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Striking While the Iron is Hot: Federal Period Rural Blacksmithing in Somerset County, New Jersey

Michael J. Gall

Blacksmith shops and the items they produced were once vital components of rural communities prior to the introduction of mass-produced merchandise during the late 19th century. This article focuses on the archaeology of an undocumented 1780s–1790s shop operated by Garret Voorhees, Jr., on his Middlebush Village farmstead in Franklin Township, Somerset County, New Jersey. Garret had earlier worked in his father’s shop, ½ mi. from his home, prior to and during the American Revolution. In 1777, Garret lost his home and farm buildings to British arson. Following the war’s end, circumstances suggest the 33-year old blacksmith relied upon trade skills and improvisational tactics to construct his own shop on his war-ravaged farmstead. Sale of shop products was likely aimed toward supplying hardware for and financing the reconstruction of his new home nearby in 1793. By employing his family’s trade skills and post-medieval, earthfast architectural techniques, Garret “made do” with local and traditional knowledge in the construction of his blacksmith shop. The data also provide important insight into the diversity of items produced and architectural methods employed in rural blacksmith shops in the Northeast region during the early Federal period.

Les forges et les objets qui y étaient produits étaient autrefois des composantes essentielles des communautés rurales, avant l’introduction de la production d’objets de masse à la fin du XIXe siècle. Cet article porte sur l’archéologie d’une boutique de forge non documentée datant de 1780-1790 et opérée par Garret Voorhees Jr., sur sa ferme du village de Middlebush, dans le canton de Franklin, comté de Somerset au New Jersey. Garret avait auparavant travaillé à l’atelier de son père, à un demi-mille (environ 800 mètres) de sa maison, avant et pendant la Révolution américaine. En 1777, Garret a perdu sa maison et des bâtiments de ferme lorsque des Britanniques y ont mis le feu. Après la fin de la guerre, les circonstances suggèrent que le forgeron de 33 ans comptait sur ses compétences professionnelles et sur des tactiques d’improvisation pour bâtir sa propre boutique de forge sur sa ferme ravagée par la guerre. Les profits découlant de la vente des produits de sa forge ont probablement été dirigés vers l’approvisionnement en matériel et le financement de la reconstruction de sa nouvelle maison à proximité en 1793. En utilisant les compétences professionnelles de sa famille et des techniques architecturales médiévales (poteaux-en-terre), Garret a utilisé les connaissances locales et traditionnelles lors de la construction de sa boutique de forge. Les données fournissent également d’importantes informations sur la diversité des articles produits et les méthodes architecturales employées dans les forges du Nord-est américain au début de la période fédérale.

Introduction

Blacksmithing was once a necessary component of every American town or city. During the 18th and early 19th centuries, blacksmith shops dotted the landscape in rural and urban areas alike. The small, ubiquitous shops blacksmiths operated, also known as smithies, often were sited along heavily trafficked roads and at intersections, where they were well-positioned to cater to their particular clients’ needs. Save for a select number of surviving ledgers and daybooks, a passing reference, and a depiction on a map, most smithies dating to the colonial and Federal periods went largely undocumented by their contemporaries. Archaeological excavations undertaken in 2008 by Richard Grubb & Associates (Gall, Hayden, and Lore 2009) at the Voorhees site (28SO153) provide valuable insights into the archaeological signature of daily shop practices and the choices a smith could make to optimize profits at a late 18th-century rural smithy.

The Voorhees site, on Amwell Road in Middlebush Village, Franklin Township, Somerset County, New Jersey, was operated by Garret Voorhees, Jr., from the 1780s to the 1790s (FIG. 1). There, Garret Jr. constructed a post-in-ground (earthfast) smithy. The smithy was used to finance Garret Jr.’s farmstead reconstruction, which had been earlier destroyed by British arson in 1777. By placing the site within the broader historical and archaeological context of traditional blacksmithing craft knowledge, practices, shop
layout, and services, data from the site provide important information on the archaeology of practice and the traces of daily craftwork routines common in rural smithies (Hyett 2002: 92–95; Photos-Jones et al. 2008: 157–180). While unconsciously relying upon learned traditions and socialized behaviors, one’s habitus, archaeological data also reveal the selective decisions Garret Jr. made to optimize profits through choices related to shop location, smithy-construction methods, and clientele focus. These choices also were steeped in a socialized understanding of local and craft traditions. Together, reliance upon a habitus of craft practices and rational choice behavior enabled Garret Jr. to use shop profits to fund his farmstead’s reconstruction.

No documents, maps, or ledgers that detail the shop’s operation survive. Unlike other archaeologically investigated smithies in the Northeast and Middle Atlantic regions, investigation of Garret Jr.’s undocumented smithy relied entirely on interpretation of archaeological data. This data was contextualized through historical information acquired about Garret and his family, and some of the strategies employed to overcome postwar stresses. Comparison with other contemporary, rural blacksmithing operations was necessary to place the smithy and associated artifacts into a broader context to better understand the shop’s construction, clientele, and the ways the smith utilized craft knowledge as a foundation for operating his own shop.

Site History
Garret Voorhees, Jr. (1750–1823), was part of a lineage of blacksmiths who had passed on the art of blacksmithing through generations of family members. Indeed, Garret Jr.’s father, Garret Sr. (1720–1790), was a village blacksmith in Middlebush. Garret Sr. instructed his son, Garret Jr., and nephew, Garrett L. Voorhees, in the art of blacksmithing. Apprenticed to his uncle in 1774, Garret L. Voorhees later operated his own shop in the city of New Brunswick, 3.5 mi. east of Middlebush Village, until his death in 1794. While it is unclear when Garret Jr.’s apprenticeship began, it likely ended before 1774, when he took on an apprentice himself, his cousin, David Voorhees (Voorhies 1836: 9–10). Clearly, blacksmithing was an important skill for generations of Voorhees.
men. It was likely a time-honored tradition that provided family members with important craft skills necessary to become business entrepreneurs, gain economic and social mobility, and facilitate land ownership.

Historical evidence does not specify where Garret Sr.’s smithy was prior to the Revolutionary War, but it was likely operated as a street-front shop along the west side of Middlebush Road on his 200 ac. farmstead lot in Middlebush Village. There, Garret Sr. and, later, Garret Jr. operated a blacksmith shop prior to and possibly during the war. Garret Sr.’s home and shop are absent from a 1766 map of the village, suggesting neither structure was standing at that time (Hills 1776). In 1776, Garret Sr. permitted his son to occupy and erect a dwelling on a nearby 93.5 ac. lot along the north side of Amwell Road, opposite its junction with Middlebush Road. Garret Jr.’s use of the parcel likely was granted with the understanding that he would formally purchase the farmstead from his father when family savings allowed. The two properties were roughly ½ mi. apart (Fig. 1).

During the Revolutionary War, Garret Voorhees, Jr., worked as a farmer and blacksmith, and served as a colonial militia sergeant. In June 1777, young Garret fled his farmstead upon hearing news of the British Army’s presence in nearby New Brunswick (Revolutionary War Damage Claims 1782: 54). By mid-June, British and Hessian forces made their way to Middlebush and established an encampment on Garret Jr.’s property. On 15 June, Major John André drafted a map that depicts Garret Jr.’s home, but no smithy, indicating that such a business was not present on the 93.5 ac. parcel at that time (André 1903). While the map details the location of Garret Jr.’s home, along with several other homes in the village, and the location of a large British and Hessian encampment in Middlebush, André did not include the area of Garrett, Sr.’s farmstead. Four days later, Hessian officer Captain Johann Ewald (1979: 65) wrote that the army began to march east from the Middlebush encampment toward New Brunswick, and “on this march all the plantations of the disloyal inhabitants, numbering perhaps some fifty persons, were sacrificed to fire and devastation” (Stryker and Thomson 1963: 16; Ewald 1979: 65). While Garret Sr.’s farmstead appears to have been spared, Garret Jr., then 27, and his family lost much of their farmstead to British arson. The blaze was intended as retribution for the blacksmith’s militia service and support of the patriot cause. More than 22 other staunch patriots in the village suffered similar loses (Snell 1881: 65, 812).

The extent of Garret Jr.’s property loss is detailed in a 1782 war-damage claim for the destruction of “his dwelling House with Six Rooms and an Entry, and Kitchen, well curbs, & two Indian Corn cribs Burnt altogether £300: 0: 0” (Revolutionary War Damage Claims 1782: 54). The claim made no mention of a blacksmith shop, though, if one was present on his property, the British and Hessian armies would have destroyed such an enterprise. The war-damage claim was made under an act of the legislature, dated 28 December 1781, that called for the registering of inventories of property damage caused by both the British and Continental forces. The legislation presupposed that claims would be repaid by either the state or Congress at war’s end, but historian Abraham Van Doren Honeyman (1912: 279–280) reports that claims made under this law were never paid, resulting in continued hardships for numerous families across New Jersey.

Garret Jr.’s home was rebuilt in 1793, though the location of his 16-year temporary residence is unclear. In the interim, Garret Jr. relied upon his ingenuity, craft knowledge, and farm product sales to obtain income. Crop sales and reliance upon trade skills were essential to cope with economic hardships during and after the war. By 1783, at age 33, Garret Jr. had accrued enough money to purchase the 93.5 ac. farmstead from his father (Somerset County Clerk’s Office 1783). The funds may have been generated by the operation of a smithy on Garret Sr.’s nearby farmstead during the war. Indeed, pension records reveal that Garret Jr. and his apprenticed cousin, David Voorhees, worked as blacksmiths between 1774 and 1780, presumably on Garret Sr.’s property (Voorhies 1836: 9–10).

Following the formal purchase of his 93.5 ac. farmstead in 1783 for the sum of £650, it appears that Garret Jr. erected his own smithy on his property (Somerset County Clerk’s Office 1783). The decision to construct a new shop may have resulted from multiple factors. The first may have been Garret Jr.’s realization...
that his father’s smithy might not be available to him for much longer, given his father’s age. Garret Sr. drafted his will the following year, 1784, bequeathing the 200 ac. family farmstead to Garret Jr.’s younger brother, Peter. The will, proved six years later, made no mention of devising smithy tools to Garret Jr., suggesting that the younger Garret may have already assumed control of his father’s remaining tools or had acquired his own by 1784, and that the smithy may no longer have been in operation or was in a state of disrepair. Garret Jr. also may have considered his own farmstead a more economical and advantageous placement for a new smithy, given its location along Amwell Road, a heavily traveled east–west route across the state. By erecting a new shop on his own property, Garret Jr. attempted to reap the benefits of placing a smithy in a more visible location frequented by teamsters hauling goods to and from the city of New Brunswick.

Garret Jr.’s shop appears to have been in use for only one to two decades and circumstances suggest the shop was intended to provide the young smith with income to fund a farmstead-rebuilding effort. Products from the shop also may have provided some of the hardware necessary for the new house’s construction. The smithy also may have served a greater role in producing wrought-iron building materials for sale for the reconstruction of other war-damaged farmsteads in the community. Testing this hypothesis is beyond the scope of this study, however. Unlike his smithy, which used post-in-ground building methods, Garret Jr. erected his new home atop the mortared-stone foundation of his first house, just 76 ft. north of the shop’s former location. The home remains a notable feature on the property. Referenced in an 1802 road return for present-day DeMott Lane, Garret Jr.’s house had certainly been rebuilt by this time (Somerset County Road Return 1802). No smithy was mentioned in the road return, suggesting that the enterprise was no longer standing by 1802. Garret Jr. sold his Middlebush property to his son Ralph Voorhees in 1820 (Somerset County Clerk’s Office 1820). Although unmentioned in the surviving historical records, archaeological data clearly reveal that a street-front smithy did, in fact, stand on Garret Jr.’s property during the late 18th century. The archaeological data remain the only record for the existence of Garret Jr.’s short-lived blacksmith shop.

**Theoretical Perspectives**

Examination of the site’s archaeological deposits and structural features through the lens of agency theory provides a theoretical approach in interpreting the actions employed by rural blacksmiths in the operation and management of their smithies. Extrapolation of this data also highlights the ways residents of war-ravaged communities may have relied upon traditional structures and knowledge, while engaging in selective rational choices when opportunities arose during attempts to rebuild in the years immediately after the American Revolution. Garret Jr.’s continued engagement in blacksmithing and common shop practices, the choice to relocate his shop, and the construction methods employed in rebuilding his shop after the war, may be best interpreted using combined aspects of micro-foundational agency approaches, rational choice theory, and practice theory (Bourdieu 1977; Giddens 1979; Little 1989, 1998, 2007; Photos-Jones et al. 2008: 157–180).

Examining the individual as an actor, micro-foundational agency approaches presuppose the individual is raised within and instructed by a group of individuals that functions within a social structure, characterized by long-lasting patterns of action (Little 1989, 1998; Risjord 2014: 219–236). The group expresses specific belief, activity, and social environmental patterns that provide a foundation of possible choices from which an individual can select to adapt to myriad obstacles within different parameters. Knowledge of various architectural construction methods present in buildings on the landscape, trade and commerce routes, and various client needs were important data sets from which Garret Jr. could consciously select when making rational choices to maximize profits during the construction of his own shop and overcome obstacles created during the war. For Garret Jr., these choices manifested in his decisions to relocate his shop to a more advantageous location, the selection of shop- and hearth-construction techniques, and his focus on catering to certain clientele.

Conversely, Garret Jr.’s daily exposure to family craft traditions may have been so engrained as to be part of a habitus of socialized behavior. His continued participation in those
Rural Blacksmithing in the Northeast and Middle Atlantic

Analysis of Garret Jr.’s engagement in socialized, traditional craft behaviors requires a broader contextualization of rural colonial and Federal-period blacksmithing that cannot be provided by historical or archaeological data from the Voorhees site alone. Blacksmiths, or smiths that work with ferrous metals, such as iron and steel, were among the most important craftsmen during the 18th and early 19th centuries. Communities relied heavily on items, such as iron tools, architectural hardware, agricultural implements, and wagon parts, produced and repaired by blacksmiths. Communities and travelers also relied heavily upon farrier (horseshoe) services provided by rural smithies. Farriering of draft animals and horses was a staple service of most rural shops during this period and, based on archaeological data, one in which Garret Jr. actively engaged. Local blacksmiths and their products were essential in sustaining farmwork, construction efforts, development, trade and commerce, and the local economy, all of which would have proven essential in a postwar economy. Collectively important to communities, smiths and the smithies they operated were characterized by their variety, differences in markets serviced, nature of investment, shop location, products, shop size and construction, clientele, state of tenure, and sales.

Historian Christine Daniels (1993:753) argues that markets serviced and extent of monetary investments into a shop’s operation largely dictated or influenced shop size, tasks performed, and product sales. Daniels (1993:753), who examined records associated with colonial to early Federal-period blacksmiths in Maryland, also notes a general difference between urban and rural shops. Tasks that required greater skill for specialized products were often conducted in urban shops, which could produce a wider range of ferrous-metal goods. In contrast, rural shops performed more restricted tasks, though the products remained impressive (Daniels 1993: 753, 759). Similar differences between contemporary urban and rural shops likely existed in New Jersey.

A review of two New Jersey blacksmiths’ ledgers sheds light on the range of products made and tasks performed by rural smiths. The first was kept by Albert Leigh of Princeton Township, Mercer County, during the early 19th century, and the second was prepared by Aaron Kitchel, of Hanover Township, Morris County, during the late 18th and early 19th centuries (Kitchel 1784–1804; Leigh 1835–1854). Typical tasks conducted in rural smithies, such as the Kitchel and Leigh shops, included farriering; sharpening ploughs, colters, wedges, axes, and knives; mending utensils, links, pail handles, horse bits, wagon parts, neck yokes, shovels, and spades; hooping wagon wheels; and making wrought nails, axes,
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Bolts, chains, andirons, dung forks, and horseshoes (Leigh 1835–1854)

One could expect similar tasks to have been conducted in Garret Jr.'s shop, though in proportions relative to the clientele sought and the shop location along a route heavily traveled by teamsters.

The majority of rural blacksmiths' time, i.e., those whose smithies were not linked with or adjoining wheelwright shops or mills, was spent conducting farrier activities. Farriering dominated the trade in rural communities, where transportation needs and constant demands on draft animals resulted in heavy wear on horse- and ox shoes. Farriering consisted of shoe removal, hoof filing and cleaning, mending of old shoes or production of new shoes, and shoe reapplication. Often, waste generated during the farriering process came from removing shoe nails and clipping nail tips that protruded through the hoof after shoe reapplication. Nail tips were typically too small to save and reforge and, thus, often became part of the archaeological record. Garret Jr.'s decision to locate his shop along an east–west thoroughfare frequented by teamsters and those riding horseback would have been essential to support a business based largely on farrier services.

Table 1: Albert Leigh blacksmith ledger data sheet for the year 1836 (Leigh 1835–1854).

<table>
<thead>
<tr>
<th>Month</th>
<th>Shoeing</th>
<th>Old*</th>
<th>New*</th>
<th>Toed*</th>
<th>Sharpened*</th>
<th>Wagon/ sleigh</th>
<th>Hardware</th>
<th>Plow</th>
<th>Yoke</th>
<th>Mending tool</th>
<th>Making tool</th>
<th>Sharpening tool</th>
<th>Domestic</th>
<th>Food/ goods</th>
<th>Revenue</th>
</tr>
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<td>Jan.</td>
<td>27</td>
<td>13</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>$5.87</td>
</tr>
<tr>
<td>Feb.</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
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<td>18</td>
<td>$7.34</td>
</tr>
<tr>
<td>March</td>
<td>22</td>
<td>18</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>$11.40</td>
</tr>
<tr>
<td>April</td>
<td>21</td>
<td>19</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>50</td>
<td>41</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>1</td>
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<td>2</td>
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<tr>
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<td>8</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>37</td>
<td>0</td>
<td>4</td>
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<tr>
<td>June</td>
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<td>4</td>
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<td>0</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>3</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Aug.</td>
<td>61</td>
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<td>2</td>
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<td>2</td>
<td>8</td>
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<td>2</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Sept.</td>
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<td>4</td>
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<td>19</td>
<td>17</td>
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<td>3</td>
<td>0</td>
<td>3</td>
<td>14</td>
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<tr>
<td>Oct.</td>
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<td>8</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>2</td>
<td>0</td>
<td>1</td>
<td>29</td>
<td>$13.54</td>
</tr>
<tr>
<td>Nov.</td>
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<td>16</td>
<td>18</td>
<td>29</td>
<td>0</td>
<td>1</td>
<td>4</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Dec.</td>
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<td>23</td>
<td>14</td>
<td>23</td>
<td>3</td>
<td>2</td>
<td>10</td>
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<td>0</td>
<td>2</td>
<td>10</td>
<td>$21.19</td>
</tr>
</tbody>
</table>

*Quantity included in the “Shoeing” category. Shoeing refers to the number of shoes made or applied.

The majority of rural blacksmiths in the 18th and early 19th centuries typically worked seasonally. Often, they were employed as smiths part of the year and, during the agricultural season, performed farmwork or labored in other trades (Daniels 1993: 762–766; Catts et al. 1994: 15). Smiths also could engage in two occupations simultaneously, as in the case of Albert Leigh, who worked as a blacksmith and grocer during the second quarter of the 19th century (Leigh 1835–1854), and Silas Ward of Union County, New Jersey, who, between 1810 and 1841, operated a...
Gall/Federal Period Rural Blacksmithing

smithy, sold flour and grains, and carded wool (Ward 1810–1841). It is likely that Garret Jr., a farmer and a blacksmith, operated in a similar manner, and that the time he devoted to each trade varied seasonally.

Through his exposure to a family that engaged in both blacksmithing and farming, young Garret's seasonal participation in each trade would have been essential for earning a living. Attentiveness to and knowledge of the fluctuations in seasonal and local market demands also would have permitted Garret Jr. to maximize profits in his blacksmithing and agricultural endeavors. For others, depending on the market, proximity to urban centers, or inclusion in a mill complex, the demands on rural smiths could provide year-round employment. Indeed, records reveal that Rowland's Mills in Hunterdon County provided year-long employment to blacksmith Oliver Ewing, who operated a shop adjacent to the complex (Hunter Research, Inc. 2006: 6.9, 6.19).

Ledger analysis indicates the number of tasks completed by northern New Jersey smiths was high in the spring, as repairs to and production of agricultural tools was necessary during the planting season (tabs 1 and 2). This work included production, mending of tools, and sharpening of shovel, hoe, chain, and yoke. Blacksmithing activity declined between June and July, as farmers tended their fields and smiths worked their own farms. The harvest seasons saw a slight rise in blacksmithing tasks, most notably in wagon-/sleigh- and hardware-related work. With the exception of farriering, other work declined in the winter months. Garret Jr.'s occupation as both a farmer and a blacksmith operated in a similar manner, and that the time he devoted to each trade varied seasonally.
a smith suggests his smithy likely adhered to these seasonal, agrarian-based production cycles.

In both the Leigh and Kitchel ledgers, farrier activities comprised the majority of the tasks conducted by the two blacksmiths, and likely those conducted by Garret Voorhees, and likely those conducted by Garret Voorhees, Jr. (Gall, Hayden, and Lore 2009). The ledgers indicate that farrier work was most demanding during the late autumn and early winter months, with other notable increases in farrier activities during the late spring and late summer. Closer examination of farrier tasks described in ledgers indicates that the majority of work done to fix and reset old, worn shoes was completed during the spring through summer months. This pattern corresponds with data obtained from Oliver Ewing’s daybook for the years 1823, 1834, and 1843 (Hunter Research, Inc. 2006: 6.22). In contrast, the production and setting of new shoes and the toeing of old and new shoes peaked during the late fall and early winter, as greater shoe grip was required on icy surfaces (Hunter Research, Inc. 2006: 6.22). These tasks were not only conducted inside the shop, but in areas peripheral to the shop as well.

Shop Characteristics and Workspaces

Understanding shop characteristics and workspaces at other smithies also is crucial to interpreting the use of space, building methods, and daily shop practices conducted in Garret Jr.’s smithy, and the ways he adhered to or diverged from other smiths’ practices. Blacksmith shops vary in size, construction, location, and internal-space division based on the types of services rendered to clients. Some smithies serve specific functions, while others produce a variety of iron goods. In the northern portion of the rural Middle Atlantic region, smithies often were situated prominently along main thoroughfares, like Amwell Road (Hunter Research, Inc. 2006). Along Amwell Road alone, the remains of two other street-front smithies were identified archaeologically, both dating from the 19th to 20th centuries (Richard Grubb & Associates, Inc. 1989, 1990; Michael Baker, Jr., Inc. 2002). Some, such as the Garret Voorhees, Jr., smithy and the Mermaid blacksmith and wheelwright shops in Delaware, were ideally positioned at or near the crossroads or junctions of two main thoroughfares to maximize accessibility and, in turn, profits (Catts et al. 1994). Their locations facilitated acquisition of raw materials from suppliers, such as bar iron, rod iron, and fuel, and permitted customer accessibility.

Monetary outlay or investment affected the nature of a shop, its size, construction, and location. Daniels (1993: 753–754) indicates that blacksmiths required considerable investment (i.e., capital and/or acquisition of tools) to run a business, acquire equipment, and purchase supplies. Financial outlay often barred those who could not afford to enter the trade, or those who did not have the kin or trade connections to acquire used tools or an existing shop. Capital investors, family inheritance, or apprenticeships were principal ways in which a smith could set up a shop. Family inheritance and apprenticeship most likely characterized the nature of tool acquisition for a smith like Garret Jr., who may have received tools from his father before the latter’s will was drafted in 1784. It is possible that Garret Jr. later gave his tools to an apprentice and/or a family member, as several Voorhees family members in Somerset and Middlesex counties were blacksmiths during the 18th and 19th centuries. Inheritance of tools and, at times, a family-owned shop characterized craft dynasties that existed within families like the Voorheeses. While Garret Jr. did not inherit his father’s shop, tutelage by his father was a necessary step in providing young Garret with a means to earn a living between the agricultural seasons and continue in the family’s craft tradition.

Those who could not rely on kin connections instead depended upon capital suppliers, to whom a return on the capital investment had to be paid through shop revenue. Capital investors included merchants, yeomen, gentlemen, and doctors, who had the capital resources to lend money at interest. Capital investors commonly constructed their own shops, sometimes fully stocked with equipment, which were then leased to a smith (Veit and Gall 2008: 38–57). Daniels (1993: 257) argues that, in 18th-century Maryland, merchants invested little money in building smithies, citing examples of John Williams’s forge as “an old Logg shop much out of repair,” and Jacob VanSant’s forge, which was sheltered by an unenclosed roof, 13 ft. wide by 14 ft. long.
Others, however, were more substantial, like the suburban 17 × 21 ft. Perkin’s Mill shop constructed of logs (Daniels 1993: 257).

Archaeologically identified shops vary in size, shape, and construction (tab. 3). Shop size could range from 180 to 520 sq. ft., and building size depended on a variety of factors, including the number of smiths employed, tasks conducted, the size and needs of the customer base, and shop location (Catts et al. 1994: 92). Smithies also could be flanked by various-sized additions or separate buildings, depending upon the tasks conducted and services performed. Some businesses, such as blacksmith shops and wheelwright shops, commonly operated within proximity to one another, and the shops of the two businesses were, at times, joined. Smithies where farrier work was conducted generally incorporated an attached shed or overhang within which the smith/farrier could remove shoes, clean hooves, and reapply shoes on horses. Shop-construction techniques also varied over time and by region.

Examination of a sample of the earliest smithies archaeologically identified in eastern North America indicates that 18th-century shops exhibited a wide range of construction techniques (tab. 3). These consist of timber frame over masonry foundations, a combination of masonry and earthfast foundations, and solely earthfast or wooden foundations. Archaeological evidence indicates that, by the late 18th-century, shops increasingly were being constructed using masonry foundations rather than earlier earthfast building methods (tab. 3).

Regardless of size or construction methods, all smithies incorporated basic elements and activity areas, reproduced through knowledge gained from craft apprenticeships and exposure to shop practices. Shop floors often were uncluttered, with clustered workspaces in specific areas to enable efficient use of space (Richardson 1978: 34–35). In this manner, the hearth, bellows, anvils, water tub, and perhaps a workbench were situated within a short distance from one another to enable the smith to pull red-hot malleable iron from the hearth, place it on his anvil, and literally “strike while the iron is hot.” The finished iron might then be quenched in a water tub adjacent to the hearth to temper the iron product (Richardson 1978: 34). The common workspaces established in most shops were essential to their efficient operation and based upon a tradition of shared craft knowledge, though variation did occur (Hyett 2002: 92–95).

The most essential element in a shop was the forge or hearth. Generally constructed of brick or stone and positioned along the shop’s wall, hearth size varied slightly. The hearth at Washington’s Mount Vernon shop measured 4.0 × 8.0 ft. in plan (Bessey and Pogue 2006: 181); at the Fort St. Joseph shop, the forge measured 4.5 × 6 ft. (Light and Unglik 1987: 6); and at the Mannington Hill blacksmith shop, the forge measured 4.1 × 4.8 ft. in plan (Hunter Research, Inc. 1997: 7.13). Hearths typically stood waist high or roughly 3 ft. tall, extended 4 ft. from a wall, and had an attached flue and chimney. A manually operated bellows made of leather and wood would be positioned along the side or back of the hearth. The mouth of the bellows was inserted into the side of the hearth through a metal pipe or nozzle called a tuyere. Pumping the bellows produced a stream of oxygen that enabled the fuel in the hearth to keep the relatively constant, high temperature required to heat the iron or steel to a soft, malleable consistency that could be hammered into desired forms on an anvil.

Prior to the early 19th century, New Jersey blacksmiths fired their hearths using charcoal. Bituminous coal began to be used as a fuel source by New Jersey blacksmiths by the 1830s. To prevent fuel from igniting, it was commonly placed away from the hearth or within a small shed addition. When needed, the fuel was placed in the hearth and fired until the desired temperature was reached. At that point, raw metal was heated in the hearth until malleable. A byproduct of the firing process was a conglomerate of glassy waste formed from impurities shed from the fuel and metal during heating and hammering. The waste, known as slag, formed at the base of the hearth, and once the mass grew too large, it was collected and discarded outside the shop. During the removal process, some slag likely fell on the shop’s earthen floor, where it was trampled into smaller pieces. Impurities within slag, as well as size, shape, and internal microstructure, often offer important archaeological information regarding the type of fuel used, firing temperature, and location of the bellows (Allen et al. 1990: 3–20; Landon et al. 2001: 5–22). The location of slag
Table 3: First floor dimension and foundation comparison of a sample of archaeologically identified blacksmith shops.

<table>
<thead>
<tr>
<th>Shop name</th>
<th>Location</th>
<th>Period</th>
<th>Dimensions (ft.)</th>
<th>Square feet</th>
<th>Foundation</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mermaid</td>
<td>New Castle Co., DE</td>
<td>ca. 1735–1900</td>
<td>20 x 26</td>
<td>520</td>
<td>Stone w/ Earthfast</td>
<td>Catts et al. 1994</td>
</tr>
<tr>
<td>Mount Vernon (Private Shop)</td>
<td>Fairfax Co., VA</td>
<td>1755–ca. 1799</td>
<td>18 x 24</td>
<td>432</td>
<td>Masonry (Possibly Brick)</td>
<td>Bessey &amp; Pogue 2006</td>
</tr>
<tr>
<td>Benjamin Wynn Tenancy</td>
<td>Kent Co., DE</td>
<td>1765–1820s</td>
<td>16 x 24 w/ 8 x 8 addition</td>
<td>448</td>
<td>Earthfast</td>
<td>Grettler et al. 1996</td>
</tr>
<tr>
<td>Shields Tavern</td>
<td>Williamsburg, VA</td>
<td>ca. 1769–1780</td>
<td>13 x 18 w/ 11 x 8 extension</td>
<td>322</td>
<td>Earthfast</td>
<td>Brown et al. 1990: 139</td>
</tr>
<tr>
<td>Garret Voorhees</td>
<td>Somerset Co., NJ</td>
<td>1780s–1790s</td>
<td>18 x 20.5</td>
<td>396</td>
<td>Post-in-ground</td>
<td>Gall, Hayden, Lore 2009</td>
</tr>
<tr>
<td>Griswold</td>
<td>Clay Co., MS</td>
<td>1851–1860</td>
<td>16.5 x 29.5</td>
<td>486.75</td>
<td>Unknown</td>
<td>McBride 1987: 79–82</td>
</tr>
</tbody>
</table>

Deposits in and near a shop also provides evidence of shop practices and waste-disposal routines.

Anvils also were important features in a smithy. Positioned on a large, sturdy log set into or on the ground, anvils typically were located within a few feet of the hearth. Smiths often placed their tools in a looped belt that surrounded the anvil base, or suspended tools from large staples anchored into the wooden anvil base. Tools also could be placed on a nearby rack or table, rested against walls, or hung from spikes in walls or overhead support beams. Water tubs often were placed near the anvil to quench and temper iron while still hot (Richardson 1978: 34). Another common feature was the workbench, which might contain a vise, files, and fluxes, such as boron-based borax. One could expect a workbench to be near a light source, such as a window, enabling the smith to refine and file forged or repaired metal objects (Light 1984: 59). Archaeologically, the workbench area could be characterized by the presence of window glass, medium to small container glass for storing fluxes and acids, small metal debris, and geochemical signatures in the soil (Light 1984: 59).
Raw materials or iron stock were commonly purchased by the smith in the form of bar iron and cylindrical rods. In New Jersey, metal stock for blacksmith work was produced at a number of bloomery and finery iron forges, in the northern portion of the state from magnetite iron ore and in central and southern New Jersey from limonite bog iron. Raw material also was purchased from customers who sold the smith old, broken metal objects that could be heated and formed into new objects, or who supplied the smith with the raw material from their own stocks of old iron (Veit and Gall 2007, 2008). Old scrap metal could also be used as barter payment for the smith’s services. Stock metal was kept within the shop, where it could be stored in unused spaces, such as in a corner or below the bellows.

With the aforementioned tools and stock, the typical rural blacksmith in Somerset County labored in a shop with defined workspaces and over hearth and anvil producing a variety of essential items for his clientele base. These products were crucial in maintaining an agrarian community’s healthy economic viability. They also were essential for ensuring sustained trade and commerce by keeping wagons repaired and draft animals shoed. In return for his services, the smith earned a living, albeit seasonally. While there was some variation, shops generally contained standard workspaces and elements, the traditional use and placement of which were handed down through generations of shared craft knowledge. Long apprenticeships also imbued smiths with an intimate awareness of craft social structures, traditions, shop efficiency, and material production. Utilizing this traditional shared knowledge enabled the smith to work within a habitus of cultural knowledge, and, when conditions permitted or necessitated, to diverge from traditional practices to best suit existing parameters.

Documenting the Voorhees Shop

In 2008, Richard Grubb & Associates, Inc., completed Phase I through III archaeological excavations within a 50 ft. wide corridor along Amwell Road in advance of proposed improvements (Gall, Hayden, and Lore 2009). The fieldwork effort consisted of a metal-detector survey, ground-penetrating radar, geochemical analysis of anthrosol deposits, and the excavation of 49 shovel test pits and 20 variously sized hand-excavated units, followed by mechanical removal of 2,812.5 sq. ft. of topsoil. Fieldwork resulted in the identification of 56 cultural features and the recovery of 33,410 artifacts. The surveys identified and mitigated the archaeological remains of a ca. 1780s–1790s street-front blacksmith shop. The shop stood roughly 76 ft. to the front of Garret Voorhees, Jr.’s 1793 house, and approximately 40 ft. north of the original Amwell Road alignment. It is unclear whether the smithy was still standing after Garret’s second house was constructed, but it was not mentioned in a later 1802 road return survey. The shop was bounded to the east by a small shed, post-supported canopy, or animal enclosure where farriering was conducted, likely due to his intent to focus work on a teamster-based clientele.

Shop Construction

The construction methods used in Garret’s shop and the abutting shed are worth particular note. Garret’s shop measured 18 ft. east–west by 20.5 ft. north–south in plan, encompassing 369 sq. ft. (FIGS. 1 AND 2). The shop’s gable end faced the road. The smithy was of medium size compared to the archaeological footprint of other examined shops in eastern North America, but not an uncommon size for residential structures (TAB. 3).

With limited funds and a new permanent dwelling and outbuildings left to finance, it appears that Garret Jr. diverged from contemporary construction practices by relying on older, and likely less expensive, earthfast (i.e., post-in-ground) construction methods. Such methods have been documented among the Dutch and English in the Middle Atlantic and Northeast regions, and among the French in present-day Michigan (Carson et al. 1981: 135–106; Baker et al. 1992; Heldman 1993: 416–417; Gall, Veit, and Craig 2011: 30–61; Harper 2012: 8–47). Prevalent prior to the mid-18th century, earthfast building methods continued to hold relevance for many in New Jersey and elsewhere in the Northeast region during the late 18th century, though the building technique was largely relegated to the construction of outbuildings and tenant homes during this time (Baker et al. 1992; Gall, Veit, and Craig 2011: 39–61; Harper 2012: 8–47). A number of earthfast buildings have been archaeologically
identified in the more-southern Coastal Plain physiographic province in New Jersey, where usable building stone was difficult to procure. Far fewer earthfast buildings dating from the late 18th century have been archaeologically recorded in the more-northern shale- and rock outcrop-dominated Piedmont physiographic province, within which Garret Jr.’s smithy was situated (Gall, Veit, and Craig 2011: 39–61).

The decision to use earthfast construction methods was likely an intentional and necessary way to reduce building costs. Indeed, Garret’s reuse of the mortared-stone foundation of his first home to serve as a structural support upon which his second home was erected is also evidence of the smith’s conscious effort to “make do” and reduce construction costs. The aim in choosing earthfast construction methods may have eliminated the expensive endeavor of hiring a mason to produce mortar, lay stone or brick, and acquire all the materials for constructing a masonry foundation.

It seems plausible that Garret Jr. may have envisioned his smithy as a temporary structure from the start, intended to generate enough income for a rebuilding effort, after which time it was no longer needed. Earthfast building may have been a practical and viable option to lower construction costs in an economical though functional way, and would have been consistent with an architectural vocabulary that for some still held relevance on the landscape. This is particularly true of those wishing to build tenant housing in an economical manner to reap a higher return on investment, rather than those seeking to display wealth and status through the construction of more substantial, expensive, and permanent buildings. The use of earthfast methods is also similar to contemporary and earlier investor-owned shops suggesting Garret Jr. may have attempted to reap a greater return on investment at a faster rate than by erecting a more substantial building at a greater cost. In this case, Garret Jr.’s decision to use earthfast rather than masonry foundation construction methods reflects his exposure to cultural practices and his ability to make a rational choice based on available options that best suited his needs.

The construction of Garret’s shop within the Northeast and Middle Atlantic region appears to be the latest and northernmost archaeologically identified example of an earthfast, post-in-
ground blacksmith shop found to date, as the building technology quickly fell out of favor for more permanent construction methods after the Revolutionary War (Tab. 3). Other earthfast shops in the region include the Mermaid blacksmith shop, the Benjamin Wynn Tenancy blacksmith shop, and the Shields Tavern blacksmith shop (Brown et al. 1990; Catts et al. 1994; Grettler et al. 1996). These three examples all date to the mid-18th century and are situated in the Coastal Plain physiographic province. There, the use of earthfast building methods continued into the late 18th and early 19th centuries (Gall, Veit, and Craig 2011: 39–61). Far fewer archaeological examples of earthfast buildings exist farther north in the piedmont, given the greater availability of rock and its likely use for foundation material at an earlier date. Despite the use of earthfast building methods, Garret’s shop was intended to function as any other rural smithy with defined workspaces based on traditional craft practices.

Archaeological remains, particularly the form, orientation, and location of structural postholes, reveal much about the aboveground smithy superstructure, the use of space, and the clientele served. Architecturally, the shop consisted of a wood-frame building constructed with post-in-ground, longitudinal-bent assembly techniques (Figs. 2 and 3). Such techniques have been observed in postmedieval buildings in England, but are less common in continental Europe, where transverse or H-bent assembly techniques were the norm (Meeson and Welch 1993: 14–15). The latter is a common feature on early Dutch buildings in northeastern North America. By the late 18th and early 19th centuries, a hybrid combination of English and Dutch building methods was used in the southern Northeast region, but it appears Garret opted for a longitudinal assembly method, possibly because it best suited the shop’s size, or it was favored by his carpenter. Regardless, longitudinal building methods reveal a divergence from both vernacular Dutch architecture and combined Dutch/English architectural styles.

The longitudinal assembly method observed at Garret’s shop entailed the separate prefabrication of both the east and west long sides of the building, requiring fewer bents to raise in place (Stone 1982). The prefabrication of two, rather than three bents, which would have been necessary if the building had been made with H-bents, also may have been a cost-saving choice, requiring less effort for the carpenter to fabricate. Each longitudinal assembly was comprised of one center and two end posts, atop which a wall plate was seated. The central posts on the east and west walls were slightly off center. Once connected through mortise-and-tenon joints, each longitudinal section was raised into place. The three vertical or upright posts were each set within an elongated east-west oriented posthole, which extended roughly 2 ft. below ground surface. The posthole orientation provides evidence that the long walls were constructed separately on the ground and individually raised into place. Some of the postholes were dug to the surface of shallow, shale bedrock, providing a firm substratum upon which to anchor studs to the ground and prevent frost heaving. Soil, rocks, and brick fragments were used to fill the area around each post within the postholes to further stabilize the walls. One fragment of post-1770s pearlware, recovered from the smithy’s northwest posthole (Feature 68), reveals the shop was constructed after the 1770s, likely at the close of the war.

Short tie beams, or a set of common joists oriented in an east–west direction, would have been placed atop the wall plates, stretching between each long wall. The ends of the northern and southern tie beams would have been placed on the wall plates directly above the corner posts. The central tie beam, however, was probably offset by 1 ft. from the two central posts in the long walls, as suggested by an interior central post represented by Feature 55 (Figs. 2 and 3). It appears that Feature 55 was roughly 1 ft. south of the axis formed by the central wall posts (Features 14A and 56B) (fig. 2). The presence of this post is curious, as it would not have been required to support the central tie beam unless that tie beam were also used to support heavy loads below. One possibility is that a winching system was connected to the tie beam. Such a system could have been used to lift carriages to permit wheel replacement and to cradle draft oxen while being shoed. The presence of the post helps confirm that Garret Jr. intended his shop to service a teamster-based clientele, whereby work was focused on farriering and wagon repair.

The northern and southern tie beams, which formed the north and south gable ends, were also supported by a third post along the shop’s...
north and south gable-end walls. These posts, represented by Features 51 and 65, may have served as the western support posts for doors in the building’s gable ends (Fig. 2). The gable-end door openings measured roughly 11 ft. wide. It is also possible that the three posts, represented by Features 51, 55, and 65, may have formed an internal north–south partition wall.

A series of closely spaced posts along the shop’s east wall, consisting of two pairs of post features (Features 13/19, and 16/58A), may have represented the remains of two door openings that would have provided access to an adjacent shed, post-supported canopy, or enclosure where farrier work was conducted (Fig. 2). A similar addition was observed at the Mermaid Blacksmith shop site in Delaware. The accumulation of horseshoeing-related artifacts in and near the shed addition reveals its function and provides additional support for Garret Jr.’s focus on a teamster clientele. A narrow, shallow linear stain, designated Feature 18, may have represented the remains of an interrupted wooden sill (Fig. 2). Upright posts would have been inserted into this sill, upon which clapboard siding could be applied to ensure structural stability (Stone 1982). Evidence also suggests some posts needed repairs or buttressing with the use of spur posts placed adjacent to the damaged members.

The abutting shed, post-supported canopy, or enclosure measured roughly 12 ft. long north–south by 21.5 ft. wide east–west. The structure appears to have been crudely constructed and
consisted of four posts set into the ground. It was perpendicular to and extended from the southern half of the shop’s east wall (FIGS. 2 AND 3). The shed may have been enclosed in walls or, more likely, simply been a post-supported canopied roof intended to shield horses from the sun and inclement weather while being re-shoed.

**Shop Workspaces and Products**

Artifact-distribution data reveal much about workspaces, shop products, clientele, and daily practices. Unlike shop-construction methods, the artifact data highlight Garret Jr.’s adherence to traditional shop practices. One might expect, following Light’s (1984) example
of stand-alone blacksmith shops, that basic functional areas should be represented within a shop, such as a work area containing a hearth and anvil, storage areas for supplies, refuse areas, and domestic areas or areas of activities unrelated to work. All of these traditional functional areas were represented at the Voorhees shop site, though not all were confined to the shop’s interior.

Artifact patterning indicates that the shop’s brick hearth was located along its east wall, possibly just south of Feature 15 (FIG. 4). The base of the hearth was not identified, as it had been dismantled when the shop’s operation ended. Examination of recovered common-brick fragments reveals that some of the brick was handmade on a bed of grass or hay on the ground surface, leaving distinct impressions of vegetation (FIG. 5). The brick was not manufactured as durable firebrick and would have been subject to damage during hearth firing without the placement of a protective parge over the bricks’ surface. Indeed, portions or all of the shop’s hearth was covered in gravel-tempered parge to enhance the bricks’ longevity in the hearth, based on the recovery of parge fragments near the suspected-hearth location (FIG. 5). This method often was used to coat the walls of wooden chimneys to prevent fire damage and appears to have been a tactic used by Garret Jr. in place of purchasing firebrick (Gall et al. 2014).

Only one feature (Feature 12) associated with a possible anvil base was identified (FIG. 2). The feature did not extend into the subsoil and, instead, likely sat on a large, freestanding block of wood similar to that observed at the 1890s Strathbogie shop in Australia (Hyett 2002: 93). The location of the anvil proximate to the hearth was similar to that observed in other shops and was necessary to enable efficient work practices (Light and Unglik 1987: 6; Hyett 2002: 93; Bessey and Pogue 2006: 181). The hearth and anvil would have been

Figure 5. Representative artifacts from the site: (A) Brick with vegetation impressions; (B) parge; (C) blacksmith hammer; and (D) iron punches. (Photo by Allison A. Gall, 2009.)
the primary area for forging metal into tools or functional objects. A secondary work area was in the adjacent shoeing shed or enclosure east of the shop. Curiously, one of the blacksmith’s hammers, one of the main forging implements in the shop, was not found in the structure, but rather approximately 50 ft. outside the building (fig. 5). Garret Jr. probably owned a variety of hammers for different tasks.

Metal waste was concentrated south of the anvil, while miscellaneous metal; tools, such as punches; and hardware were found primarily north of the anvil (figs. 4, 5, and 6). The location of tools and hardware artifacts

![Diagram of blacksmith shop and shoeing shed with contours for miscellaneous metal and tools/hardware densities.](image)

Figure 6. Distribution of miscellaneous metal and tools/hardware. (Drawing by Michael J. Gall, 2009.)
also confirms that the northeast side of the shop was used as the primary work area. The concentration of metal items near the hearth and anvil may relate to traditional and efficient shop practices that allowed the smith to grab spare iron quickly and easily when needed to forge new items or repair old ones. Restricting movement and keeping needed materials within arm’s reach permitted greater efficiency in work routines, time, and services rendered. Architectural nails were recovered largely northwest of the anvil and within the shoeing shed/enclosure east of the shop (Fig. 7). It is possible that these locations were used to produce nails or dispose of nonusable nail fragments. Alternatively, the nails could have been used to hang items from walls.

Unlike metal artifacts, slag was recovered clustered in the shop’s southeast corner, and some was found below the shoeing shed, from where it could later be disposed offsite (Fig. 8). The dichotomy in metal- and slag-deposit patterning suggests Garret Jr. followed traditional shop practices in attempting to keep his workspace clear of unwanted debris and allocating different areas of the shop for workspace and refuse (Light 1984). It also reveals that the smith viewed slag differently than scrap metal, spare metal, tools, and leftover hardware. Slag was separated from other items inside the shop and intentionally relegated to a corner, where it could be easily disposed outside the building at a later time.

A series of irregularly located post features in the southwest and northwest corners of the shop may have represented the remains of workbenches or, possibly, storage areas. Use of the shop’s northwest corner as a workbench area is supported by the recovery of a slate writing pencil (Fig. 7). There, ledgers with clients’ bills and payments may have been updated, in addition to other tasks. Fluxes and vises also may have been stored on the benches or worktables in the northwest and southwest corners of the shop.

Other artifacts recovered from the site clearly indicate that the mainstay of Garret Jr.’s work at his shop were farrier tasks (Figs. 7, 8, and 9). The dichotomy in metal- and slag-deposit patterning suggests Garret Jr. followed traditional shop practices in attempting to keep his workspace clear of unwanted debris and allocating different areas of the shop for workspace and refuse (Light 1984). It also reveals that the smith viewed slag differently than scrap metal, spare metal, tools, and leftover hardware. Slag was separated from other items inside the shop and intentionally relegated to a corner, where it could be easily disposed outside the building at a later time.

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Other artifacts recovered from the site clearly indicate that the mainstay of Garret Jr.’s work at his shop were farrier tasks (Figs. 7, 8, and 9).
The presence of notable quantities of farrier-related artifacts, wagon/cart parts, and the shoeing shed or enclosure highlights young Garret’s decision to relocate the shop to his property near the road junction to maximize access to teamsters traveling to and from New Brunswick. Such teamsters and everyday travelers undoubtedly would have required farrier services and wagon/cart repairs. Knowledge of teamsters’ consumer needs and travel patterns was an essential knowledge base that Garret Jr. acquired by working in his father’s nearby shop.

It is not surprising that Garret’s shop conducted or even concentrated on farriering, as it was one of the most common tasks performed by rural blacksmiths during the 18th and 19th centuries. Farriering encompassed numerous tasks. Shoes, made in a shop, had to be specially fitted to each horse hoof and modified to suit
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individual horse walking patterns. Work on shoes may have encompassed production of new shoes and toeing. Toeing entailed applying and reapplying a metal bar to the bottom front of the shoe to enable traction (fig. 7). Farriering also may have consisted of re-forming stressed or modifying used shoes, or resetting existing shoes. Once correctly seated, the shoe was nailed to the hoof using small nails with elongated, narrow heads. Nail tips that protruded through the hoof’s outer wall were bent, or clinched, clipped, and filed. The result of this process at the site left a cascade of cut nail tips and pulled nails in the area of the shed or enclosure next to the shop (figs. 6, 7, and 8). The artifacts associated with shoeing activities were concentrated in areas peripheral to his shop, similar to those at other shops, indicating young Garret adhered to a traditional understanding of shop layout and taskscapes. An exception is the shoeing area within, rather than outside, the Australian Strathbogie shop (Hyett 2002: 93). Despite shoeing inside that shop, the shoeing area remained functionally distinct from other task areas in the shop.

Examined together, farriering and wagon/cart-related artifacts totaled 2,119 in number, and represented 45.4% of the total metal artifacts found at the site (tab. 4). These include bands or straps, bolts, nuts, rivets, a washer, a possible wheel hub and rope guide, horseshoes, and horseshoe nails (figs. 7 and 9) (tab. 4). Clearly, farriering and wagon/cart repair were the mainstays of the shop. Garret Jr.’s smithy was well-sited to perform these services, despite not being associated with or attached to a wheelwright shop.

While the smithy focused on catering to teamsters, the range of smithing knowledge Garret Jr. had acquired under his father’s tutelage also was put to use in serving others in the local community. Data indicate farriering/wagon-repair artifacts were followed in number by metal waste (n=1,083; 22.6%) and then architectural material (n=939; 19.6%). The

Figure 9. Representative artifacts from the site: (A) bolts, nut, and washer; (B) door and lock parts; (C) straps and bands; and (D) knives. (Photo by Allison A. Gall, 2009.)

...
Table 4: Metal artifacts recovered from the Garret Voorhees site.

<table>
<thead>
<tr>
<th>Architectural (939)</th>
<th>Farriering (2,091)</th>
<th>Furniture (25)</th>
<th>Hardware (179)</th>
<th>Miscellaneous (365)</th>
<th>Personal (22)</th>
<th>Tool (48 and 1 sandstone grindstone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut nail (22)</td>
<td>Architectural (939)</td>
<td>Hook (1)</td>
<td>Day nail (1)</td>
<td>Ornamental cover (1)</td>
<td>Key (1)</td>
<td>Blacksmith hammer (1)</td>
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The numbers in parentheses connote item quantities.
majority of the architectural remains found were nail fragments, indicating the shop did produce nails for local building endeavors, possibly for new construction efforts or use in rebuilding structures damaged during the war. Garret also produced knives, springs, door hardware, and spikes, and repaired broken tools and hardware for customers (FIG. 9) (TAB. 4). Other recovered metal items include wrought nails, tacks, keys, staples, lock parts, chain links, utensil knives, buttons and buckles, blades, shears, and punches (FIG. 9) (TAB. 4). This wide range of items would have been produced based on community members’ needs and seasonal agricultural demands. The items are also consistent with items produced by other local blacksmiths, based on contemporary ledgers, and were likely part of the traditional repertoire of skilled services rural smiths provided to agrarian-community members. Curiously, no identifiable agricultural tools were found, though Garret Jr. would have likely engaged in their repair or production too. Regardless, several items found, such as links, bolts, nuts, and knives, could have served dual purposes and may have been used in agricultural or animal-husbandry activities.

The smith’s activities were not restricted solely to the production/repair of metal goods and farriering. Ceramics, food remains, tobacco-pipe fragments, and bottle glass, most of which were found outside the shop, indicate that time in the smithy was devoted to work, while time outside the shop included leisure activities and farrier work (FIGS. 10 and 11). The recovery of domestic artifacts or, rather, artifacts unrelated to blacksmithing is consistent with patterns observed by Light (1984). Based on artifact-distribution patterns, these activities certainly were conducted in locations different from those associated with blacksmithing work, the presence of a small quantity of bottle glass in the slag pile in the southeast corner of the shop is the exception. Perhaps the bottles discarded in the shop once held fluxes used in the smithing process. Alternatively, they may have once contained alcohol, suggesting some spirit consumption took place on the job or in leisure while waiting. Indeed, tobacco-pipe stems were found outside the shop, below the shoeing shed, suggesting difficulty in smoking and working metal simultaneously. While speaking with customers or while clients awaited services,
Garrett also performed simple dentistry there (Fig. 12). It is probable that Garret pulled the tooth using tongs or pliers available in his shop. A large cavity in the recovered molar most likely necessitated its extraction and eventual incorporation into the artifact assemblage. One could imagine the excruciating experience for smoking was undertaken outside the shop during leisure moments. An improvised game piece, made of a medallion cut from a stoneware mug, found in the shoeing area further indicates the shoeing area had a dual function (Fig. 7).

Astonishingly, a single human molar was found near the shoeing area, indicating that
the patient, perhaps a teamster or a local resident, standing in the shoeing area while the molar was extracted by the smith without the benefit of modern anesthesia.

Although admittedly few temporally diagnostic artifacts, such as ceramics with tight production-date ranges, were found in cultural features, it appears that Garret’s shop may have functioned into the 1790s, perhaps having been dismantled after his home’s construction. The actual date the shop was closed is unknown and may never have been recorded, but the shop was not present in 1802. An inventory of Garret’s personal estate made in 1823, three years after he sold his home and property along Amwell Road to his son Ralph, makes no mention of blacksmithing tools. Clearly, by the time of his death, Garret had given up blacksmithing and likely sold his equipment, gave them to a family member to continue the trade and family tradition, or may have customarily gifted them to his apprentice after he had earned journeyman status in their craft.

Conclusions

Archaeological excavations at the Garret Voorhees blacksmith shop offered a unique opportunity to investigate and document a once-important, vital, and prolific rural cottage industry in the state. The ephemeral Voorhees shop was not recorded in historical documents, but a detailed examination of contemporary smithies and associated ledgers reveals much about the types of activities Garrett’s shop likely performed, many of which are supported by the recovered artifact assemblage. Indeed, the archaeological assemblage offers a wealth of data on 18th-century blacksmithing tasks, shop products, smithy construction, workspaces, and the decisions one could make to maximize profits.

Data from the site also highlight Garret Jr.’s adherence to a habitus of traditional rural shop practices learned while an apprentice and, later, a journeyman or master in his father’s shop. These include knowledge of craft skills, use of space, shop layout, awareness of the seasonal rhythms of blacksmithing work, and business practices. Archaeological data from the shop and other sites in the region also reveal the smith utilized local and craft knowledge to make conscious decisions that would further enhance his ability to profit from his business endeavor. These include a divergence from regional shop-building methods in the smithy’s

Figure 12. Human molar with a cavity. (Photo by Allison A. Gall, 2009.)
construction, the use of parge to avoid purchasing more-expensive firebrick for his hearth construction, focus on a teamster clientele, and the intentional placement of his shop at a frequented crossroads location.

Collectively, engagement in a habitus of reflexive behavior and the intentional use of rational decision-making tactics enabled Garret Jr. to capitalize on family blacksmithing traditions, craft knowledge, and awareness of clientele needs to overcome obstacles posed during the war. These tactics appear to have been aimed at creating a money-generating enterprise in the form of an ephemeral smithy, the sale of services from which was used to fund the rebuilding of his home in 1793 after its destruction by the British army 16 years earlier. The data from this site may also have broader implications for understanding the ways individuals overcame war-related and postwar stresses in the late 18th century. Archaeological data from contemporary sites, including domestic, early industrial, and craft shops, may further elucidate the understanding of wartime impacts on families and entrepreneurs, the coping mechanisms employed to mitigate obstacles, and the building of the American Republic during the early Federal period.

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