THE VAUGHTER HOUSE:
RECORDATION DRAWINGS, PHOTOGRAPHY, AND
ARCHITECTURAL DESCRIPTION;
REVIEW OF HISTORIC DOCUMENTATION;
INVASIVE INVESTIGATION AND ANALYSIS;
AND ELIGIBILITY DETERMINATION

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Middle Tennessee State University
Murfreesboro, Tennessee
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INTRODUCTION

Stones River National Battlefield (SRNB) of the National Park Service (NPS) and the Center for Historic Preservation (CHP) of Middle Tennessee State University (MTSU) entered a contract (order number 1443PX5590-97-031, dated 9/29/97) whereby CHP agreed to conduct basic recordation, building investigation and analysis, and eligibility determination regarding the Vaughter House for SRNB. This report is submitted to SRNB by CHP in fulfillment of those contractual obligations.

The purpose of the recordation effort was to provide photographic coverage, basic measured drawings, and an architectural description which depict the Vaughter House as it existed prior to the commencement of the invasive investigation. These recordation materials can serve a mitigating role should the building be removed.

As a preliminary step to examination of the physical evidence in the building itself, CHP reviewed the available historic documentation related to the building, including deed records and maps. While the deeds related to this building seem inconclusive, maps of both Civil War and post-Civil War vintage offer useful context for the invasive investigation.

The invasive investigation was undertaken to seek out and evaluate physical evidence relevant to the possible Civil War vintage of the Vaughter House. Two types of physical evidence are potentially relevant to the vintage determination: historic construction technology, and battle damage. The report discusses CHP’s findings for
both kinds of physical evidence. The report also briefly discusses potential follow-up possibilities related to physical evidence.

The final section of the report provides a determination of eligibility regarding the National Register of Historic Places for the Vaughter House. This narrative assessment is part of the documentary record of the property as well as being useful in any mitigation report as required by relevant federal historic preservation laws and regulations.
RECORDATION DRAWINGS, PHOTOGRAPHY, AND ARCHITECTURAL DESCRIPTION

The contract provides for basic recordation of existing conditions at the Vaughter House. The following list describes the variety of recordation materials which are included in this report:

Recordation Drawings *(in archival sleeves)*
  Site plan, 3 floor plans, 4 elevation drawings

Guide to Exterior Recordation Photographs *(digitized images)*

Exterior Recordation Photographs *(prints in archival sleeves)*
  11 exterior photographs of the Vaughter House

Guide to Interior Recordation Photographs *(digitized images)*

Interior Recordation Photographs *(prints in archival sleeves)*
  11 interior photographs of the Vaughter House

General Architectural Description
McFadden Road/Von Cleave Lane

Gate
Split Rail Fence

Poplar Tree

Vaughter House

Well House

2 Gabled Shed

3

4 Gabled Barn

5 Storage Shed

6 Gabled Barn

7 Equipment Shed

8 Sloped Roof Barn

Vaughter House Site Plan
GUIDE TO RECORDATION PHOTOGRAPHS (EXTERIOR)
(before invasive investigation)

North northeast view

North facade
Southwest corner of main building

South wall of main building
(SUBSTITUTION PAGE FOR EXTERIOR RECORDATION PHOTOGRAPHIC PRINTS)

(In the original report submitted to SRNB, pages A-16 through A-26 consist of photographic prints mounted in archival sleeves. These prints are omitted from other distributed copies of the report.)
GUIDE TO RECORDATION PHOTOGRAPHS (INTERIOR)
(before invasive investigation)

East room, downstairs (southeast view)

East room, downstairs (southwest view)
Enclosed rear porch
(SUBSTITUTION PAGE FOR INTERIOR RECORDATION
PHOTOGRAPHIC PRINTS)

(In the original report submitted to SRNB, pages A-33 through A-43
consist of photographic prints mounted in archival sleeves.
These prints are omitted from other distributed copies of the report.)
GENERAL ARCHITECTURAL DESCRIPTION

The Vaughter House (building number one on the site plan) is a one and a half story, frame, vernacular dwelling located near Van Cleave Lane on the Stones River National Battlefield. There is presently a continuous masonry foundation of mixed stone and concrete block (the original foundation utilized stone piers). The original portion of the house consists of a two room plan with two doors, a central brick chimney, and a gable roof. There is a box stair in the southeast corner of the original section. This rectangular plan was turned into an L-shape plan (see floorplan drawing of the first story) with the later addition of a rear wing on the south elevation. A rear porch has also been added to the south elevation and a bathroom has been added on the east elevation. The second story (see floorplan drawing of the second story) includes two rooms which parallel the two first story rooms of the front rectangular section. The house is covered with a mixture of wood and synthetic siding. The property is in poor condition and has been heavily altered, with few readily visible original architectural details remaining.

On the north facade there are two doors, entering into the first floor rooms and two window openings on the second floor. There is a front porch with a poured concrete floor and wood columns with brick bases. There are four wood pillars and six brick bases. On the west gable elevation there is a window at the first floor level and a door at the second floor level. On the east gable elevation there is one window on the second floor and a one story addition with a sloped roof and two windows. On the south (rear) elevation there is an enclosed porch addition with a concrete floor, wood framing, and
sloped roof. The rear wing consists of two rooms with a central chimney and a side porch which was later enclosed. The rear wing has two sets of double windows on the west elevation, a door with an overhang and two windows on the south elevation, and two windows on the east elevation.

Seven outbuildings (buildings two through eight on the site plan) are located behind the rear of the house; all are primitive makeshift structures and in poor condition. All appear to be of 20th century vintage, and therefore probably do not represent the original set of outbuildings which were associated with the Vaught House during its early history. (Photographs of the outbuildings are omitted from this report because these late structures are not germane to the early history of the house itself, but will be maintained in Center project files for possible future research purposes.)

The well house (building three), immediately to the rear of the main house, is a small concrete block structure housing an electric pump. The remaining buildings utilize crude construction methods and materials including untooled posts installed directly in the ground, rough sawn boards for somewhat minimal wall and roof framing, and galvanized sheet metal (corrugated and five-vee) exterior wall and roof surfaces. A gabled storage shed (building two) lies to the east of the main house. Two barns (buildings four and six), located to the south and southeast of the main house, have gable roofs and central aisles with livestock pens on either side of the aisle. A storage shed (building five) and an equipment shed (building seven), both with shed roofs, stand in the vicinity of building six. A barn (building eight) with shed roof stands to the southeast of the other outbuildings.
REVIEW OF HISTORIC DOCUMENTATION

Deed records

An attempt took place to trace the deeds in order to assemble a comprehensive sequential list of owners throughout the history of the Vaughter House. The thread of ownership could be reliably traced from the present only back to the 1922, for reasons which will be explained in the following paragraphs. None of the deeds mention the existence of a house. (Copies of all the described instruments were forwarded to Maureen Carroll, Architectural Technician, NPS Southeast Regional Office, Atlanta, as attachments to the Edward Johnson’s letter of June 8, 1994 regarding the Vaughter House. Copies of the same instruments are also maintained in the Center’s Vaughter House project file.)

The official address of the Vaughter House is 742 Van Cleave Lane, Murfreesboro, Tennessee. For the last private owner (prior to SRNB/NPS acquisition), the Tax Assessor’s Office gave two references, Will Book 13, page 522, and Deed Book 278, page 642. These two instruments contain the following information:

<table>
<thead>
<tr>
<th>Grantees:</th>
<th>Ten Vaughter children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grantor:</td>
<td>Mary Smith Vaughter</td>
</tr>
<tr>
<td>Kind of instrument:</td>
<td>Will</td>
</tr>
<tr>
<td>Date of instrument:</td>
<td>9-6-1972</td>
</tr>
<tr>
<td>Date filed:</td>
<td>6-2-1980</td>
</tr>
<tr>
<td>Book, Page:</td>
<td>13, 522</td>
</tr>
</tbody>
</table>
Grantee: Mary Frances Vaughter
Grantor: Chancery Court Clerk (Smith vs. Vaughter)
Kind of instrument: Deed
Date of instrument: 3-7-1979
Date filed: 3-12-1979
Book, page: 278, 642

From the above, the deeds were traced to the following:

Grantee: Ellis Smith
Grantor: Northwestern Life Insurance Co.
Kind of instrument: Deed
Date of instrument: 8-17-1932
Date filed: 9-2-1932
Book, page: 77, 370

Then to the following:

Grantee: Northwestern Life Insurance Co.
Grantor: Chancery Court Clerk (public auction)
Kind of instrument: Deed
Date of instrument: 7-29-1932
Date filed: 7-30-1932
Book, page: 77, 310

The next reference was in Minute Book DD, page 107. While the Register’s Office of Rutherford County did not have the Minute Books, they are available at the Tennessee State Library and Archives. The Minute Book referred to Trust Deed Book U, page 506; this instrument contained the following information:

Grantee: Northwestern Life Insurance Co.
Grantor: Ellis F. Hudgens et al.
Kind of instrument: Mortgage Trust
Date of instrument: 12-7-1922
Date filed: 
Book, page: U, 506

Unfortunately, this instrument gave no reference to a previous deed. At this point, the thread of ownership could be traced back no further.
As an aside, an examination of the reverse index within the index to deeds did produce a reference in Deed Book 62, page 157, to property involving E. F. Hudgens, but the property described therein did not match the property of Trust Deed Book U, page 506 in terms of geographic features and acreages, and therefore is probably not the property under consideration.

Historic maps

The historic maps of Murfreesboro are perhaps the most important documentary evidence in helping to assign a date range to the Vaughter House. There are seven maps that are especially relevant and helpful; four of these apparently were drawn to accompany official battle reports after the battle for Murfreesboro. Three maps can be found in the *Official Military Atlas of the Civil War*. Three more are in the archives at Stones River National Battlefield and at the Center for Historic Preservation (CHP) at MTSU. The final map is an 1878 map of Rutherford County, commonly called the “Beers Map.” This map is also in the archives of the CHP. To summarize the map information, most of the Civil War battle maps do not show a structure in the location of the Vaughter House at the time of the battle. Two others show a “hospital” in the vicinity of the house, whereas the Beers map shows a structure (labeled “Leach”) in 1878. (Sanborn insurance maps were also consulted, but do not depict the rural area outside of Murfreesboro where the Vaughter House is located.)

The *Official Records Atlas* maps were drawn to accompany battle reports from Generals Braxton Bragg, and Leonidas Polk of the Confederate Army, and one for General W.S. Rosecrans of the Union Army. Each of these maps will be discussed in turn.
below. The map accompanying General Bragg’s report shows in detail the area of the battlefield. This map is plate XXXI of the *Official Records Atlas* and is entitled “Map of the Battle of Murfreesborough.” The road currently called Van Cleave Lane is shown leading to the Stones River and the McFadden ford that the Confederate troops used to cross the river on January 2, 1863 is illustrated. Just to the south of the McFadden house, and on the other side of the road, is where the Vaughter House now stands. However, no other structure is shown on the west bank of the Stones River. The map illustrates houses as small black squares. One is shown for the McFadden house near the river, but none in the location of the Vaughter House. The report written by General Bragg does not mention any of the landmarks other than the river itself and so in that sense is not helpful.

The map drawn by Walter J. Morris accompanying General Leonidas Polk’s report is more detailed in its illustration of topographic features, but it appears to be less accurate in the man-made elements of the landscape. This map is plate XXXII in the *Official Records Atlas*, and is entitled “Plan of the Battles of Stone’s River before Murfreesborough.” Van Cleave Lane is less curved than shown on the former map. However, the road still carries the deep bend as seen on the Bragg map. The Morris map shows the bend in the lane to be less severe, but still leading to the ford on the river. This map only shows a few house locations as small black squares. The McFadden house is not illustrated.

The report given by General Rosecrans is much like the previously mentioned reports (i.e., very general) and does not mention any specific buildings or houses on the field of battle. The map accompanying the report illustrates a house on the opposite side of the road from where the Vaughter House now stands. (It is listed as plate XXX in the
Official Records Atlas). It is assumed that the McFadden house is the black square shown on the map. The ford across Stones River is also shown, but not named as the McFadden’s ford. A small purple square, labeled “Collier,” on the map is shown in the vicinity of where the Vaughter House exists today. It could easily be misinterpreted as a house because it is nearly the same size as the blocks for houses. However, it is the wrong color. Houses are shown in black while individual troop units for the Union Army are shown in purple. Thus the small block likely stands for Major Daniel R. Collier whose report of operations with the Third Kentucky Volunteer Infantry places them in that position on December 31, 1862. (OR series I, Volume XX/I, SR#29, p. 488, No. 106, Report of Major Daniel Collier, 3rd Kentucky Infantry.)

There is a very similar map in the archives of the Stones River National Battlefield to the one discussed above. This map appears to be a precursor to the finished map found in the Atlas. It has the qualities of a hand drawn map, whereas the one in the Atlas is printed. It is tempting to interpret the small square labeled “Collier” on the hand drawn map as a building. However, that map is in a photo-negative form which prevents seeing the colors that are present on the Rosecrans map in the Atlas. Therefore the square most likely represents the previously discussed Daniel Collier commanding the 3rd Kentucky Infantry.

Two other maps of the battlefield depict a hospital in the vicinity of Vaughter House. Both were drawn to show the placement of Union General Philip Sheridan’s division during the battle. One is labeled a “Topographical Sketch of the Battle Field of Stone River.” It was drawn by Captain Francis Mohrhardt, Topographical Engineer for Sheridan’s division. This map depicts a hospital near where the Vaughter House stands
today. However, the map does not show Van Cleave Lane in its entirety and McFadden’s ford is also not shown.

A second map of Sheridan’s division drawn in 1865 by Major G.L. Gillespie also shows a hospital near the site of the Vaughter House. This map is dated to September 1865 and may have been intended to show the scene after the battle. If so, the hospital represented on this map and the previous one may have been a hospital tent set up after the fighting. Staff of the CHP have studied the scale of this map to determine the location of the hospital. According to staff calculations based on the historic map and a modern 7.5 minute series topographic map, the hospital would have been located approximately 700 feet south-southeast of the Vaughter House. The report written by General Sheridan that these maps were to accompany is vague in the topographical details of the area. Sheridan’s report does not mention any buildings nor the hospital and is not useful in that detail.

It is reasonable to assume that the commanders of the armies would not necessarily have mentioned specific houses on the battlefield unless they played a significant role in the fighting. However, the subordinate commanders’ reports generally are more detailed in their description of the battlefield immediately surrounding their own units. This being the case several other commanders’ reports were read to determine if any house or structure is mentioned in the area of the Vaughter House.

The report of Confederate General John C. Breckinridge is pivotal because it was his division that attacked the Union flank by crossing the Stones River at McFadden’s ford on the afternoon of Friday January 2, 1863. There is no mention of a house and little
mention of any topography on the west bank of the river as Breckinridge’s assault was repelled before the men got very far on that side where the Vaughter House now stands.

The reports of Union commanders Captain John Mendenhall, Fourth U.S. Artillery and James H. Stokes of the Stokes Illinois Battery were read looking for mention of buildings on the ridge above the river. Both of these men and their artillery units were engaged on the afternoon of January 2, 1863, in defense against Breckinridge’s assault. Neither artillery commander mentions a house in the location of Vaughter, but it should also be pointed out that the McFadden house is not mentioned either.

Despite some uncertainties, it seems reasonable to conclude that no building is depicted by the Civil War maps at the location now occupied by the Vaughter House. However, with respect to the post-war period, the Beers map of 1878 clearly shows a house (labeled “Leach”) at this location. It should be mentioned that the small rectangular symbol indicating the house is generic in nature and resembles similar symbols elsewhere on the Beers map. Thus while it seems likely that the “Leach” House is indeed the same building we know today as the “Vaughter House”, we cannot ascertain which specific parts of it were in existence in 1878 (i.e., it could have been only the front section, or alternatively it could have included both main body and rear wing, but we cannot make a conclusive determination based solely on map evidence).

Summary of the Documentary Evidence

The deed records seem to allow ownership of the property on which the Vaughter House stands to be traced back only to 1922. Of the available deeds describing this property, none mention the building.
The historic maps are more useful, but not definitive, in understanding the vintage of the Vaughter House. Civil War maps differ in depiction of both natural and man-made features, but none seem to indicate that a house stood at the present location of the Vaughter House during the Battle of Stones River in early 1863. The Beers Map of 1878 does indicate a building at this location, labeled "Leach," and it seems likely that this building would constitute at least part of the existing Vaughter House.
INVASIVE INVESTIGATION AND ANALYSIS

The contract provides for an invasive investigation and analysis of the physical evidence associated with the Vaughter House. The following list describes the investigative sections which are included in this report:

- Investigation Methodology C-2
- Investigation Narrative (illustrated with digitized images) C-10
- Investigation Photographs (prints in archival sleeves) C-28
- Summary Tables of Dating Indicators C-41
- Conclusions of the Investigation C-45
- Follow-up Possibilities C-54
INVESTIGATION METHODOLOGY

CHP's efforts to determine the likely date of original construction for the Vaughter House involves the examination of two distinct types of physical evidence: dateable types of construction technology utilized in the original construction episode and later modification episodes, and the presence (or absence) of battle-related damage which would suggest Civil War (or post-Civil War) vintage. Although both kinds of physical evidence might theoretically appear on readily observable surfaces, it is more likely that the most important such evidence would lie in concealed areas (such as the framing system). Superficial changes are often made to both exterior and interior surfaces many times throughout the life of a building, as these are subject to such factors as weathering, constant wear and tear from daily use, and of course changing decorative tastes. But rarely do unseen structural parts receive much attention, and they are likely to remain unaltered except perhaps as a consequence of outright failure.

An invasive investigation is necessary in those cases where such concealed evidence must be observed and analyzed. Invasive investigations are inherently destructive of building fabric, so it is usually important to limit fabric removal to the minimal amount consistent with the needs of the investigation. Construction technology evidence can often be uncovered with minimal material removal, because an experienced investigator can sometimes deduce the nature of a construction feature by examining a small uncovered portion of the whole feature. However, battle damage may occur in random locations and thus realistic observation may require the removal of much larger amounts of building fabric.
Because the Vaughter House investigation involved the search for both types of evidence, and it was obvious that much of the exterior and interior surface material is of recent vintage and of poor quality, the investigators felt justified in removing substantial amounts of surface materials to reveal potential sites of evidence. The investigators did attempt to leave earlier building fabric in place whenever possible.

*Construction Technology Evidence as Dating Indicators*

Construction technology evidence often provides useful dating opportunities because the evolutionary sequences of several types of construction techniques and materials have been carefully studied and are widely discussed in the technical preservation literature. Construction evidence may help with *absolute* (specific date or date range) dating and/or *relative* (“this feature is older than that feature”) dating. Although analysis of construction technology can be a powerful dating method, it is important to realize that this dating approach is still under development, and there remain many uncertainties involving geographic variance, cultural lag, and other such issues. In addition, if the dating indicators are to be truly meaningful, it is supremely important that the investigator carefully differentiate original and subsequent modification episodes, which can be a very challenging and time-consuming task. Over time, accumulating field data collection and analysis, especially when applied on an increasingly regional and even local basis, will likely produce greater accuracy for this dating method.

Although there are many different useful dating indicators related to construction technology, in this report the discussion will be confined to the limited set of indicators which were actually encountered in the Vaughter House. In the following paragraphs, the
current status of these particular indicators is discussed so that readers will understand their probable degree of reliability as well as possible limitations.

**Nails** (wrought, cut, and wire) are undoubtedly the best known and most reliable dating indicators, as they have been the subject of extensive and ongoing scholarship for more than seventy years. Mercer (1923, pp. 3-10) conducted the pioneering study, but the definitive treatment is Nelson (1968). Subsequent works refine the details, e.g., regarding wire nails (Priess, 1973), regarding early cut nails (Phillips, 1994). Although most nail studies have focused on the northeastern United States, a few have explored other geographic areas (e.g., Edwards study of Louisiana nails, 1993). Of course, additional regional field studies are needed, but the principal investigator’s discussions with several investigators who use nail dating suggests that the evolution of nails was somewhat similar across the nation, especially after the perfection of the machine cut nail. For the purposes of this report, we place the primary range of usage for the “modern” (perfected) cut nail between circa 1835 and circa 1890 (however, cut nails continued to be used in special applications such as flooring and masonry). We place the primary range for wire nails from circa 1880 to the present. In both cases, we refer to the “common” size nail used in general carpentry, rather than the small sizes (sprigs and brads) which could be manufactured earlier and thus have different date ranges.

**Saw marks** (produced by pit, sash, circular, or band saws), both widespread and readily identifiable, are generally useful dating indicators. Despite its enormous significance to the history of building construction, the sawing technology which underlies lumber production remains incompletely understood. There appears to be substantial temporal overlap of various sawing technologies as well as appreciable
variation in the regional evolution of sawing technology. Hamer (1933, pp. 890-892) authored an early discussion of the evolution of sawmill technology in Tennessee. The Association for Preservation Technology Bulletin published important studies by Peterson (1973), Curtis (1973), and Ball (1975). More recently, although primarily writing as a social historian, Pursell (1995, pp. 22-24, 157-159) includes an excellent general description of the evolution of sawmill technology, including timeframe variations between eastern versus western regions of the nation. For the purposes of this report, we are primarily interested in the introduction of the circular saw for general lumber production in the Mid-South area, which we believe occurred in the late 1840s, and was probably widespread after about 1850. This was likely associated with the introduction of steam engines and improved saw blade metallurgy. Earlier in the 19th century, most construction lumber had been produced by less efficient water-powered sash saws, although a smaller sized circular saw (introduced to America from Britain as early as circa 1814) was used for the production of “small stuff” such as lathing. It should be noted that some massive wooden structural members (e.g., sills) were often hewed (or sawed) by hand long after sawmills were readily available, probably because their excessive dimensions exceeded the modest sawmill equipment capacity then available.

Wood screws (blunt or gimlet) provide excellent but very limited dating indicators. Virtually all sources from Mercer (1923, pp. 24-25) to the present agree that the gimlet (pointed) screw was introduced as a consequence of the gimlet screw manufacturing machine patent of 1846. The gimlet screw very quickly replaced its blunt-
ended predecessor because it could be started without a drilled pilot hole, a great labor
saving for woodworkers.

*Brick and mortar masonry* construction provides a limited but useful dating
indicator because the early masonry methods (utilizing soft lime mortar and associated
soft hand-pressed bricks) were replaced by a new method which uses a stronger, harder
mortar containing portland cement and associated harder machine-made bricks, beginning
circa 1880 (McKee, 1973, pp. 69). Indeed, brick making machines were first introduced
into the Nashville area in 1879 (Smith, 1976, p. 67). However, it is important to
understand that bricks (in the quantity needed for building construction) are extremely
bulky and heavy, so that on-site brick production, based on more primitive hand methods,
seems to have competed successfully with centralized machine brick production due to
the high costs of transporting such bulky materials. For this reason, we believe that the
earlier form of brick masonry may have survived at least until circa 1900 (and possibly
later), although this very tentative conclusion deserves much additional field research.
(Although masonry bonding patterns have value as dating indicators when studying
structural brick walls, at the frame Vaughter House we are only concerned with brick
chimney construction.)

*Wooden framing systems* (braced frame, early balloon frame [mortised at sill
level], mature [all-nail] balloon frame, and platform frame) as used in residential
buildings constitute a potentially valuable dating indicator, however it must be admitted
that their evolution on both national and local levels remains uncertain simply because
such frames are normally concealed from view. Typically they are only seen in detail
when a building undergoes thorough restoration or demolition. Because the Vaughter
House investigation uncovered only balloon framing (but, importantly, both versions), this report will focus on that framing technique. For a description of the distinguishing features of balloon framing as compared to other framing techniques, please refer to the detailed discussion of balloon framing evolution in the section devoted to conclusions of the investigation. The preservation literature places the invention of balloon framing in Chicago in the 1830s, maturation by the 1880s, and replacement by platform framing between the world wars (Sprague, 1983, pp. 35-37, 44-45). The applicability of this timeframe to the Mid-South area remains to be demonstrated—indeed, the Vaughter House itself may contribute to better understanding the regional evolution of framing systems.

**Door hardware** (including a variety of hinges, locks and knobs) often prove to be useful dating indicators, but at the Vaughter House these items (except for the strap hinges on the corner closet doors) appear to be later replacements or additions, and therefore are not directly discussed in this report. The original strap hinges themselves, machine-made products which are not readily dateable, are secured with gimlet screws which appear to date to the earliest construction episode, and in this case the screws themselves rather than the hinge would be the determining dating indicator.

**Planing marks** (produced by hand planes or by planing machines) are often used to distinguish laboriously hand-surfaced lumber from machine processed materials. Although mechanical planers (for flat surfaces) and shapers (for moldings) are known to have been introduced circa 1835 (mentioned by Mercer in 1923, p. 16, but described by other sources as well), hand planed lumber often appears in construction executed long
after that date (perhaps well into the second half of the 19th century), therefore the use of planing marks for dating purposes remains somewhat uncertain.

In concluding this discussion of construction technology dating indicators, it is important to mention that the most significant steps in the evolution of construction technology do not necessarily coincide with the Civil War (although both were deeply influenced by the Industrial Revolution). Major developments in construction methods occurred early and late in the 19th century, whereas the war took place during the middle years of the century. This relationship means that we cannot expect construction technology alone to definitively date a given building exclusively to the Civil War years—except for those portions of a building which can be shown to date before the 1840s or after circa 1880.

Battle Damage as Dating Indicators

Battle damage can provide an excellent dating indicator, but of course this approach only has application in the immediate geographic proximity of known battle fields. Because the Vaughter House site lies in close proximity to known heavy military action associated with the Civil War battle of Stones River (please see the discussion of maps in an earlier section of this report), the presence of battle damage in the Vaughter House would suggest a Civil War (or earlier) vintage for that building. Conversely, the lack of battle damage might suggest that the building was not standing during the battle, and thus would date to a later period. Despite its seemingly straightforward nature, in practice this approach can be difficult to execute because such damage may be random
and thus most if not all of the concealed portions of the building must be exposed for examination.

There are several types of battle damage which might suggest Civil War vintage. The most useful would consist of bullets, shrapnel, or other bits of munitions which could be clearly identified as of Civil War vintage. Another type of battle damage might be distortion or breakage due to the force of munitions detonation, or perhaps related destruction due to associated fire. The investigation narrative will describe which specific areas of the Vaughtler House were examined by the investigative team, and the results of that search.
INVESTIGATION NARRATIVE

The invasive investigation of the Vaughter House was conducted over several weeks during April and May of 1998 by a CHP investigative team consisting of principal investigator Ed Johnson and assistants Michael Strutt and Abbey Christman. The team documented the investigative process with photographs, drawings, and field notes. The team sought evidence related to both construction technology and to battle damage.

In order to determine if the house suffered damage during the battle of Stones River the present siding had to be removed. Nearly all of the siding currently on the house is attached with wire nails which post-date the battle. The generally accepted date that wire nails came into broad use for general carpentry in the Mid-South area is circa 1880. A selective removal of the siding allowed investigators to look at the framing system of the house and to inspect the frame for battle related damage. If the house suffered injury during the battle there should be evidence of it beneath the post 1880 siding. The evidence of battle damage might range from bullets and shrapnel imbedded in the framing members, to large sections of the frame having been replaced.

North Facade Investigation

The north (primary) facade was the first location chosen for invasive investigation. The siding boards were removed across the entire length of the house from the floor of the porch to a height of approximately four feet (photo 1 on next page). This wooden siding is obviously post 1880 because of the wire nails holding it in place. The boards measured 1” thick, by 5 ½” wide with a 4” exposure, and display circular saw marks on the reverse sides.
Beneath the siding of the north facade several pieces of evidence were found that helped to establish the date range of the main body of the house. The construction technology utilizes an early balloon framing technique. This type of framing was invented in Chicago in the 1830s (Sprague 1983). The studding of the frame is circular sawn rough-cut lumber, each member approximately a 2” x 6” on 24” centers. These studs are attached by mortise and tenon into the sill (photo 2). On the face of the studs are nail holes suggesting an earlier siding has been removed. The holes are from cut nails, and a few broken nail fragments are still visible in the studs. The studs all run from the sill to the plate at the second floor. The sill is a large hand hewn piece of timber, measuring 7 ½” in thickness and the same in width. Presumably it runs the entire north face of the main body of the structure, but does not extend to the west beneath a modern bathroom addition. It rests on a continuous stone and cement foundation. The foundation, however, was probably originally a series of stone piers.

Photo 2: Mortised sill in frame of north elevation
The northeast and northwest corner posts were each exposed in this work. The northeast post is a circular sawn piece of lumber 5 ½” x 3 ¼” and attached to the sill by mortise and tenon joinery. At each corner there is a diagonal brace running from the post to the sill, and it is attached into each of the main members by mortise and tenon joints (the corner braces appear in photo 1). The braces are also toe-nailed into the main beams with cut nails. The use of corner braces is a hold-over from the predecessor braced frame construction tradition and may be a common feature of early balloon frames in the eastern United States (Sprague 1983, p. 56).

Other internal evidence of the construction include the baseboard nailed to the inside of the wall studs. It is a circular sawn board 8” x 1” in size, and held in place with cut nails. There are no other nails or nail holes in the studs or the baseboard, suggesting that it is the original baseboard still in place. At the northeast corner the baseboard for the east wall and the north wall can plainly be seen. The north baseboard is nailed onto the edge of the eastern one from the outside with cut nails. It seems probable that this configuration could only have occurred if the baseboards were nailed in place before the first siding was installed.

A section of siding was removed on the second story to inspect the framing elements on the upper part of the house. The area investigated is below and beside the north window of the east room (photo 3). The upper section of the studs and the joists for the second floor were uncovered and examined during this investigation. (Unfortunately, due to the awkward location of the front porch roof structure, the interface between joists and studs could be visually observed but not readily photographed.) The joists rest upon
a ribbon or a cross member that is nailed into each wall stud. The studs are also
individually notched to accept the ribbon. The ribbon is a horizontal piece made of 1” x
4” circular sawn lumber. The ribbon is a characteristic element of balloon framing. The
joists are nailed to the sides of the studs, but vary which side of the stud each joist is
nailed to. Consequently the joist spacing is irregular.

The most important evidence seen beneath the north facade siding is the fact that
no evidence of battle damage was found. However, there is an early and unexplained
alteration of the framing system near the west end of the north wall frame (i.e., the right
end of photo 1). At this location there appears to be a makeshift arrangement of scabbed-
on inch wide boards in lieu of the lower end of the three studs (along with some infill
between the studs). These boards are attached to the studs with cut nails and bear cut nail
holes consistent with the siding attachment elsewhere on this facade. This area of the
frame was carefully examined for potential battle damage, but the investigative team
concluded that this early alteration likely represents a repair associated with natural (non-battle) deterioration causes, probably insect, fungal, and/or water damage.

Also on the north side of the house some of the details of the porch were examined. A few boards of the ceiling near the west door were rotting and were removed to investigate the framing technique and elements of the porch. All the lumber in the porch frame consists of modern 2” x 4”s held together with wire nails. The floor of the porch is a modern cement pad. Behind the porch two notches in the main sill are visible. These are presumably from an earlier porch that was replaced by the current structure. Two and one half courses of the earlier siding were found beneath the upper frame of the porch (photo 4). The boards of this siding are larger than the second generation at 6 ½” wide with an exposure of 6” (the existing wooden siding is 5 ½” wide with a 4” exposure), attached to the studs with cut nails, and bear unusual saw marks on the reverse. This series of apparently straight saw kerf marks are parallel and highly regular and mechanical in spacing, as would be expected of sash sawn lumber, but the marks lie at an unusual diagonal angle to the edge of the board.

Photo 4: Original siding concealed behind porch roof structure
West Facade Investigations

Some siding was removed on the west facade of the house to look for evidence of battle damage and to inspect the framing system. The current siding is a modern fiberboard product, held in place with wire nails. Siding was removed along the entire facade for a height of approximately 2 ½ feet (photo 5 on next page).

The main framing elements exposed were the west sill, the wall studs, the corner braces, and the corner posts. The studs and brace are made of circular sawn 2” x 6” lumber. The corner posts and the sill are also circular sawn. The corner posts, and all of the studs are mortised into the sill. The face of the studs exhibit two sets of nail holes, suggesting that two earlier siding treatments existed on this side of the house. The nails used for construction here are cut nails like those seen in the other parts of the house discussed above.

A visiting team of National Park Service personnel had hypothesized in 1993 that a collapsing section of the foundation in the middle of the west facade may be the result of a chimney having existed on the west elevation at an earlier time. However, with the siding removed, it is apparent that the sill runs the entire length of the west side disproving that hypothesis. If there had been a chimney, the sill would have necessarily been interrupted for the hearth and firebox. However, framing a window at this same location there are two studs that are heavier than all the others suggesting that at one time this opening was a door in the west wall. This poses obvious questions: Where did the door lead? Could there have been a west outbuilding? The answers are unknown at this point. All the structural evidence seen on the west side is similar to that of the north
facade and does not add any new information to either the construction details, or the
dating of the building.

Most importantly, no battle damage was seen on the west elevation of the house.
All observed deterioration seems to relate to natural causes associated with water, insect,
and/or fungal damage.

*East Wall Investigation*

The east wall exterior of the main body was examined to see if it exhibited the
same details as the north and west walls. In order to see what had been the exterior of the
east wall, the modern bathroom attached to the east side of the house had to be invasively
investigated. A section of wallboard approximately 3 feet by 4 feet was removed,
exposing the studs of what had originally been the exterior wall. The wall studs are
circular sawn 3” x 4” members. A pattern of cut nails on the face of the studs suggests
that there had been one layer of siding at 6” intervals on the exterior of the east facade
before the bathroom was added. Therefore, the framing evidence on this wall is similar to
that seen on the north and west walls.

No battle damage was observed on the east wall.

*South Wall Investigation*

To complete the exterior investigation of the main body of the house, the
investigative team inspected the exterior side of the south wall to determine whether it
matched the configuration observed in the other three walls. The examined area was
accessed via an indirect route from the north room of the rear wing (as described in the
later sections of this report). The south wall framing proved to be similar to the other three walls, with diagonal corner bracing mirroring that observed on the north wall.

No battle damage was observed on the south wall of the main body.

_Chimney Investigation_

The chimney of the main body was inspected for evidence that would help in dating the main part of the house. The upper shoulder of the chimney can easily be accessed by a closet in the second floor east room. The bricks used in construction of the chimney and fireplaces appear to be hand molded, exhibiting the typical coarse texture, uneven lines, and cracks associated with hand molded bricks. The mortar between the bricks appears to be a soft lime mortar (as opposed to later hard mortars which contain portland cement). This suggests that the chimney was built sometime before circa 1880 when machine made bricks and portland cement became readily available in Tennessee; however, it should be recognized that some builders continued using locally produced hand-made brick and soft lime mortar until circa 1900.

The chimney of the rear wing was also investigated. This chimney resembles the main chimney in materials, technique, and workmanship. Because the fireplace opening had been obscured with recent concrete infill, it was not possible to determine whether the fireplace had features specifically intended for cooking purposes, in keeping with the presumed location of a kitchen in the rear wing. Thus the rear chimney did not distinctively differ from the main chimney in terms of dating considerations.
Rear Wing Exterior Investigations

A section of siding was removed from the east facade of the rear one-story wing to look for evidence of the construction technique and battle damage. The siding on the east facade is a modern fiberboard held in place with wire nails. The siding was removed only at the southeast corner of the wing from the sill to a height of approximately 2 ½ feet (photo 6).

Photo 6: Frame of rear wing

The mature balloon framing system of the rear wing represents a later version of the balloon frame than that used on the main body of the house. The corner post consists of two 2” x 4”s nailed together, and the post end is toe-nailed into the sill with no mortising. The sill is a 7 ½ ” x 6” circular sawn member. The 2” x 4” circular sawn studs are similarly toe-nailed into the sill with no mortising. There are nail holes in the face of the studs demonstrating that there was a previous siding secured with cut nails. There is also a diagonal 2” x 4” corner brace that runs from the sill to the corner post. It is not mortised, but toe-nailed in place with cut nails.
Although the mature balloon frame of the rear wing would be later than the early balloon frame of the main body (an example of relative dating), the appearance of circular saw marks and cut nails in both portions implies that both were constructed within the period between circa 1850 and circa 1890. This fortunate occurrence of both types of balloon framing systems within a known period of time allows us to tentatively infer that the transition from the early form to the mature form of balloon framing probably occurred between circa 1850 and circa 1890. If so, this Mid-South transition period would parallel that observed by Sprague in the Chicago area, thus suggesting a similar timeframe of framing evolution might apply to both the areas despite their geographic distance. (Of course, a much larger sampling of similar framing systems in the Mid-South would be necessary to verify this preliminary conclusion.)

No battle damage was found on any of the exposed framing members of the rear wing.

*Investigation of the Interface between Main Body and Rear Wing*

The interface of the main body of the house and the rear one story wing was inspected by removing modern plasterboard and underlying horizontal wall boards in the north room of the wing. The two parts of the house were attached by simply constructing the frame of the wing adjacent to the south wall frame of the main body (see photo 7; note that the diagonal corner braces of the two adjacent frames run in opposite directions). The south face of the studs on the main body have cut nail holes in them demonstrating that there had been siding on the entire south side of the main body and that the wing is a later addition (the north face of the studs on the rear wing have no nail
holes, corroborating this conclusion). The studs of the wing wall exhibit the ghosts of plaster and lathing, demonstrating that the original interior finish was a plaster surface, which was later replaced by horizontal boards which were in turn even later covered with modern plasterboard.

A modern bathroom has been attached to the north of the wing and east of the main body of the house. The west wall of the bathroom and the east wall of the main body are separated by nearly ten inches in space (photo 8, on the following page). Apparently this space was used to accommodate modern plumbing for the bathroom fixtures. In the photo, the studs in the foreground bear lathing ghosts; a back corner of the front frame is visible in the left background; the plumbing space and modern bathroom wall appear in the right background.
Interior Decorative Changes

The first floor west room mantel was taken down to determine if it is an original piece and what the wall looked like behind it. This modest mantel is made of planed lumber with circular saw marks on the reverse, and assembled with cut nails. It appears that the mantel is original and had not been moved since being attached with cut nails to the wood nailer blocks mortared into the chimney masonry. Beside the mantel evidence of multiple wall treatments can be observed. On the face of the studs ghosts of plaster and lathing can be seen. There is also a set of laths between the mantel and the doorway into the room. On top of this lathing is a hard plaster that had several layers of wall paper attached to it. Above that hard plaster there is a modern plasterboard.

The mantel in the east room is much more elaborately decorated and the majority of it is probably an early piece. However, project coordinator Edward Johnson observed during a site visit with Park Service personnel in 1993 that the mantel had been pulled away from the wall and was at that time lying on the floor. The mantel had also been
previously removed at some point prior to 1993 and clumsily reattached with wire nails. It exhibits circular saw marks on reverse surfaces and cut nails, and decorative elements were added subsequent to original construction, including two decorative pilasters, simple moldings, and wide top shelf.

Elements of the staircase and door leading upstairs appeared to be original construction and were examined for dating evidence. The boards of the staircase door, and the small door for storage space beneath the stairs, are assembled with cut nails. The hinges are held in place with gimlet (pointed) screws demonstrating a date after 1846 when such screws became available. Since cut nails were used in the construction of the doors and frame of the stairs those elements were built before 1890. The existing rim lock on the stairway door is not original—rather there is a ghost of the original wooden knob that could be rotated to secure the door.

Also downstairs there is a closet to the north of the fireplaces that can be accessed from either the east or west room. The 1” x 12” boards that make up the walls of this closet exhibit all exhibit circular saw marks (post circa 1850) on the reverse and are attached to studs with cut nails. Curiously, they exhibit different types of planing marks, with some showing the distinctive irregular longitudinal marks of a hand plane, while others show the cross-wise and highly regular marks of the mechanical planer. In most cases, hand planing would be considered an early nineteenth century technique for surfacing boards. The mix of hand- and machine-planed boards in the same wall may suggest that the carpenter reused older material or simply ran out of commercially planed lumber and had to make his own. In any case, the hand planing marks in this instance do not indicate an earlier date for the house.
Second Floor Interior Investigations

The various elements of the second floor were investigated to determine age and potential chronology of the construction details. The most noticeable difference between the first and second stories is the floors themselves. The older upstairs flooring utilizes 6” boards held in place with cut nails, while the later downstairs flooring uses 3” boards (tongue and groove with concealed nails). However, it should noted that an earlier floor may still be present beneath the later one, although no floorboards were removed to determine the exact configuration.

The ceiling of the second floor is covered with a 3” center-beaded board and held in place with wire nails. This covering post dates 1880 based on the wire nails. In the northeast corner of the east room several of the rafters have been exposed due to rot. A close inspection shows that there are no nail holes from an earlier ceiling material, which suggests that the second floor was not finished until after 1880 when the center-beaded board ceiling was installed. A final ceiling decoration included multiple layers of newspaper applied over a period of several decades. The earliest dateable newspaper fragment recovered dates to 1929 and is stored at the Center for Historic Preservation at Middle Tennessee State University. Other layers dated up to the 1950s based on a cursory reading of the papers.

Other Dateable Elements

The door and window surrounds and pieces of trim in the main body of the house were examined for period of manufacture. Most of the door and window surrounds are assembled with wire nails suggesting that the house underwent a major remodeling after
1880. At that same time the upstairs was finished with a ceiling and the wall treatment downstairs was probably changed as well. Much of the door hardware also appears to reflect a second episode of elements. Beneath the east front door lock, nail holes from an earlier lock mechanism can be seen. The hardware found on the doors, including the hinges and locks, all date to the third quarter of the nineteenth century and the styles continued to be used up until the early twentieth century. Therefore those elements are not useful dating tools.

*Further Explorations*

A substantial Tulip Poplar tree in the yard west of the house tentatively appears large enough to have stood at the time of the battle. Its circumference measures 17.5 feet. Unfortunately the center of this tree has been dead for some time and consequently has rotted away. In addition, the upper portion of the tree fell over in a storm and lies on the ground. Both the upper part of the tree and the lower trunk were investigated with a metal detector to determine if there is any shrapnel from the battle in it. The decayed interior and detritus on the ground were also scanned. Presumably, any bullets or shrapnel imbedded in the tree's rotted center would have fallen to the ground and been detected by the instrument. No metal was found in any part of the tree or in the ground below the trunk. Had there been shrapnel in the tree that evidence would have made the fact that no battle damage was found in the house much more substantial in dating the building to post 1863.

A final investigation on the poplar tree included a dendrochronological count of the rings of one of the larger branches. Park Service personnel cut a section out of a large
fallen branch for CHP members to inspect. About seventy rings were counted in this branch. Although the branch is not the center part of the tree, it is one of the older sections and as such probably approximates the age of the tree. (Photographs of the tree examination are omitted from this report, but will be retained in Center project files for possible future research purposes.)
(SUBSTITUTION PAGE FOR INVASIVE INVESTIGATION PHOTOGRAPHIC PRINTS)

(In the original report submitted to SRNB, pages C-28 through C-40 consist of photographic prints mounted in archival sleeves.

These prints are omitted from other distributed copies of the report.)
CONSTRUCTION CHRONOLOGY FOR VAUGHTER HOUSE
FRONT (NORTH) SECTION, FIRST CONSTRUCTION EPISODE

The front section appears to be the oldest part of the Vaughton House. Beneath newer exterior siding and interior surface finishes lies the original framing which remains largely intact. The chimneys, some flooring, and minor interior items have survived as original features, but most of the currently visible materials seem to be later modifications.

"Relative" dating of front and rear sections was established by examination of the interface between frames of each section: the front section frame displays nail holes remaining from siding which was removed when the rear section was erected (the rear section does not display nails holes at this location); therefore the front section is the older of the two.

"Absolute" dating of the first construction episode can be estimated by identifying the smallest common range among the various dating indicators listed in the following table:

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>DATING INDICATOR</th>
<th>EARLIEST DATE</th>
<th>LATEST DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framing system</td>
<td>Early balloon frame (mortise joinery at sills)</td>
<td>ca. 1832?</td>
<td>ca. 1890?</td>
</tr>
<tr>
<td></td>
<td>(2nd floor joists supported by ribbon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Diagonal bracing, mortised &amp; nailed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modern cut nails</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td></td>
<td>Circular saw marks</td>
<td>ca. 1850</td>
<td>NA</td>
</tr>
<tr>
<td>Chimney</td>
<td>Hand made (?) bricks</td>
<td>NA</td>
<td>ca. 1900?</td>
</tr>
<tr>
<td></td>
<td>Soft lime mortar</td>
<td>NA</td>
<td>ca. 1900?</td>
</tr>
<tr>
<td>Mantle, first story, west room</td>
<td>Modern cut nails</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td></td>
<td>Circular saw marks</td>
<td>ca. 1850</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Original installation to wood blocks in chimney</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Note: Second story west mantle of similar vintage but remounted over later material; more elaborate first story east mantle clumsily remounted with wire nails.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lathing (remnant)</td>
<td>Modern cut nail</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td></td>
<td>Circular saw marks (&quot;small stuff&quot;)</td>
<td>1830s</td>
<td>NA</td>
</tr>
<tr>
<td>Baseboard, without moldings</td>
<td>Modern cut nails</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td></td>
<td>Circular saw marks</td>
<td>ca. 1850</td>
<td>NA</td>
</tr>
<tr>
<td>Corner stair/closet assembly</td>
<td>Modern cut nails</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td></td>
<td>Circular saw marks</td>
<td>ca. 1850</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Gimlet screws in strap hinge</td>
<td>ca. 1846</td>
<td>NA</td>
</tr>
<tr>
<td>Closet near chimney, first story</td>
<td>Modern cut nails</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td></td>
<td>Circular saw marks</td>
<td>ca. 1850</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Contemporary hand &amp; machine planing</td>
<td>ca. 1835?</td>
<td>?</td>
</tr>
<tr>
<td>T&amp;G flooring, second story</td>
<td>Modern cut nails</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td></td>
<td>(Note: Original flooring may also exist beneath the later flooring of first story.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siding remnant (above porch ceiling)</td>
<td>Modern cut nails</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td></td>
<td>Unidentified mechanical saw marks</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

CONSENSUS DATE RANGE FOR FIRST EPISODE:

ca. 1850          ca. 1890
CONSTRUCTION CHRONOLOGY FOR VAUGHTER HOUSE

REAR (SOUTH) SECTION, SECOND CONSTRUCTION EPISODE

9/25/1998, EAJ

The rear section was added to the Vaughter House after the front section but before ca. 1890. The framing systems of the two sections are quite distinct versions of balloon framing: while the front section exhibits the early type of balloon frame which utilizes mortise joinery at the sill level, the rear section displays a fully evolved balloon frame of all-nail construction. As with the front section, the rear section retains its original frame and chimney, but the exterior siding and interior surface finishes have been mostly replaced by later materials.

"Relative" dating of front and rear sections established by examination of interface between frames of each section: front section frame displays nail holes remaining from siding which was removed when rear section was erected (rear section does not display nails holes at this location); therefore rear section is the younger of the two.

"Absolute" dating of the second construction episode can be estimated by identifying the smallest common range among the various dating indicators listed in the following table:

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>DATING INDICATOR</th>
<th>EARLIEST DATE</th>
<th>LATEST DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framing system</td>
<td>Balloon frame (all-nail construction)</td>
<td>ca. 1846/47?</td>
<td>ca. 1930s?</td>
</tr>
<tr>
<td>&quot; &quot;</td>
<td>(Diagonal bracing, nailed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot; &quot;</td>
<td>Modern cut nails</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
<tr>
<td>&quot; &quot;</td>
<td>Circular saw marks</td>
<td>ca. 1850</td>
<td>NA</td>
</tr>
<tr>
<td>Chimney</td>
<td>Hand made bricks</td>
<td>NA</td>
<td>ca. 1900?</td>
</tr>
<tr>
<td>&quot;</td>
<td>Soft lime mortar</td>
<td>NA</td>
<td>ca. 1900?</td>
</tr>
<tr>
<td>Lathing ghosts</td>
<td>Modern lathing cut nail holes</td>
<td>ca. 1835</td>
<td>ca. 1890</td>
</tr>
</tbody>
</table>

CONSENSUS DATE RANGE FOR SECOND EPISODE: ca. 1850 - ca. 1890
CONSTRUCTION CHRONOLOGY FOR VAUGHTER HOUSE

THIRD CONSTRUCTION EPISODE

Although both the front and rear sections were contracted before ca. 1890, much of the existing visible building fabric appears to have been added during later modifications to the building. The third construction episode involved extensive modifications to both interior and exterior features. Downstairs plaster surfaces were replaced by center-bead boards, the previously incomplete second story was finished with center-bead board walls, new trim and flooring was added, and doors and windows were replaced, resulting in a thoroughly revised interior appearance. Exterior siding was replaced and the porches were heavily modified. (The roofing structure was not readily accessible during the investigation, but it seems likely that extensive modifications and/or replacements also occurred during this construction episode.)

"Absolute" dating of the third construction episode can be estimated by identifying the smallest common range among the various dating indicators listed in the following table:

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>DATING INDICATOR</th>
<th>EARLIEST DATE</th>
<th>LATEST DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milled center-bead boards (on wall and ceiling surfaces)</td>
<td>Wire nails</td>
<td>ca. 1880</td>
<td>NA</td>
</tr>
<tr>
<td>Milled trim boards, with moldings (around doors and windows)</td>
<td>Wire nails</td>
<td>ca. 1880</td>
<td>NA</td>
</tr>
<tr>
<td>Milled baseboard, with moldings</td>
<td>Wire nails</td>
<td>ca. 1880</td>
<td>NA</td>
</tr>
<tr>
<td>&quot;   &quot; &quot;   &quot; &quot;</td>
<td>Circular saw marks</td>
<td>ca. 1850</td>
<td>NA</td>
</tr>
<tr>
<td>Door hardware</td>
<td>Butt hinges with gimlet screws</td>
<td>ca. 1846</td>
<td>NA</td>
</tr>
<tr>
<td>&quot; &quot; &quot;</td>
<td>Reversible vertical cast iron rim lock</td>
<td>ca. 1865?</td>
<td>ca. 1930?</td>
</tr>
<tr>
<td>&quot; &quot; &quot;</td>
<td>White porcelain knobs</td>
<td>ca. 1840</td>
<td>ca. 1930?</td>
</tr>
</tbody>
</table>

CONSENSUS DATE RANGE FOR SECOND EPISODE: ca. 1880 - ca. 1930
CONSTRUCTION CHRONOLOGY FOR VAUGHTER HOUSE

FOURTH CONSTRUCTION EPISODE

Numerous minor modifications were made to the building after ca. 1930 and these have been collectively included in the fourth construction episode. The modifications include the addition of sheetrock over the downstairs board wall surfaces, the installation of bathroom and kitchen plumbing and fixtures, updated electrical service, and extensive modifications of the front porch and the L-shaped back porch. Several interior wall finishes were also installed, including various layers of decorative wallpaper on the first story and newspaper wall coverings (dated 1929 to 1940s) on the second story.

As this study focuses on the earlier history of the Vaughter House, no attempt has been made to determine "absolute" date ranges for the various elements included in this modern construction episode.
CONCLUSIONS

The Dating Implications of the Documentary Evidence

As described in the review of historic documentation, the Civil War battle maps seem to indicate that no building existed during the battle of Stones River at the location now occupied by the Vaughter House. The Beers map of 1878 does show a house at this location, labeled “Leach,” which is probably the same building that we now call the “Vaughter” house. Thus the map evidence implies that at least the oldest part of the Vaughter House was originally constructed at some point in time between 1863 and 1878. (However, the generic nature of the map symbol does not allow us to infer exactly what part of the building was in existence by 1878.)

The Dating Implications of the Construction Technology Evidence

As described in detail in the investigation narrative, and summarized in the construction chronology tables, the investigative team uncovered a substantial quantity of dating evidence which helps us to establish a timeline for the construction of the various portions of the Vaughter House. Although several different construction episodes were identified, obviously the first and oldest episode would have the greatest relevance in terms of potential Civil War vintage, therefore we will focus on the nature and likely date range of that portion of the building erected during the initial construction episode.

The front section, or main body, appears to be the oldest section of the Vaughter House. This section consists of a simple two room plan with a central brick chimney and gable roof. Original features of this section which remain largely intact include the
following: the early balloon frame, the chimney, the corner stair/closet assembly, and the
closet adjacent to the chimney. There are a few surviving bits and pieces which enable us
to infer the probable original configuration of other features, including plaster/lathing
wall surfaces, simple baseboards, wide tongue and groove flooring, and early exterior
siding. The surviving mantels tell a mixed story, with one in original condition and
original location, another in original location but remounted, and yet another both
reworked and remounted.

For purposes of this report, the most important question involves the likely age of
this section: when was it originally constructed? As described in the investigation
narrative and the construction chronology tables, likely time ranges (from earliest
probable date to latest probable date of manufacture and/or use) were identified for each
of the major types of observed dating indicators associated with the original features of
the oldest section of the building. The smallest common range among the various dating
indicators can be used to determine a consensus date range for the construction of the
original section, namely, circa 1850 to circa 1890. This means that the oldest portion of
the Vaughter House was most likely constructed at some point during the forty year
period between about 1850 and about 1890.

The reliability of this estimate depends on several factors, but the following points
should be noted. The primary indicators used for this dating assessment are the presence
of circular saw marks (providing the circa 1850 “earliest” date) and the “modern”
(perfected) cut nail (providing the circa 1890 “latest” date); both are believed to be
reasonably reliable when applied to the Mid-South region. The remaining dating
indicators appear to be consistent with the range suggested by the primary indicators.
None of the dating indicators thought to be associated with the original construction episode suggest a finding inconsistent with or contrary to this date range.

It should also be noted that these findings tend to corroborate and confirm the construction date range identified in the earlier 1993 study (i.e., "...no earlier than circa 1850 and no later than the 1880s.") The present study is based on a much more thorough examination than was possible in the 1993 study. (The major difference between the conclusions of the two studies involves the nature of the framing system: the somewhat tentative identification of a braced frame in the earlier has been superseded by a much more certain identification of an early balloon frame.)

Unfortunately, the identified construction date range (of either the earlier study or the present study) is not sufficiently narrow to definitively determine whether or not the Vaughter House actually existed at the time of the Civil War. (It could have been otherwise, had any of the observed dating indicators for the original section been clearly associated with early or late 19th century construction technology—but of course such unpredictability is typical of field research.) However, the other type of evidence sought by the invasive investigation—battle damage—offers a better opportunity to assess potential Civil War vintage.

*The Dating Implications of Battle Damage Evidence*

As described in the investigation narrative, the team found no identifiable evidence of battle damage during any part of the invasive investigation of the Vaughter House. All observed damage could be reasonably explained by natural deterioration
processes associated with water intrusion, insects, and fungal decay. This total lack of battle-associated damage could have arisen several different ways.

The simplest scenario for the lack of battle damage would also be the most obvious: the building did not yet exist when the battle of Stones River occurred. This would appear to be the most likely scenario, especially since the battle is believed to have been quite intense at the location where the Vaughter House now stands (see the discussion of the map evidence earlier in this report).

Another possible scenario would be that the house stood at the time of the battle but simply did not receive hits from bullets, shrapnel, or other munitions. (This was the motivation for examining the large poplar tree for collateral battle damage, but the tree proved considerably younger than the battle, based on tree ring count.) While this situation could theoretically occur, it seems unlikely given the proximity of the site to known intense military action, both artillery and small arms fire (again, refer to the discussion of the map evidence).

A third possible scenario might be that the building did receive battle damage, but the damage was subsequently repaired and the building thus rehabilitated for ongoing residential use. Indeed, the purpose of the invasive investigation was primarily to determine if structural elements had received battle damage which was subsequently concealed beneath layers of exterior and/or interior finishes. Had such repairs been performed after the battle, the building frame should exhibit at least some evidence of repair consistent with this time period. The only early repair observed during the invasive investigation (near the west end of the north facade) seems best explained as a
corrective measure for natural deterioration (due to water intrusion, insects, or fungal agents). No bullets or munitions fragments were found anywhere in the building.

Based on these considerations, the team concluded that the absence of battle damage is best explained by the supposition that the building did not exist during the battle and thus it was erected at some point in time after the battle occurred.

*Comprehensive Dating Estimate Based on the Combined Evidence*

Having considered each of the major types of dating evidence separately, we can now combine this information to arrive at our best estimate for the age of the Vaughter House.

The oldest section of the house (construction episode one in the tables, consisting of the original elements of the main body) is our main focus. The map evidence indicates that this section was erected at some point after the Battle of Stones River but before 1878, when it appears on the Beers map. The lack of battle damage corroborates this conclusion. In addition, nothing in the observed construction technology would contradict this finding. Consequently, we are justified in concluding that the original section of the Vaughter House was probably constructed at some point during the fifteen year period between circa 1863 and circa 1878. Therefore, to answer the basic question motivating this investigative effort, and having carefully considered all the evidence discussed in this report, we believe that the Vaughter House does in fact post date the Battle of Stones River.

Of secondary importance is the dating of the rear wing, which does not relate to the issue of Civil War vintage, but rather to the evolution of framing technology in the
Mid-South region. We cannot establish an “earliest” construction date for the rear wing (other than to say that it is younger than the original part of the main body), but we can use the analysis of observed construction technology dating indicators to estimate a “latest” construction date. The primary relevant indicator in this case would be the presence of “modern” (perfected) cut nails in the balloon frame of the rear wing, which suggests that portion of the Vaughter House was constructed before circa 1890. Therefore it is reasonable to conclude that the transition from “early” to mature “all nail” balloon framing seems to have occurred between circa 1863 (the earliest possible date for the first construction episode) and 1890 (the latest likely date for the construction of the rear wing frame). In other words, the evidence in this one house suggests that balloon framing matured in this local area during the twenty-seven year period between circa 1863 and circa 1890. The following section of the report further explores the meaning of the balloon framing evidence.

The Importance of the Two Balloon Framing Systems

The existence of two distinct types of balloon frames in the Vaughter House was an unexpected discovery of the invasive investigation. While this observation has little impact on the question of the possible Civil War vintage of the building, it does seem to offer useful insight into the evolution of framing technology in the Mid-South region. Framing systems are usually concealed under surface materials, so the opportunity to study them in detail rarely occurs. For this reason, we digress briefly away from our primary focus on Civil War vintage issues and explore framing development.
According to architectural historian Paul Sprague, the balloon frame method of building houses was originally developed in the early 1830s in Chicago (Sprague 1983:35). Sprague’s article traces the creation and evolution of the balloon frame technology in the Chicago area (and, somewhat by conjecture, its later spread to other areas of the nation), and probably remains the single best study of balloon framing in terms of sensitivity to technical detail.

Balloon framing deviated from the earlier braced frame technology in several ways. An important distinction involves the differing treatment of studs, especially in terms of the relationship of studs to the flooring structure of the second story. A balloon framed house has studs that run the entire height of the building. By contrast, in a braced frame structure there are separate sets of studs for each story, and a large horizontal member (“girt”) which separates first story studs from those of the second story; these studs are attached by mortise and tenon into the second story girt and into the first story sill. In a balloon framed house the floor joists of the second story rest on a smaller horizontal member (“ribbon” or “ledger”) that is attached to the studs. Each stud has a notch sawn out for the ribbon, and the ribbon is also nailed to each stud. The second story floor joists rest on the ribbon and are also nailed to the wide face of each stud.

By the late nineteenth century two different schools of thought in balloon frame construction had developed. The early type (invented by George Washington Snow, according to Sprague, p. 36, although other scholars have advocated other inventors) continued some practices of the predecessor braced frame tradition with mortised joints used to attach various framing elements (studs, corners, joists) to large sills. The mature
("all nail") type (invented by Solon Robinson in 1846, according to Sprague, p. 40) abandoned mortise and tenon joinery in favor of assembling the complete frame entirely with nails, and with heavy members made up of smaller members nailed together. The Vaughter House exhibits characteristics of both types of balloon framing technology. For that reason it is an important building to study for the evolution of balloon framing use in Middle Tennessee.

The main body of the Vaughter house utilizes the early version of the balloon frame. Studs are mortised into the massive sills in the traditional style reminiscent of the older framing techniques. There are also diagonal corner braces mortised into both corner posts and sills (continued use of corner braces seems to be a practice of the eastern United States, and is not common in the Chicago area.) The floor joists of the second floor rest on a ribbon which sits in notches in studs which run from sill to plate, a definitive characteristic of balloon framing.

The second type of balloon framing, developed around the middle of the 19th century, used only nails to hold the frame together. The studs did not have tenons, but were toe-nailed into the sill instead. Another difference is that the major structural members such as the sills and corner posts were smaller than had been used previously. In many cases these larger members were constructed by nailing two smaller members (such as 2” x 4”s) together. According to Sprague this second type of balloon framing became more prevalent than the first type by the late 1880’s (Sprague 1983:44). The second, more mature, type is usually referred to as the “all nail” balloon frame.

The rear one story wing of the Vaughter house exhibits this second type of balloon framing. All the elements are nailed together. The southeast corner post that was
exposed in the investigations is two 2” x 4”s nailed together. The 2” x 4” studs are toenailed into the sill. The sill is a circular sawn member and is rather large at 6 ½” by 7 ½”. However, the size of the sill may have been cut that large to match the size of the sill in the main body of the house so that the two wings attached in a straight line along the east facade.

The fact that the two types of balloon frames occur in separate sections of the same building, and that both can be dated (using saw marks and nails) within a forty year range, suggests that we can roughly date the shift from the early type to the mature type in our geographic area. Based on the saw mark and nail evidence observed in this case study, we may tentatively surmise that the transition between early and mature balloon framing took place in Middle Tennessee between about 1850 and about 1890. Taking the historic map evidence into account, we may tentatively further refine this transition to the period between about 1863 and about 1890. Probably, the transition occurred in the latter part of this period, simply because little new construction was financially feasible in the immediate wake of the war. It is important to note that such a timeframe would be consistent with the known transition in the Chicago area which was essentially complete by the 1880s (Sprague, p. 44). Of course, many additional cases must be observed before such a conclusion would have statistical validity. Nevertheless, the evidence of the Vaughter House seems to suggest (tentatively) that during the late 19th century the evolutionary pace of construction technology in Middle Tennessee paralleled that observed in Chicago and perhaps elsewhere in the nation, though on a smaller scale (in keeping with the agrarian predisposition—and more limited financial resources—of Southerners during that period).
FOLLOW-UP POSSIBILITIES

Pursuant to section C of the contract, the following paragraphs describe possible follow-up investigative approaches which might potentially provide more information relevant to the vintage of the Vaughter House.

One technique that readily comes to mind is dendrochronology (dating using tree ring patterns). The problems with this technique include its expense and the fact that a structural element of the house would have to be found that includes the outermost layer of the tree. Few (if any) wooden elements of the Vaughter House offer this opportunity, because the building is mostly constructed of sawn materials.

Another option for determining the date of construction for the Vaughter house is to conduct archeological investigations around the foundation of the structure. Since the house is built on piers the most logical location to begin archeology would be at the northwest corner of the house. The corner pier is most likely seated in a hole excavated for that specific purpose. The builder’s trench may contain artifacts from the time of construction. Outside of the builder’s trench, the first layer of domestic deposition should contain artifacts not only from the time of construction, but also the occupation of the house. A more rigorous examination could encompass the entire west side of the main body of the house. This is the only side of the original part of the house that has not been disturbed by later additions. The same procedure could be used to investigate the wing by excavations along the east wall. There is no guarantee that artifacts will be found in either a builder’s trench or that any artifacts recovered can be tightly dated, but this is a possible technique available in seeking a more refined date range for the house. Typically, archeology uncovers more artifacts (such as ceramics) with more refined date ranges than
does architectural investigation. Whether or not the expense and time required to plan and execute such an archeological investigation might be worthwhile is a decision that should be made by NPS. (CHP understands that NPS archeologists plan to monitor the dismantling of the building.)

_Demolition monitoring_

If acceptable to NPS, the Center For Historic Preservation would also like to monitor the demolition process in order to more fully understand the construction technology utilized in the building. Realizing that NPS archeologists monitoring the demolition will likely be focusing on the ground beneath and adjacent to the house rather than the building itself, CHP would appreciate the opportunity to briefly study and photograph architectural features and construction technology as they are exposed during the demolition.

It is recommended that the dismantling be done in such a manner as to allow viewing of the full framing system of the main body and the rear wing. The sequence of demolition should include removing the front porch and modern additions first, followed by removal of the siding on the north, west and south sides, allowing time to inspect, record, and photograph those facades before the dismantling continues. Further, the east facade of the rear one story wing addition should be stripped of its siding and time allowed for inspection, recordation, and photography. The CHP also requests the option to save architectural fragments for future study. Any artifacts saved would be catalogued and curated at the Center.
DETERMINATION OF ELIGIBILITY

Based on the evidence compiled in Sections A, B, and C of this report, the eligibility assessor concludes that the property, the Vaughter House and its related outbuildings, is not eligible for listing in the National Register of Historic Places. Therefore, the dismantling of the property, if done under the supervision of certified archaeologists of the National Park Service as is currently planned, may be considered a No Effect under the compliance procedures of Section 106 of the National Historic Preservation Act of 1966 as Amended.

This conclusion is based on the following points of eligibility assessment:

1. The earliest date for the construction of at least a portion of the house is no later than circa 1878, when a house appears on the "Beers map" of Rutherford County in approximately the same place as the current property. Civil War-era maps do not indicate a house at this location at the time of the Battle of Stones River. Moreover, the Vaughter House has been altered significantly by a rear addition no later than circa 1890 and by a Colonial Revival-styled remodeling circa 1922. Abandoned for several years, the house is in poor condition and no longer retains architectural integrity due to vandalism and deterioration. Although it has an interesting balloon-frame skeleton, there is no available context to indicate that the framing system is significant to the architectural history of the region or that it represents a significant example of vernacular craftsmanship from the late nineteenth century. Thus, the building is not
eligible under Criterion C of the Criteria of Eligibility for the National Register of Historic Places.

2. Due to the lack of any "battle damage" evident through an invasive investigation of the main house, and the absence of the property from any written report of the battle or map of the battlefield, the property has no association with the Battle of Stones River or any other significant action during the American Civil War. Thus, it is not eligible for listing under Criterion A for its significance in military history, namely the Civil War.

3. The farmstead (the house, its outbuildings, and remaining agricultural field) was assessed within the data collections of the Tennessee Century Farms program and the Historic Family Farms in Middle Tennessee Multiple Property Nomination. From these tools of analysis, there is no evidence to suggest that the property is significant to agricultural history and/or agricultural patterns in Rutherford County. Thus, the property is not eligible for the National Register under the Criterion A theme of agriculture, which was the historic function of the property.

4. Considerable attention in the last decade has been focused on the development of newly freed African-American communities in the years immediately following the Civil War. The Vaught House, however, has no association with this theme of settlement and African-American ethnic heritage under Criterion A of the Criteria of Eligibility of the National Register of Historic Places. Section B of this report cited the available archival information about the property. Prior research documents that a postwar African-American rural community did
develop on the Stones River battlefield in the late nineteenth century. Its location, in fact, is well documented by archival records at Stones River National Battlefield, which shows that African Americans owned property along both sides of the Dixie Highway (present Old Nashville Highway) at the time the national battlefield was designated in the 1920s. Also, two surviving rural African-American churches, St. John United Methodist and Ebenezer Primitive Baptist, remain along the highway, approximately .5 miles northwest of the present battlefield boundary line. Lastly, an African-American cemetery, the Evergreen Grave Yard, is adjacent to the tracks of the historic route of the Nashville and Chattanooga Railroad (now CSX Railroad) across from the battlefield. None of these African-American settlement landmarks—the previous housing pattern, the churches, and the cemetery—share a physical or historical relationship with the Vaughter house. The African-American community centered itself on the highway and the railroad line. The Vaughter House, on the other hand, is oriented to the historic McFadden Road and the Stones River. There is no known evidence to suggest that the Vaughter House is associated with the African-American history of Rutherford County. Therefore, it is not eligible for the National Register under the Criterion A theme of Ethnic Heritage: African-American.

5. The Kern Collection at the Montgomery County Historical Society in Dayton, Ohio, contains several views of battlefield landmarks at Stones River, with the photographs taken from the 1890s to the early 1900s. None of these photographs include the Vaughter property in their documentation of the battlefield. These photographs are available on-line.
When it comes to assessing whether the property is eligible for the National Register of Historic Places, we base our assessment on the following facts: 1) the invasive investigation described in this report did not find evidence of construction technology which would confine the house’s original construction episode exclusively to the Civil War period, nor did it find any "battle damage;" 2) no army commander or military reporter mentioned that the property existed at the time of the battle; 3) no local historian, such as John Spence in the late nineteenth century, and Dr. Homer Pittard in the mid-twentieth century, mentioned that the property had any relationship with the Battle of Stones River; 4) no published scholarly account or NPS research report mentioned that the property had any significant association with the Battle of Stones River; 5) no newspaper account in the Murfreesboro Daily News Journal during the mid-1920s mentioned the property as a historical place as the newspaper reported the designation of and the development of Stones River National Battlefield; and 6) no oral tradition or written account of African-American history in Rutherford County links the property with the development of rural African-American settlement patterns during the late nineteenth and early twentieth centuries. The Vaughter property, while an interesting place, has no local architectural or historical significance. Furthermore, the property has received substantial alterations circa 1890 and circa 1930 and has suffered vandalism and deterioration in the last decade. The MTSU Center for Historic Preservation's final research report, along with the planned monitored dismantling of the property, is more than adequate documentary treatment for what is a non-contributing property, due to its lack of architectural and historical significance and its loss of architectural integrity.
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*Atlas to Accompany the Official Records of the Union and Confederate Armies.*  


Rutherford County Deed Books 62, 77, and 278; Trust Deed Book U; and Will Book 13.

