with the Eastern communities, such as those occurring at Pleasant Hill in the 1810s and Union Village in 1836.

The 1836 community reorganization of Union Village, apparently done to bring the community more in line with the layout of New Lebanon in New York, placed the most important families of Union Village in a proper alignment on the landscape. As with New Lebanon, the Center Family was split into First and Second Orders, and a new family group, the Second Family, was formed from members of the West Frame and West Brick lots. Like New Lebanon, the Second Order was located between the Center or Church Family and the Second Family; however, at Union Village, the Second Family was located at the North Family Lot, not at the southern family lot as was the case at New Lebanon.

Another excellent example of how Shakers imposed their sense of order on the landscape shows up in the 1829 map of Union Village (Figure 6 on page 13), which depicts the landscape's division into a series of rectangular agricultural plots. For the most part, Shaker plots were rectangular, except when a creek formed a boundary. Tilling grounds were generally set apart from the core of the family lots, which instead tended to be surrounded by gardens, orchards, meadows, and pastures. Emlen noted that Shaker villages were linear in

plan, with individual family lots arranged along a roadway and fields located to the rear (Emlen 1987). The individual family lots at Union Village fit this observation, with the lots of the West Frame and West Brick Families placed on an east-west axis, and the lots of the North Family, North House, and Center Families set on a north-south axis. The South Family Lot was located at the intersection of the north-south axis and the east-west axis. A second east-west axis in the center of the Union Village landholdings includes the West Family and East Family lots, with the Center Family serving as a central intersection between the second east-west axis and the north-south axis. The Square House and Grist Mill lots were oriented to Dick's Creek and thus were not purposefully aligned with other family lots. Emlen's observation that fields were located to the rear of the family lots appears to hold true at Union Village, although we should note that if family lots are situated immediately next to main roads, then the only place the fields can be located is behind the lots, or to the sides.

The Union Village landscape was planned to place a buffer between the Shakers and their worldly neighbors. Although most of the family lots were placed along well-traveled roads, the Union Village property limits left a good deal of space between Shaker family lots and non-Shaker farmers, as seen in the detail of the 1867 Warren County plat map in Figure 104. Union Village itself was located in between numerous potential local markets for its products, as well as sources for items and materials the Shakers could not produce themselves. Union Village was very close to Lebanon and Red Lion, and village trustees made frequent trips to Dayton and Cincinnati (see Figure 105).

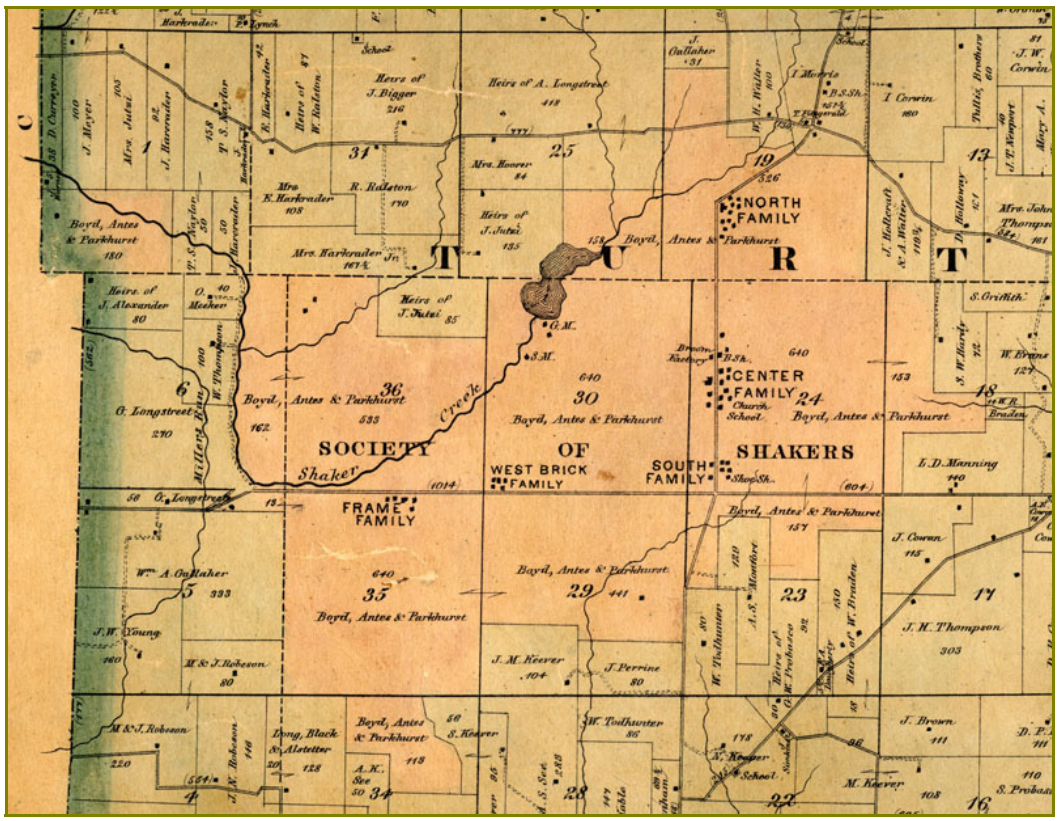


Figure 104. Detail of 1867 Warren County plat showing extent of Union Village boundaries

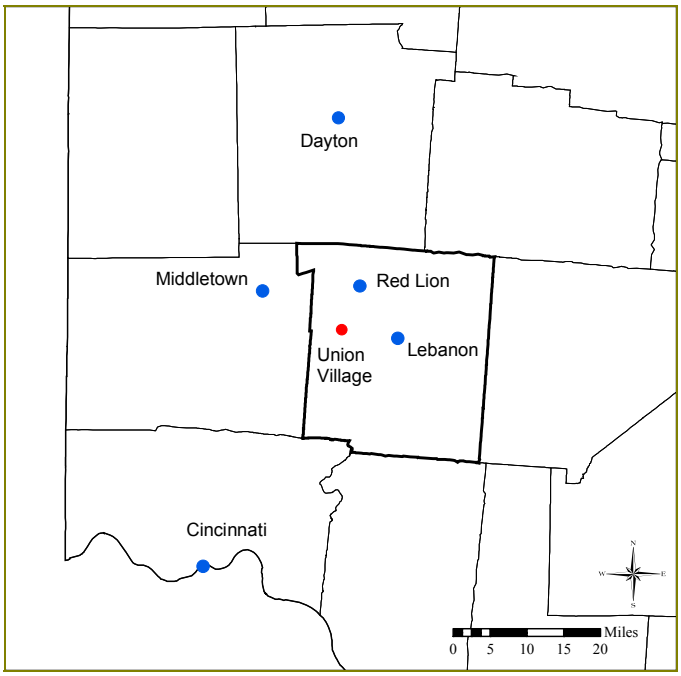


Figure 105. Union Village in relation to selected southwestern Ohio communities

The Shaker Concept of Order at the North Family Lot

The North Family Lot of Union Village can be used as a case in point to demonstrate that the Shaker concept of order is indeed visible as a determinant of landscape and architectural design. In the following sections, we examine how McBride's concepts of Shaker trends in landscape development at Pleasant Hill apply to the North Family Lot. We also discuss how concern with maintaining order by physically segregating the sexes influenced the placement and functions of buildings at the North Family Lot. The architectural character of the North Family Lot buildings is examined for clues to Union Village attitudes toward order and how that was expressed in the built environment.

McBride's Trends in Landscape Development

At Pleasant Hill, McBride noted three significant trends in landscape development (McBride 1995:393):

- lack of midden around most buildings (a midden is a deposit of rubbish that accumulates over time)
- high density and high diversity of structural features
- intensive investment of capital and labor in landscape and buildings

Using the North Family Lot as a test case, we can translate these three trends into testable hypotheses for examining order as a factor in the construction of the Union Village landscape.

Lack of Midden

At many nineteenth-century farmsteads, yard areas tended to accumulate trash, both from casual loss and discard of objects and from purposeful waste disposal. According to McBride's findings, this disposal pattern should not be found at Shaker communities—Shakers found this form of refuse disposal disorderly and would instead discard all trash into refuse pits.

At the North Family Lot, we found a definite accumulation of a midden in the Garden Area, with a density pattern indicating that the Communal House was the most probable point of origin for the artifacts in the midden. The 1845 revised Millennial Laws specifically forbade discarding waste into yard spaces, but the disposal of household rubbish in this area may have been limited to the time before 1845. Lesser amounts of artifacts seemed to be present in Yard 2 and Yard 3, but these areas were not tested thoroughly enough to determine any pattern of disposal. We believe that at least minor accumulation of waste in open areas should be present at Shaker lots, as accidental loss at the very least would result in artifacts in yard areas, and non-compliance with the Millennial Laws could have resulted in untidy behavior regarding waste disposal.

Because our primary focus during the 2005 fieldwork was to test for building locations, we were not able to thoroughly test the hypothesis that artifacts with definite post-1845 dates should be present only in very small amounts in yard deposits, especially in areas that were not next to either buildings or walkways. Such a pattern would indicate the Shakers tried to follow the 1845 Millennial Laws that both forbade discarding trash into yards and called for Shakers to stay on the established walks, as casual loss of artifacts after 1845 should be greatest along the paths that lead to areas designated for trash disposal.

High Density and High Diversity of Structural Features

McBride's second trend addresses the tendency for Shaker family lots to feature large numbers of different types of buildings. Often, Shaker buildings served a single function, although this function would not necessarily translate into a distinctly identifiable building type. Some examples of single-function buildings include wash houses, dry houses, and nurse shops. At the North Family Lot, we have shown that at any one time there was indeed a high density and diversity of buildings present. Furthermore, the degree of building diversity appears to correspond with the status of the family in the Shaker community hierarchy, with an increase in diversity correlated to the prominence of the family. Nearly 60 different buildings were identified during this project as associated with the North Family Lot, which is a very large number of buildings when compared to a contemporary single-family farm.

Shop buildings were not present during the occupation of the lot by the Young Believers until the mid to late 1820s, which reflects their low status among the families at Union Village at the time. The occupation of the North Family Lot in 1828 by the main Gathering Order group seemed to cause a slight elevation of status, but did not result in an appreciable increase in the development of the lot, as measured through new construction and improvements to existing buildings. During the Young Believers period (1815–1828), we

know of nine buildings that were constructed or moved to the lot, an average of less than one per year. During the time of the Gathering Order (1828–1836), six buildings were constructed or relocated to the lot, again less than one per year. The improvements during the Gathering Order period were focused on building up the agricultural core of the lot, not on enhancing the craft industries, and they constructed only one shop building, the Green Shop. In contrast, the Second Family added at least 32 buildings to the North Family Lot between 1836 and 1856, a rate of nearly two per year. These buildings included economically important shop facilities, such as the pottery complex and the Sisters' Shop, as well as the conversion of the pottery into the broom factory. They also acquired buildings to supplement domestic and agricultural functions at the lot.

So building diversity and density increased slightly during the Gathering Order era from the initial founding of the lot by the Young Believers, but building diversity and density during the Second Family tenure increased dramatically, reflecting the higher status of the Second Family. This addition of new buildings and the renovations of older buildings did not slow until the overall decline of Union Village began to occur during the 1850s.

Intensive Investment of Capital and Labor in Landscape and Buildings

Investment of labor and resources into the development of the landscape also is documented at the North Family Lot. Again, the most intense investment of labor and resources was made after the Second Family occupied the lot, possibly because the Second Family included many skilled laborers who required specialized buildings, such as the potters. The Gathering Order groups that preceded the Second Family of course contributed labor and resources to the development of the lot, but not to the extent of the Second Family.

For the Young Believers, ambitions were perhaps greater than the available resources, and they ran up a considerable debt through building construction. The Gathering Order inherited this debt when they took over from the Young Believers, which probably severely limited the amount of resources they could devote to improving the infrastructure. For the North Family Lot, the only references in Union Village records to landscape modifications such as fences and walkways are between 1837 and 1856.

The Young Believers did modify the landscape some. For example, the cellar fill from the Communal House and Kitchen may have been used to smooth over irregularities in the landscape around those two buildings. A soil profile from one of the excavation units that uncovered a stone walkway south of the Kitchen showed what appeared to be a mottled fill directly below the walkway. This fill capped a dark soil horizon, and the pollen analysis helped identify it as the ground surface before the Shakers occupied the lot. The Young Believers apparently deliberately shaped the fill from the cellar excavation into a gentle slope, possibly to direct runoff from rain away from the Communal House.

Grid Layouts

We used a grid with 25-foot intervals to place the landscape features at the North Family Lot; this grid was a very important element in the development of the landscape there—nearly every Shaker feature of the landscape is arranged to fit this grid, which seems to have been centered on the northwest corner of the Communal House (see Figure 18 on page 26). The Communal House was constructed in 1823, indicating that the Shakers were using the grid system to plan lots at that time. Structural or landscape elements could be oriented to the grid in three basic ways: along grid lines, at grid corners, and at midpoints between grid intersections. (Note, however, that most landscape features and buildings do not fall exactly on grid intersections or align exactly on the grid lines; some margin of error is to be expected with a changing set of builders over a period of over 30 years of development.)

- Landscape features that fall along grid lines include: all the flagstone paths that were found during excavations; the western edges of the Communal House, Brothers' Shop, Pottery/Broom Shop, Wash House, Nurse Shop, the cistern, and the four buildings along the eastern edge of the North Family Lot identified in the geophysical survey; and the eastern edge of the second location of the Wood Shed.
- Landscape features that appear to be oriented to grid corners include the Communal House, the Brothers' Shop, the original smith shop portion of the Pottery/Broom Shop, the Wash House, the second location of the Wood Shed, and Structure 9.
- Landscape features located at midpoints between grid intersections include the Sisters' Shop (with its northwest corner located at a midpoint along an east-west oriented gridline), the two outhouses identified through the geophysical survey, and the rubbish pit south of the Brothers' Shop.

Landscape features that are not exactly aligned on the grid include the Green Shop, which appears to have been slightly offset because of the flagstone paths that lie on the actual gridlines; the well north of the Kitchen; the possible well southeast of the Nurse Shop; Structure 10, which although found along a grid line, has no building corners aligned to grid points; and the pit features located around the Sisters' Shop.

Gender Segregation

In addition to the use of the grid, building placement at the North Family Lot also reflects a concern not only with an orderly appearance but with maintaining a major aspect of the social order of Shaker families. For example, buildings were apparently segregated according to the dominant gender associated with each building's function. This segregation was followed predominantly in the 1830s, but it lingered throughout the rest of the Shaker occupation of the North Family Lot. Buildings that were mainly or solely used by women were placed north of the Communal House, such as the Green Shop, the Wash House, and the Sisters' Shop. Buildings mainly or solely used by men were located south of the Communal House, such as the Brothers' Shop, the Pottery/Broom Shop (originally the smithy), and the possible slitting mill. Men would have been the main users of the agricultural buildings, which themselves were physically segregated from residential/craft buildings.

When the Shaker children began to be housed in separate buildings from the adult Shakers, their residential locations followed the same gender segregation. The female children and their caretakers were first housed in the Green Shop, then the Wash House, and possibly finally in their own building, the Little Sisters' House. The location of the Little Sisters' House is unknown, but if it follows the trend of gender separation, it was likely north of the Communal House. Similarly, the male children were housed at first in the Brothers' Shop, then possibly in the top floor of the Broom Shop, and like the girls, finally in their own separate building, the Boys' House. Again, the location of the Boys' House is unknown, but was probably south of the Communal House.

Gender separation was the proscribed norm in Shaker society, but it was not always strictly enforced at the North Family Lot. By the 1840s, a male shoemaker was working in the Green Shop, which would have been recently occupied by sisters, and the female Shakers were raising silkworms in the Brothers' Shop, which was possibly the center of male activity at the lot. Evidence that the Green Shop was no longer seen as associated with Shaker sisters was the fact that after the 1840s, the building was often used to house the hired hands who were employed at the North Family Lot to put up buildings, repair roofs, and dig fence post holes.

Architectural Character

The architectural character of the buildings at the North Family Lot also reflects a concern with order. The buildings were for the most part symmetrical in their facades and presumably in their floor plans, although notable exceptions included the Pottery/Broom Shop and the Wash House, each of which had additions that created asymmetrical facades. In keeping with the design characteristics common to Union Village, the architectural style of the buildings, primarily the Federal style, did not change in the 31 years that major buildings were erected at the lot. For example, the style of the 1854 Sisters' Shop differs only slightly from that of the Communal House built in 1823.

For the most part, design elements that had only a decorative function were not present at the North Family Lot, as architectural features that had no practical purpose would not have been in line with Shaker teachings about proper building styles. The 1845 version of the Millennial Laws, for example, contains several prohibitions against the use of decorative elements such as moldings, cornices and beadings (Andrews 1963 [1953]: 285).

We did find one possible exception to the rule against unnecessary ornamentation at the North Family Lot. The people who erected the chimneys on the buildings at this lot did incorporate some aesthetic characteristics, such as the use of different colored bricks near the tops of the Communal House chimney stacks, and the corbelling present on all the chimneys visible in historical photographs of the North Family Lot. (Corbelling is a decorative element only and does not enhance the stability or drafting of a chimney). The presence of only one purely decorative building element associated with North Family Lot structures is somewhat puzzling, but it could reflect the training of the people who erected the chimneys; they may have been trained in building techniques before they converted to Shakerism and simply might not have known that the chimneys would function perfectly well without corbelling. An alternative explanation is that the chimneys on the North Family Lot buildings were all

damaged by a tornado that passed by Union Village in 1886, and the repairs were performed by non-Shakers who included the corbelling and multi-colored brick patterns.

Dissonance at the North Family Lot

From our research on the Shakers who lived at the North Family Lot, it appears that not all Shakers adhered completely to the Shaker ideals, whether by intention or by accident. Deviations from Shaker ideals include disposing of waste into a yard space, as discussed above. Other digressions from the ideals were found in the remnants of the North Family Lot buildings uncovered through archaeological excavation. The segregation of the sexes in the realms of work was not total, as at times men would work in buildings traditionally associated with women, and vice versa.

The use of substandard building materials in their brick structures is an example of possible unintentional deviation from the concept of order. Bricks that were overfired and malformed were present in the brick components that remained at the Communal House, Kitchen, and Pottery/Broom Shop. These bricks, which would be considered substandard by industrial brick manufacturers and discarded as wasters, were present both in the interior brick components and the exterior building walls. We collected a sample of bricks from each structure during the 2005 excavations, taking care to collect only bricks from intact structural elements and not from loose brick fill. Of the bricks identified as Shaker in origin, about half showed signs of deformation. The overfired bricks all had vitrified to the point where silicates in the clay had melted, combining with iron oxides in the clay to form a black glaze on the surface of the bricks. Surprisingly, these obviously malformed bricks were in the exterior courses of the building walls, which would have been clearly visible to anyone looking at the buildings closely.

After we analyzed the sample of bricks taken from the North Family Lot, we concluded that the use of substandard brick was probably not a conscious decision to defy Shaker norms. The Union Village brick makers did not seem to be highly skilled, and it is quite possible that they had severe problems controlling the kiln temperatures when they fired the brick, resulting in low numbers of quality brick. The use of substandard brick might not have been avoidable, considering that before the 1850s, the Shakers were trying to provide all of the bricks for their structures.

The use of decorative elements in the chimneys may also have been an attempt at placing form over function, not something normally encouraged by Shaker elders. Additionally, the Shakers may have been concerned about the public perception of the buildings, with the most impressive structures being the most visible. Structures that were not easily visible to passersby may not have had the same amount of resources and effort put into their construction. For example, there is a noticeable difference between the foundations of the Communal House, which was the focal point of the lot, and the Kitchen, which was located behind the Communal House and was less visible to the public. The Communal House foundations rose above the ground surface and were composed of well-dressed, massive limestone blocks. In contrast, the foundation of the Kitchen was made from smaller, undressed limestone blocks and was not visible above the surface. This difference in the

foundations may indicate that while special attention was paid to how the highly visible Communal House appeared to worldly travelers passing by on the road, the less visible Kitchen did not receive the same effort in terms of architectural design.

Another example of dissonance in the Shaker Landscape is the Pottery/Broom Shop, a highly visible structure that features an asymmetrical façade. The norm for Shaker architecture is to incorporate a symmetrical façade into building design. The Shakers probably valued symmetry as a highly visible symbol of order, and most major Shaker buildings had a symmetrical façade. The Pottery/Broom Shop in fact started out as a symmetrical building, as it was originally the Smith Shop, with a central door and a window to each side of the door on the front of the building. However, when the Shakers built an addition onto the Smith Shop to convert into the Pottery Shop, the building ended up with an uneven number of bays in the front elevation, seven in total. The foundations also had a visible difference: the 1836 addition featured a limestone foundation with neatly dressed stones, while the original 1826 Smith Shop foundation was brick. The apparent low priority given to the appearance of this highly visible building may be a function of the speed with which the addition was constructed, as the Shaker potteries needed a full workshop to bring pottery manufacture back up to economically viable levels after moving from the West Brick Lot in 1836.

The Future of Landscape Studies at Union Village

The work presented in this volume has only scratched the surface of the possibilities for landscape studies at Union Village. There is much that remains to be done to more fully understand how Shakers conceived and developed the physical aspects of their communities. We can take a cue from archaeologist David Starbuck's work at Canterbury Village in New Hampshire, which included a landscape survey of the entire former property of that Shaker village (Starbuck 2004), and recommend that a similar systematic, wide-scale survey be performed of the former boundaries of Union Village. This survey should attempt three things:

- to confirm the exact locations of all the family lots that once existed at Union Village
- to identify Shaker landscape features
- to establish the potential for intact archaeological remains at each family lot

By using GPS technology and advanced mapping software, a highly detailed map of the Union Village landscape could be produced, which would be a great aid to future scholars researching Union Village.

Other work at Union Village should focus on the individual family lots. Geophysical survey was very successful at the North Family Lot, and similar surveys should be incorporated in any future work at the other family lot locations. Geophysical survey could be used either as part of an excavation program, or it could be undertaken as a stand-alone survey project. Performing a geophysical survey of family lots is a logical extension of the wide-scale landscape survey, as the results of the geophysical survey could then be easily incorporated into a map of Union Village, adding to the map the buildings that have no visible remains on the surface. Some family lots will be hard to include in a geophysical survey: the Center and North House family lots are currently used as the core of Otterbein Homes and have been heavily developed, and the Grist Mill and Square House lots appear to be located below the

surface of the lake on ARMCO Park property. Another candidate for survey might be the West Family Lot, the home of the Young Believers, but aerial photography of the probable lot location shows that the area is currently a pig farm, and it may be difficult to survey. However, important lots such as the East Family, West Brick Family, and West Frame Family seem to be in locations that have no standing buildings and minimal infrastructure. These three lots have a very good potential for significant data return from geophysical and archaeological survey.

Archaeological investigations could take place at the same locations as the geophysical survey. The most promising location appears to be the East Family Lot, which was vacated by the Shakers in 1835–1836 during the Union Village reorganization. While the Shakers physically removed several of the buildings from the lot, significant archaeological remains should still be present that could answer several questions about the early period of the Shaker community at Union Village. The West Brick Lot should be a priority for archaeological excavation as well. This lot was the original location of the Union Village Pottery, and an examination of the remains of the pottery at that lot would provide important comparative information in studying this significant Shaker industry at Union Village. The West Frame Lot is also a good candidate for excavation, as it was one of the lots that contributed to the Second Family membership during the 1836 community reorganization, and subsequently housed members of the Gathering Order who relocated from the North Family Lot. Comparative studies of artifact patterning from the North Family Lot, the West Frame Lot, and the West Brick Lot may be able to determine if there were similar midden accumulations in the yard spaces of the western lots.

The two Shaker cemeteries at Union Village would also be good candidates for future research, although disinterring burials is something that should be avoided. The use of geophysical survey techniques such as ground penetrating radar or magnetometry could be used to identify locations and numbers of burials at both cemeteries, as well as providing useful data on Shaker burial practices, such as grave orientation and spacing.

The North Family Lot as a subject for research still holds a great deal of potential. Archaeologically, only a third of the four-acre residential core was subjected to excavation. There are at least five sets of building remains, a well, a cistern, and four privies that remain untouched at the lot. An effort to find more rubbish pits could be highly productive in adding to our understanding of the material culture of the North Family Lot, as well as gaining more insight into waste disposal patterns. In addition, the kiln and pottery sheds need to be located and tested in order to more fully understand the Shaker pottery operations. Remains of the agricultural buildings across SR 741 could still be present within the current boundaries of ARMCO Park. The suspected sawmill location is currently a woodlot, which implies that the site may be relatively undisturbed and a good candidate to examine for the use of water-power technology at Union Village. Further archival research into the North Family Lot may reveal more details about the lives of the Shakers who lived there. The role of women at the lot is just one of many avenues of research that could be explored.

As the first major archaeological project to focus on Union Village, the North Family Lot data recovery project has shown that the potential of this Shaker community to inform us about Shaker lives, values, and behavior is great but largely untapped. Until recently, Union

Village has not been the focus of Shaker-related research. Bauer and Portman's book *Wisdom's Paradise* in 2004 opened the doors to the world of research possibilities at Union Village. The North Family Lot project shows that the most useful approach to studying this Shaker community is to combine archival research with physical examination of the Shaker landscape through geophysical survey and archaeological excavation. Evidence from these three lines of examination can be synthesized to present the most accurate picture of lifeways and adaptations at this important hub of nineteenth-century Shakerism.

REFERENCES CITED

Andrews, Edward Deming
1963 [1953] *The People Called Shakers.* Dover Publications, Washington, D.C.

Aument, Bruce
2005 Notes on research of Otterbein Homes Records, 1912–1947. On file at Hardlines Design Company, Columbus, Ohio.

Bakken, D. A.
1998 *Putting the Shakers "In Place": Union Village, Ohio, 1805–1815*. Ph.D. dissertation, Indiana University. University Microfilms, Ann Arbor.

Bauer, Cheryl, and Robert Portman
2004 *Wisdom's Paradise: The Forgotten Shakers of Union Village*. Orange Frazier Press, Wilmington, Ohio.

Bogan, D. R.
1992 *Early Transportation in Warren County.* Warren County Historical Society, Lebanon, Ohio.

Boyd, Peter
1805–1850 *Diary of Daily Events. October 1805–December 1850.* Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 16, Item 231, pp. 165–188.

1841–1844 *Church Record or Memorandum of Events, 1841–1844*. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 21, Item 291, pp. 450–519.

Clarke, Abigail
1805–1900 Journal and other writings. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 10, Item 164c, pp. 269–308.

Dennis, John
1834 *Extracts from Journal of John Dennis 1824–1834*. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 23, Container 27, Item 326, pp. 248–253.

Emlen, Robert P.
1987 *Shaker Village Views.* University Press of New England, Lebanon, New Hampshire.

Hampton, Oliver
1900 A History of the Principal Events of the Society of Believers, at Union Village. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 11, Item 180, pp. 374–451.

Hayden, D.
1976 *Seven American Utopias: The Architecture of Communitarian Socialism, 1790-1975.* MIT Press, Cambridge.

Historic American Buildings Survey (HABS)
1937 *Shaker South Family Dwelling, Union Village, Warren County, Ohio, HABS No. O-639* .[1] Electronic document, http://memory.loc.gov/cgi-bin/ampage?collId=hhphoto&action=browse&fileName=oh/oh0000/oh0041/photos/browse.db&recNum=0&itemLink=S?ammem/hh:@field(SUBJ+@od1(OHIO--Warren+County--Union+Village))&title2=Shaker%20South%20Family,%20Dwelling%20House,%20State%20Routes%2063%20%26%20741%20intersection,%20Union%20Village,%20Warren%20County,%20OH&displayType=1, accessed March 7, 2007.

1941 *Shaker West Family Privy, Watervliet Shaker Road, Colonie Township, Watervliet, Albany County, NY.* Electronic document, http://lcweb2.loc.gov/cgi-bin/query/S?pp/hh:@field(TITLE+@od1(Shaker+West+Family+Privy,+Watervliet+Shaker+Road,+Colonie+Township,+Watervliet,+Albany+County,+NY)), accessed September 19, 2006.

1963 *Shaker West Family Privy, North Side of Village Road, North of Route 68 & State Route 33 Intersection, Pleasant Hill, Mercer County, KY.* Electronic document, http://lcweb2.loc.gov/cgi-bin/query/h?pp/hh:@field(NUMBER+@band(ky0061)), accessed September 19, 2006.

1969 *Shaker South Family Privy, South Shaker Road, Harvard, Worcester County, MA.* Electronic document, http://lcweb2.loc.gov/cgi-bin/query/S?pp/hh:@field(TITLE+@od1(Shaker+South+Family+Privy,+South+Shaker+Road,+Harvard,+Worcester+County,+MA)), accessed September 19, 2006.

[1] We believe this HABS documentation covers the 1854 Sisters' Shop at the North Family Lot instead of a South Family dwelling. The 1937 HABS recorders put the title "dwelling" on their measured drawings in that report, and Library of Congress staff subsequently labeled the documentation package "South Family Dwelling" on a 1975 card catalog entry.

1971 *Shaker Centre Family Drying House, West side of U.S. Route 68, South Union, Logan County, KY*. Electronic document, http://lcweb2.loc.gov/cgi-bin/query/h?pp/hh:@field(NUMBER+@band(ky0048)), accessed April 24, 2007.

Hurt, R. Douglas
1996 *The Ohio Frontier: Crucible of the Old Northwest 1720–1830*. Indiana University Press, Indianapolis.

Kendall, George
1835 *Map of Union Village*. Reproductions of 1834 Isaac Youngs sketch maps. On file at Shaker Museum, Chatham, New York.

Krueger, K. J.
1988 Composition in Shaker Architecture. Unpublished Master of Architecture thesis. Department of Architecture, Miami University, Oxford, Ohio.

Lancaster, Clay
2001 *Pleasant Hill—Shaker Caanan in Kentucky*. Warwick Publications, Salvisa, Kentucky.

Lewis, Pierce F.
1999 Axioms for Reading the Landscape: Some Guides to the American Scene. In *Material Culture Studies in America,* edited by Thomas J. Schlereth, pp. 174–182. Walnut Creek, California.

Liddel, Cole Susanna
1844 *Summary of Notes Concerning Union Village, Ohio, 1805–1843*. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 18, Item 252, pp. 480–534.

McBride, Kim A.
1995 Archaeology at the Shaker Village of Pleasant Hill, Kentucky: Rediscovering the Importance of Order. In *Historical Archaeology in Kentucky*, edited by Kim A. McBride, W. Stephen McBride, and David Pollack, pp. 391–408. Kentucky Heritage Council, Lexington.

McNemar, Richard
1806 Map of Union Village. On file at Shaker Library, Chatham, New York.

1835 *Diaries, Memoranda of Events and Other Writings*. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 18, Item 253–266, pp. 535–637.

Miller, Daniel
1835 List of buildings at Union Village North Family Lot. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 22, Item 301, pp. 371–372.

1848–1854 *Journal, Daniel Miller, 1848–1854*. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 17, Item 238, pp. 122–301.

Nicoletta, Julie, and Bret Morgan
1995 *The Architecture of the Shakers*. Woodstock, Vermont: Norfleet Press.

2003 The Architecture of Control: Shaker Dwelling Houses and the Reform Movement in Early Nineteenth-Century America. *Journal of the Society of Architectural Historians*, 62(1):352–384.

Nordhoff, Charles
1875 The *Communistic Societies of the United States*. Dover Publications, New York.

Otterbein Homes
1915 *Otterbein Homes Annual.* Otterbein Homes, Lebanon, Ohio.

1916 *Otterbein Homes Annual.* Otterbein Homes, Lebanon, Ohio.

Phillippi, J. M.
1917 Inheritance from the Shakers. *Otterbein Home Annual* 3:6–8.

Pigg, Caleb
1824–1842 *Recipes, Medicinal Cures, Records of Births and Deaths, Extracts from Journals, and Other Writings, ca. 1824–1842.* Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 23, containers 27–28, Item 326, p. 261.

Plants for a Future
2004 Database search results: *Cicuta virosa.* Electronic document, 2006, at http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Cicuta+virosa, accessed July 25, 2006.

Schiffer, Herbert
1979 *Shaker Architecture*. Schiffer Publishing, Exton, Pennsylvania.

Sharp, Sally
1880 *Journal, Sally Sharp 1805–1880*, Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 22, Item 298, pp. 162–319.

Simpson, Duane
2005 *Geophysical Investigations at Shaker Site D/North Family Lot (33WA406) (WAR-SR 741-7.90 PID 22427) in Turtle Creek Township, Warren County, Ohio*. Submitted by AMEC Earth & Environmental, Louisville, Kentucky, and Hardlines Design Company, Columbus, Ohio. Submitted to Ohio Department of Transportation, Columbus.

Slater, Amy
1845–1890 *A Register of Work Performed by the Second Family Sisters Together with the Most Important Passing Events, January 1845–May 1850, June-September 1890*. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 8, Item 145, pp. 591–631.

Starbuck, David R.
2004 *Neither Plain nor Simple: New Perspectives on the Canterbury Shakers.* University Press of New England, Lebanon, New Hampshire.

Union Village
1821 *Financial Accounts of the Shaker Community of the Miami Valley, 1819–1820.* Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 9, Item 156.

Union Village Correspondent
1829 Letter to Matthew Houston. 20 April. Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 28, Item 349c, pp. 406–407.

Union Village Diarist
1836–1857 *Diary of Daily Events. 1836–1857.* Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress, Reel 16, Item 234, pp. 368–532.

1841 *Journal and Sketch of the Second Family Origins of the Union Village Church 1836–1841.* Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 31, Item 355m, pp. 327–355.

Union Village Mapmaker
1829 *Map of Union Village*. On file at Western Reserve Historical Society, Cleveland, Ohio.

Union Village notes
1835–1842 Informal notes on events at Union Village (fragment, anonymous author). Shaker Collection of Records Concerning the United Society of Believers in Christ's Second Appearing, Manuscript Division, Library of Congress. Reel 27, Container 33, Item 347d, pp. 441–480.

United States Census Bureau
1840 *Federal Industrial and Agricultural Census, Turtle Creek Township, Warren County, Ohio.*

1850 *Federal Industrial and Agricultural Census, Turtle Creek Township, Warren County, Ohio.*

1860 *Federal Industrial and Agricultural Census, Turtle Creek Township, Warren County, Ohio.*

1840 *Federal Population Census, Turtle Creek Township, Warren County, Ohio.*

1850 *Federal Population Census, Turtle Creek Township, Warren County, Ohio.*

1860 *Federal Population Census, Turtle Creek Township, Warren County, Ohio.*

1870 *Federal Population Census, Turtle Creek Township, Warren County, Ohio.*

Wyatt, Barbara
1986 *Cultural Resource Management in Wisconsin: Volume 2. A Manual for Historic Properties*. Historic Preservation Division, State Historical Society of Wisconsin, Madison.

Wergland, Glendyne R.
2006 *One Shaker Life: Isaac Newton Youngs, 1793–1865.* University of Massachusetts Press, Amherst.

Western Star
1916 Obituary of Clymena Miner, 25 May.

APPENDIX A. POLLEN AND PHYTOLITH ANALYSIS OF SHAKER OCCUPATION AT THE NORTH FAMILY LOT, UNION VILLAGE, OHIO

POLLEN AND PHYTOLITH ANALYSIS OF SHAKER OCCUPATION AT THE NORTH FAMILY LOT, UNION VILLAGE, OHIO

By

Linda Scott Cummings

With Assistance from
R. A. Varney
and
Jaime Dexter

Golden, Colorado

Paleo Research Institute Technical Report 05-74

Prepared For

Hardlines Design Company
Columbus, Ohio

January 2006

INTRODUCTION

Sixteen pollen and phytolith samples were examined from the North Family Lot Site, 33WA407, in Warren County, Ohio. The site, occupying approximately four acres, was part of a Union Village Shaker community from the beginning of the nineteenth century through the early twentieth century. Pollen and phytolith analyses were conducted to document land use within specific locations that will contribute to understanding overall land use patterns at the site.

METHODS

Pollen

A chemical extraction technique based on flotation is the standard preparation technique used in this laboratory for the removal of the pollen from the large volume of sand, silt, and clay with which they are mixed. This particular process was developed for extraction of pollen from soils where preservation has been less than ideal and pollen density is lower than in peat.

Hydrochloric acid (10%) was used to remove calcium carbonates present in the soil, after which the samples were screened through 150 micron mesh. The samples were rinsed until neutral by adding water, letting the samples stand for 2 hours, then pouring off the supernatant. A small quantity of sodium hexametaphosphate was added to each sample once it reached neutrality, then the samples were allowed to settle according to Stoke's Law in settling columns. This process was repeated with EDTA. These steps remove clay prior to heavy liquid separation. Next the samples are freeze dried. Sodium polytungstate (density 1.8) was used for the flotation process. The samples were mixed with sodium polytungstate and centrifuged at 1500 rpm for 10 minutes to separate organic from inorganic remains. The supernatant containing pollen and organic remains is decanted. Sodium polytungstate is again added to the inorganic fraction to repeat the separation process. The supernatant is decanted into the same tube as the supernatant from the first separation. This supernatant is then centrifuged at 1500 rpm for 10 minutes to allow any silica remaining to be separated from the organics. Following this, the supernatant is decanted into a 50 ml conical tube and diluted with distilled water. These samples are centrifuged at 3000 rpm to concentrate the organic fraction in the bottom of the tube. After rinsing the pollen-rich organic fraction obtained by this separation, all samples received a short (20-30 minute) treatment in hot hydrofluoric acid to remove any remaining inorganic particles. The samples were then acetolated for 3-5 minutes to remove any extraneous organic matter.

A light microscope was used to count the pollen to a total of 3 to 101 pollen grains at a magnification of 500x. Pollen preservation in these samples varied from good to poor. Comparative reference material collected at the Intermountain Herbarium at Utah State University and the University of Colorado Herbarium was used to identify the pollen to the family, genus, and species level, where possible.

Pollen aggregates were recorded during identification of the pollen. Aggregates are clumps of a single type of pollen, and may be interpreted to represent pollen dispersal over short distances, or the introduction of portions of the plant represented into an archaeological

setting. Aggregates were included in the pollen counts as single grains, as is customary. The presence of aggregates is noted by an "A" next to the pollen frequency on the pollen diagram. A plus (+) on the pollen diagram indicates that either pollen was observed, in spite of the fact that pollen was not present in a sufficient concentration to obtain a full count, or that the pollen type was observed outside the regular count while scanning the remainder of the microscope slide. Pollen diagrams are produced using Tilia, which was developed by Dr. Eric Grimm of the Illinois State Museum. Pollen concentrations are calculated in Tilia using the quantity of sample processed (cc), the quantity of exotics (spores) added to the sample, the quantity of exotics counted, and the total pollen counted and expressed as pollen per ml of sediment.

Indeterminate pollen includes pollen grains that are folded, mutilated, and otherwise distorted beyond recognition. These grains are included in the total pollen count, as they are part of the pollen record. The charcoal frequency registers the relationship between pollen and charcoal. The calculations reflect the quantity of charcoal expressed as a multiplier of the pollen total. So, if the charcoal frequency reads “100", it is an expression that charcoal is 100 times as abundant as pollen.

Pollen analysis also included identification of starch granules to general categories. Starch granules are a plant's mechanism for storing carbohydrates. Starches are found in numerous seeds, as well as in starchy roots and tubers. The primary categories of starches include: with or without visible hila, hilum centric or eccentric, hila patterns (dot, cracked, elongated), and shape of starch (angular, ellipse, circular, eccentric). Some of these starch categories are typical of specific plants, while others are more common and tend to occur in many different types of plants.

Phytoliths

Extraction of phytoliths from these sediments also was based on heavy liquid floatation. Sodium hypochlorite (bleach) was first used to destroy the organic fraction from 50 ml of sediment. Once this reaction was complete, the samples were rinsed to remove the bleach. If the samples contained calcium carbonates, they were reacted with hydrochloric acid, then the samples were rinsed until neutral. A small quantity of sodium hexametaphosphate was added to each sample once it reached neutrality, then the samples were allowed to settle according to Stoke’s Law in settling columns. This process was repeated with EDTA. These steps remove clay prior to heavy liquid separation. Next the samples are freeze dried. The dried silts and sands were then mixed with sodium polytungstate (density 2.3) and centrifuged to separate the phytoliths, which will float, from the other silica, which will not. Phytoliths, in the broader sense, may include opal phytoliths and calcium oxalate crystals. Calcium oxalate crystals are formed by *Opuntia* (prickly pear cactus) and other plants including *Yucca*, and are separated, rather than destroyed, using this extraction technique, if these forms have survived in the sediments. Any remaining clay is floated with the phytoliths, and is further removed by mixing with sodium hexametaphosphate and distilled water. The samples are then rinsed with distilled water, then alcohols to remove the water. After several alcohol rinses, the samples are mounted in cinnamaldehyde for counting with a light microscope at a magnification of 500x. Phytolith diagrams are produced using Tilia, which was developed by Dr. Eric Grimm of the Illinois State Museum for diagraming pollen.

PHYTOLITH REVIEW

Phytoliths are silica bodies produced by plants when soluble silica in the ground water is absorbed by the roots and carried up to the plant via the vascular system. Evaporation and metabolism of this water result in precipitation of the silica in and around the cellular walls. Opal phytoliths, which are distinct and decay-resistant plant remains, are deposited in the soil as the plant or plant parts die and break down. They are, however, subject to mechanical breakage and erosion and deterioration in high pH soils. Phytoliths are usually introduced directly into the soils in which the plants decay. Transportation of phytoliths occurs primarily by animal consumption, man's gathering of plants, or by erosion or transportation of the soil by wind, water, or ice.

Grass short-cell phytoliths are typically divided into festucoid, chloridoid, and panicoid or bilobate (including cross and polylobate) forms. In addition, buliforms, trichomes, and elongate forms represent other grass cells. Smooth elongate phytoliths are of no aid in interpreting either paleoenvironmental conditions or the subsistence record because they are produced by all grasses. Phytoliths tabulated to represent "total phytoliths" include all grass forms, as well as phytoliths produced by other plants. Non-plant bodies are recorded and calculated by dividing the number of each type recovered by the "total phytoliths".

The festucoid class of phytoliths is ascribed primarily to the Subfamily Pooideae and occur most abundantly in cool, moist climates. However, Brown (1984) notes that festucoid phytoliths are produced in small quantity by nearly all grasses. Therefore, while they are typical phytoliths produced by the Subfamily Pooideae, they are not exclusive to this subfamily. Chloridoid phytoliths are found primarily in the Subfamily Chloridoideae, a warm-season grass that grows in arid to semi-arid areas and require less available soil moisture. In North America, chloridoid grasses are the most abundant in the American Southwest (Gould and Shaw 1983:120). Bilobates and polylobates are produced mainly by panicoid grasses, although a few of the festucoid grasses also produce these forms. Panicoid phytoliths occur in warm-season or tall grasses that frequently thrive in humid conditions. Twiss (1987:181) also notes that some members of the Subfamily Chloridoideae produce both bilobate (Panicoid) and festucoid phytoliths. "According to Gould and Shaw (1983, p. 110) more than 97% of the native US grass species (1,026 of 1,053) are divided equally among three subfamilies Pooideae, Chloridoideae, and Panicoideae" (Twiss 1987:181).

Buliform phytoliths are produced by grasses in response to wet conditions (Rovner, Irwin, January 1991, personal communication) and are to be expected in wet habitats of floodplains and other places. Trichomes represent silicified hairs produced either on the glumes (bran) surrounding grass seeds or on other parts of the grass.

Diatoms and sponge spicules also frequently occur in samples. Sponge spicules represent microscopic fresh water sponges. Diatoms are single-celled algae with a siliceous cell wall. They grow in a wide range of aerophilous habitats, including on wet plants and rocks, in damp soils, marshes, wetlands, mudflats, and all types of standing and flowing aquatic habitats. Their silica cells often are preserved in sedimentary deposits. Because individual taxa have specific requirements and preferences with respect to water chemistry, hydrologic conditions, and substrate characteristics, the presence (and subsequent identification to the species level) of diatoms in paleoenvironmental context can provide information about the

nature of the local environment. These data, coupled with input about local geology, hydrology, soil characteristics, pollen, and phytoliths, provide evidence of the paleoenvironmental setting. In the context of phytolith samples we note the presence of diatoms, but do not identify them beyond the split of “long” and “round” or centric forms. Round diatoms often indicate wet conditions, while at least some of the long diatoms are cosmopolitan, occurring nearly everywhere. Both diatoms and sponge spicules can be transported with sediment. As an illustration, recovery of sponge spicules in upland soils is noted to accompany loess deposits derived from floodplains in Illinois (Jones and Beavers 1963).

BOTANIC REVIEW

Pollen and phytolith analyses of samples from the North Family Lot site identified remains of several types of plants. Many of these plants represent potential and/or probable food resources, while others represent weeds and/or ornamental plants that probably grew nearby. These plants will be discussed in the following paragraphs to provide basic information concerning their origin and uses. Pollen and phytoliths will be discussed together by provenience, following these paragraphs.

Edible and Medicinal Plants

Carya (Hickory, Pecan)

Most species of *Carya* (hickory, pecan) are found in the southeastern United States, with some species reaching parts of the Midwest. The pecan is extensively cultivated in Southern states, while mockernut hickory (*C.. tomentosa*) and shagbark hickory (*C.. ovata*) are the most common commercially grown hickory nuts. Pecans and sweet hickory nuts may be eaten fresh or roasted, and are used in baking like walnuts. The sap also can be used to make a syrup. *Carya* nuts are high in fat and are vulnerable to rancidity. For this reason, commercial nuts are usually roasted or deep fried
(Hedrick 1972:149-150; McGee 1984:264, 271; Peterson 1977:190).

Castanea (Chestnut)

The American chestnut (*Castanea dentata*) bears smaller, sweeter chestnuts than the European chestnut (*Castanea sativa*). Chestnuts are eaten boiled and roasted and also are used to make puddings, cakes, and bread. In Europe, chestnuts are eaten in large quantities by poorer classes of people as a principal food. The nut meats are pounded into flower to make porridge or breads (Hedrick 1972:152-153). The Shakers used chestnut leaves for their tonic and astringent properties, as well as in the preparation of vegetable dyes (Miller 1976:152).

Quercus (Oak)

All species of *Quercus* (oak) produce edible acorns, although acorns from trees in the white oak group are sweeter. Acorns are true nuts and contain 14% water, 8% protein, 5% fat, and 68% carbohydrates. Acorns also contain tannin that can be removed by soaking whole nuts or ground acorn flour in several changes of water. Acorns were noted to be a staple for ancient peoples in North America and other parts of the world. Oak wood is very hard, heavy, and strong, and it was valued as firewood because a large piece of oak would burn slowly all night long. Oaks are native to all continents except Australia and occur as deciduous or evergreen, hardwood shrubs to large trees
(Hedrick 1972; Kirk 1975:104-106; McGee 1984:265; Merriam 1918:129-137)
(Panshin and Zeeuw 1980:571-572). Various oaks were used by the Shakers to treat sore throat, ulcers, chronic diarrhea, hemorrhage, leucorrhea, prolapsus ani, and piles, as well as in gargles and injections (Miller 1976:211).

Juglans (Walnut)

Juglans (walnut) are second only to the almond in popularity and consumption. *J. regia* (English walnut) is a native of Europe that was introduced to the United States. This walnut is preferred by producers because it is easier to shell. *J. nigra* (black walnut) and *J. cinerea* (butternut) are natives of the United States. Walnuts may be eaten raw or roasted, and often are used in baking. Walnuts also are high in fat and vulnerable to rancidity
(Hedrick 1972:319; McGee 1984:272). The inner bark of *J. cinerea* makes a potent laxative that is safe to use when pregnant. An inner bark decoction also may be used for constipation, as a liver stimulant, and for skin diseases. The Shakers used the bark and leaves to treat scrofula, debility, diarrhea, and as a wash for ulcers and sore eyes
(Miller 1976:250; Ody 1993:71; Peattie 1966:119-125).

Salix (Willow)

Salix (willow) bark is well known for its salicin content, which the body converts to salicylic acid. Willow bark tea has been used to relieve pain and fevers. The Shakers used willow bark for indigestion, diarrhea, dysentery, worms, gangrene, fever, hemorrhages, chronic mucus discharges, and indolent ulcers (Foster and Duke 1990:286; Miller 1976:254).

Apiaceae (Parsley Family)

Members of the Apiaceae (parsley family) are biennial or perennial, mostly herbs with stout stems, often aromatic. Many of the species in this family are of economic importance, including *Anethum graveolens* (dill), *Anthriscus cereifolium* (chervil), *Carum carvi* (caraway), *Coriandrum sativum* (coriander), *Cuminum cyminum* (cumin), *Daucus carota* (carrot), *Foeniculum vulgare* (fennel), *Pastinaca sativa* (parsnip), *Petroselinum crispum* (parsley), and *Pimpinella anisum* (anise). Other members of this family, including but not limited to *Cymopterus*, *Lomatium* (biscuitroot, prairie parsley), *Perideridia* (yampa), and *Pseudocymopterus* (mountain parsley) are noted to have been used by many Native American groups. The roots, stems, and leaves of these plants were used for food, seasoning, and medicine (Harrington 1967; Kirk 1975). Several members are noted to be poisonous, such as *Conium maculatum* (poison-hemlock) and species of *Cicuta* (water-hemlock). Members of the Apiaceae are found primarily in the temperate northern hemisphere
(Hickey and King 1981:298-299; Muenscher 1980:321-331; Smith 1977:177).

Artemisia (Sagebrush)

The genus *Artemisia* includes sagebrush, wormwoods, mugwort, and tarragon. *A. dracunculus* (tarragon) is a perennial with long, narrow, medium-green, pointed leaves that can be used fresh, dried, or frozen and added to fish, vinegars, tomatoes, salads, eggs, chicken, and pickles. Several species of *Artemisia* are popular garden perennials, such as *A. ludoviciana* (white sage), *A. lactiflora* (white mugwort), *A. vulgaris* (mugwort), *A. abrotanum* (southernwood), and *A. absinthium* (wormwood). These plants have silver-gray or silver-green foliage and often are aromatic. The dried branches can be used in flower arrangements. Southernwood has a lemony fragrance that is reported to repel bees and other insects. This plant is an old European herbal remedy and once was used to flavor Vermouth. The flowering stems of mugwort also were used medicinally, and the leaves used to season roast meat such as pork, mutton, goose, and duck. The *Artemisia* plants prefer full sun in poor, sandy, well-drained soil (Ambler, et al. 1994:295, 565-567; Bunney 1984:74-77). The Shakers used mugwort (*Artemisia vulgaris*) to treat epilepsy, hysteria, amenorrhea, to promote perspiration, and to increase the flow of urine and menses (Miller 1976:208).

Brassicaceae (Mustard Family)

Members of the Brassicaceae (mustard) family are annual, biennial, or perennial herbs with yellow, four-petaled flowers. The young leaves are rich in vitamins A, B1, B2, and C, and may be boiled as greens. Many species are cultivated for food including *Brassica oleracea* (broccoli, cabbage, kale, cauliflower, kohl-rabi, and brussel sprouts), *Brassica rapa* (turnip), *Sinapis alba* (mustard), *Rorippa nasturtium-aquaticum* (water cress), *Lepidium sativum* (garden cress), *Raphanus* (radish), and *Armoracia rusticana* (horse-radish). About 57 species are grown as ornamentals including *Iberis* (candytuft), *Arabis* (rockcress), *Erysimum* (wallflower), *Hesperis* (rocket), *Lunaria* (honesty, money plant) and *Lobularia maritima* (sweet alison). This family also contains many weedy species such as *Capsella* (shepherd's purse), *Descurainia* (tansy-mustard), and *Lepidium* (peppergrass). Wild members of this family may be found in waste places, grain fields, pastures, neglected fields, cultivated areas, in ditches, and along banks of streams (Hedrick 1972:100; Hickey and King 1981:150; Martin 1972:64-65; McGee 1984:196; Muenscher 1980:232-236; Zomlefer 1994:125-129).

Fabaceae (Pea or Bean Family)

The Fabaceae (pea or bean) is a large family of about 600 genera and 12,000 species, including trees, shrubs, herbs, water plants, xerophytes, and climbers. A general characteristic of this family is the presence of bacterial nodules in the roots of many plants which enable the plant to take up more atmospheric nitrogen. This practice helps enrich the soil, and many species are valuable as crops on poor soils (Hickey and King 1981:196; Zomlefer 1994:160).

Astragalus **(Milkvetch, Locoweed)**

Astragalus (milkvetch, locoweed) are annual or perennial, prostrate or erect herbs. About 200 species can be found in the United States, with over 1000 species found worldwide. Species of *Astragalus* known as locoweed are poisonous, especially when found in soil with selenium. *Astragalus membranaceus* (huang qi) is known to increase the production of white blood cells and strengthen the immune system. It is also an antibacterial. The different species of *Astragalus* are found in varied habitats, including prairies, plains, woods, hills, valleys, and

along streams and riverbanks (Britton and Brown 1970:378-384; Martin 1972:71; Ody 1993:134) .

***Melilotus* (Sweet Clover)**

Species of *Melilotus* (sweet clover) are annual or biennial herbs native to Europe, Africa, and Asia. The young leaves are rich in protein and can be added raw to salads or boiled as greens. Seeds can be used to flavor soups and stews. The leaves contain coumarin and can be used as a vanilla-like flavoring. Fermentation transforms the coumarin into dicoumarin, which stops blood from clotting. *Melilotus officinalis* (yellow sweet clover, king's clover) flowers can be brewed into a tea for neuralgic headaches, painful urination, nervous stomach, colic, diarrhea, aching muscles, and painful menstruation. The plant can be poulticed for inflammation, ulcers, wounds, and rheumatism or smoked to treat asthma. Shakers boiled the leaves and flowers in lard to treat ulcers, inflammations, and burns. The Shakers used *Melilotus alba* (white sweet clover) to treat chest complaints. Sweet clovers were used to flavor cheese and tobacco, as well as in sachets and potpourri mixes.

Lamiaceae (Mint Family)

The Lamiaceae (mint) family is characterized by square stems and hair-like oil glands on the surfaces of leaves and stems that are often used as flavorings. This is a large family of about 180 genera. Several members of the mint family are important culinary herbs including *Ocimum basilicum* (basil), *Majorana hortensis* (marjoram), *Origanum vulgare* (oregano), *Mentha piperita* (peppermint), *Mentha spicata* (spearmint), *Rosmarinus officinalis* (rosemary), *Salvia officinalis* (sage), *Satureja* (savory), and *Thymus vulgaris* (thyme). Mints also are useful medicinal herbs. *Mentha* (wild mint) is noted to be good for the stomach and has antispasmodic properties. *Scutellaria* (skullcap) is a calming nervine that can be used to treat nervous conditions, menstrual problems, and epilepsy. *Stachys officinalis* (wood betony) is a relaxing herb for general use, Specifically, *Stachys* can be used for headaches, nervous disorders, digestive problems, and as a diuretic. A *Leonurus* (motherwort) tonic can be used for anxiety and heart weaknesses, nervous tension, or menstrual pain. *Melissa officinalis* (lemon balm) can be used to treat depression, tension, indigestion and other stomach problems, nervous exhaustion, and colds. *Ocimum basilicum* (basil) leaves are useful for treating insect bites. *Prunella* (self-heal) is widely used to stop bleeding, as well as to treat throat and mouth inflammations and diarrhea. *Rosmarinus officinalis* (rosemary) may be taken for colds, influenza, rheumatic pains, indigestion, and headaches. *Thymus vulgaris* (thyme) is an antiseptic expectorant that is good for treating chest infections. It also may be used for stomach disorders and diarrhea. Other species of mint also may be used medicinally, for oils or perfumes, as ornamentals, or they may exist as weedy herbs or undershrubs (Hickey and King 1981:350; McGee 1984:204-206; Ody 1993; Toussaint-Samat 1992:533).

Cerealia

The Cerealia group consists of the economic members of the grass family including *Triticum* (wheat), *Avena sativa* (oat), *Hordeum vulgare* (barley), and *Secale cereale* (rye). These plants are part of the cereal grains that were named for *Ceres*, the Roman goddess of agriculture. These seeds are noted to "have played a crucial role in human nutrition and cultural evolution" (McGee 1984:226). These grains are used to make beer and bread, which have been staples in the human diet since at least 3000 B.C. The cereal grains are concentrated sources of protein and carbohydrates and continue to provide the majority of the caloric intake for much of the world's population. Wheat, barley, and oats have been the most important grain in the Middle East and Europe (Hickey and King 1981:436; McGee 1984:227-229).

***Sorghum* (Broom corn, Sorghum)**

Sorghum (broom corn, sorghum) originated in the tropics and subtropics of Africa. The seeds are edible, although high in tannins, and sorghum is cultivated throughout India, tropical Asia, Africa, southern Europe, the West Indies, and America. In many areas where sorghum is cultivated it is used for staple foods that make up a substantial part of the diet. Sorghum thrives in many area that are relatively arid. A variety of broom corn is grown in the United States specifically for the making of brooms (Hedrick 1972:551-552)

DISCUSSION

Located between the towns of Lebanon and Middletown, Ohio, Union Village began in 1805 as a Shaker community, growing rapidly through the 1830s into a large settlement with up to 600 people living in nine separate family lots on approximately 4,500 acres of land. The North Family Lot (33WA407) was the site of the Shaker-occupied Gathering Order, and then the Second Family of Union Village, from the years 1823-1913. Tenant farmers began to occupy the site along with Shakers towards the end of the nineteenth century. When the last of the Shakers moved in 1929, Otterbein Homes converted the site to accommodate both its own residents, which included orphans and retirees, and tenant farmers. The Communal House was the last building on the site to be demolished in 1965 (Andrew Sewell, personal communication, September 1, 2005).

Several historic features associated with the Shaker occupation were identified during excavation of the site. A remote sensing survey also found a “mysterious ‘blank’ area” (Andrew Sewell, personal communication, September 1, 2005), which may have served as an additional garden or orchard. Modern vegetation at the site reflects sodding the area and includes grasses (Poaceae), weeds, and poplars (*Populus*).

Pollen and phytolith analyses of samples were conducted to determine land use patterns. Specific questions asked of the pollen and phytolith analyses include determination of whether or not a location in the northern portion of the site was once used for a small garden, and to examine possible land use in the ‘blank’ area. Samples were also collected from three pit features located adjacent to and predating Structure 5, which has been interpreted as “Sisters’/Carding Shop”, where woolens were produced. Analysis of one sample from the A-horizon, which underlies cultural debris capped by Path 3, provides evidence of native vegetation in this area prior to its development in 1823.

Path 3

Three samples (0203, 0204, 0205) were collected underneath Path 3, a flagstone pathway built in 1842 (Andrew Sewell, personal communication, January 15, 2006). All three samples were recovered during the excavation of Unit 9.

Sample 0205 represents Level 3 in Unit 9 at a depth of 43 cmbd. This buried A horizon probably represents the 1823 and pre-1823 ground surface, based on the construction date of the nearby Communal House and the fact that sediments from digging the Communal House cellar overlie this deposit. The pollen record from this sample is very different from the samples collected above it. *Quercus* pollen clearly dominates the record, indicating that this general area was part of an oak forest (Figure 1, Table 2). Smaller quantities of *Acer*, *Castanea*, *Carya*, *Pinus*, and *Ulmus* pollen indicate that maple, chestnut, hickory, pine, and elm also were trees growing in the local forest. Recovery of small quantities of High-spine Asteraceae, Liguliflorae, Brassicaceae, Poaceae, and Rosaceae striate pollen indicate the presence of members of the sunflower family including the chicory tribe, members of the mustard, grass, and rose families as part of the local, natural vegetation. Recovery of a small quantity of Cerealia pollen represents a cultivated cereal such as wheat, barley, or rye or broom corn. Broom corn is a common crop at Shaker habitations. Stalks of broom corn were made into brooms as one of the craft items produced by Shakers. Invention of the flat broom, from the previous round broom, is attributed to Shakers during the mid-1820s (Olney 1999). It is the presence of the Cerealia pollen, along with the large quantity of *Quercus* pollen, that suggests sediments in this level represent vegetation in a tight time interval, between 1805 and 1823, since people from Union Village appear to have been using this area and dropping evidence in the form of the Cerealia pollen onto the ground prior to the construction of the Communal House in 1823. Therefore, it is likely that the forest on the North Family lot was not cleared early during the occupation of Union Village (approximately 1805 and the next few years). Clearing likely took place while preparing the North Family lot for occupation. It is rare to obtain this pollen signature of a wooded area combined with evidence of Anglo occupation, in the form of Cerealia pollen, and the suggests that the sample (0205) collected represents the top of the A-horizon. Recovery of small quantities of microscopic charred Asteraceae tissue fragments and Solanaceae seed fragments in this sample suggest burning weedy plants on the North Family lot to control them, as well as the presence of a member of the nightshade family as part of that weedy plant complex.

The phytolith record from this sample is very similar to that of the overlying sample 0204, with buliform and elongate forms being relatively abundant. Of the grass short cells, festucoids are most abundant, representing cool season grasses, but both chloridoid and bilobates also are present (Figure 2). If the woodland or forest had been dense here, the quantity of festucoid grass short cells would be expected to be larger and quantities of chloridoid and panicoid grass short cells would be expected to be smaller. Instead, the slightly increased quantity of chloridoid grass short cells indicates that more short grasses were present in the openings of this woodland than were present in the cleared area later. This argues for a sparse forest in this area or a small natural clearing at this location. Recovery of spiny spherical forms represent a dicot, such as a member of the Euphorbiaceae (spurge family), which are known to produce this form. Although this version of the spiny spherical form is not diagnostic to any particular family at present, they are produced in this family that includes weedy plants in this area. At present, this is the most likely association for this form in this geographic area.

Together, the pollen and phytolith samples from this level indicate a sparsely wooded area or perhaps a natural clearing on the North Family lot with an understory of grasses, which were a mixture of cool season and warm season grasses. Members of the sunflower family, including the chicory tribe, mustards, at least one member of the rose family, and certainly other plants also grew in the area. These sediments were deposited after Anglo occupation in the North Family lot, most likely placing their accumulation after 1805 (the founding of Union Village). This information is consistent with the pre-1823 date assigned to this level.

Sample 0204, collected 35 cmbd in Unit 9, represents fill from digging the cellar for the nearby Communal House, built in 1823, which was piled in this area. It is possible this sample contains sediment that predates the sample above, since it is fill associated with digging the cellar through the A-horizon and into the sediment below. The pollen record from this sample is very similar to that of the overlying sample, 0203. *Quercus*, *Carya*, *Pinus*, High-spine Asteraceae, Liguliflorae, Cheno-am, and Poaceae are the most prominent pollen types, representing oak, hickory, pine, members of the sunflower family including the chicory tribe, members of the Cheno-am group, and grasses. Recovery of small quantities of Cupressaceae, *Ulmus*, Low-spine Asteraceae, Brassicaceae, Cyperaceae, Fabaceae, *Astragalus*, Lamiaceae, *Eriogonum*, Rosaceae, *Typha angustifolia*-type, and *Zea mays* pollen indicate the presence of a member of the cypress family (such as juniper), elm, ragweed-type members of the sunflower family, members of the mustard family, sedges, members of the legume family including astragalus or locoweed, a member of the mint family, wild buckwheat, a member of the rose family, cattail, and corn. It is possible that a member of the mint family was cultivated at the site, since peppermint oil is noted to have been distilled at the North Family lot. Still, the context of this sample makes any such interpretation very tenuous. Recovery of corn from this deposit indicates that this location included historic trash or possibly horse dung, if the horses had been fed corn. Failure to recover *Sporormiella* dung fungal spores suggests that horse dung was not present. Other members of this portion of the pollen record indicate the presence of weedy plants such as ragweed, mustards, sedges, legumes, and wild buckwheat. The member of the mint family might have been a weedy plant or perhaps it represents a culinary or medicinal herb. *Astragalus* also has medicinal properties and this pollen might be present through the use of this herb. The similarity of this pollen record to that in sample 0203, above, suggests that the existing pollen record associated with the sediments piled up from digging the cellar were mixed with pollen in the air at the time the cellar was dug. Little or no tree pollen appears to have been added to this record, since the quantities of tree pollen were generally lower than those observed in sample 0205, representing the A-horizon. Instead, quantities of High-spine Asteraceae, Liguliflorae, Cheno-am, and Poaceae pollen were slightly elevated, suggesting that the cellar was dug during the summer months and perhaps into the fall when these plants were flowering, not during the spring when tree pollen was more abundant. Recovery of both charred microscopic Asteraceae tissue fragments and microscopic Solanaceae seed fragments suggest that weeds were being controlled through burning and that the weedy plant complex included a member of the nightshade family.

The phytolith record from this sample yielded a similar quantity of festucoid grass short cells to that noted in sample 0205. The quantity of buliform cells was elevated compared with the quantities noted in both samples 0205 and 0203. Acicular hair cells (trichomes) are slightly more abundant, representing the silicification of hairs on the glumes surrounding grass seeds. Spiny spheroids are present again. A single straight hair was recovered, representing the silicified hair of a dicot plant. The hair was not diagnostic to the family or genus level. The similarity of this sample to sample 0205 is consistent with both samples representing pre-Anglo occupation. It also suggests that the increase in festucoid grasses noted in the historic samples

examined from Path 3, the garden area, yard area, and possible orchard area were the result of changes initiated by the Shaker occupants of the North Family Lot. The differences in affinity between the pollen and phytolith records for this sample are consistent with the interpretation that the cellar was dug during the summer and perhaps into the fall, when pollen from specific plants might have been incorporated into the sediments as they were exposed and redeposited.

Sample 0203 represents Level 2 at a depth of 30 cmbd. Like sample 0204, this pollen record exhibits moderate to moderately small quantities of *Quercus*, *Carya*, *Pinus*, Low-spine Asteraceae, High-spine Asteraceae, Liguliflorae, Cheno-am, and Poaceae pollen, reflecting local and/or regional oak, hickory, pine, various members of the sunflower family, including those of the weedy ragweed group (Low-spine Asteraceae) and chicory tribe (Liguliflorae), members of the Cheno-am group such as weedy goosefoot or redroot, and grasses. Recovery of small quantities of Cupressaceae, *Populus*, *Ulmus*, Brassicaceae, and Rosaceae pollen indicate the presence of members of the cypress family (including juniper), cottonwood, elm, and members of the mustard and rose families. The pollen record defines a relatively open vegetation community with either the occasional tree growing within it or location of trees at a distance from the area sampled. This sample exhibited both microscopic charred Asteraceae tissue fragments and Solanaceae seed fragments, suggesting burning weedy plants including members of the sunflower family and the presence of members of the nightshade family in the local weedy plant complex.

The phytolith record is dominated by festucoid (cool season) grass short cells, representing growth of grasses that thrive in the spring and fall when the temperatures are not so hot and/or grasses that live in shady areas. In addition, grasses typically selected for planting in “lawns” and other maintained areas are in the festucoid group. This increase in festucoid short cells might reflect any of the above conditions. Recovery a small quantity of chloridoid and a moderate quantity of panicoid phytoliths indicates presence of grasses that thrive in the heat of summer and require open, sunny areas in which to grow. Recovery of buliforms indicates that grasses received sufficient moisture to allow silicification of the cells that control leaf rolling in response to drought conditions. Elongate forms were present and moderately abundant. These forms represent grasses in general, but do not inform concerning the type of grasses present. A few forms produced by dicots were present, but not abundant. Spiny spherical forms, once again attributed to the Euphorbiaceae family in which they are noted to occur, were present.

Garden Area

Two pollen and phytolith samples were recovered from an area in the northern portion of the site that was used as a garden. The area sampled is located north of Structure 1, the Communal House, and southwest of Structure 5, constructed much later. Sample 1035 represents the excavation of Unit 60 in the garden area. The sample was obtained from Level 1 of the unit, at a depth of 8-16 cmbd. The pollen record is dominated by Liguliflorae pollen, indicating that gardeners battled dandelions and similar weeds. This sample yielded little pollen evidence of trees, which are restricted to Cupressaceae, *Quercus*, *Carya*, *Pinus*, and *Ulmus*, representing trees from the cypress family, oak, hickory, pine, and elm growing around the periphery of the cleared area for the North Family Lot. Recovery of moderate quantities of High-spine Asteraceae, Poaceae, and Low-spine Asteraceae indicate local growth of members of the sunflower family, grasses, and ragweed. Pollen observed in small quantities includes *Artemisia*, Brassicaceae, Corylaceae, *Euphorbia*, *Astragalus*-type, and *Plantago*, representing wormwood, members of the mustard and hazel families, spurge, astragalus (locoweed), and plantain. Of these, mustards, spurge, and plantain tend to be considered weedy plants. Wormwood might have been grown or used for its medicinal properties, hazel might have grown as a shrub in a wet area, and astragalus might have been used for its medicinal properties. The presence of Solanaceae seed fragments indicates that a member of the nightshade family was present as part of the weedy plant complex in this portion of the garden.

The phytolith record is dominated by festucoid grass short cells, indicating that shade-loving, cool season grasses grew in abundance in this area. It is possible that at least part of this phytolith record belongs to the pre-clearing vegetation community, as gardens are dug into the existing soils, which are turned over many times. It is also possible that the garden area was divided by grassy paths, which would have been planted in festucoid or cool season grasses. This phytolith signature is most similar to that in sample 0203, rather than either 0204 or 0205, which represent pre-Anglo sediments. The larger quantities of festucoid grass short cells appear to be associated with sediments representing Anglo occupation. Recovery of a few chloridoid and panicoid phytoliths indicates that a portion of this area was sunny and supported short and tall grasses. Buliforms were moderately abundant and elongates were present. Recovery of a concentricyste indicates wet oxidizing conditions in the garden area.

Pollen and phytolith sample 0578 was recovered 12-18 cmbd from G-1 in the garden area. This sample is very similar to sample 1035 in pollen content, exhibiting a large quantity Liguliflorae pollen, indicating that dandelions were a troublesome weed in the gardens represented by this sample, as they were in the area represented by sample 1035. Recovery of pollen reflecting trees growing as a remnant of the forest, probably around the periphery of the North Family Lot includes Cupressaceae, *Quercus*, *Carya*, and *Pinus.* Recovery of a small quantity of *Picea* pollen in this sample indicates only that spruce grew at some distance from the site, perhaps a few hundred miles away, and the pollen was transported long distance on the wind. Recovery of small quantities of Low-spine Asteraceae and High-spine Asteraceae pollen indicates the presence of various members of the sunflower family, including ragweed, in or near the garden area. The presence of a small quantity of Cheno-am pollen indicates that goosefoot (*Chenopodium*) or redroot (*Amaranthus*) might represent weedy plants growing in the garden. Alternatively, it is possible that the Shakers realized that both of these plants produced tender, edible greens and harvested them from the weedy plants that might have grown as part of the weedy plant complex. Recovery of small quantities of Fabaceae, *Lotus*-type, *Melilotus*-type, *Plantago*, and Poaceae pollen suggests that the weedy plant complex in this garden included members of the legume family including deervetch or trefoil and sweet clover, plantain,

and grasses. The presence of a small quantity of Rosaceae pollen indicates local growth of a member of the rose family. This member of the rose family might or might not have been a cultivated plant, although most of the members of the rose family that are cultivated produce striate pollen, which would have been distinguished from Rosaceae pollen in general. For instance, *Fragaria* (strawberry) has a very distinctive, striate pollen and this identification can be excluded for pollen put in the Rosaceae category in analyses conducted at our institute. Further, *Rubus* and *Potentilla* can be excluded as possible identifications for this pollen, based on the fact that both genera produce a striate pollen grain. Although most fruit trees produce pollen that is striate, it is possible that some of the individual pollen grains would not show their striations well when deteriorated. It is more likely, however, that the Rosaceae pollen represents similar plants to those noted in other samples examined from this site. Recovery of Cerealia pollen suggests that a cultivated grain, such as wheat, barley, rye or broom corn, might have been grown in this portion of the garden. Recovery of microscopic charred Asteraceae tissue fragments suggests the possibility that weeds were burned as part of the effort to control them.

The phytolith record from sample 0578 is very similar to that in sample 1035. Once again, festucoid grass short cells dominate the record and small quantities of chloridoid and panicoid phytoliths were observed. Buliforms were present, as were trichomes and elongate forms. This sample exhibited a few dicot phytoliths, including the spiny spherical forms that might represent a member of the Euphorbiaceae (spurge family), another well-known weed. The phytolith record documents the presence of a large quantity of cool season grasses, either because this sample includes a mixture of garden sediments with the underlying sediments that might have accumulated in a shady habitat, or because cool season grasses grew with some abundance in the garden – perhaps as part of a walkway, as weedy plants, or because cereals (wheat, barley, or rye) were cultivated here. Broom corn produces bilobates and other phytoliths typical of the tall grass that it is, and would produce a different signature in the phytolith record.

Yard Area

A single pollen and phytolith sample, 0581, was collected from Y-1 in Yard 2, 15-24 cmbd. Yard 2 lies between Structure 1 and Structure 3 towards the middle of the site. The pollen record exhibits a moderate quantity of arboreal pollen that includes *Acer*, *Quercus*, *Carya*, *Juglans*, *Pinus*, and *Salix*, representing maple, oak, hickory, walnut, pine, and willow. None of these pollen frequencies are large enough to indicate that specific trees grew in the yard near the area sampled. All might be part of the local forest surrounding the North Family lot, or a portion of the lot. Walnut and hickory probably were valued for both their nut crops and also their woods for building. It is likely that oak trees also were a valued resource, primarily for wood, since processing the acorns to remove the bitterness made this a less attractive resource for most Anglo populations. The yard area apparently supported a similar quantity of grasses as other areas tested, but not more. Low-growing plants that probably contributed to the weedy plant complex that grew in the yards helping to make the landscape green included primarily Liguliflorae, representing dandelions and similar plants. It is interesting to note that plantain (*Plantago*), often a component of grassy areas, is absent from the pollen record in this sample. Other weedy plants noted in this area are not such low-growing forms and include members of the Low-spine Asteraceae and High-spine Asteraceae, which include a variety of members of the sunflower family such as ragweed, tarweed, aster, etc. Brassicaceae, Cheno-am, Euphorbiaceae, Fabaceae, *Astragalus*-type, Polygonaceae, and *Eriogonum* pollen represent

the presence of a member of the mustard family, plants in the Cheno-am group, members of the spurge and legume families including astragalus or locoweed, and members of the knotweed family including wild buckwheat. The yard area probably had a visual signature of plants of varying heights. Weedy plants appear to have been moderately abundant and probably grew freely mixed with the grasses. Charred microscopic Asteraceae tissue fragments were present, suggesting burning weeds including members of the sunflower family either in the yard area or neighboring garden areas. Recovery of both Caryophyllaceae seed fragments and Solanaceae seed fragments attests to the presence of members of both the pink and nightshade families as part of the weedy plant complex. *Silene* (catchfly) is one of the noted weedy plants in the pink family.

The phytolith record is dominated by festucoid grass short cells, representing cool season grasses. Grasses selected for planting in yard areas usually are cool season grasses, so the elevated quantity of festucoid grass short cells might well reflect this choice. Recovery of small quantities of chloridoid and panicoid phytoliths indicates the presence of at least some short and tall grasses within the grass population. Also, each sample has its own, unique, time depth. It is unknown precisely how much time is represented by this sample. Therefore, it must be acknowledged that complex records of vegetation, such as pollen and phytolith data, represent vegetation present during the entire time depth of a sample, not just the time that archaeologists have targeted when collecting the sample. The buliform frequencies are moderate, indicating that most grasses growing in this area had sufficient water to meet their growing needs. Elongates were not abundant in this sample, a factor very related to the preservation of phytoliths within these sediments. Better preservation results in a more visible grass short cell population and a reduced elongate population. Evidence for phytoliths representing dicots is scant, but includes the spiny spherical forms that are interpreted here to represent a member of the spurge (Euphorbiaceae) family.

Possible Orchard Area

A “blank” area identified in the remote sensing survey was located just outside the project right-of-way. Parallel bands present in the resistivity data indicate that this area may have been an orchard or another garden (Andrew Sewell, personal communication, September 1, 2005). Two pollen and phytolith samples were recovered from two of a series of shovel probes, dug on a transect across the area.

Sample 1493 represents OT-1 and was collected at a depth of 9-14 cmbd. The pollen record exhibits a moderate quantity of arboreal pollen including *Acer*, Cupressaceae, *Quercus*, *Carya*, *Juglans*, and *Pinus*, representing maple, a member of the cypress family (including juniper), oak, hickory, walnut, and pine. The understory component of the local vegetation appears to have been dominated by grasses, since a moderate frequency of Poaceae pollen was observed. In addition, the grasses were joined by Liguliflorae and Cyperaceae pollen, representing dandelions (and similar plants) and sedges. These plants might have grown densely enough to create a visual image of green vegetation matting rather like a lawn. Alternatively, they might have grown more sparsely. Other pollen representing plants that grew somewhat taller, but still represent herbaceous plants includes Brassicaceae, Caryophyllaceae, Cheno-am, *Erythronium*-type, and Fabaceae, representing the presence of members of the mustard and pink families, cheno-ams, fawn lily-type, and members of the legume family. Fawn lily is a member of the lily family and might be present as a native plant or might have been planted intentionally. Recovery of *Ephedra nevadensis*-type pollen indicates long distance wind

transport of pollen from ephedra or Mormon tea growing far to the west. This pollen is known for its ability to be carried long distances on the wind, so on interpretation of trade of goods from far to the west is necessary to explain the presence of this pollen. The presence of a small quantity of Rosaceae pollen might reflect shrubby or herbaceous members of the rose family growing in this area, or more probably, growth of fruit trees in the orchard. Apples, plums, peaches, pears, cherries, and apricots all are members of the rose family. This particular pollen could not be identified to genus, nor was it obviously striate, as are all of the pollen produced by fruits trees. Therefore, interpretation of this pollen to indicate the presence of fruit trees growing in the area is not secure. Recovery of small quantities of microscopic charred Asteraceae tissue fragments suggests burning weedy plants somewhere on the property. The presence of Solanaceae seed fragments in this sample indicates that the weedy plant complex in this area also included members of the nightshade family.

The phytolith record yielded nearly equal quantities of festucoid grass short cells, buliforms, and elongates, representing cool season grasses and grasses in general. The buliforms are casts of the cells that control leaf rolling in response to drought and also are relatively large cells. These larger forms are more resistant to dissolution than the smaller, more delicate grass short cells. Small quantities of chloridoid and bilobate grass short cells were observed in this sample, documenting the presence of short and tall grasses. The phytolith signature for this sample indicates that either this record was affected by dissolution or that there were more warm season (short and tall) grasses, indicating open sunny areas within this possible orchard area. Recovery of a moderately large quantity of buliforms argues for this record being affected by dissolution. Never-the-less, cool season, short, and tall grasses all grew in this possible orchard area. A single type of dicot phytolith was observed, but cannot be associated with a particular plant family or genus.

OT-3 is represented by sample 1495, recovered 22-28 cmbd. The pollen record is different than that for OT-1. More *Quercus* and less *Pinus* pollen was present in this sample. Other trees represented include Cupressaceae, *Carya*, *Juglans*, and *Populus*, representing the cypress family, hickory, walnut, and cottonwood. It is rare to see *Populus* pollen in the record, since it is more prone to decay than most other pollen types. Recovery of *Populus* pollen in this sample indicates the presence of cottonwood on the property and should be taken as an indication that cottonwood was present during the Shaker occupation of the North Family lot. The understory vegetation in this area of the possible orchard is represented by Apiaceae, Low-spine Asteraceae, High-spine Asteraceae, Liguliflorae, Brassicaceae, *Cephalanthus*, Cheno-am, Cyperaceae, *Melilotus*-type, Poaceae, *Eriogonum*, and Rosaceae pollen, representing a member of the umbel family, growing either as a weed or perhaps as a cultivated plant, members of the sunflower family including weedy plants such as ragweed, dandelion, and others, a member of the mustard family, buttonbush, cheno-ams (probably including weedy goosefoot and/or red root), sedges, sweet clover, grasses, wild buckwheat, and a member of the rose family. Rosaceae pollen is ubiquitous at this site, making interpretation of the significance of small quantities of this pollen that did not exhibit obvious striation very difficult. It is likely that the Rosaceae pollen does not represent a fruit tree, but the possibility simply cannot be ruled out.

The phytolith record is dominated by festucoid grass short cells, representing cool season grasses. These grasses might be growing in this portion of the orchard because it was shady or perhaps because paths were planted and/or maintained as grassy areas. Moderate quantities of buliforms and elongate were noted, representing grasses in general. Both chloridoid and panicoid grass short cells were observed, indicating the presence of short and tall

grasses growing in this area. This indicates that the area was probably a patchy mixture of shady and sunny areas. Cyperaceae phytoliths were observed, which underscores the interpretation from the pollen record that sedges grew in this area. Dicots are represented by a few forms, none of which are identified to even the family level.

Structure 5

Structure 5, located in the northern portion of the site, has been identified as the Sisters'/Carding Shop. Constructed in 1854, the building was originally a three-story brick shop. Unlike other structures at the site, this building had a small cellar with a dirt floor in the south half of the structure. It is believed that this building replaced an existing structure, probably a small log shed, and/or the Garden Shop. Sisters' Shop was itself demolished circa the 1950s, and when razed, salvage efforts confiscated most of the timber and structural elements. The cellar was then filled with the brick rubble.

Pollen and phytolith samples representing three pit features located near Structure 5 were collected for analysis. All of these pit features pre-date the construction of the Sisters'/Carding Shop, but have been lumped under this designation because they were all present in a relatively small area.

Feature 46

Feature 46, a possible refuse pit located near the southeast corner of Structure 5, appears to be affiliated with the use of Structure 11. The feature displayed several distinct strata, which were rich in historic artifacts and included deposits of mortar, ash, and colored soils, indicating several fill episodes (Sewell 2005: 31). Ceramics recovered include mocha-banded wares, redwares, and decorated pearlwares, all of which date to the 1830s and 1840s. Some animal and fish bones were observed in the trash fill of this pit. Five pollen and phytolith samples were collected and analyzed from the fill of this feature. The uppermost layer is described as silt/loam fill, while the middle three layers contain ash. The base of the pit, another silt/loam fill, is represented by sample 1484.

The base of the pit is marked by a large quantity of Brassicaceae pollen, which probably represents weedy members of the mustard family growing in the area. The arboreal portion of this record includes *Quercus*, *Carya*, *Pinus*, *Salix*, and *Ulmus* pollen, indicating the presence of oak, hickory, pine, willow, and elm in the local forest. The understory is represented by High-spine Asteraceae, Brassicaceae, Fabaceae, Lamiaceae, Onagraceae, and Poaceae pollen, indicating the presence of members of the sunflower, mustard, legume, mint, evening primrose, and grass families in the local vegetation. This list of plant families includes many that are weedy and might be growing in the area because the landscape was disturbed. A small quantity of Cerealia pollen was observed in this sample, indicating the presence of wheat, barley, oats, rye, or perhaps broom corn. A starch with a centric hilum was noted in the sample. These starches are typically produced by grass seeds, although most of the starches produced by edible wheat, barley, oats, and rye would be described as *Hordeum/Elymus*-type, which are lenticular in shape with an elongated hilum. Still, some of the starches produced by edible cereals exhibit a shape similar to that noted in this sample. This, along with the presence of Cerealia pollen, suggests discard of baked goods in this pit. It is possible that the Brassicaceae pollen noted in a large quantity in this sample reflects discard of remains from a member of the mustard family that had been cooked or processed, such as mustard greens picked late in their

cycle (after the plants had flowered) or perhaps use of ground mustard seed as a flavoring. Charred microscopic Asteraceae tissue fragments were noted in this sample, but no Solanaceae seed fragments were observed. The estimated charcoal frequency for this sample is relatively low at approximately 6600 microscopic fragments of charcoal per 100 pollen. Total pollen concentration was moderate at approximately 473 pollen per cc of sediment.

The pollen record for the middle three layers, all of which contained ash, exhibit some differences from one another. Samples 1483 and 1482 are similar to one another in many respects. These lower two of the three samples exhibit similar frequencies of *Quercus*, *Carya*, *Juglans*, and *Pinus* pollen, reflecting oak, hickory, walnut, and pine trees. Sample 1483 also exhibits small quantities of *Acer* and *Salix* pollen, reflecting local maple and willow trees. Failure to recover these pollen types in sample 1482 is not surprising, since they were observed in a very small quantity in sample 1483. Recovery of small quantities of Low-spine Asteraceae, High-spine Asteraceae, and Liguliflorae pollen in these samples indicates the presence of primarily weedy plants in the sunflower family that included ragweed and dandelion, as well as other herbaceous members of this family. The quantity of Brassicaceae pollen was considerably reduced in these two samples, and still might reflect either weedy plants growing in the area or discard of food remains. Cheno-am pollen is present in small quantities in both samples and might represent weedy goosefoot and/or red root growing in disturbed sediments. Recovery of small quantities of Caryophyllaceae, Corylaceae, Cyperaceae, Lamiaceae, Onagraceae, and *Plantago* pollen only in sample 1482 indicates the presence of members of the pink, hazel, sedge, mint, and evening primrose families and plantain in the local vegetation. Of these, the Lamiaceae pollen might reflect discarded mint that was used as a flavoring for food or that might have been used to process peppermint oil. Both samples exhibit small quantities of Poaceae, *Eriogonum*, and Rosaceae pollen, reflecting local growth of grasses, wild buckwheat, and a member of the rose family. Only sample 1483 exhibited a small quantity of *Typha* pollen, reflecting cattail growing in a riparian vegetation community. Both samples exhibited small quantities of Cerealia pollen, probably reflecting the discard of baked goods as part of the trash deposited in this pit. Charred microscopic Asteraceae tissue fragments were present again, indicating burning weeds on the property. Estimated charcoal abundance was similar in these two samples, varying from approximately 20,000 to 24,000 microscopic pieces of charcoal per 100 pollen. Total pollen concentration, on the other hand, varied significantly, from approximately 200 pollen per cc of sediment in sample 1483 to approximately 1300 pollen per cc of sediment in sample 1482.

Sample 1482, representing an ash and silt layer in the pit, was dominated by Brassicaceae pollen, as was sample 1484 at the base of the pit. This suggests the discard of remains of mustard plants. This sample exhibits a smaller quantity of arboreal pollen that included *Acer*, Cupressaceae, *Quercus*, *Carya*, and *Pinus*, reflecting the local growth of maples, members of the cypress family, oak, hickory, and pines. The understory included Low-spine Asteraceae, High-spine Asteraceae, Liguliflorae, Cheno-ams, Poaceae, and Rosaceae, representing various members of the sunflower family including weedy ragweed and dandelions, cheno-ams, grasses, and members of the rose family. The Rosaceae pollen frequency was elevated in this sample, although none were observed to be striate. It is likely that recovery of Rosaceae pollen is related to the discard of food remains in this pit. If the pollen had been striate, the remains would have included berries such as raspberries, and fruit such as apple that retains the withered blossom end. It is likely that preservation of these grains made determination of the presence or absence of striate on the surface of the pollen difficult and that the Rosaceae pollen does, in fact, represent discard of edible remains from a member of the rose family. It is interesting that the ash in this feature did not appear to include

microscopic charred Asteraceae tissue fragments, suggesting that it derived primarily from a wood burning fireplace or stove. The estimated charcoal frequency was high (nearly 33,000 microscopic pieces of charcoal per 35 pollen) and total pollen concentration was low (approximately 166 pollen per cc of sediment). Solanaceae seed fragments were observed in this sediment, indicating the presence of weedy plants in the nightshade family. The uppermost pollen sample from this pit did not yield sufficient pollen for analysis, or more accurately, the pollen record was so overwhelmed by microscopic pieces of charcoal that it could not be observed properly. Only three grains of High-spine Asteraceae pollen were observed in the portion of the sample examined. The estimated charcoal frequency was nearly 45,000 microscopic pieces of charcoal for the three pollen recovered, which, when extrapolated, calculated to an expected 1,350,000 microscopic pieces of charcoal per 100 pollen grains. Therefore, although the total pollen concentration is calculated at approximately 836 pollen per cc of sediment, they could not be observed because of the large quantity of charcoal in the sample. This sample was described as silt/loam fill. Evidently it contained a significant quantity of ash.

The phytolith record from this pit yielded increasing quantities of festucoid grass short cells from the bottom to the top of the deposits, indicating increasing quantities of cool season grasses. Some of these forms might be present as a result of discarding cereal grains or baked goods. If this were true, one would expect to see a rise in elongate spiny forms. Such a rise is not visible in this record, indicating that the increases in festucoid grass short cells are most probably reflecting grasses growing in the area rather than edible goods being discarded. Small quantities of chloridoid and panicoid grass short cells were present in each of the samples. The bottom three samples exhibited a pattern of declining frequencies of panicoid grass short cells that was interrupted in sample 1485 with an increase. Buliforms were abundant in all samples, but more abundant in the lowest and uppermost samples examined. Elongates also were moderately abundant, as they were in samples from other locations. The phytolith record from these sediments appears to reflect grasses growing in the immediate vicinity of the pit or perhaps in the fill of the pit as it accumulated. To the extent that pit fill was derived from the sediments next to the pit, the phytolith record might represent grasses growing on that landscape surface. A few forms represent dicots, but none were identifiable to the family or genus level and none were of a type unique to these deposits. Therefore, they are all interpreted to represent plants growing in the vegetation community on the North Family lot. Sponge spicules were noted in sample 1485, probably representing the presence of ground moisture.

Feature 86

Feature 86, an oval pit containing mainly brick rubble and only a meager scattering of artifacts, was located to the northwest of Structure 5. The pollen record from this pit, represented by sample 1631, exhibits *Quercus*, *Carya*, and *Juglans* pollen, representing oak, hickory, and walnut trees growing in the area. The understory is represented by High-spine Asteraceae, Liguliflorae, Cheno-am, Lamiaceae, Poaceae, Rosaceae, and *Toxicodendron* pollen, reflecting members of the sunflower family, dandelion-type plants, cheno-ams, members of the mint, grass, and rose families, and poison ivy. This is the only instance of poison ivy noted in the pollen record from this site, suggesting the possibility that people living in the area made every effort to clear this vining plant from the landscape. There is no evidence in the pollen record to indicate the use of this pit other than for construction rubble. Total pollen concentration was low, at approximately 60 pollen per cc of sediment, which is consistent with

relatively fast accumulation of debris in the pit. Estimated charcoal frequency was high at nearly 45,000 microscopic charcoal fragments per 50 pollen grains observed.

The phytolith record from this pit is very similar to others from this site. The quantity of elongates is elevated and buliforms are noted in a moderate frequency. Festucoid grass short cells are not abundant in this sample, and chloridoid and panicoid grass short cells are present. This area apparently supported a mixture of cool season, short, and tall grasses, reflecting both shady and sunny habitats. A few forms typical of dicot plant are noted, but were not identifiable to family. Sponge spicules are present, probably as a result of the presence of ground moisture.

Feature 88

Feature 88, also situated northwest of Structure 5, is another oval pit feature. The pit resembles Feature 86 in structure, characterized by an oval-shape, sloping sides, and a flat bottom. Feature 88 contained almost solely limestone cobbles. The origin of these cobbles (as well as the brick rubble of Feature 86) is believed to relate to the removal of a structure associated with two limestone cobble foundations found near the northwest corner of Structure 5. Two pollen and phytolith samples, 1665 and 1664, represent this pit feature. Sample 1665 was collected from the clay fill of the pit at a depth of 42 cmbd, while sample 1664 was recovered at a depth of 63-70 cmbd from the clay-loam fill at the bottom of the pit. The pollen record differed in these two samples. The most obvious difference is the very different total pollen concentrations noted in the lowest sample (approximately 33 pollen per cc of sediment) and the more than 1500 pollen per cc of sediment in the upper sample. It is interesting that the pollen content of these two samples is not more different. Both exhibit *Quercus*, *Carya* and *Pinus* pollen, although only sample 1665 yielded Cupressaceae pollen. This reflects the presence of oak, hickory, pines, and members of the cypress family (including juniper) growing in the local forest. The understory is represented by Low-spine Asteraceae, High-spine Asteraceae, Liguliflorae, Cheno-am, Convolvulaceae, *Erodium*-type, Poaceae, and Rosaceae pollen, which indicates local growth of various members of the sunflower family including ragweed and dandelions, among others, cheno-ams, one of the bind-weeds, heron's bill, grasses, and a member of the rose family. Ferns are presented by the monolete and trilete spores, indicating that ferns probably grew as part of the understory for the local forest. Charred microscopic Asteraceae tissue fragments were recorded, suggesting that weeds probably were burned.

The phytolith record was heavily dominated by buliforms and elongates were present, which is consistent with dissolution of a portion of the phytolith record. Recovery of small quantities of festucoid, chloridoid, and panicoid grass short cells indicate the presence of cool season, short, and tall grasses growing in the vicinity of the pit that might have been introduced with sediment scraped from the surrounding surface. Alternatively, these grasses might have grown on the sediment on top of the fill that probably filled in the spaces between the limestone cobbles and became incorporated as part of the fill record.

SUMMARY AND CONCLUSIONS

Pollen and phytolith analysis of samples from a path, a garden area, a yard area, a possible orchard area, and from pits containing construction debris provide a record of local vegetation and some food discard at the North Family lot.

The local forest, apparently cleared in areas relatively early by occupants of the North Family lot, included maple, chestnut, oak, hickory, walnut, cottonwood, willow, and elm. It is likely that pines and members of the cypress family, such as juniper, were present occasionally in this forest, but were not abundant in the immediate area. Pollen representing dandelions is most abundant in the two samples examined from the garden area, suggesting that dandelions were a problem weed in the garden. Dandelions typically grow in disturbed areas, so their recovery in these samples is an appropriate signature. The crops grown in the garden area were not as apparent in the pollen record as the weeds, which also included clover and other legumes, and probably ragweed. Members of the mustard family and plantain might also have been among the weedy plant complex in the garden. Path 3 appears to have been a grass path planted in cool season grasses.

Grasses noted on the North Family lot included cool season, short, and tall grasses that occupied shady and sunny habitats. The increased quantities of festucoid grass short cells in samples examined from the garden, yard, and part of the orchard area, as well as the uppermost sample examined from Path 3, suggest intentional planting or encouraging of the cool season grasses most often selected for use in paths or lawns. Kentucky bluegrass is one example of this type of cool season grass. Mention of this grass as an example should not be misconstrued as an identification of this specific grass through the phytolith record. It is merely the most well-known of the cool season lawn grasses.

Although the mustard family is well represented in samples from Feature 46, a possible refuse pit, its presence cannot be interpreted definitively as representing discard of either mustard greens or ground mustard seeds. Other evidence of foods processed and discarded at the site includes primarily cereal grains, which are noted in the lowest sample from Path 3, the garden area, and the lowest 3 samples from Feature 46, the possible refuse pit. Certainly the pollen recovery from Feature 46 is consistent with use of this feature as a refuse pit. Mint pollen was recovered from some of two of the lowest three samples from Feature 46, suggesting that mint was, indeed, discarded, and that it does not necessarily represent a weedy plant in this context. Recovery of mint pollen in the middle sample from Path 3 and the sample from Feature 86, however, might reflect either discard of a processed food or medicine, or presence of a weedy plant. Although peppermint oil was processed at the North Family lot, no good evidence of growth of mint was obtained. *Astragalus* might have been processed or used for its medicinal properties by occupants of the North Family lot. This type of pollen was recovered in the middle sample from Path 3, in the garden area and the yard area. Alternatively, it might merely represent a weedy plant growing in these areas. Rosaceae pollen was observed in most of the samples, but could not be identified to the genus level. The pollen grains that were recovered could not be substantiated as presenting fruit trees or other cultivated members of this family. Although it is probable that at least some of the Rosaceae pollen represents fruit trees, it could not be substantiated in these samples. Recovery of only a single *Toxicodendron* pollen, representing poison ivy, suggests that the residents removed noxious plants from their immediate environment.

Walnut pollen was observed in samples from the yard area, possible orchard area, and from the pits outside Structure 5. Recovery of walnut pollen in the yard and possible orchard area suggests the possibility that a walnut tree was left standing somewhere in this vicinity. Another walnut tree might have been left toward the northwest portion of this study area. *Juglans* pollen was not observed in quantity nor regularly in these samples, suggesting scarcity of the trees in the immediate vicinity of this portion of the North Family lot. Hickory pollen, on

the other hand, is nearly ubiquitous in these samples, indicating that hickory trees probably were abundant in the forest that probably surrounded the North Family lot. Walnuts and hickory nuts probably were collected by Shakers living on the North Family lot. Oaks, also, were an abundant tree in the local forest. Acorns usually are not as valued a nut by Anglos. Oak trees might have been an important wood resource and possibly a medicinal resource.

TABLE 1
PROVENIENCE DATA FOR SAMPLES FROM SITE 33WA407, WARREN COUNTY, OHIO

Sample No.	Feature	Depth (cmbd)	Provenience/ Description	Analysis
0203	Path 3	30	Soil sample from Level 2 of Unit 9, Path 3	Pollen Phytolith
0204		35	Fill from digging cellar for Communal House, Unit 9, Path 3	Pollen Phytolith
0205		43	Buried A horizon (pre-1823); Soil sample from Level 3 of Unit 9, Path 3	Pollen Phytolith
1035		8-16	Soil sample from Level 1 of Unit 60, Garden area	Pollen Phytolith
0578		12-18	Soil sample from G-1, Garden area	Pollen Phytolith
0581		15-24	Soil sample from Y-1, in Yard 2	Pollen Phytolith
1493	"Blank Area"	9-14	Soil sample from OT-1, a possible orchard area	Pollen Phytolith
1495		22-28	Soil sample from OT-3, a possible orchard area	Pollen Phytolith
1481	46	46-54	Silt-loam fill from a pit near SE corner of Structure 5	Pollen Phytolith
1485		62-70	Ash and silt layer from a pit near SE corner of Structure 5	Pollen Phytolith
1482		80-85	Charcoal/ash layer from a pit near SE corner of Structure 5	Pollen Phytolith
1483		85-92	Ash deposit from a pit near SE corner of Structure 5	Pollen Phytolith
1484		110-118	Silt-loam deposit from base of a pit near SE corner of Structure 5	Pollen Phytolith
1631	86	57	Silt-loam fill from brick-filled pit near NW corner of Structure 5	Pollen Phytolith
1665	88	42	Clay fill from stone-filled, oval pit near NW corner of Structure 5	Pollen Phytolith
1664		63-70	Clay-loam fill from stone-filled, oval pit near NW corner of Structure 5	Pollen Phytolith

TABLE 2
POLLEN TYPES OBSERVED IN SAMPLES FROM SITE 33WA407, WARREN COUNTY, OHIO

Scientific Name	Common Name
ARBOREAL POLLEN:	
Acer	Maple
Cupressaceae	Cypress family
Fagaceae:	Oak family
Castanea	Chestnut
Quercus	Oak
Juglandaceae:	Walnut family
Carya	Hickory, pecan
Juglans	Walnut
Pinaceae:	Pine family
Picea	Spruce
Pinus	Pine
Salicaceae:	Willow family
Populus	Poplar
Salix	Willow
Ulmus	Elm
NON-ARBOREAL POLLEN:	
Apiaceae	Parsley/Carrot family
Asteraceae:	Sunflower family
Artemisia	Sagebrush
Low-spine	Includes ragweed, cocklebur, sumpweed
High-spine	Includes aster, rabbitbrush, snakeweed, sunflower, etc.
Liguliflorae	Chicory tribe, includes dandelion and chicory
Brassicaceae	Mustard family
Caryophyllaceae	Pink family
Cephalanthus	Buttonbush
Cheno-am	Includes the goosefoot family and amaranth
Convolvulaceae	Bindweed family

Corylaceae	Hazel family
Cyperaceae	Sedge family
Ephedra nevadensis-type (includes *E. clokeyi, E. coryi, E. funera, E. viridis, E. californica, E. nevadensis,* and *E. aspera*)	Ephedra, Jointfir, Mormon tea
Erodium	Storksbill, Heron-bill, Filaree
Erythronium-type	Trout lily, Fawn lily
Fabaceae:	Bean or Legume family
Astragalus-type	Milkvetch, Rattleweed, Locoweed
Lotus-type	Deervetch, Trefoil
Melilotus-type	Sweet clover
Lamiaceae	Mint family
Onagraceae	Evening primrose family
Plantago	Plantain
Poaceae	Grass family
Polygonaceae	Knotweed/Smartweed family
Eriogonum	Wild buckwheat
Rosaceae	Rose family
Prunus	Chokecherry, cherry, plum, etc.
Toxicodendron	Poison ivy
Typha angustifolia	Cattail
Cerealia	Economic members of the grass family including *Triticum* (Wheat), *Avena sativa* (Oat), *Hordeum vulgare* (Barley), *Secale cereale* (Rye), and *Sorghum* (sorghum, broom corn)
Indeterminate	Too badly deteriorated to identify
STARCHES:	
Starch with centric hilum	Typical of starches produced by grass seeds
SPORES:	
Monolete	Fern
Trilete	Fern
FUNGAL SPORES:	
Tetraploa	Fungal spore
OTHER:	

Corylaceae	Hazel family
Charred Asteraceae tissue fragment	Charred tissue fragment from a member of the sunflower family
Caryophyllaceae seed fragment	Seed fragments from a member of the pink family
Solanaceae seed fragment	Seed fragments from a member of the nightshade family

APPENDIX B. ARCHAEOBOTANICAL ANALYSIS OF SELECTED CULTURAL DEPOSITS, NORTH FAMILY LOT, UNION VILLAGE, WARREN COUNTY, OHIO

Archaeobotanical Analysis of Selected Cultural Deposits, North Family Lot, Union Village, Warren County, Ohio.

By:

Annette G. Ericksen, Ph.D., RPA
Cultural Resource Analysts, Inc. Paleoethnobotanical Laboratory
Hurricane, West Virginia

INTRODUCTION

The North Family Lot of Union Village, Warren County, Ohio is a portion of a nineteenth century Shaker Settlement. The site was used as a retirement home into the early 1960s. It is estimated that the total period of occupation of Union Village extends from ca. 1819 through 1965 (Andrew R. Sewell personal communication December 12, 2005). During the course of archaeological investigation, Hardlines Design Company (HDC) personnel collected and processed soil samples from eight cultural features, a cellar floor and a single unidentified soil anomaly. Samples were submitted to the Cultural Resource Analysts, Inc. (CRAI) Paleoethnobotanical Laboratory for analysis. The goals of the analysis are to provide additional information about the diet of the inhabitants of Union Village and the contents of garden plots during the Shaker period.

Methods

Before sorting by laboratory staff, the samples were sifted through a series of nested geologic sieves to simplify identification by organizing sample materials by size. Three size categories are created: 2.00 mm, 1.18 mm, and <1.18 mm. Light fractions that are small in volume and contain no items 2.00 mm in size are processed without sifting. Sorting and identification of botanical materials are completed with the use of a Bausch and Lomb stereo zoom microscope with a magnification range of 7 to 30x.

Archaeobotanical materials are initially sorted into broad categories, e.g. nutshell, seeds, and wood and wood charcoal. Following initial sorting, these generalized categories are reexamined and identification to generic level is made when suitable preservation of morphologic traits permits. Wood charcoal, because of its ubiquitous nature and growth characteristics that frequently permit further identification of taxa is treated in the following manner. Identification is restricted to those samples that contain specimens large enough to maintain observable diagnostic features. Identification is conducted on a random sample of specimens that exhibit suitable diagnostic characteristics from a range of size categories. Generally, 20 specimens will be evaluated per sample; however, if the wood charcoal sample is exceedingly large and environmental data can be derived from additional observation; up to 100 specimens may be examined. Comparative evaluation of wood morphology is achieved with printed keys and descriptions of wood structure

(Core et al. 1979; Hoadley1990; Panshin and deZeeuw 1970) in conjunction with a comparative wood collection housed at the paleoethnobotanical laboratory. The morphology of the wood cross section serves as the basis for the identification of taxa. The arrangement of earlywood and latewood pores as well as the size and frequency of multiseriate rays formed the basis of hardwood classification. Softwood identification relied on the texture of tracheids, the presence or absence of resin canals, and the relative frequency of canals once identified.

All archaeobotanical materials recovered from the 2.00 mm size category are identified, counted, and weighed on an OHAUS Scout II digital scale with an accuracy level of 0.01g. Materials from the two smaller size categories are designated as present or absent. Exceptions include seeds, which are identified and counted in all categories and acorn shell and squash rind, which are identified, counted, and weighed in both the 2.00 mm and 1.18 mm size categories.

In addition to the references used for wood identification, additional keys and manuals used in analysis include: Davis 1993; Martin and Barkley 1961; Young and Young 1992; Ohio Department of Agriculture 1942. The paleoethnobotanical laboratory also maintains a seed collection suitable for both historic and prehistoric components.

Measurements of specimens and observations are made either with a calibrated eyepiece micrometer in the stereo zoom microscope or with Mitutoyo digital calipers as appropriate.

RESULTS

The archaeobotanical remains documented from 33Wa407 are listed in Table 1 below. The assemblage consists of carbonized remains that are believed to be relevant to the archaeological context. No fresh or desiccated remains that could be considered associated with the historic context are noted. The few seeds noted during the process of analysis are clearly modern.

Carbonized archaeobotanical materials have been recovered from all provenience locations submitted for analysis. A total of 3700 individual specimens are documented with a total weight of 50.5 g. The density of materials estimated for the entire assemblage of samples is 52.4 specimens per liter or 0.72 g per liter of unfloated soils.

Features that have been sampled for analysis include square posts, round posts, pits, builder's trenches, a cellar floor and an anomaly that may not be culturally derived (Table 2). Of these proveniences, the overall greatest density of materials is associated with the pit features. Eighty two percent of the archaeobotanical materials recovered are associated with pits. Clearly these features represent repositories for trash. The least amount of archaeobotanical specimens is derived from the builder's trenches. These would be features that exhibit a comparatively short use-life and therefore intuitively do not provide a long-term sink for the accumulation of plant materials.

Table 1. Archaeobotanical Remains Documented; 33Wa407.								
Sample	**Provenience**	**Provenience 2**	***l***	**Content**	**Count**	**Wt (g)**	**Density per Liter**	
							Count	**Wt (g)**
0134	Feature 5	Square Post	2	Wood charcoal	56	0.47	28.0	0.24
0190	Feature 7	Builder's Trench	3	Wood charcoal	20	0.09	6.7	0.03
				Corn kernel frag. <2.00 mm	0	0.00	0.0	0.00
0262	Feature 13	Builder's Trench	3	Wood charcoal	3	0.00	1.0	0.00
1091	Feature 46	Pit Strat 139 Lvl 2	3	Wood charcoal	165	1.32	55.0	0.44
				Maple (*Acer sp.*)	2	0.04	0.6	0.01
				Locust (*Robinia sp*)	1	0.00	0.3	0.00
				Pine (*Pinus sp.*)	1	0.04	0.3	0.01
				Poplar (*Liriodendron sp.*)	1	0.10	0.3	0.03
				Nutshell	3	0.03	1.0	0.01
1092	Feature 46	Pit Strat 101 Lvl 1	3	Wood charcoal	180	1.60	60.0	0.5
				Nutshell	4	0.10	1.3	0.03
1095	Feature 46	Pit Strat 140 Lvl 3	3	Wood charcoal	512	4.90	170.6	1.63
				Nutshell	3	0.00	1.0	0.00
1096	Feature 46	Pit Strat 144 Lvl 5	3	Wood charcoal	34	0.20	11.3	0.06
				Nutshell	2	0.02	0.6	0.01
1275	Feature 46	Pit Strat 176 Lvl 3	3	Wood charcoal	605	7.2	201.6	2.4
				Nutshell	9	0.3	3.0	0.1
				Corn cupule frags.	2	0.15	0.6	0.05
1348	Feature 46	Pit Strat 107 Lvl 1	3	Wood charcoal	200	1.30	66.6	0.43
				Nutshell Blk, Walnut (*Juglans sp.*)	24	0.84	8.0	0.28
				Corn Cupule fragment	1	0.00	0.3	0.00
1374	Feature 46	Pit Strat 142 Lvl 5	3	Wood charcoal	1205	13.69	401.6	4.53
				Pine (*Pinus sp.*)	15	2.31	5.0	0.77
				Bean cotyledons	2	0.00	0.6	0.00
1101	Feature 53	Square Post	10	Wood charcoal	7	0.02	0.7	0.00
1103	Feature 54	Square Post	6	Wood charcoal	31	1.49	5.2	0.25
1107	Feature 55	Round Post	9	Wood charcoal	143	2.70	15.8	0.30
				Nutshell	2	0.00	0.2	0.00
1139	Feature 55	Round Post	1.5	Wood charcoal	7	0.10	4.6	0.07
1643	Feature 88	Oval Pit	3	Wood charcoal	62	0.61	20.6	0.20
1644	Feature 88	Oval Pit	3	Wood charcoal	19	0.27	6.3	0.09
0538	Stratum 85	Cellar Floor	3	Wood charcoal	60	0.72	20.0	0.24
1098	Anomaly 11	Level I	3	Wood charcoal	25	0.37	8.3	2.76
				Bark	133	4.40	44.3	1.46
1099	Anomaly 11	Level II	3	Wood charcoal	50	0.41	16.6	0.13
				Bark	111	4.71	37.0	1.57
TOTAL			**70.5**		**3700**	**50.5**	**52.4**	**0.72**

The feature identified as an anomaly exhibits a moderate amount of archaeobotanical materials, the majority of which is represented by bark. The anomaly may represent a burnt out stump. The wood charcoal specimens are too fragmentary to document taxa/taxon represented. Round posts exhibit by frequency 1.6 times more archaeobotanical materials than square posts.

Table 2. Distribution of Archaeobotanical Remains by Feature Class; 33Wa407.

Feature Class	No. of Samples	Volume *liters*	Frequency of Materials		Density of Materials	
			Count	Wt (g)	Count	Wt (g)
Square Post	3	18	94	1.98	5.2	0.11
Round Post	2	10.5	152	2.8	14.5	0.26
Pit	9	27	3052	35.02	113.0	1.29
Builder's Trench	2	6	23	0.09	3.8	0.02
Cellar Floor	1	3	60	0.72	20.0	0.24
Anomaly	2	6	319	9.89	53.1	3.3
Total	**19**	**70.5**	**3700**	**50.5**	**52.4**	**0.72**

Overall, Wood charcoal is the most frequently encountered archaeobotanical class within the 33Wa407 sample assemblage (Table 3). Of the specimens documented, less than one percent could be evaluated for taxonomic classification (n=2). In order of decreasing frequency the following were noted from Feature 46: pine (n=16), maple (n=-2), locust (n=2) and poplar (n=1). Pine is a common building material but is also a frequent invader of fallow fields and ill-kept pastures. Maple is a hardwood species commonly chosen for the manufacture of furniture. It grows naturally in mesic habitats and could easily represent the natural vegetation of the settlement area. They are often prized and maintained as shade and ornamental trees. Locust is selected for fence posts for its durability; however, the presence of this taxon in a pit feature does not clearly support the function of the materials separate from use as a fuel source. Poplar is a wood that is associated with the manufacture of cabinetry, but also grows in second growth forests, particularly following the cutting of natural oak forests. The bark remains associated with Anomaly 11 are unidentifiable.

Table 3. Summary of Archaeobotanical Classes Documented; 33Wa407.

No. of Samples: 19			**Volume/ liters: 70.5**		
Botanical Class	**Count**	**Weight**	**Density**		**Ubiquity**
			Count	**Weight**	
Wood charcoal	3428	39.95	48.6	0.57	100
Bark	244	9.11	3.5	0.12	10
Nutshell	23	1.29	0.32	0.02	37
Corn	3	0.15	0.04	0.00	16
Beans (cotyledons)	2	0.00	0.0	0.00	5
Total	**3700**	**50.5**	**52.4**	**0.72**	100

The majority of nutshell remains documented as a result of this investigation are predominately unidentifiable. They represent members of the walnut family (Juglandaceae), but no further discrimination can be made. However, 24 specimens of black walnut are documented from Feature 46. Black walnuts were often prized for their unique flavor, and were readily collected and processed for the winter holidays. They commonly occur on deep, moist soils and could easily have been tended to and "cultivated" by the inhabitants of Union Village as both a food resource and dye plant.

Domesticated food remains are not abundant in this assemblage but include corn (*Zea mays*) and beans (*Phaseolus sp*.). A single, small kernel fragment and two cupule fragments (small pieces of the cob where the kernel attaches to the rachis) documented from Features 7 and 46 represent the presence of corn. Two bean cotyledons (equivalent to a single bean) are documented from Feature 46 only. Corn and beans were typically planted and eaten in both the green stage and as dried commodities, or in the case of corn, sent to the mill for flour and meal.

SUMMARY

The archaeobotanical assemblage of 33Wa407 has been documented. Food remains are not well represented in the sample but include domesticated species such as corn and beans, and wild nut resources. No indications of what may have been planted in ornamental gardens or other resources separate from corn and beans have been documented. The identified wood charcoal assemblage is quite small and cannot be considered representative. However, both hardwood and softwood taxa are documented. Some species may represent open disturbed habitats such as fencerows, roadsides, and fallow fields. These results are typical of an agrarian community; however, they do not represent the full breadth of potential plant resources that could have provided food, shelter, medicine, tools, furniture, boxes, and or other commodities to the Shaker community.

References

Core, H.A., W.A. Cote and A.C. Day
1979 *Wood Structure and Identification*. Syracuse University Press.

Davis, Linda W.
1993 *Weed Seeds of the Great Plains*. University Press of Kansas, Lawrence.
161-178 University of Alabama Press, Tuscaloosa.

Harlow, W.M., E.S. Harrar, F. M. White
1979 *Textbook of Dendrology*. McGraw-Hill, New York.

Hoadley, R. B.
1990 *Identifying Wood: Accurate Results with Simple Tools*. Taunton Press.

Martin, Alecander C. and William D. Barkley
1961 *Seed Identification Manual*. University of California Press, Los Angeles.

Ohio Department of Agriculture, Division of Plant Industry
1942 *Weeds and Weed Seeds*, State Of Ohio, Columbus.

Panshin, A.J. and C. deZeeuw
1970 *Textbook of Wood Technology*. McGraw-Hill, New York.

Young, J.A. and C.G. Young
1992 *Seeds of Woody Plants in North America: Revised and Enlarged Edition.* Dioscorides Press, Portland.