Archeological Investigations of Minute Man National Historical Park

Volume I: Farmers and Artisans of the Historical Period

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Acknowledgments

As the 17th-, 18th-, and 19th-century farmers and artisans, whom we have attempted to study through this project, went about their daily business, they accumulated many debts, some of which have been recorded in great detail. Their world, like ours today, was not one of individual autonomy but one of mutual interdependence. While some of their debts were settled promptly, others went unpaid for several years.

Throughout the Minute Man NHP Archeological Project, I too have accumulated many professional and personal debts. While some of the debts I have incurred can never be fully repaid, I hope the following words will serve as a sufficient first installment on this payment. First my professional debts.

First of all, I want to express my thanks to all of the members of the project who participated in the collection, analysis, and interpretation of the data. They include: Neil Abelsma, Uzi Baram, Kerry Lynn Boire, Maria Capozzi, Susan Chase, Joyce Clements, Doreen Crowe, Jeannine Disviscour, Alison Dwyer, Gail Fike, Bill Fisher, Matthew Flynn, John Fox, Martha Holland, Gerald Kelso, Marsha King, Penley Knipe, Natalie Liberace, Joyce Malcolm, Debbie Marcaurelle, Project Conservator Edward MacManus, Brendon McDermott, Karen Langthorne Pirtle, Mark Rees, Nora Sheehan, A. Gordon Smith, George Stillson, Mary Anne Sweeney, Mary Troy, and Jim Woodman. Special thanks to Lauren Cook and Boston University's Office of Public Archaeology for the use of, and instruction in the use of, the resistivity instrument; and to David Orr and Brooke Blades of the Mid-Atlantic Office of the National Park Service for the use of, and instruction in the use of, the magnetometer. John Ehrenhard, of the Interagency Archeological Services Division of the National Park Service, also provided guidance regarding several aspects of the geophysical survey.

Other individuals, while not formally "part" of the project, also generously provided me, or the authors whose work is included in this volume, with information about, and guidance on, a host of topics. They also patiently listened to many of my "half-baked" ideas over the years as I tried diligently to design and implement data collection and data analysis strategies that would not only be of primary benefit to the Park, but also would be of some benefit to other researchers whose interest concerns the transformation of the rural countryside in New England as a whole, and this part of eastern Massachusetts specifically. Although I have not always heeded their advice, I gave each of their suggestions careful consideration. I hope that the chapters in this volume do justice to the insights provided by these individuals.

First and foremost, I wish to thank the various members of the Research Department at Old Sturbridge Village, including John Worrell, Andrew Baker, David Simmons, and Greg Hill. John, David, and Greg freely provided their time, suggestions, and information particularly about their rigorous and detailed investigations of two 18th- and 19th-century smithys in central Massachusetts. I wish to pay a particularly hearty thank you to Andrew Baker. Andy generously provided me with numerous early primary sources about the agricultural history of eastern Massachusetts as a whole and about the literature regarding the construction of early-to-mid 19th-century barns and hop houses. Andy also made it possible for me and several members of my staff to inspect an extant mid–19th-century hop house on the present-day farm of Mr. Howard Wakins. My appreciation to Mr. Wakins for allowing the project archeologists and paleobotanist, as well as a member of the Building Conservation Branch of the Cultural Resources Center, to physically examine, photograph, re-

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I would also like to thank the various members of Minute Man National Historical Park's staff, some of who have come and gone during the life of this project. My appreciation is especially extended to former Superintendent Robert Nash, former Curator Lynn Leopold-Sharpe, Dan Dittileo, Janice Black, Fred Szarka, Doug Sabin, Curator Terry Wallace, and the entire maintenance staff, without whose support and input this project would not have been possible.

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Before closing, I wish to express my indebtedness to several other individuals whose profound professional or personal effects on this project cannot ever be repaid in words. First and foremost, I would like to thank both Grace Ziesing and Kurt Faust for their enormous professional support. They willingly and ably took on tasks that went far beyond their original job descriptions. Kurt, as Visual Information Specialist, was responsible for the design and drafting of most of the figures within this volume. The figures are a testament to his thoroughness and professionalism. I would especially like to thank Grace for her consistently high editorial standards, sound advice, good humor, and the long hours she devoted to the completion of this manuscript.

The quality of this manuscript is a direct reflection of her efforts in particular. As editor, Grace wore many hats—she copy-edited all of the manuscripts, designed the volume, and at the same time made a number of substantive contributions to each of the chapters.

Last, but not least, I would like to thank my wife Linda and our children, Jodi and Amy, for their unflagging support, the much-needed diversions that they provided, and their understanding during the late nights and long hours that I spent on the weekends this past year writing, rewriting, and editing each of the manuscripts in this volume. If I have learned anything from this project, they have taught me what is truly important in life and what is not.

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Chapter 1

Introduction

Alan T. Synenki

Since the establishment of Minute Man National Historical Park (MIMA) in 1959, archeological research has been an important and valuable tool for providing information crucial to the interpretation of its cultural resources (Regional Director 1961). To this end, archeological research has been conducted over the course of 23 years, beginning in the early 1960s (Synenki 1987). While this research has provided valuable information, not only did important interpretive questions remain, but it was clear that the existing archeological database was inadequate for the effective management of the Park's resources. In 1984 an "Identification and Evaluation" study, under the auspices of the MIMA Archeological Project, was initiated to remedy some of these inadequacies. This volume presents the results of the interdisciplinary investigations of the historical-period sites.

MIMA is located approximately 18 miles west of Boston, Massachusetts, within the towns of Lexington, Lincoln, and Concord (Figures 1-1, 1-2, and 1-3). In 1959 Congress established MIMA as a National Historic Site, and in 1963 it was designated a National Historical Park (National Park Service 1963:35). MIMA was established on the recommendation of the Boston National Historic Sites Commission (Boston National Historic Sites Commission 1958:1) to commemorate "the significant events, structures and sites of the opening day of the War of the American Revolution" (Boston National Historic Sites Commission 1958:14). This recommendation was later formally articulated in MIMA's first Master Plan:

> the purpose of Minute Man National Historical Park is to consolidate and bring into focus retrieved and yet retrievable portions of the Lexington-Concord Battle Road and associated structures, properties and sites so that the visitor may better appreciate and understand the beginning of the War of the American Revolution. (National Park Service 1963:1)

Project Goals

The primary goal of the MIMA Archeological Project was to answer certain site-specific and Park-wide interpretive questions as they related to the events of 1775 and the cultural landscape in which these events were played out. Most of these questions required the investigation of known sites, the majority of which have been previously investigated. Other questions, however, demanded the investigation of areas of the Park in which the archeological remains were either unknown or partially unknown. It was believed that through the resolution of these questions, a much more complete inventory of the numbers and kinds of cultural resources in certain areas of MIMA could be achieved. This inventory is essential to the effective management of MIMA's cultural resources, particularly in regard to their protection and preservation.

The 1775 landscape not only consisted of farmsteads, but also of rural industries. It was a culturally built and/or modified landscape composed of *places* (e.g., buildings), *spaces* (e.g., yard areas, roads, and agricultural fields), and physical *boundaries* (Binford 1983; Rubertone 1986). In order to understand the forces that helped shape the evolution of the landscape over time, our

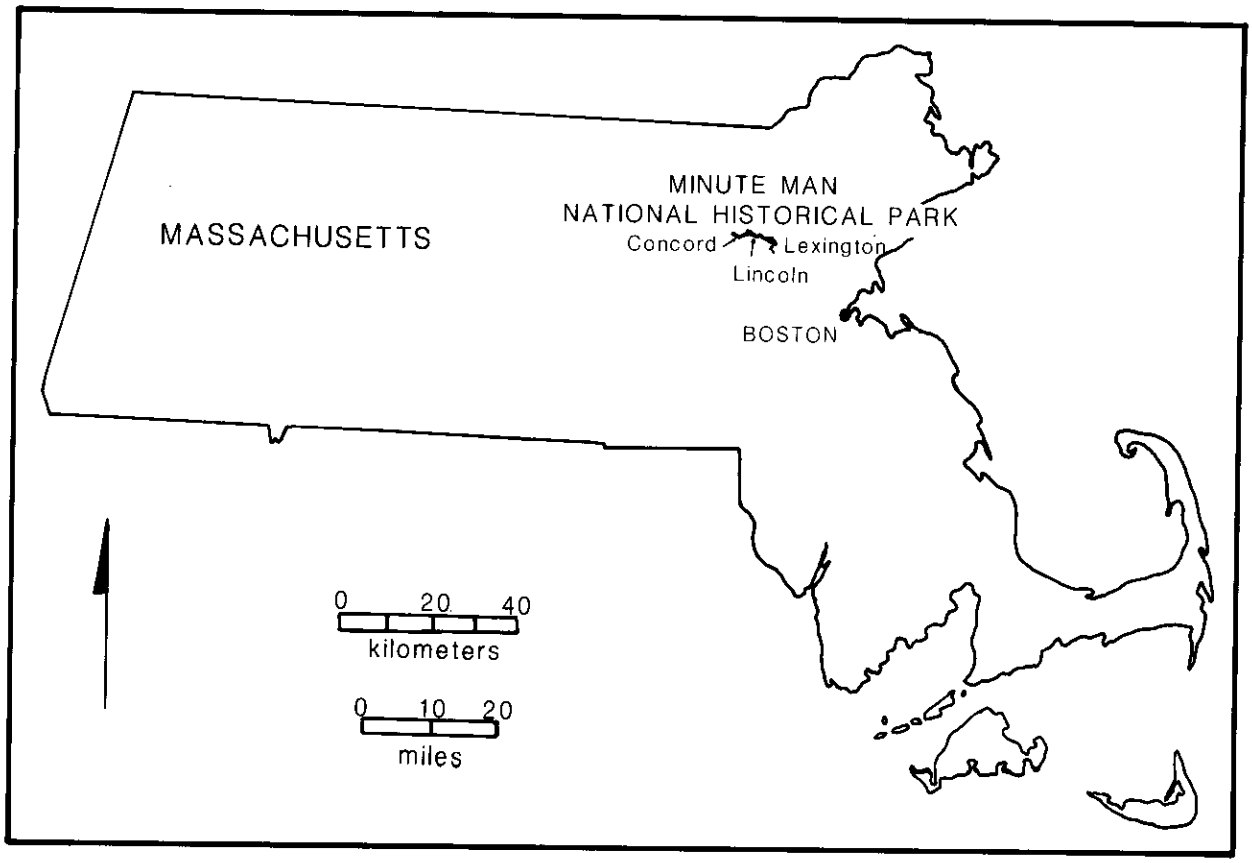


Figure 1-1. Map of Massachusetts showing location of MIMA.

research focused not only on aspects of the Revolutionary War–period landscape, but also on the transformations it underwent, both before and after 1775. Such a viewpoint required an interdisciplinary approach, one that was committed to understanding the processes that shaped the landscape. The discussion here is restricted to the project's theoretical orientation since the methodological framework is discussed in Chapter 2. Before discussing this, however, it is appropriate to briefly summarize the limitations of the database that existed before this project was initiated.

Previous Database

Prior to this project, from 1963 until 1984, archeological investigations at MIMA had been conducted at more than 20 sites (Synenki 1987). The majority of the investigations were carried out in support of specific restoration or historical reconstruction projects. The objectives of these investigations were to provide supplementary information to the documentary or architectural record or to assess the impact of proposed subsurface disturbances on possible archeological resources. While much was gained from these investigations, site-specific questions remained, and the archeological database was inadequate for effectively managing and properly interpreting both the events of 1775 and the landscape in which they took place. The site-specific interpretive questions that remained unanswered prior to this project were primarily locational or chronological in nature (Towle and MacMahon 1986a, 1986b, 1986c, 1987), and existed primarily because of limitations associated with previous research efforts.

There were three major problems with previous archeological research at MIMA. First, explicit archeological expectations were never

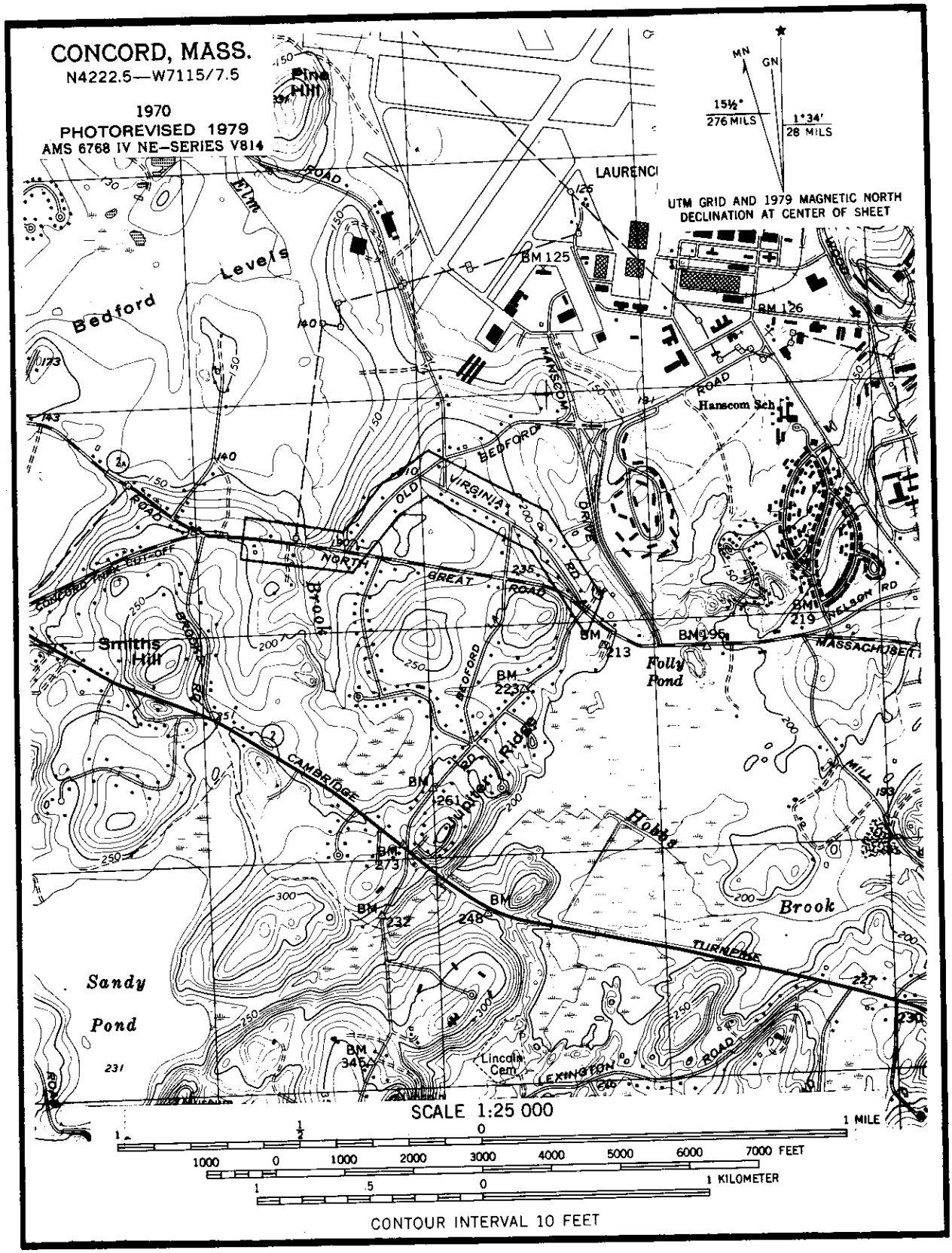


Figure 1-2. U.S.G.S. map with boundaries of MIMA identified.

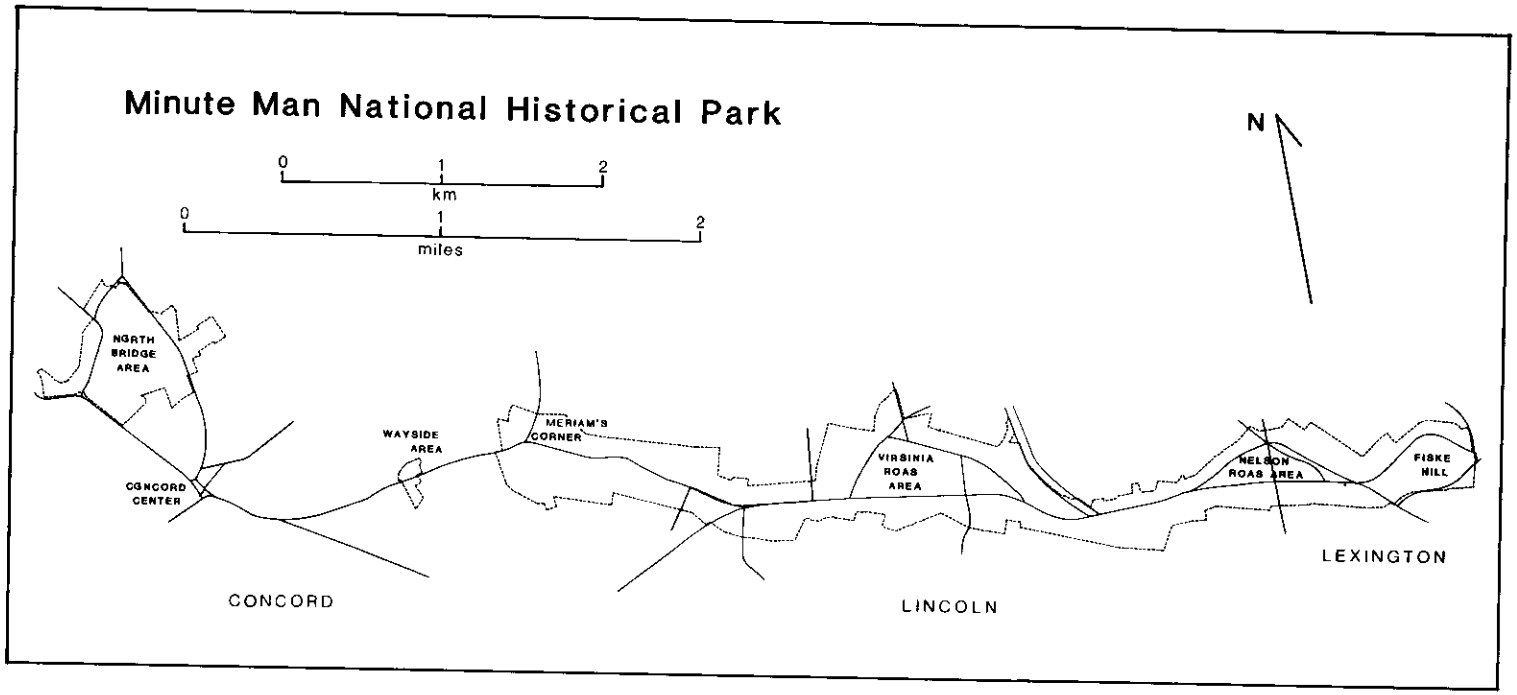


Figure 1-3. Map of MIMA outlining various study areas.

developed. As discussed in Chapter 2, archeological expectations are the predicted material remains of the particular features of interest. Second, effective data collection strategies were rarely developed. Third, inappropriate analyses or pure inference were used to determine the period of use and function of the remains uncovered.

These problems were compounded by the limited nature of the documentary research conducted on the sites in question. The history of ownership and land use for most sites was incomplete for the 17th, 19th, and 20th centuries. This information is not only important for identifying the total number and kinds of archeological resources on a site, but also for generating the archeological expectations. Also, with the exception of property ownership, information relevant to important social, economic, or political changes involving a site's occupants was rarely collected. This information is important for understanding some of the modifications to the landscape, particularly the homelot (Beaudry 1984, 1987).

Beyond these site-specific questions, the extant database left broader questions unanswered. For example, with the exception of the location of extant 1775 houses, only limited information existed about the range of variation in the numbers, kinds, and locations of other kinds of facilities, utilities, and small-scale features of the landscape—both within the homelot area or elsewhere—before and after 1775. Particularly lacking was information about the numbers, kinds, locations, and characteristics of artisan and industrial-related facilities. This lack of information was primarily due to earlier archeological investigations narrowly focusing on the excavation of house cellars. In addition, the documentary record provided little information about artisan and industrial-related aspects of the MIMA landscape.

Theoretical Orientation

In this project, as with other current studies in New England (Beaudry 1984, 1989; Harrington 1989a; Mrozowski and Beaudry 1990; Reinke and Paynter 1984; Rubertone 1986, 1989; Worrell 1980) and elsewhere in North America (Harrington 1989b; Kelso and Most 1990), the archeological record of past landscapes is considered to be the result of human action and biophysical (i.e., "natural") processes that have taken place over time. We, as archeologists, observe the material effects or outcomes of these processes. As such, the challenge for historical archeologists, and in fact all archeologists, is to understand these processes. It is a formidable task indeed, one that is explicitly acknowledged by historical archeologists, including this author whose concern is the study of transformations in the past landscapes of MIMA. Below, I touch upon the salient characteristics of this project's perspective on the study of the relationship of human action and the physical landscape.

A large part of the archeological record of past landscapes is the consequence of deliberate and subconscious human actions. These actions arise from individual or group decisions that represent choices about shelter and subsistence, the organization of work and social relations, aesthetics, transportation, and even military tactics (Deetz 1990; Rubertone 1986, 1989). These concerns can be actual or perceived, short-term or long-term, regarding household, community, regional, and international affairs. As such, the ways in which the landscape was used represent concrete strategies that individuals and their families pursued to meet economic, social, political, and military objectives. These objectives not only effected changes in the sphere of production and exchange of material goods and information (including access to and control of scarce and/or strategic resources [Paynter 1988]), but alterations in the realm of societal reproduction (e.g., creating and legitimizing the social order [Rubertone 1989; Mrozowski and Beaudry 1990]). Viewed in this manner, landscape is therefore not only a result of human activity but an active influence in bringing about broader local, regional, and, in some cases, international changes (Beaudry 1984, 1989; Harrington 1989a; Mrozowski and Beaudry 1990; Reinke and Paynter 1984; Rubertone 1986, 1989; Worrell 1980). This framework was used to explore MIMA

landscape issues regarding both farmsteads and their industrial components.

Volume Contents

This volume presents the results of the interdisciplinary investigations of historical-period sites within MIMA. The archeological investigations of the prehistoric sites within the Park is the subject of Volume II (Ritchie et al. 1990).

As can be observed in the 19 chapters that follow, this project's investigations provided answers to most of the site-specific and Park-wide questions that were initially posed. It is hoped that these investigations will allow more effective management and interpretation of MIMA's cultural resources in general, and its archeological resources in particular.

As a result of the investigations, not only were a number of important features of the 1775 landscape uncovered, but a number of significant components of the mid–17th-, early-to-mid 18th-, and early 19th-century landscapes were also discovered. Beyond their site-specific or Park-wide significance, these landscape data speak to three broad regional issues: the settlement of inland towns in the 17th century, the development of rural industry, and the emergence of agricultural capitalism in the 19th century. These issues relate directly to the people and processes that transformed the landscape in this part of rural Massachusetts from primarily a settlement based on agriculture to one in which industrial capitalism played an important role.

This volume is divided into two parts. Part I presents the results of the investigations of the historical-period farmsteads; Part II presents the results of the investigations of the industrial sites.

Farmsteads

As with other parts of Lexington, Lincoln, and Concord, farmsteads were a prominent feature of the MIMA landscape not only in 1775 (Malcolm 1985), but also throughout the 17th, 18th, and 19th centuries (Gross 1976, 1982; Hudson 1913; MacLean 1987; Shattuck 1835; Wheeler 1964, 1967). Farmsteads not only consisted of the homelot—the house and yard areas immediately surrounding the dwelling—but other areas in which livestock grazed, cereals and grains were cultivated, trees were grown, and "unimproved" lands existed. The homelot and these other areas were frequently punctuated with fences and in some cases roads. While the number of houses that were extant in 1775 was well-documented (Malcolm 1985), the locations of some of these houses remained to be ascertained. Furthermore, little information existed about the physical appearance of homelots—their places and spaces—in 1775, or those that preceded 1775. The objective of the MIMA Archeological Project was therefore to determine the location of the house, yard work areas, and any other features (e.g., roads, fieldstone walls, facilities, utilities, and landscape fill) of the sites under investigation (Synenki 1986).

This is not to say that the use of landscape in general, and homelot space specifically, is solely determined or constrained by previous use (Rubertone 1989:50–51). Indeed, in this investigation we sought to illuminate those aspects of the landscape that appeared to remain the same through time versus those that changed, and to offer some preliminary interpretations regarding the factors responsible for the variability we observed in the historical-period landscapes at MIMA. To explain this variability obviously required that we carefully examine it with respect to broader regional issues (i.e., historical context) and in terms of broader models of change in material culture (Paynter 1988). One regional issue that was briefly explored in this investigation was 17th century settlement and transplantation in the inland towns of eastern Massachusetts (e.g., Allen 1982; Beaudry and George 1987; Cronon 1983; Fairbanks and Trent 1982a, 1982b; St. George 1982a, 1982b; Travers 1987).

For example, St. George (1982:15) contends that the spatial organization of the 17th-century farmstead was conditioned by both the subsistence and psychological requirements of its residents. For St. George (1982), both were constrained by the "pre-Newtonian" English mentality of the time, as well as by English

cultural tradition. While St. George (1982) presents some landscape data to evaluate his model, additional data and consideration of other factors responsible for variation in 17th-century farmsteads appear to be warranted (Beaudry 1987; Paynter 1988). While there is currently a considerable number of detailed comparative studies regarding the use of space on rural 17th-century homelots within other areas of the eastern United States such as the Chesapeake (e.g., Keeler 1978; King and Miller 1987; Pogue 1988), to date there are relatively few comparative studies of rural New England homelots.

In addition to the spatial data, the archeological data regarding house construction type and plan, and perhaps even building materials recovered from some sites within this project, may also contribute meaningful information about the process of 17th-century transplantation and settlement in New England (Beaudry and George 1987:26; Cummings 1979:22; Deetz 1977:96–97; St. George 1982b:166–173; Travers 1987). For example, archeological evidence of relatively "impermanent" houses using hole-set post construction as opposed to more "permanent" stone-lined cellars *may* provide some data regarding the actual or perceived local economic conditions and the texture of the social relations they nurtured. This contention follows in part from Carson et al.'s (1981) observations regarding the prevalence of impermanent architecture in many parts of 17th- and 18th-century Virginia and its relationship to the tobacco economy. House plan data may also be revealing about household social relations (Beaudry and George 1987:26) and about more general concerns regarding the organization of work (Cummings 1979:22–39).

Several criteria were used to select the farmstead sites that would be investigated. The criteria used to select the pre-1775 sites—designed to investigate transformations in the use of space within the homelot area—were based on three factors: 1) known site integrity, 2) a relatively short period of occupation, and 3) a relatively unambiguous documentary record. The pre-1775 sites chosen for this project included the David Fiske site (Chapters 10 and 11; Appendix A-4) and the Daniel Brown site (Chapter 12; Appendix A-3). The Fiske homelot was chosen because it was only occupied by a single generation for a relatively short period of time (ca. 1655–1710/21) and does not appear to have been subjected to extensive post-occupational alterations. The Daniel Brown site was also only occupied for a short period of time (ca. 1700/22–1754/61), and also appears to have been left relatively intact after its abandonment.

Farmstead sites that date to 1775 and after were chosen primarily on the basis of the Park's specific interpretive needs and our anticipated ability to adequately address these needs. These sites included Joseph Mason, David Brown, and Jonas Bateman.

Archeological investigations of the Joseph Mason farmstead (Chapters 7, 8, and 9; Appendix A-2) were conducted to locate the house and barn that were present in 1775, as well as any other features of the 18th-century landscape, including the pre-1775 shop and schoolhouse. This farmstead was chosen because it was the only one along Virginia Road whose house location was unknown. The location of this house and the physical appearance of the farmstead were considered important for the interpretation of the Virginia Road area of MIMA.

Investigations of the David Brown farmstead (Chapters 3, 4, and 5; Appendix A-1) were initiated because, in spite of the information gained from both documentary research and previous archeological investigations, the locations of the house that he and his family occupied in 1775 and the west branch of the 18th-century Groton Road were uncertain. Both the house and the road were prominent features of the North Bridge area, one of the most frequently visited points within MIMA.

Archeological investigations of the Jonas Bateman site (Chapter 6; Appendix A-1) were initiated primarily to locate the remains of the 18th-century Groton Road since its remains were not conclusively identified on the David Brown site. In addition to this, investigations of the

Bateman site were conducted to clarify the dates of existence or locations of extant or suspected 18th- and 19th-century features of the North Bridge landscape.

Beyond the site-specific reasons just mentioned, investigations of both the David Brown and Jonas Bateman sites were conducted because it was anticipated that important information about post-1775 landscape transformations could be uncovered. It was reasoned that archeological evidence of these transformations, taken together with the landscape alterations mentioned in the Simon Brown diary and the paleobotanical data, could be used to acquire important knowledge about mid-to-late 19th-century agricultural practices and their effects on previous land surfaces (i.e., formation processes of the archeological record). Furthermore, these sources could be used to gather meaningful data about one family's role and participation in what Gross (1982:43) has termed the transformation to modern agricultural capitalism. According to Gross (1982:42–43, 48), this transformation occurred gradually during the period from ca. 1800 to 1860 in Concord, Massachusetts, as a result of the increasing urban demand for certain cash crops such as rye, oats, hay, fruits, and vegetables. The improvement in transportation systems, particularly the railroad, during this period also enabled Concord farmers to prosper economically. This was a period of great agricultural improvement throughout New England, as well as elsewhere (Benes 1988; Bidwell and Falconer 1941; Hubka 1984; Russell 1976), and Concord was one of the leading centers of agricultural improvement (Gross 1976, 1982; Shattuck 1835).

Rural Industries

As noted earlier, in addition to the domestic components of farmsteads, industrial-related features were an important part of the 1775 MIMA landscape (Malcolm 1985), as well as the 17th-, 18th-, and 19th-century landscapes of other areas within the towns of Lexington, Lincoln, and Concord (Gross 1976, 1982; Hudson 1913; MacLean 1987; Shattuck 1835; Wheeler 1964, 1967) and rural North America in general (e.g., Bishop 1868a, 1868b; Hahn and Prude 1985; Prude 1983). In this study, industry is defined in its broadest sense to include both agricultural and artisan activities. Like Prude (1983:xi), I believe that the term industry is elusive and therefore potentially dangerous. Nonetheless, I believe that it has meaningful heuristic value for organizing and discussing the commercially-related activities and processes that relate to the transformation of the MIMA landscape throughout the historical period.

As mentioned above, while some of the industrial-related features of the 1775 landscape have been documented (Malcolm 1985), this database, as well as the database of other 17th-, 18th-, and 19th-century "industries," was incomplete. As a result of this, one of the objectives of the MIMA Archeological Project was to determine the locations and characteristics of *some* of these industries. Beyond their Park-wide significance, the investigation of these industries has broader regional import regarding the transformation to industrial capitalism within the New England area. Like Hahn and Prude (1985:3–17), Rothenberg (1987), and others, I believe that the process of industrialization was a systemic one in which there were mutual "influences" toward the development of industrialism from both the "rural" and "urban" areas. As Hahn and Prude (1985) and others argue, the rural countryside helped shape the economic growth of America. Through the investigations of some of the rural industries that were part of the MIMA landscape, we hope to briefly explore some of the ways in which these industries were shaped by and helped shape the process of industrialism.

The sites that were selected to address these issues were the Jacob Whittemore, Joshua Brooks, and John Nelson sites. The Jacob Whittemore site (Chapters 13 and 14; Appendix A-3) was selected to locate the site of a blacksmith shop mentioned in the documentary record, to locate and identify the site's components and configuration, and to determine whether it was present in 1775. Like other artisans, blacksmiths

were vital members of 17th-, 18th-, and 19th-century New England towns such as Lexington, Lincoln, and Concord (MacLean 1987:185–189). Their work included the manufacture and repair of a variety of domestic, agricultural, artisan, and building-related metal products and implements (Larkin 1988:48). Beyond their existence, however, our knowledge of smithing, the facilities employed in their work, and their particular contribution to the development of industrialism are yet to be realized.

Similarly, investigations of the Joshua Brooks site (Chapters 18 and 19; Appendix A-2) were conducted to determine the location and components of the tanyard that was owned and operated by the Brooks family from at least 1725 until 1829. Like blacksmiths, tanners were also important members of 17th-, 18th-, and 19th-century rural New England. Furthermore, like blacksmith shop sites, our knowledge of the facilities employed in the work of tanners and their particular contribution to the development of industrialism is yet to be realized.

Lastly, investigations of the foundation on the John Nelson site (Chapters 15, 16, and 17; Appendix A-3) were conducted to determine if it is the remains of a hop house that was extant in 1775. While hops were grown throughout the 17th and 18th centuries, it wasn't until the first half of the 19th century that they became a booming industry in eastern Massachusetts, particularly in northern Middlesex county (Bidwell and Falconer 1941:243; Kelsey 1967; Russell 1976:298). Unfortunately, the geographical and temporal extent to which hops were grown and processed in the southern part of the county, particularly in the towns of Lincoln, Lexington, and Concord, are relatively unknown. It is hoped that the investigations of the John Nelson hop house will add meaningful information to this issue and the broader issue of the rise to modern agricultural capitalism.

Chapter 2

Methodology

Alan T. Synenki

To fulfill the overall objectives of the MIMA Archeological Project (Chapter 1), an interdisciplinary research framework for the collection and analysis of the data was employed. This framework was similar to that used by Beaudry and Mrozowski (1987a, 1987b, 1989) in the study of the 19th-century boarding houses and Agents' House associated with the Boott Mills in Lowell, Massachusetts.

As Beaudry and Mrozowski (1987a:5; 1989:3) discuss, an interdisciplinary research framework is not characterized by how *many* sources of independent data or disciplinary studies are employed, but *how* they are integrated to achieve common goals. Effective integration is best fulfilled when data collection and analysis strategies are carefully incorporated in both the early planning stages of the project as well as in its execution. To facilitate this integration, ongoing communication among project members is a crucial element of the interdisciplinary framework. Such communication often brings to light competing interpretations and raises new questions that result in the collection and analysis of additional data. Successful interdisciplinary research must therefore be "interactive" throughout all phases or stages of a project.

As will become evident below and in some of the individual chapters that follow, several different kinds of independent data were collected and analyzed to address site-specific questions for this project. These data were drawn from documentary sources, archeology, architecture, paleobotany, and soil chemistry. While it was recognized in the early planning stages of the project, as well as throughout its execution, that other data sources could also have contributed important information, monetary constraints prevented their use. As in any small- or large-scale project, the need for the efficient and effective use of limited resources is not only one of the most frustrating aspects of project management but also one of the most challenging, particularly from a methodological standpoint. This was most certainly the case with this project, especially given the diversity of its objectives and the requirements of the organizational policies and procedures under which it operated.

In an effort to "find" more efficient and effective means of data collection and data processing, slight methodological changes were made throughout the project. Some of these changes were highly successful—others, however, were less so. As we went along we learned from our successes as well as from our mistakes.

Data Collection

Data acquisition for this project was conducted using a multistage approach. In general, there were four overall data collection stages at each site: 1) background study, 2) pedestrian survey (i.e., walkover), 3) intensive survey, and 4) limited site examination. At one site (the David Brown site) geophysical investigations were conducted prior to subsurface investigations. Because of its limited use, the methods employed in the geophysical investigations are discussed in Chapter 4 rather than here.

Background Study

Prior to the archeological field work at each site, a background study was conducted. The background study consisted of several phases, each of which is discussed below.

EXISTING DATABASE REVIEW

This first phase included the identification and evaluation of all relevant documentary (i.e., written and graphic), archeological, and environmental information pertaining to the site. Federal, state, and local sources were consulted. The purpose of this phase was to identify what research had already been done, to evaluate the strengths and limitations of this research, and to identify some of the site-specific questions that remained to be answered. This phase was conducted, in part, before the project actually began by Baker in his *Overview and Assessment Project* (1980), and by Towle and MacMahon in their *Archeological Collections Management Project* (1986a, 1986b, 1986c, 1987). The latter project was originally structured and guided by this author for the purpose of providing a systematic, comprehensive review of all previous archeological research at MIMA. Based on the results of this phase, further documentary and oral history research was conducted.

DOCUMENTARY RESEARCH

Documentary and oral history research focused on the history of ownership, household composition, and land uses of a site from its initial settlement up until the present day. An understanding of each individual property owner's social, political, and economic standing within the community was also sought. Written (e.g., wills, probates, tax lists, town records, and vital statistics) and visual (e.g., maps and photographs) sources were studied, and face-to-face interviews were conducted with the current and previous land owners and abutters, Park employees, and local antiquarians. Unfortunately, no account or day books were located. The purpose of the documentary and oral history research was to document the number, kinds, and locations of known or suspected features present at one time or another on the site, and to gain a preliminary understanding of the land-use transformations that may have occurred on the property through time. These data were used to assist in the generation of the archeological expectations (see below) and were later integrated with other data sources (e.g., archeology, paleobotany, and soil chemistry) to provide a much fuller understanding not only of a site's history, but also of some of the broader issues briefly explored by this project. The significance of the documentary record when integrated with other independent data sources for a more thorough comprehension of the past has been aptly discussed by Beaudry (1984, 1988), Deagan (1988), and others.

ARCHEOLOGICAL EXPECTATIONS

After the documentary research stage, the archeological expectations were generated in an explicit, systematic fashion for particular domestic, agricultural, and artisan-related buildings, facilities, utilities, and their associated debris. These expectations were used to help choose the kinds of data (e.g., archeological, paleobotanical, architectural, soil chemistry) to be collected and to preliminarily determine the appropriate collection strategies and methods that would be employed at each site. In addition, these expectations were used to guide the analysis of the data collected.

In the past, historical archeologists have often employed solely intuitive or implicit notions to predict, prior to their field investigations, what they expected to find. Few have done so in an explicit, systematic fashion, particularly those who have conducted historical archeological investigations at MIMA. As mentioned in Chapter 1, and discussed in more detail elsewhere (Synenki 1987), the absence of an explicit, systematic approach to the development of archeological expectations within MIMA has, in a number of instances, resulted in ineffective or inefficient data collection strategies or methods, and incorrect interpretations of the data at hand.

Within this project, archeological expectations were generated from the integration of existing data about the formal properties and the ac-

tivities associated with the construction, use, maintenance, reuse, and abandonment of particular features of the built environment, and the post-abandonment processes—cultural and non-cultural [*sensu* Schiffer 1972, 1983, 1988]—that are either known or predicted to have occurred on the site. This approach assumes that different activities can have different spatial, structural, environmental, and even aesthetic or symbolic components, and that these may change through time as a result of many factors including social, economic, political, and religious ones (McGuire and Schiffer 1983:278). This approach takes into consideration that the life-spans of different materials will vary under different environmental conditions. For instance, pine clapboarding or sheathing that has a northern exposure will have a shorter life-span than boards that have an eastern or western exposure. We would therefore expect to find evidence that these northern clapboards were replaced or repaired prior to the eastern or western ones. This approach of generating archeological expectations also takes into consideration that individuals make choices—within the constraints of culturally dictated functional, symbolic, and aesthetic concerns—regarding the costs (e.g., money, time, or labor) versus the expected short- and long-term benefits of their activities. Based on the archeological expectations, specific data collection and analysis strategies were formulated for each site.

Systematic Walkover

Prior to the subsurface investigations at each site, a walkover of the site was conducted. At several sites, the walkover was carried out in two phases. The first was conducted briefly by the author and/or the field supervisors to evaluate the site's suitability for geophysical investigations; to identify any visibility, accessibility, or safety concerns, as well as any recent ground surface disturbances; and to inspect any topographic or vegetational anomalies noted on the aerial photographs. The site's datum and its preliminary boundaries were also established at this time.

At several sites, a second walkover was conducted. This one was carried out in a more systematic fashion than the one just described. In general, this walkover consisted of several individuals, spaced approximately 5 m apart, traversing the entire site in either an east-west or north-south direction. The specific purpose of this walkover was to locate or identify any possible anomalies in the topography or vegetation, or any artifactual debris that might be indicative of subsurface remains.

Intensive Survey

Subsequent to the walkover, an intensive survey was conducted at each of the sites investigated, except for the "site [of the] old hop house" (Chapter 16). An intensive survey was not conducted at this site because the archeological remains of interest (i.e., the extant foundation) were visible and relatively well-defined prior to subsurface investigations. The primary objective of the intensive survey phase was to collect relevant data (e.g., artifactual and soil compound) for determining the presence or absence of particular buildings, facilities, utilities, and other features of the built environment. These could include areas of earth removal or fill, refuse disposal areas, and possible work areas. In addition, at several sites, a preliminary assessment of the integrity of the archeological phenomena of interest (e.g., homelot yard stratigraphy) was made to determine whether further investigations were warranted. In most instances, shovel test pits and/or soil cores were used to accomplish this objective since they were anticipated to be the most effective and least destructive techniques given the expected characteristics of the archeological remains and the amount of project time and labor available for their "discovery." In several instances, backhoe trenching was used as a discovery technique. While the efficacy of various subsurface techniques, especially shovel test pits, for the discovery of prehistoric sites has been the subject of considerable discourse (e.g., McManamon 1984a; Nance and Ball 1986) no such comparative studies exist for historical-period archeological phenomena within sites.

SHOVEL TEST PITS (STPS)

With the exception of one instance (see Chapter 8), all STPs were 50 cm × 50 cm, and in most instances were excavated in arbitrary (e.g., 5-cm, 10-cm, or 20-cm) levels within well-defined deposits or soil horizons of similar color and/or texture. Soil colors were primarily recorded according to their Munsell designation (e.g., 10YR4/6). The degree of stratigraphic control exercised was based primarily on the intra-and inter-site questions being addressed. Square STPs were used primarily because they can be easily expanded into a larger 1 m × 1 m excavation unit (EU) if necessary. The soil from all STPs was excavated by hand with a shovel and/or trowel, and screened through ¼-in mesh. Each STP was excavated at least 10 cm into the glacial subsoil and backfilled with its original soil. Excavation information was recorded by level on standardized forms. Profiles of the north wall of each STP were hand-drawn on graph paper, unless another wall was more representative. In general, the northwest corner of the STP was designated unit datum unless the topography dictated otherwise. Soil samples were taken, and all artifacts and soil samples were saved and sent to the field laboratory for processing.

All STPs within the intensive survey phase were placed at 5-m intervals in a systematic, stratified, aligned configuration (Redman 1974). With the exception of one site (Chapter 4), a probability sampling strategy was employed in the selection of the units to be excavated. This overall intensive survey design was employed for several reasons. First, given the predicted size and configuration of most of the archeological phenomena of interest (e.g., house cellars), it was anticipated that such a design would insure their "discovery." Second, because one of the project objectives was to observe changes (or the lack thereof) in the use of yard space within the homelot, such a design would also facilitate intra- and inter-site comparisons (see Chapters 8, 10, 12, and 14). Third, it is possible with such a design to determine whether the sample data collected are representative of the true population of artifacts on sites since the precision of the sample's estimate can be calculated (Nance 1981:161–165). Lastly, logistically such a design was less costly—in terms of time and/or labor—to implement in the field than other designs.

SOIL CORES

At a number of sites, cores were used either by themselves or in conjunction with the STPs and/or other site examination techniques to determine the presence or absence of small-scale archeological features and to detect areas of possible landscape fill or earth removal (Chapters 6, 10, and 12). Cores were also used to delineate the spatial or stratigraphic extent of particular features already uncovered (Chapters 10 and 14). In one instance, cores were also used to ascertain the presence or absence of the remains of a 19th-century barn cellar (a large archeological feature; see Chapter 6) since the project's time constraints and monetary resources did not allow the use of other techniques.

The coring device used by this project consisted of a 12-in tube and a 24-in handle (Forestry Suppliers, Inc. 1980:144–145). The corer extracted a sample with a diameter of ¾ in and a length of 9 in. The corer was inserted into the ground until the entire tube was filled, and then rotated 360°. At that point the corer was removed from the ground and scraped off with a trowel. The stratigraphy displayed in the core was then drawn on standardized forms. Each stratigraphic horizon (e.g., organic cultural deposit or subsoil) was identified, and the soil color and texture was described. The presence or absence of artifacts within the core was also noted. Artifacts larger than ¼ in were saved and bagged by provenience. If the subsoil was not reached after the first insertion, the tube was cleaned and inserted again for another 12 in. This was continued until the subsoil or the total length of the core (36 in) was reached. If the subsoil could not be reached because of a subsurface obstruction, up to four more attempts were made by moving the core slightly to one side of the original attempt. If none of the attempts reached the glacial deposit, the stratigraphy of the core that went the deepest was recorded.

TRENCHING

In addition to the above-mentioned techniques, several trenches were excavated by this project for two purposes. One was to locate the remains of the west branch of the 18th-century road in the North Bridge area of MIMA (Chapters 4 and 6). The second was to expose more fully the spatial and stratigraphic extent of two features uncovered at the Joshua Brooks tanyard site (Chapter 19). All trenches were excavated with a backhoe and then scraped with shovels and trowels so that their stratigraphy could be clearly observed and recorded. The stratigraphic profiles of the trenches were both drawn on graph paper and photographed.

Trenching was conducted at the North Bridge Area sites only when the other methods of investigations failed to provide conclusive evidence of the location of the 18th-century road. Trenching was initially avoided because of its destructive nature. On the other hand, given the ephemeral nature of such roads, the use of trenches for detecting them has been demonstrated to be an effective method both within MIMA and elsewhere (Synenki 1985). It was also considerably less expensive than the cost of hand excavation.

Limited Site Examination

Subsequent to the intensive survey phase, additional excavations of certain site areas were conducted to collect data (archeological, paleobotanical, and architectural) essential for addressing specific questions regarding the function, dates, characteristics, and formation processes associated with some of the archeological remains uncovered. With few exceptions, the archeological field methods and techniques used during this stage of the field investigations were similar to those described in the intensive survey phase. One important difference was that in general, the excavation units (referred to in the text as EUs) associated with this stage of the investigations were larger than the units used during the intensive survey phase, and were selected by judgmental rather than probabilistic means. Information regarding the methods and techniques used to collect other sources of data (e.g., pollen and phytoliths) is presented in the individual chapters that follow this one.

At the completion of each season's site exam phase, a permanent copper disk set in concrete was used to mark the site's datum. EUs that encompassed or were adjacent to some site features (e.g., cellarholes, wells) were filled with washed sand purchased from a local sand and gravel company. The sand was used to distinguish excavated from unexcavated areas of certain features and to preserve the integrity of these features (Thorne, Fay, and Hester 1987:26).

Data Processing

Subsequent to the field investigations, all of the material that was collected was cleaned, dried, classified, cataloged, analyzed, and then prepared for final curation according to project-wide procedures, methods, and techniques. In addition to excavated material, all documentation that was generated by this project (e.g., field and laboratory records), including this publication and Volume II (Ritchie et al. 1990), were cataloged and transported to MIMA for final curation. Most of the cataloging procedures and methods used by this project were similar to those used by the Archeological Collections Management Project (ACMP) at the time (MacMahon 1988). These methods had evolved from earlier ACMPs (Synenki and Charles 1983a, 1983b, 1984; Synenki 1988; Towle and MacMahon 1987; MacMahon 1988). Because these methods and procedures have been sufficiently discussed elsewhere (MacMahon 1988:13–19, appendix 3), they are only briefly summarized here. For a discussion of the methods and procedures used in processing the data from the documentary and paleobotanical research, the reader is directed to the individual chapters in this volume.

Cleaning and Drying

All of the archeological material that was unearthed during the field investigations was transported to the field laboratory for cleaning, classification, and cataloging. The unheated room

Table 2-1. Site accession numbers at MIMA.

Site	*Accession number*
Joseph Mason	MIMA-406
David Brown	MIMA-407
Jonas Bateman	MIMA-415
David Fiske	MIMA-424
Daniel Brown	MIMA-427
Jacob Whittemore	MIMA-432
John Nelson	MIMA-433
Joshua Brooks	MIMA-437

in bags according to the order of the artifact categories as they appear on the ACMP flow chart (MacMahon 1988:figure 5). These bagged artifacts were then placed in acid-free Hollinger storage boxes in catalog number and provenience order. Organic and inorganic materials were boxed separately to avoid damage to the latter, to accommodate different storage environments, and to facilitate access to certain materials while avoiding unnecessary handling of others. Each box is labeled with the following information: the Park's acronym, accession number, box number, site name, the proveniences, and catalog numbers of the artifacts/lots contained in the box, and whether the contents of the box are organic or inorganic.

The field and laboratory-generated documentation was stored in one of several ways. For example, the original field forms were bound in plastic binders and stored by site within acid-free boxes. The field supervisors' notebooks and other miscellaneous field and laboratory-generated documents were also stored in acid-free boxes. The photographic materials—slides, negatives, and prints—were stored in black, three-ring binders. Lastly, all maps and large-scale analysis documents were either stored flat in map cases, or were carefully rolled up and placed in acid-free cardboard tubes.

Analysis

Subsequent to the cataloging of the materials recovered, analyses of archeological, documentary, ethnobotanical (i.e., pollen and phytolith), and soil chemistry data were conducted to answer the site-specific questions posed. In some instances, it was also necessary to reanalyze the data from previous archeological investigations (e.g., Chapter 4) to answer these questions adequately. As mentioned at the beginning of this chapter, these analyses were initially guided by the archeological expectations. These analyses, unlike multidisciplinary research, were intended to be complementary; that is, to provide a corpus of independent, yet "interactive" data aimed at achieving similar objectives. There were two overall objectives of the analyses. The first was to delineate the temporal and functional nature of the remains uncovered. The second was to delineate any spatial patterns in the distribution of certain kinds of debris. In order to achieve these objectives, analyses were conducted to more fully understand the formation processes associated not only with the individual features of interest, but with the site as a whole.

DATING

At all of the sites that were archeologically investigated, analyses were conducted to determine not only the dates when particular features were constructed, used, and abandoned—and the rapidity with which certain features were filled—but also which features were contemporaneous. Archeological and documentary data were used to infer these dates. The primary archeological chronological indicators used by this project were manufacture dates and their ranges (i.e., terminus post quem [TPQ]), the crossmending of ceramic and glass vessel fragments, and stratigraphic analyses. It should be mentioned that two commonly used dating techniques—the Binford-Harrington pipestem date formula (Binford 1961), and South's (1971) mean ceramic date formula—were not used. The former was not used because of insufficient sample sizes. The latter was not used because of general problems (e.g., the exclusion of locally produced and some coarse English earthenwares and incorrect manufacture date ranges) as well as specific ones regarding its applicability to the specific deposits

of particular features uncovered by this project (e.g., large number and percentage of redwares and small sample sizes). The archeological data were then used in conjunction with the documentary data associated with the site to provide a more complete understanding of the chronological history of both the individual features and the site as a whole.

FUNCTION

Archeological, documentary, and paleobotanical data were used to identify the original uses and changes in the use, if any, of certain features. In general, analysis of these data consisted of comparing the actual data from a particular feature to a set of expectations (see above). Two kinds of archeological data were used. The first was the presence and/or absence of particular kinds of artifacts. The second kind of data consisted of a feature's physical, morphological, and/or architectural properties.

To infer the function of, or changes in the use of, some of the features of interest (see e.g., Chapters 4 and 8), analyses were conducted to determine what portions, if any, of a feature's associated fill was from on-site (e.g., defacto, primary refuse or secondary) or off-site (i.e., lot-specific versus non–lot-specific [Garrow 1982]) in its origin.

SPATIAL ANALYSES

Spatial analyses of the distribution of some of the excavated material was conducted to help ascertain the use, and perhaps the physical appearance, of the homelot's yard areas at three sites (Chapters 8, 10, and 12). This analysis consisted of transforming the raw data in each excavation unit (i.e., artifact frequencies) to densities per quarter cubic meter. This was done to insure data comparability primarily by minimizing the effects of unit size and depth on the delineation of artifact concentrations (McManamon 1984b:53). High, moderate, and low densities were delineated on the basis of their upper and lower quartiles. The quartiles were displayed using the box-and-whisker and stem-and-leaf plots and then inspected (Hartwig and Dearing 1979:16–25). The artifact densities were then mapped and the upper quartiles highlighted for ease of interpretation.

At each of the three sites (Chapters 8, 10, and 12), material from all time periods was recovered in the plowzone. One part of the analysis was to determine which concentrations were likely to have been deposited during the site's occupation versus those deposited after the site ceased to be used as a residence. To accomplish this, artifacts were grouped according to occupational and post-occupational categories for each site. Comparison of the spatial distribution of the occupational and the post-occupational groups was then conducted.

In addition to the spatial analysis of the occupational debris, an analysis of the spatial distribution of phosphates was also conducted. Phosphates are believed to be an indicator of organic wastes. As with the above material, the spatial concentrations were determined by the upper and lower quartiles of the parts per million of phosphorous, as determined by the methods used by the Soil and Tissue Laboratory of the University of Massachusetts.

Summary

As discussed above, to fulfill the overall objectives of the MIMA Archeological Project, an interdisciplinary approach for the collection and analysis of the data was employed. Data collection was conducted using a multistage approach. All records and artifacts generated by this project have been cataloged to National Park Service standards and returned to MIMA for final curation.

Chapter 3

A Historical Investigation of Household and Land-Use Change at the David Brown Homestead

Joyce Lee Malcolm

Introduction

As one of the colonial leaders at the North Bridge in Concord on April 19, 1775, and a prominent local resident whose home overlooked that famous bridge, David Brown and his farm have been of great interest (see base map, Appendix A-1). Both he and his property have been the subjects of historical and archeological investigations (Malcolm 1985:111–112, 121–122; Gross 1976:60–61; 83, 84, 85, 125, 160–161, 174, 178; Torres-Reyes 1969a; Tremer 1973; Towle 1986a; Luzader 1968; Abel 1965). The purpose of this chapter is not to embroider upon previous work but to expand upon it in order to answer very specific questions necessary for the identification of the correct location of the 1775 Brown house and barns and the road relocation that changed Old Groton Road into modern Liberty Street (Figure 3-1). An understanding of land use over the centuries is critical to the identification of the Brown structures. To accomplish these ends the documentary research will range far wider than previous historical studies that have concentrated upon the events and structures of 1775. The information in this chapter will provide data for the possible reconstruction or recreation of the historic landscape and structures, for future historical research, and as a basis for the archeological investigations that are described in Chapter 4.

Methodology

A wide variety of documents that can help uncover this history exists. This includes deeds, wills, inventories, tax records, town meeting records, vital statistics, and maps and surveys. With the exception of vital statistics, which have been assembled in book form, most records from the 17th and 18th centuries are in manuscript form. While these records are quite complete from the late 18th century on, they are less satisfactory for the earlier period where deeds are vague and occasionally missing and tax rolls are irregular and scarce.

No one type of document provides all the information needed, hence all must be used in concert. This is especially essential for determining land use. An added complication in the present instance is the uncertainty about the location of the roads that bordered the Brown house. Indeed, one aim of this study is to aid in the location of the western branch of the road that crossed the Old North Bridge. The Brown house was close to the junction of the eastern and western branches of that important route. Once the bridge was abandoned in the late 18th century both branches fell into disuse, and the main road was rerouted.

A final word about the documentary evidence is called for. It is important to realize that each sort of evidence has its own limitations for our purposes. Deeds from the 17th and 18th centuries tend to be vague and provide only a general description of land use. None gives a precise location for the house and barn within the parcel on which they were located. Many wills are equally, if not more, vague than deeds, although if an inventory accompanies the will it usually contains valuable details about the structures and land use and evaluates both real and personal property. A survey of the North Bridge

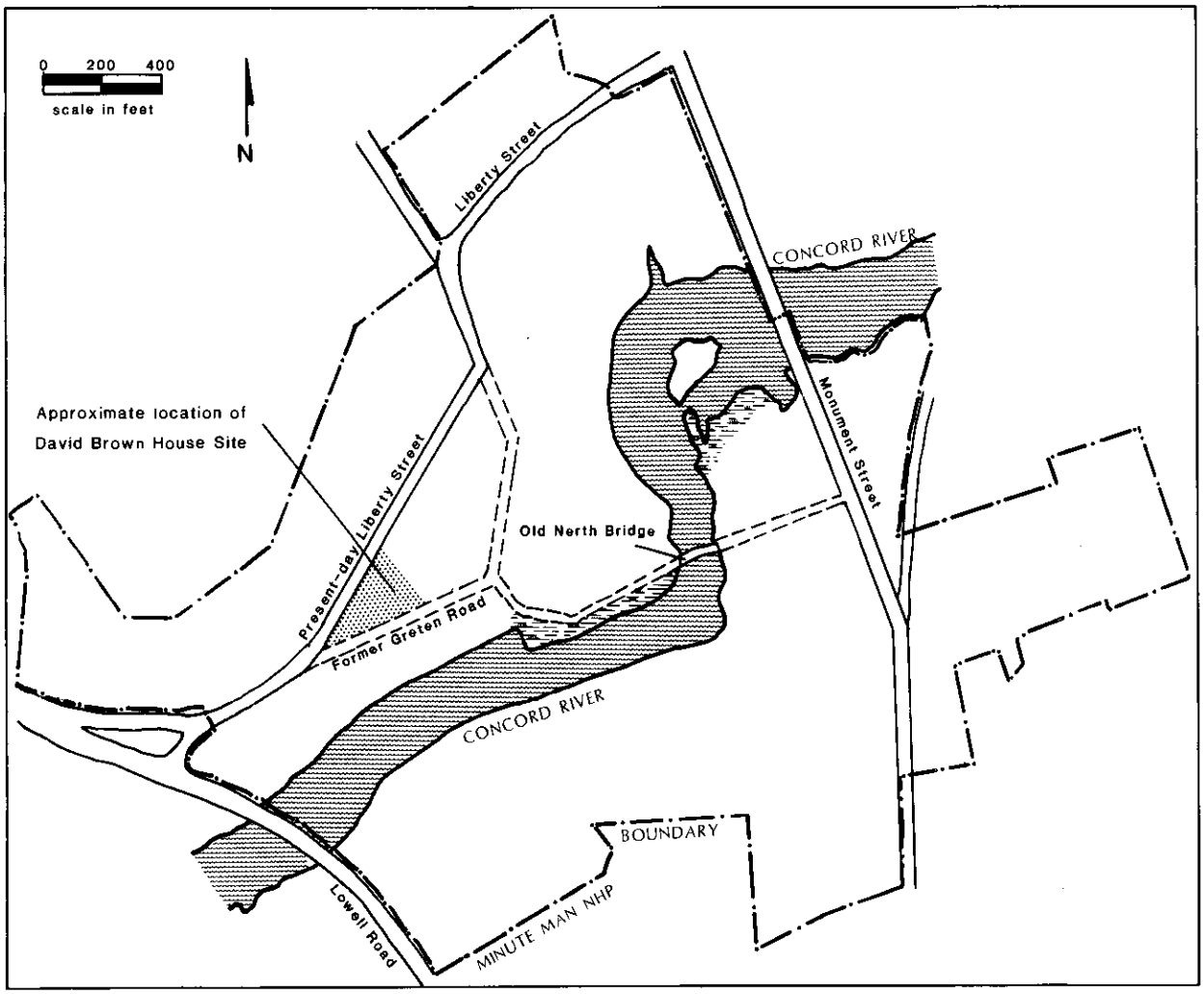


Figure 3-1. North Bridge area of MIMA with conjectural reconstruction of the east and west branches of Old Groton Road. The approximate location of the David Brown site is indicated (adapted from Malcolm 1985:figure 11 and Towle and MacMahon 1986c:figure VI.1).

area dating from 1754 (Figure 3-2) and another of the west branch of the road from 1792 (Figure 3-3) offer valuable information about the location of property and houses and the route of the road. Town records have been exceedingly helpful in determining the location of the Old Groton Road. Taken in concert then, all extant documents afford much information about the Brown homestead over the years, and provide a basis for tracing its history.

Results

Ownership of the David Brown Homestead

The farm occupied by David Brown in 1775 had been in the possession of his family for over a century by that date. Our first knowledge of the property concerns one Robert Tomlin of whom no statistical records survive in Concord, who transferred ownership to the Reverend Peter Bulkeley sometime before 1644 (see Table 3-1 for sequence of property transfers). No deed of the

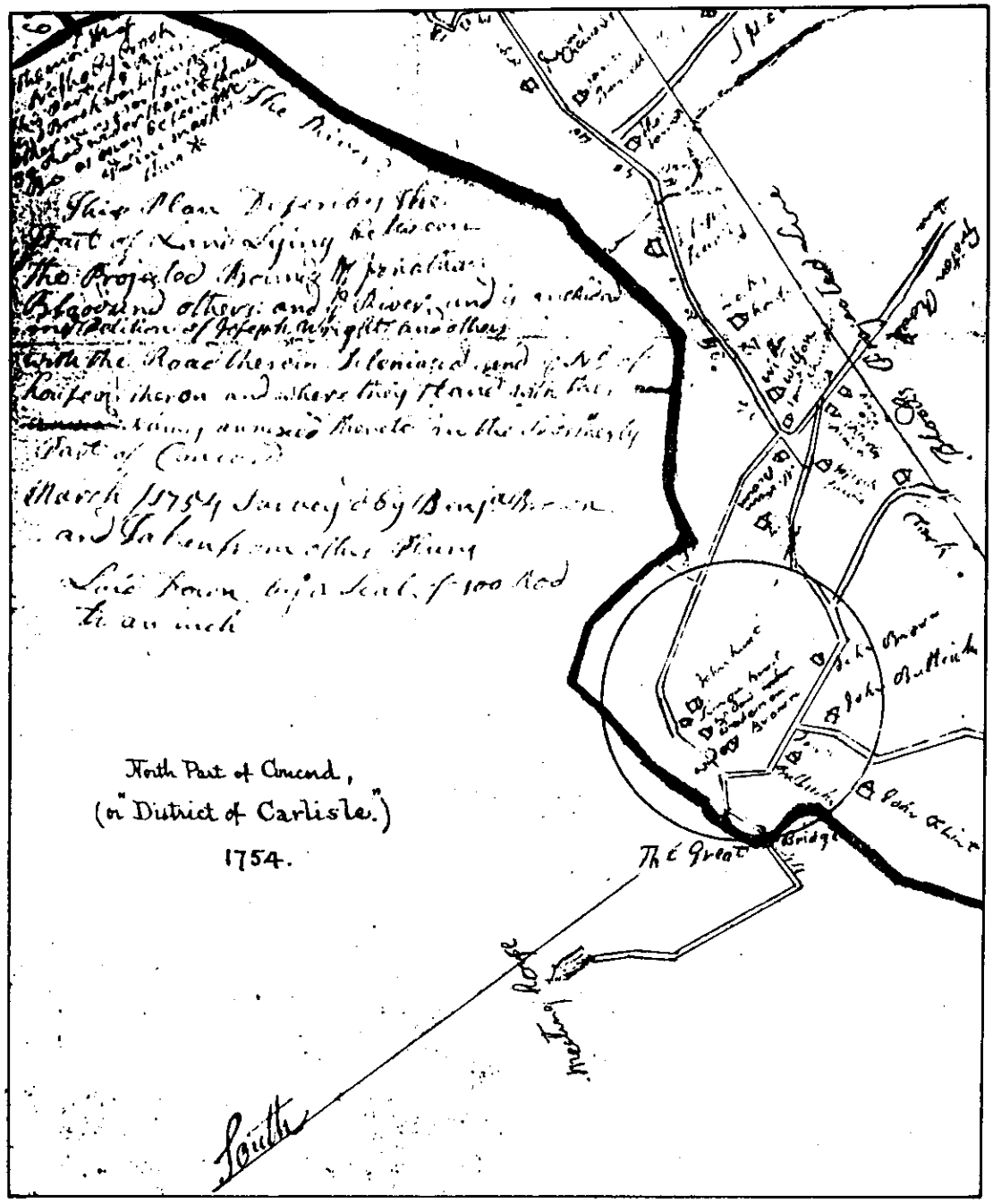


Figure 3-2. 1754 Benjamin Brown survey plan of the northern part of Concord. The circled area shows the junction of the eastern and western branches of the road that crossed the river. The David Brown house is on the western branch (on file, Massachusetts Archives, Boston).

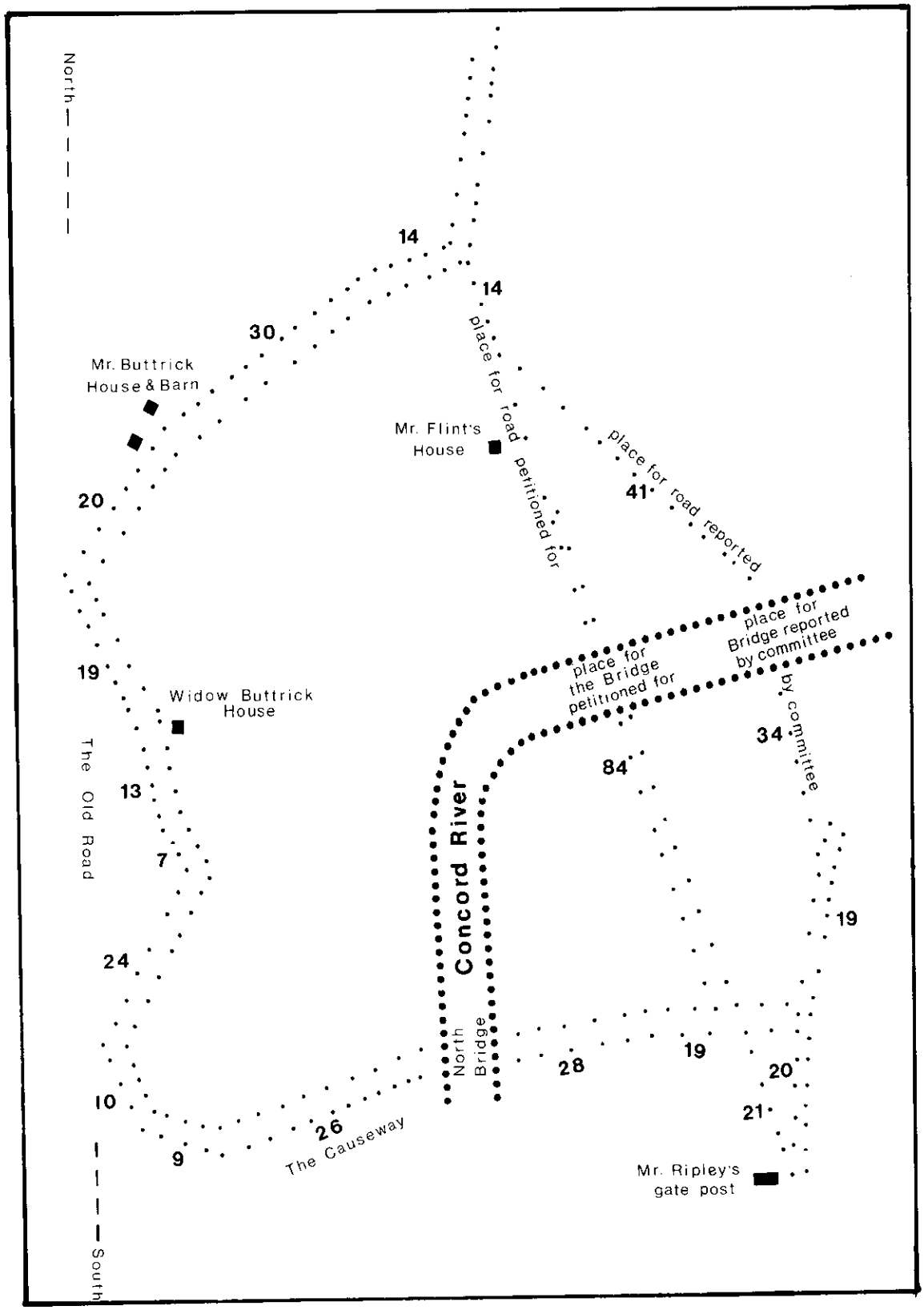


Figure 3-3. Tracing of a map of Groton Road, probably drawn in 1792, showing house locations and proposed locations of new bridge. The west branch of Old Groton Road is not depicted. The numbers indicate the distance in rods between points (reproduced from ACMP tracing [Charles 1986:118] of Abel [1965:plate 4]).

Table 3-1. Household and ownership changes at the David Brown site.

Grantor	*Grantee*	*Acres*	*Date*	*Source*
Rev. Peter Bulkeley	Thomas Brown	14	1644	Wheeler 1964
James Blood	Thomas Brown	6	1655	M.D.*, Book 2:155
Peter Bulkeley	Thomas Brown	18	1663	M.D., Book 3:461
Hannah Davis	Thomas Brown	1	1667	M.D., Book 3:461
Thomas Brown	Thomas Brown, Jr.	estate	1680	Concord Records, vol. 1:285
Thomas Brown, Jr.	Ephraim Brown	estate	1718	M.P.† #3214
Ephraim Brown	David Brown	estate	1749	M.P. #3003
Hannah Brown (Ephraim's widow)	David Brown	estate	1768	M.P. #3003, item 9
David Brown	Joseph Brown	estate	1802	M.P. #2976
Joseph Brown	estate bankrupt, Nathan Brooks, administrator	46	1821	M.P. #2976
Nathan Brooks	Josiah Davis	46 (¾ part)	1822	M.D., Book 244:24
Josiah Davis	Samuel Hoar, John Keyes, Nathan Brooks	46 (¾ part)	1823	M.D., Book 258:127–128
John Keyes, Nathan Brooks	Samuel Hoar	46 (¾ part)	1824	M.D., Book 258:126; Book 277:333–334
Abigail Brown	Samuel Hoar	estate	1832	M.P. #2976
Samuel Hoar	Samuel H. Rhoades	estate	1849	M.D., Book 575:23–24
Samuel H. Rhoades	George Keyes	estate	1867	M.D., Book 1003:68–69
George Keyes	Laura Emerson	6	1877	M.D., Book 1455:132
Laura Barrett	Edward A. Newell	6	1908	M.D., Book 3368:384
Edwin A. Newell	Bemis, Perkins, Buttrick (trustees of Stedman Buttrick)	6	1926	M.D., Book 3698:333

*M.D. = Middlesex Deeds
†M.P. = Middlesex Probates

Tomlin transfer has survived, but according to Wheeler (1964:85) there was a house on the property at that time. Bulkeley was minister to the Concord church and lived on the south side of the Concord River, across from the Brown homestead. There is no evidence that Bulkeley lived in the house he received from Robert Tomlin and which he sold in 1644 to Thomas Brown of Sudbury, England. According to Wheeler (1964:85) the transfer included a house, 4 acres of ground on which it stood, and a 10-acre meadow, all on the west side of the river. The citation provided by Wheeler (1964:85) for this transaction is incorrect and the actual deed has not yet been found. Brown was married before this date and already living elsewhere in Concord with his family, for a son, Boaz, was born to Thomas and Bridget Brown in 1641 (Concord Vital Statistics n.d.). A daughter Mary was born in 1646 after the Browns moved to the homestead on the north side of the river, a son Eleazer arrived in 1649, and despite no record in the town church, another son, Thomas, was born in 1651. The youngest son was the grandfather of Captain David Brown.

Thomas Brown purchased other parcels of land in the area in the years that followed the homestead purchase but none of these included

any structures (Middlesex Deeds, Books 2:155, 2:174, 3:461). The founder of the Brown family of Concord died in 1680 (Concord Vital Statistics n.d.) having bequeathed the family homestead to his namesake, Thomas Brown (Concord Records 1655–1784:285).

Thomas Brown junior, or Ensign Thomas Brown, had established his own family before he inherited his father's estate. In 1677 he and Ruth Jones (or Johnes) were married and Concord records note the births of four children (Concord Vital Statistics n.d.). Of these a daughter, Ruth, was born in 1678, before Thomas senior died, and three other children, Mary, Thomas, and Ephraim, were born after that event. Son Thomas, the elder of the two Brown sons, married in 1709 and would probably have inherited the family property had he himself not died in 1717, a year before the death of his father. Ephraim fell heir to the Brown homestead in 1718 (Middlesex Probates #3214). The probate records at this point provide some detail about the family house. It was apparently on the usual east-west axis and had two stories as Thomas's widow, Ruth, was left the west end of the house "from the bottom to the top" and "interest in the cellar" (Middlesex Probates #3214).

Ephraim Brown was the father of David Brown. Four months after his own father, Thomas, died he married Hannah Wilson of Concord. The records list seven children born to the couple, four sons and three daughters (Concord Vital Statistics n.d.). David was the youngest male child. The two elder sons, Thomas and William, seem to have left the area as there are no records of their marriages or deaths in the Concord archives. Ephraim died in 1749, apparently intestate, and it was not until 1755 that the estate was finally settled. His widow, Hannah, received the usual third of the property and half of the house. The settlement explains that son Thomas had gotten his share of his patrimony during his father's lifetime and William, the second son, had declined to take part of the land since he had received a sum of money already. The third son, Elias, was described as "uncapable of managing any Business" and so the homestead was settled upon David, only 17 years old when his father died (Middlesex Probates #3003).

Hannah, Ephraim's widow, lived to share the farm with her son for 19 years. Elias died a bachelor in 1794 at the age of 67 and may have lived out his life in the family homestead. The house David inherited was almost certainly the same house his father had inherited. Its description is the same in the will and there is no mention of any "old house site" in descriptions of the property. It could not have been very large because Hannah received the eastern half of the house, which had only two rooms, a "Lower Room and Chamber" (Middlesex Probates #3003). She also received "one full Third part of the Celler" (Middlesex Probates #3003). The property also contained a large barn with a little barn attached to its western end. The yard in front of the barn was "Eight paces wide to the High way" (Middlesex Probates #3003). The widow was granted both the small barn and the yard before the small barn. She also received one-third part of the "yard or Lane" in front of the house "to the High way" (Middlesex Probates #3003). Benjamin Brown's map of this part of Concord, executed in 1754, shows the Brown homestead to have been located just west and north of the junction in the Old Groton Road (Figure 3-2). At that time the Bateman and Hunt farms to Brown's west were also located on the north side of the western fork. There were no houses on the south side of the road. Hannah Brown was also granted a 10¼-acre parcel lying on the eastern side of the homestead. A careful examination of the 1754 map suggests that the southerly end of this parcel, which is described as "About Twenty two Rods on a Highway" (Middlesex Probates #3003), bordered the east fork of the Old Groton Road. The boundary description then continues with the parcel described as easterly on a highway, probably the section of the Old Groton Road where it turned an angle and bordered the Willard and Ephraim Buttrick houses. Finally, this parcel is northeast and north "with Several angles" on land that belonged to one John Brown, the "Northerly end being

Twenty Rods wide," then west on David Brown's land (Middlesex Probates #3003). If the east fork of Old Groton Road has been properly reconstructed, it may be possible to find the boundaries of this parcel which formed the muster field (see Abel 1965). Once found, it could help locate the house since neither the house nor the barns were on this field.

Hannah Brown died in 1768 and another inventory was made before the land passed to her youngest son and chief heir, David. There would appear to have been a new house built between 1749 when Ephraim Brown died and 1768 when his widow followed suit, for in discussing her dowry the description of the one-third part of the yard she owned had altered. In 1752 it was described as "one Third part of the yard or Lane before the House to the High way" (Middlesex Probates #3003, item 5). In 1768 this description was "one Third Part of the yard or Lain from where the old House Stood to the Highway" (Middlesex Probates #3003, item 9). The new house would have been the house that was standing in 1775, the house pictured by Doolittle when he etched the North Bridge area print (Figure 3-4). This structure may be the house on the far left side of that print, painted red on the original. We can narrow the time of its construction somewhat further because it is unlikely to have been built before 1755 when the estate was settled. David Brown married Abigail Munroe of Concord in 1756 and their marriage may have induced him to build a larger house.

It is not clear from the historical records where the new house stood in relation to the old house. It may have been directly behind the old house or to its west since the description of the widow's land in front of the old house did not change, nor did the description of her parcel on the east side of the homestead lot. Indeed, subsequent archeological investigations have revealed that this new house was located southwest of the "old House" (Chapter 4).

This new house was to come in useful as David and Abigail had 10 children (cf. Concord Vital Statistics n.d.; Gross 1976:83; Wheeler 1964:94; Torres-Reyes 1969a:5), most of whom were probably living in the family homestead when the battle at the North Bridge took place. The youngest child, Joseph, was born a year after that event.

Under David Brown's management the family and farm prospered. In 1798 the Direct Federal Tax assessed him for one dwelling house valued at $600, a high valuation, twice that of the neighboring Bateman house. He was also assessed for one outbuilding, presumably his barn. The 1798 Direct Federal Tax did not tend to record smaller farm buildings, however. It is clear from the inventory of the David Brown estate after his death in 1802, for instance, that in addition to his house he owned "Barns" and "other out houses" (Middlesex Probates #2976).

Barns and Outbuildings

Barns and other outbuildings often went unmentioned in early deeds. Since a house was present on the Brown homestead from the earliest transfer of the property, it is probable that a barn of some sort was also on the site by 1644. The will of the first Thomas Brown, who died in 1680, has not been preserved and that of his namesake, who died in 1718, merely mentions a house (Middlesex Probates #3214). Nevertheless, a barn and other smaller farm buildings probably existed during this time. By the time we get to the will of David Brown's father, Ephraim, who died in 1749, we have more specifics (Middlesex Probates #3003). An inventory of his goods and land mentions a barn, and the settlement of 1755 specifies that there was, as already noted, a large barn with a small barn on its western end and a "yard" between the barns and the highway (Middlesex Probates #3003). The barn was on an east-west axis as was the house. When David Brown died in 1802 his inventory spoke of "barns" and valued these at $140 and "other out houses" at $100 (Middlesex Probates #2976). It is unclear whether these barns were attached or were separate structures. The other buildings may have included a shop as Brown's son and heir Joseph was a hatter (Wheeler 1964:100). At any rate, $100 for other buildings

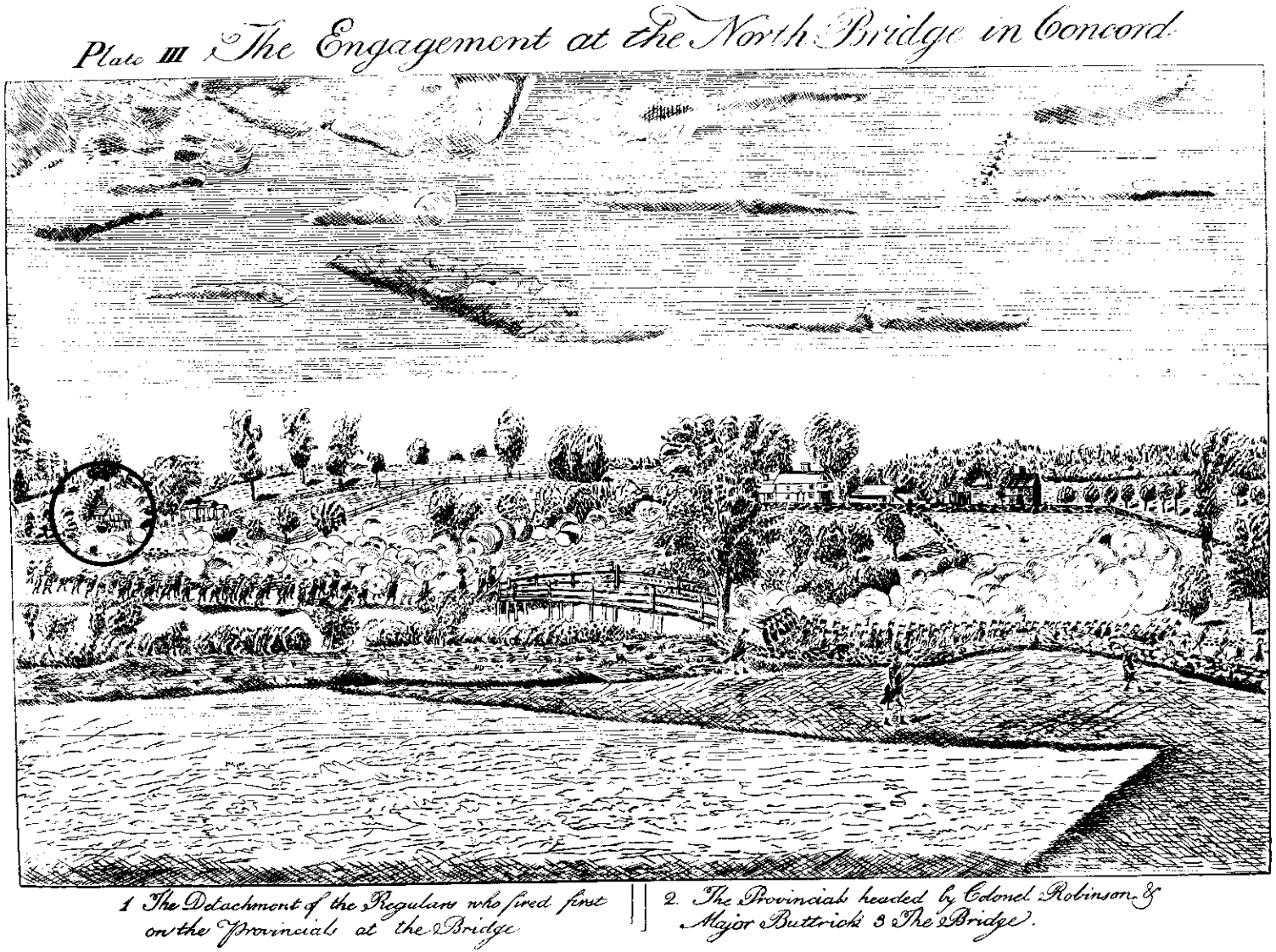


Figure 3-4. Reproduction of Doolittle print depicting the skirmish at the North Bridge. The "red house," which may have been the 1775 David Brown house, is circled.

indicates that they were of some significance. The barns appear to have been located north of the house as the rerouted Liberty Street came between the house and barns.

Land Use

The best information on the land use of the Brown farm in colonial times comes from deeds and inventories, which label the use parcel by parcel. These tend to divide use into rough types, for example, pasture, tillage, meadow, or orchard. Tax rolls provide the total acreage of each type of taxable use. Unimproved land and woodland were not taxed. The Brown farm consisted of a homestead lot, that is, the land immediately adjacent to the house and barns, and, as was typical at the time, a variety of scattered parcels. The latter are of no relevance to our study.

According to the Concord tax roll of 1771 David Brown owned some 67 acres of taxable land in Concord of which 7 were tillage, 2 upland meadow, 13 fresh or swampy meadow, and 45 pasture. He produced four barrels of cider a year and therefore must have had a small apple orchard. Before the period of David Brown's stewardship of the farm it is difficult to get a good breakdown of land use. The evidence from historical documents, especially inventories, reveals the following division of David Brown's land (Middlesex Probates #2976).

1. A 10¼-acre field east of the Brown house was used as pasture. This was probably the militia training field. It extended east for 22 rods along Groton Road and then turned northeast, still bordering a road. On the north and northeast it was 22 rods wide and bordered the land of John Brown, a blacksmith, and on the western boundary it bordered David Brown's land.
2. Oak Meadow or the Back Meadow occupied some 30 acres of land. Six acres of this meadow bordered the western side of the homestead parcel, the remaining 23 acres were described in 1752 as woodland and swamp.
3. A field of 14½ acres lay behind the Brown barn of which 7 acres were tilled. The tilled acreage was probably the portion nearest to the barn.
4. A 4-acre meadow bordered the road from the Old North Bridge. The Brown land nearest the river was entirely meadow.

The four parcels listed above are those of importance to this study. In the area immediately adjacent to the Brown house one might expect to find kitchen gardens for herbs and vegetables (Russell 1976:92). David's mother Hannah, for instance, was bequeathed, as part of her widow's portion, the yard between the small barn and the Old Groton Road and between the house and the Old Groton Road for her own use. The most likely use of this area was as a garden since it would have been too small for a pasture.

The Brown Farm and its Owners after David Brown's Death

David Brown died in 1802, by that date a self-styled gentleman. Half of his land in Concord was left to his widow, Abigail, along with "the westerly end" of the house "from the top to the bottom of the cellar" (Middlesex Probates #2976). Unfortunately there is no description in the will of the parcels that were to be set aside for the benefit of Abigail. As for his six sons, David left 500 acres of "Wild lands" in Flintstown, Maine, to his sons David and Ephraim, a bequest to his son Purchase who lived elsewhere, while son William was described as in a "delirious state of mind," that is, mentally ill (Middlesex Probates #2976). David therefore followed what had become something of a family tradition and left half of the homestead, with responsibility for the farming and bequests, to his youngest son Joseph. Daughters Sarah, Elizabeth, and Hannah, who were single when he died, were to live with their mother and to be allowed to remain in the family home after her death. William was provided with a legacy and may have remained in the family home as well.

Elizabeth seems to have remained single until her death in 1832 at the age of 65. Hannah married in 1804 and Sarah in 1818. Oddly, while Concord records list the birth of Sarah Brown, David isn't listed in the records as the father of either a Hannah or an Elizabeth although at

Elizabeth's death he is cited as her father (Concord Vital Statistics n.d.). Perhaps the two girls were the adopted children of some other family member.

Abigail outlived her husband by some 30 years, dying in 1832 at the impressive age of 99, three months after her daughter Elizabeth died. She also outlived Joseph Brown who had been charged with her care and the management of the family property.

In addition to the distribution of property at David Brown's death, a detailed inventory provides other valuable information about the family farm. The dwelling house was valued in 1802 at $400, the "Barns" at $140, and "other out houses" at $100 (Middlesex Probates #2976). The "Home Lot," that is the main block of farmland with the house and other buildings, was said to contain 39 acres "more or less" (Middlesex Probates #2976). The "House Lot," or land immediately adjacent to the house on which it and other farm buildings stood, was "supposed to contain about seven acres" (Middlesex Probates #2976). This "House Lot" was probably the original Brown land purchased by Thomas Brown.

According to the 1802 inventory David Brown's farm stock was typical of Concord farms of the time (see Concord Tax Rolls of the 18th century). He had a horse, one pair of oxen, seven cows, a bull, a heifer, four yearlings, and four calves. He also owned five sheep, three lambs, and two pigs described as "old swine" (Middlesex Probates #2976). In 1802 he also owned a one-acre orchard said to be "near oak meadow" (Middlesex Probates #2976). The total value of Brown's real estate was appraised at $3024, his personal estate including farm animals at $305.93.

Joseph Brown, David's main heir, was to work the entire farm, both his own portion and his mother's, and in David Brown's words to "Carry on and improve according to the rules of good husbandry said lands" (Middlesex Probates #2976). He was not a good choice. After successive generations of prudent, if prolific, Browns, Joseph was imprudent and managed to lose the family property.

Joseph was a hatmaker by trade (Wheeler 1964:100). David died in May of 1802 and in October of that year Joseph married Susannah Dodge of Concord. A daughter Abigail was born in 1804 and a son David in 1806. Another daughter Elizabeth was born in 1813, but strangely only her death in 1828 at the age of 15, not her birth, is recorded (Concord Vital Statistics n.d.).

Joseph seems to have run into serious financial difficulties, for in 1813 he mortgaged his share of the property to John Richardson of Newton who had purchased the former Jonas Bateman farm nearby (Middlesex Deeds, Book 200:341). The property at that time was described as consisting of some 46 acres of land in North Concord bounded

> Southeast on Concord River
> East on land of Jonas Buttrick and on Old Groton Road and the land of Samuel Dakin
> West on the land of James Brown and Reuben Hunt
> North on Groton Road. (Middlesex Deeds, Book 200:341)

He also mortgaged his property in the Great Meadow, the so-called Oak Meadow, and the orchard. The deed made clear this was "all Joseph Brown owned in Concord, with all buildings standing thereon" (Middlesex Deeds, Book 200:341).

Joseph died in July 1821 at age 45. He was still in financial straits, for the administrator of his estate, Nathan Brooks, was empowered to convey as much of the land as necessary to pay off debts amounting to $4065.49 (Middlesex Deeds, Book 244:24–26). In fact, to raise that sum all the land Brown owned at his death was sold in September 1822 to Josiah Davis, gentleman, of Concord. In this deed the homestead parcel of 46 acres was described as in the mortgage above with the exception that James Brown was described as the late James Brown and the southern boundary was bounded by the land of John Richardson, owner of the former Bateman property, as well as by the Concord River. The sale included a dwelling house, barn, and other buildings. It should be noted that despite the fact

that by this time the Groton Road had been rerouted to cut between the Brown house and barns (see below), Joseph's share of the land was entirely south of the Groton Road. The barn referred to in the 1822 deed may have been a new barn south of the road or Joseph's interest in the David Brown barns north of the road. According to Dwyer and Synenki (Chapter 4), the former is a distinct possibility since archeological investigations uncovered the remains of a barn that probably dates to the early part of the 19th century. The transfer was, according to the language of the deed, "subject to all the legal encumbrances which existed at the deceas [*sic*] of said Intestate" (Middlesex Deeds, Book 244:25). The chief legal encumbrance at the time was the right of Joseph's mother and sisters to a portion of the house and land.

Seven months later Josiah Davis had resold the Brown estate to three men, Samuel Hoar, John Keyes, and Nathan Brooks, all lawyers (Middlesex Deeds, Book 258:127–128). There is no information about what happened to Joseph's widow, Susannah. Daughter Elizabeth's death is recorded in Concord records for 1828 so the family may have remained on the homestead until then but no record exists for the widow or other two children (Concord Vital Statistics n.d.).

By the end of 1824 Samuel Hoar had purchased the rights of his partners in the property and was sole owner (Middlesex Deeds, Books 258:126; 277:333, 334). In these transfers the property was repeatedly described as "three undivided fourth parts" (Middlesex Deeds, Books 258:126; 277:333, 334), presumably reserving the rights of Abigail Brown, David's widow. Although at the time that Nathan Brooks sold the property to Josiah Davis the buildings included were described as a dwelling house, barn, and other buildings, in the resale to the partners the structures were described as "a dwelling house, two barns, and other buildings" (Middlesex Deeds, Book 258:127). This was true of subsequent sales amongst the partners as well. Perhaps Joseph Brown had used one of the barns as a workshop or shop for his hatmaking business and it may have reverted to use as a barn after his death.

In 1827 Abigail Brown petitioned the court that Joseph Brown had been granted the family land "on condition he pay sundry debts and legacies and provide for her support during her natural life by paying her annually certain articles and money and performing certain service" (Middlesex Probates #2976). This was certainly part of the legal encumbrances on the estate. Yet, since Joseph's untimely death, Abigail claimed no provision had been made for her support. She was now in her 90s. She asked that Nathan Brooks be appointed administrator. This was apparently done and Brooks later notified the court of some outstanding debts on the estate of $940. He asked to be permitted to sell some property to discharge the debts and was authorized to do so. He placed on sale three parcels, one in Carlisle and two in the Concord Great Fields (Middlesex Probates #2976). It is interesting to note that the notice of the sale specified that all these parcels were being rented out at the time of their sale.

Abigail died in 1832 shortly after the death of her spinster daughter, and the final encumbrances on the property lapsed. Samuel Hoar, who already owned Joseph Brown's share of the estate, now owned the entire estate, as Joseph himself would have done had he lived. It seems unlikely that Hoar lived on the property. It was apparently rented out to a series of tenants until 1849 when he sold it to Samuel H. Rhoades of Boston (Middlesex Deeds, Book 575:23–24). By this time the property description, which included Abigail Brown's portion north of the Old Groton Road, was quite different from that of some 25 years earlier (Middlesex Deeds, Book 575:23–24). The main homestead parcel on the north side of the Concord River was bounded and described as follows:

> beginning at the point by said river where the land of the grantor joins the land of Thomas Wesson [later George Keyes] by said Wesson to the road, crossing said road to the southeast corner of Simon Brown's land [formerly the Bateman farm] then by said Brown's land by

> northwest sides of the same to the land of Humphrey Hunt then by said Hunt's land to the land of Franklin Dakin, by Dakin's land to the road near a brook then by same road to the land of Ephraim Dakin, by Ephraim Dakin to the land of Timothy Meek then by Meek's land to the road—by the same road to an angle by a small elm tree opposite to the house of Stedman Buttrick—then crossing said road to the corner of said Buttrick's land then by said Buttrick's land to Concord River, by said river to the place of the beginning. (Middlesex Deeds, Book 575:23–24)

The road crossed to reach the southwest corner of Simon Brown's land was modern Liberty Street. Simon Brown's land was on the north side of that road. (Simon Brown was not related to the Concord Browns—he moved there in 1848 [Wheeler 1964:114; Towle 1986a:270].) The property recrossed Liberty Street at an elm tree opposite Stedman Buttrick's land then followed the old line down to the river and west to the "place of beginning" (Middlesex Deeds, Book 575:23–24). Strangely, the deed fails to mention any buildings on the property, yet when the parcel was resold by Rhoades in 1867 there was a reference to buildings "thereon" (Middlesex Deeds, Book 1001:68–69).

When Rhoades bought the Brown property he was "of Boston" (Middlesex Deeds, Book 575:23–24). He and his wife moved to Concord and the following year a son, Isaac Andrew Rhoades, was born. The Rhoades kept the property some 18 years before selling it to George Keyes of Concord. George's father, John Keyes, had been one of the three lawyers who had purchased the bankrupted Brown property in 1822, and it was Keyes land that abutted the Brown property. This was the land formerly belonging to Thomas Wesson. Mary E. Keyes, Simon Brown's daughter, now owned the land that was formerly the property of Simon Brown (Middlesex Deeds, Book 1455:132). One further difference in the description of the property in the 1868 deed is a small piece of land "marked out for a widening of the road near said Buttrick house" (Middlesex Deeds, Book 1001:68–69), which was reserved in 1849 but not mentioned in 1867. This is probably because the widening had taken place by the later date. Indeed, an 1868 map (Figure 3-5) depicts the elm tree mentioned in the deeds and the road widening around it.

When George Keyes purchased the Brown property he already lived nearby in the house of his father-in-law, Simon Brown (Wheeler 1964:113). There is clear evidence in the Simon Brown diary that George continued to live next door and the buildings on the former Brown land were either moved or dismantled. The Simon Brown diary records in some detail the demolition of the Samuel Rhoades house in 1867 and 1868 and the removal of Rhoades' barn to the Simon Brown property (Towle 1986a:270–274; Chapter 4). Simon Brown noted that when he demolished the old red house it was discovered that some of the materials of which it was built had been part of an earlier house (Brown Diary: January 2, 1868). Was the Rhoades house the 1775 David Brown old red house? Both were on the south side of Liberty Street. The materials of which it was constructed, which had come from an earlier structure, would probably have been part of the fabric of "the old house" mentioned in the Brown inventory of 1768, the house Ephraim Brown had bequeathed to his son David.

The Rhoades barn, before being moved to the Simon Brown property, was probably situated on the south side of Liberty Street. Subsequent examination has revealed that the twin barn now on that property does not appear to be of 18th-century origin (Towle 1986a:270–274). According to Dwyer and Synenki (Chapter 4), this barn could also have been the one that may have existed in the early part of the 19th century, although this is uncertain. After the house was dismantled and the barn was moved, the Rhoades property was cultivated (see Chapter 4).

In 1877 Laura Emerson of Boston, soon to become the wife of Edwin S. Barrett, purchased six acres of the Brown estate from George and Mary Keyes (Middlesex Deeds, Book 1455:132). This parcel was described as beginning at a stone

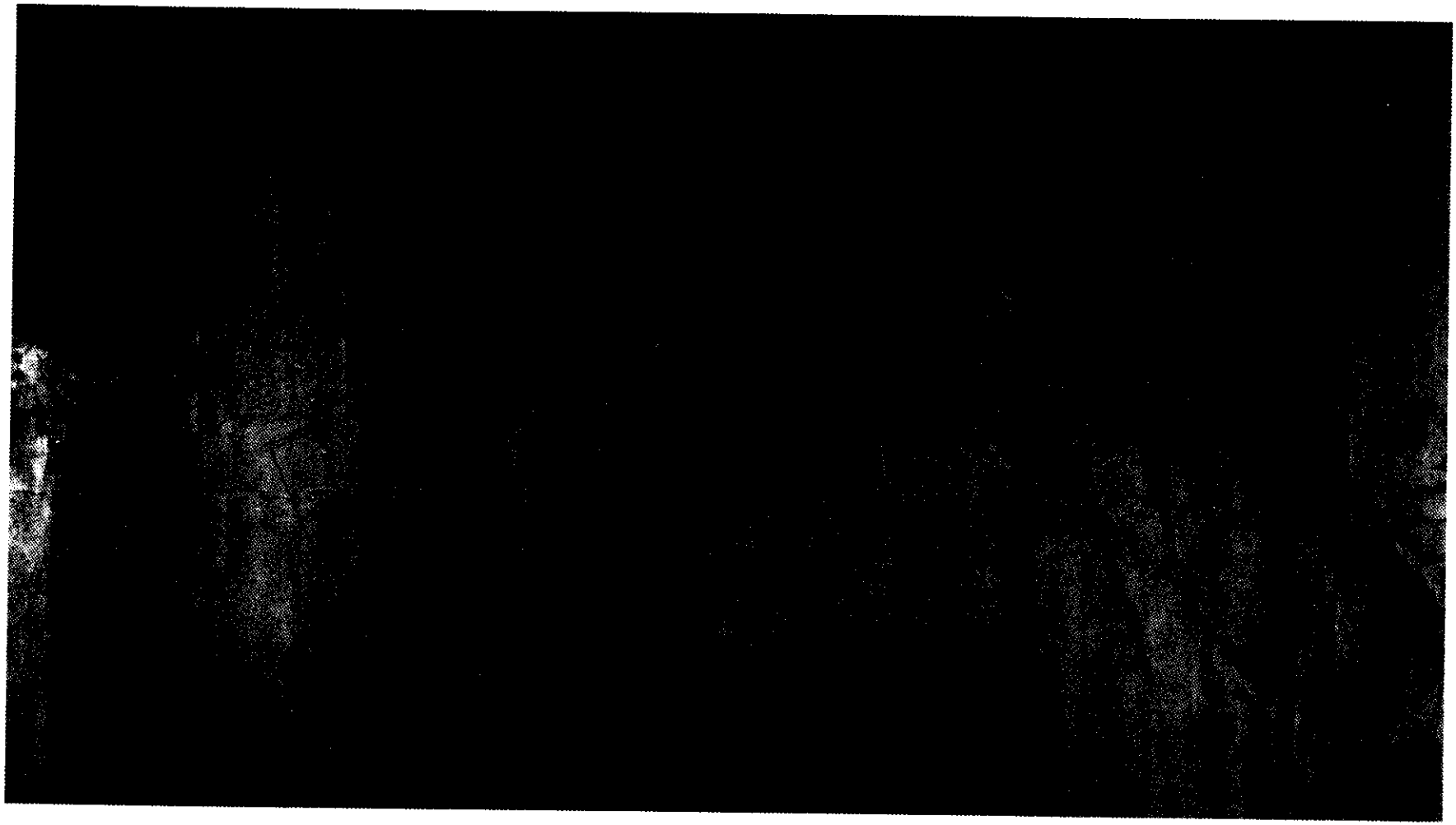


Figure 3-5. 1868 W. M. R. French map of the George Keyes farm in Concord showing the widening of Liberty Street as well as the elm tree mentioned in deeds. The elm tree and George Keyes's yellow barn are circled (reproduced courtesy of Judy and Jonathan Keyes, Concord, Massachusetts).

Table 3-2. Early structures on the David Brown property.

Structure	*Built by*	*Gone by*
House	1644	1768
Larger house	1768	1867
"Battle Lawn"	1879	
Cottage	1882	
Two family house	?	1921
Barn	(1644)*	
Two-stage barn	1749	1867
Two barns	1802	1867
Shop	(1802)	1867

*While not mentioned in early deeds, a barn almost certainly existed by 1644.

post on the road (Liberty Street) at the land of Mary E. Keyes and running east on the road to the elm tree at the land of the heirs of Stedman Buttrick, then southeast to a corner of their land, south to the Concord River, along the river west to a point opposite a stone post set in the bank, then north to said post and along the other land of the Keyes. This is specified as all of the land Keyes bought from Rhoades south of the road, and would therefore include the main homelot of David Brown with the exception of the portion north of Groton Road where his barns stood. There is no mention in the deed of any buildings on the parcel.

In 1878 Laura Emerson, now Laura Barrett, mortgaged the property to Henry Emerson, possibly her father (Middlesex Deeds, Book 1490:220). Soon after, Edwin Barrett proceeded to build a "mansion" on the property which he named "Battle Lawn" (Keyes 1885:74). It had a brick lower story. In 1882 Barrett also built a cottage for his gardener a few rods south of the Buttrick house. Keyes (1885:73) writes that this cottage stood on the top of the hill and commanded a fine view.

In 1908 Laura Barrett sold the property to Edward A. Newell who had been renting Battle Lawn since 1898 (Middlesex Deeds, Book 3368:384). In 1912 Newell sold Stedman Buttrick a small triangular portion of the property (Middlesex Deeds, Book 3698:333). In 1926 he sold the remainder of the 6 acres and all of the buildings thereon to Bemis, Perkins, and Buttrick, trustees of the estate of Stedman Buttrick (Middlesex Deeds, Book 4957:539). Buttrick property had bordered the Brown property since the 17th century. In 1911 the Buttricks had built the imposing mansion still standing on their land today. From 1926 until her death Mrs. Sherman Hoar, sister of Stedman Buttrick, lived in Battle Lawn. After her death the house was demolished.

According to John Keyes (1885), yet another residence was built on the original David Brown property. This building was near the elm rather than over the original Brown house site, and was rented as a two-family house until 1921 when it was demolished.

Of all the structures that once stood on the Brown homestead, none remains today (Table 3-2). Only the Buttrick mansion of 1911 surveys the Old North Bridge. A photograph taken in 1890 shows both the Buttrick house and Battle Lawn (Wheeler 1964:70). Near Battle Lawn in the picture is a line of pines which, according to Wheeler (1964:70), were planted on "the old road which bounded the David Brown farm."

More research is needed to determine exactly where the two-family house was located and where the gardener's cottage stood. The Brown barns, as will be explained below, ended up on the north side of Liberty Street, and are not therefore part of MIMA property. Two additional structural elements need special attention for their importance in locating both the David Brown house site and the route of Old Groton Road in 1775. These are the stone wall now located to the west of the Brown property and the alteration in the route of Groton Road.

A final word is in order about land use. Owners of the David Brown property during the 19th and 20th centuries farmed the land of the homestead parcel or used it as grassland. Although Joseph Brown was not a good manager, the land remained farmland. The 1827 estate description is unchanged from that of 1802

(Middlesex Probates #2976). After the Rhoades house was dismantled and the barn was moved from the David Brown property in 1867 and 1868, the land was used as a field. With the Buttrick purchase in the 20th century the area closest to their home was developed as gardens, with greenhouses erected and a root cellar dug.

The Stone Wall

One surviving feature of the Brown land today which deserves special mention is the stone wall along the western boundary of the Brown land stretching from Liberty Street to the river (see Figure 4-12). In his investigation of the site, Abel believed it to be "quite ancient" (Abel 1965:30). The western branch of Old Groton Road would have had to intersect this wall had it existed before 1792 when the road was rerouted. While the wall does appear to have dated from the 18th century (see Chapter 6) the earliest document to mention it is dated 1792. In May of that year Jonas Bateman, David Brown's neighbor on the west, sold all his land in Concord to John Richardson and moved to Harvard, Massachusetts, to live with his son Jonas (Middlesex Deeds, Book 113:118–120). This deed describes Bateman's houselot as containing 21 acres bounded

> South on a highway [Groton Road, west fork]
> East and North on Captain David Brown's land "in a stone wall"
> West on Lieutenant Reuben Hunt's land "in a stone wall" till it comes to the aforesaid way. (Middlesex Deeds, Book 113:118–120)

There is no earlier document that mentions this wall. The deed describes the Bateman property, which was entirely north of the west fork of the Old Groton Road. South of the road there is no evidence that the wall was ancient. This section of the wall may have been built by Simon Brown who owned both the Bateman farm and the land south of it to the river in the mid-19th century.

The Road

The key to the location of the David Brown homestead and an important feature of the fighting that took place on April 19, 1775, was the Old Groton Road. The Brown home was located north of and near to the point at which that road forked (Figures 3-1 and 3-2). At present the eastern branch of the road has been reconstructed from archeological evidence with the aid of a map from 1792 (Figure 3-3). This map was prepared in conjunction with plans for shifting the Old North Bridge—or rather abandoning it—and erecting a new bridge near the Flint homestead. As discussed in Chapter 4, one of the objectives of the archeological investigation is to pinpoint the western branch of the Old Groton Road. Unfortunately, although possible evidence of the western branch was uncovered west of the wall that separates the Brown and Bateman properties, no evidence of the road was found on the Brown site (see Chapter 4). Historical evidence is therefore invaluable in this quest and in the discovery of which side of present-day Liberty Street the buildings used by David Brown and his neighbors in 1775 should be sought. While the eastern branch of the Old Groton Road has been recreated, it is important to be aware that both that branch and the main road were rerouted many times during the colonial era. The Concord River regularly overflowed its banks and efforts were made to find a route for the road that would not be washed out and would remain useful for most of the year. The road and the North Bridge were an essential link for the families on the western side of the river and the towns beyond to the center of Concord and the road to Boston.

The description of the road alteration in this area in 1793 is helpful in determining on which side of modern Liberty Street the 1775 buildings can be found. The Concord Town Records report that in 1793, a year after it was decided to move the North Bridge, and a year after John Richardson had purchased the Jonas Bateman farm, an article was submitted to the town to see if it would accept the alteration in the road "between the farm lately purchased by Mr. John Richardson of Mr. Jonas Bateman, and Jonas Buttrick" and to discontinue the old road (Concord Records n.d.). The petitioner was John Richardson.

He had apparently arrived at both the decision to reroute the now abandoned road and where to place a new road in consultation with Jonas Buttrick, David Brown, and Reuben Hunt. The selectmen reported to the November town meeting of 1793 that they had been requested to view the proposed change and had "judged it necessary to lay out the same alteration" (Concord Records n.d.). Their description of the new road, the route subsequently approved, reads as follows:

> began at a heap of Stones by the Stone wall on the westerly side of the road [Old Groton Road] opposite to the Dwelling house of Jonas Buttrick and running Southerly with a curve line about ten feet to a stake and stones, from thence running Southwesterly a strate line through Capt. David Brown land between his house and Barns, and through Lt. John Richardson's land and before the front of his house to a stake and stones three feet south of an apple tree in the front of said house, and from thence strate to the road now trod; the marks on said alteration of the road are on the northerly side thereof and the way to be two rods wide from the same...

This alteration abandoned the old eastern branch of the road and brought the new road between Brown's house and barns and in front of Jonas Bateman's house where it joined the western branch. They then proceeded to alter the route of the western branch:

> and further the Selectmen proceeded and made an alteration in the road between the Dwelling house of John Richardson aforesaid and the Great North Bridge near Reuben Hunt...

The change was as follows:

> beginning at a heap of stones, in the road in front of said Richardson's house two rods and a half southerly of the stake and stones south of an apple tree above mentioned and running a Strate line partly in said old road and partly in land of Lt. Reuben Hunt to a stake and stones about three feet South of an apple tree near the northerly end of the North Bridge Causeway, from thence with a curve line southerly to the end of a stone wall and the Southerly end of a pair of barns—the barns last mentioned are on the Southerly side of the road and the old wall on the northerly side of the now trod road to remain as it now is except a corner in front of Mr. Richardson's house to be removed to the line above mentioned...

Since the alteration of the road was agreed upon by those most affected and to be done "free of expense to the town" in return for the town discontinuing the old road and relinquishing all right in the lands by the river, the change was agreed upon, "only with the addition that the petitioners for said alteration and who has the benefit of the Land by the river make said new way passable by taking the Rock out of the same so they having their highway taxes the next year to enable them to do it" (Concord Records n.d.).

This new road coincides with the route of today's Liberty Street along the boundary of MIMA (Figure 3-1). The 1793 road was to be two rods wide. The 1868 map of Liberty Street now in the possession of Judith Keyes (Figure 3-5) shows Liberty Street to have been 35 ft in width at that time. This width is comparable to that of the present road. This seems to indicate that no buildings from the 18th century have been buried by later widening of the road.

As already noted, some land was set aside in 1849 near the Buttrick house for widening the road at that location, and the 1868 map depicts this widening (Figure 3-5). The Bateman—later Richardson—farm, instead of the Brown farm, was to be at the junction in the road. Only Brown's house changed its position with respect to the road, ending up on the south side (Figure 3-1). The Bateman farm, which had always been bordered on the south by the Old Groton Road, was now bordered on the south by the road's new route and by modern Liberty Street.

One remaining source of confusion lies in the mortgage of the Brown property to Richardson and its sale to Josiah Davis where it is described as bounded north on Old Groton Road (Middlesex Deeds, Books 200:341, 244:24–26). It seems clear that even though the land that Joseph Brown controlled in his own right was only on the south side of the road, he may have had interest in the barns located north of the road. The reference to the Old Groton Road could be taken as meaning the old route of the

Groton Road prior to 1793. But since none of the David Brown buildings seem to have been south of the old route the reference must refer to the rerouted road. In 1849 when the first sale of the Brown estate took place after David's widow Abigail had died, Samuel Hoar transferred to Samuel Rhoades a parcel described as crossing and recrossing the new road. All subsequent sales include that description (Middlesex Deeds, Book 575:23–24).

Conclusions

There is significant information that can be gleaned from the historical materials about both land use and structures on the David Brown property. By 1644 there was a house on the site and a meadow adjacent to the homelot. From that time until nearly the 20th century the property was used for farming.

The Brown family farm supported generations of Browns. Joseph Brown, a hatmaker, was the first owner to have a major occupation apart from farming. The Brown land near the river was, and remained, meadow as the regular flooding of the river precluded other uses. Land nearer the homelot was pasture with tillage land behind, that is north of, the barns and gardens next to the house.

The farm was a prosperous one supporting David Brown and his 10 children and, with reasonable management, his widow and heirs. After the bankruptcy of Joseph, others rented out the land or bought it and continued to use it as farmland. In 1867 and 1868 the Brown house was dismantled and the Rhoades barn was moved. The property was then cultivated. With the arrival of the Barretts and the construction of Battle Lawn the land became more decorative, residential property than active farmland, although they used the area where the Brown house had stood in colonial times as a field for haying. The Barretts built a cottage for their gardener not for their tenant farmer. A two-family house was built for rent. Under the ownership of the Buttricks the land continued to be used in this way as they were more interested in creating ornamental gardens than using the land for serious agriculture. Probably the high point of the property's use as a farm came during the tenure of David Brown and continued through that of Simon Brown, who had a keen interest in agriculture as indicated by his diary.

Significant, specific information has also been discovered about the structures on the site in 1775 and where they might be found. David Brown built a new house between 1755 and 1768, a larger house than that he inherited. The remains of what may have been this new house were uncovered southwest of the foundation that is presently marked as the David Brown house at MIMA and was occupied by generations of Brown's prior to the mid-18th century (Chapter 4). David Brown's barns were north of the new house and north of Liberty Street when it was rerouted in 1793. The Simon Brown diary indicates that the house Rhoades purchased was very likely the David Brown house and had been built with some timbers from a still earlier house, doubtless David's father's house. The stone wall on the western boundary of the Brown property may not have existed in 1775 (see Chapters 4 and 6), but in any case the western branch of the road would have intersected it. That branch would have passed close to the enlarged Brown house. Modern Liberty Street is approximately the same width as the 1793 road. None of the crucial 18th-century structures should be under the modern roadway. Unfortunately the remains of the western branch were not uncovered during the archeological investigations (Chapter 4).

This study is not without data problems. There are certain mysteries that the surviving records fail to resolve. The early deeds are vague and the earliest transfers are missing. The town vital statistics records do not record all the births of children in the household during the 18th century, although this lapse does little to distort or detract from our principal interest in land use and structures. There is some confusion about the use of the widow's portion in the case of David Brown's sturdy widow, Abigail. She apparently lived in the family house until her death, but this is not absolutely certain. How many of

her single children lived with her? Again, however, this has little effect on land use as the owners of Joseph's portion must have farmed the land or leased it as farmland.

Additional research might help date the demolition of the 19th-century structures on the property and aid in determining the location and history of the two-family house said to have been located near the "elm" during the early part of the 20th century. Minor farm buildings are not distinguished in wills and inventories so we must surmise what they were from knowledge of the family farm stock and colonial agricultural practices. Despite these flaws, the records provide ample material for a history of the David Brown homestead and the families that worked and lived on it.

Chapter 4

Archeological Investigations of the David Brown Farmstead

Alison D. Dwyer and Alan T. Synenki

Introduction

As discussed in Chapter 3, David Brown's house, barns, and yards were located just north of the "Highway" and the North Bridge where the skirmish between the British and Colonial soldiers occurred on April 19, 1775 (Figure 3-4). At that time, the house and buildings were part of a 67-acre homestead, portions of which are today located south of Liberty Street within the North Bridge area of MIMA (see base map, Appendix A-1; Figure 4-1). A successful farmer of a moderately sized homestead and an investor in frontier real estate, David Brown (1732–1802) was also a town selectman and a representative in the Massachusetts legislature, as well as being Captain of one of the two Minutemen companies that squared off with British soldiers. Brown also held various town positions and was a member of numerous committees (Gross 1976, 1984; Keyes 1853; Shattuck 1835; Torres-Reyes 1969a; Wheeler 1964).

Almost 200 years after 1775, the remains of a house were uncovered south of Liberty Street (Tremer 1970, 1973; Figure 4-2). These remains were postulated to be those of the house that was extant in 1775 and that generations of Browns resided in from the mid-17th century up until the early part of the 19th century. Today, a MIMA plaque identifying these house remains reflects this interpretation. Recent research, however, has brought this interpretation into question. This research suggests that the currently marked house is the "old House" mentioned in the inventory of Hannah Brown's (David's mother's) estate in 1768 and the one that generations of Browns resided in until a new house was constructed sometime between 1752/55 and 1768 (Chapter 3; Malcolm 1985:121–122; Towle 1986a: 153–280). If this recent research is correct and a new house was constructed, it would have been located south or west of the "old House." The new house is thought to be the one that was occupied in 1775.

In order to present a more accurate interpretation of the North Bridge area to visitors, archeological field investigations were conducted in the fall of 1985 and the summer of 1986. The major goal of the investigations was to determine the presence or absence of this new house and any other features of the 1775 landscape—including the above mentioned "Highway" (i.e., the west branch of the 18th-century Groton or Acton Road). To explicate the site's 1775 features, documentary research was conducted in conjunction with the archeological investigations to identify more conclusively the function and date of the cobble area uncovered by previous archeological investigations (Tremer 1970, 1973).

As mentioned in Chapter 1, investigations of the David Brown site will not only contribute essential interpretive information regarding the correct locations of Brown's 1775 house and other features of the 1775 landscape, but also regarding changes in the landscape through time—from the mid-17th century through the mid-to-late 19th century. Together with the documentary (Chapter 3) and palynological (Chapter 5) data, the archeological investigations provide important comparative information regarding broader regional issues, including 17th-century vernacular architecture, mid-to-late 19th-century agricultural practices, and formation processes of the archeological record. This infor-

Figure 4-1. 1989 Project photograph of the David Brown site, facing north.

Figure 4-2. 1979 photograph of the house identified as the 1775 David Brown house. Recent research has concluded, however, that this may be the "old House," occupied until ca. 1752/55-1768. Photograph faces east (Bleacher 1979).

mation may provide further insight into the initial settlement of inland areas of eastern Massachusetts as well as a valuable record of one family's role and participation in what Gross (1982:43) has termed the transformation to modern agricultural capitalism (see also Chapter 6).

Previous Archeological Research

Prior to this project's investigations, archeological research on the David Brown parcel consisted primarily of excavations to locate the remains of the house (Tremer 1970, 1973) and the 18th-century road (Abel 1965; Tremer 1973). Limited excavations were also conducted during the stabilization of the house remains uncovered by Tremer (Bleacher 1979). A reanalysis of the data from these investigations was conducted when the artifacts were reinventoried in order to evaluate the original interpretations (Charles 1986; Towle 1986a).

A brief review of the previous archeological investigations is restricted here to Tremer's (1970, 1973) and Abel's (1965) research and Towle's (1986a:153–280) and Charles's (1986:101–143) interpretations of their data. This is done to provide the reader with a context for understanding why the current research was conducted. This review focuses on the limitations of their work, their recommendations for further research, and in some instances provides an alternative explanation of the data associated with some of the features uncovered. A more comprehensive review of all previous archeological research conducted at the site has been provided by Towle (1986a:153–280).

HOUSE

During the summers of 1970 and 1971, Tremer (1970, 1973) conducted archeological investigations to locate and identify the subsurface remains of David Brown's house and any other "associated site features" (Chief, Archeological Research, NE 1970). These investigations were based on documentary research by Torres-Reyes (1969a:7), which assumed that there had been only one house built and occupied by the generations of Browns who owned the property, despite possible documentary evidence of the existence of two houses (Tremer 1973:6). To locate the subsurface remains of the house, Tremer (1970) established the site boundaries on the basis of historical maps and photographs and the Doolittle etching (Figure 3-4). Initial subsurface testing consisted of the excavation of several test trenches spaced 25 ft apart in the northern part of the site (Tremer 1970:2; 1973:53). These excavations uncovered the remains of one of the walls of a house cellar; test trenches and test "areas" were used to further excavate the house remains. As a result of these excavations, the remains of a barn (i.e., a cobble area) and a well were also uncovered (see discussion of these features below). The house remains were interpreted to be from the house in which various members of the Brown family resided from the mid-17th century until the first part of the 19th century (and therefore the house that Brown and his family occupied in 1775). These remains were also interpreted as the same house that was carefully dismantled in the 1860s (Tremer 1973:7, 39).

While the house that was uncovered by Tremer is likely to have been built in the 17th century, it is unlikely that it is the one occupied by Brown and his family in 1775 or the one dismantled in the mid-19th century, as the current investigations will demonstrate.

The configuration of the foundation and several of its architectural features suggest that the house was built in the 17th century. Although it has been suggested that the original house was configured as a one-room plan (Towle 1986a:198–210), no unambiguous archeological or documentary data currently exist to confirm or reject this inference. The house remains uncovered by Tremer consisted of a cellar (Area 10) and three adjoining rooms (Rooms 2 and 4, and Area 12) to its north and east (Figure 4-3). Room 2 was originally interpreted as a lean-to, Room 4 as an open-ended shed, and Area 12 as a storehouse (Tremer 1973). While the cellar and the "storehouse" were hypothesized to have been constructed contemporaneously, Rooms 2 and 4

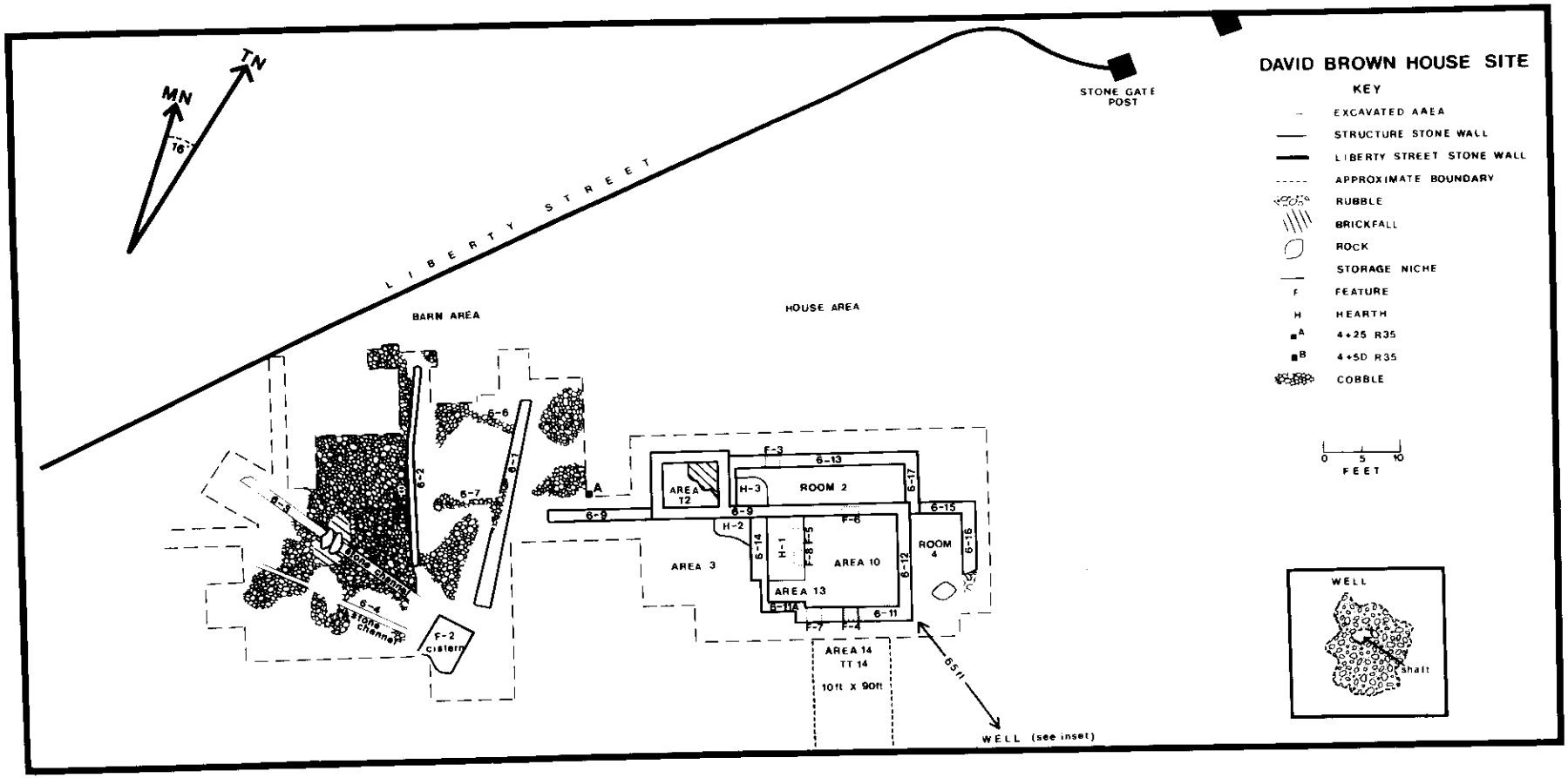


Figure 4-3. ACMP composite map of the David Brown house site as exposed by Tremer (Towle 1986a:figure 20.6).

were suggested to have been built at a later date (Tremer 1973). Unfortunately, neither the original function nor the construction sequence of these rooms can be definitively ascertained despite claims to the contrary because of the manner in which these rooms were excavated and because of inadequate field records (Tremer 1973; Towle 1986a:199–210). It is possible, however, that the cellar and Room 2, if not all of the rooms, were built at the same time. This inference is based on two pieces of information.

First, all of the foundation walls were constructed of similarly-sized small fieldstones, many of which were relatively flat. This building material appears to be relatively rare for 17th-century house cellars and foundations in eastern Massachusetts and may therefore represent the work of a single builder or possibly a distinctive building style of the early-to-mid 17th century (Orville Carroll, personal communication, 1987; Travers 1987:9). The construction materials associated with this foundation are certainly different from those associated with the David Fiske house cellars, which may also have been constructed in the mid-17th century (Chapter 10).

Second, wall niches exist in both the cellar and Room 2 (Figures 4-3 and 4-4). These niches appear to be common in 17th- but not 18th-century houses (Orville Carroll, personal communication, 1984 as cited in Towle 1986a:203). Again, their presence in the cellar and Room 2 may reflect the work of a single builder. The contemporaneity of the cellar and Room 2 may represent a distinctive 17th-century house plan since a similar configuration exists at the homelot of John Howland (a *Mayflower* passenger) in present-day Kingston, Massachusetts, occupied ca. 1638–1676 (Figure 4-5). According to Travers (1987:8–9; see also Beaudry and George 1987:24), an inventory of Howland's estate after his death referred to the larger room as the "outer or fire room," and the smaller room as the "inner room." The fire room appears to have been aptly named since it was the heated room, with its chimney exterior to the house. The "inner room" appears to have been unheated and its function is not known.

If the house uncovered by Tremer at the David Brown site consisted at one time of a one-room plan, its dimensions cannot be ascertained since the contemporaneity of the cellar and its other rooms is not known. If the original house consisted of a superstructure atop just the cellar, then it could have measured approximately 6 m (20 ft) east-west × 4.8 m (16 ft) north-south, which is somewhat smaller than the range of 17th- and early 18th-century one-room plan houses measured by Cummings (1979:22), as Towle has noted (1986a:201). If, on the other hand, the superstructure encompassed all of the above-mentioned rooms, then the house dimensions could have measured approximately 10.8 m (35.5 ft) east-west × 6 m (20 ft) north-south. Regardless of whether or not the original house was of a one-room plan, by 1718 the house consisted of a two-room plan according to Thomas Brown's (David Brown's grandfather's) probate inventory (Middlesex Probates #3214). The larger dimensions may reflect this plan. Unfortunately, the dimensions cannot be determined with much confidence at this time since it is unknown whether the superstructure existed beyond the walls of the exposed foundations (Tremer 1973:38; see also Towle 1986a:202).

While it seems likely that the cellar and its associated foundations are the remains of the "old House" occupied until ca. 1752/55–1768, it is not possible to determine precisely how long this house remained extant, or when its cellar and related foundations were filled—despite statements to the contrary (Tremer 1973; Towle 1986a:233). One reason for this is that no definitive occupation-related deposits or debris were uncovered, and no stratigraphic control was exercised during excavation of the features' fill (Tremer 1970, 1973). Thus, even though several artifacts were alleged to have been deposited during the construction or occupation of the house (e.g., "a large colonial type key" and five possibly hand-wrought nails), all could have been

Figure 4-4. Niche F-4, under the doorsill in Area 10 at the David Brown site as exposed by Tremer (1973:figure 11).

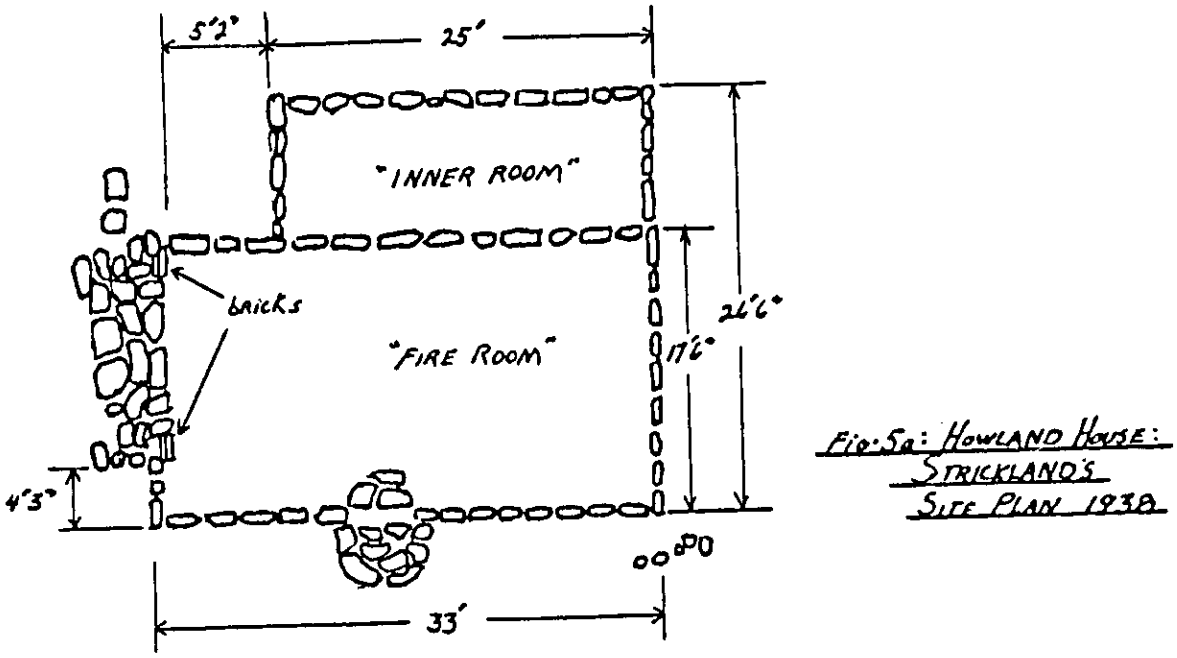


Figure 4-5. Plan of John Howland's 17th-century house in Kingston, Massachusetts, as drawn by Strickland (1938) and illustrated in Travers (1987).

deposited when the interior of the cellar was filled rather than when the house was occupied. Furthermore, because no stratigraphic controls were used or recorded during the excavation of the cellar and its associated foundations (Towle 1986a:159), it is not possible to determine which debris was recovered from within the cellarhole and its related foundations, versus those materials that may have been deposited above the house remains at some later date. Consequently, even though the relative absence of artifacts and the homogenous color of the cellar fill may indicate that this house was carefully dismantled and its cellar rapidly filled, it is not currently possible to determine when the filling occurred.

If the house remains uncovered by Tremer are the remains of the 17th-century Brown house, and if a "new" house was constructed ca. 1752/55–1768 as the documentary data imply, it was reasoned that the remains of the later structure should exist (Chapter 3; Malcolm 1985:121–122; Towle 1986a:153–280). Based on these data, archeological investigations were initiated to determine the presence or absence of this "new" house (see below).

COBBLE AREA

As mentioned above, a cobble area was uncovered west of the house remains exposed by Tremer (Figures 4-3 and 4-6). Tremer (1973:57, 63) interpreted the cobble area as the remains of a post-1793 barn that was physically connected to the house he uncovered. He indicated that it was uncertain when the barn ceased being used although it may have been in use until the mid-to-late 19th century (Tremer 1973:63). Towle (1986a:213, 215, 218) suggested that the cobble area could have been constructed by David

Figure 4-6. Cobble area as uncovered by Tremer at the David Brown site. Photograph faces southwest (Tremer 1973:figure 44).

Brown's son Joseph, a hatter, in the early part of the 19th century and used as his shop. For reasons presented below, it is more likely, however, that the cobble area is the remains of a barn cellar floor. Although this barn cellar and its associated superstructure could have been constructed by Joseph Brown sometime prior to 1821, it is more likely that they were not built until after that date (see below). The cobble area is probably the remains of the "yellow barn," presumably also the Rhoades barn—the barn that was moved from its original location and attached to Simon Brown's barn to form the twin barn that currently exists on the Keyes property across Liberty Street from the David Brown site.

The cobble area was described by Tremer as consisting of "small to medium (3–5") sized stones, one layer thick. Underlying this top layer of rounded stone lies a deep layer of larger stones forming a base" (Tremer 1973:41; Figure 4-6). Tremer (1973:41–42) inferred that a series of large fieldstones that were uncovered were the remains of two north-south and three east-west oriented walls. He suggested that one of these walls ("6-9" on Figure 4-3) connected the barn to the house. It seems unlikely that the cobble area was ever attached to the house that Tremer (1970, 1973) uncovered, but this cannot be conclusively ascertained given the data at hand (Towle 1986a:216, 218). The original dimensions of the cobble area are unknown because its remains had been disturbed before Tremer's excavations.

FUNCTION

Embedded among the cobbles were two stone-lined channels that sloped northwest to southeast toward a "cistern" located in the southeast portion of the cobble area (Tremer 1973:42; Figures 4-3 and 4-7). The larger of the two

Figure 4-7. Photograph of cobble area at the David Brown site, facing northwest, showing the two channels sloping down toward the cistern (Tremer 1973:figure 38).

channels ("6-3" on Figure 4-3) measured approximately 7.6 m (25 ft) in length, 30 cm (1 ft) in width, and 20–25 cm (8–10 in) in depth (Tremer 1973:44). The bottom of the channel consisted of flat, dry-laid fieldstones (Tremer 1973:42). Two large flat fieldstones covered a portion of the channel (Tremer 1973:44). The smaller of the two channels ("6-4" on Figure 4-3) measured approximately 15 cm (6 in) in width and 15 m (6 in) in depth and was constructed of "irregular sized stones...poorly fit[ted] together. No stone base to the channel is evident, except for an area of two feet, where three irregularly shaped flat stones..." exist (Tremer 1973:45). These stone channels were not physically connected to the cistern when they were uncovered since the area between the channels and the cistern was apparently disturbed (Tremer 1973: 44). The cistern (Feature 2) measured 1.5 m × 1.5 m (5 ft × 5 ft) and was approximately 45 cm (1.5 ft) deep (Tremer 1973:42). The interior of the cistern was filled with a large amount of mid-to-late 19th-century debris and a "grey clay sedimentation layer," approximately 5 cm (2 in) thick (Tremer 1973:43). Based on the presence of this sediment, in addition to the shallow nature of Feature 2, Towle (1986a:215) interpreted the cistern as a drywell in which "waste water" from the cobble area was disposed of through evaporation.

Recent documentary research indicates that the fieldstone-lined channels and cistern are in fact the remains of a barn cellar's waste management system in which livestock manure was composted. This inference is based on the similarity between the physical properties of the cobble area and descriptions of barn cellars in early-to-mid 19th-century agricultural literature. For example, the "basement or cellar" of the barn at the Indian Hill Farm, a prosperous farm located in Newburyport, Massachusetts, was described in the following way on September 25, 1844:

> ...the floor of the cow house, ox house and stables is of paved stone, and gutters cut from stone leading to the cistern: the entire barn, stables, cistern, &c., if rough in appearance are permanent and strong, and were erected at an expense of $2000. (Poore 1844:98)

In 1837 the "cistern" in this farm's barn was referred to as a reservoir:

> The arrangements here for the cattle are excellent. The horses and cattle stand upon stone or clay; and the stale is designed to be conveyed by tight gutters into a reservoir. (Colman 1838:67)

Based on this data, it seems reasonable to suggest that the cobble area uncovered at the David Brown site is the remains of a barn cellar as Tremer (1973) speculated.

DATING

While the function of the cobble area is relatively certain, its date of construction, use, and abandonment are less certain because of, in part, the lack of adequate stratigraphic and horizontal controls (Towle 1986a:233–236). Nevertheless, some inferences are possible regarding the dates when the superstructure of the barn associated with the cobble area was present, and therefore when the cobble area itself was present.

When Liberty Street was constructed in 1793 its proposed route was "through Capt. David Brown's land between his house and barns" (Concord Records n.d.). If the road was constructed according to this proposal, and if the location of the road has not changed, then the barn uncovered by Tremer could not have existed before 1793.

Since Brown's house was south of Liberty Street, his "barns" would have been north of the road, perhaps in the same place that they had been since 1752 (Chapter 3). Tremer (1973:40, 63) inexplicably suggested that the cobble area must have been built *after* the construction of Liberty Street because excavations revealed that it lay *under* Liberty Street. In addition to the misinterpreted stratigraphic relationship, this archeological data is ambiguous since Tremer's excavations did not abut Liberty Street as originally reported, but were adjacent to the stone wall. Since the wall's construction date is unknown, the stratigraphic relationship between the

cobbled area and Liberty Street remains uncertain.

There is some documentary data indicating that a barn might have been in existence sometime before 1821. If Joseph Brown's land in 1822 only existed south of Liberty Street as Malcolm claims (Chapter 3), then the "barn" mentioned in the sale of the property to Josiah Davis may be that associated with the cobble area. The construction of a barn with a cellar designed for composting manure at this time would not be inconsistent with the early 19th-century agricultural literature of the area. For example, in 1807 it was reported that:

> The *Middlesex Husbandmen* [of which many later 19th-century Concord, Massachusetts, farmers were members] say, that many open vaults or cellars under their stalls and stables, or dig vaults at one end of their barn yard, and collect in them, and particularly into hog-yards a variety of substances convertible into manure. (Massachusetts Society for Promoting Agriculture 1807:44)

On the other hand, there is also evidence suggesting that the barn may have been built after 1820 but before 1867. This dating hinges on the inference that the barn associated with the cobbled area was the "yellow barn," presumably also the Rhoades barn that was moved and subsequently attached to Simon Brown's barn to form the "twin barn" on the Keyes property. A post–ca. 1822 construction date for the cobble area and associated superstructure would also be congruent with other information regarding the "fiscal well-being"—more precisely the lack thereof—of the Brown farmstead in the late 18th and early 19th centuries. As Malcolm (Chapter 3) mentions and Gross (1984:4) has documented, from at least the 1790s until the sale of the property in 1822, the Brown farmstead continued to experience economic decline despite the overall increasing prosperity of its Concord neighbors. Given this, it seems highly unlikely that the Browns would have embarked on the construction of a new barn.

Analysis of the materials recovered from the cistern within the cobble area indicates that this debris represents primarily domestic trash dating to the mid-to-late 19th century (Tremer 1973:43, 48; Towle 1986a:234). It was suggested that this debris was deposited after the superstructure was "torn down" (Tremer 1973:43, 48; Towle 1986a: 234). Documentary evidence suggests that it was deposited at least after 1867. On June 25, 1867, Simon Brown wrote in his diary that "Bob threw the manure out of the Resovoir below the road." If the "Resovoir" refers to the "cistern" uncovered by Tremer (1973) in the cobble area, then the domestic debris recovered from the cistern would have been deposited after June of 1867.

Although previous researchers speculated that the superstructure once associated with the cobble area was "torn down," there is some documentary data indicating that it was moved instead. As Towle (1986a:273) has noted, in the late 19th century J. S. Keyes wrote that his brother George Keyes moved Simon Brown's barn and "the Rhoades barn north to the hill & made a twin barn of them" (1885:75). Since the cobble area is on what was once Rhoades' property, it is likely that the barn associated with the cobble area and the Rhoades barn are one and the same. Simon Brown's barn appears to have been located north of Liberty Street near his house (Figure 4-8) since, according to Malcolm (Chapter 3), Simon Brown's land was entirely north of the road. If the cobble area is the remains of the Rhoades barn and if Simon Brown's barn was located north of Liberty Street, then there is some documentary information regarding the events associated with their movement. From April 24, 1867—13 days after George Keyes purchased the Rhoades house—until August 9, 1867, Simon Brown recorded the following in his diary (Brown Diary):

> April 24, 1867—The men plowed all day yesterday on the R.lot behind the yellow barn...we cleared the barn cellar of some of its rubbish.
> April 25, 1867—Mr. Hosmer began on the yellow barn.
> May 3, 1867—Began to dig trench in which to lay the cellar wall for the yellow barn.
> May 16, 1867—The Carpenters got the barn started and moved it 40 feet.

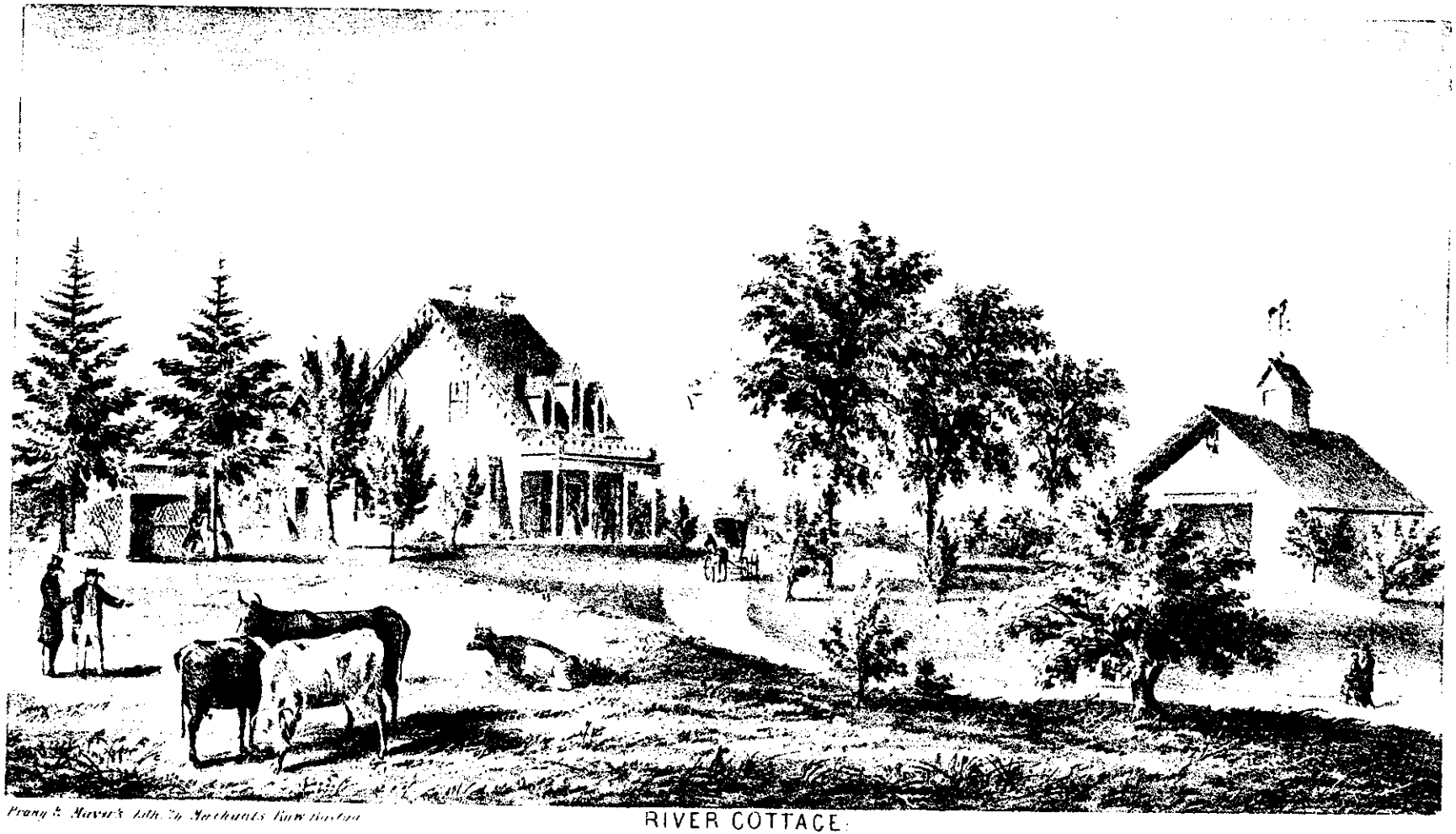


Figure 4-8. Simon Brown's house and barn in the mid-19th century, located north of Liberty Street (reproduced courtesy of Judy and Jonathan Keyes, Concord, Massachusetts).

May 24, 1867—Men got the barn on to the destined spot at 12 m.
May 27, 1867—Hauled manure from the old barn cellar.
June 12, 1867—The men are still at work on the barn, carpenters and stone layers, and things are seeming a pleasant shape.
August 9, 1867—Painter at work on the Barn.

In May of 1868 a plan of George Keyes's farm was made, which depicts the location of this yellow barn in addition to an adjoining carriage shed (Figure 3-5). Recent inspection of the east wing of the twin barn revealed that it once was yellow and was probably constructed after ca. 1820 (Towle 1986a:274; Orville Carroll, personal communication, 1988). The east wing measures 11.9 m (39 ft) east-west × 20.7 m (68 ft) north-south. The carriage shed depicted in Figure 3-5 currently connects this wing with what was presumably the Simon Brown barn. Unfortunately, there is very little data available about when Simon Brown's barn was moved. It is possible that it wasn't moved until approximately two years after the yellow barn was moved to its present site since it wasn't until April 5, 1869, that Simon Brown recorded the movement of another barn. On this date he indicated that "the men have got the barn off of the cellar, and are getting along fine with it" (Brown Diary).

ROAD

Two archeological investigations have been carried out to locate and identify the remains of the "Highway" or 18th-century road that existed just south of David Brown's house (Abel 1965; Tremer 1973). In 1964 and 1965 Abel (1965) conducted excavations to locate the subsurface remains of the east (i.e., Groton) and west (i.e., Acton) branches of the road and the causeway for the purpose of providing information necessary to "recreate the historic scene and for interpretation of events" in this area of the North Bridge (Abel 1965:1). Before the investigations were conducted, Abel (1965) delimited the possible route of the roads and the causeway using three 18th-century maps (Abel 1965:14). Subsurface investigations consisted of the excavation of a series of shallow trenches (Abel 1965:17). Although distinct traces of a roadway were uncovered in the areas where the causeway and east branch of the road were predicted to be, only "indistinct" evidence of a road surface was uncovered in the area where the west branch was expected to be (Abel 1965:32–37). According to Abel (1965:32), evidence of the west branch of the road consisted of a thin layer of hard-packed soil, 22 ft wide, located directly in front of the opening in the extant fieldstone wall that forms the western boundary of the David Brown site. Since it was assumed that this opening existed in the 18th century, the alignment of the hard-packed soil with this opening was used to suggest that this was the remains of the west branch of the 18th-century road (Abel 1965:31–32).

Charles (1986) assessed Abel's (1965) findings and interpretation. As a result of this assessment, Charles (1986:129) suggested that the indistinct nature of the road uncovered in front of the wall opening, in conjunction with the lack of documentary evidence about the date of the wall opening, indicated that Abel's (1965) efforts to locate the subsurface remains of the west branch of the 18th-century road could not be "verified."

Tremer (1973:49) also conducted excavations to locate the subsurface remains of the west branch of the 18th-century road. These investigations consisted of the excavation of a 90-ft "test trench" south of the house remains (Tremer 1973:50). The placement of this trench was based on the invalid assumption that the road was located "one pace" from the house (Tremer 1973:49). According to Tremer (1973:50), no subsurface remains of the road were uncovered as a result of the excavations. Tremer (1973:50) suggested that the lack of evidence did not indicate that the road was not located in the area tested, but that it "probably" was not detectable archeologically since there was "no appreciable road bed preparation."

Methods

Archeological investigations were conducted by this project to determine the presence or

absence of the remains of a house and the 18th-century road. Archeological expectations were generated, field investigations were conducted, and analysis of the data was carried out according to the project-wide, multistage strategies outlined elsewhere (Chapter 2).

Archeological Expectations

Archeological expectations at the David Brown site were developed for a house and a road. These expectations were generated on the basis of the known or predicted physical characteristics of these features, the activities associated with their use, and the uses to which the site was put after it served as a residence. Site-specific documentary and archeological data, as well as information from other sites within MIMA and elsewhere in New England, were used to develop the archeological expectations.

HOUSE

As discussed above, if the house remains uncovered by Tremer (1970, 1973) are the remains of the 17th-century Brown house, and if a "new" house was constructed ca. 1752/55–1768 as the documentary data imply, then the remains of the later house should exist (Chapter 3; Malcolm 1985:121–122; Towle 1986a:153–280). The "new" house would be the one occupied in 1775. Based on changes in the description of David's mother's (i.e., Hannah's) portions of the estate in the 1752 and 1768 probates, Malcolm (Chapter 3) suggested that the remains of the post-1752/55 house should be located behind (i.e., north) or to the west of the house remains uncovered by Tremer (1973). In contrast, Towle (1986a:256) predicted the location of this "new" house to be "10 feet south of Liberty Street, and approximately 220 feet southwest of the site excavated by Tremer" (Figure 4-9), based on the predicted location of the S. H. Rhoades house (Figure 4-10) on today's landscape. These predictions are based on the assumption that the Rhoades house and the later David Brown house are one and the same (Towle 1986a:260). Malcolm's research (Chapter 3) demonstrates that this is most likely the case. As discussed in Chapter 3, the Rhoades appear to have owned and occupied David Brown's house from 1849 to 1867, after which the house was sold to George Keyes. According to Simon Brown's diary, the Rhoades house was carefully dismantled and its cellar rapidly filled in 1867–1868. Therefore, if the Rhoades house was indeed the post-1752/55 David Brown house, then it is this house rather than the one uncovered by Tremer (1973) that the Simon Brown diary describes.

As Simon Brown noted in his diary, although the Rhoades family abandoned the house south of Liberty Street on May 11, 1867, it wasn't until September 7 of 1867 that the dismantling of the house began. On that date Simon Brown noted that the workmen began "the demolition of the Old Red house by taking down a portion of the chimney" (Brown Diary: September 13, 1867). The bricks were apparently to be reused since Brown recorded that the chimney bricks were cleaned after they were removed (Brown Diary: December 13, 1867). From December 14, 1867, until January 28, 1868, the interior of the house was gutted (Brown Diary: December 14, 1867, January 13, 14, 28, 1868) so that the frame could be dismantled and sold. Brown suggested that the Rhoades house had been constructed some time previously since, in the process of gutting the house, he observed:

> Old as the house is, when built it was made up, in considerable part, of old materials, for many of the timbers have old mortices, and on taking off the laths, I found some of the weather boards painted and others entirely rotten. Some of the *lathes are white oak*, shaved, others thin boards, split, and others, still, old clapboards, and pieces of thin pine! (Brown Diary: January 2, 1868 [emphasis added])

Brown also suggested that the house was of considerable age since one of his workman found "...an English coin...dated 1736...in the Red House" (Brown Diary: January 28, 1868).

The boards of the house were also most likely destined to be reused since Brown noted that he spent some time "taking nails out of the boards" (Brown Diary: January 17, 1868). The dismantling

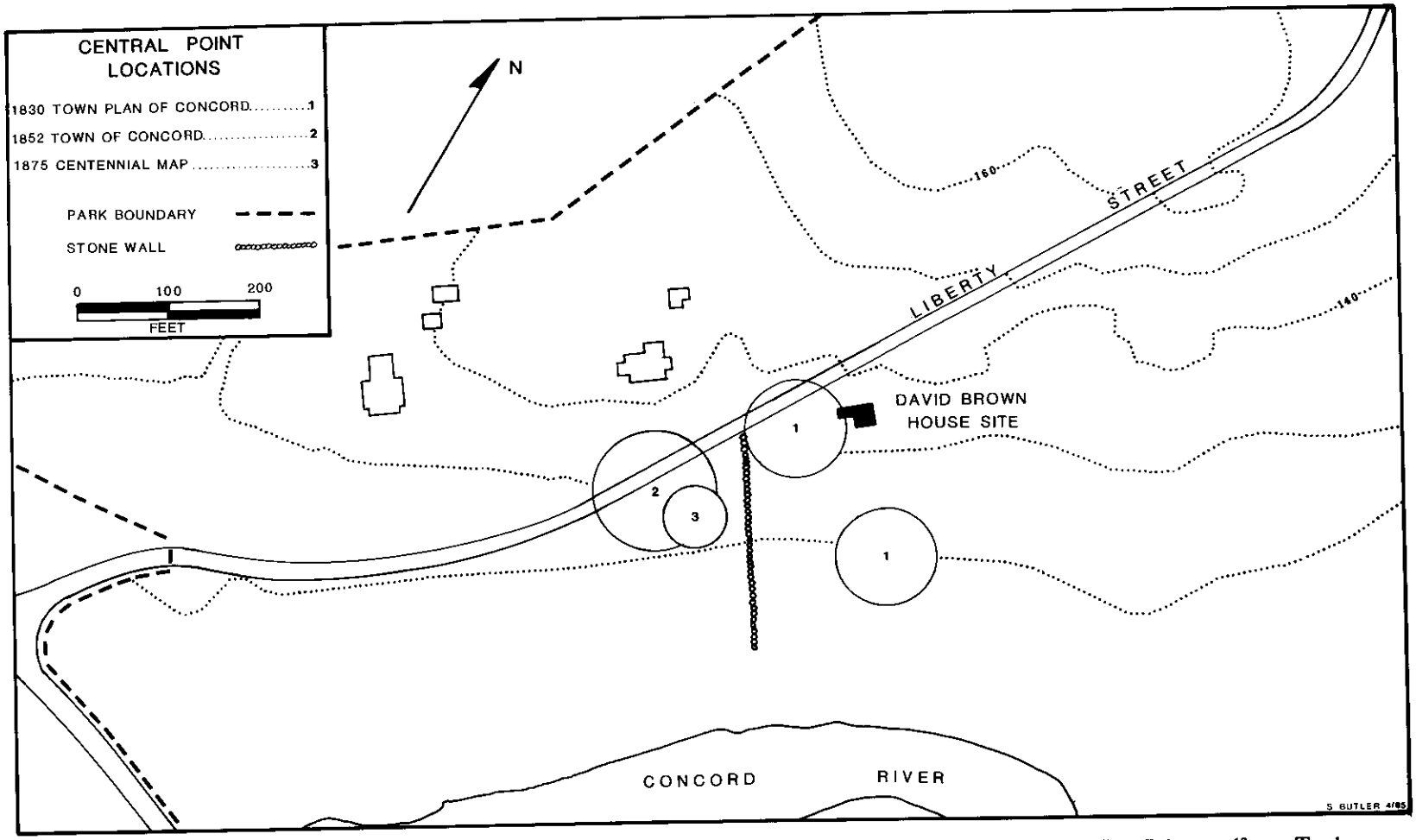


Figure 4-9. ACMP map of the David Brown site area showing the results of triangulations to locate the "new" house (from Towle 1986a:figure 20.41).

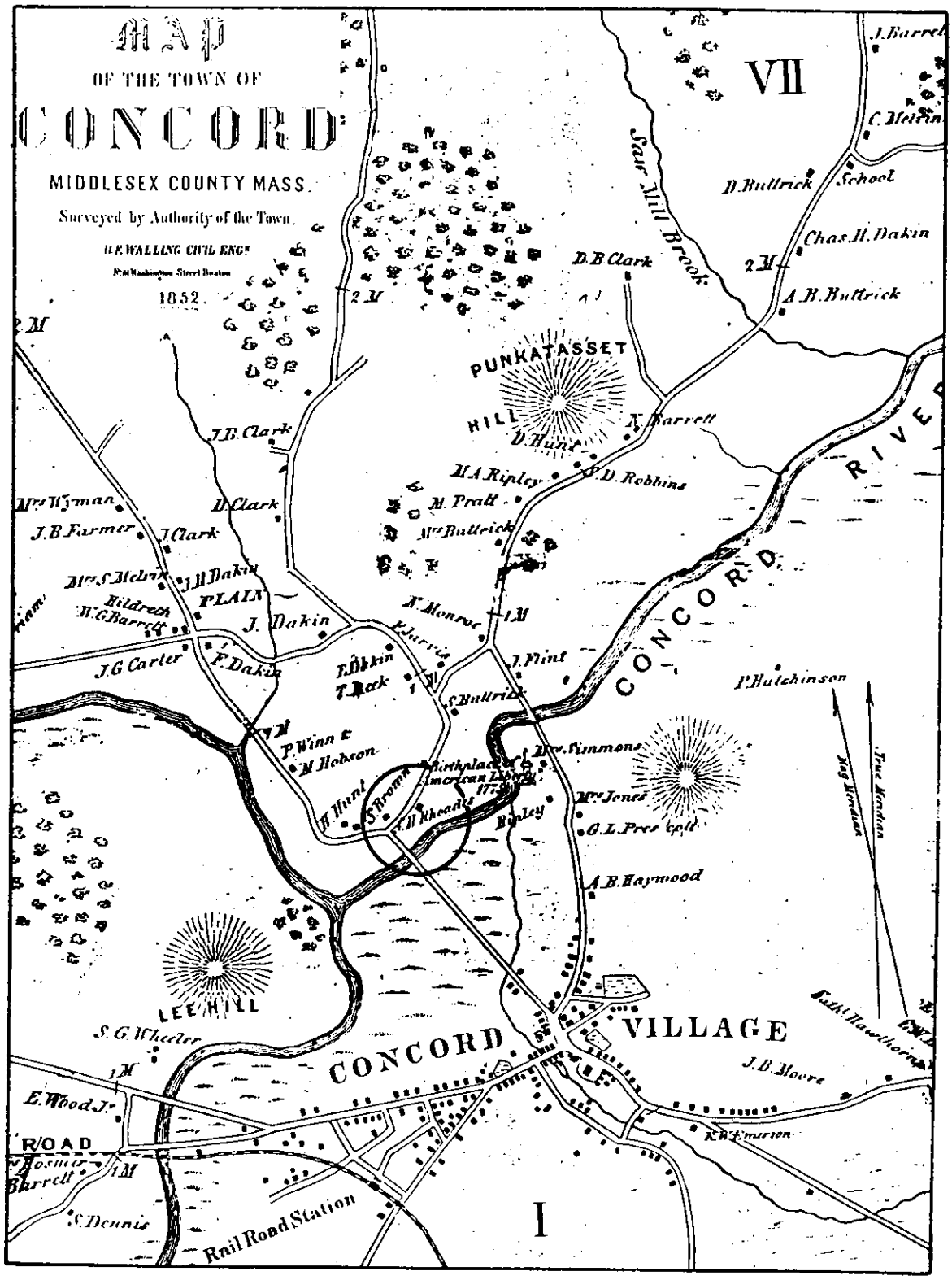


Figure 4-10. 1852 H. F. Walling map of the town of Concord. The S. H. Rhoades house is located just north of the Concord River on the south side of Liberty Street in the circled area of the map (on file, Cary Memorial Library, Lexington, Massachusetts).

of the outside of the house began sometime before February 8, 1868, and the superstructure was completely dismantled by March 23, 1868, when the frame was sold for "$15.00."

After the house was dismantled, the cellar was left either partially or completely open until October 16, 1868, when Brown recorded that "We began to fill the cellar over which the old Red House stood, yesterday, & continued working upon it today." As Towle (1986a:appendix 20.2) notes, the last mention of the Rhoades home appears in the April 22, 1869, entry in which Brown recorded that the "men cleared up over the Old Rhoades' house cellar, manured it, and got it ready for sowing."

Based on the above, the most substantial and therefore most archeologically visible evidence of the hypothesized David Brown-Rhoades house should be its cellar. This cellar should be either square or rectangular in shape and range in size from at least 2.7 to 5.5 m north-south and from 2.7 to 4.6 m east-west, based on the current empirical data of house cellar sizes within MIMA. The cellar may be much larger than this, however, since it was in use until 1867 and therefore possibly expanded upon at some point in time. The cellar is expected to be oriented on an east-west axis. The walls of the cellar should consist of several courses of dry-laid fieldstones. A builders' trench may also exist adjacent to the exterior of the cellar walls. If one does exist, and the original cellar walls have not been altered, then the debris within the trench should postdate ca. 1752/55 given the hypothesized construction date of the house. The floor of the cellar should either be dirt or paved with flat, unmortared fieldstones. An earthen or fieldstone chimney base should exist (e.g., Cummings 1979:118; Charles and Towle 1986: figures 18.11, 18.12).

The cellarhole fill should consist of both building-related and domestic debris that predates ca. 1870, and should reflect a relatively rapid deposition. The predominant building-related materials should be fieldstone rubble from the cellar's walls and brick from the chimney. Few whole bricks are expected since the documentary data imply that they were reused off-site. Nevertheless, a distinctive gray clay should be found in the cellarhole, possibly in association with some of the bricks. Gray clay was probably used to mortar the bricks of the chimney inside the house (Cummings 1979:119, 122). Smaller amounts of fragmentary nails, window glass, and other building-related debris should also exist. No timbers of the house's superstructure are expected since the documentary data indicate that the frame of the house was carefully dismantled, and then sold and removed from the site. In addition to these materials, other on-site and off-site debris should be present within the cellarhole. On-site fill should consist primarily of the building-related debris just mentioned and other kinds of fragmentary artifacts (e.g., ceramics). Off-site fill should consist primarily of humic materials and perhaps artifacts as well. Off-site materials are expected since the use of the site's fertile humic material as fill would have effectively stripped the site of much of its agricultural potential. This expectation is not considered unreasonable since there was wide-spread concern about the depletion of the soil's fertility throughout the 19th century, especially in many parts of eastern Massachusetts. Much of this concern was expressed by "The Middlesex Husbandmen and Manufacturers" society (Donahue 1983), which held its annual show in Concord throughout the 19th century beginning in 1820 (Shattuck 1835:231). It is not unreasonable to expect that Simon Brown would have been concerned with this issue since he was editor of the *New England Farmer* and the founder of the "Farmer's Club," which was active in the development of commercially oriented agriculture (Wheeler 1964:114) in Concord.

If a post–ca. 1750 house indeed exists, then the upper portions of its cellar walls and quite possibly its fill were altered. These alterations would be the result of a number of post-residential activities.

POST-RESIDENTIAL LAND ALTERATIONS

CULTIVATION

Shortly after the purchase of the Rhoades property on April 11, 1867, portions of the site

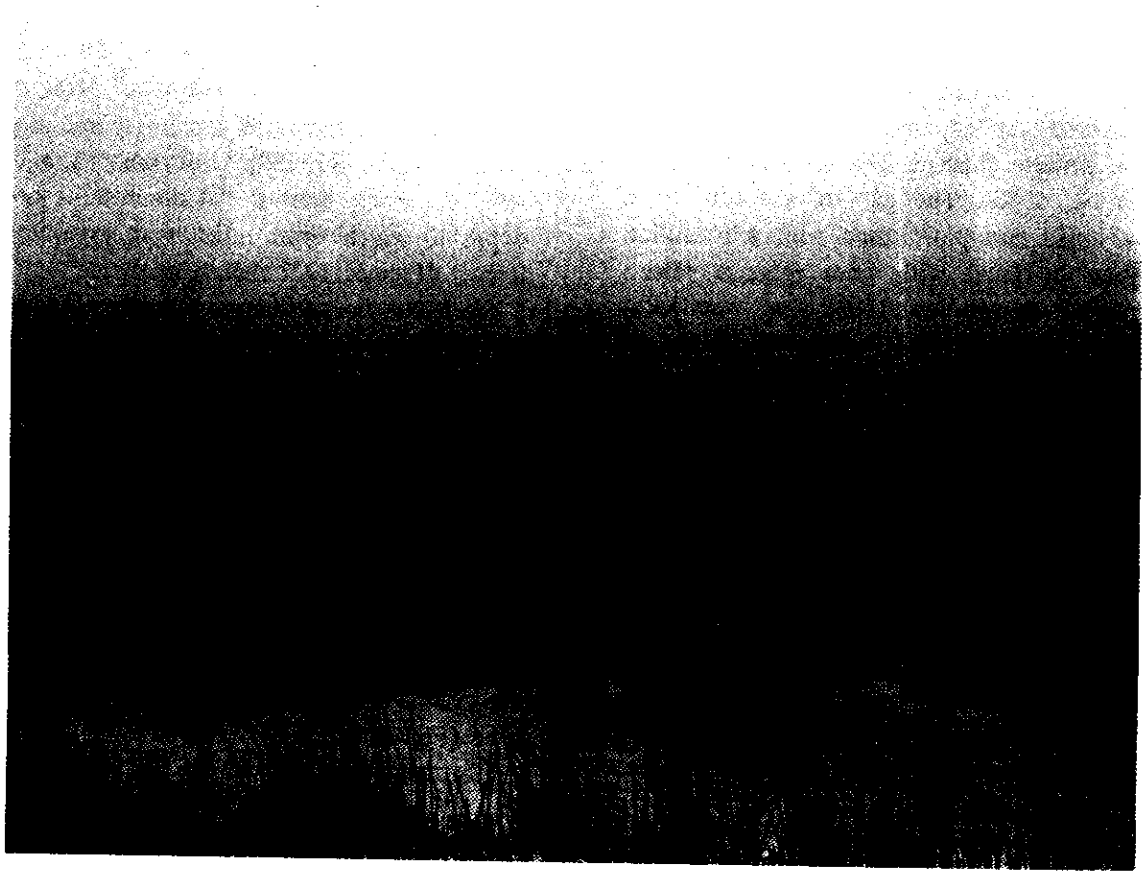


Figure 4-11. Photograph of Battle Lawn and its hay field taken sometime between 1883 and 1907. The David Brown site is on the left side of the photograph (reproduced courtesy of the Concord Free Public Library).

may have been plowed several times before the Rhoades house was abandoned, dismantled, and its cellar filled. For example, on April 27, 1867, Simon Brown noted that his workmen "Plowed in Rhoades piece below the road harrowed, leveled." Although it is uncertain precisely where this occurred, it is probable that the activities occurred on at least a portion of the David Brown site given our knowledge of the Rhoades property boundaries (see Chapters 3 and 6).

When the house cellar was filled on October 16, 1868, the area "around" the cellar was plowed "for several hours with oxen." Approximately six months later, grass seed was planted "where the Rhoades house stood" (Brown Diary: April 24, 1869). Unfortunately, the precise length of cultivation and the crops that were cultivated are unknown. As noted above, the site was plowed, harrowed, and then sowed with grass seed. Although the amount of plowing associated with this cultivation is unknown, the pollen data (Chapter 5) suggest that plowing was probably not done for any great length of time. These data support other 19th-century documentary information (Donahue 1983), which suggests that frequent plowing of river meadows was unnecessary because flooding provided the constant renewal of its soil fertility. Sometime in the late 19th and early 20th centuries the site was used as a hay field (Figure 4-11).

The extent to which the site was cultivated during the 20th century is also unknown. The only documented occurrence of plowing was in 1976 when MIMA initiated an interpretive program for Concord school children in which they planted, tended, and harvested a colonial kitchen garden (Margie Hicks, personal communication, 1983). The garden was first tilled with a horse and plow, then with a rototiller, and then by hand with hoes (Margie Hicks, personal communication, 1983). The exact location of the 20 ft × 40 ft garden is not known but it appears to have been located "directly in front of the David Brown house site" (Margie Hicks, personal communication, 1983; see Figure 4-12). This would place a portion of the garden in an area of the site excavated and designated "Area 14 Test Trench" by Tremer (1973).

CELEBRATION

In 1875 the Centennial Celebration was held at the North Bridge area. As Towle notes (1986a), the documentary (Little 1974) and photographic evidence (Figure 4-13) indicate that a large tent, supported by numerous poles, was set up to seat and serve dinner to 4,400 people (Towle 1986a). Although the exact location of the tent is not known, it appears that a portion of the tent was on the David Brown site (Little 1974).

ARCHEOLOGY

By far the most extensive subsurface disturbances to the David Brown site are the result of archeological investigations conducted by Tremer (1970, 1973). Abel's (1965) excavations in search of the west branch of the 18th-century road also resulted in subsurface disturbances to a portion of the site.

As discussed earlier, Tremer (1970, 1973) spent two seasons excavating the David Brown site to locate the remains of the house that the Browns occupied in 1775, the west branch of the 18th-century road, and any other associated site features. According to Towle (1986a:181), at least 48 units were excavated. Although most of these units appear to have been located either within or adjacent to the remains of the house or the cobbled area, only seven units have been identified (Towle 1986a:181). Excavation units consisted of both test trenches, "areas," and "rooms." These units, as well as "features," (e.g., cistern and well) were excavated separately and as single units (Towle 1986a:159). Unfortunately, and with few exceptions, neither the dimensions nor the depth to which these units were excavated are known (Tremer 1973:artifact analysis).

To locate the subsurface remains of the house, test trenches were excavated 25 ft apart in the northern part of the site (Tremer 1970:2; 1973:53). The exact number of trenches is unknown, although less than seven seem to have been excavated (Tremer 1973:53). The width and length of these trenches, as well as the depth to which they were excavated, are also unknown. After finding one of the walls of the house cellar, test trenches and test "areas" were used to completely excavate the remains of the cellar and the cobble area, which was also located at this time (Figure 4-12).

To locate the remains of the west branch of the 18th-century road, a test trench was excavated immediately south of the house remains (Figure 4-12). This trench (Area 14) was 10 ft wide and 90 ft long, and was excavated to a depth of 12 in; every 10 ft "deep profile[s]" were excavated (Tremer 1973:50). According to Tremer (1973:50), no subsurface remains of the road were found.

A well was located "approximately 35 feet to the southeast of the main structural foundations" and was partially excavated (Tremer 1973:49). Although the size of the area that was excavated adjacent to the well is unknown, an area "approximately 10 feet in diameter" (Tremer 1973: 49) around the well was probably investigated. This area consisted of stone rubble (Tremer 1973:49). Because it is unknown whether these stones were removed, the depth to which this area was excavated is unknown.

At the completion of excavations, the house remains, the cobble area, and all excavation units were filled or covered with the soil that had been

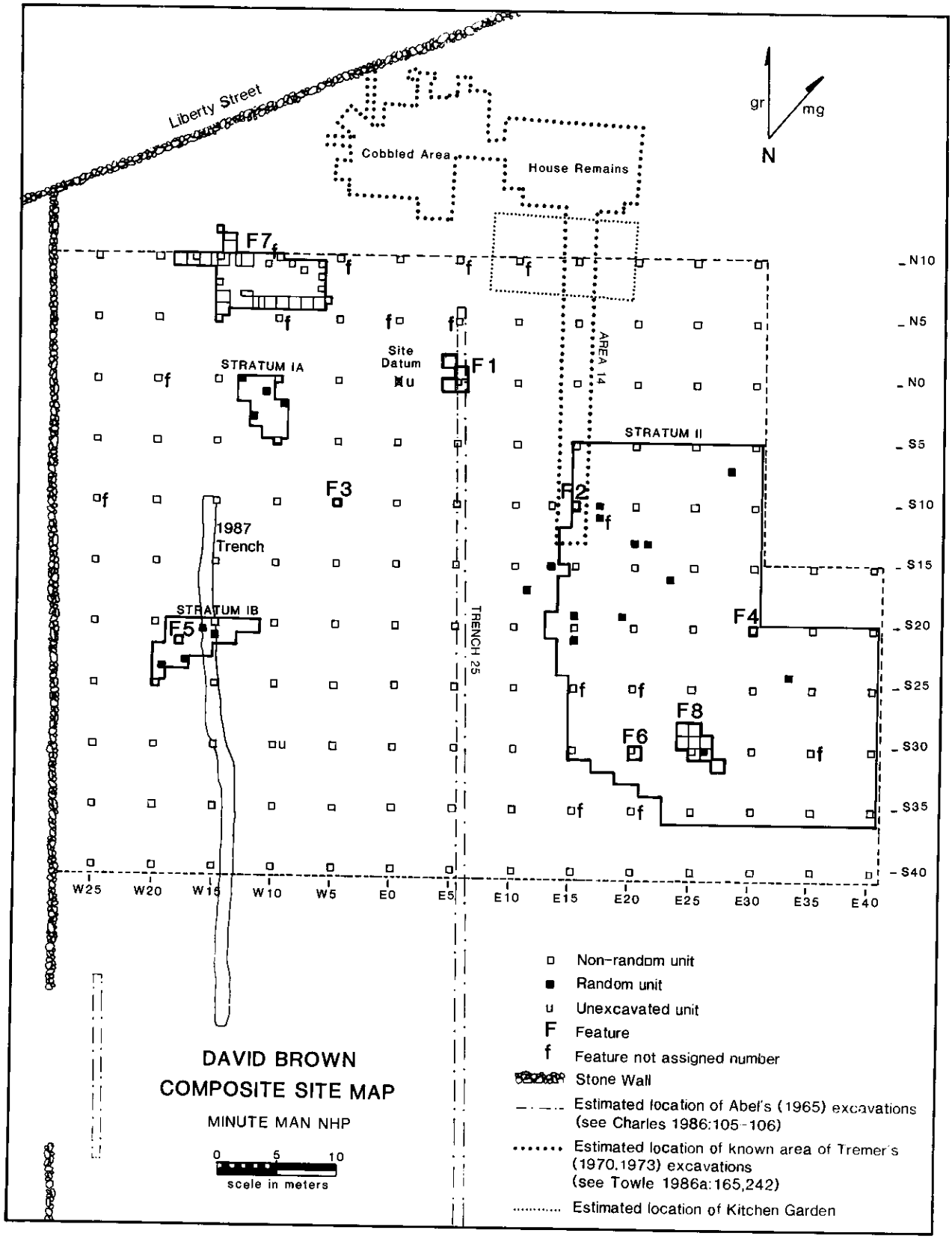


Figure 4-12. David Brown composite site map showing STPs, EUs, trenches, and features.

Figure 4-13. Stereoscopic photograph of the 1875 dinner tent on the David Brown site, looking southwest from Liberty Street (reproduced courtesy of the Society for the Preservation of New England Antiquities, Boston).

excavated from them. A fence was erected around the house remains, and an interpretive plaque was placed south of the house foundations. Stabilization of the house foundations, which consisted of trimming the vegetation from the foundation, excavating the soil from the house cellar, and replacing it with crushed stone, was conducted in 1979 (Bleacher 1979).

As mentioned above, in 1964 and 1965, Abel (1965) conducted archeological investigations to locate the subsurface remains of the causeway, as well as the east and west branches of the 18th-century road, which would have been present in 1775. One trench (Trench 25), designed to locate the remains of the Acton road, was excavated within the boundaries of the David Brown site (Figure 4-12). According to Abel (1965:32), only "indistinct" traces of the road were located.

Precise information about the trench location and dimensions does not exist (Charles 1986;

Towle 1986a). Trench 25 was reported to have been "centered midway between the two wall junctures" (Abel 1965:31) and appears to have been approximately 55 ft long. The exact depth to which this trench was excavated is also unknown, although it must have been excavated to a depth of at least 10 in since the remains of the road were found at this depth. Subsequent to the excavations, all of the trenches that Abel excavated were filled, presumably with their own backdirt.

Each of the activities mentioned above has had an impact on the character of the archeological remains in the areas that were investigated by this project. While the precise effects of these activities on the site's archeological remains cannot be predicted, some general effects are anticipated. Some of the activities are expected to have had more widespread or significant effects than others. The most widespread and probably the most significant effects occurred between 1867 and 1869 when Simon Brown converted the property's use from a residential to an agricultural one. Also significant, albeit more localized, are the activities associated with the cultivation of the kitchen garden and the archeological excavations at the site.

The change in the site's use from a residential to an agricultural one resulted in widespread and significant surface and subsurface changes. As discussed above, these included the dismantling of the Rhoades house, the movement of the yellow barn, the filling, leveling, and plowing of the area, and the removal of materials from the site.

The effects of the leveling that occurred prior to the demolition of the house are uncertain since the location and the extent, both spatial and vertical, of this activity are unknown. Similarly, the precise effects of the plowing and harrowing that were conducted at the site are unknown. Nevertheless, some general effects can be offered here based in part on field observations and in part on the results of recent experiments concerning the effects of plowing on certain aspects of the archeological record. The effects of plowing on the house, save its upper levels, are expected to be relatively negligible. On the other hand, it is expected that the plowing and leveling of the ground surface has altered or destroyed shallower subsurface features (e.g., small or ephemeral structures, enclosures, gardens, and trash receptacles), the remains of the west branch of the 18th-century road, and any "sheet refuse" in the yard areas. For example, on May 25, 1869, Brown noted in his diary that he "Plowed up what we used as a road across the field last year" in "Battle Field."

Recent experiments indicate that tillage with currently available machinery can have a profound effect on the lateral and vertical displacement of artifacts on a site, thereby preventing the identification of meaningful spatial and temporally discrete depositional units (Odell and Cowan 1987; Rowlett and Robbins 1982; Stockton 1973). While the results of these experiments are useful for sites that have been subjected to plowing with modern tillage equipment, the results may not be applicable to sites such as the David Brown site where the cultivation was conducted with quite different tillage equipment (e.g., 19th-century plows and harrows, and 20th-century rototillers).

As noted above, the activity that has resulted in the second most significant change in the character of the archeological remains in some areas of the site is the previous archeological excavations that have been conducted prior to this project's investigations. In general, the effects of previous archeological excavations consist of both the removal of artifacts and the destruction of the stratigraphic context in which these artifacts were found. As discussed above, while the location and extent of excavation are known in some areas of the site, in other areas they are not. Therefore, while some areas of the site were excluded from archeological investigations by this project, others were not. For example, since it was determined that previous archeological investigations significantly disturbed the area within the house remains and the cobbled area uncovered by Tremer, these areas were not archeologically investigated. On the other hand, since it was uncertain precisely where, or in some instances to what depth, previous excavations

were conducted, other site areas were not excluded from this investigation.

ROAD

The east and west branches of the 18th-century road south of the David Brown house were constructed by at least 1699 (Abel 1965:5) and abandoned in 1793 when present-day Liberty Street was laid out (Chapter 3).

Although the characteristics of 19th-century roads in New England are relatively well-documented, characteristics of 18th-century roads are not (Parks 1966). Therefore, documentary information regarding the construction, maintenance, and known modes of transportation during the early 19th century, coupled with information from previous archeological investigations on 18th-century roads within MIMA, were used to generate the archeological expectations for the 18th-century road on the David Brown site. Current data suggest that the most common attributes of roads include ruts, a crown, and possibly ditches, or "potholes," produced by wheeled vehicles. This is not to imply that wheeled vehicles were the most common form of transportation throughout the 18th century. Indeed, as Parks (1966:11) has indicated, horseback and wooden sleds (both in the summer and winter) were commonly used throughout New England until the third quarter of the 18th century when wheeled vehicles became more frequent for both local and long distance travel.

Ruts, produced by the wheels of animal-driven vehicles according to one early 19th-century account (Parks 1966:10), were a common and treacherous feature of New England roads. In general, ruts should appear as soil depressions approximately 1.5 m (5 ft) apart, which is the width of an axle of an ox cart, one of the most common forms of transportation (Kirkorian and Zeranski 1981:8).

A crown, or a series of crowns, should exist between the ruts. The crown is the area between the wheels of a vehicle and should be exhibited as a slightly raised area between the ruts. Ditches, evidenced as soil depressions adjacent to the sides of the road, sometimes existed for the purpose of providing proper drainage. Potholes, depressions in the road surface due to the road's constant use, may also exist. According to the early 19th-century account mentioned above (Parks 1966:10), "chasms," that is potholes, often filled with "piles of stones," were a prevalent attribute of New England roads. These depressions may contain soil of a slightly different color and texture and/or rocks (Synenki 1985:21).

Construction materials of 18th-century roads varied widely, depending primarily on environmental conditions and available materials. Indeed, archeological data from previous investigations at MIMA exhibit this variation (Synenki 1985:table 1). Archeological data from areas adjacent to the David Brown site indicate that a cobbled surface was used in swampy, low-lying areas (Abel 1965:plate 7) while a compact, yellow sand was used in slightly higher elevations. Road widths in this area of MIMA varied from 7 to 22 ft.

Subsurface evidence of these attributes may exist at the David Brown site. On the other hand, it is possible that they may have been significantly altered, if not destroyed, by the post-residential activities discussed above.

Field Methods

Based on these expectations, archeological field investigations were conducted. The field investigations consisted of a systematic walkover, a geophysical survey, an intensive survey, and limited site examination. Prior to the actual field investigations, a review of the previous research—documentary and archeological—and an inspection of the aerial photographs of the area were conducted. The previous research was discussed earlier. Aerial photographs (black-and-white, color, and infrared) taken at various times (e.g., 1938, 1954, 1957, 1963, 1964, 1981, 1984) do not display any large anomalous areas that may be indicative of the subsurface remains of a house, or a linear anomaly that could be indicative of a road. The 1957 aerial photograph did show, however, that a dirt path existed across the site in that year.

SYSTEMATIC WALKOVER

The systematic walkover was conducted prior to the geophysical survey and the subsurface investigations in the spring of 1985. The purpose of the walkover was to locate any vegetational anomalies or recent ground disturbances that might exist, and to evaluate the suitability of the site for a geophysical survey. No vegetational anomalies or visible signs of ground disturbances were identified. The site was also deemed suitable for a geophysical survey.

GEOPHYSICAL INVESTIGATIONS

From September through October of 1985, a magnetometer and resistivity survey was conducted at the David Brown site. In preparation for this survey and the subsequent subsurface excavations, grid north and site datum were determined, and the site boundaries were established. Grid north, which was aligned with the currently marked David Brown house foundation, is 345°8'40" east of true north. A permanent concrete and copper datum was installed. Geophysical investigations of a 65 m × 50 m area were conducted.

While the utility of geophysical investigations has been established for some areas (Weymouth and Huggins 1985; Weymouth 1986), it remains to be demonstrated for areas such as New England (Gumaer et al. 1983). Recent applications of these techniques in New England (e.g., Gumaer et al. 1983; Weston Geophysical Corporation 1980) suggest, however, that their utility is promising, especially when they are used in conjunction with other site survey and examination techniques. A magnetic and resistivity survey was conducted within the Brown homelot to locate the subsurface remains of the hypothesized post-1752/55 house, and possibly the subsurface remains of the 18th-century road. Both techniques were believed to have the potential for identifying the house and road for the following reasons. First, as discussed earlier, abandoned house cellars within MIMA frequently consist of a fill that is composed of a dense concentration of demolition debris (e.g., fieldstones, chimney bricks, and other building-related materials), domestic materials (e.g., ceramics), and humic material, all of which may have a high ferrous content. It is expected that the ferric content of the yard deposits will differ from that of the cellar fill. The fill's porosity and moisture content is expected to vary according to the amount of demolition debris that is present, but also according to the amount of its humic content and the grain size of its soil matrix. The magnetometer should detect these differences because it measures magnetic differences due primarily to ferrous content (e.g., metal objects, burned clay, rocks, or soil), contrasting soil compaction, and humic decomposition (Bevan 1984:291; Weymouth and Huggins 1985:191). While the ability of the magnetometer to detect the remains of historical-period house cellars remains to be demonstrated (Bevan 1983:50), its utility for detecting the demolition debris of other kinds of historical-period structures seems clear (Sopko 1983). A resistivity survey is also expected to detect the difference between the cellar fill and the yard areas because of the expected contrast in soil water and ion content, as well as the structure and porosity of the deposits' contents (Weymouth 1986:314–320).

The magnetometer and resistivity instruments could also indicate the location of the 18th-century road for reasons similar to those just described. As discussed earlier, the 18th-century road in this area was most likely constructed of either cobbles and/or a compact yellow sand. In either case, the resistance between the subsurface remains of the road and its surrounding deposits should be different. If the cobbles or sand have a high ferrous content, then the magnetometer should detect a difference in magnetism between the road and its surrounding deposits. As discussed earlier, however, extensive alterations to the site did occur, especially after ca. 1867 when the property's use was converted from a residential to an agricultural one. Such alterations may have significantly disturbed or even destroyed any remains of the road and may therefore prevent any detection of it by the magnetometer or resistivity instruments.

A second reason that these two geophysical

techniques were chosen was that the current environmental setting of the David Brown site appeared to be relatively suitable for their use. With the exception of the southern portion of the site, neither significant natural (e.g., sandy soil, irregular topography, bedrock) nor man-made (e.g., power lines, modern ferrous objects, agricultural fertilizers) factors that can affect resistance or magnetism (Weymouth 1986: 345–346) are present. The southern portion of the site often floods during the spring. Since the geophysical survey was conducted in the fall after a relatively dry summer, this factor was not expected to affect the values greatly. In addition, because the site is an open field, the efficiency of these two techniques was considered to be relatively high.

The electron resistivity equipment that was used consisted of a Gossen Geohm 3 battery-powered meter and four metal chaining pins. The system configuration was a four-point Wenner array. The four probes were spaced 50 cm apart and were inserted approximately 15 cm beneath the ground's surface. Data values were gathered every meter on the east-west axis, and every 5 m on the north-south axis. This spacing was chosen because it was considered adequate, given project time constraints, for revealing potential anomalous areas of the site that might reflect the location of the house and possibly the 18th-century road. A total of 659 resistivity values was gathered.

The magnetometer survey was conducted with a GeoMetrics G-856 proton magnetometer, which consisted of a portable console with body harness and a collapsible aluminum staff with attached sensor. Magnetometer values were gathered every 5 m from datum. Sensor height was set at 1.2 m and its orientation was held at magnetic north. A total of 169 data values was gathered. The site's datum was used as a control location since only one magnetometer was used. At the completion of every east-west transect, a reading was taken at the control location to record and account for diurnal changes throughout the day.

As a result of the resistivity survey, three anomalous areas (Strata IA, IB, and II) were located (Figure 4-12). Stratum I includes relatively high resistivity values (281–383) that are spatially concentrated in two areas—A and B—in the western portion of the site, whereas Stratum II includes relatively low resistivity values (35–68) that are spatially concentrated in the eastern portion of the site (Figure 4-12). The magnetometer values in these strata were no different than the values in adjacent units. Subsequent subsurface investigations in these strata failed to uncover the remains of the hypothesized post-1752/55 house or the remains of the 18th-century road, although Features 6 and 8 could be the remains of the latter (Figure 4-12). The magnetometer survey revealed the likely location of the house (Feature 7 on Figure 4-12).

INTENSIVE SURVEY

Subsequent to the geophysical investigations, an intensive survey was conducted during June, July, and August of 1986. This phase consisted of subsurface investigations of Strata I and II, and the systematic testing of the entire site using STPs measuring 50 cm × 50 cm at 5-m intervals (Figure 4-12). This strategy was considered to be an efficient and effective means of both investigating and determining the presence or absence of the remains of the post-1752/55 house in this study, as well as historical-period cellars within MIMA as a whole (see Chapter 8). The STPs were located where the magnetometer readings were taken in order to facilitate comparison of these different "discovery techniques."

Given time constraints, a random sampling procedure was used to investigate Strata IA, IB, and II. A 10.5% sample of Stratum IA and an 8% sample of Stratum IB was used. Given the large size of Stratum II, and existing time constraints, a 1.8% sample of the area was decided upon. A total of 163 STPs was excavated. As a result of these investigations, the remains of the post-1752/55 house cellar (Feature 7) and a number of other features were located.

LIMITED SITE EXAMINATION

Limited site examination of the house cellar (Feature 7) and several of the other features was

conducted from July to November of 1986. The purpose of these investigations was to gather information essential for determining the characteristics, date(s), and integrity of the house cellar as well as the other features that were uncovered. Limited site examination consisted of the judgmental placement and excavation of 1 m × 1 m, 1 m × 50 cm, and 50 cm × 50 cm units. Subsequent to the initial identification of the cellar fill, a total of 14 units measuring 1 m × 1 m, 4 units measuring 50 cm × 1 m, and 9 STPs were excavated. All units encompassed by the house cellar (Feature 7) and the large deposit of demolition debris (Feature 1) were filled with sterile sand at the completion of the excavation. The sand was used so that the remains of these two features could be quickly located in the future for additional research. Sand was also used to assist in the preservation of the remaining portions of the cellar (Thorne, Fay, and Hester 1987:26).

In addition to the above subsurface investigations, three trenches—one at the David Brown site and two at the neighboring Jonas Bateman site (Chapter 6)—were excavated with a backhoe in June 1987 to locate the remains of the west branch of the 18th-century road (Figure 4-12). As mentioned elsewhere, (Chapter 2), backhoe trenches appear to be an effective method for determining the presence or absence of historical-period roads and their characteristics. Although the remains of the 18th-century road were likely located on the Jonas Bateman site (Chapter 6), no subsurface evidence of the road was located on the David Brown site save perhaps Features 6 and 8.

The trench excavated at the David Brown site was approximately 1 m wide × 56 m long. The trench was oriented in a north-south direction and was located approximately 18 m east of the stone wall that forms the western boundary of the site (Figure 4-12). This trench exhibited a "normal" stratigraphy for the site: a plowzone deposit resting on glacial sand. The only stratigraphic aberration identified during the trenching was located at S44W19–S49W19 where 10–28 cm of fill were present on top of an organic-appearing deposit. The fill was a very pale brown (10YR8/4). Given its relative stratigraphic placement, it seems likely that the fill was deposited very recently. One possibility is that it was deposited in 1965 by MIMA to indicate where Abel (1965) suspected the 18th-century road once existed. Sand was used to mark the route of the eastern branch of the 18th-century road based on Abel's (1965) archeological excavations.

Results

Archeological investigations of the David Brown site appear to have uncovered the remains of the Rhoades house and therefore most likely the remains of the house that David Brown and his family occupied from ca. 1752/55 to 1832. As predicted, these remains exist southwest of the ones uncovered by previous investigations. If the remains uncovered by the present investigations are those of the house that the Browns resided in ca. 1752/55, then the house remains uncovered by previous archeological investigations (Tremer 1970, 1973) are those of the "old House" mentioned in Hannah Brown's (David's mother's) probate (Middlesex Probates #3003)—and hence the house that was occupied by generations of Browns from ca. 1644 to 1752/55. No evidence of another house cellar, a barn cellar, or the conclusive remains of any other buildings were uncovered within the area investigated. In addition to the house remains, several other features were uncovered, two of which may be the remains of a cobble roadway like the one uncovered south of the site as a result of previous investigations (Abel 1965). The date of this possible road is uncertain. With the exception of one possible prehistoric feature, all features date to the historical period. In addition to the fill within the interior of the house cellar (Feature 7) and a large deposit of demolition debris (Feature 1), the presence of a spatially extensive deposit of black organic-appearing silty fine sand appears to be material evidence of some of

the specific, large-scale, agriculturally-related landscape activities that Simon Brown recorded in his diary.

Site Stratigraphy

Archeological investigations of the David Brown site revealed that, except for the features uncovered, there was very little stratigraphic variation across the site. The investigations further revealed that although there appears to be spatial integrity to most areas of the site, there seems to be little stratigraphic integrity to the occupational-period horizons since, as discussed earlier, the site appears to have been altered by a variety of post-residential activities, especially those agriculturally-related ones that are recorded in Simon Brown's diary. Three overall stratigraphic horizons were distinguished in the yard areas: 1) humus, 2) plowzone, and 3) a black, highly organic-appearing silty fine sand.

The most extensive deposit that existed across the entire site was the plowzone. The plowzone varied from a dark brown to a grayish brown silty fine-to-medium sand that ranged in depth from 28 to 62 cm below the present ground surface. In most of the units that were excavated, the plowzone lay directly over a culturally sterile glacial sand. While the formation of the plowzone is the result of a variety of cultural and natural processes that occurred from at least the mid-17th century until the present day, it is most likely primarily the result of the mid-to-late 19th-century agricultural activities recorded in Simon Brown's diary. Although no plowscars were uncovered like those exposed at the David Fiske site (Chapter 10), evidence of plowing consisted of the presence of clearly post-residential debris in all of the levels excavated. Immediately above the plowzone was a humic layer characterized by a relatively thin but dense root mat. The formation of the humic layer is believed to be the result of what Eidt (1985) has termed the humification process—the gradual decomposition of organic materials. The formation of the humic layer appears to be a relatively recent occurrence based on the presence of small amounts of very recent 20th-century debris within the deposit.

The second most spatially extensive stratigraphic layer was a black organic-appearing deposit that was present in the southeastern area of the site, which encompasses Stratum II. This deposit was present either immediately below the humus or below a relatively thin plowzone deposit. In either case, the deposit was directly above the glacial subsoil. The deposit consisted of large amounts of silt and clay and a high concentration of water. It is clear that the primary reason for the low resistivity values in Stratum II is the stratum's high moisture content. This black organic-appearing silty sand seems to be alluvium that has been transported from the Concord River to this area of the site as a result of human and/or natural agents. For example, Simon Brown indicates throughout his diary that "river mud" or "meadow mud" was excavated from the Concord River "bank" and spread over the various fields that were being cultivated. This practice was commonly done in conjunction with the spreading of "manure" from often unspecified off-site locations. While some of this black silty fine sand may have been transported from the Concord River to the site by Simon Brown's laborers in the mid-19th century, some of this material may also have been deposited as a result of the annual flooding that occurs in this area as well as elsewhere along the Concord River. Although periodic flooding occurred throughout the 17th and 18th centuries along the Concord River, it wasn't until the early 19th century, when a dam was built downstream, that flooding became a regular occurrence (Donahue 1983: 46–52).

House

Feature 7, a relatively large and deep deposit of building-related and domestic debris, appears to be the remains of a house cellar whose fill was deposited rapidly in ca. 1860–1870. The date of the fill indicates that these are probably the remains of the Rhoades house, which was dismantled in 1867–1868. If this cellar is the remains of the Rhoades house, then it is also most likely the remains of the house that David Brown

and his family and heirs resided in from ca. 1752/55 to 1832 as the documentary data indicate (Chapter 3). Unfortunately, the initial construction date of the cellar could not be precisely ascertained. Its size and configuration, however, suggest that it could very well have been constructed in the 18th century and may represent a two-room plan house. As discussed earlier and in Chapter 3, the David Brown house in 1752 was of such a plan.

Feature 7 is located approximately 15 m (49 ft) southwest of the house remains uncovered by Tremer (1970, 1973) and therefore is much closer to the "old House" than was predicted by Towle (1986a:256; see Figure 4-12). The archeological integrity of Feature 7 appears to be relatively low since the original fabric of the walls (probably fieldstone) is absent. It appears to have been removed during the course of the dismantling of the house's superstructure and the filling of its interior.

Although the remains of the cellar were initially identified in STP N10W15, their presence was suspected before excavations were conducted since the highest magnitude of magnetic change among adjacent data points occurred in this area (Figure 4-14). In contrast, the resistivity survey data did not appear to suggest the remains of the cellar (Figure 4-15). The magnetic changes measured by the magnetometer are due to the differences between three extreme magnetic values. Interestingly, two of the three values are the lowest and highest recorded for the entire site. The magnetic changes should be viewed with caution, however, since the magnitude of the change is based on only three extreme values. Furthermore, these values do not correlate with the expected high or low magnetic content of the site features as discussed earlier. These values, therefore, could be spurious—the result of one or more sources of "noise" (Weymouth 1986:346). Analysis of the data at hand does not seem, however, to indicate that the values are due to any of the most obvious "noise" sources such as instrument variation, diurnal change, environmental change (e.g., topography, bedrock, etc.), or "modern iron" debris. Nor do these values seem to be due to recording error since several readings taken at the same locations produced little variation, if any, in the values. While these magnetic values do not appear to be the result of either "noise" or recording error, the cultural "causes" are uncertain. As mentioned above, these values do not appear to be associated with the expected high or low ferrous content, the amount of brick present, or other metallic objects. Perhaps these values are the result of anthrosol differences or differences that are reflective of compaction, humic decomposition, or even the magnetic properties of the soil itself, since most of the fill of the feature appears to have originated off-site (see Chapter 5).

DIMENSIONS AND CONFIGURATION

The documentary data indicate what the dimensions of the house that the Browns resided in after ca. 1752/55 were. It is not unreasonable to assume that its superstructure was similar to the dimensions of other 18th-century houses of a similar plan in the Concord-Lincoln-Lexington area or to those of even earlier houses in eastern Massachusetts as a whole. Abel (1966a:6–7) measured the dimensions of the superstructure of eight houses either within MIMA or the greater Concord-Lincoln-Lexington area. The data indicated that while the width of the houses varied from 18 to 28 ft and the length varied from 28 to 43 ft, the average width was 20 ft and the average length was 37 ft (Abel 1966a:6–7). Cummings (1979:24) also measured the dimensions of the superstructure of 20 two-room houses dated between ca. 1625 and 1725 and found that "the width is consistently sixteen to twenty feet, while the length is thirty to thirty-five feet" in ten instances and "thirty-six to fifty feet" in 15 of the cases. Although the precise dimensions of Feature 7 are not certain, its approximate size is from 3.5 m (11.5 ft) to 6 m (20 ft) north-south × 11 m (36 ft) east-west (Figure 4-16). If the superstructure once associated with Feature 7 did not extend beyond the feature's currently suggested boundaries, then these data, in conjunction with the configuration

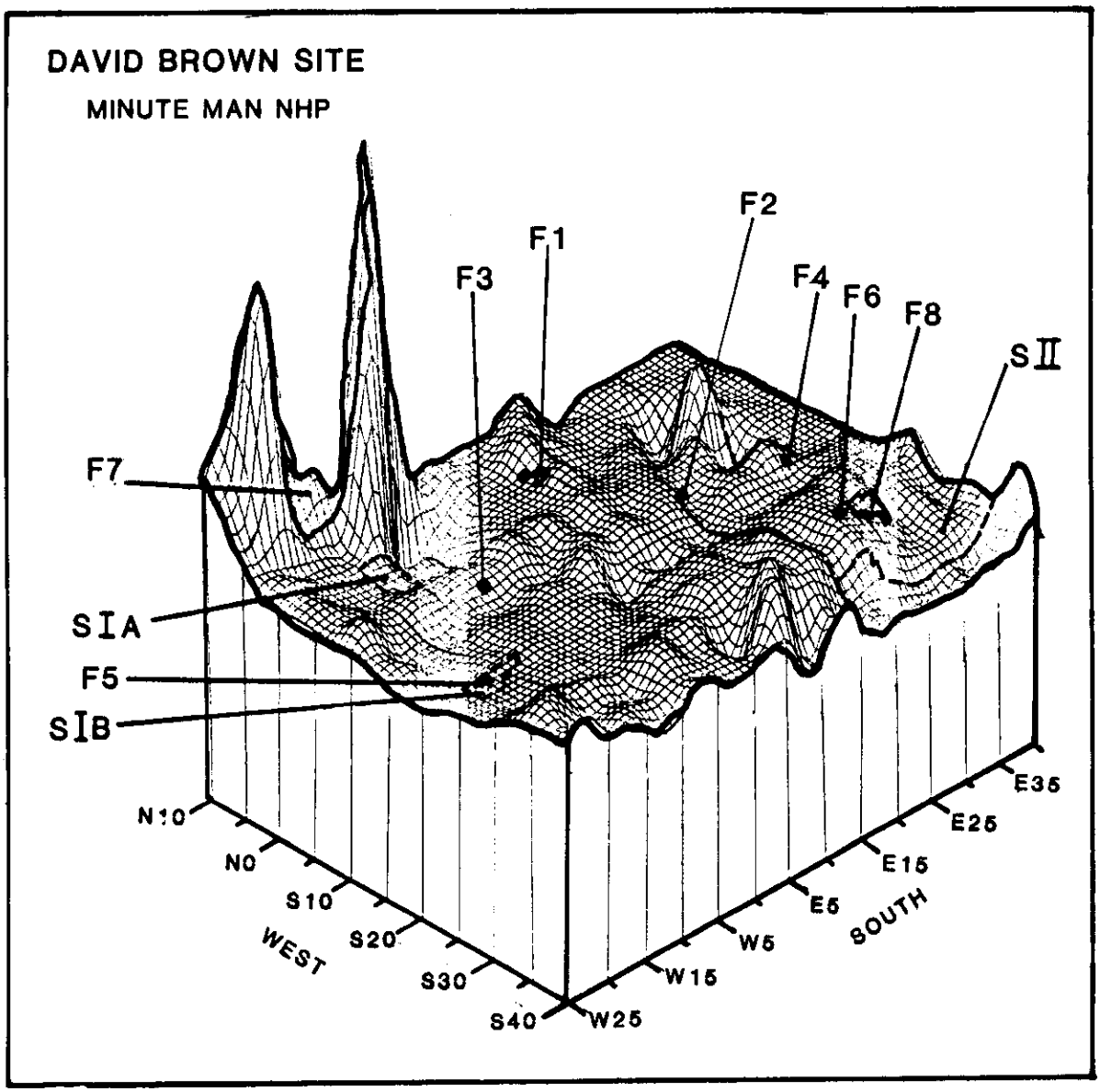


Figure 4-14. Graphic representation of magnetometer value changes at the David Brown site. Features and strata are labeled.

of Feature 7, are suggestive of an 18th-century house. The precise dimensions of Feature 7 are uncertain because the original fabric of the walls appears to have been removed (see below). The horizontal limits of Feature 7 were identified by the interface of a dark brown, debris-filled deposit and the glacial subsoil.

Although the exact configuration of Feature 7 is not certain, it appears to have consisted of two areas that may indicate where the eastern and western portions of the two-room, post–ca. 1752/55 Brown house once existed. The western portion of Feature 7 is characterized by an approximately 6 m (20 ft) north-south × 4.5 m (14.8 ft) east-west area that has a floor paved with dry-laid granite fieldstones. The eastern,

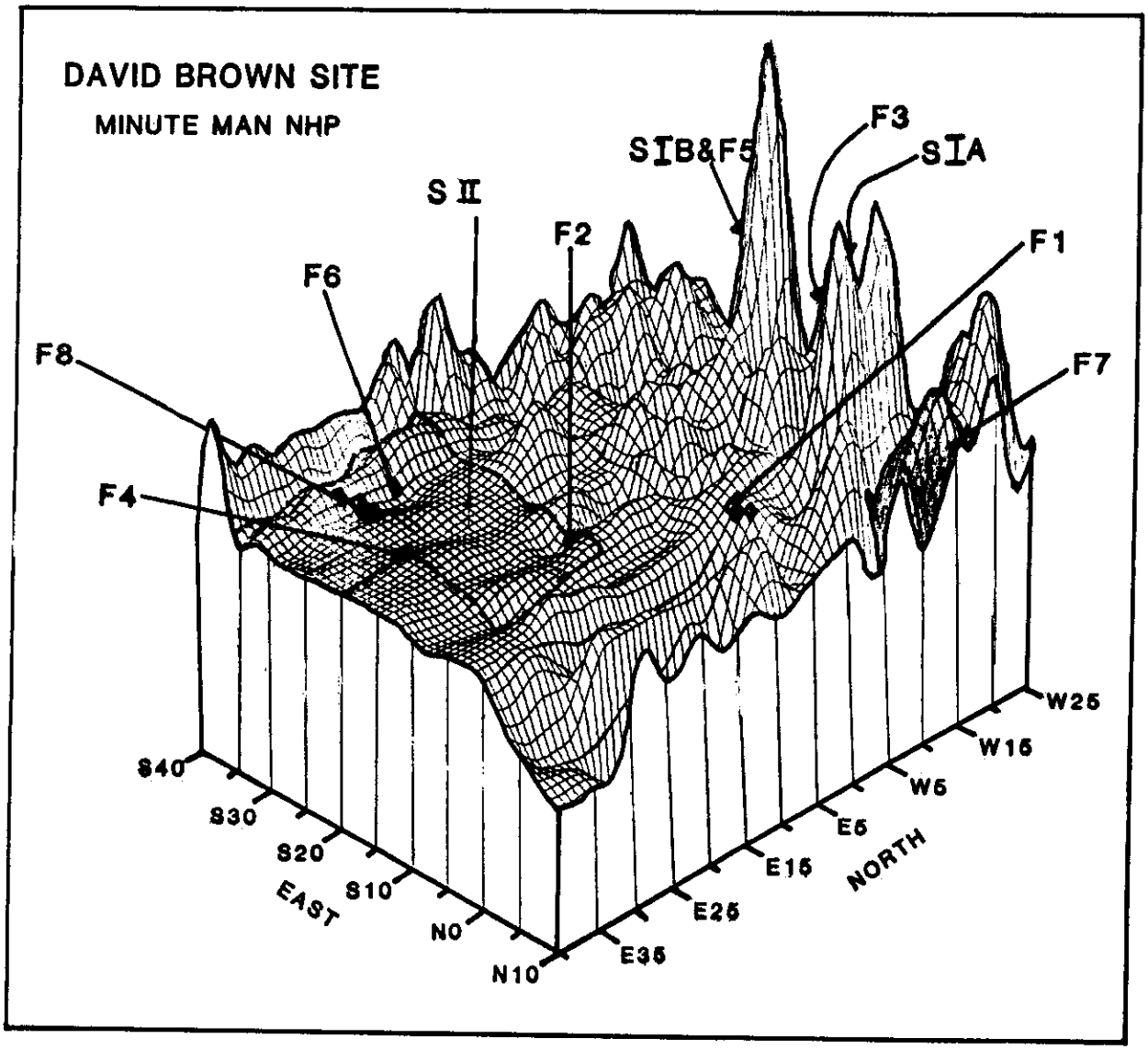


Figure 4-15. Graphic representation of resistivity value changes at the David Brown site. Features and strata are labeled.

western, and southern edges of this area were defined by the interface of the fill and the glacial subsoil, which forms an approximately 45° angle (Figure 4-17). This angle suggests that the original fabric of the walls has been removed. It is uncertain whether this angle was originally created by the builder and therefore is the remains of a builders' trench, or if it was created during the removal of the walls' original fabric. Although few fieldstones were uncovered within the fill of Feature 7, save in the southeastern portion of the feature, a number of "chinking stones"—small, wedged-shaped pieces of fieldstone—were present in the fill. Examination of other 18th- and 19th-century dry-laid house and barn foundations within MIMA and elsewhere in New England (John Worrell, personal communication, 1987) indicates that chinking stones were used to both secure and fill the empty spaces between the fieldstones in the walls. Based on

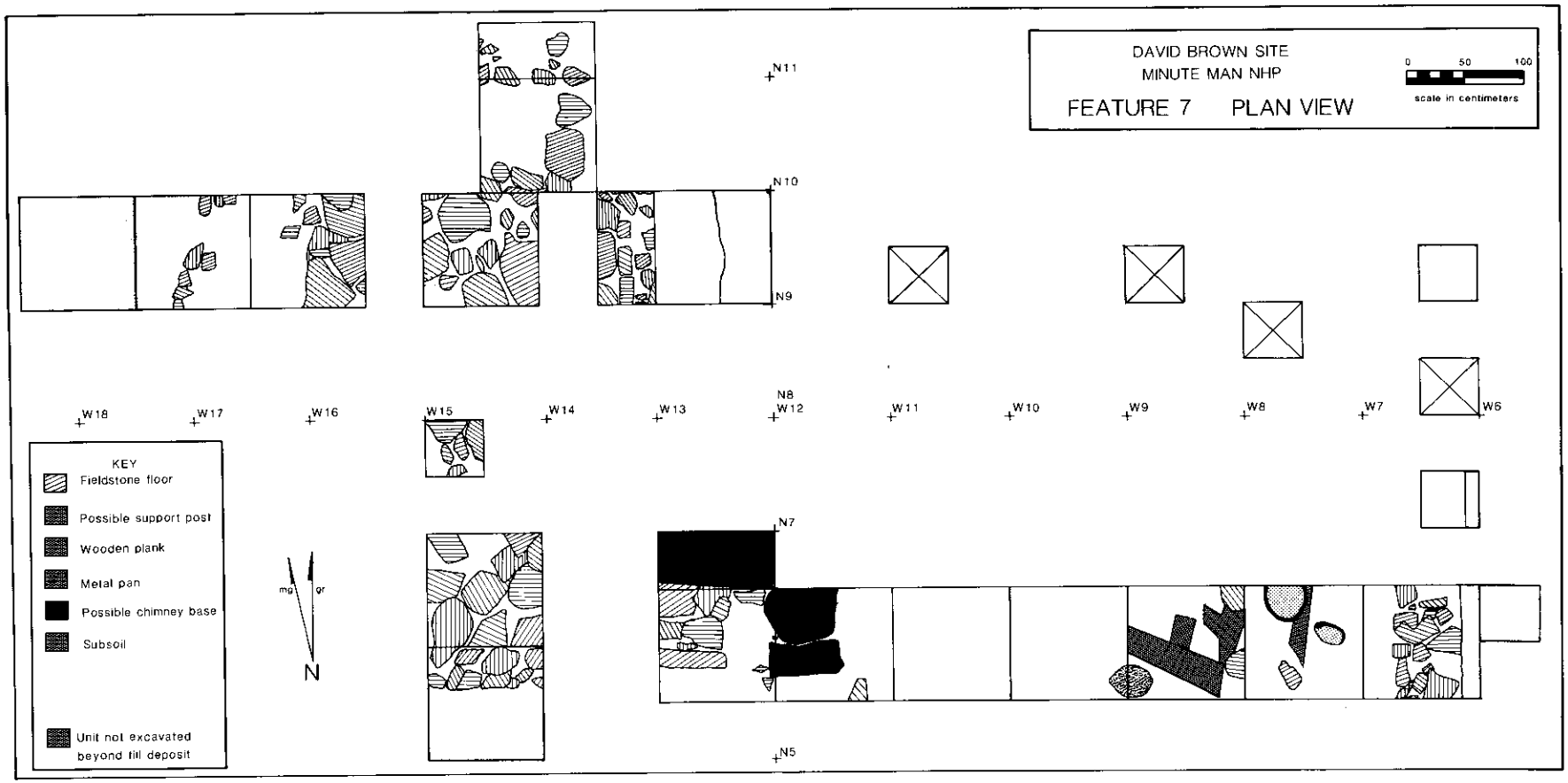


Figure 4-16. Plan view of Feature 7, the possible David Brown cellarhole.

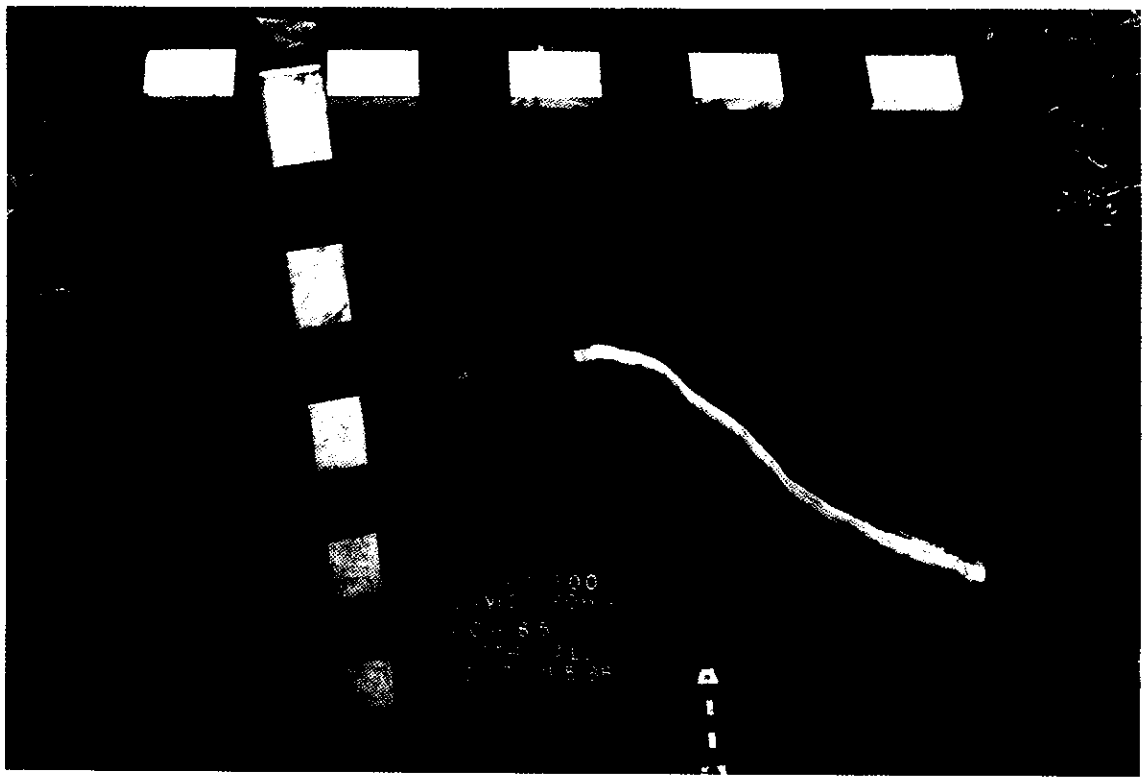


Figure 4-17. Project photograph of the north wall of EU N10W18.5 at the David Brown site showing the ca. 45° angle formed by the interface of the cellar fill and the glacial subsoil.

this information, it is likely that the walls of Feature 7 were originally constructed of dry-laid fieldstones that were most likely removed during the dismantling of the house in 1867–1868 (Brown Diary).

Abutting the fieldstone floor in the southeastern portion of Feature 7 are several large, flat pieces of granite (Figure 4-18). This granite may be the remains of a chimney base since similar chimney bases have been observed at both extant houses (Orville Carroll, personal communication, 1987) and other 18th-century house cellars exposed through archeological excavation (Foley 1964:plates VI, D; Snow 1969:figure 6; Towle 1986a:figure 18.11).

The eastern portion of Feature 7 measures 6.5 m (21.3 ft) east-west × 3.5 m (11.5 ft) north-south. The floor of this area consists of a relatively hard-packed, earthen surface characterized by a dark grayish brown (10YR4/2) fine sand. Although the southeastern limits of the feature are known, the southern and northern extent of the eastern portion of Feature 7 is highly tenuous due to limited excavations in this area. Although the precise temporal relationship between the eastern and western portions of Feature 7 is not known, the two areas appear to have been part of one large, uninterrupted space.

DEPOSITS

Both areas consist of three similar overall stratigraphic deposits. Figures 4-19 and 4-20 depict these deposits and are representative of the eastern and western portions of Feature 7 respectively. While these deposits appear to be physically distinct and display differences in the frequency and proportion of certain materials, the ceramic crossmend data (Figure 4-19), in con-

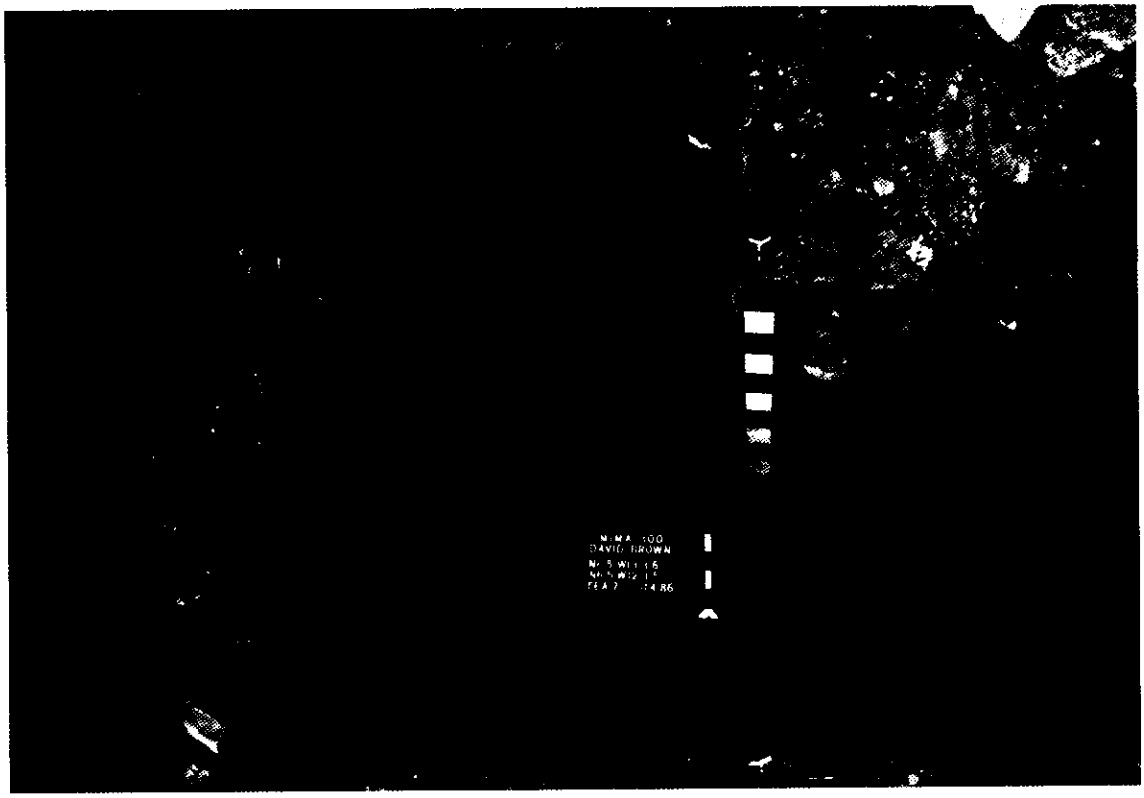


Figure 4-18. Project photograph of EU N6.5W12 showing the possible chimney base in the David Brown cellarhole.

junction with the presence and absence of temporally diagnostic materials, indicate that all were deposited relatively contemporaneously, sometime between ca. 1860 and 1870. The contemporaneity of the fill and the relative absence of whole bricks match Simon Brown's description of the Rhoades house's demise and the manner in which its cellar was filled. What is more, the cellar fill, Feature 1, and the fill in Tremer's cistern ("F-2" on Figure 4-3) appear to be contemporaneous based on the archeological data. Although the palynological data (Chapter 5) suggest that the majority of the Feature 7 fill above the floor originated off-site, no documentary or archeological data currently exist to corroborate or refute this.

Deposit 1 of the cellar fill is characterized by the presence of 18th- and 19th-century building-related and domestic debris within a predominantly dark brown or brownish yellow silty fine sand (Figures 4-19 and 4-20). Deposit 1 appears to vary in thickness from approximately 21 cm along the edges of Feature 7 to 98 cm in the interior portions of the feature. The presence of several buttons manufactured after ca. 1860 and several coins that predate ca. 1870, in conjunction with the absence of items known to have been manufactured after ca. 1880 (e.g., wire nails, machine-made glass), in the mid-to-lower levels of Deposit 1 strongly suggests that Deposit 1 was laid down in the 1860s. Therefore, Deposit 1 could be a portion of the debris that Simon Brown and his laborers used to fill the "cellar over which the old Red House [the Rhoades house] stood" (Brown Diary: October 16, 1868). Although Brown did not mention where the fill originated, Kelso (Chapter 5) uses the palynological data to argue that the majority of this depos-

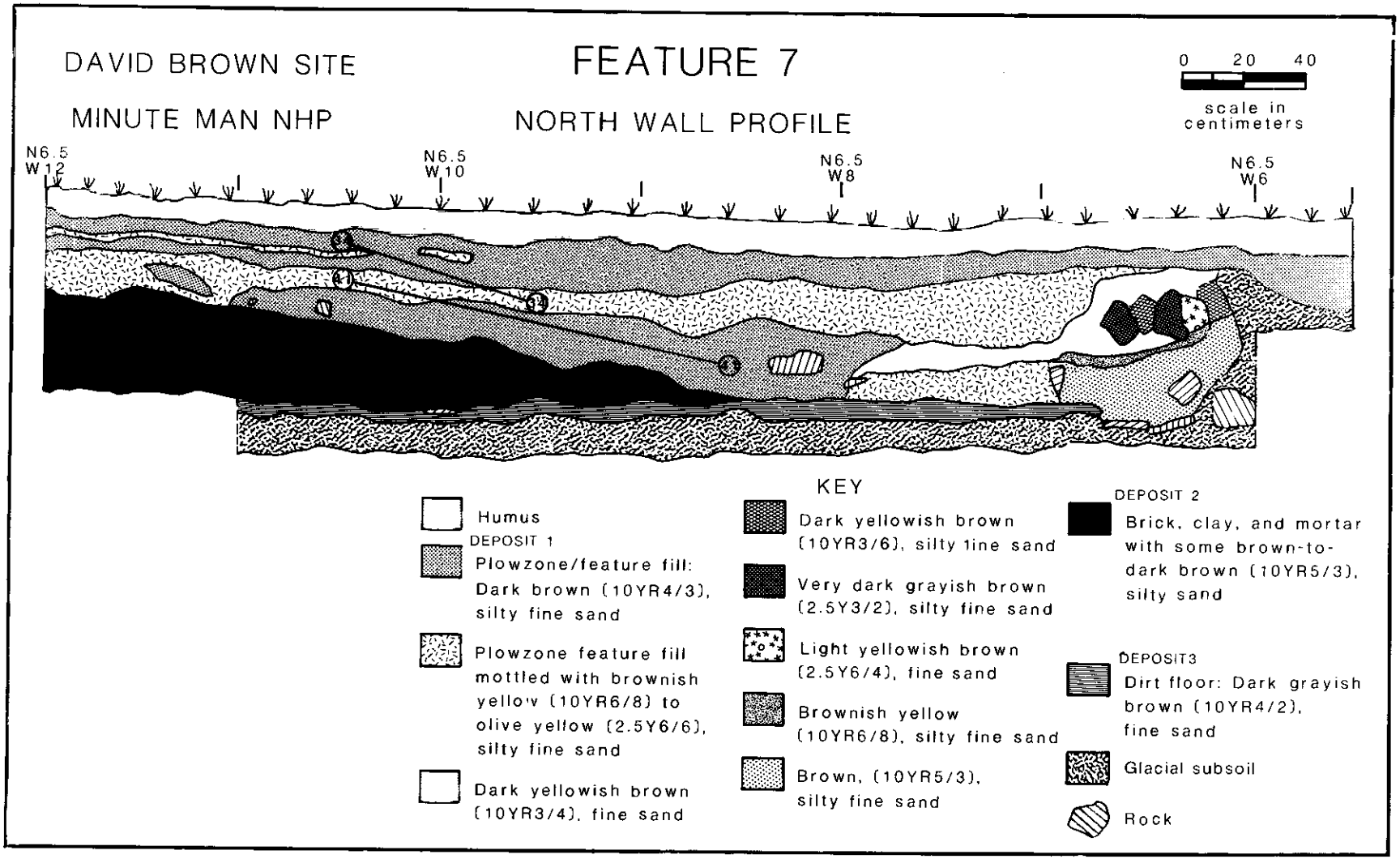


Figure 4-19. North wall profile of Feature 7, showing the cultural deposits in the eastern portion of the David Brown cellarhole. Loci of crossmendable ceramic sherds are indicated.

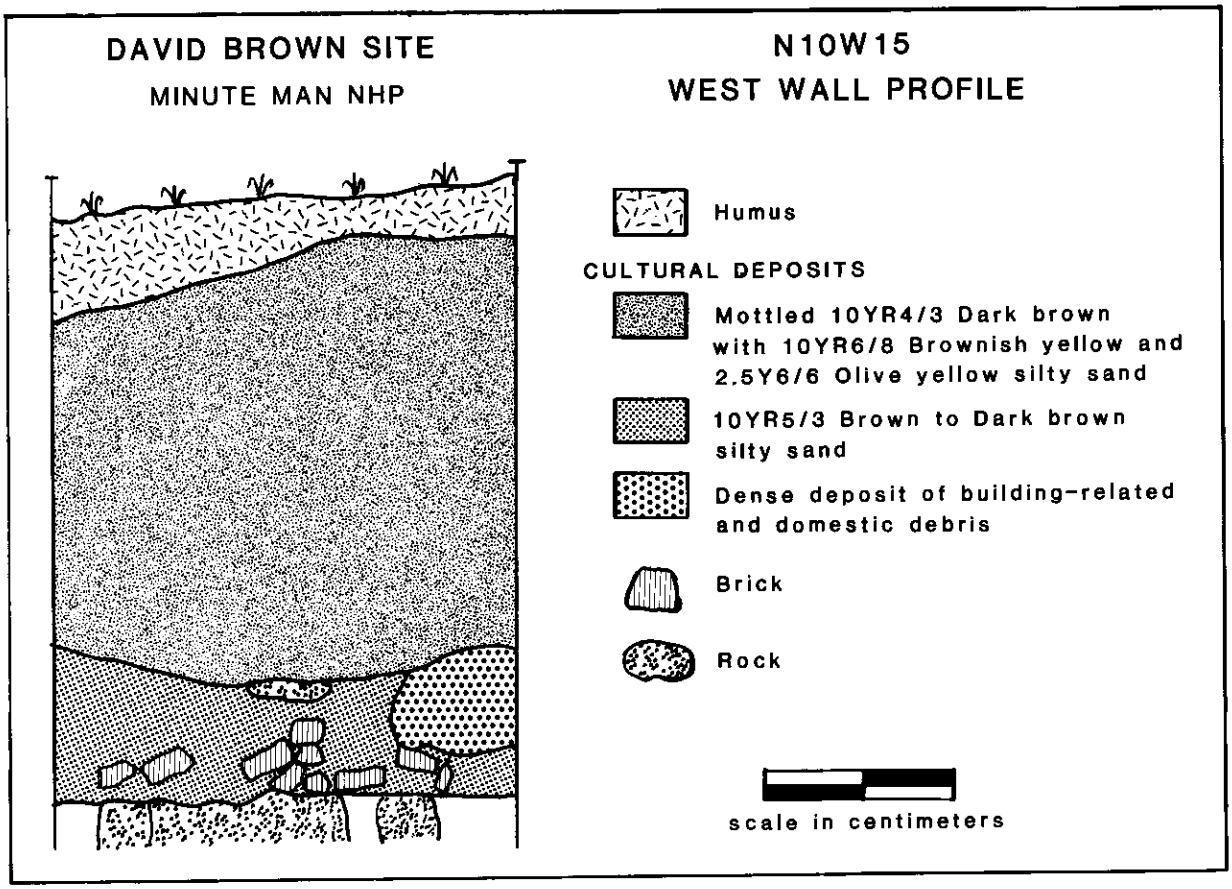


Figure 4-20. West wall profile of EU N10W15 at the David Brown site showing the cultural deposits in the western portion of the cellarhole.

it, save for 8–10 cm directly above the brick and clay deposit (Deposit 2; see below), was imported from off-site. There were crossmendable fragments of a Kaolin pipe bowl in Deposit 1 (EU N10W15) and in STP N5E5 to the south of the feature (Figure 4-12). There were also several whiteware fragments with a distinctive purple transfer-print in Deposit 1 (EUs N10W13, N10W17.5, and N10W16.5) and in STP S5W15 to its south (Figure 4-12). These items in different areas of the site could indicate that some of the imported fill of Feature 7 was spread to other areas of the site when it was originally deposited or was scattered about as a result of plowing. On the other hand, it could also indicate that portions of Feature 7's fill originated from the immediate vicinity of the house rather than from off-site.

In addition to the above-mentioned crossmends and similar ceramic vessel patterns, several handpainted pearlware vessel fragments with a distinctive reddish brown rim band and several dark blue transfer-printed whiteware sherds were recovered from Deposit 1 (EUs N6.5W9 and N9.5W9). These fragments were similar to some recovered from Tremer's cistern (1973). This similarity may indicate that the cistern was filled at relatively the same time as Feature 7 was. As discussed below, Feature 1 may also have been filled at this time.

In most of the units that were excavated within Feature 7, Deposit 1 overlay a dense

concentration of brick and gray clay, designated Deposit 2. In other units within Feature 7, Deposit 1 existed directly on the floor of the feature. Deposit 2 was thickest in the southern and central portions of the feature, particularly just above the large, flat granite stones that are believed to be the remains of a chimney base. Above this possible chimney base, Deposit 2 was approximately 35 cm thick. Very little organic-appearing sediment was associated with the thickest areas of this deposit and, save for the brick, smaller amounts of building-related and domestic debris were recovered overall from this deposit. Except for one or two whole bricks, all the brick was fragmentary, suggesting that the whole bricks were removed from the site for reuse elsewhere. Some of the brick fragments were relatively large, soft, and crudely formed, suggesting that the chimney of Feature 7 was constructed with previously used bricks. The fact that few bricks were reported to have been unearthed by Tremer (1970, 1973) may support this inference. There were no ceramic crossmends within the brick and clay deposit or between it and other Feature 7 deposits. There were, however, 13 crossmendable undecorated porcelain vessel fragments in a small, dense concentration of domestic refuse within the central portion of Deposit 2 (i.e., EU N10W15). While the precise temporal relationship between Deposit 2 and the other Feature 7 deposits could not be ascertained, it is believed that Deposits 1 and 2 are contemporaneous given the presence of similarly datable pre–ca. 1870 coins and buttons, and the absence of post–ca. 1880 debris. Based on the above data, Deposit 2 is likely the remains of the Rhoades house chimney, whose bricks were cleaned when is was dismantled (Brown Diary: September 13 and December 13, 1867).

Beneath Deposit 2 and immediately above the floor in some areas of Feature 7 was a dark brownish gray silty fine sand 2–10 cm in depth. This sediment, in addition to several small, physically discrete concentrations of charcoal and ash, was designated Deposit 3. Like the deposits above it, Deposit 3 contained both building-related and domestic items (Table 4-1), most of which may have been deposited just after the removal of the superstructure. Some of this debris, however, may have been deposited during the occupancy of Feature 7 (see Chapter 5). While crossmendable ceramic fragments of six vessels (glazed redware, delft, handpainted pearlware, undecorated creamware, and undecorated and transfer-printed whiteware) were identified in Deposit 3, no crossmends were identified between this deposit and the ones above it.

Table 4-1. Selected artifacts from Deposit 3 of Feature 7 (the cellarhole) at the David Brown site.

Material	*Count/Weight*
Domestic:	
Redware	99
Delft	3
Creamware	18
Pearlware	16
Whiteware	21
White salt-glazed stoneware	3
Domestic stoneware	11
Free-blown bottle glass	10
Building-related:	
Crown/cylinder window glass	24
Plate window glass	12
Indeterminate window glass	1
Hand-wrought nails	56
Indeterminate machine-cut nails	42
Late machine-cut nails	3
Brick	10,856.1 g
Mortar/plaster	1,251.7 g

Particularly notable within this deposit was the presence of several relatively large pieces of wood, a metal pan, and a possible circular post, all of which were uncovered in the southern portion of the feature (Figure 4-16).

Although severely decayed, the wood was approximately 1 cm (.5 in) thick; it ranged in width from 13 cm (5 in) to 23 cm (9 in), and in length from 20 cm (8 in) to 72 cm (28.5 in). The wood lay directly on the hard-packed earthen floor. The upper surfaces of the wood were

smooth, and several nails—whose dates of manufacture could not be ascertained because of their deteriorated state—were incased in the wood. Although it is uncertain whether these pieces of wood were once part of the original fabric of Feature 7, they do not appear to be the remains of the cellar's flooring because there was no evidence of subflooring beneath them and none of the wood was observably joined.

The metal pan—measuring approximately 35 cm (14 in) in diameter and 6 cm (2.5 in) in height—was located among some of the pieces of wood. The pan was severely rusted. Beneath the pan and directly on the floor was a large stoneware, Albany-slipped vessel fragment stamped with a mark that indicated it was manufactured in Charlestown.

The possible wooden post was located south of the wood (Figure 4-16). Although very decayed, the post measured 30 cm (12 in) in diameter and 25 cm (10 in) in length and went through the earthen floor and into the glacial subsoil. The sides of the possible post were relatively straight and did not appear to taper. A number of brick fragments were wedged around it—perhaps for support. This wooden post could be the remains of some kind of support post of the house.

Excavations beneath some of the fieldstones that constituted the floor in the western portion of Feature 7 revealed a thin (i.e., 2–5 cm) brown to dark brown silty fine sand. Designated Deposit 4, this deposit contained mostly domestic materials (Table 4-2). With the exception of a single whiteware vessel fragment and a piece of *possible* plate glass below two fieldstones in adjacent units, no other items clearly postdate the 18th century. If the whiteware and plate glass are not intrusive to the deposit, their presence may indicate that the two fieldstones under which these items lay, or possibly the entire floor, was laid down in the 19th century, perhaps after the cellar had been constructed.

Table 4-2. Artifacts from Deposit 4 of Feature 7 (the cellarhole) at the David Brown site.

Material	*Count*
Redware	36
Delft	11
Creamware	1
Whiteware	1
White salt-glazed stoneware	2
Plate window glass	1
Indeterminate metal objects	1

Road

Features 6 and 8, located in Stratum II in the southern portion of the site (Figure 4-12), are characterized by the presence of cobbles within a black silty fine sand (Figure 4-21). This black silty sand also existed above most of the cobbles. As discussed earlier, the black silty fine sand was present throughout most of the southeastern portion of Stratum II. There was gravel above and among the cobbles in two of the units excavated within Feature 8. Small pockets of gray clay also existed in some of the units excavated within Features 6 and 8. The only artifacts recovered among the cobbles were one very small piece of creamware, one fragmentary nail whose date of manufacture is uncertain, and .74 g of brick. While it is possible that the cobbles are the remains of a roadway of undetermined age, this is uncertain. The presence of a cobble roadway was uncovered in two trenches (i.e., Trenches 3 and 4) excavated by Abel (1965:plate 7) to the south of the David Brown site. Abel described the road uncovered in Trench 3 in the following way:

> The surface is very rough, composed of granite cobbles and sharp angular granite spalls varying in size from 2 or 3 to 10 inches in diameter. The stone roadbed appears once to have been covered by coarse yellow gravel, for gravel can still be found between the stones, and it does not occur naturally in the swamp, which is black, slightly sandy clay. (Abel 1965:20)

Evidence of the cobble road was also found in Trench 4 (Abel 1965:21). This road apparently extended for approximately 20 ft and was similar in appearance to that uncovered in Trench 3

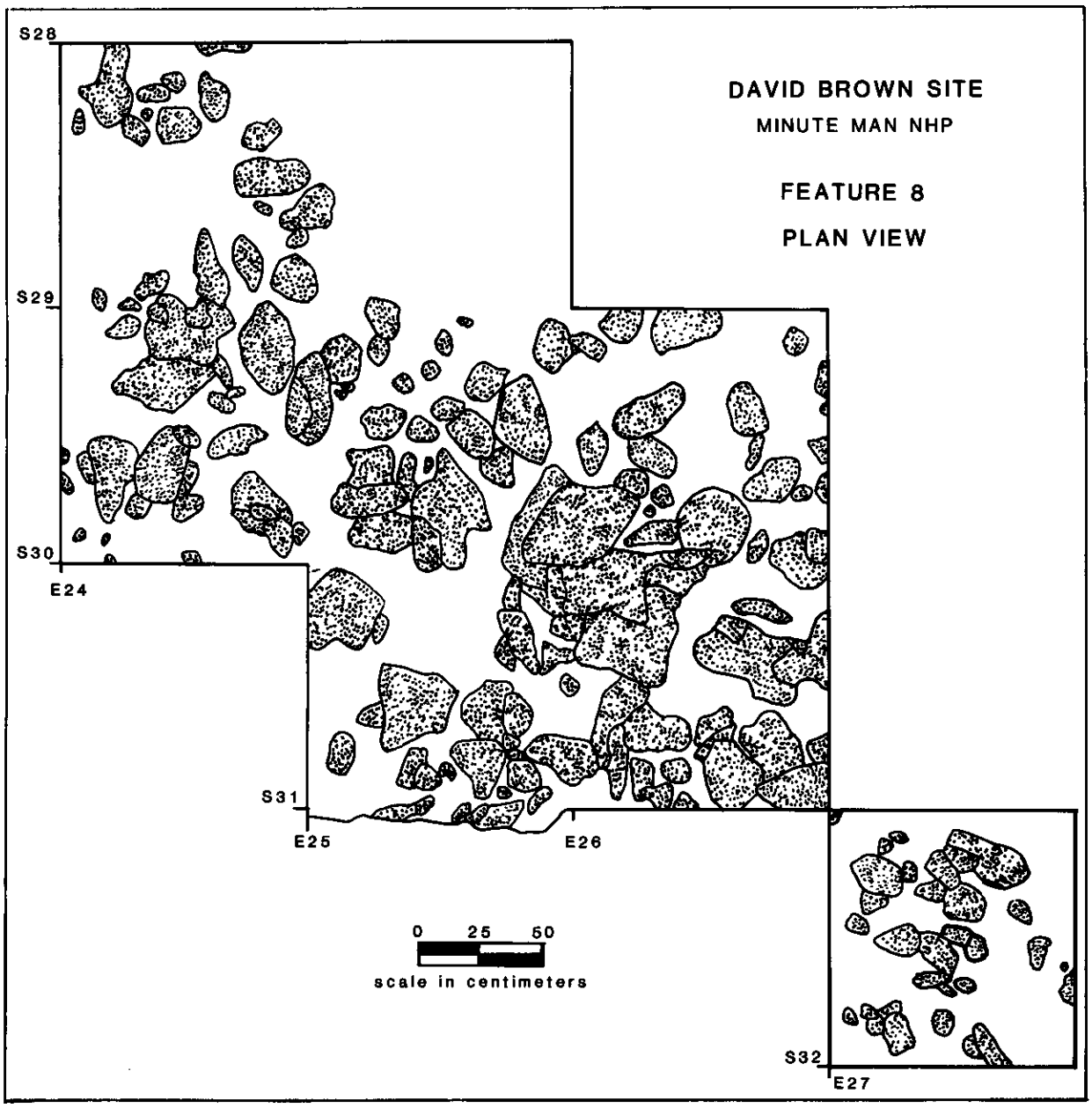


Figure 4-21. Plan view of Feature 8, the possible cobble roadway, at the David Brown site.

(Abel 1965:21). Because of the discontinuous nature of the roadway, Abel (1965:21) suggested that it had been "torn up and the stone used elsewhere..." With the exception of fragments of "oxidized iron which may once have been nails" and two prehistoric artifacts, no artifacts were associated with the roadway (Abel 1965:21).

The cobbles associated with Features 6 and 8 seem to be similar in size and appearance to those of the roadbed just described. The presence of small amounts of gravel above and among some of the cobbles of Features 6 and 8 also corresponds to Abel's description (1965:20) of the roadbed. The cobbles associated with Feature

6, however, were not as densely packed as those uncovered by Abel, nor were they configured in a linear fashion. If Features 6 and 8 are the remains of a cobble roadway, then some of the cobbles may have been removed when this roadway was discontinued and Liberty Street was constructed in 1793 (see Chapter 3). The removal and/or movement of stones from this area may also have occurred during George Keyes's ownership of the property. Indeed, Simon Brown noted in his diary on April 29, 1867: "At work on Rhoades' place below the road *picking stones*, plowing, harrowing, seeding, moving balks, & c." (emphasis added). If the 18th-century road was not altered as a result of these activities in 1867, it may have been altered by 1869 since Simon Brown notes in that year that he and his laborers "Plowed up what we used as a road across the field last year...[in the] 'Battle Field' " (Brown Diary: May 25, 1869). This entry, however, may not refer to the 18th-century road, but to one that was built by him or someone else after the 18th-century road was abandoned.

Given the inconclusive results of both the geophysical and archeological investigations regarding the location of the 18th-century road, backhoe trenches were excavated at this site (Figure 4-12) and at the Jonas Bateman site to the west (Chapter 6). Although no evidence of the road was uncovered at this site, evidence of a road, perhaps that of the 18th-century "Highway," was uncovered at the Jonas Bateman site (Chapter 6).

Careful examination of the stratigraphy of the trench excavated at the David Brown site revealed neither stratigraphic evidence of wheel ruts and an associated crown, nor the presence of cobbles.

Other Features

In addition to the remains of the Brown-Rhoades house (Feature 7) and the possible remains of a road (Features 6 and 8), five features (Features 1–5) were located at the David Brown site. In addition to these features, a number of STPs exhibited anomalous stratigraphic deposits and/or relatively high amounts of cultural debris, but they were not assigned feature numbers. The locations of these features and STPs with anomalous stratigraphy are depicted on Figure 4-12.

FEATURE 1

Feature 1, located southeast of Feature 7 (Figure 4-12), is a large deposit of building-related and domestic debris, perhaps associated with the dismantling of the Rhoades house (i.e, Feature 7) in 1867–1868 (Figure 4-22). It is possible, however, that Feature 1 may originally have been a small, ephemeral outbuilding, although this is unlikely. Feature 1 was initially located during the excavation of STP N0E5. The STP was expanded into a 1 m × 1 m unit, and additional units were excavated to identify the dimensions of Feature 1 and to gather further information necessary for determining its date and original function.

The precise dimensions of Feature 1 are unknown since its northwestern edge is uncertain. The other edges of Feature 1 were defined by a contrast between an organic-appearing fill and the glacial subsoil. The edges that were identified indicate that Feature 1 was roughly oval or rectangular in shape and was oriented in a northwesterly direction (Figure 4-23). Its approximate dimensions are 1.6 m (5.2 ft) × 2.4 m (8 ft).

The most notable attribute of Feature 1 was the concentration of cobbles, which ranged in size from approximately 6 cm × 8 cm to 16 cm × 28 cm at the base of the feature (i.e., Deposit 4; Figure 4-22). None of the cobbles appear to be arranged in any notable fashion. In general, the stratigraphy within and above Feature 1 was similar in each of the four units excavated. Above the cobbles were three physically distinct deposits that seem to have been deposited relatively contemporaneously prior to the third quarter of the 19th century, and probably between ca. 1860 and 1870. This suggestion is based on the ceramic crossmend data and the presence and absence of certain temporally diagnostic materials. These data strongly suggest that some,

Figure 4-22. Photograph of Feature 1 at the David Brown site, a large deposit of building-related and domestic debris, facing west.

if not all, of the debris within Feature 1 came from the dismantling of the Rhoades house.

Deposit 1 was an organic-appearing, very dark gray silty fine sand with charcoal immediately below the plowzone (Figure 4-24). Deposit 1 was relatively thin, varying in thickness from 1 to 20 cm, and was discontinuous. Despite its thinness, it contained the second highest amount of brick recovered from the deposits associated with Feature 1 (Table 4-3). Plowing appears to have removed portions of Deposit 1 as can be seen in Figure 4-24.

Deposit 2 consisted of approximately 15 cm of a light olive brown silty fine sand immediately above the cobble deposit (Deposit 4; Figure 4-24). This deposit differed from the deposits above and below it in terms of its sediment color and texture and the amount of brick present within it. As can be seen in Table 4-3, Deposit 2 contained significantly less brick than the surrounding deposits.

Deposit 3, which was present primarily in N0E5, consisted of dark brown fine-to-coarse sand, and was also immediately above the cobbles (Figure 4-24), differed from the deposits above or below it in terms of artifact frequency and soil color and texture.

Deposit 4 consisted of a matrix of cobbles and building-related and domestic debris within a dark grayish brown silty fine sand with gravel. Deposit 4 extended approximately 38 cm into the glacial subsoil (Figure 4-24). Although Deposit 4 could be the remains of a cobble floor or work area, it is unlikely because of the amount of building-related and domestic debris that was uncovered among the cobbles (Table 4-3). Cobbled areas have been uncovered elsewhere within MIMA (e.g., Chapter 14; Pratt 1981) and eastern

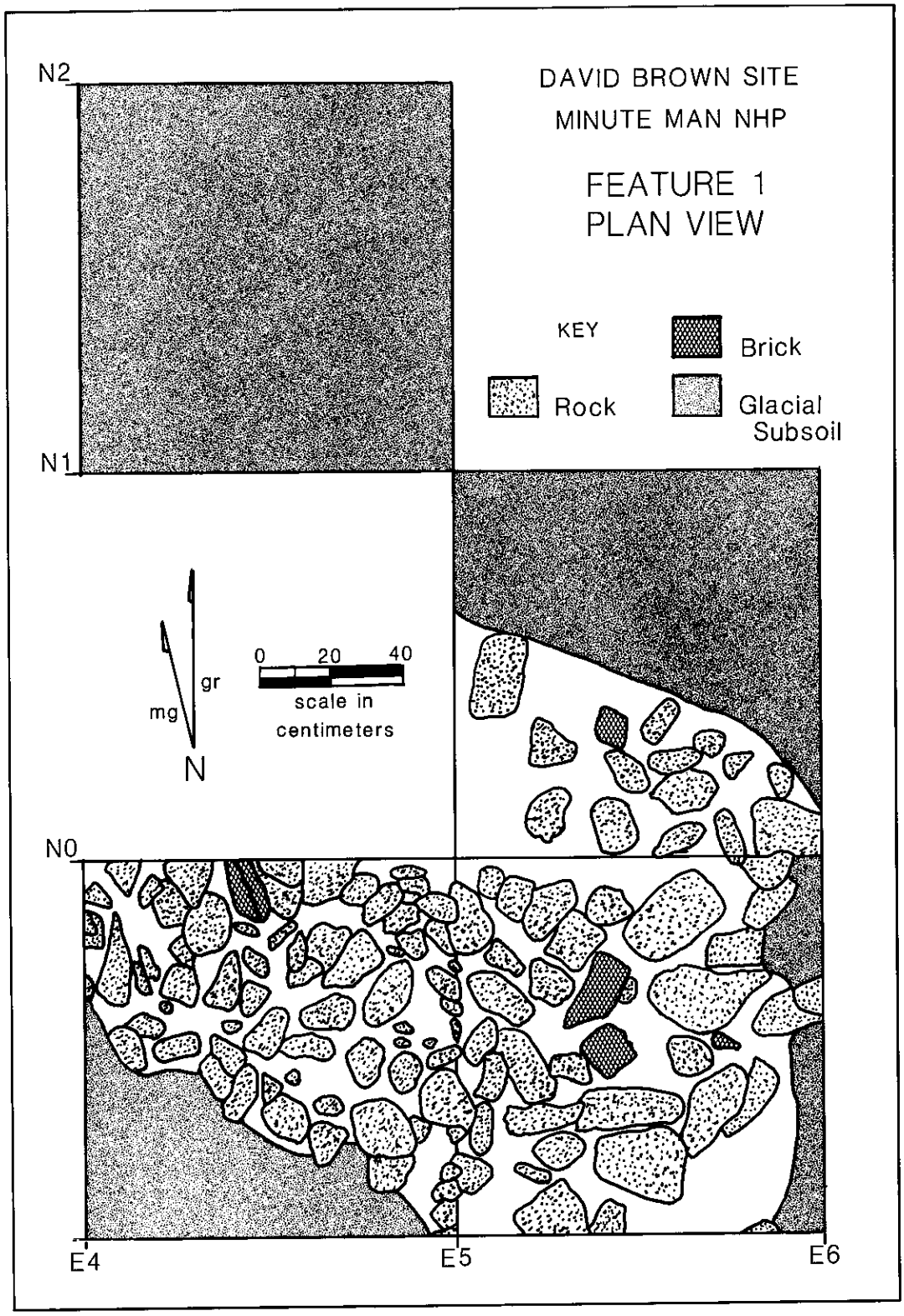


Figure 4-23. Plan view of Feature 1 at the David Brown site.

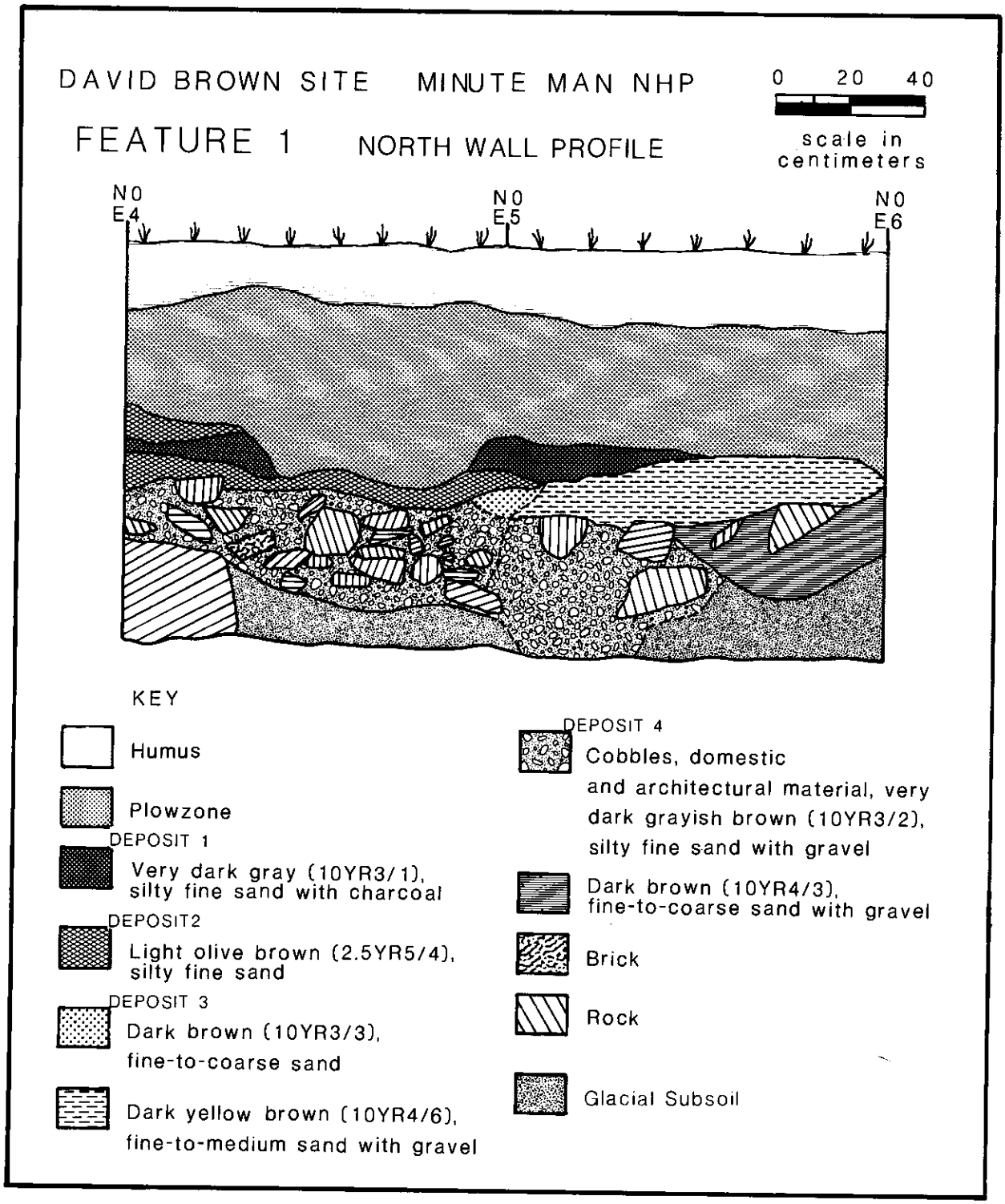


Figure 4-24. North wall profile of Feature 1 at the David Brown site.

Table 4-3. Selected artifacts from Feature 1 (a large deposit of demolition debris) at the David Brown site.

Material	*Deposit 1 (count/weight)*	*Deposit 2 (count/weight)*	*Deposit 3 (count/weight)*	*Deposit 4 (count/weight)*
Domestic:				
Redware	71	14	21	13
Creamware	1	2	3	2
Pearlware	3	1	2	4
Whiteware	25	3	6	3
Yelloware	4	2	—	1
Porcelain	2	1	—	—
Stoneware	17	1	—	—
Free-blown vessel glass	1	—	—	—
Other vessel glass	11	1	—	—
Building-related:				
Crown/cylinder window glass	15	4	—	1
Plate window glass	2	2	5	1
Indeterminate machine-cut nails	2	1	—	1
Indeterminate nails	64	12	14	3
Brick	2,823.8 g	662.9 g	34.2 g	12,978.2 g
Mortar/plaster	—	—	—	23.5 g

Massachusetts (Beaudry 1987:33–34), but rarely, if ever, do they contain high amounts of building-related and domestic debris. This debris in Deposit 4, particularly the brick, is probably chimney debris once associated with a house rather than an outbuilding. Interestingly, a larger amount of brick was present within the cobble deposit than in the deposits above it (Table 4-3). Conversely, a significantly lower amount of other building-related—and, it should also be noted, domestic—debris existed among the cobbles than in the deposits above it (Table 4-3). This pattern of deposition correlates with the sequence in which the Rhoades house was dismantled as recorded in Simon Brown's diary, suggesting that the domestic and building-related debris within Feature 1 may be from the Rhoades house.

Although no crossmends were identified between Feature 1 and any other features uncovered by this project or by previous excavations (Tremer 1970, 1973), ceramic vessel fragments with similar decorative patterns were recovered within Feature 1 and the cistern uncovered by Tremer (1970, 1973). This indicates that Feature 1 and the cistern were filled at roughly the same time. For example, a piece of handpainted pearlware that was recovered from Feature 1 (EU N0E5, level 3) was similar to a piece of handpainted pearlware recovered by Tremer from the cistern. As discussed earlier, since there is possible evidence that Feature 7 and the cistern were filled at about the same time, it is likely that Feature 7 and Feature 1 were also filled contemporaneously.

FEATURE 2

Feature 2, a dense concentration of ash, coal (25.11 g), and cinders/clinkers (88.18 g), is located in the east-central portion of the site (Figure 4-12) and appears to have resulted from the cleaning of a coal stove sometime in the 19th century. Feature 2 was located in the north half of STP S10E15 at the interface of the plowzone and the glacial subsoil and intruded 21 cm into the subsoil (Figure 4-25). Although Feature 2 appears to have been located within the area

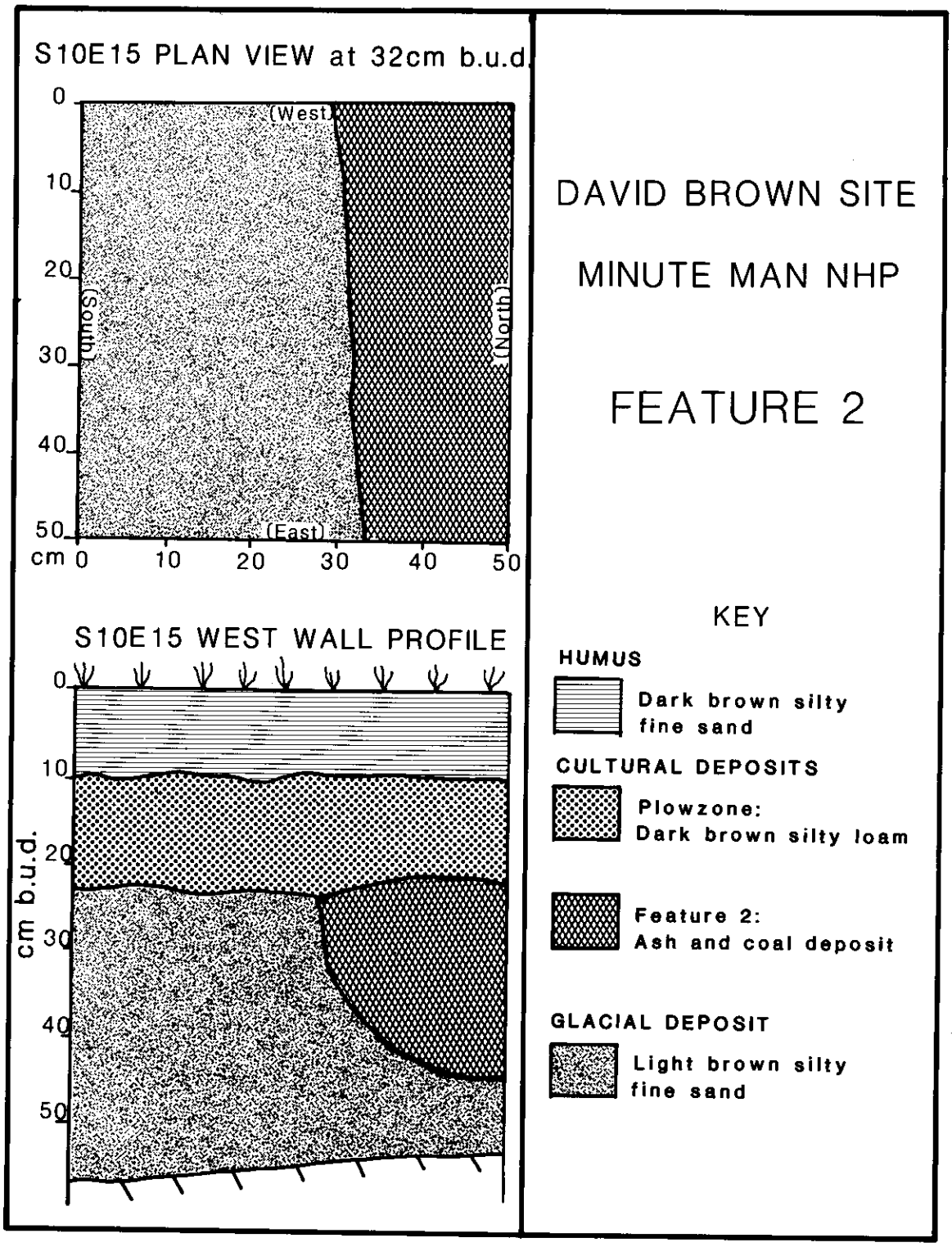


Figure 4-25. Plan and profile views of STP S10E15, showing Feature 2 at the David Brown site.

initially excavated by Tremer (1970, 1973), there is no evidence that this feature is either disturbed or the result of these earlier excavations.

FEATURE 3

Feature 3, located in the west-central portion of the site (Figure 4-12), is a deposit of cobbles and building-related and domestic debris within a dark brown, fine-to-medium sand. Feature 3 was located in the southeast corner of STP S10W5 at the interface of the plowzone and the glacial subsoil and intrudes 10 cm into the subsoil (Figure 4-26). The upper portion of the feature (i.e., the base of level 2) consisted primarily of ceramic vessel fragments (15 redware, 1 white salt-glazed stoneware, 1 Whieldon ware, 2 pearlware), one free-blown bottle glass fragment, and two pieces of window glass (one of which was crown/cylinder). The lower portion of the feature (i.e., level 3, locus 1) contained .74 g of brick, 1 nail of undetermined date of manufacture, two plain redware vessel fragments, and cobbles. The debris associated with this feature appears to have been deposited sometime in the late 18th or early 19th centuries, although its precise date of deposition is uncertain.

FEATURE 4

Feature 4, located in the eastern portion of the site within Stratum II (Figure 4-12), was the only prehistoric feature located during the subsurface investigations of the site. A total of 86 flakes, 4 pieces of shatter/block, 1 decortication flake, 4 bifaces, 1 possible drill, 1 Wayland Notched-Like point, 1 Small Stemmed IV point, and 1 Large Triangle/Levanna were recovered. Felsite was the most common material, but quartzite, Pennsylvania Jasper, and Saugus Jasper were also present. The projectile points indicate a possible Archaic and Woodland association. The prehistoric materials were embedded within a black silty sand. This silty sand appears to be alluvium that was transported from the Concord River to this area of the site as a result of either human and/or natural agents. The association of the prehistoric material with this black silty sand may indicate that this is not an *in situ* prehistoric feature. Feature 4 was located in the northeast portion of STP S20E30, 23 cm below the unit's datum, and intruded at least 76 cm into a grayish brown medium-grained sand (Figure 4-27). A yellow medium-grained sand deposit was present at the base of the feature.

FEATURE 5

Feature 5, a deposit of building-related and domestic refuse within a mottled, dark gray and brown silty fine sand, is located within Stratum IB in the western portion of the site (Figure 4-12). In profile, the feature intruded approximately 18 cm into the glacial subsoil (Figure 4-28). The debris within the feature consisted of 2 whiteware vessel fragments, 1 piece of crown/cylinder window glass, 26 mammal bone fragments, and 10 mammal teeth that have been tentatively identified as pig. Feature 5 was located in STP S23W17.5 and may have been disturbed as a result of rodent burrowing. Although the feature was initially identified at 36 cm below the unit's datum, it was later determined to have existed approximately 30 cm below the unit's datum.

Summary and Conclusions

Archeological investigations of the David Brown site appear to have uncovered the remains of the Rhoades house and therefore the remains of the house that David Brown and his family occupied from ca. 1752/55 to 1832. This house exists southwest of the one uncovered by previous investigations, as predicted. If the remains uncovered by the present investigations are those of the house that the Browns resided in ca. 1752/55, then the house remains uncovered by Tremer (1970, 1973) are those of the "old House" mentioned in Hannah Brown's probate (Middlesex Probates #3003)—the house that was occupied by generations of Browns from ca. 1644 to 1752/55. No evidence of another house cellar or the conclusive remains of any other buildings was uncovered within the area investigated. In addition to these remains, seven features were uncovered, two of which may be the remains of

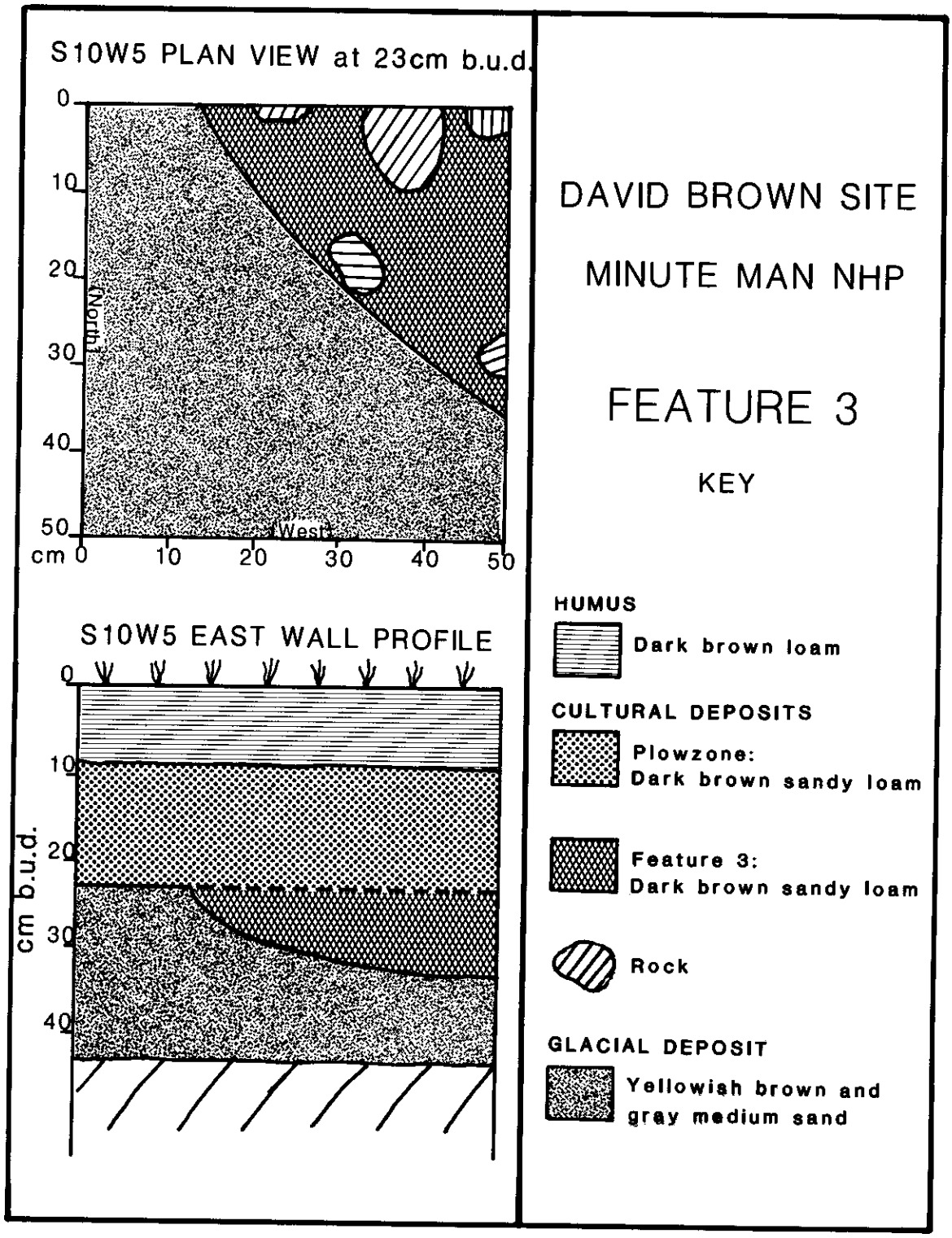


Figure 4-26. Plan and profile views of STP S10W5, showing Feature 3 at the David Brown site.

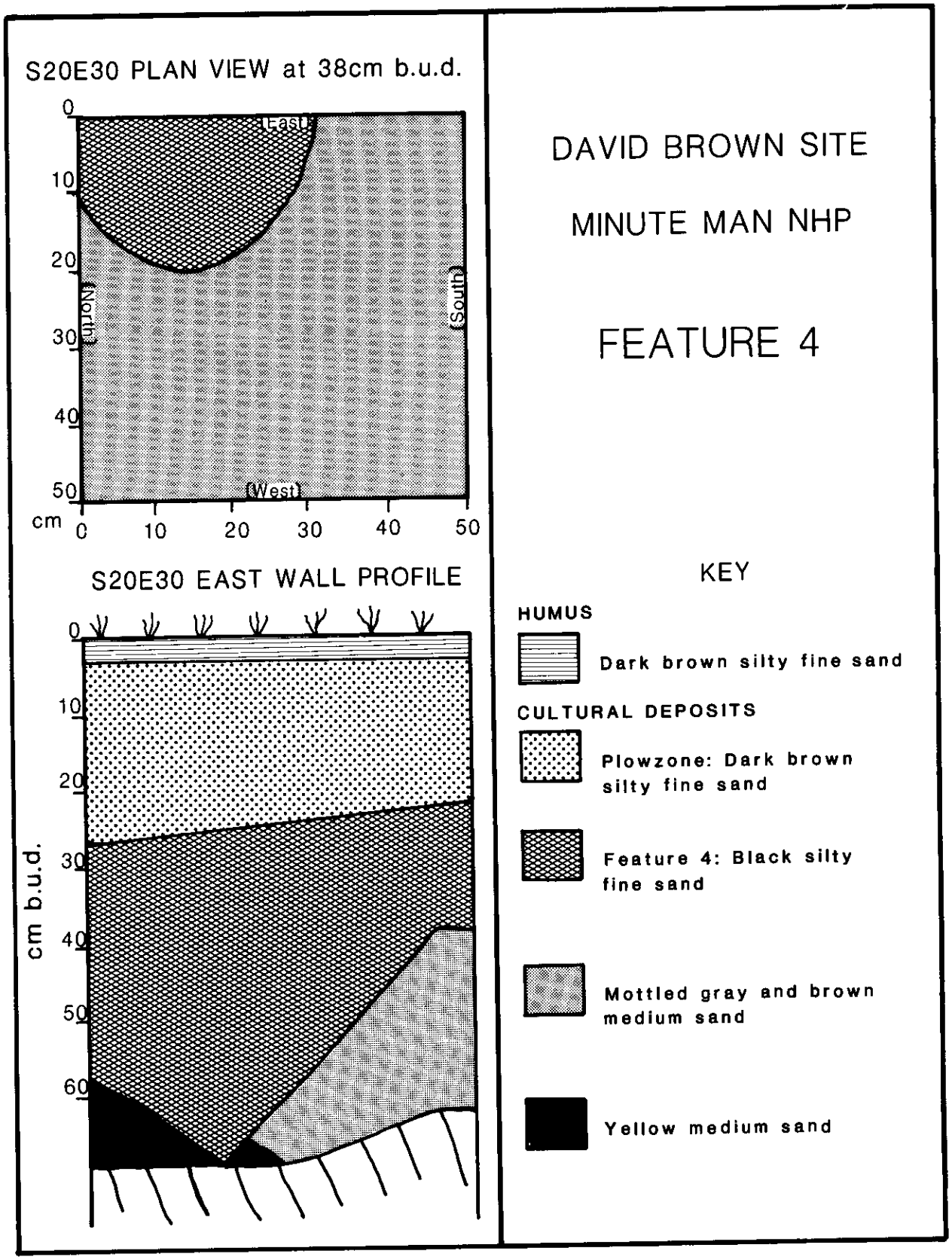


Figure 4-27. Plan and profile views of STP S20E30, showing Feature 4 at the David Brown site.

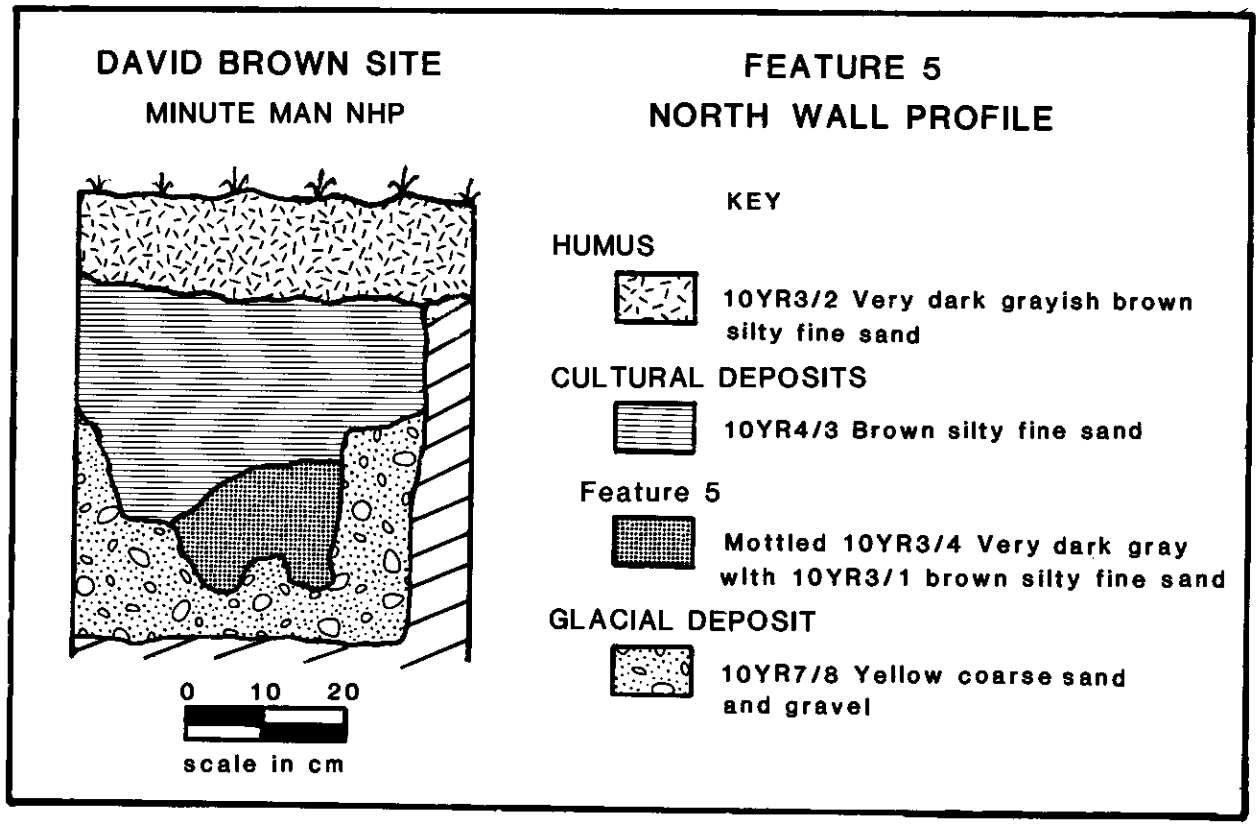


Figure 4-28. Plan and profile views of STP S23W17.5, showing Feature 5 at the David Brown site.

a cobble roadway like the one uncovered south of the site during previous investigations (Abel 1965). The date of this possible road is uncertain. With the exception of one prehistoric feature, all features date to the historical period. The cobble area uncovered by previous investigators (Tremer 1970, 1973) appears to be the remains of a barn cellar floor that was probably constructed sometime after ca. 1822. Although this barn cellar and its associated superstructure could have been constructed by Joseph Brown (David's son) sometime before 1821, it is likely that the barn and its associated cobble area were not built until after that date. This barn may be the "yellow barn" (i.e., the Rhoades barn), which is purported to have been moved from its original location and attached to Simon Brown's barn to form the twin barn that currently exists on the Keyes property north of Liberty Street, across from the David Brown site.

Thus, archeological field investigations in conjunction with reanalyses of the remains uncovered by previous researchers provide a 200-year record of change and continuity at the David Brown site. This record not only chronicles events and processes associated with the residents and owners of this site, but those of broader regional interest—from initial 17th-century settlement of inland areas of New England, to revolution in 1775, to the transformation to agricultural capitalism in the 19th century.

For example, if the original David Brown house was built with a cellar (evidence of which was uncovered by Tremer [1970, 1973]) as opposed to being a temporary earthfast dwelling, it may indicate that settlement of this part of

Concord in the mid-17th century was intended to be permanent from the outset. This permanency could indicate, in turn, that the actual or perceived prospects for economic prosperity were high. Regardless of precisely when the Brown family prospered, they were certainly economically prosperous and socially prominent in the community by at least the mid-18th century. The construction of a new, and most likely larger, house ca. 1752/55 by David Brown not only reflected this prosperity and prominence but most certainly legitimized, if not actively helped, create it. By the late 18th century, however, the Brown family's economic well-being was in jeopardy and continued to be so until the farmstead was sold in the early 19th century. Soon after the farmstead was sold and up until at least the third quarter of the 19th century, however, owners and residents of the farmstead modified the landscape in significant ways. As mentioned above and in Chapter 6, these included the construction of a new barn, the removal of the former David Brown house, the construction of stone walls and fences, and the removal and filling of various areas. These alterations, most certainly, were shaped by *and* helped shape what Gross (1982:43) has termed the rise to modern agricultural capitalism.

Chapter 5

Exploratory Pollen Analysis of Historical Matrices at the David Brown Homestead

G. K. Kelso

Objectives

Pollen analysis of archeological matrices has been established for at least three decades as a valuable tool for examining diet, land use, artifact function, and structure function of prehistoric societies in arid western North America. The method has not found wide application among pre-Columbian archeologists in the East because extensive exposure to aerated rainwater and aerobic fungi results in generally poor pollen preservation in temperate zone terrestrial sediments (King, Klipple, and Duffield 1975). Preservation in historical-era sediments has proven better, and evidence for at least some aspects of Euroamerican land use have been found among weed and cultivated plant pollen spectra deposited post–A.D. 1630 (Kelso and Schoss 1983; Kelso 1985a, 1987a, 1987b, 1987c; Kelso and Beaudry 1990).

Most of our comparative historical pollen data from terrestrial deposits are derived from urban contexts, and among these there is considerable variability in pollen preservation and in the sensitivity with which the surviving pollen registers cultural phenomena. Some pollen data relative to historical rural land use are available (Brugam 1978; Kelso 1985a), but they are derived from lacustrine and marsh matrices, mostly recovered some distance from the locus of the human activities recorded. This palynological analysis of the David Brown homestead is in large part exploratory. Our first objective was to determine whether the quality of pollen preservation is sufficient to warrant analysis in a representative sample of rural matrices.

Our second general objective was to determine if documented sequences of historical-era events were recorded with acceptable accuracy by rural pollen records. The chronological control for the filling of the 19th-century Rhoades house cellarhole (presumably the 18th-century David Brown house [see Chapters 3 and 4]) provided by the Simon Brown diary (Towle 1986a:270–271; see also Chapters 4 and 6) is the tightest available for any site known to this author. Measures of pollen preservation and concentration, as well as pollen spectra themselves, should reflect the nature of this event, as has been the case among urban fills of different kinds (Kelso and Beaudry 1990; Kelso 1987a).

Our third general objective pertained to the MIMA Archeological Project's overall goal of describing and explaining transformations in portions of MIMA's landscape, particularly the physical appearance and use of the homelot (Chapter 1). The pollen data should assist the archeologists in confirming or discarding their interpretation of the excavated cellarhole (Feature 7) as the David Brown house rather than that of "old barn cellar" or the "yellow barn" mentioned in the Simon Brown diary (see Chapter 4).

The isolation of what are usually referred to as "task specific" areas and the characterization of structure function are currently pursued as a standard practice by arid lands archeological palynologists. The feasibility of determining structure function has been demonstrated through the contrasting quantities of economic pollen types in physically different kinds of structures

(Hill and Hevly 1968:206), while "task specific" areas are defined by the differential concentration of pollen types at separate loci within structures (Bohrer 1972:24). Changes in the percentages of economic pollen types reflected changes in site function across short horizontal distances and through time in a colonial period Boston site (Kelso and Beaudry 1990). It is not unreasonable to assume that the floor pollen spectra of historical farm structures functioning in different ways would also contrast.

Methods

The general stratigraphy of the David Brown site is discussed in Chapter 4. All proveniences established during excavation were sampled for pollen. The sample series from the cellarhole appeared most promising for the fulfillment of the project objectives. The cellar walls/building foundation had been removed and the remains, where sampled at EU N10W15 (Figure 5-1), consisted of a fieldstone floor set in what appears to be glacial outwash sand. A thin sheet, ca. 1 cm, of dark loam-like sediment directly on the floor was overlain by roughly 30 cm of mixed clay and brick debris. This was in turn overlain by a uniform fill in which only the surface humus zone could be distinguished.

Three gross pollen matrix deposition episodes were evident in this cellar stratigraphy. The deepest consisted of construction, occupation, and dismantling period pollen sediments under, on, and immediately above the floor. Samples f1–f5 came from this "floor series" of deposits. Sample f1 came from the sand below the granite slabs, sample f2 came from the dark soil between the fieldstones, and sample f5 came from the thin dark layer on the floor. Sample f3 was taken from a hard-packed dirt floor under a metal pan in another section of the structure (EU N6.5W8), and sample f4 was scraped from the upper surface of the pan. Samples f3 and f4 fit chronologically between samples f2 and f5. Sample locations and stratigraphic relationships are illustrated in Figures 5-1, 5-2, and 5-3. The second deposition episode consisted of chimney debris cast into the cellarhole during post-dismantling clean-up around the hole. No sediment was visible among the brick and builders' clay of this debris layer, and it was not sampled. The third matrix was the deposit used to fill the hole. It was sampled in a profile of 2-cm contiguous increments from the top of the chimney debris to the present ground surface. Samples p1–p48 were drawn from this "profile series."

Pollen extraction was undertaken in the Ethnobotany Laboratories of the Biology Department, University of Massachusetts at Boston and followed Mehringer's (1967) procedure. Residues were mounted in glycerol for viewing, and analysis was conducted at the Archeological Branch, Cultural Resources Center, Division of Cultural Resources Management, North Atlantic Regional Office, National Park Service, Boston, Massachusetts. The pollen was identified at 400× with problematical grains examined under oil immersion at 1000×. A minimum of 400 pollen grains was tabulated for each of the David Brown samples. All pine pollen grains observed in all MIMA Archeological Project samples were examined for the "belly warts" that distinguish white pine (*Pinus strobus*) from the other species of *Pinus* growing in New England (Kapp 1969:38). The pine data within individual MIMA sites did not prove significant and were not incorporated in the diagrams.

Pollen concentrations per gram of sample were computed following Benninghoff's (1962) exotic pollen addition method as a check against preservation-related differences in the spectra. Pollen concentration figures were not computed for individual taxa. These would not be meaningful in the absence of chronological control over sedimentation rate and might be mistaken for pollen influx data. All pollen grains too degraded to be identified were tabulated to provide further control over corrosion factors. Unidentifiable pollen grains were not incorporated in any sum from which the frequencies of other types were computed. The data for this pollen group, as a percentage of total identifiable and unidentifiable pollen, and the data for corroded oaks, a prominent pollen type that retains its identity while

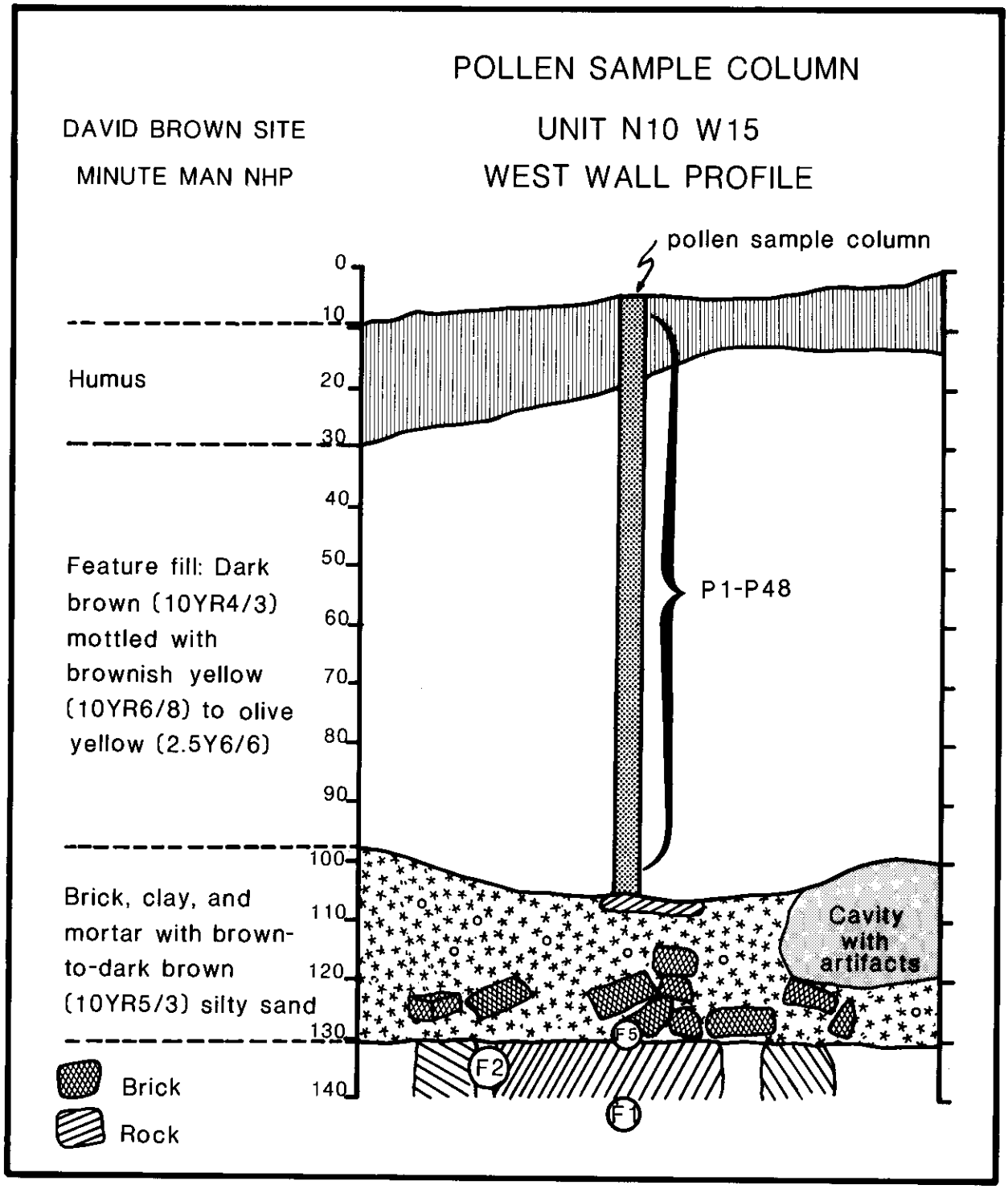


Figure 5-1. West profile of EU N10W15 at the David Brown site showing stratigraphy of the cellarhole and the loci of pollen samples.

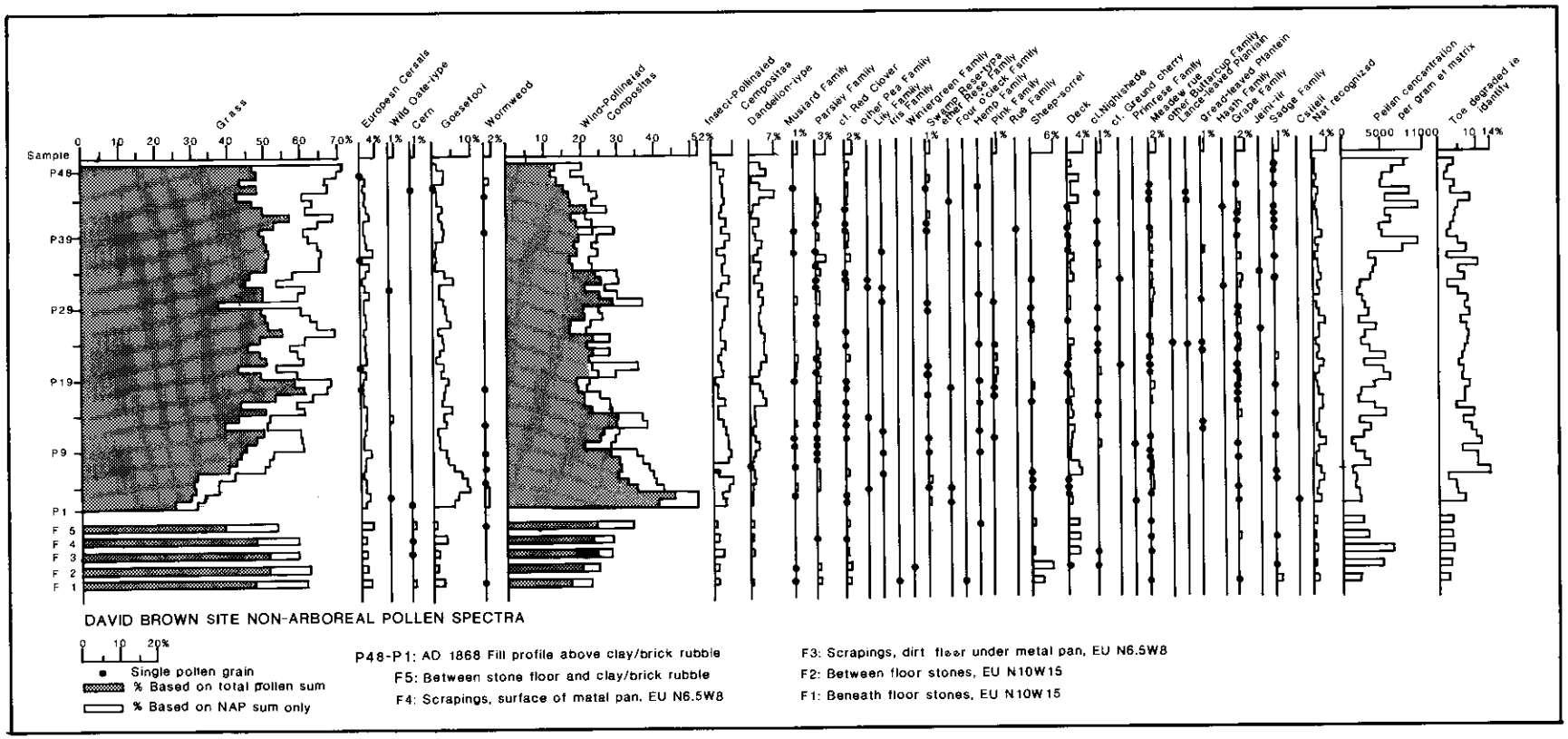


Figure 5-2. David Brown site non-arboreal pollen spectra.

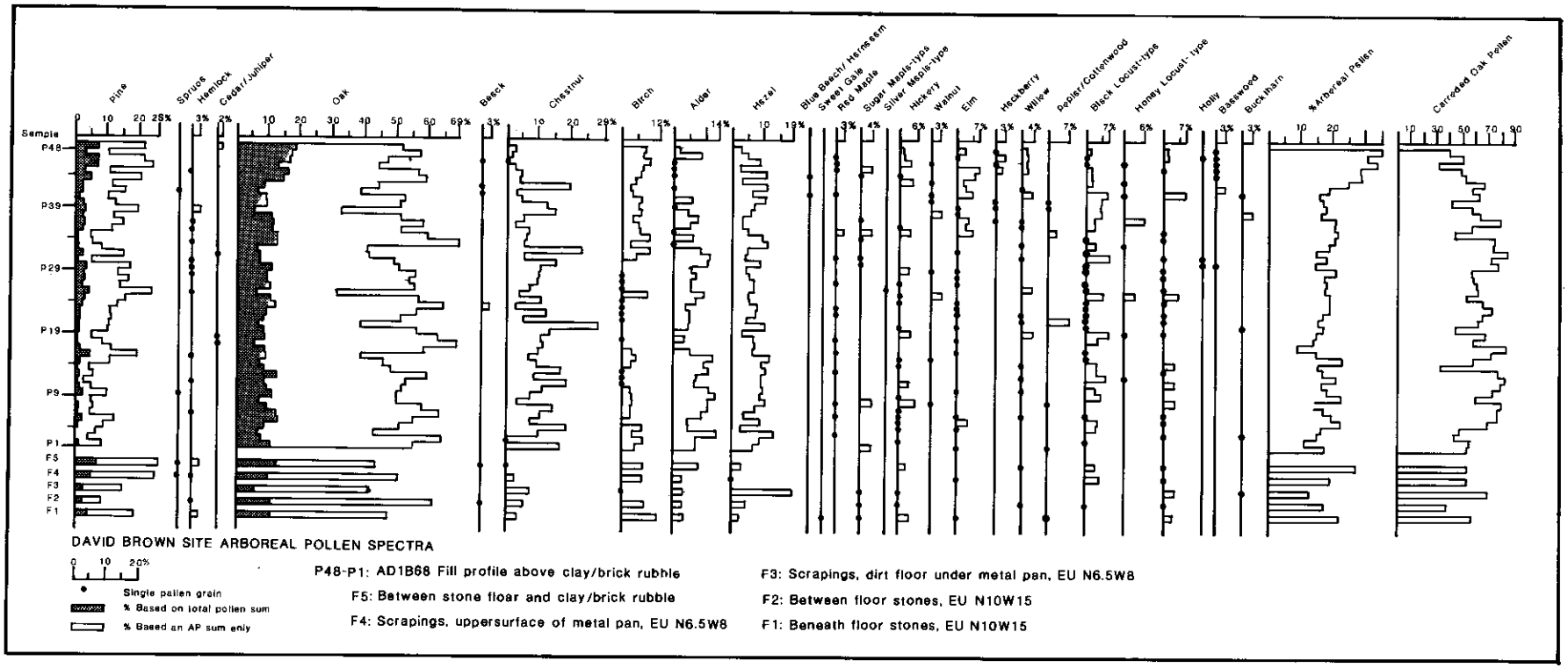


Figure 5-3. David Brown site arboreal pollen spectra.

readily degrading (van Zeist 1967:49), are presented in the diagrams (Figures 5-2, 5-3). The terms "corroded" and "degraded" are used interchangeably here and refer to any kind of pollen deterioration other than tearing. They are not intended as references to the specific classes of deterioration defined under these terms by Cushing (1964) and Havinga (1984).

The open line bars in the pollen diagrams (Figures 5-2, 5-3) are percentages computed from separate sums for arboreal and non-arboreal pollen types. This separation serves to differentiate regional and local pollen types to some extent and reduces the statistical distortions that the contributions of pollen types reflecting different phenomena induce in each other. It has the disadvantage of producing possibly misleadingly high percentages in some instances from small counts among the minor types. Total sum diagrams (relative frequencies based on the identifiable pollen of all types), in conjunction with those based on separate arboreal and non-arboreal sums, are sometimes of value in ascertaining relationships between local and regional vegetation change. The solid colored portion of the diagrams records this measure.

Historical archeologists most frequently encounter plants under their English names in the documentary record, so the common New England names for plant taxa are employed in both the text and the diagrams. A conversion table (Table 5-1) of Latin and vernacular names is provided for those wishing to place these data in context with those of the paleoecological research community.

Results

Pollen Preservation

Pollen concentrations per gram of matrix in the David Brown cellarhole samples were in the 1,372–10,172 pollen grain range. These quantities are comparable to those recovered from previously analyzed urban samples (Kelso 1986a, 1986b, 1987a, 1987b; Kelso and Beaudry 1990) and should be adequate for reliable interpretation.

David Brown Site Pollen Zones

Two gross deposition intervals may be both stratigraphically and palynologically defined within Feature 7, the cellarhole, at the David Brown site. The older of these is a floor zone below the clay and brick debris layer. It incorporates the following samples:

f5) the 1 cm of the cellar fill between the stone floor and the clay and brick debris layer in EU N10W15;
f4) the scrapings from the upper surface of a metal pan in EU N6.5W8;
f3) the scrapings from a compacted dirt floor directly under the metal pan in EU N6.5W8;
f2) a dark, organic-appearing fill collected from between the floor stones in EU N10W15; and
f1) a probable construction period deposit of glacial sand with 8 fragments of redware, 1 fragment of undecorated white salt-glazed stoneware, 1 piece of crown/cylinder window glass, .15 g of charcoal, and 1 indeterminate object from under the granite floor stones in EU N10W15.

The second general deposition interval consists of the relatively uniform fill, which field observations and subsequent analyses (Chapter 4) suggest was intentionally deposited within the cellar after the structure was torn down. It incorporates samples p1–p48 of the profile collected above apparent builders' clay and brick rubble in EU N10W15. Several variations among the spectra of each general deposition interval are evident. These are attributable to changes in the local flora and to pollen transport factors.

THE CELLAR FLOOR POLLEN ZONE

Palynologically this zone is distinguished from the deposits above the clay and brick debris layer by grass pollen frequencies that are more uniform; by dandelion-type (Liguliflorae), aster-type (insect-pollinated Compositae), chestnut (*Castanea*), alder (*Alder*), and hazel (*Corylus*) percentages that are generally lower; by pine (*Pinus*) and sheep-sorrel (*Rumex-acetosella* type) pollen counts that are generally higher; and by the presence of corn pollen (*Zea mays*) in a larger proportion of the samples. As can be

Table 5-1. Conversion table of vernacular and Latin botanical names.

Arboreal		*Non-Arboreal*	
Latin	*Vernacular*	*Latin*	*Vernacular*
Pinus	pine	Gramineae	grass
Quercus	oak	*Avena fatua*	wild oats
Fagus	beech	Cerealia	European cereal
Castanea	chestnut	*Zea mays*	corn
Betula	birch	Chenopodiaceae	goosefoot family
Corylus	hazel	Compositae	ragweed family
Alnus	alder	*Artemisia*	wormwood
Acer saccharinum	silver maple	Wind-pollinated Compositae	ragweed type
Acer saccharum	sugar maple	Liguliflorae	dandelion type
Acer rubrum	red maple	Insect-pollinated Compositae	aster type
Carya	hickory	Umbelliferae	parsley
Populus	poplar/cottonwood	Polygonaceae	smartweed family
Ilex	holly	*Rumex mexicanus*	dock
Celtis	hackberry	*Rumex acetosella*	sheep sorrel
Robinia type	black locust type	*Ribes*	gooseberry/currant
Gleditsia type	honey locust type	Cannabinaceae	hemp family
Ulmus	elm	*Thalictrum*	meadow rue
Picea	spruce	*Plantago major* type	broad-leaved plantain
Tsuga	hemlock	Vitaceae	vine family
Cupressaceae	cedar/juniper	Rubiaceae	bedstraw family
Oystra	hornbeam	*Centaurea* type	star-thistle type
Carpinus	blue beech	Cruciferae	mustard family
Platnus	sycamore	Umbelliferae	parsley family
Juglans	walnut	Leguminoseae	pea family
Salix	willow	*Trifolium* type	red clover type
Morus	mulberry	Labiatae	mint family
Tilia	basswood	Boraginaceae	borage family
Rhamnus	buckthorn	Rosaceae	rose family
Nemopanthus	mountain holly	Solanaceae	nightshade family
		Solanum	nightshade
		Physalis	groundcherry
		Euphorbiaceae	spurge family
		Scrophulariaceae	snapdragon family
		Caryophyllaceae	pink family
		Caprifoliaceae	honeysuckle family
		Liliaceae	lily family
		Primulaceae	primrose family
		Rutaceae	rue family
		Urtica	nettle

(table continued on next page)

Table 5-1. Conversion table of vernacular and Latin botanical names (cont.).

Arboreal		*Non-Arboreal*	
Latin	*Vernacular*	*Latin*	*Vernacular*
		Thalictrum	meadow rue
		Ranunculaceae	buttercup family
		Onagraceae	evening primrose family
		Oxalis	wood sorrel
		Polygala	milkwort
		Plantago-lanceolata	lance-leaved plantain
		Plantago-major type	broad-leaved plantain
		Saxifragaceae	saxifrage family
		Viola	violet
		Ericaceae	heath family
		Cyperaceae	sedge family
		Typha	cattail
		Nyctaginaceae	four-o'clock family
		Ephedra	joint fir
		Cephalanthus	buttonbush

noted in Chapter 4, few artifacts, other than several ceramic fragments employed to level stones, were found under the granite floor. The cultural debris predictable within an occupied dirt surface was not evident, and the hard cellar surface appears to have been laid down at the time the structure was built.

The floor stones were placed on what appears to be glacial sand. Where examined at the Joseph Mason site and the Boott Mills boardinghouses and Kirk Street Agents' House in Lowell, Massachusetts (Chapter 8; Kelso 1987a:113; Kelso et al. 1989:245), such glacial sand has proven to be pollen sterile or to contain a historical spectrum leached down from overlying deposits. The David Brown cellar sub-floor pollen spectrum (sample f3) contained European cereal pollen. It and all subscquent samples must, therefore, have originated during the European era. Two sources for the pollen in this zone have been tentatively identified.

Pollen concentrations per gram of matrix are higher in the two samples (f2 and f3) between the floor stones and directly on the dirt floor than in the remaining three samples from the zone. Pine pollen and general arboreal pollen are better represented in the three samples (f1, f4, and f5) from under and slightly above the floor than they were between the stones and directly on the floor under the metal pan. Where an effort is made to maintain a surface it is reasonable to assume that sediment should accumulate more slowly than in a natural or exposed cultural deposit. Pollen should be deposited on the surface at a normal rate, however, and much of this will be trod in. The result will be higher than normal pollen concentrations per gram of matrix within the surface layer. If, on the other hand, the surface is exposed to the atmosphere and does not develop a ground cover, the thinner tree-dominated regional pollen rain (Janssen 1973:33) will become more important than it normally would in a terrestrial deposit.

Both of these phenomena have been observed within the working surface zones of a colonial period saw pit in Boston (Kelso and Beaudry 1990), and the groupings among the David Brown cellarhole floor zone pine, arboreal pollen,

and pollen concentration data may be explained in these terms. The higher pollen concentrations, smaller arboreal pollen contributions, and lower pine pollen percentages on the floor (sample f3) and between the floor stones (sample f2) accumulated during the active use of the floor when it was both intentionally maintained as a surface and cut off from atmospheric pollen by the house above. The higher pine pollen frequencies, higher arboreal pollen sums, and lower pollen concentrations of the sub-floor (sample f1) and supra-floor (samples f4 and f5) samples appear to reflect intervals during the construction and dismantling of the house when there was no superstructure, and the cellarhole stood exposed to the elements and the regional pollen spectra transported thereby.

One or two grains of corn pollen were recovered from samples f1, f3, f4, and f5. Corn pollen is not widely dispersed by natural mechanisms (Berlin et al. 1977:592) and, other than a single grain in sample p45, is restricted to profile sample p2 immediately above the clay and brick debris layer. The distribution of this type in pre-occupation and post-occupation deposits, as well as on the floor, and the limited natural transport potential of the type suggests sheetwash and/or foot traffic transport into the cellar from surrounding deposits.

A spectrum combining pollen secondarily derived from historical sediments surrounding the building and freshly deposited from the pollen rain characteristic of the area during the occupation period is strongly suggested for the floor zone. These spectra are rather uniform, given the chronometric interval involved, ca. 1754–1868, and most internal variation can be attributed to pollen transport mechanisms. Some pollen evidence for change in the local flora during the occupation does, however, exist.

Sheep-sorrel is very prominent in the samples f1 and f2 counts and appears to reflect conditions on the locus at and shortly after construction of the house. In Europe sheep-sorrel is most commonly associated with winter cereal—primarily rye—cultivation (Behre 1983:figure 2), but should also provide a measure of soil quality. It prefers poor soils to the extent that it is best controlled by fertilization (Muenscher 1955:174; Fernald 1970:571). Sheep-sorrel declines abruptly in the samples collected on and above the floor and is replaced by dock (*Rumex mexicanus* type), a weed of wasteground and pastures with a preference for richer soils (Fernald 1970:568). It would appear that the cellarhole was excavated into rather poor soil, and that local fertility increased thereafter. This contrasts with the general regional trend toward land exhaustion chronicled by Russell (1976:207), Cronon (1983:150), and others, and might be part of the late 18th-century trend toward soil improvement and agricultural stability in Concord postulated by Donahue (1983:31). *Rumex* probably should not be considered a "regional" pollen type. The improvement in soil conditions registered in the contrasting distributions of these two pollen types is probably the product of activities associated with the structure, broadcast garbage disposal, or perhaps the droppings of cattle and barnyard fowl.

THE POST-OCCUPATION FILL POLLEN ZONE

Documentary sources record plowing on the former David Brown property shortly after it was purchased in 1867. Leveling around the old barn cellar began on April 23, 1868, and filling of the house cellar began October 16, 1868. The area around the house, at least, was manured and prepared for sowing on April 22, 1869 (Towle 1986a:271; Towle n.d.; see also Chapter 4). Four pollen sub-zones are evident among the spectra of the David Brown cellar gross fill deposition interval (samples p1–p48). One is basic and records the pollen already in the fill when it was placed in the cellarhole. The other three reflect floral changes that are the by-products of human activities before and after filling of the hole and are imposed on the basic fill spectrum. The basic fill spectrum is not evident at either the top or the bottom of the profile where presentation of the data should logically begin. It must, however, be considered first if the other pollen sub-zones are to be discussed intelligibly.

THE GENERAL FILL POLLEN SUB-ZONE

This pollen sub-zone spans the profile from ca. sample p10 up through ca. sample p36. It is characterized by chestnut, alder, hazel, insect-pollinated Compositae, and dandelion frequencies that are generally higher than in the floor zone; by pine pollen frequencies that are somewhat lower; and by the less frequent appearance of corn pollen among the counts.

The contrast between the pollen spectra constituting this profile sub-zone and those of the floor zone can be explained in two ways: 1) abrupt replacement of local herb and tree populations between dismantling of the superstructure and filling of the cellar, or 2) a distant source location for most of the above-floor fill. The second explanation is more likely because vegetation succession and pollen transport factors suggest that the deposits around the structure were probably not the source of the cellar fill. Herb pollen spectra can respond relatively quickly to changes in the local environment, cultural or natural, but trees require a minimum of several years to mature to the reproductive stage (Fowells 1965). The historically recorded filling of the Rhoades house cellarhole on the property in 1868 (Chapter 4) was too rapid for the contrasts between the floor and fill zones to reflect replacement of tree taxa. In addition, the unilateral expansion of hazel, alder, and chestnut local populations statistically suppressing the pine counts should be reflected in a shift in the arboreal to non-arboreal pollen ratio, and the opposite would apply were pines simply eliminated between 1867 and 1869. Neither of these trends appears among the tree pollen ratios. Local derivation of the cellar fill would also require some mechanism for post-depositionally purging some of the pine pollen and most of the corn pollen from the fill. There is little question that the bulk of the David Brown cellar fill was not mined in the immediate vicinity of the hole.

The high hazel frequency (19%) under the metal pan on the dirt segment of the floor (sample f3) appears to conflict with this interpretation. It is anomalous even for the site as a whole and may represent an anther tracked into the structure. Birch representation is also inconsistent. The type is regularly represented in the floor zone, in the deepest 4 samples of the profile, and in the 18 most shallow profile samples. It will be demonstrated later in the discussion that locally produced pollen intruded into the upper fill. It is probable that birch is simply more characteristic of the local pollen rain than of the exotic fill location.

THE EARLY FILLING POLLEN SUB-ZONE

The deepest pollen sub-zone within the fill spans samples p1–p9. This pollen sub-zone is characterized by goosefoot family (Chenopodiaceae), ragweed-type (wind-pollinated Compositae), and mugwort (*Artemisia*) contributions that are higher than those of either the floor zone or the general fill sub-zone; by grass (Gramineae) and dandelion-type pollen percentages that are proportionately depressed; and by chestnut, hazel, alder, and aster-type frequencies that more closely resemble those of the fill matrix above than those of the native floor zone samples below. Pollen concentration figures are generally lower and more regular than are those of most samples from the general fill, and pollen corrosion measures are markedly lower in the deepest four samples (p1–p4) of the sub-zone.

Ragweeds, the most prominent and pollen productive members of the wind-pollinated Compositae, are known for their ability to colonize the harsh environment of newly plowed ground (Bazzaz 1974:12). Increases in this type are considered prima facie evidence for soil disturbance related to Euroamerican agriculture in the upper portions of New England lacustrine pollen sequences (Davis 1965:382). Some pollen of this type is incorporated, via convection currents, into the regional pollen spectrum, but the majority come to earth within a few meters of the parent plants (Raynor, Ogden, and Hayes 1973:figure 4, 1974:figure 4). In most cases ragweed-type Compositae pollen reflects local phenomena. The wind-pollinated Compositae, goosefoot, and mugwort counts from this portion of the David Brown cellarhole profile probably record expanded local populations of weeds on

soil disturbed during the dismantling of the Rhoades house, and possibly their barn, and the plowing and the leveling on the property from April 1867 through October 1868 (Towle 1986a:270–271; Towle n.d.; see also Chapter 4).

Ragweed-type Compositae was higher and grass pollen representation was lower than normal for the floor zone in sample f5, just under the chimney debris. Goosefoot frequencies did not increase. This suggests two things about the chimney debris: 1) that it was deposited on the floor long enough after dismantling for a thin dark sediment layer incorporating pollen from weeds encouraged by dismantling period soil disturbance to develop on the floor, and 2) that it was deposited too long before development of the local goosefoot populations and the full flowering of the ragweeds to capture a pollen record of these events.

Pollen transport mechanisms may have changed during the brief deposition interval of this pollen sub-zone. Grass pollen declines the most among the spectra, and pine pollen is not present in quantities predictable from the floor zone data for the soil around the site. Dandelion frequencies in the deepest few samples (p1–p3) are, however, comparable to those of the floor zone. Insect-pollinated Compositae, hazel, and alder percentages are intermediate between counts of the general fill as a unit and the floor zone in those samples where ragweed frequencies are highest and where grass counts are lowest. The chestnut contribution to sample p1 is in line with those of the exotic fill, but a grain of corn pollen was found in this level as well. Pollen corrosion measures increase abruptly above sample p4. The matrix with intermediate pollen spectra, samples p1–p4, appears to be a mixture of local surface soil and some exotic fill with the local sources definitely dominant.

Whether the local material was intentionally placed in the hole or was slump resulting from removal of the cellar walls/building foundation cannot be determined. The slump explanation is preferred because this segment of the fill is no more than 4–8 cm deep but contains intermediate frequencies of other types. This suggests a mixture of matrices. The possibility that this ragweed-dominated sub-zone reflects an entirely separate fill from yet another off-site location must be mentioned. This appears unlikely because trends in the wind-pollinated Compositae, goosefoot, and grass spectra of the later samples of this sub-zone, p3–p10, gradually merge with the spectra of these types characteristic of the exotic fill above.

The abrupt shift in pollen preservation above sample p4 suggests a change in matrix source with the beginning of active filling. The declining ragweed and goosefoot counts appear to record the intrusion of local weed pollen into imported fill during the filling process. Pollen preservation and the pollen types themselves indicate that little, if any, local matrix was incorporated in the cellar fill profile in the sample p5–p10 sub-zone.

Most ragweeds, mugworts, and many members of the goosefoot family are late summer and fall pollinators. A heavy frost is required to terminate ragweed pollen production, and few other taxa are in anthesis at this time. The dominance of the deepest exotic fill by these plants and the tapering off of these types upward in the fill are consistent with the initiation of house cellar filling recorded in the Simon Brown diary on October 16, 1868, and continuous filling activity in the late fall. The upper fill, above sample p10, seems to have been introduced later in the season, when the air was clear of pollen or the supply of ragweed pollen available for reflotation through local soil disturbance was depleted.

THE POSSIBLE AGRICULTURAL-PERIOD POLLEN SUB-ZONE

This pollen sub-zone occupies the stratigraphic interval between samples p34 and p43. It is defined on the basis of the following characteristics: 1) higher and more regular grass and red clover-type pollen contributions; 2) lower and more regular wind-pollinated Compositae percentages; 3) depressed goosefoot, chestnut, and alder pollen counts; 4) higher relative frequencies of birch and elm pollen; and 5) higher pollen concentrations per gram of matrix.

These changes appear to reflect the intrusion of locally produced pollen into the existing

pollen spectrum of the imported fill after the cellarhole filling was complete. Among the non-arboreal spectra, local grass and clover pollen statistically diluted the relative frequencies of the ragweed and goosefoot pollen that was brought in with the fill. Among the arboreal sums the pollen contributions of local birches and elms statistically forced down the percentages of the alder and chestnut pollen imported in the fill. This does not appear to reflect natural herb and tree population development around the cellarhole. In natural situations the pollen deposited at the surface should be progressively destroyed by oxygen and aerobic fungi as it is leached down into a deposit. This produces a spectrum with more, better preserved pollen at the top of the fill than in deeper samples (Dimbleby 1985:figure 3; Kelso 1987b:figures 1–3). Such a spectrum does not appear in the sample p34–p43 pollen sub-zone. The transition at sample p34 is quite abrupt and must be interpreted as a cultural phenomenon.

Grass and clover are meadow and pasture plants. Photographs taken between 1883 and 1907 show that the David Brown site was used for haying (Figure 4-11). The meadow may have been created in the manuring and sowing of April 1869 (Towle n.d.; see also Chapter 4). Hay quality deteriorates as weeds take over meadows that are not part of a regular crop rotation scheme (Russell 1976:366). The meadow still exists and has probably been plowed under more than once. The plowing under of surface-deposited pollen would produce the abrupt changes in the pollen spectra and the relative uniformity of the grass, ragweed, and clover counts in the sample p34–p43 pollen sub-zone. A plowzone was visible at approximately this depth in the walls of the STPs on the site, but could not be seen within the cellar excavation (Chapter 4). It was probably not recorded in the cellar because there was no normal soil development record to disrupt on the leveled, manured, plowed, and sown fill at this locus (Towle 1986a:271; Towle n.d.; see also Chapter 4.). This plowzone does register among the pollen spectra.

THE POST-AGRICULTURAL POLLEN SUB-ZONE

The latest pollen sub-zone of the David Brown cellar fill sequence incorporates the segment of the profile from sample p43 to the surface. It is characterized by higher percentages of pine, oak, and total arboreal pollen and lower percentages of grass, wind-pollinated Compositae, and chestnut pollen among the spectra computed from the total sum of all pollen present (solid-bar histograms in Figures 5-2 and 5-3). Pine may rise slightly in relative frequencies based on arboreal pollen only, but oak remains steady, while declining wind-pollinated Compositae and rising grass pollen trends are evident among the spectra computed from non-arboreal pollen alone (hollow-bar histograms in Figures 5-2 and 5-3).

When trends of the same pollen types in these two kinds of percentages conflict, statistical constraint is often at work. The contributions of some types are really changing while the representation of others rise and fall proportionately to fill out the fixed numerical sum and make 100%. Among the non-arboreal pollen types, ragweed declines in both sums. There were actually fewer ragweeds in the source area. Decreased soil disturbance is almost certainly indicated. This is probably related to a decrease in active agriculture. Grass is statistically responding to less ragweed in the non-arboreal sum by rising and responding to more arboreal pollen in the total sum by declining. Actual grass cover on the sampling locus probably changed little. It is possible that regional rather than local events are indicated in the ragweed shift.

The increases among the arboreal types in the total sum are mirrored in both major non-arboreal pollen types. They reflect a legitimate increase in tree populations and are a manifestation of the mid–19th- to early 20th-century reforestation phenomenon recorded in declining ragweed and increasing tree pollen counts at the top of lake and marsh pollen cores across New England (Davis 1965:382; Braun 1950:424; Russell 1976:461, 527). Basswood (*Tilia*) and willow (*Salix*) pollen grains are insect-transported. Both they and elm tend to be somewhat under-represented in surface spectra (Janssen 1966:813). The

concentration of these types, plus hackberry (*Celtis*) and possibly walnut (*Juglans*), in the upper profile suggests the development of the current tree population on the more open landscape recorded in late 19th- and early 20th-century photographs of the area (Figure 4-11; Concord Free Public Library n.d.). The larger counts of pine pollen in this profile sub-zone could reflect the maturation of the pines that may be seen bounding Liberty Street northeast of the property in a ca. 1890 photograph (Wheeler 1964:70). The oak pollen representation within the sum based on arboreal-pollen-only changes little in this segment of the profile, and the increase in the contribution of this type within the general sum is probably derived in large part from regional, or at least extra-local, pollen sources.

The decrease in chestnut pollen recorded in this same pollen sub-zone is a separate phenomenon recording the destruction of native chestnuts (*C. dentata*) by an introduced fungal blight. The blight had destroyed the trees in New England both south and west of Maine by 1925 (Anderson 1974). Loss of the Concord chestnut should have occurred ca. 1925. Unfortunately neither this information nor the historical chronology of reforestation can be applied to establishing a date for the post-agricultural pollen sub-zone. The sub-zone coincides with the humus layer. The slight decline of most major pollen types down into the sub-zone suggests that most of the pollen recovered within the sub-zone was deposited on the extant surface and leached down into the deposit by percolating rainwater (Dimbleby 1985:6–17) while the relative uniformity of the "too degraded to identify" and general arboreal pollen ratios indicates earthworm homogenization of the matrix (Havinga 1974:451). All stratigraphic/chronological relationships within the post-agricultural/humus zone have been eliminated.

Site Development Processes and the Cellar Filling Rate

To interpret accurately the culture history data presented by the artifact content of a cellarhole fill, an archeologist must know if the cellar was allowed to collapse and fill naturally, if it was filled slowly with primary trash, or if it was closed rapidly in a single filling episode. Previous work at the Boott Mills boardinghouses in Lowell, Massachusetts, suggests that the origins of cellarhole fill may be determined with pollen analysis (Kelso et al. 1989:231). At the David Brown farmstead, pollen analysis, in conjunction with archeological analyses, may also serve to determine if Feature 7 is the remains of a house or a barn cellar.

The Simon Brown diary (Towle 1986a: 270–271; see also Chapter 4) records that the filling of the Rhoades house cellarhole began on October 16, 1868, and was complete before April 22 of the following year. The implication may be drawn from other entries that the "barn cellar" had been filled earlier with equal, or greater, celerity (Chapter 4). Certainly, they were leveling around the former cellarhole within a year of the purchase of the property (Towle n.d.; Chapter 4). Pollen concentration and degradation patterns differ in slowly and rapidly developed fills, and these kinds of pollen data support the archeological interpretation that Feature 7, the cellarhole, was filled quickly (Chapter 4). The nature of the pollen evidence at this site is, however, essentially negative, and some preliminary discussion of pollen post-deposition and degradation processes is required before an interpretation can be presented.

THE POLLEN RECORD OF NORMAL AGGRADING SEDIMENTS

The pollen contributed to a normally accumulating soil profile in the temperate zone is both transported downward through the sediments by percolating ground water and progressively destroyed by aerobic fungi in the soil and by oxygen in the water itself (Erdtman 1969:147; Tschudy 1969; Goldstein 1960). This results in a pollen distribution through the profile with significantly larger concentrations of pollen at the top and increasing proportions of degraded grains toward the bottom among the pollen that does remain (Hall 1981:194; Dimbleby 1985:4, figure

3; Kelso 1987b:1, figure 1-3). The ultimate product is a sequence in which short term variations in pollen deposition are replaced by broad overlapping zones of recent, intermediate age, and old pollen.

Earthworms operating contemporaneously with leaching move pollen up as well as down. Some of the oldest pollen is, consequently, at the top, and some of the newest is at the bottom. An earthworm-created block of relatively homogeneous spectra may be observable in the humus zone, active or fossil, of such temperate zone soils, but the highest pollen concentrations are almost always situated in the uppermost 4 cm. This sometimes permits the recognition of buried surfaces (Dimbleby 1985:11, 45–46; Havinga 1974:451; Walch, Rowley, and Norton 1970:42).

Dimbleby (1985:59) suggested a leaching rate of ca. 10 cm per 300 years under forest planted on former pasture and plowland, while recent data reflecting pollen transport under pasture created by forest clearance at Fort Necessity, Pennsylvania, suggest approximately three times that rate (Kelso, Stone, and Karish 1990:10, figure 2). The patterns of pollen distribution within the profiles at Fort Necessity are exactly those predictable from Dimbleby's (1985) experience, and the greater exposure of the soil to rainwater in the pasture may have hastened leaching.

Because both pollen degradation and leaching are continuous, successively deposited pollen spectra pass out of the record a short distance down in the profile. Only the records of the more recent floral developments remain, regardless of the chronometric age of the matrix itself, unless the development of an anaerobic environment through accumulation of matrix at the top of the profile outpaces the pollen degradation process. An overburden development rate suitable for adequate pollen preservation, possibly combined with decelerated leaching and sediment chemically inhospitable to fungi, is apparently characteristic of urban archeological sites. The predicted pollen spectrum development, culturally derived in many cases, has been noted in New England matrices of Euroamerican origin (Kelso and Beaudry 1990). A classic example is located in levels 7 and 6 of the mid–19th-century Kirk Street Agents' House Square "E" profile (Kelso 1987a:figure 6-2). Here an older, possibly pasture, spectrum that had been leached down into glacial sand may be observed below an earthworm-homogenized grass-to-weed sequence recording construction of the house and the subsequent development of a stable backlot surface. The amount of time recorded in this 2-cm interval has not been ascertained, but for comparative purposes it is worth noting that a single year (1846–1847) construction period at the Kirk Street Agents' House is recorded through 6 cm of matrix in level 6, with the predicted attrition in numbers of pollen grains and quality of preservation toward the bottom.

THE POLLEN RECORD OF EPISODIC FILLS

The distributions of pollen concentrations and preservation gradients within episodic fills are rather different from those of normally aggrading deposits. Here the rapid deposition of the fill instantaneously creates an anaerobic environment at the bottom of the deposit. The agents of degradation—aerobic fungi and oxygenated rainwater—must work their way down from the top. If the fill remains exposed for a while before being buried, without being colonized by plants, the resulting spectrum should be a mirror image of that in a normally aggrading profile. Relatively higher pollen concentrations occur at the bottom, and larger proportions of the pollen grains at the top display evidence of degradation. This has been recognized in a fill introduced as part of a ca. 1820 construction project in what is now the central Boston business district (Kelso and Beaudry 1990). The fill was under a wall and probably did not remain exposed for an extended period of time. Palynologically sterile lenses under other fill sequences suggest that the degradation process can outpace the regional or even extra-local pollen contribution, and the pollen of a thin fill that remains exposed without being colonized by plants may be completely eliminated.

When a ground cover, planted or pioneer,

develops on the surface of a fill, rapidly deposited or otherwise, leaching and earthworms will impose a new spectrum progressively from the top of the fill. The depth to which the new pollen has penetrated should be readily evident. An example of this can be seen in the upper portion of level 2, Square "J" in the Kirk Street Agents' House (Kelso 1987a:figure 6-3). Logically, in a thin fill, replacement may proceed to the point where the older spectrum is completely eliminated and the deposit is not palynologically distinguishable from a naturally accumulated sediment.

THE DAVID BROWN CELLARHOLE FILLING SEQUENCE

The relatively large quantities of pollen in the two active occupation period floor samples (f2 and f3) are cultural equivalents of Dimbleby's (1985:45–46) fossil soil surface, and the proliferation of local weeds registered just above this in samples p1, p2, and p3 is attributable to a vegetative response to human activity. Indications of plowing may be seen near the surface of the profile. In the humus zone, soil processes operated to both preserve and amalgamate the evidence for three separate cultural and natural events—the chestnut blight, cessation of secondary succession, and regional agricultural decline followed by reforestation.

The forgoing adequately demonstrates that pollen production, transport, and deposition processes in the vicinity of the David Brown site are capable of recording the diverse cultural and natural processes recognized at other sites. None of the previously described fill modification processes registers within the general fill pollen zone. Both the contributions of individual pollen types and the concentration/corrosion measures are highly irregular. No internal trends interpretable as the vegetation development, leaching, or earthworm homogenization predictable at a surface resulting from a depositional hiatus could be detected at any point in the body of the fill. The regular, albeit saw-toothed, march of the major types from the bottom of the zone to the top is uninterrupted by the anomalous pollen concentrations that record minor dumping episodes (Kelso et al. 1989:251, 255, figures 12-10 and 12-14). Such variations as are evident are localized at the bottom and at the top where they can be most reasonably explained as carry-overs of pre-deposition cultural processes and intrusive post-deposition natural processes. The filling of the cellar was a continuous process and drew upon a single source of material.

Another line of evidence suggests that the filling was also relatively rapid. The pollen content of the fill shifted from local to exotic pollen types above sample p3 or p4. At the same time the ragweed-type and goosefoot pollen frequencies decline steadily while the grass counts rise to levels normal in the upper fill. The ragweed-type and goosefoot pollen are the product of local plants caught in the exotic fill as the fill was tossed into the pit. These two types decline because the fall-of-the-year anthesis period of the parent plants passed while the hole was being filled. Arboreal pollen is not over-represented anywhere except among the 20th-century pollen spectra leached down into the top of the profile, and the cellar appears to have been completely filled before the spring pollination period of the deciduous trees.

Structure Function

Documentary sources record a number of structures on the David Brown property, but the exact number, age, and location of these have not yet been established (see Chapter 3). At least two cellars, house and barn, are recorded as being present south of Liberty Street in the mid-to-late 19th-century Simon Brown diary (Towle n.d.; Chapter 4). Which cellar was located by the archeological project, however, was unclear at the time of excavation.

There are archeological precedents suggesting that pollen analysis may assist in determining whether the David Brown site cellar was that of a dwelling house or that of a barn. At the prehistoric Broken K site in east-central Arizona, Hill and Hevly (1968) demonstrated that larger quantities of pollen from ethnographically defined economic plants had accumulated in storage rooms than in dwelling spaces. At the Wilkinson

backlot in the central Boston business district, Eurasian cereal pollen percentages were significantly higher in matrices derived from commercial enterprises than in succeeding dwelling backlot deposits (Kelso and Beaudry 1990).

In neither study were the pollen data self-sufficient. Both involved comparisons between the spectra of loci whose functions could be independently established through structural features, material culture, or documentary sources. No overwhelming, unambiguous data exist for the David Brown cellarhole, and no comparative pollen studies of Euroamerican farmsteads could be located in the literature. If we are to propose a functional interpretation for this structure on the basis of only the pollen data we must first establish confidence in the following two basic assumptions.

1. That the functional and spatial separation between barns and dwelling houses observable on modern farms existed during the last half of the 18th century and the first half of the 19th century.
2. That these functional differences should be registered and preserved in pollen spectra.

The first assumption is not as superficial as it might appear because the "long house" or "byre and dwelling" farmstead plan, in which the farm family and their livestock shared a structure, was brought to 17th-century New England by immigrants from the northern and western counties of England. This plan, however, enjoyed only limited and short-lived use (St. George 1982b:162). It was obviously not employed on the late 18th-century David Brown farm because there was adequate room to run a road two rods wide between the house and the barn in 1793 (see Chapter 3).

An alternative British farmstead plan, in which processes involving grain and cattle were separated into barns and cow houses (St. George 1982b:162), had also been abandoned by the time David Brown inherited his farm. David Brown's outbuildings must have been substantial to have been valued at $100.00 in 1802 (Chapter 3), but their nature and function were not recorded. Corn cribs, noted in the early 1700s, were customary on New England farms 100 years later (Russell 1976:136, 367), but the adoption of a wide range of specialized farm structures by New England farmers appears to be essentially a late 19th-century development (Hubka 1984:61–66).

POLLEN PRODUCTION AND TRANSPORT PROCESSES

Natural pollen production and transport processes are as important in the formation of the agricultural pollen record as are cultural practices. These processes will be discussed first. Most kinds of pollen adapted to wind transport (anaemophilous) are produced in rather large quantities, and some kinds can be dispersed far beyond the geographical distributions of the originating plant taxa (Erdtman 1943:175–185). The appearance of such pollen in an archeological site does not necessarily reflect the presence, let alone the use, of the parent plants. Human employment of such plants is usually inferred from the pollen data by examining the pollen content of a wide range of matrices to determine the normal pollen contributions of the natural vegetation and local weeds for the given time and place. Counts that exceed this norm by a notable amount are judged to constitute evidence of the cultural manipulation of the source plants. The palynologist's confidence in his interpretation is improved if the source plant taxon has been ethnographically identified as economically significant, and if the high frequencies are derived from loci associated with plant processing (e.g., storage rooms, ceramic vessels, milling stones).

Animal-transported pollen (zoogamous) is produced in much smaller quantities and is prevented from blowing about by the sticky oils and resins by which it is transferred to the insect vector (Faegri and van der Pijl 1971:63). It is relatively rare in natural deposits (Martin 1963:15; Bryant 1974:412), and more than a few percent of such pollen may be taken as evidence that the parent plants, or some portions thereof, were nearby. Self-fertilizing plants (autogamous) need to produce little pollen, and that which is produced tends to become bound together within the seedhead by intertwining pollen tubes. Little escapes until the seed head is disrupted (Vuorela

1973:10), and such pollen should be even more rare in natural spectra than the zoogamous types. The pollen contributed by zoogamous and autogamous plants is interpreted in the same way as that of the wind-pollinated plants, but with rather greater confidence. Chance can, however, play a significant part in the recovery of minor amounts of such pollen. The absence of zoogamous and autogamous pollen from a spectrum does not necessarily mean that the parent plants were not about.

Most fruit trees and garden vegetables are zoogamous while some varieties of beans are autogamous. The palynological data-vacuum created by such production and transport factors is made worse by the timing and nature of economic plant processing. Root products such as potatoes are completely divorced from the pollen-producing elements of the parent plants while the shelling of peas and beans would separate the stored portion from most residual pollen. Neither resource should be reflected in the pollen record even if stored in massive quantities. The exposed portions of other root crops such as carrots, turnips, parsnips, etc., may be collected with the desired portion, but many such vegetables become woody as they grow older. Those that reach the flowering stage are not normally harvested unless seed is the desired product. Experiments in washing persimmons and raisins do, however, suggest that both dried fruit and the vestigial flower parts on fresh fruits retain pollen (Greig 1982:58–59). In such cases where flowering portions may be collected with the edible portion or, as in many herbs, are themselves the desired product, a problem of identification remains. Most herbs are essentially wild plants brought into the garden and they, along with most vegetables and fruits, have widely distributed non-domesticated relatives whose pollen is indistinguishable from that of the domesticated plants. Palynologically, "a rose by any other name" might be an apple, a raspberry, or even a plum. For all practical purposes we cannot expect the vegetable and fruit portions of human and livestock diet to be registered among the pollen spectra of historical farms.

Alfalfa (*Medicago sativa*) and the various clovers (*Trifolium* spp., *Melilotus* spp.) do bloom before harvest, and pollen attributable to the largely zoogamous pea family (Leguminoseae) to which these belong may mark loci where fodder was formerly stored. The produce from mowing wet meadows, the coarse *Carex* hay of Bidwell and Falconer (1941:102), should also be recognizable because sedge pollen is both distinctive in shape and very poorly dispersed (Meyer 1973:988; Handel 1976:422). Neither the pollen of those "English grasses" that are really members of the grass family (Gramineae) nor that of their native meadow-dwelling relatives is distinguishable from that of grass taxa common to ruderal spaces. The grass component of fodder deposits will not be morphologically distinctive but may be recognizable in very high grass pollen frequencies, especially if notable amounts of legume pollen are also present.

The pollen of the European cereal grasses, namely, wheat (*Triticum*), barley (*Hordeum*), oats (*Avena*), and rye (*Secale*), can be distinguished as a group from that of the wild grasses on the basis of its larger size. Corn pollen, larger yet, can be further separated from both the wild and domesticated grasses, but the fine morphological details by which some palynologists (Faegri and Iversen 1964:196–197; Anderson and Bertelsen 1972) are able to distinguish among the members of the Eurasian cereal group in bog and lake deposits apparently do not, for the most part, appear to survive the weathering characteristic of terrestrial matrices. Loci at which domestic grain or portions thereof was processed, stored, or fed to livestock should be more readily recognizable than the products of the meadows. The kind of grain, if not corn, will not be recognizable.

Rye pollen is produced in large quantities and is widely wind-dispersed. It is considered the primary horizon marker of agricultural activity in European lake deposits (Behre 1983:227). The other members of the European cereal group are self-pollinating. Their pollen is not released until after the grain is threshed and is rarely dispersed by natural means (Vuorela 1973:10). It does adhere to produce and waste products such as

grain, straw, and chaff and it moves with these products. Historical-period concentrations of European cereal pollen have been recovered from threshing spoil, household refuse, fields fertilized with manure and agricultural waste, historical pasture deposits, bakery products, and the routes along which grain is lost during transport within farms (Behre 1983:227; Kelso 1985a:386–391, 1985b:79, 1987c:1; Kelso and Schoss 1983:75; Vuorela 1973:12). The dispersal of corn pollen, even though it is wind-transported, is almost as circumscribed. The quantities of it recovered from the hills, where the plants were growing, of one prehistoric corn field were seven times those recovered a few feet away in the swales (Berlin et al. 1977:592). Corn pollen is retained on husks and is apparently transferred to kernels when the husks are removed. (Bohrer 1972:25, table 7). The upper leaves and stalks above the ear were often chopped and cured for fodder (Russell 1976:278; Bidwell and Falconer 1941:342). These should also have received a liberal dusting.

BARN ORIENTED PLANT PROCESSES

Before the mid-19th century, the storage of threshed and unthreshed small grains and corn, the physical act of threshing, the storage of a wide variety of fodder, and the feeding of cattle were in large part localized under the roof of the barn (Dean 1790:17–18; Hubka 1984:63). Within Concord specifically, A. B. Alcott placed both 35 shocks of unthreshed rye and an unspecified quantity of hay in a barn during August and July 1846 (Carroll 1973:14). Fodder included the straw of grain crops and corn stalks and leaves as well as meadow hay of both native and introduced varieties (Bidwell and Falconer 1941:97, 103, 168; Russell 1976:278; Torres-Reyes 1969b:56). The much lauded "English grasses" included a number of legumes, alfalfa, and red and white clover, as well as originally foreign members of the grass family (Bidwell and Falconer 1941:103, 158; Russell 1976:310). English hay was, more often than not, produced for the market, and the farmer's own livestock largely subsisted on the native mowing (Rothenberg 1979:997). Barn storage seems to have been devoted to winter feed and the possibility that few legumes were actually brought into the barn must be considered. Bidwell and Falconer (1941:102) mention *Carex* hay as a recognized type, and hay mown on moist natural meadows apparently incorporated large quantities of sedges (Cyperaceae). The David Brown homestead was located on such a wet meadow, and sedge pollen should be present if the structure under investigation was a barn.

Oats were specifically grown for horse feed, and significant quantities of corn supplemented the diet of milch cattle (Bidwell and Falconer 1941:97; Russell 1976:119; Rothenberg 1979:990). Agricultural experts recommended growing root crops—potatoes, carrots, turnips, etc.—for fodder, and McMahon (1982:103) suggests that late 18th-century market-oriented dairy farmers prevented cows from drying up by feeding them turnips, carrots, cabbages, and potatoes where these were available. The practice, whose actual application has been questioned, was probably limited by labor costs (Bidwell and Falconer 1941:241; Rothenberg 1979:998).

Presumably pollen-bearing detritus of all these produce-related activities would eventually filter down into the cellar in barns incorporating such a feature, and the barn cellar was the most common locus for storage of manure among farmers prudent enough to preserve the plant nutrients therein from weathering (Hubka 1984:64; see Chapter 4). Post-1830 pigs, frequently fattened with corn (Russell 1976:287; Rothenberg 1979:989), were often housed in barn cellars to facilitate mixing of manure (Hubka 1984:62). Pollen survives passage through the gastro-intestinal system (Kelso 1976), and has been recovered from such manure fertilizer (Behre 1983:227). Economic pollen should be prominent in a barn cellar.

DWELLING-HOUSE ORIENTED PLANT PROCESSES

Much of the produce consumed by the New England farm family was stored within the dwelling house. Rye, corn, and wheat (rather little of the last after 1660) were the primary bread sources in rural grain chests. Corn was most prominent in the family provisions portion

of estate inventories from the mid-17th through late 18th centuries, but almost equal quantities of rye were listed after the revolution (McMahon 1982:25–32). Oats, in the form of oatmeal, may have constituted a larger portion of the Euro-american diet than formerly thought (Rothenberg 1979:992), and a wide variety of cultivated herbs such as tansy, peppermint, wormwood, rue, spikenard, lovage, elecampane, penny royal, boneset, thyme, and sage hung from attic rafters (McMahon 1982:51).

Most grain storage for domestic use, including significant quantities of corn, seems to have been localized in dwelling garrets (Russell 1976:136; Rothenberg 1979:992; McMahon 1982:51). Documentary sources emphasize the protection of perishable food from winter freezing in dwelling house cellars, and products other than vegetal material were apparently more prominent during the early colonial period. Cummings (1979:29–30) marshals a number of documents indicating that dwelling house cellars consistently served dairy or milk house functions, as well as being used for beer storage, during the 17th and early 18th centuries. Cheese and butter storage were localized in the cellar during the later 18th and 19th centuries, and barrels of cider largely replaced those of beer in cellars after 1750. Dried peas were the only vegetable stored in significant quantities during the 17th century. These were supplemented, but not completely supplanted, by dried beans in the 18th century. Turnips, beets, parsley, parsnips, onions, carrots, celery, and cabbages were kept through the winter in increasingly larger numbers after 1750, replacing to some extent the grain that had previously dominated the farm diet. Potatoes became the major item in inventories during the 19th century (McMahon 1982:52, 54, 55, 64, 69).

Most vegetables were cleaned and packed in dry sand in the cellar, sometimes within the chimney support arch. Apples, in their original rather than liquid form, were also deposited in the cellar after a period of drying in the garret or kitchen chamber. It was recommended, however, that squashes not be placed in the cellar, and cabbages were stored in exterior subterranean pits. Apples, pears, peaches, plums, and quinces were also made into preserves or dried (McMahon 1982:99, 109–110, 113–114; Hubka 1984:41).

FUNCTIONAL INTERPRETATION

Whether or not New England farm families fed the same vegetables to their livestock that they ate themselves is of little significance to the interpretation of the David Brown cellarhole because these, and the dairy products that occupied considerable storage space in the house cellar, would be palynologically invisible. Corn and European cereals are the food resources most likely to register in the pollen spectra of dwelling houses. The same, unfortunately, is true of barns, but the quantities of grain stored in barns should have been much larger than the stocks maintained in human dwellings. To the pollen contributed to barns by grain itself must be added that of threshing spoil, fodder straw, chopped corn, and manure. With few cultural pollen analogs available, functional interpretation of the David Brown cellarhole will be a largely intuitive exercise, tempered by the comparative data provided by the fill and by the Joseph Mason site (Chapter 9).

One potentially significant line of evidence is presented by the less than 4%, maximum, cereal pollen in the David Brown cellarhole floor zone. These counts vary little among themselves and are very similar to the quantities of this type in the cellar fill above the floor. They are also only slightly higher than those noted to date in the Joseph Mason exterior profile (Chapter 9). At the David Brown site, European cereal pollen was found in all samples except the single most recent sample at the top of the profile. Small quantities of the type are apparently a consistent and characteristic element in the historical pollen rain. Of the cereals, only rye pollen is widely dispersed, and the low but persistent representation of cereals in the David Brown spectra may constitute our first indication of the predictable extra-local, at least, background pollen contribution of this important crop to 18th- and early 19th-century pollen spectra. As such, these counts

cannot reflect grain stored over the David Brown cellar.

Similar reasoning may be applied to the David Brown legume and sedge counts. A few grains of sedge pollen are evident in the David Brown cellar floor pollen zone, but legume pollen closely resembling that of red clover is present in small quantities in all samples from that part of the sequence and from the bottom of the fill where local slump was a significant contributor to the cellar deposit. Neither type is well represented in the general fill pollen spectra, but both reappear in the agricultural and post-agricultural pollen sub-zones. They must have been regular elements in the flora in the historical period. The comparable counts on the floor are more likely to reflect the tracked in, normal background pollen contribution of fodder growing in the nearby moist river bottom than fodder stored in the structure. A similar pasture development interpretation was applied to a post-1700 increase in legume pollen in a small Connecticut lake (Brugam 1978:357).

For probable functional data we are left with the corn pollen. This, with the exception of two scattered pollen grains at this site and two at the Joseph Mason house, is confined to the small quantities in the cellar floor pollen zone. Some of the corn pollen, including the highest count, is undoubtedly derived from slump, and none of the frequencies, 1% maximum, seems large enough to reflect the massive amounts of corn and corn by-products that figured in the livestock portion of the historical rural economy. Intuitively, but not without confidence, it can be stated that the David Brown cellar was probably not that of a barn. In our efforts to identify the superstructure of the David Brown cellarhole we are essentially left to choose among the house dismantled in 1868 and an indeterminate assortment of outbuildings, including the yellow barn mentioned in Simon Brown's diary (Chapters 3 and 4). A fortunate correlation between documentary and non-economic pollen data suggests that the question may be resolvable.

Simon Brown recorded leveling around the old barn cellar in April 1867 (Towle n.d.; see also Chapter 4), and presumably that hole was filled about the same time. The filling of the house cellar commenced in the fall of 1868 (October 16) and was complete before April, 23, 1869, when the area was cleaned up and manured preparatory to sowing (Towle 1986a:271). Anomalous high percentages of wind-pollinated Compositae and goosefoot pollen at the bottom of the David Brown cellar profile taper off up into the fill. These indicate that filling commenced in the fall and continued beyond the anthesis periods of the parent plants. No similar concentrations of spring pollen indicator types from the deciduous trees occur higher in the fill, and the hole was probably full before these were shed. This pollen record of filling, with a fall start and completion before spring, parallels the documentary record close enough to suggest with some confidence that the cellar excavated during the 1985 field season was actually that of the Brown-Rhoades house dismantled in the late 1860s.

Summary

Two major pollen zones, floor and fill, are evident among the David Brown cellarhole pollen spectra. Sub-zones caused by both natural and cultural factors are visible within each of these major zones. In the floor-zone periods, greater pollen concentrations occur in samples directly associated with the floor and reflect the long interval in which the floor was incorporated in an occupied space. Larger proportions of pine and general arboreal pollen below and immediately above the floor distinguish periods when the cellarhole was open to the atmosphere during construction and dismantling. The floor-zone spectra may be further divided into early and late groupings on the basis of a shift in dominance from nitrophobic sheep-sorrel to nitrophilic dock, which reflects improved soil fertility during the occupation.

Four pollen sub-zones are evident in the cellar fill. The deepest of these overlaps with the upper pollen samples of the floor zone and records the development of a weedy flora in the vicinity of the cellar during the dismantling

period. The lower quantities of pollen types characteristic of the exotic fill in the deeper two or three samples of this weedy zone suggest that the 1 cm of sediment between the floor and the clay and brick debris and the 8 cm above the clay and brick are sheetwash or slump into the hole. This, in turn, implies brief periods of inactivity after dismantling and during the filling process. No great hiatus, however, occurred. A mixture of wind-transported Compositae pollen shed in the fall of the year into spectra otherwise undistinguishable from the general fill is evident in the upper 8 cm of fill of the weedy layer. This indicates that such pollen was still in the air when filling began in earnest and tapered out as both the season and filling progressed. This also suggests that the filling was a relatively continuous process occupying no more than some part of one fall and an indeterminate portion of the following winter. The nature of the arboreal pollen content of the fill employed strongly suggests that most of it probably came from a single location at some distance from the structure.

A probable plowzone incorporating a very modest increase in grass pollen representation near the top of the profile agrees with the photographically documented employment of the site as a meadow during the late 19th and early 20th centuries. Pollen data reflecting the abandonment of agriculture on the site, regional reforestation, and the pathogenic destruction of the American chestnut population are present, but are chronologically inseparable in the earthworm-homogenized humus at the top of the profile.

In the absence of modern analogs and/or historical rural comparative data, functional interpretation could only proceed on the authority of documentary sources *implying* that larger quantities of grain, European cereals and corn, and grain by-products were associated with barns than with houses. Too little pollen from these sources was present on the cellar floor when compared with the inferred regional background pollen rain of the cellar fill to permit interpretation of the structure as a barn. Documentary and non-economic pollen data indicate that filling of both the excavated cellar and the cellar of the historical house dismantled in 1868 began in the fall of the year and were completed no later than early spring. If more than coincidence, this strongly suggests that the excavated cellar was that of David Brown's house.

Chapter 6

Of Roads, Barns, and Stone Walls: Archeological Investigations of the Jonas Bateman Site

Alison D. Dwyer and Alan T. Synenki

Introduction

As discussed in Chapter 4, interdisciplinary research on the David Brown site was conducted to explicate not only the correct location of Brown's 1775 house, but also any other 1775 landscape features, including the west branch of the "Highway" (i.e., Groton Road). This research was undertaken to better understand the appearance of the North Bridge area landscape in 1775 and how it changed through time. Important to this understanding was the location of the "yellow barn" just prior to its movement, in 1867, to its current location north of Liberty Street on the present-day Keyes property. While the archeological investigations of the David Brown site appear to have located the remains of the house that the Browns occupied in 1775, investigations to locate the remains of the "Highway" were inconclusive. Furthermore, although subsequent analyses of the archeological and documentary data revealed convincing evidence that the cobble area at the David Brown site was the cellar floor of the "yellow barn" (Chapter 4), this was not clear at the time that excavations were undertaken at the Bateman site.

Limited archeological investigations were conducted west of the David Brown site to determine if the "yellow barn" or the western branch of the 18th-century "Highway" once existed there. In addition, limited excavations were conducted adjacent to the north-south fieldstone wall that forms the western boundary of the David Brown site in order to determine if it was part of the 1775 landscape. It was also hoped that the investigation would answer questions regarding ownership of the parcel before 1793. The documentary records indicate that the road and a "stone wall" served as the northern and eastern boundaries of property owned and occupied by the Batemans during this time (Middlesex Deeds, Book 113:118–120). The parcel investigated was designated the Jonas Bateman site despite the uncertainty regarding its ownership in 1775. No previous archeological investigations had been conducted on this site.

The Jonas Bateman site is located in Concord, Massachusetts, within the North Bridge area of MIMA (see base map, Appendix A-1). Archeological investigations were conducted for two weeks in the summer of 1987 on a parcel that was approximately 2,750 sq m in area. The Bateman site slopes gently to the south from present-day Liberty Street towards the Concord River. The vegetational cover consists primarily of scrub brush, pokeberry, brambles, and grass (Figure 6-1). Some deciduous trees are still present along the southern border of the site. Dry-laid fieldstone walls border the eastern and northern edges of the site. The site lies within the Concord watershed and the flood plain of the Concord River, which floods the southern part of the site virtually every spring. During years of exceptionally high water, such as the spring of 1987, the entire site is flooded.

As mentioned in Chapter 1, in addition to providing MIMA with important management and interpretive information, the archeological and documentary investigations of the Jonas Bateman site contribute valuable comparative data. These data pertain mostly to the scale of earth moving that occurred in the 18th and 19th

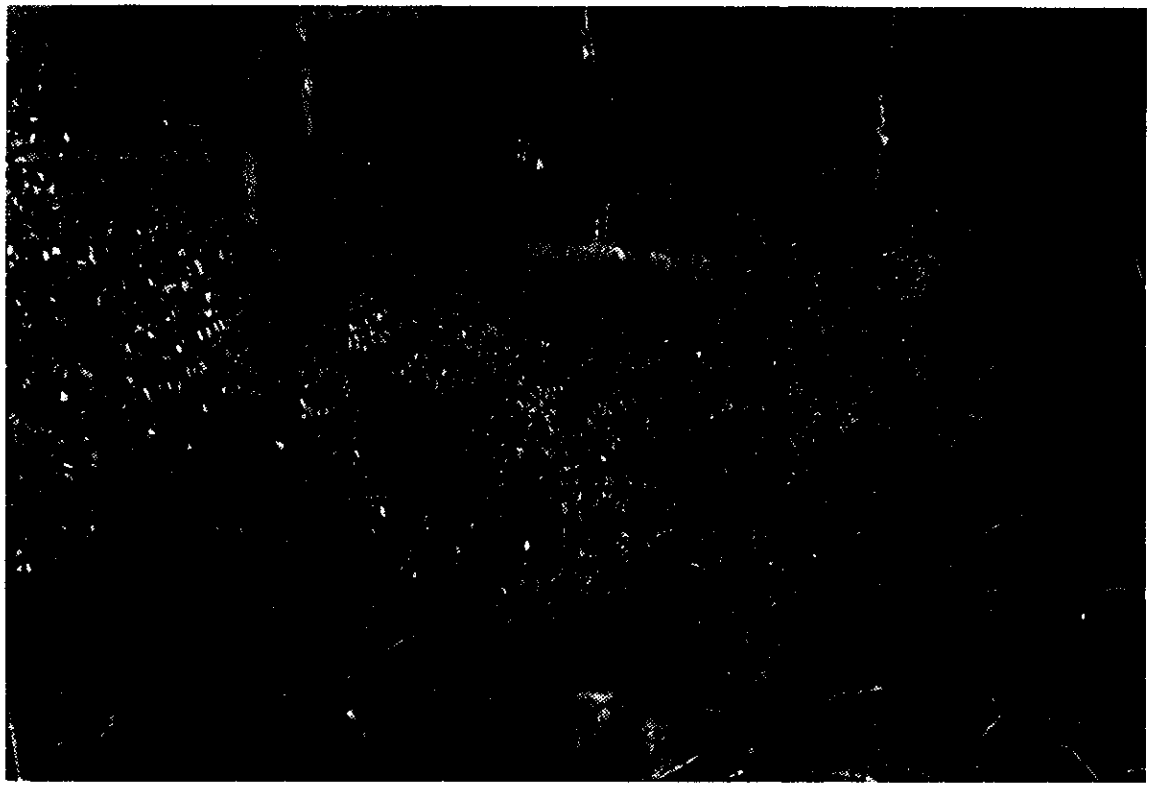


Figure 6-1. 1989 Project photograph of the Jonas Bateman site, facing south.

centuries. In particular, these data provide evidence of mid-to-late 19th-century agricultural practices and their effects on the transformation of the rural landscape in eastern Massachusetts. The data from the Jonas Bateman site provide a valuable record of at least one family's role and participation in what Gross (1982:43) has termed the transformation to modern agricultural capitalism.

Previous Research

The "Highway," or west branch of the Groton Road, was one of the most important and prominent features of the North Bridge area landscape from the mid-17th century until the late 18th century. The documentary records indicate that, before 1793, the western branch of the road was south of David Brown's house and barns (Chapter 3) and served as the southern boundary of Jonas Bateman's property (Malcolm 1986; Figure 3-2). In 1792 John Richardson purchased Jonas Bateman's property (Malcolm 1986). At that time, in addition to the southern boundary being the "highway," the eastern boundary was described as being east on Captain David Brown's land "in a stone wall" (Middlesex Deeds, Book 113:118–120). Unfortunately, despite the claims of earlier researchers (Abel 1965), the precise location and physical appearance of the western branch of Groton Road are uncertain (see Chapter 4). In addition, although it was assumed that the extant fieldstone wall was present both when the road was in use and afterward, no unambiguous data were recovered to support or reject this inference (cf. Abel 1965:31–32).

As discussed in Chapter 3, in 1793 John Richardson and his neighbors Jonas Buttrick, David Brown, and Reuben Hunt submitted a petition to the town of Concord to discontinue the route of the western branch of the 18th-century road and to build a new road. The proposed route of the new road, in relationship

to Brown's and Richardson's property, was described in the November 1793 town meeting as follows:

> ...through Capt. David Brown land between his house and Barns, and through Lt. Richardson's land and before the front of his house to a stake and stones three feet south of an apple tree in the front of said house, and from thence strate to the road now trod...the road between the Dwelling house of John Richardson aforesaid and the Great North Bridge near Reuben Hunt...beginning at a heap of stones, in the road in front of said Richardson's house two rods and a half southerly of the stake and stones south of an apple tree above mentioned and running a Strate line partly in said old road... (Concord Records n.d.)

As Malcolm has documented (Chapter 3), these changes were agreed upon, and present-day Liberty Street was built. The western branch of the Groton Road was no longer used as a public highway and the petitioners were granted "the benefit of the Land by the River." In 1830 Liberty Street was apparently the only road in existence (Figure 6-2).

According to Malcolm (1986), in 1838 Richardson sold his property to Daniel Clark who in turn sold it in 1844 to Ezekiel Coleman. In 1848 Coleman sold it to Simon Brown (no relation to David Brown). In all of these transactions the southern boundary of the property, as in the previous sale from Bateman to Richardson, was described as being the "highway" (Malcolm 1986). Unfortunately, it is uncertain if the "highway" in these transactions refers to the western branch of the 18th-century road, which presumably had been discontinued in 1793, or if it refers to present-day Liberty Street. Consequently, it is uncertain whether the above transactions include the parcel under current investigation.

Simon Brown's Diary

Regardless of who may have owned the Bateman site before 1848, information gleaned from Simon Brown's diary indicates that he at least made use of it. He apparently altered the landscape of this parcel in a variety of ways for agricultural purposes, foremost among them the cultivation of both traditional and experimental crops. Many of the entries in his diary record his daily agricultural activities from 1848 to 1872 (Brown Diary). In addition to helping ascertain the uses to which the parcel was put, the diary provides clues as to the location of the "yellow barn" mentioned earlier, as well as significant insight into mid-to-late 19th-century agricultural practices and their effects on the transformation of the rural landscape in this part of Concord. Simon Brown was an active and influential member of the agricultural community in Middlesex County and throughout eastern Massachusetts. He was editor of the *New England Farmer* and, according to Wheeler, "started a Farmer's Club which took an active part in changing farming from subsistence farming to the raising of milk, vegetables, asparagus, and strawberries, and other cash crops" (1964:14).

Throughout his diary, Simon Brown indicates that he used land by the Concord River for agricultural purposes. He refers to areas near the river as the "meadow," the "River Lot," the "River Meadow," and the "Great Meadow." Although it is difficult to determine conclusively which of these areas refers to the Bateman site, two of these areas—the river lot and the meadow—fit its description.

Both of these areas, like the parcel under current investigation, appear to have been south of Liberty Street, near the Concord River, and in close proximity to Simon Brown's house (Figures 4-8 and 6-3). On April 20, 1852, Brown wrote: "the storm continues with unabated violence. The water is higher on the meadows and in the road than I have ever known it before." Brown probably made this observation from within his house since in other entries he makes similar observations from his house. For example, one year later, on April 20, 1853, Simon Brown wrote: "I measured the distance from the house to the River, yesterday and found it 420 feet up to the wood house door. The sills of the house are 22 feet above water when the banks are full. Plowed the ground next to the meadow." On August 7, 1872, Brown wrote: "Men getting the grass in the

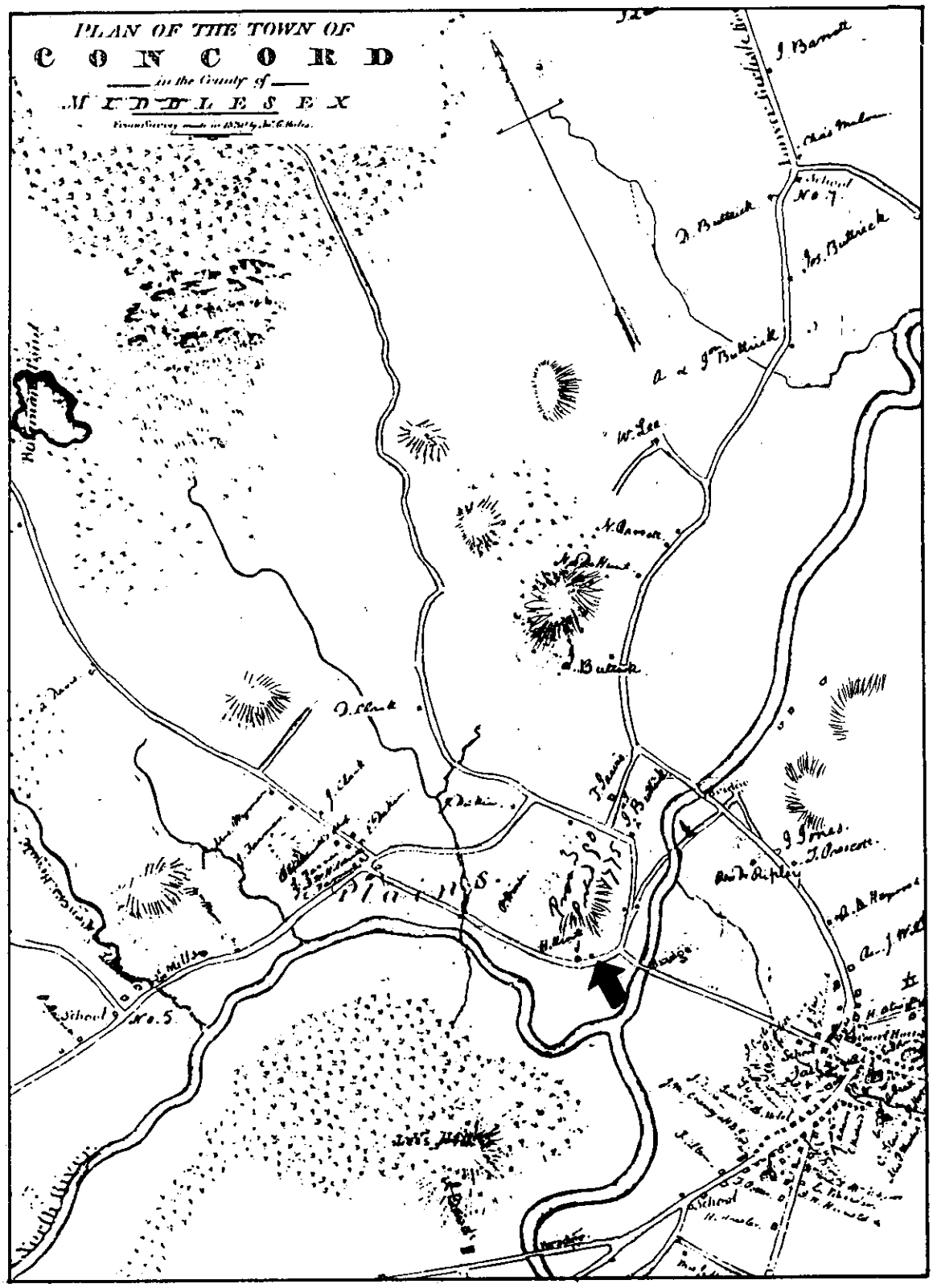


Figure 6-2. 1830 Hales plan of the town of Concord. Arrow points to what was presumably Liberty Street and the house of John Richardson (on file, Massachusetts Archives, Boston).

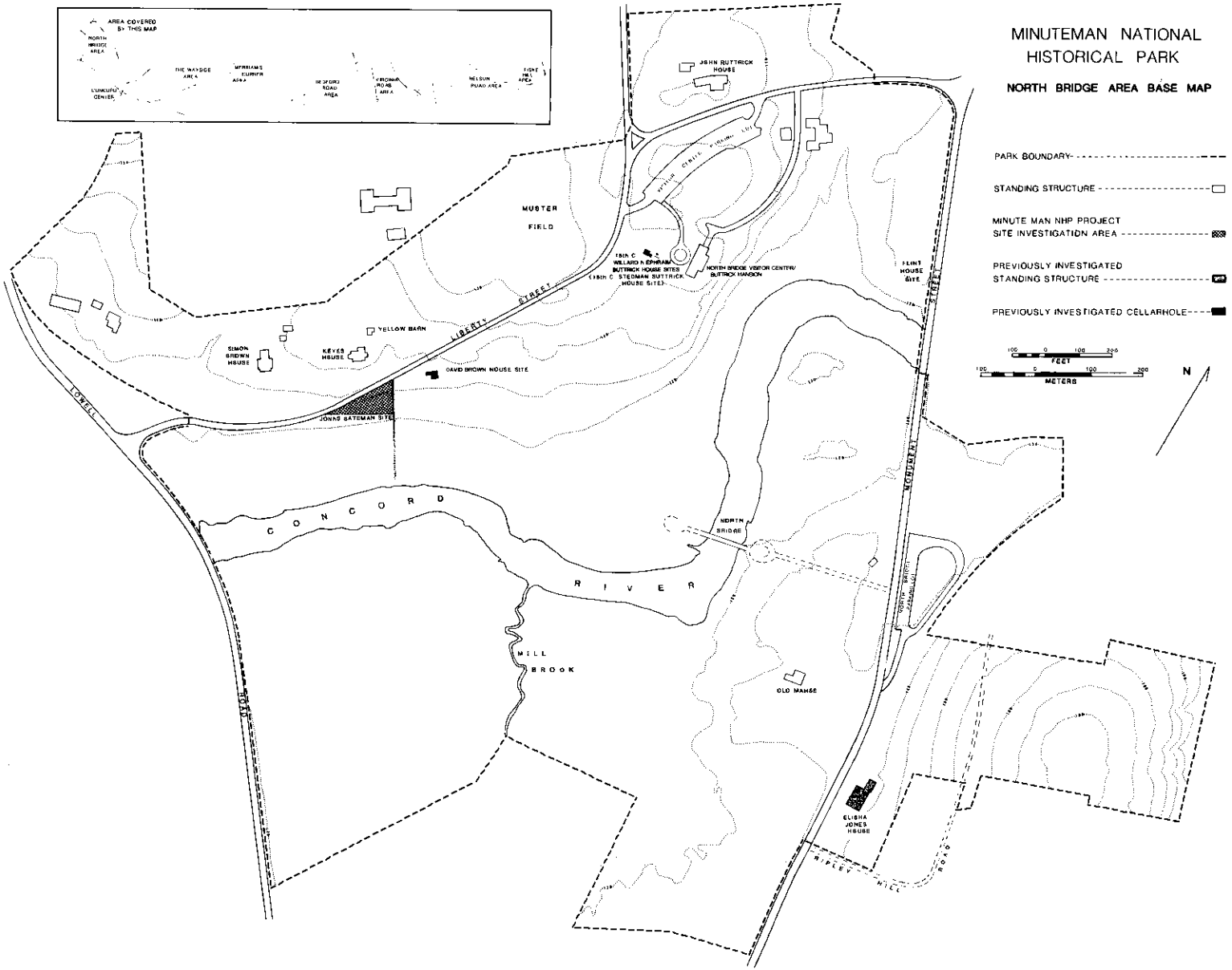


Figure 6-3. Map of the North Bridge area showing the locations of features mentioned in the text (adapted from Towle and MacMahon 1986c:figure VI.I).

Meadow in front of the House." This could refer to the western portion of the parcel under current investigation because this portion exists just south of Brown's house. It is possible, however, that the meadow in this entry simply refers to the parcel of land north of Liberty Street immediately in front of his house.

Diary entries indicate that portions of the river lot were south of Liberty Street, perhaps directly south of his house. For example, on October 9, 1872, Simon Brown wrote: "Gathered Hubbaraston [?] apples, across the Street in the River Lot."

Two diary entries also indicate that the original location of the "yellow barn" may have been in the river lot. On May 5, 1853, Simon Brown wrote that "James has been hauling manure in the River Lot, and Ben hauling from the barn cellar down there." This "barn cellar" probably refers to the same one mentioned 14 years later in association with the "yellow barn." As Brown noted on April 24, 1867, "The men plowed all day yesterday on the R. lot behind the yellow barn...cleared the barn cellar of some of its rubbish."

As discussed in Chapter 4, if the cobble area uncovered by previous investigations of the David Brown site (Tremer 1973) is the remains of the "yellow barn" (which was also, presumably, the Rhoades barn), then the river lot would also have included the David Brown site. Other entries support the inference that the river lot may have consisted of areas encompassed by both the David Brown and Jonas Bateman sites. For example, on June 1, 1870, Simon Brown wrote: "...Planting potatoes in the river lot, near Mr. Buttricks garden." On September 23 of that year he wrote: "...we are hurrying to finish some draining begun in the River Lot next to Mr. Buttricks." The Buttricks lived to the east of both Simon Brown and the David Brown site (Figure 6-3).

If the Jonas Bateman and David Brown sites are part of the area referred to as the river lot and/or the meadow, as appears to be the case, then Simon Brown records many of the activities that occurred there in the second half of the 19th century. For example, as just mentioned, Brown plowed and cultivated hay in both the meadow and the river lot. On July 26, 1856, Brown wrote: "Haying in the River Lot...mowed about half an acre below the rock and next to the road in less than 30 minutes." If this entry refers to the area where the David Brown site exists, then late 19th-century photographs (Figure 4-11) indicate that its use had not changed significantly subsequent to Simon Brown's use (i.e, post-1873). Entries in the diary also indicate that corn, rutabaga, potatoes, squash, melons, cauliflower, broccoli, cabbage, cranberries, beans, turnips, peas, barley, oats, and apples were planted in the river lot. Cranberries were also planted in the meadow.

In preparation for the cultivation of these crops, Simon Brown removed and/or deposited "loam," "mud," "manure," "river muck," and "sand" in both the river lot and the meadow to fill and level the land. For example, on October 16, 1857, Brown wrote: "...hands are hauling loam from the ditch into low places in the River Lot."

Other agriculturally-related activities in the meadow and the river lot recorded by Simon Brown were the construction of ditches for drainage purposes, the construction of planting beds and terraces, the construction of stone walls, and the erection of fences. For example, on September 6, 1856, Brown recorded that "Darby continues building wall by the gate on the River Lot." And on June 6, 1860, Brown wrote: "Darby is putting up a fence across the River Lot so that we can send the cows down there." While the precise locations of the wall and the fence are not specified in the diary, one distinct possibility is that the wall refers to the extant wall marking the boundary between the Jonas Bateman and David Brown sites. The archeological investigations did not confirm or refute this interpretation (see below).

By 1868 George Keyes (Simon Brown's son-in-law) owned the parcel designated the Jonas Bateman site in addition to other areas, including

the David Brown site (Figure 3-5). This parcel remained in the possession of the Keyes family until it was purchased by the U.S. Government in 1968 (Middlesex Deeds, Book 11535:104). Although Keyes owned this parcel, Simon Brown's diary indicates that Brown continued to participate in the agriculturally-related activities that were conducted south of Liberty Street.

If the extant fieldstone wall was not constructed in the 18th century, or in 1856 as Simon Brown's diary may suggest, it was certainly present by 1868 as a map of the Keyes property indicates (Figure 3-5). In the late 19th century, the extant wall is shown as having a wooden fence atop it (Figure 6-4). This photograph also indicates that, at the time it was taken, the Bateman site was used as a pasture. The 1868 map also depicts faint parallel lines that may indicate where a road once existed, or where a road was contemplated to be built. Although the Simon Brown diary mentions the existence of various roads—both their construction and their destruction—the diary does not provide enough detail about them to determine their exact location (see below).

Methods

Archeological investigations were conducted on the Jonas Bateman site by this project to determine the presence or absence of the remains of the 18th-century road and the "yellow barn," and to ascertain the dates when the north-south fieldstone wall, which currently forms the boundary between this site and the David Brown site, was in existence. Since archeological expectations for the road and the physical characteristics of the "yellow barn" were discussed in Chapter 4, they will not be discussed again here. The field investigations and analyses of the data were carried out according to project-wide, multistage strategies outlined elsewhere (Chapter 2).

Field Methods

Archeological field investigations were conducted in the summer of 1987 and consisted of a systematic walkover, an intensive survey, and limited site examination. Prior to the actual field investigations, aerial photographs taken of the area between the 1930s and 1980s were reviewed. The photographs did not reveal any anomalous areas that could be interpreted as the remains of structures or a road.

SYSTEMATIC WALKOVER

A systematic walkover of the site was conducted to identify areas of topographic or vegetational variation. Topographic variation, such as a depression, was considered to be a possible indicator of the location of the subsurface remains of the "yellow barn's" cellar. Vegetational differences can denote variation in soil type or moisture level and therefore yield potential information about previous land uses. Three people, spaced approximately 5 m apart, walked the entire site marking anomalous areas with flagging. Site datum and grid north were also established at this time. Grid north was the same as that used for the David Brown site (345°8'40"). The site datum was placed 40 m west of the datum at the David Brown site.

Three areas exhibited topographic or vegetational anomalies (Figure 6-5). The first (Area A) was a relatively small, terraced area in the northeastern and, possibly northern part of the site. A small, very narrow linear ditch-like depression was present just south of Area A. The second (Area B) was a terraced area along the eastern portion of the site. A dense patch of poison ivy covered the southern part of Area B. The third area consisted of a recent deposit of coal, ash, and trash in the south-central part of the site.

INTENSIVE SURVEY

The intensive survey portion of the field investigations consisted of the excavation of 142 cores and the construction of a contour map. The cores were excavated systematically at 5-m intervals beginning at datum. As at the David Fiske (Chapter 10) and Daniel Brown (Chapter 12) sites, the cores were used to identify areas of deep stratigraphy—a potentially effective and economical means for detecting the presence of the cellar remains of the "yellow barn." A 5-m

Figure 6-4. Photograph of the fieldstone wall and its associated fence taken between 1883 and 1907. The Bateman site is located on the left side of the photograph (reproduced courtesy of the Concord Free Public Library).

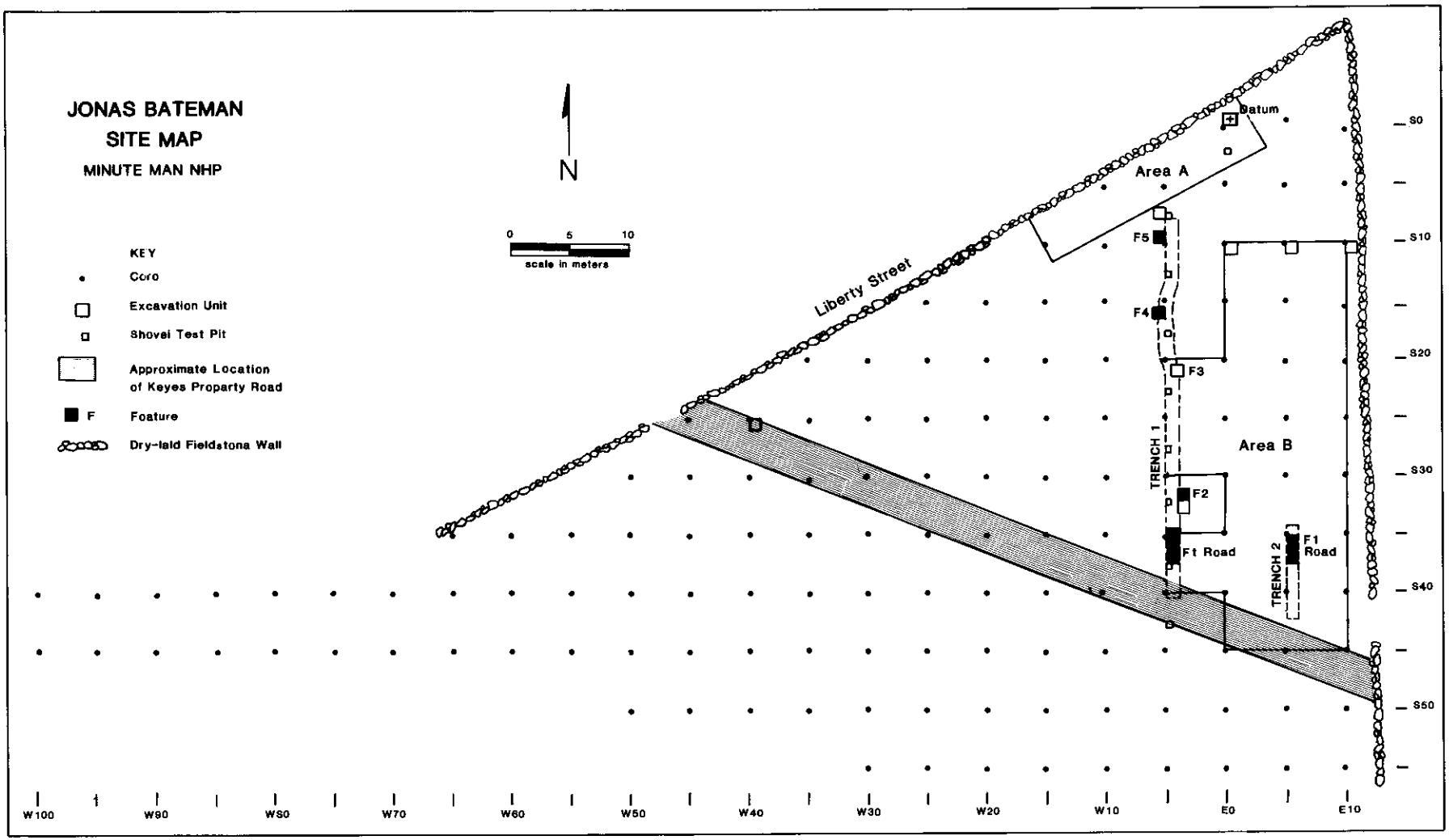


Figure 6-5. Jonas Bateman site map showing locations of STPs, EUs, trenches, and features.

interval between cores was believed to be sufficient given the expected size of the cellar based on the size of the Keyes property extant yellow barn (see Chapter 4).

TRENCH

Three trenches were excavated by a backhoe to locate the remains of the 18th-century road—one at the David Brown site (Chapter 4) and two at this site. Machine-assisted, as opposed to hand-excavated, trenches were dug for reasons mentioned in Chapter 2. Prior to the excavation of the two trenches at this site, 9 STPs were excavated where the trenches were planned in order to assure that possible features would not be destroyed. The STPs were dug with shovels in natural levels according to the project-wide methods discussed in Chapter 2. The backhoe trenches were excavated perpendicular to Liberty Street, 5 m west and 5 m east of datum (Figure 6-5). The backhoe trenches were approximately 1 m wide and 1 m deep. After excavation the walls were scraped with shovels and trowels to expose a clean profile. Profiles were drawn to scale, and photos were taken every meter. Excavations of the trenches at this site revealed the remains of a road, possibly dating to the 18th century.

SITE EXAMINATION

Limited site examination, using the project-wide methods described in Chapter 2, was conducted to determine when the fieldstone wall may have been in existence and to explore in more detail the deep stratigraphy or features that were uncovered by the cores, STPs, or the trenches. All of the STPs were 50 cm × 50 cm; EUs were either 1 m × 1 m or 1 m × 50 cm.

Results

No remains of the "yellow barn" or any other domestic or agricultural facility were uncovered during the archeological excavations. This is not surprising given the current interpretation of the cobble area at the David Brown site as the cellar floor of the "yellow barn" (Chapter 4). Evidence of a road (Feature 1), possibly dating to the 18th century, was uncovered. This road, however, does not align with the present-day opening in the fieldstone wall; it appears, instead, to exist beneath the wall. Given this, if the road is the 18th-century "Highway," then the wall may have been constructed after the road was abandoned—probably after 1793 when present-day Liberty Street was built. It is possible that the wall was constructed in the mid-19th century as Simon Brown's diary suggests. It is also conceivable that the wall was constructed, or at least in existence, in the 18th century, and that the original opening for the road was filled in when the road was abandoned. No evidence of an opening exists, although such evidence may not be detectable given the construction methods used to build the wall. Unfortunately, archeological investigations of the wall failed to shed any conclusive light on when it was built. If the wall was in existence in the 18th century, then it was probably the wall that separated the David Brown and Jonas Bateman properties in 1792. It is not certain whether or not this wall would have been present in 1775. Regardless of precisely when the wall was built, it was certainly present by the late 19th century since it is depicted on the 1868 map of the George Keyes farm (Figure 3-5).

In addition to the road, several discrete features—two small deposits of 17th- or 18th-century domestic debris (Feature 5), six postmolds (Feature 4), a deposit of prehistoric debris (Feature 3), and a deposit of fire-reddened materials (Feature 2)—and the remains of either planting beds or terraces were uncovered. With the exception of the road and possibly the 17th- or 18th-century features, the beds or terraces and the overall site-wide stratigraphy appear to have been created or altered as a result of mid-to-late 19th-century activities, most likely those of Simon Brown and his "Hands." This may indicate that the 1775 topography was significantly different from the present landscape.

Site Stratigraphy

Archeological investigations at the Jonas Bateman site revealed that there is considerable stratigraphic variation across the site. Most of this variation could be the result of Simon Brown and his "Hands," who altered the North Bridge area landscape in significant ways in the mid-to-late 19th-century—primarily for agricultural purposes. Four relatively discrete, large-scale deposits appear to exist below the humus: 1) planting beds or terracing fill in two areas of the site (Areas A and B); 2) an organic-appearing, possible former ground surface beneath the terracing fill in Area B; 3) a large deposit related to the construction of the stone wall, also beneath the terracing fill in Area B; and 4) a gravel deposit in the central and western part of the site (Figure 6-5).

PLANTING BEDS OR TERRACING

The present-day topography and its associated stratigraphy suggest that significant amounts of fill have been deposited in the northeastern (Area A) and eastern (Area B) areas of the site (Figure 6-5). Although the archeological data indicate that both areas were formed after the first quarter of the 19th century, the precise dates when Areas A and B were created are uncertain. Therefore, the temporal association of Area A to Area B could not be conclusively established. It is likely, however, that both areas were created in the mid-to-late 19th century by Simon Brown and his "Hands" for the purpose of constructing planting beds or small terraces. Beds and terraces are frequently mentioned in Brown's diary. For example, on June 17, 1857, Brown wrote: "In the River Lot with men in the morning, at work with the Scraper, laying the ground into beds..." And on April 10, 1857, Brown recorded that "...[Darby and Phil] hauled three loads of sod for the terraces." Although the location of these beds or terraces is not specified, several of the diary entries could refer to the northern or northeastern areas of the site.

Area A is characterized by a relatively deep deposit of post–ca. 1830 fill bounded by the fieldstone wall that is parallel to Liberty Street, and a linear granite outcropping that is parallel to the wall and to its south. The overall topography within Area A is relatively flat, although there is a slight depression in its easternmost area. Excavation within the depression (i.e., STP S2E0) revealed three physically distinct fill deposits whose precise dates of deposition could not be determined from the debris recovered (Figure 6-6; Table 6-1). Deposit 1 consisted of a dark yellowish brown silty fine sand that was approximately 32 cm thick; Deposit 2 was characterized by a dark brown silty fine sand approximately 20 cm thick; and Deposit 3 was characterized by a mottled yellowish brown silty fine sand approximately 10 cm thick. As can be observed in Table 6-1, although all three deposits contained prehistoric materials, Deposits 1 and 2 also had historical-period debris, suggesting that Deposits 1 and 2 represent fill that was transported to this area from one or more sources. The lack of historical-period debris within Deposit 3, in addition to its stratigraphic position just above glacial subsoil, could indicate that the prehistoric remains are *in situ*.

Area B also consists of a relatively deep deposit of post–ca. 1830 fill (Deposit 1), but differs from Area A in three respects. First, Area B is less well-defined than Area A. While the western boundary of Area B is clearly defined by the fieldstone wall that lies between this site and the David Brown site, its other boundaries are not well-defined given the data at hand. Nevertheless, its approximate boundaries are depicted on Figure 6-5 and are based on stratigraphic data collected through the excavation of the cores. Second, Area B appears to be much larger than Area A, even given its approximated limits. Third, unlike Area A, the fill of Area B (Deposit 1) exists above either an organic-appearing, possible former ground surface (Deposit 2), or a fill deposit (Deposit 3) related to the construction of the wall just mentioned, both of which may date to the 18th century (Figure 6-7).

Although both Deposits 1 and 2 were initially identified through the excavation of the cores, they were more clearly visible in two excavation

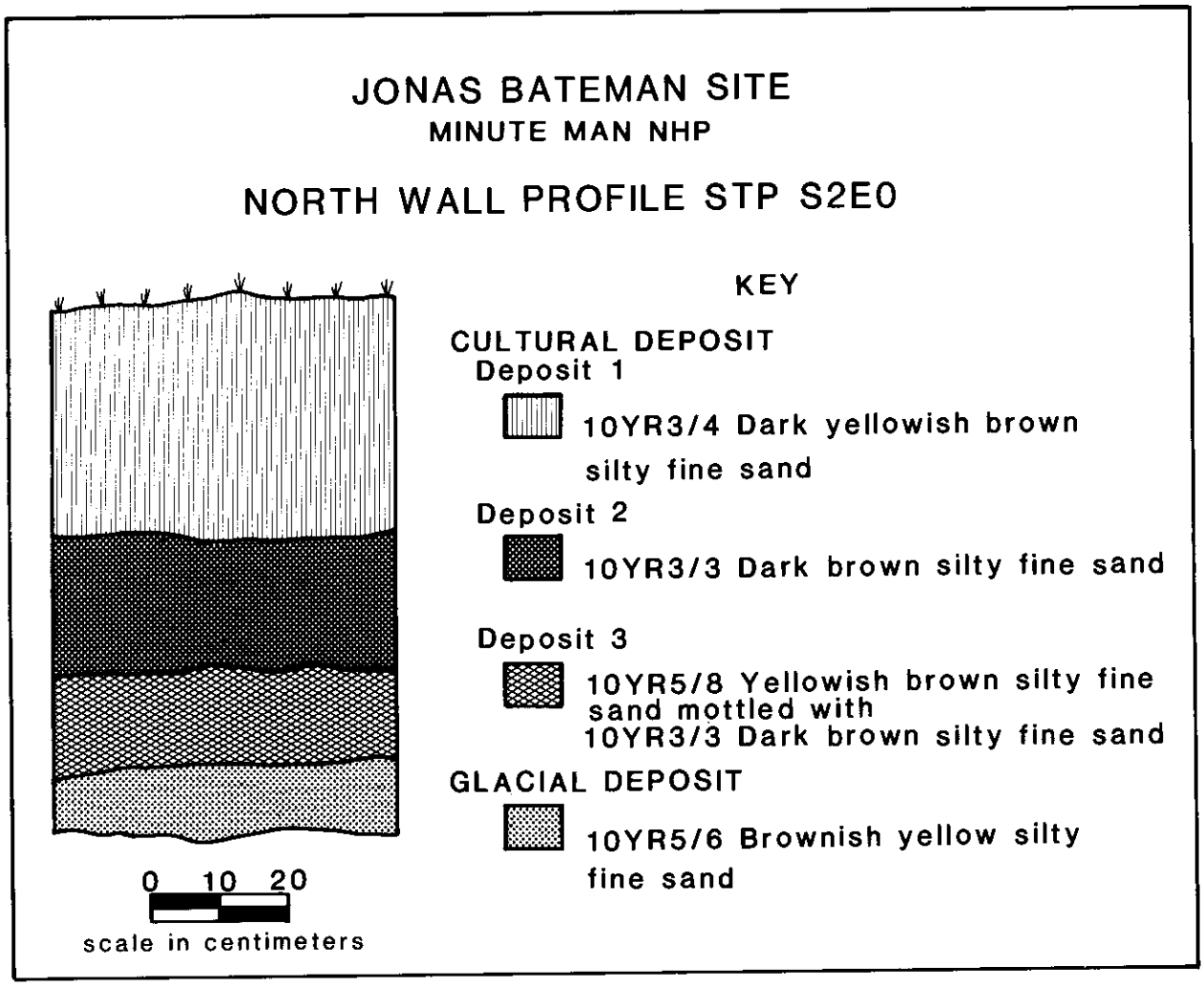


Figure 6-6. North wall profile of STP S2E0 showing fill deposits at the Jonas Bateman site.

units (EUs S10E0, S10E5). Deposits 1 and 3 were present in EU S10E10/11, which was excavated to determine if the fieldstone wall that forms the boundary between this site and the David Brown site was in existence in the 18th century (see below).

Deposit 1 consisted primarily of an olive brown to very pale brown silty fine sand fill. Discontinuous layers of a light yellowish brown coarse sand with gravel were present within Deposit 1 (Figure 6-7). Although the precise date when this fill was deposited is not known, some of the temporally diagnostic materials (e.g., yelloware) recovered date to after ca. 1830 (Table 6-2).

Deposit 2 is characterized by an organic-appearing very dark grayish brown to a very dark brown organic silty fine sand within EUs S10E0 and S10E5 (Figure 6-7). The thickness of the deposit varied from 15 to 32 cm, with an average thickness of 25.3 cm. The artifact date range in this deposit is similar to that for Deposit 1 (Table 6-2). There is, however, a lower frequency and percentage of 19th-century artifacts in this deposit than in Deposit 1 (Table 6-2). For example, of the 137 ceramic fragments that were recovered from Deposit 1, 76% of them (i.e., 105) postdate 1820. Only about 2% (i.e., 2) of the ceramics from Deposit 2 postdate 1820 (Table 6-2). The low frequency of post–19th-

Table 6-1. Artifacts from Area A fill deposits in STP S2E0 at the Jonas Bateman site.

Material	*Deposit 1 (count/weight)*	*Deposit 2 (count/weight)*	*Deposit 3 (count/weight)*
Domestic:			
Redware	11	—	—
Creamware	1	—	—
Pearlware	4	—	—
Molded vessel glass	1	—	—
Indeterminate vessel glass	1	—	—
Bone	—	10	—
Building-related:			
Crown/cylinder window glass	—	1	—
Plate window glass	1	—	—
Indeterminate nails	1	—	—
Brick	41.8 g	6.3 g	—
Other:			
Pipestems (7/64")	1	—	—
Prehistoric:			
Projectile points	—	1*	—
Bifaces	—	1	—
Flakes	1	56	6

*Susquehanna Broad-Like or Wayland Notched-Like (Late Archaic; 3,600–3,000 B.P. [Massachusetts Historical Commission 1984:108–111])

century material, in conjunction with its stratigraphic position just above the glacial subsoil, could indicate that at least the bottom of Deposit 2 may be the remains of an 18th-century ground surface that has been plowed prior to the deposition of Deposit 1.

GRAVEL DEPOSIT

Gravel was present in several of the cores in the central and western part of the site. STP S25W40 was excavated to investigate what appeared to be a substantial amount of gravel. The STP was located adjacent to the opening in the stone wall parallel to Liberty Street and within the area where faint lines are depicted on the 1868 Keyes property map. Simon Brown indicates in his diary that gravel was frequently used in the construction of roads. For example, on April 18, 1855, Brown wrote that "Mr. Murry has been at work on the new road. It is a great job—so much earth to move. We are placing under the road a foot depth of stones..." While the gravel deposit uncovered may not be the one described in this diary entry, its presence in STP S25W40, in conjunction with its location in relation to the wall opening, strongly suggests that it could be the remains of a road bed. Gravel in other areas of the site may either be naturally occurring or the result of Simon Brown's activities.

Despite the fact that STP S25W40 was excavated to a depth of 1 m, it is doubtful that the glacial subsoil was ever reached (Figure 6-8). Nevertheless, at least five physically distinct layers existed within the gravel deposit. While the

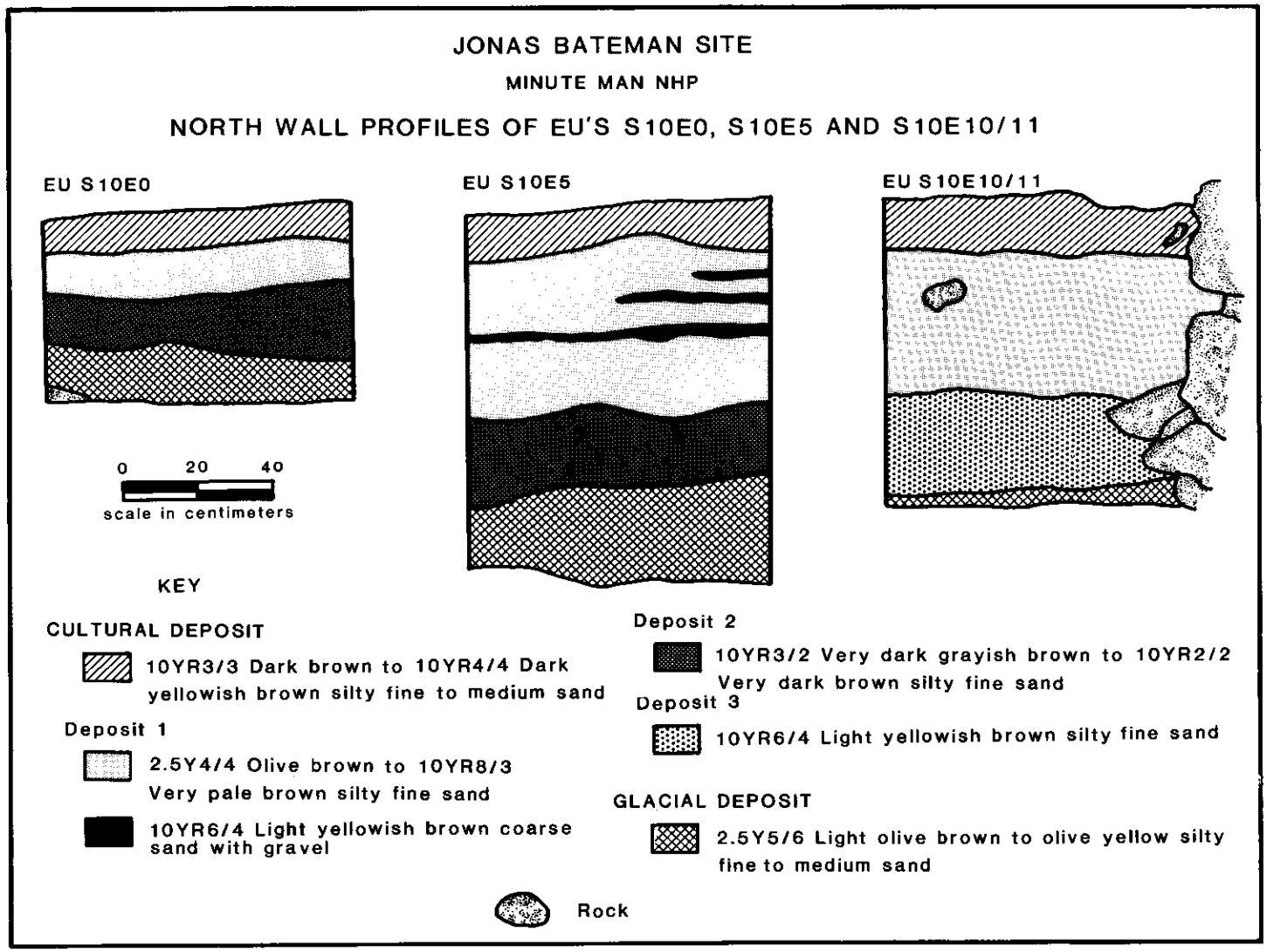


Figure 6-7. North wall profiles of EUs S10E0, S10E5, and S10E10/11 showing the terracing deposit in the northeast area of the Jonas Bateman site.

Table 6-2. Artifacts from fill deposits 1 and 2 in Area B at the Jonas Bateman site.

Material	*Deposit 1 (count/weight)*	*Deposit 2 (count/weight)*
Domestic:		
Redware	19	59
Delft	—	2
Creamware	1	14
Pearlware	—	3
Whiteware	77	2
Yelloware	28	—
Other earthenware	13	—
Porcelain	4	—
Contact-molded bottle glass	23	—
Indeterminate vessel glass	16	1
Tableware	—	1
Bone	1	6
Building-related:		
Crown/cylinder window glass	4	16
Plate window glass	7	2
Indeterminate window glass	—	4
Hand-wrought nails	2	7
Machine-cut nails	2	6
Indeterminate nails	23	6
Brick	1,466.8 g	805.4 g
Fuel and fire by-products:		
Coal	311.0 g	3.6 g
Cinders/clinkers	4.5 g	—
Slag	13.6 g	—
Other:		
Pipestems	2	5
Gunflints	1	1
Personal objects	—	1
Miscellaneous indeterminate objects	6	13
Prehistoric:		
Bifaces	—	1
Flakes	—	11

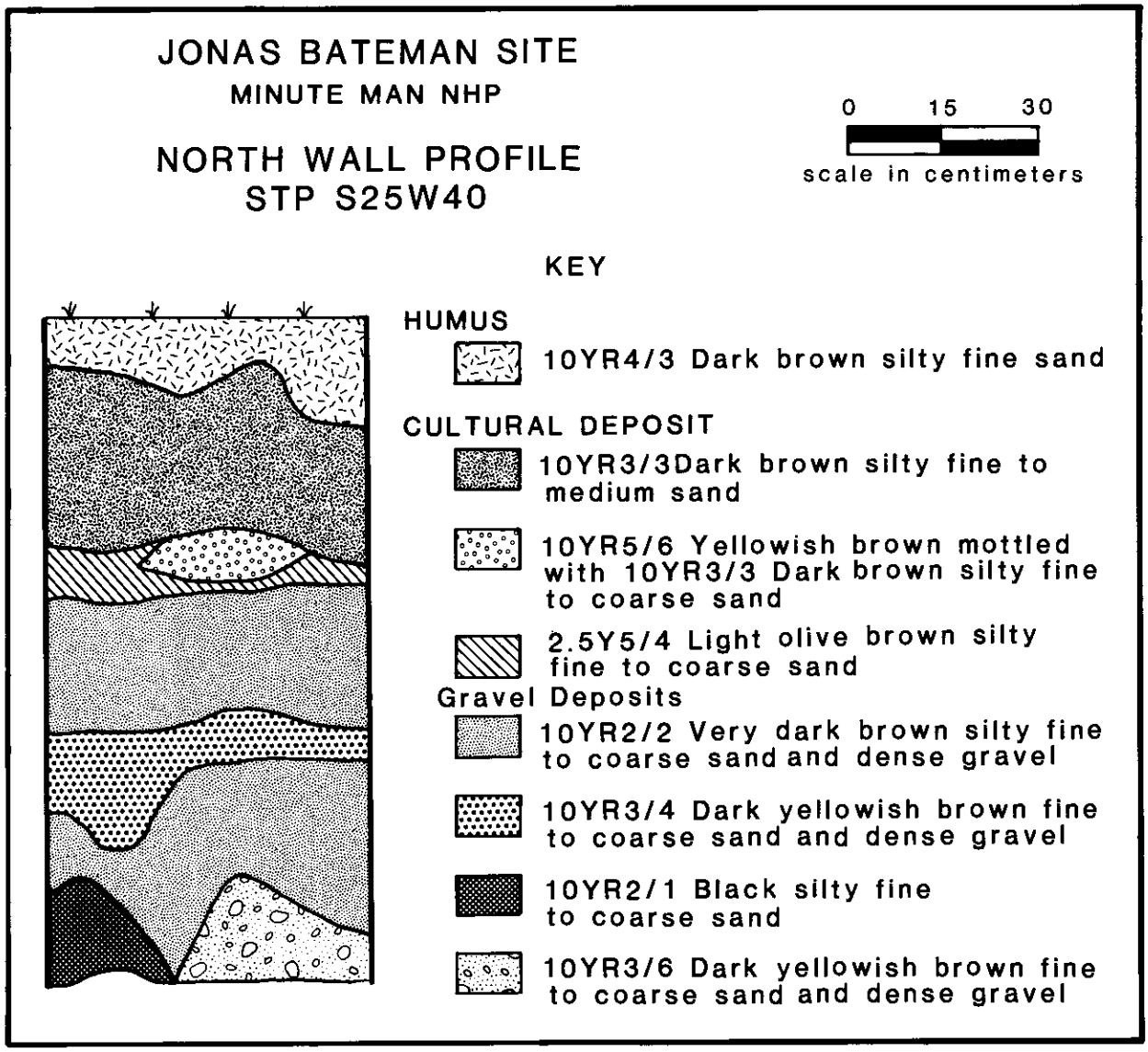


Figure 6-8. North wall profile of STP S25W40 showing the gravel deposit at the Jonas Bateman site.

gravel deposit did not consist exclusively of stone, it did consist primarily of gravel and was approximately 60 cm (23.5 in) thick—almost twice as thick as the "foot depth of stones" indicated by Brown.

With the exception of the first 10 cm of the first layer of gravel, no artifacts were recovered in the gravel deposit. Those artifacts present within the first 10 cm of the first layer of the gravel deposit consisted of one hand-wrought nail, 2.3 g of brick, and several prehistoric flakes. If the gravel deposit represents the material used in the preparation of the road bed, then the light olive brown deposit above the gravel deposit could be the remains of the actual road surface. Debris recovered from within this deposit consisted of one sherd of undecorated white salt-glazed stoneware, one sherd of creamware, crown/cylinder window glass, three hand-wrought nails, 67.9 g of brick, and .1 g of charcoal. The

absence or low frequency of artifacts within the gravel deposit and the deposit above it are consistent with Abel's (1965) findings for the 18th-century road in the North Bridge area, Synenki's (1985) excavations at the Nelson Road, and the excavations of the road designated Feature 1 at this site.

Road

Feature 1 is the remains of a road—probably the western branch of the 18th-century "Highway." Evidence of the road consisted primarily of multiple soil depressions, believed to be the remains of wheel ruts. Evidence of the road was uncovered in both Trenches 1 and 2 (Figure 6-9). No artifacts were recovered in direct association with the remains of the road. The remains that were uncovered, however, are similar to the 17th- through 18th-century road remains uncovered beneath present-day Nelson Road (Synenki 1985) and to the remains of other colonial roadways in New England (Kirkorian and Zeranski 1981). This similarity suggests that the road remains at the Bateman site might date to the 18th century.

Four depressions, which consisted of a pale brown (10YR3/2) silty fine to medium sand, began between 26 and 30 cm below the present ground surface and extended approximately 15 cm into the glacial subsoil (Figure 6-9). These depressions appear to be the remains of ruts created by wheeled vehicles. A thin deposit of a very dark grayish brown (10YR3/2) silty fine sand was present at the base and edges of the depressions. Although the mottled deposit between the two sets of possible wheel ruts may be the remains of a crown, part of it has the configuration of a postmold or posthole—possibly the remains of a fence post (Figure 6-9). The distance between the two sets of wheel ruts varies from as little as 65 cm (1.9 ft) to as much as 280 cm (8.5 ft). These distances fall within the average axle width (5 ft) of 18th-century ox carts as reported by Kirkorian and Zeranski (1981:8) and the wheel ruts uncovered by Synenki (1985) within Nelson Road at MIMA. If the ruts uncovered at the Bateman site are indicative of the width of the entire roadway, then its width is similar to that of the roadway uncovered in another part of the North Bridge area (Synenki 1985:table 1).

Interestingly, the remains of this road do not align with the present-day opening in the fieldstone wall separating the David Brown and Jonas Bateman sites, or the course of the road depicted on the 1868 Keyes property map (Figures 3-5 and 6-5). What is more, the remains of the road appear to exist beneath the stone wall. As mentioned above, these data suggest that if the road dates to the 18th century, then it is possible that the wall was constructed after the road was abandoned—probably after 1793 when present-day Liberty Street was built (but see below).

Stone Wall

Excavation of a single unit (EU S10E10/11) adjacent to the fieldstone wall was undertaken to determine when the wall may have been constructed, or at least in existence. Unfortunately, the results of the unit's excavation were inconclusive. Two stratigraphic deposits appear to be associated with the mid-to-lower courses of the wall (Figure 6-7).

As discussed above, like other parts of Area B, Deposit 1 adjacent to the wall consists of a very pale brown (10YR8/3) silty fine sand with only historical-period materials (Figure 6-7 and Tables 6-2 and 6-3). The presence of yelloware indicates that the deposit postdates 1830.

A postmold cut through Deposit 1 (Figure 6-10). The postmold, which abutted the stone wall, was identified at 56 cm below the unit datum. It was approximately 4 cm in diameter and 24 cm long. The sides of the postmold were straight, and the bottom was rounded. The postmold, which was filled with a dark brown soil, ended on top of one of the large rocks of the stone wall. The formation of this mold most likely postdates ca. 1830 since it appears to cut through Deposit 1. It is likely that this postmold is the result of a combination stone and wooden rail fence as depicted in Figure 6-4. The fence that was associated with this postmold may have been constructed during Simon Brown's use of the property. As discussed previously, Brown

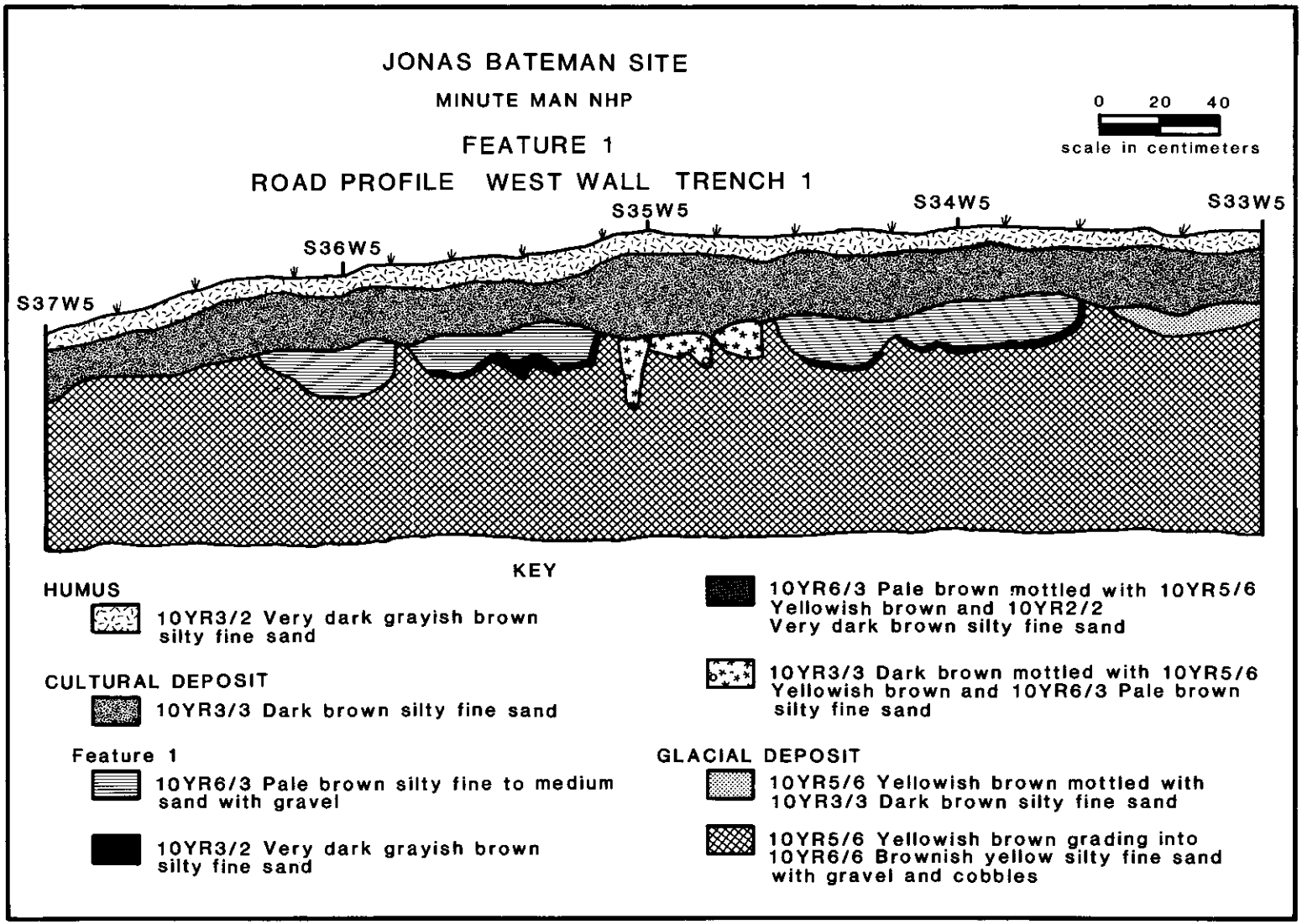


Figure 6-9. West wall profile of Trench 1 showing Feature 1, the road, at the Jonas Bateman site.

Table 6-3. Artifacts from fill deposits 1 and 3 in EU S10E10/11, adjacent to the stone wall at the Jonas Bateman site.

Material	*Deposit 1 (count/weight)*	*Deposit 3 (count/weight)*
Domestic:		
Redware	5	13
Combed ware	—	2
Creamware	1	—
Whiteware	71	30
Yelloware	28	8
Porcelain	2	—
Contact-molded bottle glass	13	—
Indeterminate vessel glass	11	—
Building-related:		
Crown/cylinder window glass	2	10
Plate window glass	4	—
Indeterminate window glass	—	7
Hand-wrought nails	1	4
Machine-cut nails	1	—
Indeterminate nails	16	4
Brick	1,460.0 g	1,153.6 g
Fuel and fire by-products:		
Coal	39.2 g	.4 g
Cinders/clinkers	4.0 g	—
Slag	3.7 g	—
Other:		
Tobacco pipe fragments	1	6

mentions erecting fences in the meadow and the river lot in his diary. According to Hood, Baram, and Bogard (1987:3–4), "[s]tone fences were often built with a single or double rail fence topping them to make them of legal height... In Massachusetts over half of the fences were of stone or stone with rails."

The second deposit (Deposit 3), which was a light yellowish brown (10YR6/4) silty fine sand, was approximately 34 cm thick (Figure 6-7). Deposit 3 is at the same level as the ground surface on the David Brown side of the stone wall. This may support the supposition that Deposit 1 represents a fill that was deposited on top of a former ground surface. Deposit 3 existed adjacent to the lowest course of fieldstones. The first 10 cm of this deposit contained artifacts similar in kind to those recovered from Deposit 1 (Table 6-3). In the bottom 24 cm of the deposit, however, the artifact frequency decreased, and, except for one small piece of coal (0.2 g), all of the debris in the lowest levels predates the 19th century. The absence of 19th-century materials in the lowest levels of Deposit 3 could indicate that it was laid down in the 18th century. If Deposit 3 was indeed laid down sometime in the 18th century, then the wall had to have been constructed in or before the 18th century. On the other hand, it is also plausible that

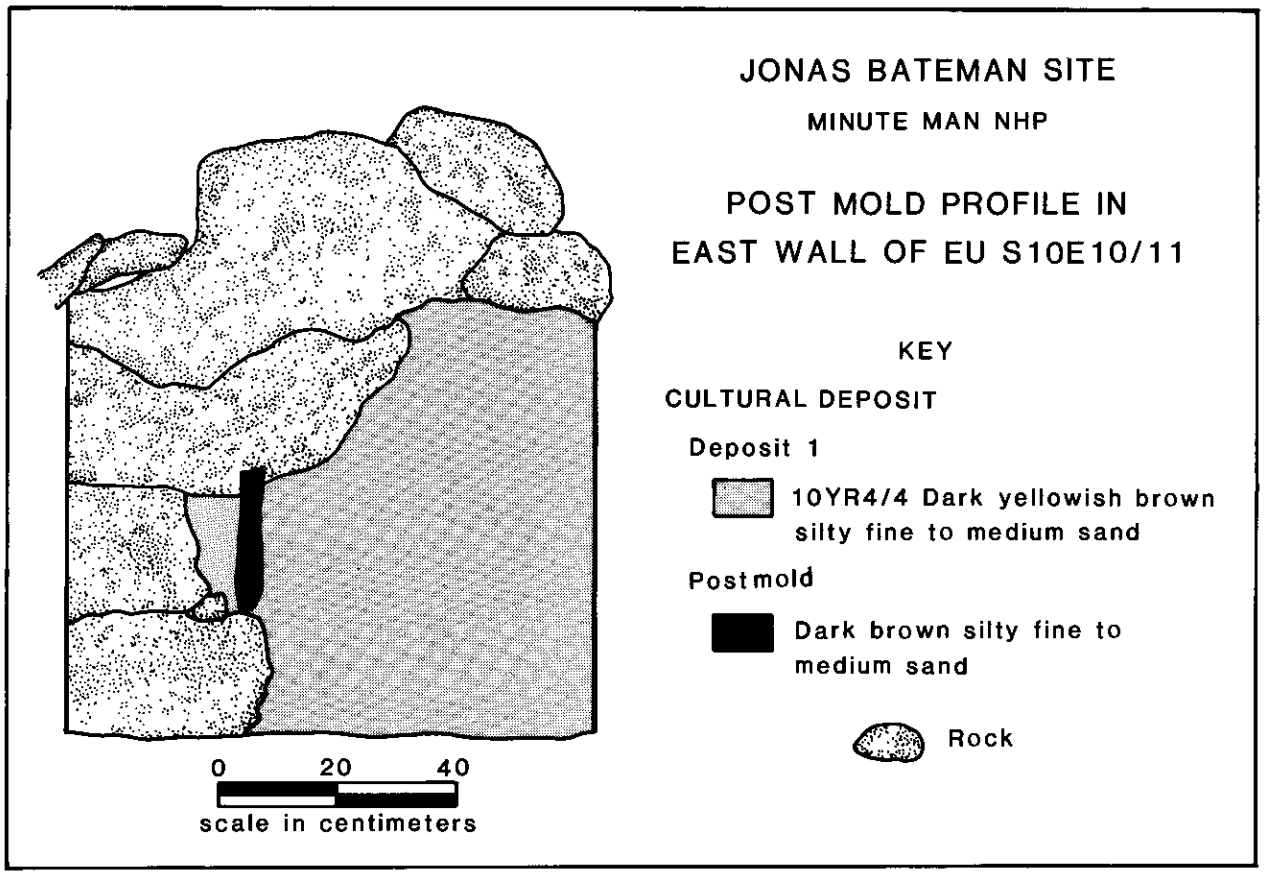


Figure 6-10. East wall profile of EU S10E10/11 showing the possible posthole cutting through Deposit 1 at the Jonas Bateman site.

Deposit 3 was laid down sometime in the 19th century as the debris in the upper part of the deposit suggests. If the wall was constructed in the 19th century, it may have been constructed by Simon Brown and his laborers since, as discussed previously, Brown had such a wall constructed in the river lot. The fact that there was no evidence of an opening in this wall where the remains of the possible pre-1793 road appears to have existed may support the inference that the wall dates to the 19th century. The remains of such an opening, however, may not be detectable because of the way in which the wall was constructed.

The lowest course of fieldstones rests in the glacially deposited soil. According to Howard S. Russell,

> [t]o build an enduring wall...the loam was dug out to the top of the subsoil or the frost line. A bed of small stones, sand, or gravel would replace it where necessary. Large boulders...were next rolled in to serve as a foundation and allowed to settle. Last, field stones of a smaller size selected for contour and proportion carried the wall to its intended height... (Russell 1976:190)

Unfortunately, Russell does not indicate where he obtained the above information. He does, however, provide a quote from Zacheus Collins. In 1726 Collins "bargained with Asham Nakus to enclose a newly bought property of a little over

46 acres 'to make it a good wall four feet & 3 inches high...dubell [double?] at the bottom of the hole' " (Russell 1976:188).

If these are accurate descriptions for the construction of a stone wall, we would not expect to find the organic appearing horizon (i.e., Deposit 2 as uncovered further west of the stone wall), which would have been removed. Instead, we would expect to find a fill layer, such as Deposit 3, which would have been brought in to fill around the stone wall. This is the sequence of layers we find in EU S10E10/11 (Figure 6-7). The top of Deposit 3 would then have been a ground surface until the deposition of Deposit 1 sometime after 1830. This would account for the presence of whiteware and yelloware at the top of Deposit 3.

Feature 2

Feature 2 is a deposit of fire-related materials that may be the result of charcoal-making activities. This interpretation is based on the dense concentration of charcoal and blackened rocks in the feature. It is also possible that this feature is the result of the removal and burning of the vegetation in this portion of the site at some currently undetermined point in time. Unfortunately, the specific processes responsible for the formation of the feature are uncertain at this time. The feature was located in the east wall of Trench 1 between S31.8 and S32.78. In profile, the feature was identified by a concave depression of a highly organic-appearing soil that cut through the cultural and glacial deposits (Figure 6-11). EU S31.3W4 was excavated to investigate the feature.

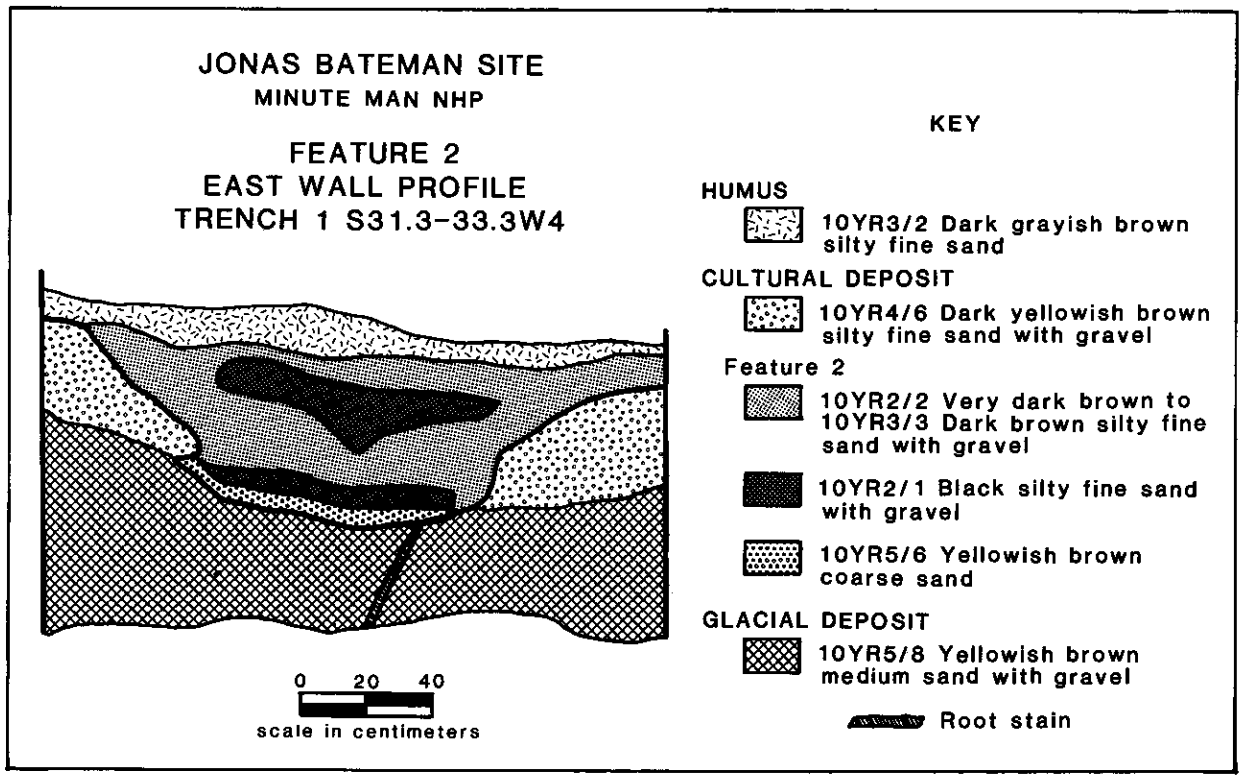


Figure 6-11. East wall profile of part of Trench 1 showing Feature 2 at the Jonas Bateman site.

The feature was initially identified at 10 cm below the unit datum, but it became more distinct at 17 cm when a very dark brown to dark brown silty fine sand was seen to be concentrated in the southwest section of the unit, roughly forming a quarter of a circle. All of the artifacts from the feature, except for the charcoal, came from this layer. The few temporally diagnostic artifacts that were recovered date to the 18th century. A deposit of black soil became apparent at 34 cm below the unit datum. This deposit was also concentrated in the southwest corner of the unit and contained only charcoal. The amount of charcoal increased at the base of the feature. A few blackened rocks were also present at the base of the feature.

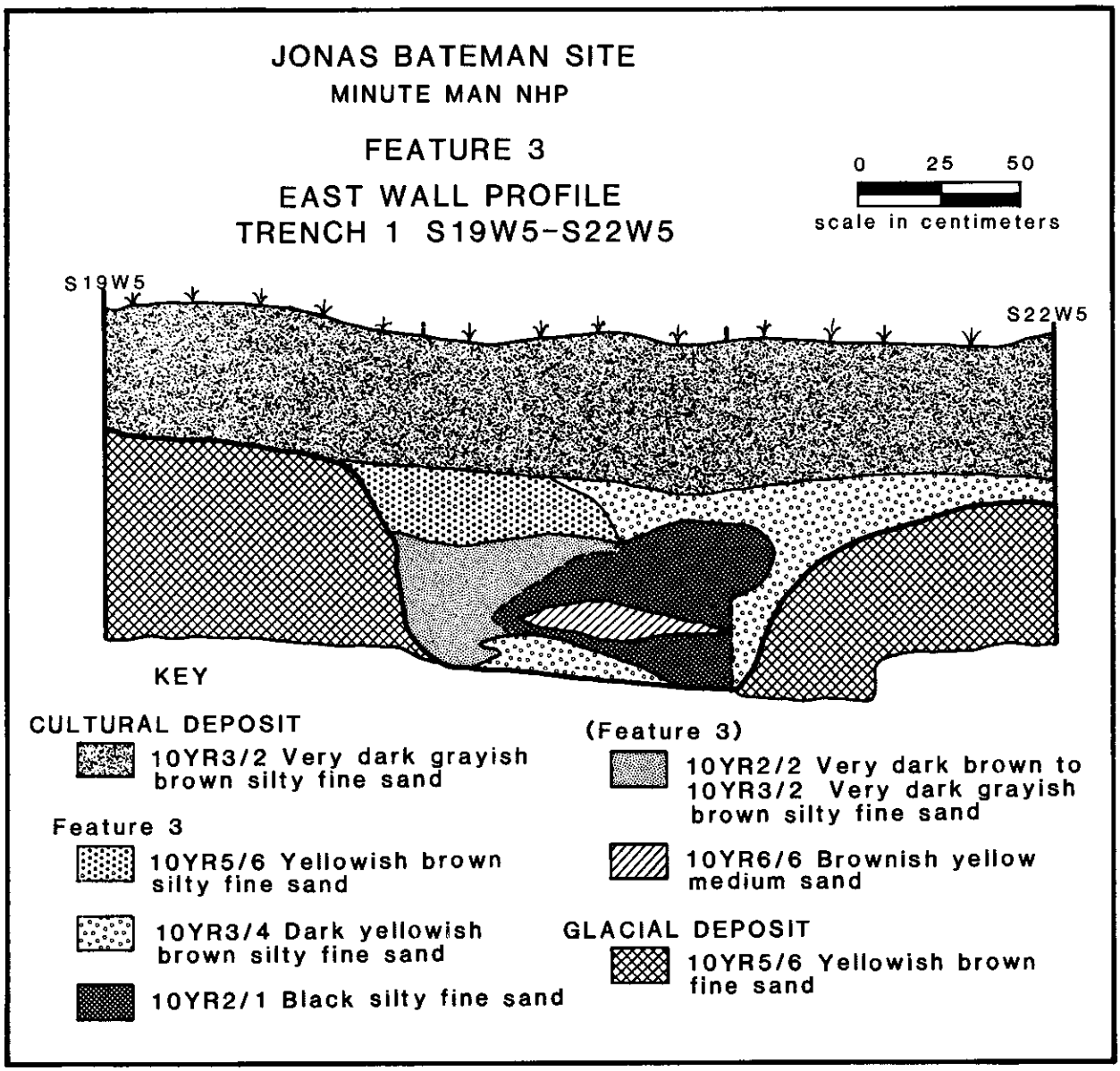


Figure 6-12. East wall profile of part of Trench 1 showing Feature 3 at the Jonas Bateman site.

Table 6-4. Artifacts from levels 4, 5, 6, and 10 of Feature 3 at the Jonas Bateman site.

Material	*Level 4 (count/weight)*	*Level 5 (count/weight)*	*Level 6 (count/weight)*	*Level 10 (count/weight)*
Historical:				
Redware	—	1	—	—
Brick	—	—	—	.1 g
Charcoal	—	—	—	.1 g
Prehistoric:				
Projectile points	1	—	—	1
Bifaces	—	—	—	1
Flakes	25	2	—	2
Ceramics	3	—	1	—
Other:				
Bone	36	—	—	—

Feature 3

Feature 3 is a large, organic-appearing deposit containing primarily prehistoric materials. One likely explanation for the existence of this feature and the levels above it is that they represent "river mud" or "muck" deposited by Simon Brown. As discussed earlier, Brown often collected river deposits, loam, and other organic debris and placed them in low areas of the river lot. Feature 3 existed in both walls of Trench 1, but was most pronounced in the east wall of the trench between S19.5 and S22.5 (Figure 6-12). In profile, the feature began approximately 40–50 cm below unit datum (i.e., bottom of level 3, top of level 4) and extended 64 cm into the glacial subsoil (Figure 6-12). The feature consisted of lenses of highly organic-appearing silty fine sand that varied in color from black (10YR2/1) to a very dark grayish brown (10YR3/2).

An EU measuring 1 m × 1.25 m was excavated at S20.5W4.6 to investigate Feature 3. In plan view, the feature was amorphous. Historical-period debris was primarily recovered above the feature from the humus and the levels immediately below it (levels 1–3). Temporally diagnostic artifacts recovered from these levels indicate that they were deposited after the 18th century. Within the feature itself, artifacts primarily consisted of prehistoric materials (Table 6-4).

Feature 4

Feature 4, a natural depression that was filled with historical-period debris and prehistoric materials, was identified in the west wall of Trench 1 between S14 and S15. Artifacts recovered in association with Feature 4 consisted of prehistoric, 17th-, 18th-, and 19th-century materials. The prehistoric materials were all flakes, 37 of which were recovered in level 4 immediately above the glacial subsoil. The 17th-century materials included 1 fragment each of Bellarmine, combed and dotted ware, and delft, and a 1662 Oak Tree twopence. The 18th- and 19th-century materials consisted of creamware, pearlware, and whiteware. The remains of six postmolds were found in EU S15W6 (Figures 6-13 and 6-14). The postmolds were roughly configured in a northeast-southwest alignment. These postmolds appeared as circular stains of very dark brown (10YR2/2) soil that ranged in diameter from 5 to

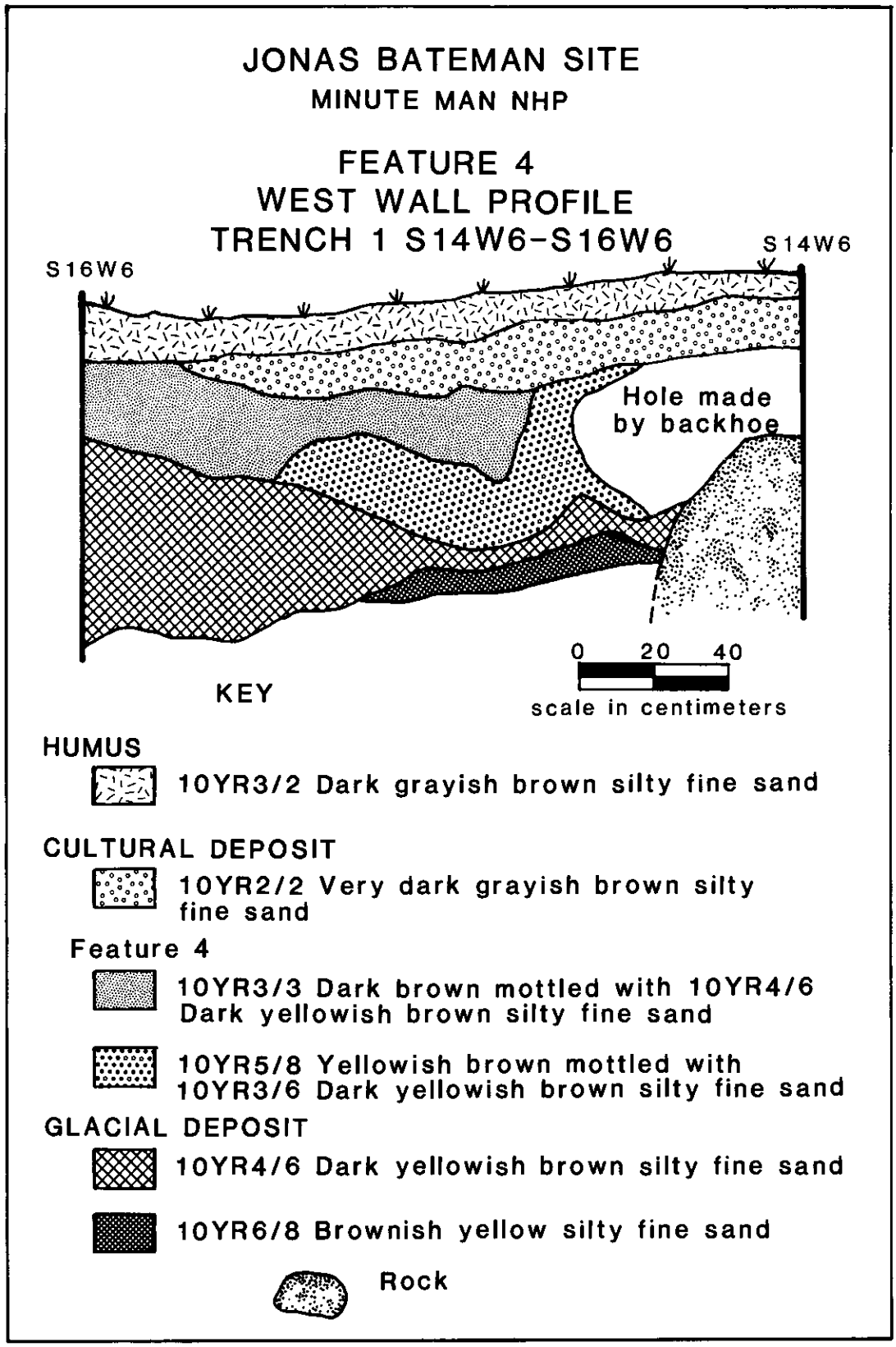


Figure 6-13. West wall profile of part of Trench 1 showing Feature 4 at the Jonas Bateman site.

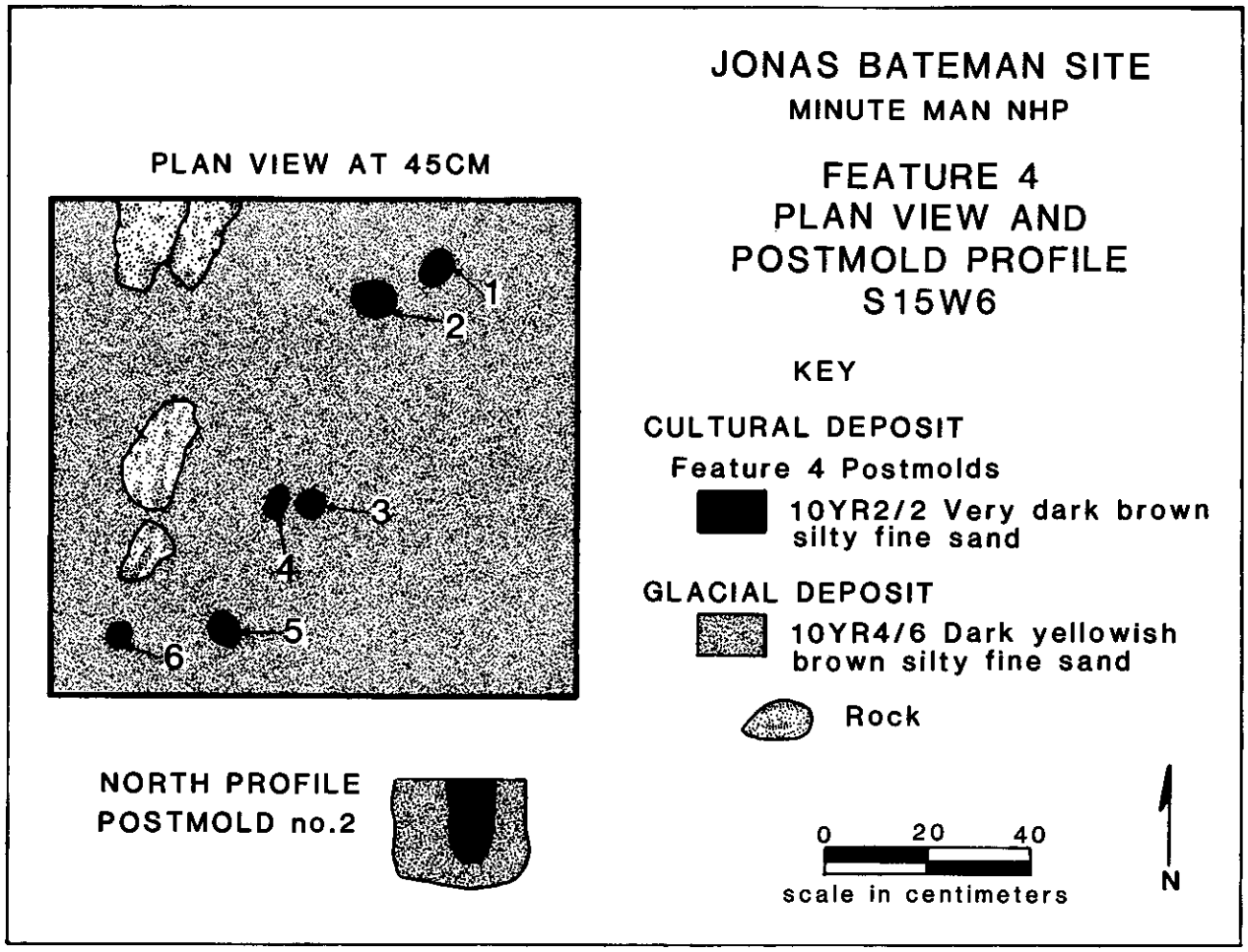


Figure 6-14. Plan of Feature 4 postmolds at the Jonas Bateman site.

10 cm. In profile, all of the stains exhibited straight sides that tapered to rounded bottoms (Figure 6-14).

The date when these postmolds were created is uncertain since only charcoal was recovered from within them. The fact that they were not identified until the top of the glacial subsoil could either be because the postmolds predate the deposits above them or because the area was plowed after the posts were removed, hence destroying any evidence.

It is possible that the feature itself, as well as the postmolds, is the result of some of Simon Brown's activities. As noted earlier, Brown's diary indicates that he often built fences on his property.

Feature 5

Feature 5 is a small deposit of 17th-century or possibly early 18th-century debris. The feature was initially identified in the west wall of Trench 1 at approximately 39 cm below the present ground surface (i.e., level 3; Figure 6-15). In profile, Feature 5 extended 30 cm into the glacial subsoil. A 1 m × 1 m unit was excavated at S9W6 to further investigate the feature.

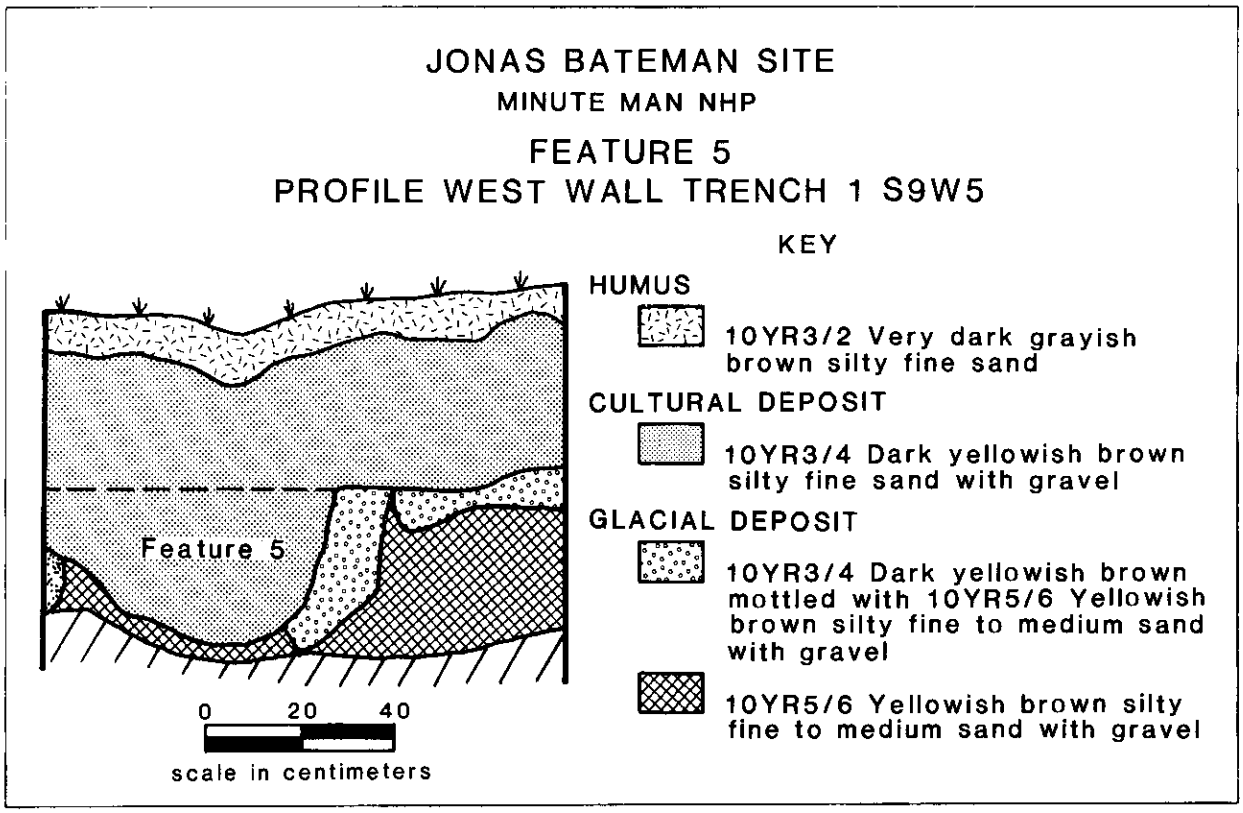


Figure 6-15. West wall profile of part of Trench 1 showing Feature 5 at the Jonas Bateman site.

Both domestic and building-related materials were recovered in association with Feature 5 (Table 6-5). Although a possible machine-cut nail was recovered from level 3, it appears that this nail could date to the 18th century or possibly the 17th century based on its physical characteristics. The delft, two of the pipestems with a bore diameter of 6/64" (1680–1710), and the glass bead were recovered from beneath a rock at the base of the feature. The presence of this possible 17th- or 18th-century feature is surprising since no other deposits of similar age were recovered from this site. The processes responsible for its deposition are not known at this time.

Summary and Conclusions

As indicated in this chapter and in Chapter 4, Simon Brown's diary describes the moving of the "yellow barn" in 1867 from its original location somewhere in the river lot to its present location north of Liberty Street on the Keyes property. Despite fairly extensive subsurface testing at the Jonas Bateman site, no remains of this barn or any other domestic or agriculturally-related facilities were uncovered. This absence provides some support for the inference that the cobble area that was uncovered at the David Brown site by previous investigations is that of the "yellow barn" (see Chapter 4).

Evidence of a road (Feature 1), most likely dating to the 18th century, was uncovered. This road, however, does not align with the present-day opening in the fieldstone wall or the possible road on the 1868 map of the Keyes property. These data suggest that if the road dates to the 18th century, then the wall may have been constructed after the road was abandoned—probably after 1793 when present-day Liberty Street was built. Archeological investigations of the fieldstone wall were, unfortunately, inconclusive

Table 6-5. Artifacts from Feature 5 at the Jonas Bateman site.

Material	*Count/Weight*
Domestic:	
Redware	18
Delft	1
Building-related:	
Crown/cylinder window glass	4
Indeterminate window glass	4
Hand-wrought nails	5
Machine-cut nails	1
Brick	62.8 g
Miscellaneous hardware	1
Other:	
Pipestems (4/64")	3
Pipestems (6/64")	1
Glass beads	1
Mammal bone	1

regarding the date of the wall. If the stone wall was constructed in the 19th century, it may have been constructed in 1855 as the Simon Brown diary indicates. It was certainly present by the late 19th century since it is depicted on the 1868 map of the George Keyes farm (Figure 3-5).

In addition to the road, a small deposit of 17th- or early 18th-century domestic debris (Feature 5), six postmolds (Feature 4), a deposit of prehistoric debris (Feature 3), and a deposit of fire-related debris (Feature 2) were uncovered. Some evidence of planting beds and/or terraces was also found. With the exception of the road and Feature 5, all of these features and the overall site-wide stratigraphy appear to have been created or significantly altered as a result of mid-to-late 19th-century activities, most likely those of Simon Brown as described earlier. If this is the case, then these data provide material evidence of some of the specific, large-scale, agriculturally-related landscape alteration activities of the period that occurred to the parcel under investigation. This may indicate that the 1775 landscape was significantly different than its present configuration. Beyond this, the data from the archeological investigations of the Jonas Bateman site, in conjunction with those in Simon Brown's diary, provide detailed information about the enormous scale of earth moving—and the efforts and energies that individual farmers expended on this activity—that occurred in the mid-to-late 19th century during the development of agricultural capitalism. This contrasts with the apparent lack of landscape alterations that appear to have taken place in the 18th century at this site (as evidenced by Feature 5, an intact 17th- or early 18th-century deposit), as well as in other rural areas of eastern Massachusetts.

In closing, it should be obvious how useful Simon Brown's diary was for assisting in the interpretation of the Jonas Bateman site. We wonder if he knew how prophetic he was when, on December 31, 1864, he wrote:

> And, now Old Book farewell, as a Daily Companion. I will place thee side by side with a new one, whose career will commence with the opening of the Year 1865! But a thousand things will lead us to thee as days, and weeks, and years roll on, and my faithful record shall so illumine the past as to make its incidents as bright as the opening day.

Chapter 7

A Historical Investigation of Household and Land-Use Change at the Joseph Mason Homestead

Joyce Lee Malcolm

Introduction

In 1775 Joseph Mason, a currier, and his wife Grace occupied a small farm situated at the junction of Bedford Road and the old Concord Road (present-day Virginia and Old Bedford roads), a spot destined to become notorious as "the bloody angle" (Malcolm 1985:61–63; see also base map, Appendix A-2 and Figure 7-1). This property and its owners are, therefore, of particular significance to our understanding of the events of April 19, 1775. The intent of this chapter is to document the history of the ownership and land use of this property from its earliest known occupation up to the point at which the U.S. Government purchased it in the 1960s.

The documentary evidence available for this task is of the same sort as that used in the investigation of the David Brown property (Chapter 3). Of particular use in the present instance are the Lincoln tax rolls. Few of the annual tax rolls survive for the period before 1770, although after that date the majority are extant. Some of these provide a breakdown of land use, others merely list the final tax assessed. Unimproved land was not taxed, but all the Mason property was improved. No contemporary survey survives of the Mason property as it appeared in 1775 or thereabouts. Therefore, the precise location of the house, barn, and any other buildings within the property boundaries had to be determined through archeological research (Chapter 8). However, a survey dated 1779 of Mason's neighbor's farm, the Ephraim Hartwell property, provides helpful information about the boundary they shared (Figure 7-2).

Results

Ownership of the Joseph Mason Homestead

The best evidence of the structures on the Mason property comes from an exhaustive deed search, tracing ownership of the homestead he came to occupy (Table 7-1). The first evidence of ownership and occupation of the Mason site is a deed dated 1691/2. The owner, one Moses Whitney, sold some 15 acres of improved upland (cleared, usable farmland) to Benjamin Whittemore. The deed, however, makes it clear that Whitney was not the original owner of the "messuage or small tenement," that is, a house with adjacent buildings and lands (Middlesex Deeds, Book 10:371–372). It specifies that the premises were "lately in the possession of Isaac Tailer passed to him by his father William Taylor." There are no deeds on record for any prior owner nor is the "deed of gift," which transferred the property to William's son Isaac sometime prior to 1691, recorded (but see William Taylor's will, Middlesex Probates #22257). The gift was probably due to Isaac's marriage and growing family, for Concord records note the birth of a daughter to Isaac and Elizabeth Taylor in 1690 and a son the following year (Concord Vital Statistics n.d.). William was not living on the premises when he gave the property to his son for in his will of 1696 he stated that he had already given Isaac his portion and left his own "mansion dwelling house" and remaining land to

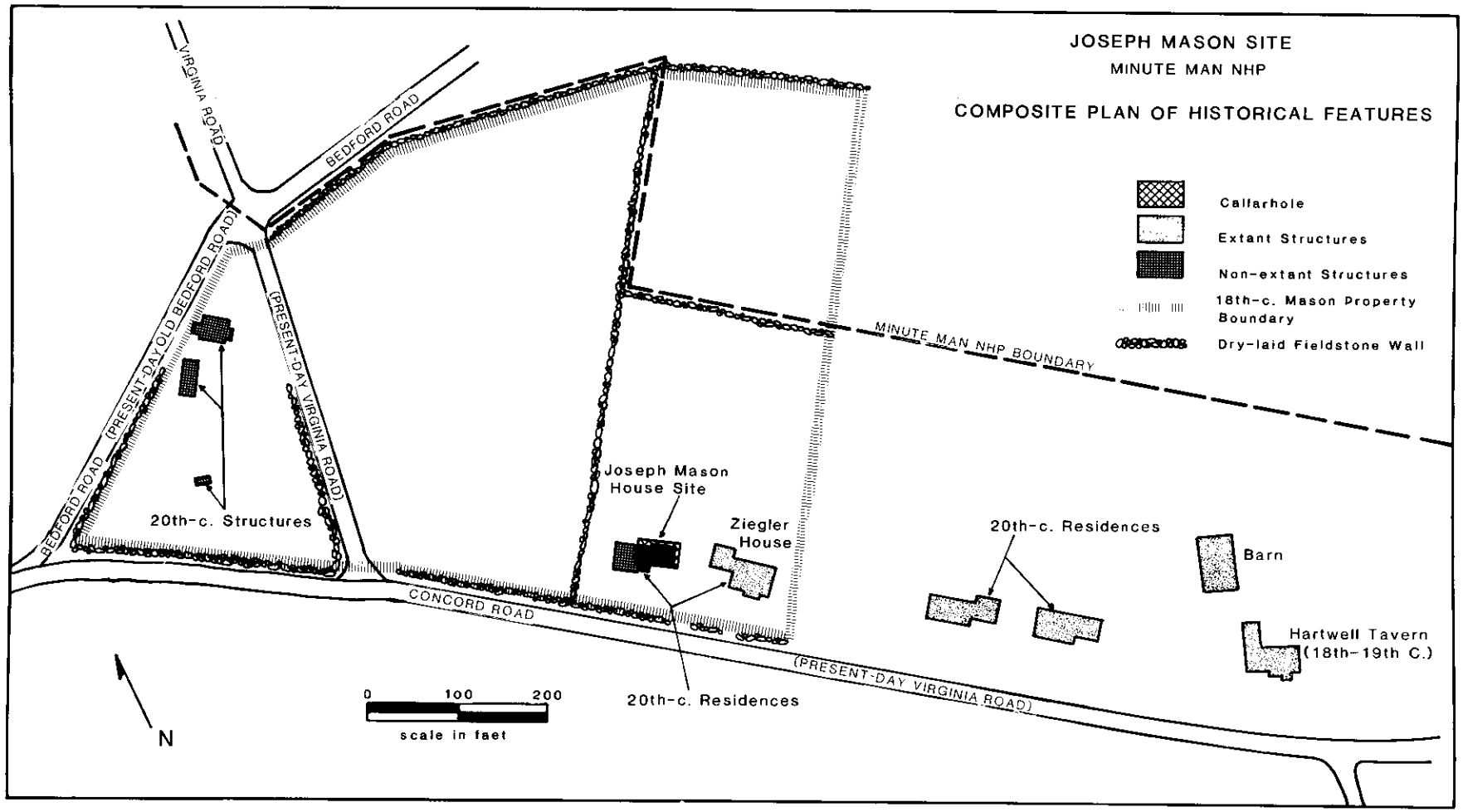


Figure 7-1. Project composite plan of Joseph Mason site showing the relationship of the property to the surrounding roads.

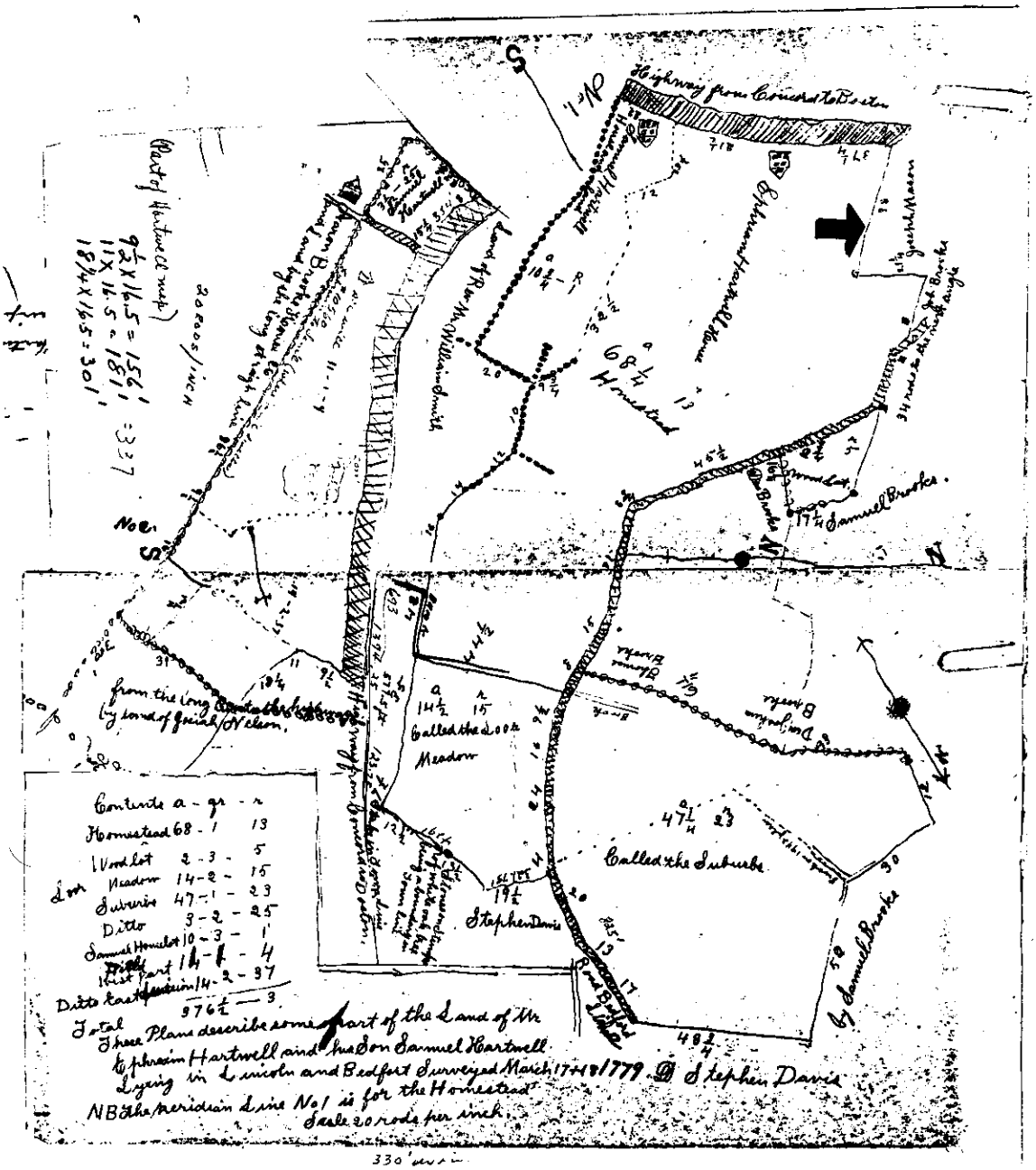


Figure 7-2. Plan of Ephraim and Samuel Hartwell property as drawn by Stephen Davis in 1779. An arrow has been added to indicate the boundary between Hartwell and Mason land (reproduced courtesy of the Lincoln Historical Society, Lincoln, Massachusetts).

his wife (Middlesex Probates #22257). The inventory recorded his house, barn, and remaining land, including a homelot of 2 acres. Isaac had sold the Mason property by 1691, several years before his father's death, to Moses Whitney, a yeoman. Isaac appears to have left Concord after the sale for there is no record that he bought any other land in the county and no

Concord records exist for him, his wife, or any other children born to them.

There is no deed on record of Whitney's original purchase of the property from Taylor although he mentions it in the deed. The deed describes Whitney as a yeoman "of Stow" (Middlesex Deeds, Book 10:371–372). There is no record in Concord vital statistics of his residence in Concord—no birth, marriage, or death. If he lived on the premises, no proof of the fact has

Table 7-1. Household and ownership changes at the Joseph Mason homestead.

Grantor	*Grantee*	*Acres*	*Date*	*Source*
Mason property:				
William Taylor	Isaac Tailer (sic)	15	? (prior to 1691)	no record; see M.D.,* Book 10:371–372
Isaac Tailer	Moses Whitney	15	? (prior to 1691)	no record; see M.D., Book 10:371–372
Moses Whitney	Benjamin Whittemore	15	1691/2	M.D., Book 10:371–372
Benjamin Whittemore	Joseph Wheat	5	1707	M.D., Book 21:377–378
Joseph Wheat	Ebenezer Brooks	5	? (by 1720)	no record; see Concord Records, vol. 1:375–376; 379–380; M.D., Book 35:187
Ebenezer Brooks	Timothy Cooke	9	1741	M.D., Book 44: 152–153
Timothy Cooke	Benjamin Farley	9	? (by 1753)	no record; see M.D., Book 52:431–432
Benjamin Farley	Joseph Mason	9	1753	M.D., Book 52:431–432
Joseph Mason	Jonas Mason	9	1802	Will, M.P.† #14765
Jonas Mason	John Hartwell	9	1804	M.D., Book 261:546
John Hartwell	heirs, Abel	part large estate	1820	Will, M.P. #10592
Hartwell estate	4 heirs	entire estate	1838	M.D., Book 387:398; Book 382:323, 324
John H. Hartwell	Abijah H. Pierce	¼ interest	1839	M.D., Book 387:398
Hartwell heirs	Abijah H. Pierce	entire estate	1845	M.D., Book 614:277; Book 465:5, 6
Abijah H. Pierce	Samuel H. Pierce	entire estate	1858	M.D., Book 799:317
Triangle only:				
Samuel H. Pierce	John Curry	1 ¼	1887	M.D., Book 1869:26
John Curry heirs	George Kolyshkin and Lena Kolyshkin	1 ¼	1925	M.D., Book 4877:165

(table continued on next page)

Table 7-1. Household and ownership changes at the Joseph Mason homestead (cont.).

Grantor	*Grantee*	*Acres*	*Date*	*Source*
Remainder of Mason property:				
Samuel H. Pierce	Stephen E. Hanscom	80	1873	M.D., Book 1251:38–39
Stephen Hanscom	Edward and Francis McHugh	80	1875	M.D., Book 1372:414
John and Katherine McHugh (heirs E. McHugh)	Mary McHugh	80	1920	M.D., Book 4370:299
Mary McHugh	Katherine McHugh	75	1927	M.D., Book 5102:561–563
Katherine McHugh	George and Lena Ziegler	lot B	1950	M.D., Book 7569:413 Plan Book 7558

*M.D. = Middlesex Deeds
†M.P. = Middlesex Probates

yet come to light. By 1691 the land had been improved and had a house on it. The homestead parcel was described as bounded

> South by the Bay Road
> East by Samuel Hartwell [father of Ephraim Hartwell]
> North by Joshua Brooks
> West by Francis Fletcher. (Middlesex Deeds, Book 10:371–372)

A second parcel involved in the same sale consisted of a 4½-acre meadow bounded on the west by the above parcel, but not bordering the Bay or Concord Road or the land of the Hartwells.[1] It should be noted that the Bedford Road, which later came to form the western boundary of the Mason homestead, had not yet been laid out.

In 1691 Moses Whitney sold 15 acres including the Mason homestead to Benjamin Whittemore. The Whittemore family is an especially interesting one in the history of MIMA since they later live in what became the Smith house and were prominent in local affairs before 1775 (Malcolm 1985:50–56). In 1691 Benjamin Whittemore of Concord, described as a weaver, purchased 15 acres of land from Moses Whitney of Stow. The Whittemores seem to have lived on the premises at least until 1697 when Benjamin purchased the property on which the present Smith house is situated (Malcolm 1985:figure 6). Benjamin and Esther Whittemore were married in August of 1692, which may have been the reason for the purchase of the small Mason homestead. In 1694 a daughter, Mary, was born, followed in 1696 by a son, Benjamin, and two years later a second son, Nathaniel. Other children followed. The Whittemores owned the property until 1707 when the house, barn, and 5 acres were sold. They apparently lived on the Mason site at least until 1697 and at most until 1707.

In 1707 Joseph Wheat purchased from Benjamin Whittemore 5 acres with a house, which appears to be the same parcel that Whittemore purchased from Whitney less most of its acreage (Middlesex Deeds, Book 21:377–378). The Wheat parcel was bounded as follows:

1. The Concord Road was the main road from the town of Concord to Boston, the so-called Battle Road of 1775. The Hartwells, Mason's neighbors, were residents of 18th-century Lincoln. Their house has been restored by MIMA (Malcolm 1985:1–2, 56–61).

South by the Bay Road
East by a stone wall [mentioned in later deeds]
North by Samuel Hartwell Jr. and Daniel Brooks and Hugh Brooks
West and Northwest by Samuel Fletcher and partly by the way going to Rocky Meadow [later Bedford Road]. (Middlesex Deeds, Book 21:377–378)

In neither the 1691 deed nor the 1707 deed is a barn mentioned although a farm property would most likely have had a barn. Since later deeds for Concord and Lincoln properties nearly always mention barns when there is one, it is uncertain whether this property had a barn at this point. It is likely that it did. It may have been a rather minimal structure, however.

The Wheats had been residents along what is now Virginia Road west of Old Bedford Road from the point where our records start. Moses Wheat, owner of their homestead, died in 1700. After much buying and selling among his heirs, Joseph Wheat's father, Joshua, was in possession of the bulk of the Wheat holdings on the western side of what is now Old Bedford Road. In 1706 Joshua Wheat sold to his son Joseph "all remaining part of my housing, lands and tenements which I bought of my brother John Wheat of Concord which by my father Moses Wheat's last will and testament were bequeathed to him" (Middlesex Deeds, Book 14:10). This transfer occurred a year prior to Joseph's purchase of the Whittemore property.

The birth of a child to Joseph Wheat and Priscilla Flagg early in 1705, and their subsequent marriage, probably prompted Joshua Wheat to sell part of his holdings to Joseph. A second child was born in 1706, and Joshua died in 1708. All of these events make it unclear whether Joseph and Priscilla Wheat ever actually lived on the Mason site. The Mason property had been sold by Joseph by 1720 when one Ebenezer Brooks is recorded as being on the site. Unfortunately no record of the sale has been recorded. It is possible Joseph Wheat rented out the Mason property from the time he purchased it. The renter may have been Ebenezer Brooks.

In 1720/1 Bedford Road was officially laid out by the town of Concord. It was described as running between the land of Joseph Fletcher and Ebenezer Brooks, then to the land of Hugh Brooks and Daniel Brooks, then to the land of Samuel Hartwell. Eight years later the northernmost portion of Virginia Road was laid out beginning at a distance of some 20–30 rods from the intersection of the Concord and Bedford Roads (Concord Records 1655–1784:375–376, 379–380).

After the purchase of the Mason property by Joseph Wheat the title chain disappears but when the aforementioned roads were laid out one Ebenezer Brooks appears to be situated on the spot. Confirmation of this change in ownership comes also from a 1732/3 deed of gift from Samuel Hartwell to his son Ephraim (Middlesex Deeds, Book 35:187). Ephraim was given 18 acres of woodland and upland containing a new house and bounded on the south by the Concord Road and west by Ebenezer Brooks's land.

Ebenezer Brooks was born in Concord in 1691 and married Sarah Fletcher of Concord in 1714. The Fletchers owned land near the Mason site and when the Bedford Road was laid out in 1720/1 it was routed between the land of one Joseph Fletcher and Ebenezer Brooks (Concord Records 1655–1784:375–376, 379–380). Since Ebenezer and Sarah married in 1714, it may have been at that time or shortly thereafter that they acquired the Mason property. By 1734 they had a family of eight children, all residing on the homestead.

A description of the property Ebenezer Brooks held, and which was later owned by Joseph Mason, can be found in his sale of the parcel in 1741 (Middlesex Deeds, Book 44: 1552–1553). This deed labels Brooks as a worsted weaver "late of Concord, now resident of Grafton" (Middlesex Deeds, Book 44:1552–1553). The property contained 9 acres described as "orcharding, plowland, and pastureland" and had on it a house, barn, and separate shop. It was bounded as follows:

South by the Concord Road
East by Ephraim Hartwell
North and West on Rocky Meadow Road [Old Bedford Road], Hugh Brooks and Ephraim Hartwell. (Middlesex Deeds, Book 44:1552–1553)

In addition, the 1741 deed described the entire 9 acres as "completely encompassed by a stone wall." The buyer was one Timothy Cooke.

Timothy Cooke, a cooper, was already living in Concord when he purchased the 9-acre Mason site from Ebenezer Brooks. Cooke was born in Concord in 1714, but no other information about him has come to light. He does not appear to have been married in Concord, and no children were born while he lived in the town. Sometime before 1753 the property passed into the hands of one Benjamin Farley of New Hampshire. No registered deed has been found to trace the transfer. Cooke presumably moved away and sold or forfeited the property, for he died elsewhere. He owned the property for perhaps 10 years or more. It seems likely that he lived on the site but no proof exists that he did.

In 1753 Benjamin Farley of Monson, New Hampshire, sold the Mason site to Joseph Mason. Unfortunately, as already mentioned, it is unclear when or how Farley acquired the site. Concord records fail to list Farley at all, although there is a Benjamin Farley who lived in Lexington in 1757 when the first of two Farley children were born in that community (Lexington Vital Statistics 1898). It seems unlikely that Benjamin Farley and his family ever resided on the Mason site.

At the time he purchased his homestead from Benjamin Farley in 1753, Joseph Mason was a resident of Concord. Mason was a currier and it is possible that he worked at Josiah Brooks's tannery nearby or worked the leather produced there. Joseph does not appear to have been born or married in Concord. But he and his wife Grace had a child born in Concord in 1751, two years before they purchased their eventual homestead. Another child was born to them the same year they acquired the property, and other children followed.

When Joseph Mason purchased his homestead it was described as 9 acres of land with one mansion house and one barn[2] (Middlesex Deeds, Book 52:431–432). There was no mention of a shop, although Mason, as a currier, could have made good use of one. No deeds have been discovered that record the sale of the property by Timothy Cooke, or the purchase of it by Benjamin Farley, but there is no doubt that the 9 acres Mason purchased is the same 9 acres Cooke had purchased some 12 years earlier. Ephraim Hartwell was the abutter on the east and north, the Bedford Road formed the western and northern boundary, and the Concord Road was the southern boundary (Figure 7-1). On the 1774 tax roll (Lincoln Tax Records 1760–1791) Mason's 9 acres are described as 3 acres of tillage and 6 of pasture. He owned no horses or oxen, merely a single cow and two swine. There is no description of where Mason's house and barn were located within the 9-acre parcel, but since the original house was built before Bedford Road was created, it doubtless stood just north of the Concord Road. Moreover, the other farms in this area, those of the Smiths and the Hartwells, were all built on the north side of Concord Road with both houses and barns on that side.

Since the structures in place on the Mason property in 1775 are those of the greatest importance to MIMA, it is important to attempt to probe beyond the bare evidence of the surviving records. If a mansion house was a more substantial dwelling, it is possible that the "mansion house" Mason purchased in 1753 (Middlesex Deeds, Book 52:431–432) was either the original pre-1691 dwelling somewhat enlarged, or a later structure built on the original foundation, rather than elsewhere on the property. This is because in none of the records before or after the Mason purchase is there *any* reference to an old house or old house site on this parcel of land. The Mason barn was likely to have been small as he had few animals and a small farm. The shop that

2. This is the first deed to describe the dwelling house as a "mansion."

was mentioned in the 1741 purchase (Middlesex Deeds, Book 44:152–153) is not mentioned in the Lincoln tax rolls, and, if it still stood in 1753 and after, must have been either quite small or perhaps incorporated into the house itself. All this must remain in the realm of speculation unless and until further evidence comes to light.

At times Mason rented additional farmland to help support his family. In 1769 he had two grown sons living with him and was farming some 42 acres, having rented land from his neighbors, the Hartwells (Malcolm 1985:62).

Joseph Mason died in 1788. His will, written in 1782, left his wife Grace "all my estate both real and personal (excepting my curriers tools)" (Middlesex Probates #14765). Mason's eldest son Jonas was bequeathed the currier's tools. While Grace Mason presumably occupied the family homestead until her death, there is no evidence that she lived there between 1788 and 1802. The tax rolls for this period fail to list her or anyone else as living on the site. Most widows are listed on tax rolls, but if Grace Mason was indigent she may have been exempt from taxes. If she was not living on the premises during these years, it seems likely the land, at least, was rented out to neighboring farmers.

Grace Mason died in 1802. An inventory after her death described the property as consisting of 9 acres of improved land bounded

> South on Concord Road
> East and Northeast on land of Captain John Hartwell [heir of Ephraim Hartwell]
> Northwest on a town road leading from Bedford to Concord to the country road [Concord Road] first mentioned. (Middlesex Probates #14765)

The only structures mentioned in the inventory were the house and barn, the former assessed at a modest $60, the latter at an equally modest $15. There was also one cow.

Since the Mason estate was too modest to divide among Mason's twelve heirs it was left *in toto* to Mason's eldest son, Jonas. The will was not presented for probate until two years after Grace's death and, in October of that year, Jonas Mason sold the entire estate to his neighbor, John Hartwell (Middlesex Deeds, Book 261:546). Its boundaries were described as in Mason's will, although the deed mentions that the 9 acres were "enclosed as the walls now stand" and contained "an old Mansion house and barn." From this date until the 20th century the Mason property formed part of the John Hartwell estate.

While the train of events indicated in the deeds and wills of the Mason family seems relatively straightforward, the Lincoln tax rolls present a cloudier picture. Joseph Mason last appears on the tax roll for 1784 (Lincoln Tax Records 1760–1791). The next surviving roll, that of 1788, the year of his death, fails to list either Mason, or his widow, or any of his children for the property on Concord Road. Instead one Ephraim Wheeler is listed next to Ephraim Hartwell on the tax roll (Lincoln Tax Records 1760–1791). The following year Abner Wheeler, who already owned land in the area, takes Ephraim Wheeler's place next to Hartwell and continues as his neighbor until his death in 1820 (Lincoln Tax Records 1760–1791, 1791–1835). While it seemed possible that Wheeler might have been renting the Mason property, in fact, in December 1788 he had instead purchased the homestead and farm of Mason's closest neighbor on the west, Joseph Wheat, whose farm bordered Virginia Road just west of its intersection with Bedford Road (Middlesex Deeds, Book 98:339). The deed explains that Joseph Wheat was selling "the whole of the farm he then lived on in Lincoln," some 70 acres with the buildings thereon to Abner Wheeler, a housewright. Wheeler was not renting the Mason property at the time he bought the Wheat land since he was not taxed for both properties.

One important issue for the archeological and historical record of the area is what became of the Mason property between the time Joseph died and 1804 when Jonas Mason sold the land to John Hartwell. If Grace Mason had continued to live on the premises she would have been listed on the tax roll unless she was indigent. Indeed, if anyone had lived on the premises during this period their name or names would have appeared. It seems likely that the property

was rented, since improved land was valuable, but that no one lived in the house, although the house was still standing at the time of its sale to Hartwell in 1804. There may have been a tenant living on the property for a brief period during this interval, as the 1799 tax lists one Jonas Straton, a craftsman of some sort who owned no property, between the names of Abner Wheeler and John Hartwell.

The Hartwells had owned their property east of the Mason homestead at least since 1691 (Malcolm 1985). For many years John Hartwell lived in the family homestead belonging to his father Ephraim. He shared in the cost of the property in 1793 and continued to live in the so-called Hartwell tavern until his own death in 1820. John Hartwell and his family do not seem to have lived in the old Mason house at any time after the purchase of the property. There is uncertainty about the use, therefore, of the Mason structures after their sale.

No one is listed on the Lincoln tax rolls as residing in the Mason homestead (Lincoln Tax Records 1760–1791). That being the case, what did the Hartwells decide to do with the old mansion house and the barn? There is some evidence that at least one of these structures survived until at least 1810. Few 18th-century tax rolls for Lincoln record the structures belonging to a family. The 1792 tax, however, notes that John and Ephraim Hartwell (then sharing the Ephraim Hartwell farm) owned a house, a barn, and *one* other building (Lincoln Tax Records 1791–1835). In 1810, after John's purchase of the Mason property, he is listed as owning one house, one barn, and *two* other buildings. The change from one to two "other" buildings could imply that a structure was extant on the Mason property that Hartwell had purchased in 1804. By 1821, just after John's death his heirs are assessed for one house and one barn (Lincoln Tax Records 1791–1835), but in 1823 and subsequent tax rolls they are assessed for a house, and two other buildings, one of which was probably the Hartwell barn (Lincoln Tax Records 1791–1835). Whether the 1821 assessment mistakenly omitted a structure or was correct and a new structure was added afterward, the Mason structures do not figure in the assessment. If one survived until 1810 it was now gone.

Based on surviving evidence, it is reasonable to conclude that the Mason structures were no longer lived in after 1804 and may have been abandoned as early as 1788 after Joseph Mason's death.

After John Hartwell's death his widow, Hepzabah, and Abel Hartwell lived in the family homestead. In 1838 the estate was divided among four Hartwell heirs, John W. Hartwell of Augusta, Maine, and his three sisters, Lydia Hartwell, Sarah Hartwell, wife of Abijah H. Pierce, and Hannah Hartwell, widow of William B. Johnson (Middlesex Deeds, Book 387:398). John quitclaimed to his sister Lydia for her use his share of the western part of the dwelling house formerly occupied by the widow Hepzabah Hartwell (Middlesex Deeds, Book 382:323). The following year John Hartwell sold to his brother-in-law, Abijah H. Pierce, his one-quarter interest in the estate (Middlesex Deeds, Book 387:398). Hannah Johnson sold to her sister Lydia her one-quarter part of the estate (Middlesex Deeds, Book 382:324). The two sisters came to share the estate, however, and resided in the family homestead. Various inter-family transactions continued with Abijah H. Pierce buying Lydia's half interest in the farm in 1845 (Middlesex Deeds, Book 614:277) and paying both Lydia and Hannah some $800 each over the next nine years (Middlesex Deeds, Book 465:5, 6). In 1858 Abijah and his wife Sarah sold the Hartwell farm to Samuel H. Pierce of Lincoln (Middlesex Deeds, Book 799:317). The Mason property remained incorporated in the Deacon John Hartwell farm. In 1873 Samuel Pierce sold the property to Stephen E. Hansom of Lincoln (Middlesex Deeds, Book 1251:38–39, see also Book 805:444). Two years later Hansom sold the farm to Edward and Francis McHugh (Middlesex Deeds, Book 1372:414). The Mason homesite does not appear to have been used as a home ever again. In the 20th century two houses were built in the vicinity of Mason's house (see Chapter 8 and Figure 7-1).

The Triangle

Nearly 30 years after he purchased the Hartwell farm in 1887, Samuel Pierce sold a triangular portion of it, a parcel estimated at 1¼ acres, to John Curry of Lincoln (Middlesex Deeds, Book 1869:26). This piece, formerly the western portion of the Mason homestead, was described as bounded

> South and southeast by the Old Country Road [Concord Road]
> West and northwest by the road to Bedford
> East and north by the road leading north to Bedford. (Middlesex Deeds, Book 1869:26)

This portion is regarded as the so-called bloody angle or bloody triangle—the scene of fierce cross firing and bloodshed during the retreat of the British regulars from Concord in April 1775. At the time of purchase there was no mention of any structures.

The parcel was sold by Hugh Curry, Francis J. Curry, Susan Curry, and Cecilia Curry to George and Lena Kolyshkin of Cambridge in 1925 (Middlesex Deeds, Book 4877:165). Again, there is no reference to any structures.

In 1967 the executor of the estate of Lena Kolyshkin sold the property then containing a small dwelling house and garage and estimated as containing 1⅓ acres to the U.S. Government (Figure 7-3). A wooded parcel of some 3¾ acres to the east of the above parcel was also purchased by the U.S. Government from Katherine McHugh who had come to own the Hartwell farm (Figure 7-4). This portion was bordered on the east and north by a stone wall, on the northwest by Old Bedford Road, on the west by Virginia Road and on the south by the old Concord Road (by then renamed Virginia Road). When purchased it was entirely wooded and had no structures. These two parcels seem to constitute the property of Joseph Mason that bordered Concord Road. The remainder of his 9 acres, some 4 acres, would have been to the north and northeast of these plots.

Mary McHugh, who came to own most of the old Hartwell farm, planned an ambitious subdivision of the land in 1949 (Middlesex Deeds, Book 7558:end page). In 1950 Elmer and Hilda Ziegler purchased lot B and proceeded to build a house and garage on it (Middlesex Deeds, Book 7569:413). This property was sold to the U.S. Government in 1974 (see MIMA files for deed and site plan).

Ghost Houses

Baker (1980) places two historic structures on the Mason property—Mason's home to the east and a schoolhouse to its west and just west of the Virginia Road (Baker 1980:91). In my own earlier research I found no evidence for a schoolhouse at this location in 1775 (Malcolm 1985:61–63). Instead, there seemed to be evidence that a farm was located between Joseph Mason's farm and that of Ephraim Hartwell since 18th-century tax rolls occasionally placed people in that position and assessed them for some 30 acres of land. Sometimes it was Mason himself whose land assessment merely rose, on other occasions Ephraim Flint was listed, and on others Mason's sons Jonas and Joseph Mason, Jr., were listed. Subsequent exhaustive research has failed to disclose any farmhouse between the Mason and Hartwell properties. The 1779 Davis map (Figure 7-2) shows none and has Mason's property abutting Ephraim Hartwell's. The solution to the tax roll variations would appear to be Ephraim Hartwell's practice of leasing the land that abutted Mason's property rather than farming it himself. If there were historical structures on the Mason property it is unclear what the second one was. It may either have been a farm building or the shop mentioned in the 1741 sale (Middlesex Deeds, Book 44:152–153).

THE NORTH LINCOLN SCHOOLHOUSE

Further research has revealed evidence that there was a schoolhouse on the Mason property during the 18th century, albeit not during the crucial year of 1775. The records of the Lincoln Town Meeting for the 18th century provide significant, if incomplete, information about the existence of a schoolhouse in the northern part of Lincoln, next to the Joseph Mason homestead.

In 1747 the "precinct" of Lincoln was "set off" from portions of the towns of Concord,

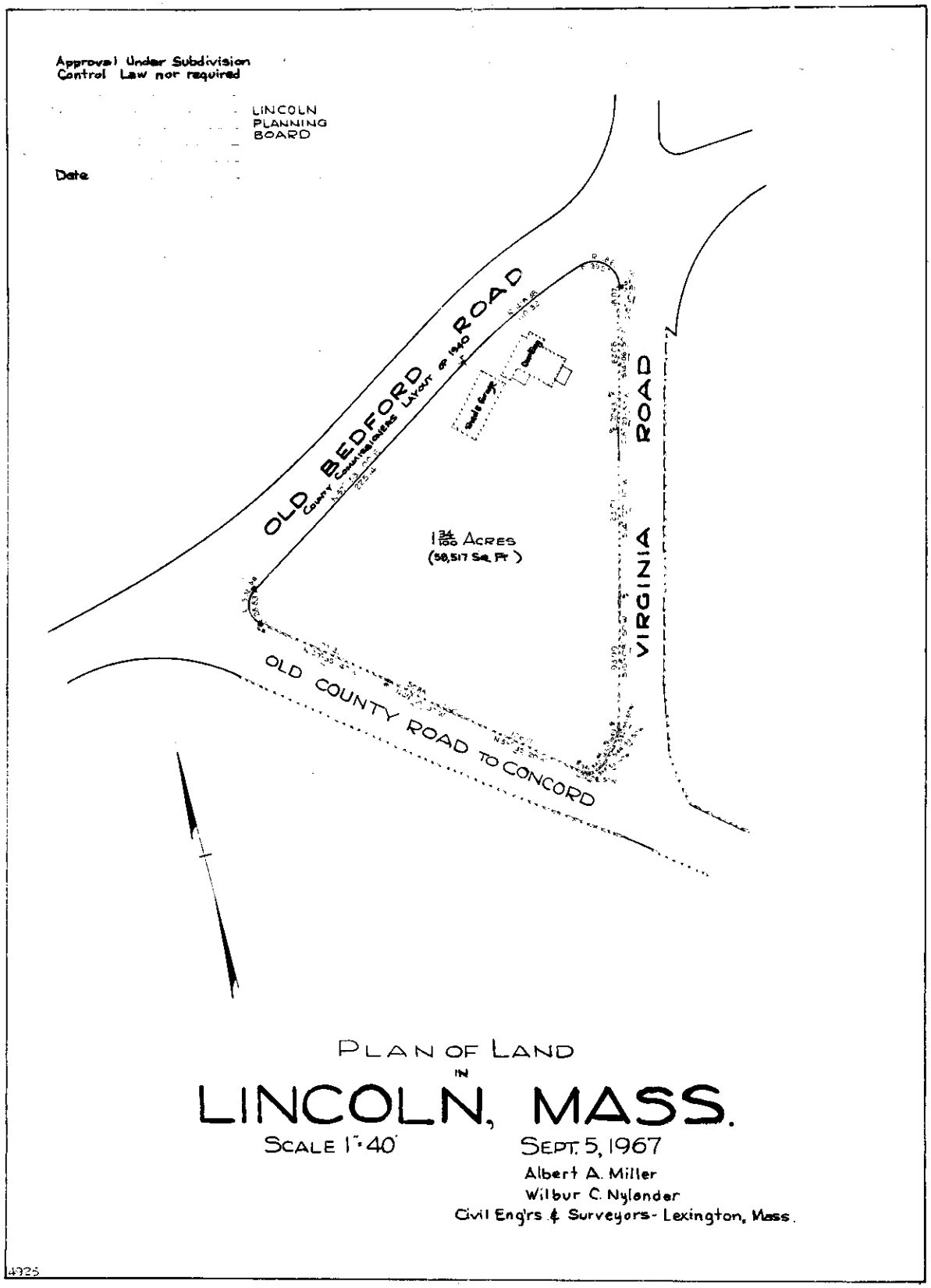


Figure 7-3. 1967 MIMA plan of Lena Kolyshkin property (triangle) at time of sale to U.S. Government (on file, Minute Man National Historical Park, Concord, Massachusetts).

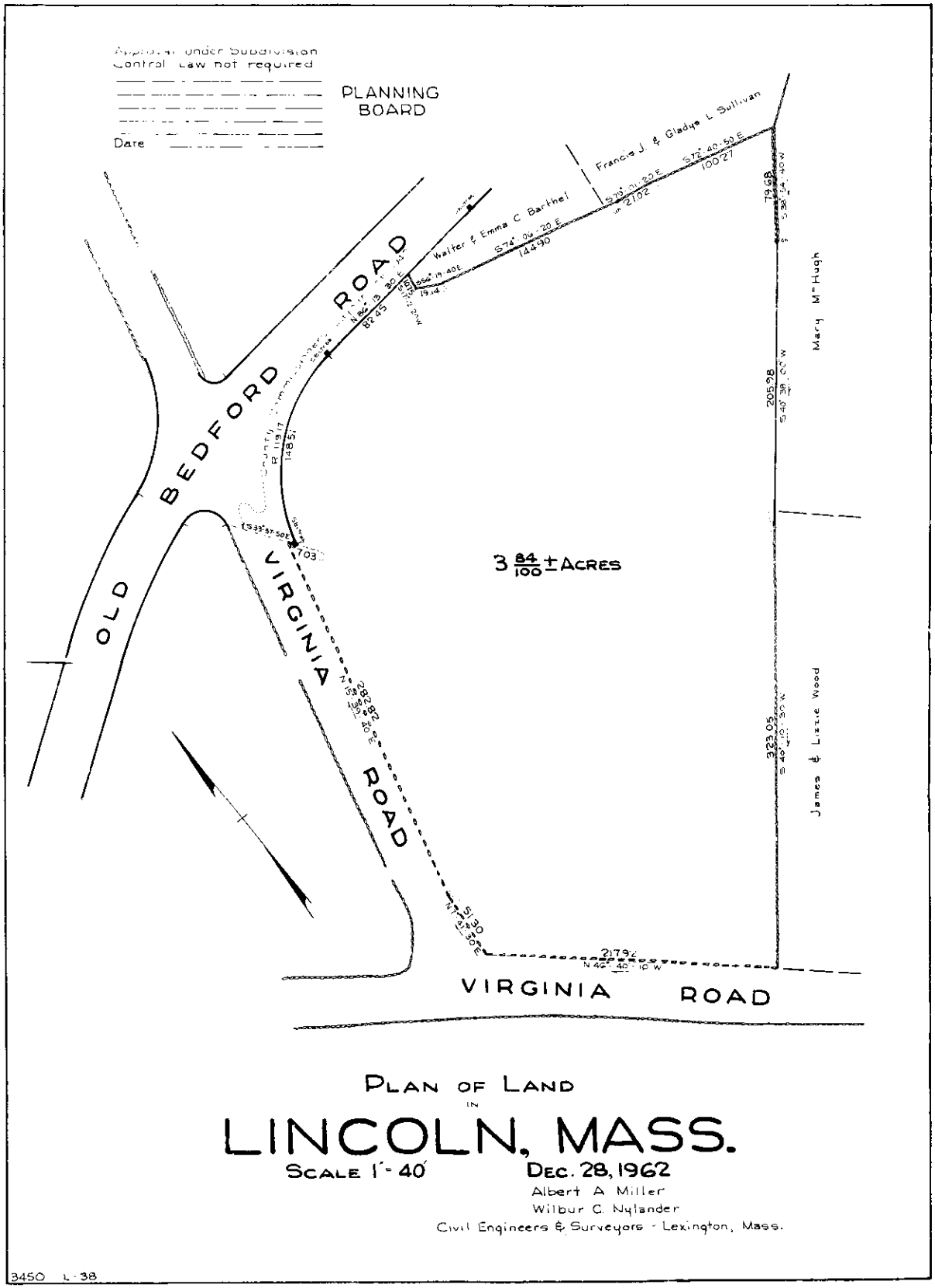


Figure 7-4. 1962 MIMA plan of Katherine McHugh land (marked as 3.84 acres) at time of sale to U.S. Government (on file, Minute Man National Historical Park, Concord, Massachusetts).

Lexington, and Weston. An act of April 23, 1754, created the township as a separate, self-governing entity. Yet surprisingly, not until nearly 10 years later, in January 1763, did the town arrange for schoolhouses to be built (Lincoln Town Meeting Records 1754–1806:128–129). Article three of the town meeting agenda, submitted at the request of Captain Daniel Adams and others was "to see if the Town will accept of the places hereafter mentioned to build their school houses on..." One of the sites mentioned was "on Mr. Joseph Mason's land about Eight or ten rods to the westward of said Mason's barn by the side of the road." The town meeting voted £10 toward the building of a schoolhouse in the "northerly part of town about Eight or ten rods to the west of Mr Joseph Masons' Barn by the side of the road." This and other schoolhouses were to be built after January 1st, presumably January 1764. The town's selectmen were charged to visit the new schoolhouses and determine whether they were "well done or not" and also to find suitable "person or persons to build and finish said houses" (Lincoln Town Meeting Records 1754–1806:128–129). The schoolhouses were apparently built and deemed suitable, for the money was authorized.

Even before this construction school was being kept in the northern part of Lincoln. In December 1761 Joseph Mason was paid for "keeping a reading and writing school for twelve weeks in the North part of town" (Lincoln Town Records n.d.). The following year Elizabeth Hartwell, wife of Ephraim, was reimbursed for keeping a school in the north part of town. Presumably, school was kept in the teacher's house. In September 1765, however, Grace Mason, Joseph's wife, was paid "for keeping school six weeks in the north schoolhouse" (Lincoln Town Records n.d.). This change in language seems to imply that by 1765 a north schoolhouse was in use.

In 1769 the schoolhouse's history becomes more complex. At the January 1769 town meeting article two read:

> to hear the request of Mr. John Wheat and others,... to know the mind of the town whether they will remove the schoolhouse in northardly part of the town to the place where it lately stood and a reasonable part of the school in said town be kept in the same... (Lincoln Town Meeting Records 1754–1806)

Apparently between 1764 when it was built on the Mason property and 1769 the school had been moved some distance away, far enough to inconvenience John Wheat and some of his neighbors in the Virginia Road area.

The town voted that it would "not remove the schoolhouse in the northerly part of town to the place where it lately stood" and a committee was to be appointed "to meet with persons" in the north part of town concerning the issue and "point out measures proper" to take and report back to the town meeting in March (Lincoln Town Meeting Records 1754–1806). The March town meeting deferred the issue to the May meeting; article two of the May agenda read:

> To act on that part of an article which was referred to this meeting which was to see if the town will take any measures and what measures they will take whereby the inconveniences that have arisen on account of the removal of the school house in the northerly part of the town may subside and those that may further arise may be prevented. (Lincoln Town Meeting Records 1754–1806:164)

A second article, article six, also referred to the same school. This may contain the advice of the committee appointed to look into the issue. It read:

> To hear the request of Mr. John Whithead and others which is to see if the town will grant such sum or sums of money as shall be sufficient to refund the inhabitants in the northerly part of the town the sum of money and expense they have been at in finishing ye school house in ye northerly part of the town more than the £10 they rec'd... (Lincoln Town Meeting Records 1754–1806:163)

In its wisdom, the Lincoln town meeting's vote on article two was to refuse to accept the report of the committee chosen to treat with the persons in the northern part of town "aggreaved by the removal of the school house." Article six was likewise rejected and no money at all ap-

proved for any repairs to the northern school or other schools listed in the article (Lincoln Town Meeting Records 1754–1806:164).

No reference to the northern school issue appears in the town records again until April 1789, some 20 years later. The town meeting in April 1789 was asked "to see if the town would build an house for the use of a school in the north part of said town on the Great Road nigh Mr. Joseph Mason's dwelling house where a school house once stood; or in some other place..." (Lincoln Town Meeting Records 1754–1806:327). The request came from Samuel Hartwell and others (Lincoln Town Meeting Records 1754–1806:329). It would seem, from the language of the article, that no schoolhouse at all existed in that part of town by 1789.

Samuel Hartwell's request met with a better reception than had John Wheat's 20 years earlier. In May the town voted to build a schoolhouse in the northern part of town and in October 1789 the town voted in favor of allocating money for construction. The location of the new building still needed to be fixed. The March 1790 town meeting deferred the issue until April at which time it was agreed that the school should be built "nigh the Widow Mason's dwelling house where a school house once stood" (Lincoln Town Meeting Records 1754–1806:329). In May 1790 a committee of three, Captain John Hartwell, Joshua Brooks, and Abner Wheeler, who had purchased the Wheat farm, was appointed to build the school. There is reference to a schoolhouse in the northern part of town in the town meeting records of 1804. By 1830 when John Hales mapped Lincoln (Figure 7-5), no schoolhouse is indicated for that location, although Hales shows a school along the new, straighter portion of the Great Road south of the John Hartwell farm.

In sum, the records are very revealing, if somewhat mysterious. The first schoolhouse in the northern part of Lincoln does not seem to have been built until 1764. It was located on Mason's land some 8–10 rods west of his barn by the side of the road. The road here is almost certainly the Concord or Great Road. In less than five years the schoolhouse had been moved off this site. Not until 1790 was another school erected on the Mason land. The 1790 building was on the original 1764 site. For some 20 years there was no school building on the Mason property, and these years include the all-important date of the battle that provoked the Revolutionary War in 1775.

The schoolhouse on the Mason property was thus not a part of the historic scene in 1775. Where was it? Was it elsewhere on MIMA property? There is, to date, no record of the new location. Since the original site was near the western boundary of Lincoln, and John Wheat especially protested its removal, it seems almost certain it was removed to the east, perhaps to the William Smith property or to the Samuel Hartwell farm. In 1768, when the removal likely took place, Mary Hartwell, wife of Samuel, kept school in the area. She did so again in 1773 and 1775 and in the latter year William Smith, her neighbor to the east, also kept school. However, Joseph Mason taught at the northern school in 1771 and 1773, despite the fact that the school was no longer on his property. But Mason also traveled to the southern part of Lincoln to keep school. Wherever the school had been taken, it had ceased to exist by 1789 when Samuel Hartwell petitioned for a new building.

Further research may be able to answer these questions. From the point of view of the school's relevance to the archeological survey of the Joseph Mason property, it is sufficient to know that it was built in 1764, removed by 1769, rebuilt in 1790 and located 8–10 rods west of Mason's barn, by the side of the Concord or Great Road.

Roads

The Mason site is today bordered on the south by Virginia Road (see Appendix A-2). In colonial times this was the main road from Concord to Boston variously known as the Concord Road or the Great Road (refer to Figure 7-1 for the following discussion). In 1775 it became "the Battle Road." The road was laid

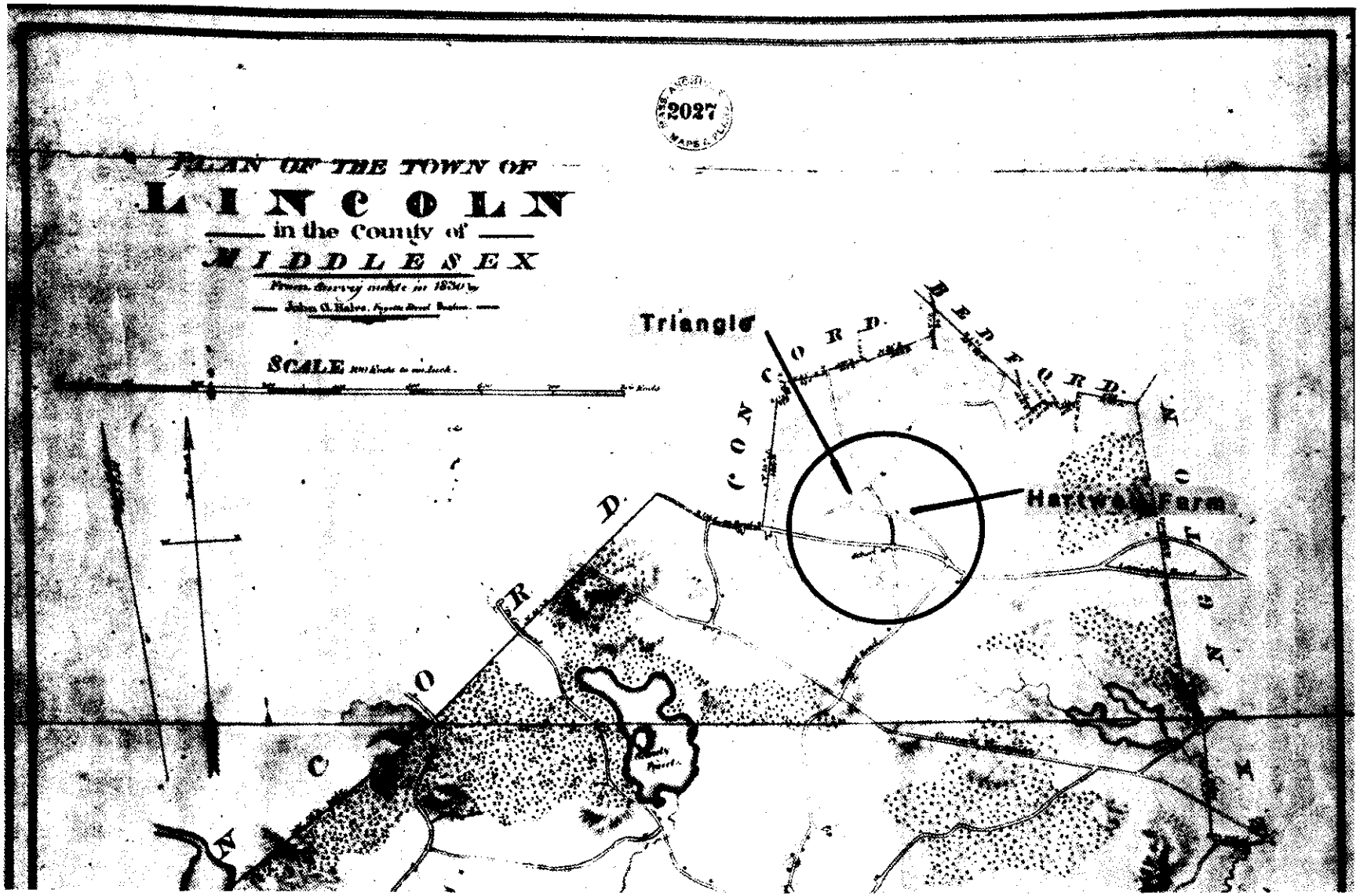


Figure 7-5. Detail of 1830 John G. Hales map of Lincoln. The circle highlights the area in question (on file, Massachusetts Archives, Boston).

out in one of the first acts of the Concord town meeting after the establishment of that community (Walcott 1938:1). While its route was altered in other areas it does not seem to have changed in the section in question.

The Mason property was bordered on the west by the Bedford Road. This road was laid out in 1721 as Fassett's or Bedford Road. It was to be an "open driftway" for driving cattle and was some two rods wide connecting Concord Road to the land of John Fassett to the northeast. The road enabled local farmers to reach their meadows and fields north of Concord Road and it established a road to Bedford.

The third road bordering the Mason site, and the last to be created, was the northernmost section of Virginia Road. It was laid out in 1728 and approached Bedford Road from the west, adjoining it some 20–30 rods north of the intersection of ihe Concord and Bedford roads (Concord Records, vol. 1:375–376, 379–380). Land on the western side of Bedford Road was separated by swamp from that route. Joseph Wheat's farm was closest to the Bedford Road and it was at his request that a new road was laid out to connect with the Bedford Road. There is no evidence that in colonial times this northernmost section of Virginia Road crossed Bedford Road, as it does today, to adjoin the main road to Boston, the Concord Road.

Today there is a triangle formed by this section of Virginia, Old Bedford, and the former Concord roads. This triangle has been pinpointed as the so-called bloody angle. Its existence and land use is therefore of special interest if the Battle Road and adjacent land is to be recreated in this section of MIMA.

Careful study reveals no such triangle in 1775 or indeed when the Mason property was sold to the Hartwells in 1804. The triangle is plainly marked on the 1830 Hales map of Lincoln (Figure 7-5), although on this map Hales shows Virginia Road as adjoining Concord Road much further to the east than it now does to link up with Bedford Lane. The earlier 1779 survey of the Hartwell farms by Stephen Davis (Figure 7-2) shows no trace of any such extension of Virginia Road. The triangle was created, therefore, either between 1804 and 1830 or possibly after 1830 since Hales got the route wrong but knew a road was, or was soon to be, routed in that section. Further research is needed to fix the date of construction, but for the historical purposes of MIMA the important fact is that the triangle created by Virginia Road crossing Old Bedford Road to adjoin Concord Road did not exist in 1775.

Land Use

From the earliest deed relating to what was to become the land of the Joseph Mason homestead, the property is described as improved upland. This first deed, that of 1691/2, provides no breakdown of land use. A second parcel involved in the same sale and to the northeast of the homestead property was described as a 4½-acre meadow. The Mason homestead, by contrast, while also described as "improved" land, was never referred to as "meadow." Meadowland was used for growing grass, a valuable crop, and was sometimes sown with special grasses (Gross 1976:48; Luzader 1972:2).

The property was described as merely improved, with no land-use breakdown up to the 1741 sale from Ebenezer Brooks to Timothy Cooke. In this deed the property is referred to as "orcharding, plowland, and pasture" (Middlesex Deeds, Book 44:152–153). This is the first and last reference to "orcharding" on the 9-acre parcel. Joseph Mason was never taxed for any orchard. The town of Lincoln seems to have been lax in its taxation of this category of use, however. It seems likely that the Masons had a few apple trees, but the orchard was either exaggerated in the 1741 deed or it had failed to thrive. Had there been an orchard of more than half an acre it would have been noted, if not on Lincoln tax rolls, then in land transfers or wills. On the other hand the description of the 9 acres consisting of plowland and pasture is repeated in all taxes, deeds, and wills.

The best evidence of land use for the 9-acre Mason homestead comes from the tax rolls.

Where a breakdown in land use is provided, Mason is consistently taxed for 3 acres of tillage land and 6 acres of pasture. He had no meadow and no taxable orchard. The tillage would have been walled or fenced off from the pasture to prevent livestock from spoiling the crops. Normally this barrier would not have had to be very impressive; however, it was customary to clear the rocks from a field and use them in a stone wall thus "killing two birds with one stone." The extant north-south fieldstone wall on the Mason property east of Virginia Road (Figure 7-1) does not appear to mark the property boundary and may have been constructed to contain livestock. The field wall would have been built by making two long lines of parallel rocks and filling the space between them with smaller debris. This would create a wide stone wall.

During the 19th century when the Mason land formed part of the Hartwell, then Pierce, Hanscom, and MacHugh farms, it is difficult to get a separate description of the Mason portion. In 1887 John Curry purchased the 1¼-acre triangle but the deed mentions no buildings or land use (Middlesex Deeds, Book 1869:26). However, in 1927, in a series of deeds between John and Mary McHugh, owners of the MacHugh farm, Mary Cahill, and Katherine McHugh, mention is made of the McHugh interest in "a three-acre field" that appears to be "bounded on all sides by a stonewall" (Middlesex Deeds, Book 5102: 561–563).

Summary and Conclusions

Changes in the Use of Space

There are three main conclusions we can deduce from the historical materials that indicate basic phases in the use of the Mason property. The many detailed aspects of property use and ownership are recounted above, and a list of the early structures on the Mason property is presented in Table 7-2.

First, by 1691 the Mason site was a "tenement" (Middlesex Deeds, Book 10:371–372) or homestead farm with the necessary buildings for such status, a house and almost certainly a barn.

Table 7-2. Early structures on the Joseph Mason property.

Structure	*Built by*	*Gone by*
House	1691	1821
Barn	(1691)* 1741	1821
Shop	1741	1753
Schoolhouse	1765	1769
Rebuilt school	1790	1830

*The barn was almost certainly in existence by 1691 although it is not mentioned in the documents.

The 9 acres that were to form the Joseph Mason property were from the outset described as "improved," that is, they were all cleared and usable for tillage or pasture. This was to be the use to which these acres were put until our own century.

Second, the property seems to have reached its maximum development in structures and agricultural use during the tenure of Ebenezer Brooks. By the time Joseph Mason purchased the land the house was described as a "mansion" house (Middlesex Deeds, Book 52:431–432) rather than simply a "dwelling house." When Brooks sold the property it was surrounded by a stone wall, had a separate shop, and "orcharding" (Middlesex Deeds, Book 44:152–153). There is no clear understanding of how a "mansion house" differed from a simple "dwelling house" in 18th-century usage, if it differed at all. Modern usage would assume that it was a more substantial structure. If that is the case, the house had been enlarged by the time Mason bought it. Since it was probably more than 50 years old it might well have been enlarged during the occupancy of Ebenezer Brooks or Timothy Cooke. It is unclear what became of the separate shop. It is possible it simply wasn't mentioned in the deed but it might have been incorporated into a larger house. In 1804, when Jonas Mason sold the estate to John Hartwell, the house was described as "an old Mansion house" (Middlesex Deeds,

Book 261:546). From this evidence it seems likely that during Mason's occupancy he did not substantially enlarge or improve the house.

The stone wall encompassing the Mason property, first mentioned in the 1741 deed, seems to have survived to modern times. The barn on the Mason property may have been a modest structure since it was often omitted from deeds, Mason had few animals and little land, and at his death it was valued at a very modest level.

Lastly, Mason seems to have done little to alter the property. At the time it was sold by his heir, Jonas, to John Hartwell the structures were labeled as old and their value decidedly modest (Middlesex Deeds, Book 261:546).

My research into the existence of a schoolhouse on the Mason site reveals that while a schoolhouse was located on the property before 1775 and again after that date, there was a 20-year interval that included 1775 in which one was not there. Any restoration of the 1775 scene would not, therefore, have a school on the property.

Data Problems

The data problems in pinpointing the use and structures of the Joseph Mason property are of two sorts: those inherent in the nature of the historical records available and those specific to this property.

The limitations of the deeds, tax rolls, wills, and other materials have been discussed above. In sum, they give useful information but are not sufficiently specific for the purposes of exact recreation. The precise location of the early structures and their size is not given, the crops planted not mentioned, nor their rotation charted.

The problems specific to this site entail gaps in the early deeds that would possibly indicate additional occupiers and might disclose the fate of structures such as the shop. We are also in the dark about the specific family size of those who came to live there from outside the immediate area or who occupied the site briefly, then left the area.

We are fortunate, however, in the information left to us for it gives us sufficient facts with which to direct archeological investigation with some precision.

Chapter 8

Archeological Investigations of the Joseph Mason Farmstead

Jeannine Disviscour, Alan T. Synenki, and Nora Sheehan

Introduction

Joseph Mason and his family owned and occupied a 9-acre farmstead in Lincoln, Massachusetts, in the mid-to-late 18th century (see base map, Appendix A-2). Compared to the size of other farms in Lincoln and adjacent towns during this period of time (Gross 1982:table 1; MacLean 1987:155), the Mason farmstead was extremely small. As discussed in the previous chapter (Chapter 7), the Mason farmstead originally comprised 15 acres and was occupied by several artisans from at least 1691 until probably 1802 or 1804. A house and, at various times, a barn, worsted weaver's shop, and schoolhouse existed on the farmstead.

Joseph Mason was a currier—a craftsman who finishes "dressing" leather subsequent to it being tanned (see Chapter 19). Joseph also served periodically as a school teacher in the northern district of Lincoln (Chapter 7). MacLean (1987:167) indicates that Joseph was "distantly related" to the Brooks family who owned and operated a tanyard to the east (Appendix A-2 and Chapters 18 and 19), and may have worked there as a currier or even sometimes as a tanner. The absence of a currier's shop on the Mason farm may provide some indirect support for MacLean's (1987:167) inference. As discussed in Chapter 19, except for a brief period of time after 1775, the leather industry prospered in New England as a whole, and perhaps at the Brooks tanyard in particular, in the mid-to-late 18th century.

Although the documentary record provides adequate information regarding the location of the 9-acre farmstead on today's landscape, the location and integrity of the buildings' archeological remains were unknown. Archeological investigations were therefore conducted on a portion of the Mason farmstead during the summer of 1986 (Figure 8-1). The primary purpose of the investigations was to locate the remains of the house and to evaluate its archeological integrity since, as discussed below, subsurface alterations appear to have occurred. Limited archeological testing was also conducted to investigate where the barn, shop, and schoolhouse might have been located. Lastly, limited but systematic archeological investigations of the homelot area were conducted in order to determine the ways in which the area immediately around the house was used. No previous archeological or documentary research had been conducted prior to that done by this project.

In addition to assisting MIMA in the management and interpretation of its cultural resources, the archeological investigations of the Mason farmstead may be significant in two other respects. First, the investigations provide comparative data regarding the use, and to some extent, the physical appearance of different areas of the homelot in the 18th century. Second, the investigations provide future researchers with an opportunity to observe, through its material remains, a farmstead whose occupants were of relatively modest means and several of whom were artisans (e.g., worsted weaver, cooper, and currier). This contrasts with the occupants of the majority of farmsteads that have been investigated archeologically within MIMA in the past.

Figure 8-1. Detail of Fairchild 1954 aerial photo of the Joseph Mason site, showing the farmstead boundaries (on file, Minute Man National Historical Park, Concord, Massachusetts).

Methods

In order to accomplish the above objectives, archeological expectations were generated, field investigations were conducted, and analyses of the data were carried out according to the project-wide multistage strategies outlined in Chapter 2. Expectations were generated for the house, barn, schoolhouse, and the worsted weaver's shop based on their known or predicted physical characteristics, the activities associated with their use, and the uses to which the property was put after the buildings were no longer operative.

Archeological Expectations

HOUSE

The documentary record indicates that a house was present on the Mason site from at least 1691 until 1802 or 1804 (Chapter 7). Unfortunately, the documentary record is not explicit about the location of the house within the 9-acre farmstead.

As discussed elsewhere (Chapter 4), the most substantial and therefore archeologically visible evidence of a house is the cellar. Observation of exposed pre-ca. 1750 cellars within MIMA revealed the following characteristics: the cellars were constructed of several courses of dry-laid fieldstones, were often square or rectangular in shape, and ranged in size from 2.7 to 5.5 m north-south and from 2.7 to 4.6 m east-west (Table 8-1). Cellars were usually oriented on an east-west axis and were located, with few exceptions, no further than 40 m from the historic road. Cellars often had bulkheads (Cummings 1979:29; e.g., Snow 1968:6). Chimneys were most frequently constructed of brick and were often mortared on the interior of the house with a gray clay (Cummings 1979:119, 122). Chimney bases were often earthen (Cummings 1979:118) or constructed of fieldstones that lay directly on the cellar floor (e.g., Charles and Towle 1986:figures 18.11, 18.12). Cellar floors consisted of compacted earth or were paved with flat, unmortared stones. Cellars were often used to store comestibles (Cummings 1979:28–30; McMahon 1982) and often functioned as dairies (Cummings 1979:30). Once abandoned, the wooden superstructures of houses were frequently moved or disassembled and the materials reused elsewhere (Hubka 1984:138). The cellars were commonly filled, by both human and natural agents, with soil, building-related materials (e.g., nails, window glass, and brick), and domestic refuse.

With these observations in mind, the Mason house was predicted to have been located no more than 40 m from present-day Virginia Road (assuming the location of the road has not changed significantly since the late 17th or early 18th century). More specifically, the house was expected to have been located just west of the Ziegler house (Figure 8-2). This expectation was based on the following reasoning. The documentary record indicates that in 1774 the 9-acre Mason farmstead consisted of 6 acres of pasture and 3 acres of tillage (Chapter 7). The parcel formed by Virginia Road to the south, Bedford Road to the north and west, and to the east by the dry-laid fieldstone wall west of the Ziegler house, is approximately 6 acres and therefore appears to be the pasture area (Figure 8-2). Since 17th- and 18th-century houses within MIMA are not known to have existed within pastures, it was expected that the Mason house was east of the wall (Figure 8-2); this area constitutes the remaining Mason acreage. In the 1950s, two ranch-style houses were constructed contemporaneously in this area east of the wall (Figures 8-2 and 8-3). One of the houses—the Zieglers'—is extant and is still occupied today. The other house—the Woods' (Elmer Ziegler's in-laws)—was razed in the early 1960s by the National Park Service. Elmer Ziegler indicated (personal communication, 1986) that while "lots of brick and a British coin" were unearthed as a result of the construction of the Wood house cellar and the garage's slab, no artifacts were exposed during the subsurface site preparation work for the Ziegler house. Based on this information, the location of the Mason house was hypothesized to have existed on the parcel where the Wood house was located.

If the Mason house was indeed located on the Wood house parcel, then the Mason house cellar and its associated archeological remains in the

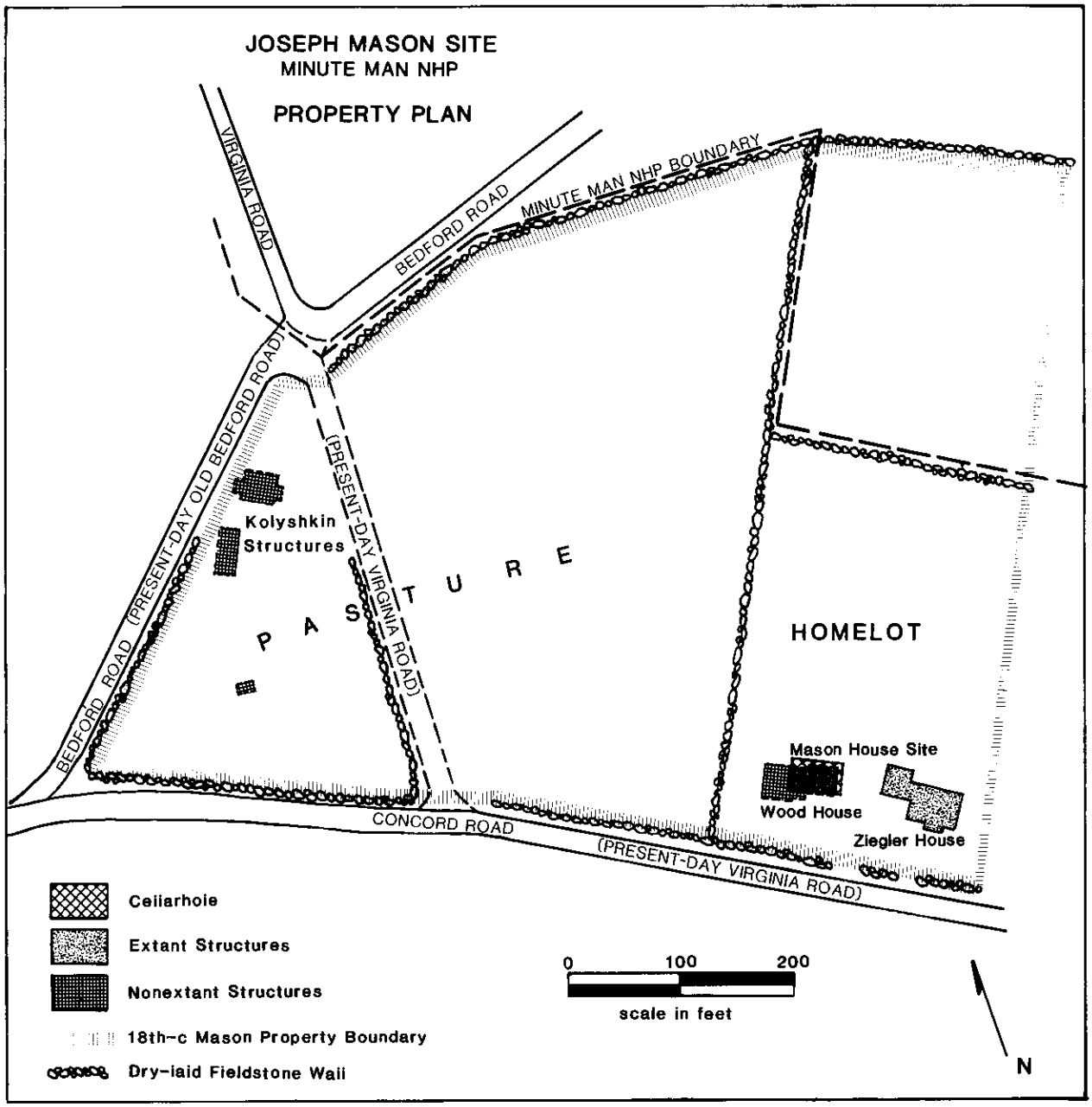


Figure 8-2. Project plan of the Mason property showing locations of extant and nonextant structures, fieldstone walls, pasture and homelot areas, and the surrounding roads.

surrounding yard areas were most likely altered. The yard areas may also have been altered prior to the construction of the Wood and Ziegler houses as a result of the large-scale cultivation of cabbages that is reported to have occurred on these properties in the 1930s (Elmer Ziegler, personal communication, 1986). The extent and precise effects of these activities on the integrity of the subsurface archeological remains are still unknown.

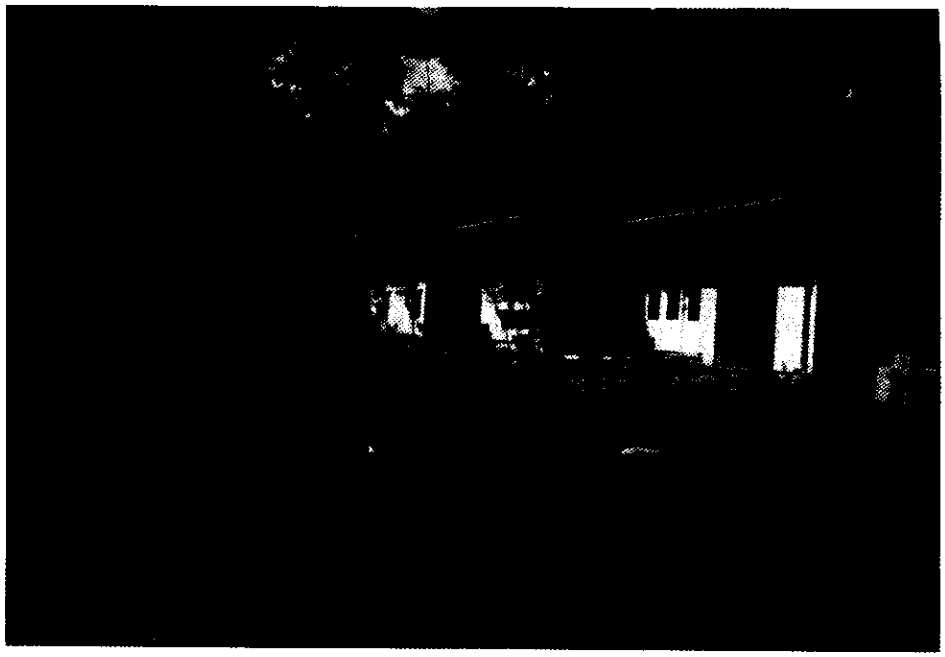


Figure 8-3. Project photograph of the Wood House, erected in the 1950s.

BARN

A barn existed on the Mason property from 1741 until at least 1804. Malcolm (Chapter 7) asserts that a barn must have existed prior to 1741, although there is no documentary evidence of one. The exact location of the barn on the property is uncertain as the documentary record is not explicit on this point. It was predicted, however, that the barn was located west of the extant fieldstone wall that may have separated the homelot and pasture (Figure 8-2). This prediction was based in part on documentary data that describe the location of the schoolhouse, which existed on the Mason property from 1764 until 1769, in relation to the barn, and based in part on the location of the house remains uncovered as a result of the present archeological investigations. The schoolhouse was described as being "about Eight or ten rods to the west of Mr Joseph Masons' *Barn* by the side of the road" (Lincoln Town Meeting Records 1754–1806:128–129 [emphasis added]). Since the remains of the house appear to have been close to the Mason's eastern property boundary (Figure 8-2), it was considered unlikely that the barn and schoolhouse were situated between the house and the stone wall that separated the homelot and pasture.

According to St. George (1982b:29–30), 17th- and early 18th-century barns were multipurpose service structures used to house livestock, store and process cereals and grains, and store farm implements. Overall, 18th-century barns consisted of a wooden superstructure atop a row of fieldstones, granite slabs, or, according to one 19th-century observer, a few wooden blocks (Hubka 1984:55, 183). Recent field investigations in central Massachusetts (John Worrell, personal communication, 1987) have revealed that the spaces between the individual fieldstones of 18th- and early 19th-century barn foundations were filled with small angular pieces of stone termed "chinking stones." Although the range of variation in the size of early 18th-century barns is unknown, Hubka (1984:165) suggests that pre–19th-century barns were typically 20 ft × 15 ft. These dimensions are similar to those suggested by St. George (1982b:26) for 17th-century

amounts of certain kinds of 18th-century building materials (e.g., hand-wrought nails and crown/cylinder window glass) may indicate its possible existence since, like other shops of the period, the superstructure probably included a window and may have been sided with vertical hand-hewn boards attached to a wooden post-and-beam frame with hand-wrought nails. It is also possible, but unlikely given the expected 19th- and 20th-century land uses, that four large fieldstone corner posts or a linear alignment of dry-laid fieldstones may be present and indicative of the shop's foundation (see Chapter 14). The shop may have been located near Virginia Road within the homelot area for the weaver's convenience and the customers' access.

SCHOOLHOUSE

For approximately five years, from ca. 1764 until 1769, a schoolhouse was located on Mason's property (Chapter 7). School was not mandatory during this time period, nor was it conducted throughout the year (Larkin 1988:34–35). According to MacLean (1987:205), after the 1750s Lincoln schools were conducted for approximately three months during the winter after the fall harvest but before spring planting; they also were conducted up to three months in the summer. Joseph Mason taught school for six years in the town of Lincoln beginning in 1759 (MacLean 1987:206). Grace Mason, Joseph's wife, was paid for keeping school for 12 weeks in 1765—most likely in the schoolhouse that was present on their property.

The documents state that the schoolhouse was "about Eight or ten rods to the west of Mr Joseph Masons' Barn by the side of the road" (Lincoln Town Meeting Records 1754–1806:128–129). The road mentioned was presumably Concord Road (present-day Virginia Road). In 1769 the schoolhouse was moved from Mason's property and placed elsewhere (Chapter 7). As mentioned above, since it is most likely that the barn was west of the extant fieldstone wall that separates the homelot and pasture (Figure 8-2), the schoolhouse may therefore have also been located west of the wall close to present-day Virginia Road.

Although there are no data regarding the appearance of this schoolhouse, some documentary information exists about the physical characteristics of 18th- and 19th-century schoolhouses in Lincoln (MacLean 1987:370–371). Limited documentary and archeological data regarding schoolhouses in other areas of North America also exist (Burt and Daniel 1982; Schoen 1986). The most detailed account of the physical appearance of "early" schoolhouses in Lincoln was in 1853 when they were described as being "...long, low buildings like a cornbarn, with a door at one end and a fireplace opposite..." (MacLean 1987:370). If the foundations of 18th-century schoolhouses were similar to the foundations of cornbarns, then they may simply have consisted of four stone or wooden corner supports (Snow 1968). It is not inconceivable, however, that some 18th-century schoolhouse foundations consisted of a single course or even several courses of dry-laid fieldstones, not unlike some 18th-century barns. While the size of the schoolhouse that existed on the Mason site is unknown, it may have been similar in size to the one built in 1783 in Lincoln, Massachusetts, which measured "twenty-foot-square" (MacLean 1987:370). The size of the 1783 schoolhouse is comparable to a 20 ft × 28 ft schoolhouse that was proposed to be built in Lexington, Massachusetts, in 1714 (Lexington Town Records 1692–1718: November 2, 1714). In addition to a possible brick chimney, it is also likely that 18th-century schoolhouses had windows, since windows did exist in early 19th-century schoolhouses in Lincoln (MacLean 1987:370). Finally, although we do not know what the superstructure of the schoolhouse on the Mason farmstead was constructed of, it was probably wood even though both wood and brick were used during the late 18th and early 19th centuries (MacLean 1987:370).

The physical characteristics of schoolhouses discussed above suggest that limited subsurface and quite possibly surface evidence of the structure may exist. The schoolhouse's archeological visibility is not expected to be high, however,

because it only existed on the Mason property for five years and was moved rather than dismantled or demolished on-site. If the remains of the schoolhouse exist, then the schoolhouse's location may be detectable through the spatial concentration of nails, window glass, and possibly brick. In addition, the remains of materials relating to education (e.g., slate and lead), play (e.g., toys), apparel (e.g., buttons), and perhaps hygiene (e.g., combs) could help reveal its location.

Field Investigations

Archeological investigations were conducted at the Joseph Mason site during June and July of 1986 based on the archeological expectations discussed above. Three phases of field work were conducted: a systematic walkover, an intensive survey, and limited site examination. In all, a total of 376 STPs and eight EUs were excavated. Unlike at the David Brown farmstead (Chapter 4), a geophysical survey was not conducted at the Mason farmstead for several reasons. First, the subsurface alterations to the 18th-century archeological deposits were suspected to be extensive, and second, much material was probably deposited on the site as the result of the construction and razing of the Wood house. In addition to this, granite bedrock is present on the surface of much of the site. These factors would probably diminish the effectiveness of detecting the site's 18th-century archeological remains by means of geophysical survey (Weymouth 1986:345–346).

The systematic walkover of selected portions of the 9-acre Mason farmstead was conducted prior to subsurface testing. As anticipated, no surface remains of any of the archeological features of interest were identified, nor were there any visible signs of where the Wood house had been located. The walkover did confirm, however, the existence of a vegetational anomaly that was somewhat rectangular in shape just east of the fieldstone wall that presumably separated the pasture from the homelot. This anomaly was noted on the 1954 aerial photograph, after the systematic walkover of the site.

Intensive Survey

The intensive survey consisted of the excavation of 376 STPs and three 1 m × 1 m EUs. Prior to the actual subsurface investigations, however, the area where the Wood house, garage, and patio had been located was demarcated with wooden stakes. The location of these features was determined primarily on the basis of a plot plan and aerial photographs since, as noted above, no surface evidence of their remains existed. Informant data (i.e., interviews with Elmer Ziegler) were also used to corroborate the map and photographic information. No subsurface investigations were conducted within the area where the remains of the Wood structures were suspected.

Two strata (Figure 8-4) were delineated for the intensive survey. The STPs within the strata were placed at 5-m intervals in a stratified, systematic, aligned configuration for reasons already discussed (Chapter 2). Unfortunately, three of the middle transect lines in the westernmost portion (i.e., the pasture area) of Stratum I were not parallel because of a slight difference in the declinations of different survey teams' compasses. All units were excavated at least 10 cm into sterile subsoil when possible. With the exception of some 20th-century building-related materials (e.g., cement) and trash, all artifacts were collected. Soil and pollen samples were taken from selected levels and units in Strata I and II east of the fieldstone wall that is believed to have separated the pasture from the homelot. Soil samples were taken from the organic-appearing deposits and the glacial subsoil. As indicated in the following section, the concentration of certain compounds in the soil (e.g., phosphates) in conjunction with other material remains (e.g., ceramics) were used to preliminarily identify some of the ways in which the homelot's yard space was used. All STPs were filled with their own backdirt at the end of the field season.

Stratum I was defined as a 40-m wide area with its southern boundary at the stone wall that borders present-day Virginia Road, its eastern boundary approximately along the Ziegler's western property line, and its western boundary along the stone wall that borders present-day Old

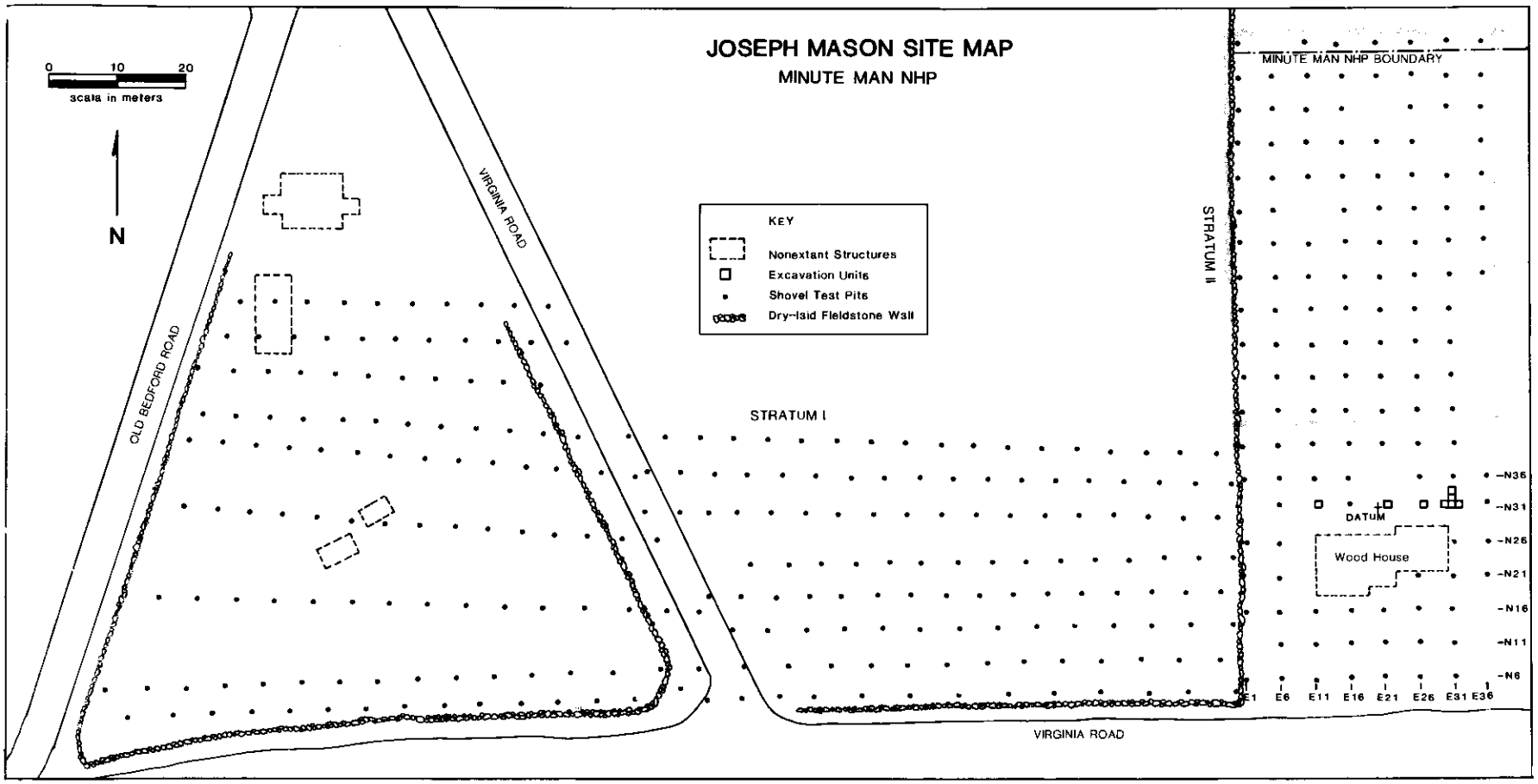


Figure 8-4. Joseph Mason site map showing locations of STPs, EUs, and testing strata.

Bedford Road (Figure 8-4). Only one transect in this stratum was located on the Ziegler property. Permission to investigate further on their property was not granted. The primary purpose of Stratum I was to locate the remains of the Mason house, to discover where the shop, barn, and schoolhouse might have been, and to preliminarily assess the archeological integrity of the Mason homelot in order to determine whether further investigations were warranted. A total of 261 STPs were excavated in Stratum I.

The STPs excavated east of the fieldstone wall that presumably separated the homelot from the pasture measured 50 cm × 50 cm. These were excavated in arbitrary 5- or 10-cm levels within deposits whose soil texture and color were similar (i.e., "natural" horizons). Such stratigraphic control was deemed necessary to assess the archeological integrity of the homelot area. Although the excavation of the STPs in this area did not uncover the remains of the house or the shop, the investigations did uncover several relatively intact 18th-century deposits of "sheet" refuse. The information from these deposits and the remains of the Mason house cellar uncovered in the EUs resulted in some interesting observations regarding the homelot as discussed below.

As noted above, three units measuring 1 m × 1 m were excavated at the same time that the STPs were dug in Stratum I. The 1 m × 1 m units were judgmentally placed in two areas. One EU (N31E11) was placed where the rectangular vegetational anomaly mentioned above existed. The other two EUs (N31E31 and N31E21) were placed north of where the Wood house garage and patio were once located. These units were chosen on the basis of informant data (i.e., interviews with Elmer Ziegler), which suggested that building-related materials were unearthed as a result of the excavation of the Wood house cellar and garage. The excavation of EU N31E31 initially uncovered a portion of what is believed to be the Mason house cellar.

In contrast to the investigations east of the fieldstone wall, the STPs excavated west of the wall (i.e., in the pasture area) were round and measured 40 cm in diameter. Furthermore, the STPs were excavated by natural levels as determined by soil color and texture. These deposits were not excavated in arbitrary levels because of time constraints. Not surprisingly, no unambiguous data were recovered that indicated the location of the barn or the schoolhouse. Some limited data that suggest the vicinity in which one of these buildings may have been located were generated, however.

Stratum II was established subsequent to locating the remains of the Mason house cellar. Stratum II was placed north of the Mason house cellar remains (Figure 8-4), and a total of 115 STPs were excavated. The purpose of the investigations within Stratum II was to locate and identify other possible archeological remains within the homelot area that would contribute to the understanding of the use of its yard space. Like the STPs excavated within the suspected pasture area of the site, the STPs excavated within Stratum II were 40 cm in diameter and were excavated within deposits that were similar in color and texture. This was done for reasons of efficiency given the existing time constraints. With the exception of the presence of limited amounts of "sheet" refuse, no other archeological remains were uncovered within Stratum II. The lack of large amounts of debris in this area may suggest that Stratum II encompasses the Mason farmstead's tillage area, or a portion thereof.

Limited Site Examination

Subsequent to the initial discovery of the Mason house cellar, five additional EUs were excavated to confirm that the remains uncovered were indeed those of the Mason house (Figure 8-4). It was hoped that these excavations would also provide additional data regarding some of the physical characteristics of the cellar, and perhaps further information about its dates of construction and abandonment.

Following excavation, all EUs that encompassed the cellar remains were filled with sterile sand obtained from a local sand and gravel company. The sand was used in order that excavated and unexcavated areas could be clearly distinguished, and to preserve the integrity of the

remaining portions of the cellar (Thorne, Fay, and Hester 1987:26).

Results

Archeological investigations of the Joseph Mason farmstead uncovered the remains of the Mason house cellar just northeast of where the 1950s Wood house and attached garage once existed (Figure 8-2). The location of the Mason house, along with its associated sheet refuse, indicates that the area east of the fieldstone wall (and west of the extant Ziegler house) was once the farmstead's homelot and that the area west of the wall was most likely the pasture (Figure 8-2).

The remains that were uncovered are believed to be from the cellar that was originally constructed on the property sometime prior to ca. 1691. No archeological evidence was uncovered to indicate precisely when the house was built. In addition, no evidence was uncovered to support or reject Malcolm's hypothesis (Chapter 7) that the original house, its cellar and/or its superstructure, was enlarged or rebuilt sometime prior to 1753. The archeological data seem to indicate that the cellar was initially filled in a relatively rapid, contemporaneous fashion sometime after ca. 1820 but before ca. 1830. Although the origin of the cellar's fill is uncertain at this time, it is suspected that some of it may have originated off-site as appears to have been the case at the David Brown farmstead (Chapters 4 and 5). The archeological integrity of the cellar, save the upper courses of its walls and perhaps its southern portion, appears to be high despite subsurface alterations due primarily to the construction, occupation, and destruction of the Wood house, and due in part to tillage of the area sometime prior to the construction of the Wood house.

No archeological evidence was uncovered to indicate where the worsted weaver's shop was located. Some data, however, were recovered to suggest the possible vicinity in which the barn and schoolhouse were located. No archeological remains of other 17th-, 18th-, or early 19th-century buildings, water or waste management facilities (e.g., wells, privies, and drains), or discrete features were uncovered in the homelot or pasture areas. It is suspected that if any such features ever did exist in the homelot area they were probably significantly disturbed if not completely destroyed by the agricultural activities and, perhaps more importantly, the activities associated with the construction, occupation, and removal of the Wood house. Except for the possibility of the house cellar's fill, no large-scale earth removal or filling episodes appear to have occurred at the site in the 18th or 19th centuries.

Finally, the archeological investigation revealed that, although there is little vertical integrity in the homelot and pasture areas due to the 20th-century residential and agricultural activities mentioned above, most areas appear to have some horizontal integrity. Analyses of the spatial distribution of artifacts in the homelot and the pasture revealed some of the ways in which the two areas were used.

Site Stratigraphy

Archeological investigations revealed that there is considerable site-wide stratigraphic variation and little stratigraphic integrity in both the homelot and pasture areas. Much of the variation that exists within the homelot area is primarily the result of the construction, occupation, and removal of the Wood house in the 1950s and 1960s. The stratigraphic integrity of the upper portion of the plowzone has been compromised by plowing, which appears to have occurred prior to the use of the homelot and a portion of the pasture as residences in the 20th century. Four overall stratigraphic deposits can be identified within the homelot and pasture areas: 1) humus, 2) plowzone, 3) construction and/or demolition-related debris and fill, and 4) 18th- and early 19th-century yard deposits.

In general, the humic deposit consisted of a fairly thick root mat in the homelot area and a layer of poison ivy, leaves, tree branches, and other decomposed vegetal matter in the pasture area. The deposit was similar in thickness, color, and texture in both the homelot and pasture areas. For example, the homelot's humic deposit varied from a dark brown to a dark grayish

brown sandy loam, and ranged in depth from 3 to 17 cm (mean = 8 cm); in the pasture area it ranged in depth from 2 to 19 cm (mean = 7 cm). The formation of the humic deposit in both areas is believed to be the result of what Eidt (1985) has termed the humification process—the gradual decomposition of organic materials. The formation of this deposit in both areas appears to be a relatively recent occurrence based on the presence of mid 20th-century material. In particular, the humic deposit in the homelot area appears to have formed during and subsequent to the property's use by the Woods as a residence.

A plowzone existed in most of the yard areas of the homelot and pasture and was defined by an organic-appearing deposit in which there were 18th-, 19th-, and 20th-century materials. Although the plowzones in both areas were similar in depth (homelot mean = 31 cm, range = 20–53 cm; pasture mean = 29 cm, range = 20–50 cm), the plowzone within the homelot exhibited considerably more variation in color and texture than the plowzone in the pasture. For example, the homelot's plowzone varied from a yellowish brown to a very dark brown, or even a dark grayish brown, fine to coarse sandy loam with occasional cobbles. In contrast, the plowzone within the pasture area consisted primarily of a dark brown silty fine sand. Although some of the variation in the homelot area may be attributable to such things as plow accumulation (Limbrey 1975:299–300, 331–332) and differing plow patterns (Odell and Cowen 1987:458–460), much of this variation is likely due to the construction, occupation, and demolition of the Wood house and attached garage. In most of the yard areas of the homelot, the bottom 2–12 cm of the plowzone was mottled. This part of the plowzone contained significantly fewer artifacts, most of which were utilitarian redwares. The association of these redwares with other 18th-century ceramics (e.g., creamware and white salt-glazed stoneware) in conjunction with the relative absence of 19th- and 20th-century materials suggests that this part of the plowzone was deposited during the site's 18th-century occupation.

In several areas of the homelot a deposit of non-organic, pale yellow to yellowish brown or yellowish gray fine to coarse sand existed beneath the plowzone. This deposit ranged in thickness from 2 to 17 cm and in general contained relatively few artifacts. According to Elmer Ziegler (personal communication, 1986), the sand was deposited for landscaping reasons when the Wood house was constructed.

In some areas of the homelot a dark brown organic-appearing deposit existed beneath either the plowzone or the sand deposit. This deposit ranged in depth from 10 to 40 cm and varied in color from a very dark brown or gray to black silty fine sand. Like the bottom of the plowzone, this deposit appears to be an 18th- or early 19th-century one that has been altered, particularly in its upper levels. This deposit consisted predominantly of utilitarian redwares, and in some cases small amounts of pre–19th-century building-related (e.g., hand-wrought nails) and domestic (e.g., creamware) materials. The presence of late 19th- and/or 20th-century materials in addition to the possible remains of tire tracks and heavy equipment blade scars provide some evidence of disturbance to this deposit. These data concur with the pollen data (Chapter 9) in suggesting that portions of this deposit may have been removed as a result of the construction of the Wood house.

Lastly, in several areas of the homelot, particularly south of where the Wood house once existed, the plowzone was absent. In its place was a deposit of mid–20th-century building-related (e.g., asphalt shingles and cement block fragments) and driveway-related (e.g., macadam) debris. This debris existed within a matrix of light brown sand and gravel. The presence of this deposit in conjunction with the absence of the plowzone indicates that the latter had been removed as a result of the construction of the Wood house, its attached garage, and its driveway.

Homelot

HOUSE

Feature 1 is the remains of the Mason house cellar. Although no archeological data were

recovered to document precisely when the cellar was constructed, there is some documentary evidence (Chapter 7) suggesting that it was built sometime prior to 1691 by the initial residents of the property. No current archeological evidence exists to support or reject Malcolm's hypothesis (Chapter 7) that the original house, either its cellar and/or its superstructure, was enlarged or rebuilt sometime prior to 1753. Although the precise date when the house was no longer occupied or when the superstructure was removed is not known, the archeological data lend support to the documentary record which indicates that both occurred in the early 19th century. The archeological data further suggest that the cellar was initially filled sometime after ca. 1820 but probably before ca. 1830. The archeological integrity of the cellar remains that were uncovered is high, save perhaps for its upper courses and its southern wall. As noted above, the remains of the cellar were first exposed in EU N31E31. Excavation of this unit uncovered the presence of building-related and domestic debris, an alignment of fieldstones, and the existence of a possible posthole adjacent to the fieldstones (Figure 8-5). Four additional units were subsequently excavated, and the remains of the cellar were exposed.

The precise dimensions of the cellar are unknown because time constraints prevented the exposure of the western, northern, and southern walls. Exposure of the northeast and northwest corners of the cellar, and a portion of its eastern wall, however, provided some data to suggest its size and orientation and its methods of construction (Figures 8-6, 8-7, and 8-8). For example, the distance between the inside northeastern and northwestern corners of the cellar is approximately 4.4 m (14.4 ft), indicating the cellar's east-west dimension. The length of the eastern wall is at least 2.2 m (7.3 ft) but probably no longer than 6.3 m (21 ft) since no evidence of its remains was uncovered in the STPs 5 m south of EU N31E31. The east wall is oriented toward magnetic north, indicating that the house was oriented in a north-south–east-west fashion (Figure 8-6). This cellar is therefore not only oriented along the same axis as the house cellars previously uncovered at MIMA, but is also within the same range of variability in terms of size (i.e., 9–15 ft × 9–18 ft; see Table 8-1). Field observations indicate that the courses of fieldstones were laid without mortar, as was customary during the 17th and 18th centuries within MIMA and elsewhere in New England. The northeast and northwest corners of the cellar are bonded, indicating that the eastern, western, and northern walls were constructed contemporaneously (Figure 8-8). Precisely when these walls were constructed is uncertain since no evidence of a builders' trench was uncovered. It is therefore unknown at this time whether these walls are the original 17th-century ones or if they were constructed at a later date when the original cellar may have been enlarged. Archeological investigations revealed that the cellar's floor consisted of compacted earth. Remains of what may have been the chimney's base were also uncovered.

There were five physically distinct deposits within the walls of the cellar (Figure 8-5). As will become apparent below, while physically distinct, they are believed to have been deposited relatively contemporaneously, save Deposit 1. Although it seems likely that some of the materials within the cellar's fill, particularly the fieldstone and brick, are from the Mason house, the origin of its other materials—including its organic material—is uncertain. With the exception of the crossmendable fragments of a handpainted creamware saucer (vessel 3) recovered from the cellar's fill and the deposit through which a posthole cut adjacent to the eastern wall of the cellar (pre-"posthole" deposit in Figure 8-5), no crossmends were identified between the cellar's fill and the other areas of the site. This could imply that most of the cellar fill originated off-site. The use of off-site materials to fill the Mason house cellar would not be surprising since data from the David Brown farmstead indicate that most of *its* cellar fill originated off-site (Chapters 4 and 5).

Deposit 1 is not completely contained within the cellar walls, but continues over the eastern wall and into the adjacent area. The bottom of

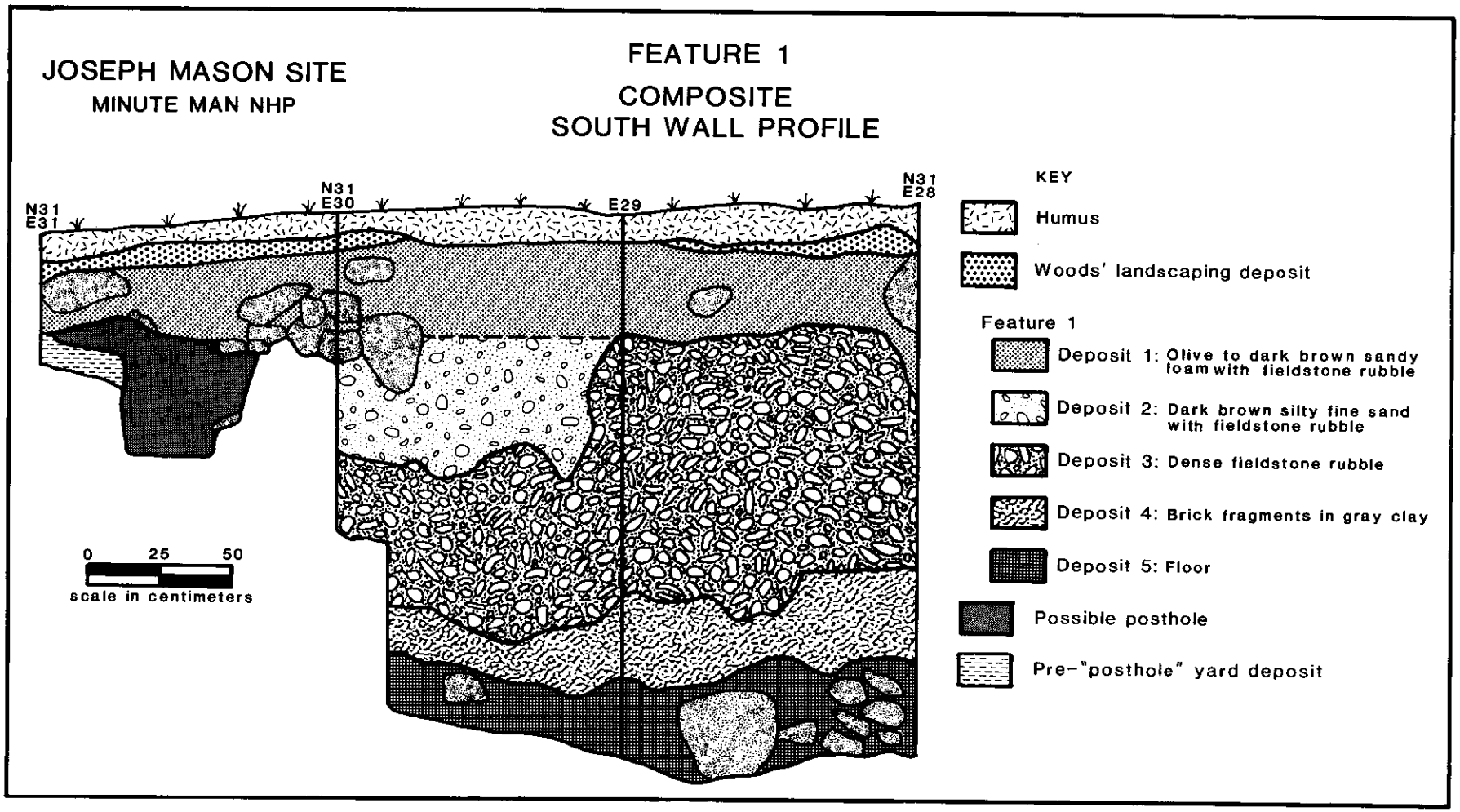


Figure 8-5. South wall profile of the Mason cellarhole (Feature 1) and EU N31E31 with possible posthole.

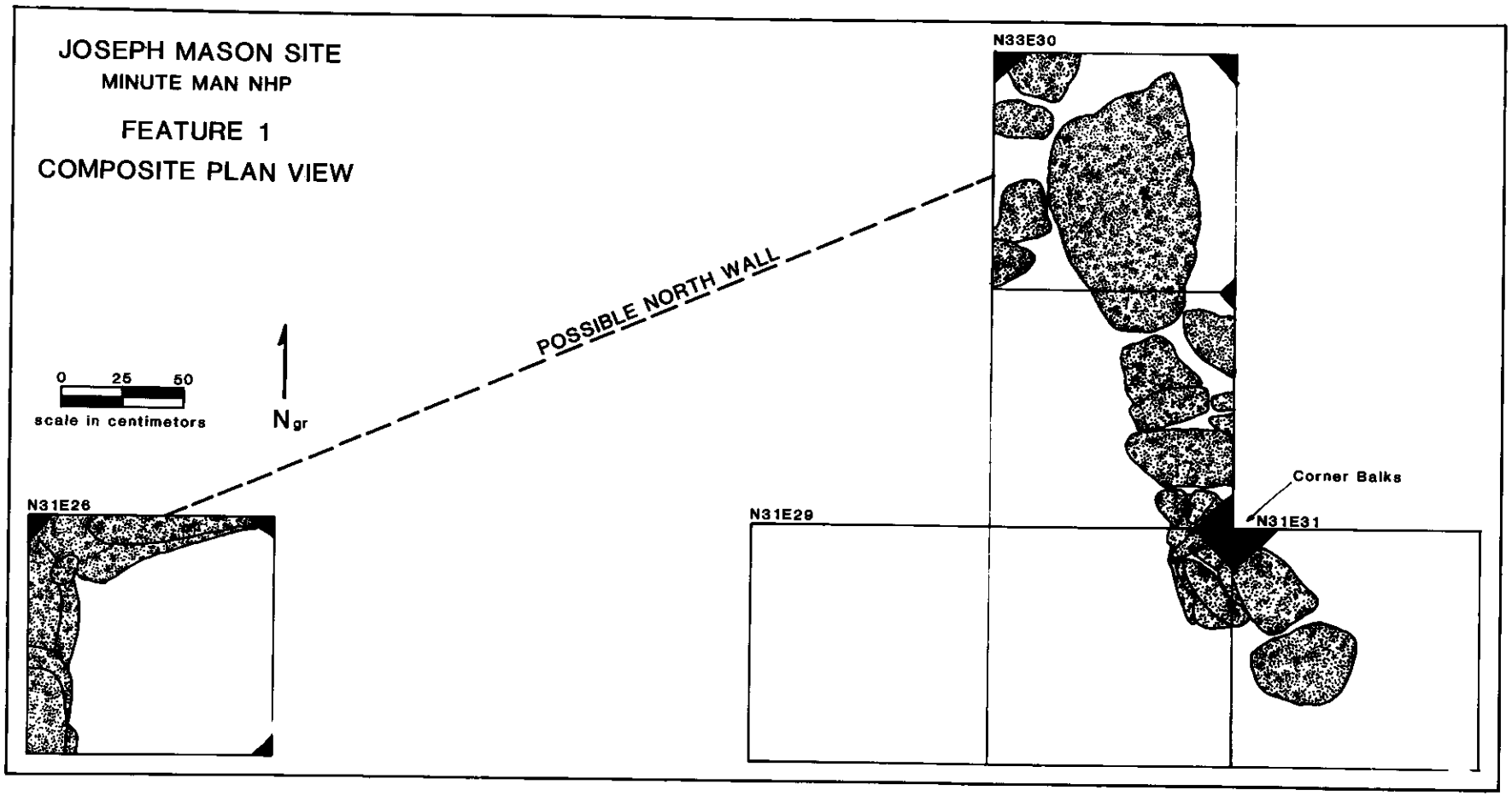


Figure 8-6. Plan view of Feature 1 (the cellarhole) at the Joseph Mason site.

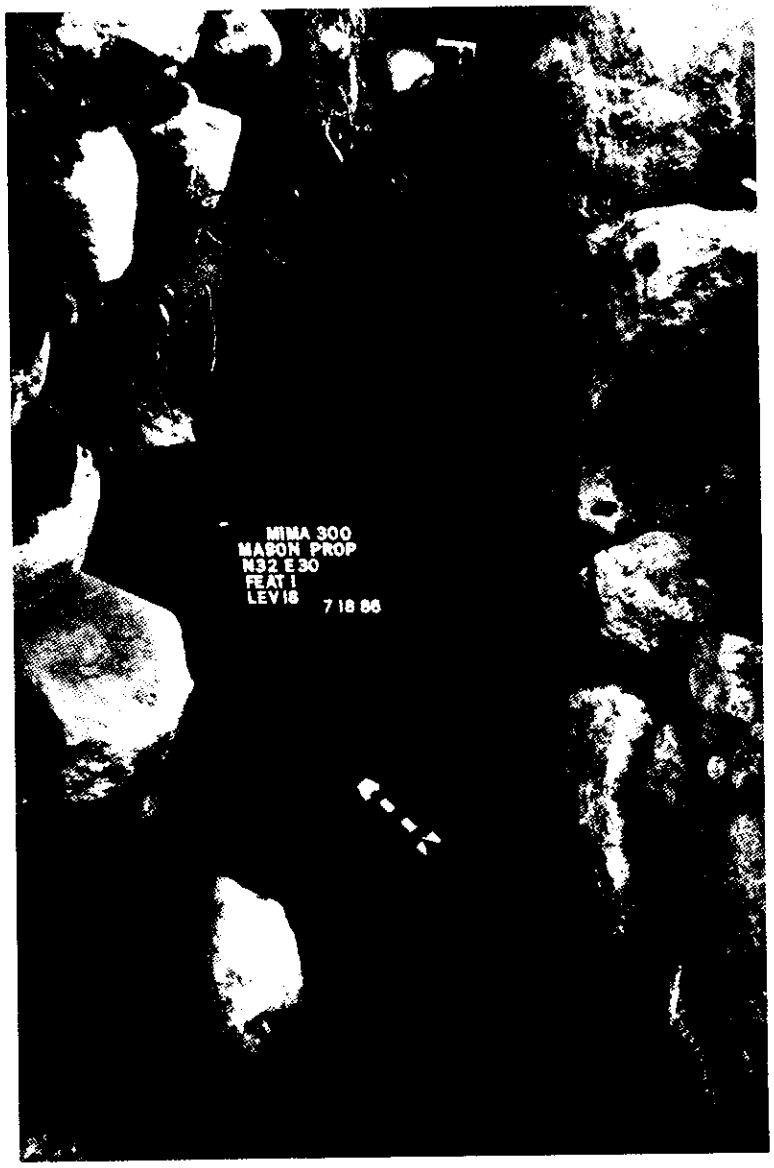


Figure 8-7. Project photograph of EU N32E30 showing the east cellar wall at the Joseph Mason site.

the deposit is characterized by the presence of fieldstone rubble and primarily 18th- and early 19th-century building-related and domestic debris within a sandy loam ranging in color from olive to dark brown (Figures 8-5 and 8-9). The materials present within this deposit suggest that it was laid down at the time the cellar was filled. Debris dating to the mid 20th-century is also present in the deposit. Interestingly, Deposit 1 contained over 30% of the total number of artifacts recovered from within the cellar. With respect to the ceramics recovered from the cellar, Deposit 1 contained the highest amounts of redware, whiteware, and white salt-glazed stoneware. The fragments of a redware vessel (vessel 67) were recovered in both Deposits 1 and 2, but

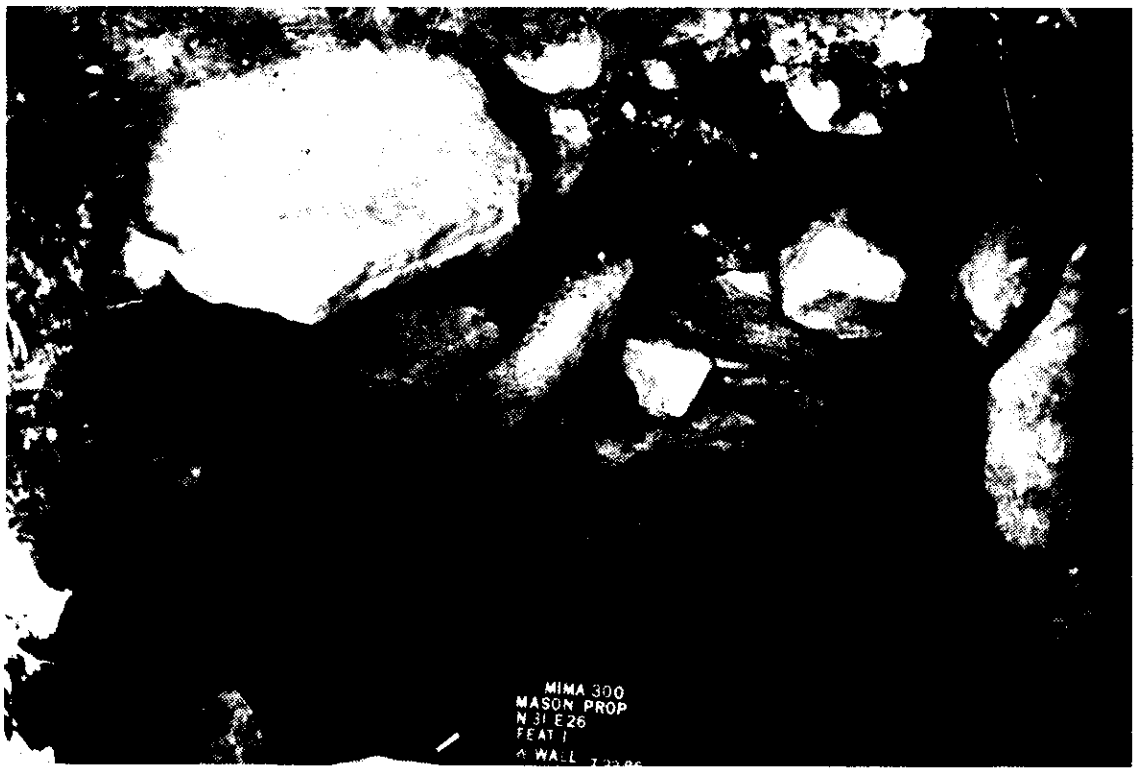


Figure 8-8. Project photograph of EU N31E26 showing the bonding of the north and west walls of the cellar at the Joseph Mason site.

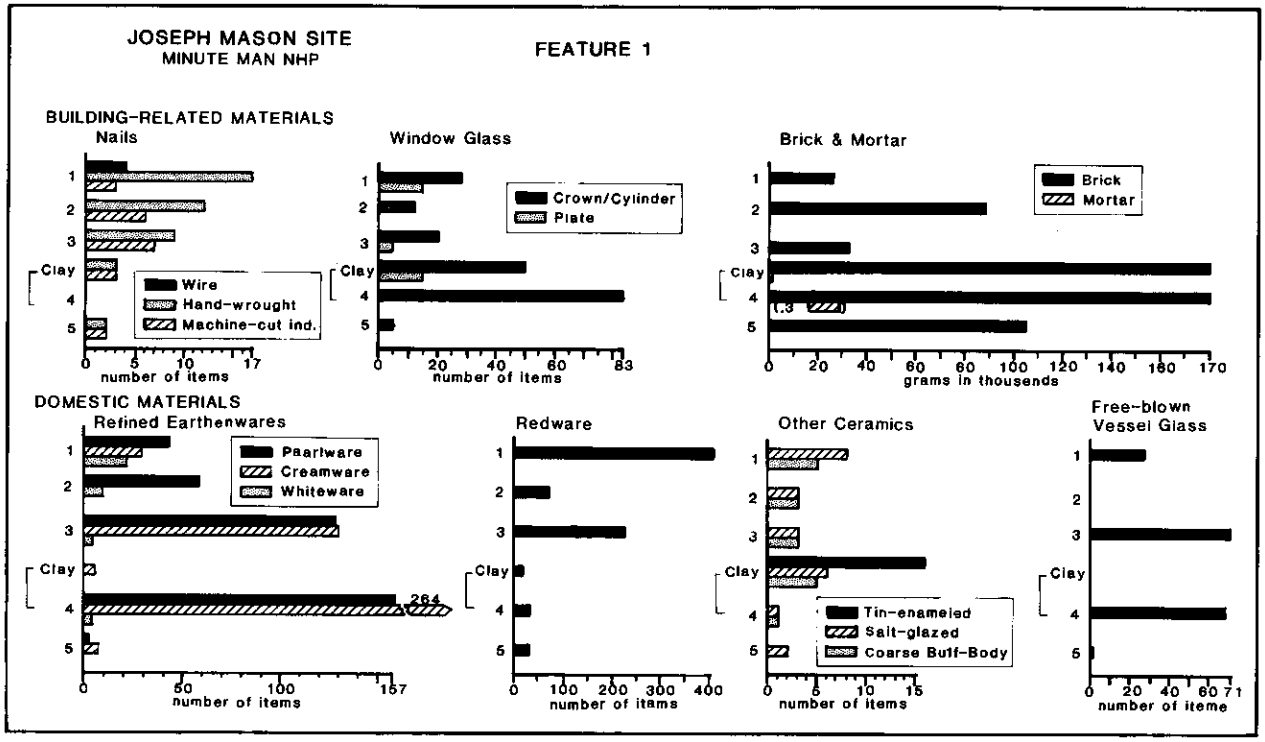


Figure 8-9. Frequencies of selected artifacts within Feature 1 (the cellarhole) at the Joseph Mason site.

Table 8-1. Mid 17th- to early 18th-century interior cellar dimensions based on previous excavators' data.

Site	*Date*	*Dimensions (E-W × N-S)*
David Fiske	ca. 1655–1710/21	12 ft × 15 ft 3.7 m × 4.6 m
Daniel Brown	ca. 1722–1754/64	9 ft × 9 ft 2.7 m × 2.7 m
"Caseys," Eliphalet Fox	ca. 1666/1711–1825	15 ft × 18 ft 4.6 m × 5.5 m
David Brown	ca. 1644	12½ ft × 12 ft 3.8 m × 3.7 m

there were no ceramic crossmends between Deposit 1 and those deposits below Deposit 2. The presence of the mid–20th-century materials, including post–ca. 1947 aluminum foil (Panati 1987:113), may indicate that the upper portion of Deposit 1 was laid down subsequent to the initial filling of the cellarhole, which occurred in the 19th century. The presence of the crossmends between Deposits 1 and 2, however, indicates that Deposit 1 and at least some part of Deposit 2 may have been altered (i.e., "disturbed") as a result of the construction and/or the removal of the Wood house. The fact that Deposit 1 exists beneath a yellow sandy fill that dates to the Woods' occupation furnishes some further support for this inference.

Deposit 2 (Figure 8-5), present only in the eastern portion of the cellar, also consists of fieldstone rubble and small amounts (less than 10% of the cellar fill's total artifacts) of 18th- and 19th-century building-related and domestic debris (Figure 8-9). Crossmendable fragments of a handpainted pearlware saucer (vessel 13), a handpainted creamware saucer (vessel 3), and a lead-glazed redware vessel (vessel 40) were recovered in both Deposits 2 and 3. No less significant was an unglazed redware vessel (vessel 42), fragments of which were recovered from Deposits 2 and 4. These crossmends, along with the others identified in the cellar's fill, provide evidence that the cellar was initially filled in a relatively rapid, contemporaneous fashion (i.e., Deposits 2–4). Deposit 2 differs from Deposit 1 in two significant respects. First, Deposit 2 consists of a slightly darker brown silty fine sand, which is similar in color and texture to several 18th- and early 19th-century deposits in the homelot area that do not appear to have been significantly altered by later 19th- and 20th-century activities. Second, no diagnostic late 19th- or 20th-century materials exist within Deposit 2 (Figure 8-9).

Deposit 3 (Figure 8-5), also present only in the eastern portion of the cellar, consists of a dense concentration of fieldstone rubble and a virtual absence of organic material. Deposit 3 also contained similar kinds of materials as the deposits above it (Figure 8-9). Over 20% of all of the artifacts recovered from the cellar were recovered from this deposit. Interestingly, most of the ceramic vessel crossmends identified within the cellar's fill occurred between Deposits 3 and 4; the fragments of 12 pearlware, creamware, and redware vessels were identified.

Deposit 4 (Figure 8-5), like the deposit above

it, also consists of a relatively high amount of brick fragments (Figure 8-9). Unlike Deposit 3, however, Deposit 4 had significantly fewer fieldstones and a distinctive gray clay associated with the brick. The lack of large amounts of whole bricks may suggest that they were removed from the site and used elsewhere as occurred at the David Brown farmstead in the late 19th century (Chapter 4). The gray clay was particularly thick (ca. 50 cm) in the western portion (i.e., EU N31E26) of the cellar. This gray clay appears to have been used to mortar the house's chimney below the roof (Cummings 1979:122; Orville Carroll, personal communication, 1987). With the exception of the brick, window glass, and "other" ceramics, the artifacts associated with the clay deposit in the western portion of the cellar were fewer in number than those in the deposits above it (Figure 8-9). Particularly notable within the clay deposit was not only the lack of pearlware and whiteware, but also the presence of tin-enameled and coarse buff-body earthenware, white salt-glazed stoneware, and creamware.

Deposit 5 was identified as the original floor level of the cellar. It comprised several courses of flat fieldstones in the southeasternmost portion of the cellar (i.e., EUs N31E30 and N31E29; Figure 8-10), a packed earth floor in other areas of the cellar, and some debris that lay directly on the floor. The fieldstones may be the remains of a chimney base like the one found at the Ephraim Buttrick site in MIMA (Charles and Towle 1986:51, 52). The apparently random configuration of the fieldstones, however, as well as the presence of seven pieces of creamware in a 2.5-cm organic-appearing deposit beneath the fieldstones, may indicate otherwise.

The packed earth floor in other areas of the cellar varied in terms of color and texture. In one area the floor appeared as a very compact dark brown silty fine sand; in another area it appeared as a compact olive brown silty fine sand with flecks of charcoal. In one area, the dark brown silty fine sand appeared to overlay the olive brown sand. Both organic-appearing sands sat on sterile subsoil. The artifacts recovered from the floor deposit consisted of smaller amounts of building-related and domestic materials than were in the deposits above it, save the clay deposit (Figure 8-9). Unfortunately, at this time it is uncertain which of the materials recovered from the floor were deposited at the time of the construction or occupation of the house as opposed to those materials that were deposited as a result of the filling of the cellar. The presence of crossmendable fragments of a plain creamware plate (vessel 1) recovered from both the floor and the deposit above it suggests that at least this vessel was deposited as a result of the filling of the cellar. If some of the materials situated on the floor were deposited during the occupation of the house, then they may be indicative of some of the activities that were conducted in the cellar. For instance, the two redware milk pan fragments (vessels 29 and 36) recovered from Deposit 5 may indicate that the cellar was used to store dairy products. Dairy-product storage was a common use of 17th- and early 18th-century cellars according to Cummings (1979:30). Whether it was also a common usage up until the late 18th and early 19th centuries, however, is not known at this time.

As mentioned above, a feature was uncovered adjacent to the east wall of the Mason house cellar in EU N31E31 (Figure 8-5). The morphology of the feature in addition to its contents suggests that it may be the remains of a posthole. In profile (Figure 8-11) the feature consisted of two distinct deposits. The lower deposit was a relatively homogeneous dark olive brown loam mixed with some clay, which cut through a dark yellowish brown loam and a light olive brown loam. On top of this lower deposit was a lens of dark brown sandy loam that may have been deposited after the posthole was initially filled to create a level surface. The feature was slightly larger at the top than at the bottom, the eastern wall curving sharply in to become relatively straight. The western wall curved in more gradually, but also became straight at its base. The feature's bottom was relatively flat (Figure 8-11). Although the remnants of an actual post or postmold were not uncovered, the feature's morphology is suggestive of a posthole (Noël

Figure 8-10. Project photograph of EU N31E29 showing the layers of flat fieldstones in the southernmost portion of the cellarhole at the Joseph Mason site.

Hume 1969a:136). If this is the remains of a posthole, neither the precise date when the post was put in place nor the date when it was removed is known because of the lack of temporally sensitive data within the lower deposit. Only 69.5 g of brick were recovered from the bottom of the feature; the only other artifact recovered from the lower deposit was one hand-wrought nail near the top. The presence of this debris, in conjunction with the pollen evidence (Chapter 9), however, suggests that the feature's fill was deposited relatively rapidly when the post was removed. While the precise date when the possible posthole was created is unknown, there is some evidence to suggest that it may have been dug subsequent to when the house cellar

was initially filled (i.e., cellarhole Deposits 2–4). This inference is based on the presence of crossmendable fragments of a handpainted creamware saucer (vessel 3) recovered from within the cellar's fill (Deposits 2 and 3) and within the yellowish brown to olive brown loam that the posthole cuts through (Figure 8-11 and pre-"posthole" yard deposit in Figure 8-5). The presence of three machine-cut nails and other building-related debris (e.g., brick) in the feature's upper deposit suggests that the possible posthole was filled during or after the early part of the 19th century. Pollen evidence suggests that the upper deposit may have been exposed as a surface (Chapter 9). The presence of Deposit 1 material directly above the possible posthole suggests that if the filled posthole was exposed as a surface, it was covered over in the 20th century when more leveling fill was added to the cellarhole.

In summary, the cellar appears to be the remains of the Mason house cellar that was built in the late 17th century. The presence of whiteware and perhaps the presence of machine-cut nails and "plate" glass in the cellarhole deposits indicate that the cellar was filled after ca. 1820. The absence of diagnostic materials (e.g., yelloware and rockingham ware), however, suggests that the cellar was filled before ca. 1830. The crossmend and artifact data indicate that the cellar was initially filled in a relatively rapid, contemporaneous fashion (i.e., Deposits 2–4) and that more fill was added in the 20th century (i.e., Deposit 1). The origin of the cellar's fill is not certain at this time.

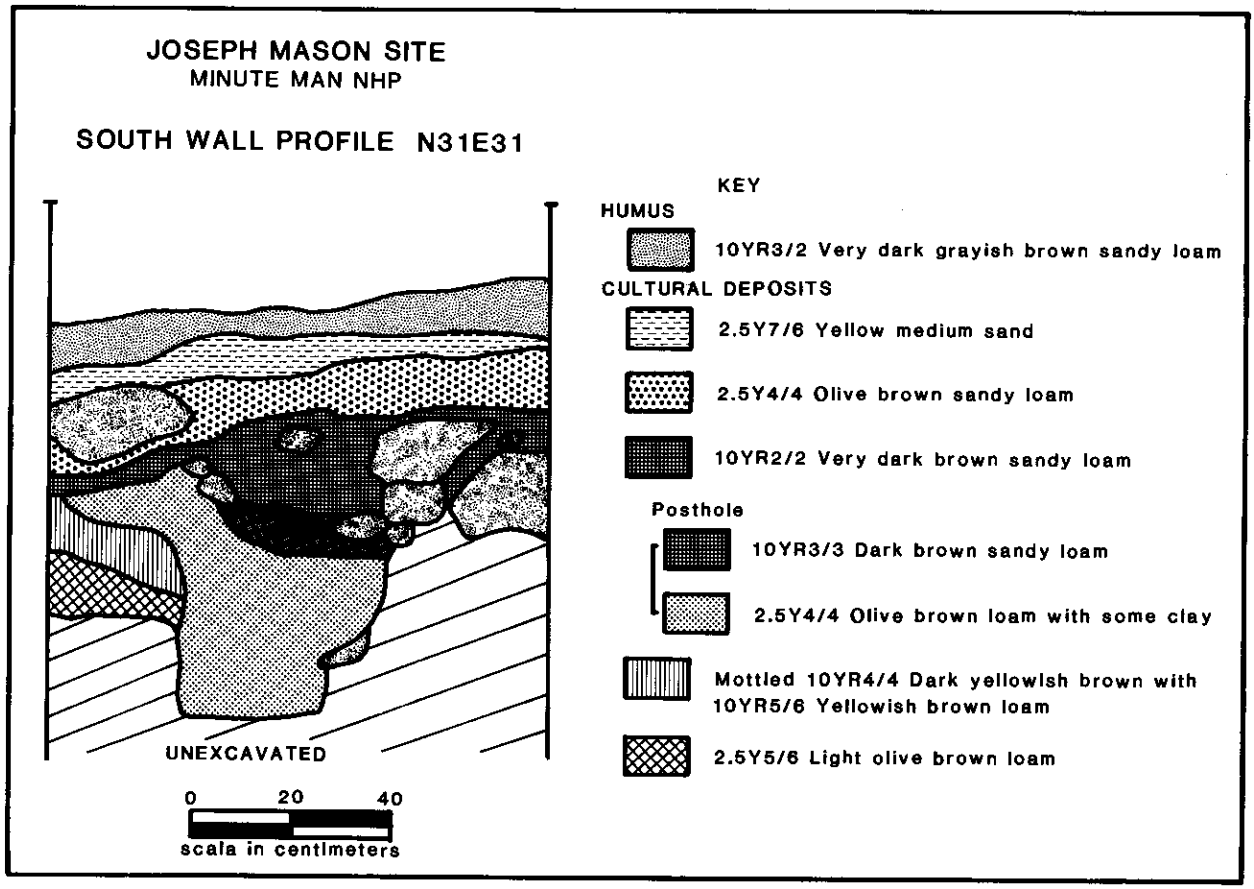


Figure 8-11. South wall profile of EU N31E31 at the Joseph Mason site showing the possible posthole and the surrounding deposits.

YARD AREAS

With the exception of the remains of the Mason house cellar, no conclusive archeological remains of the structures mentioned in the documentary record were located within the homelot. In addition, no other 17th-, 18th-, or early 19th-century buildings, water or waste management facilities (e.g., wells, privies, and drains), or discrete features were uncovered. On the other hand, analysis of the spatial distribution of selected domestic materials (i.e., ceramics, tobacco pipes, bones, and free-blown vessel glass; Figures 8-12 and 8-13) provides some insight into the areas of refuse disposal within the homelot during its 18th-century occupation and possibly some data regarding the vicinity in which the barn was located. Spatial analyses of the homelot and pasture areas were conducted according to the project-wide methods discussed in Chapter 2.

As at the David Brown and David Fiske sites (Chapters 4 and 10), material from all time periods was recovered in the plowzone, so one

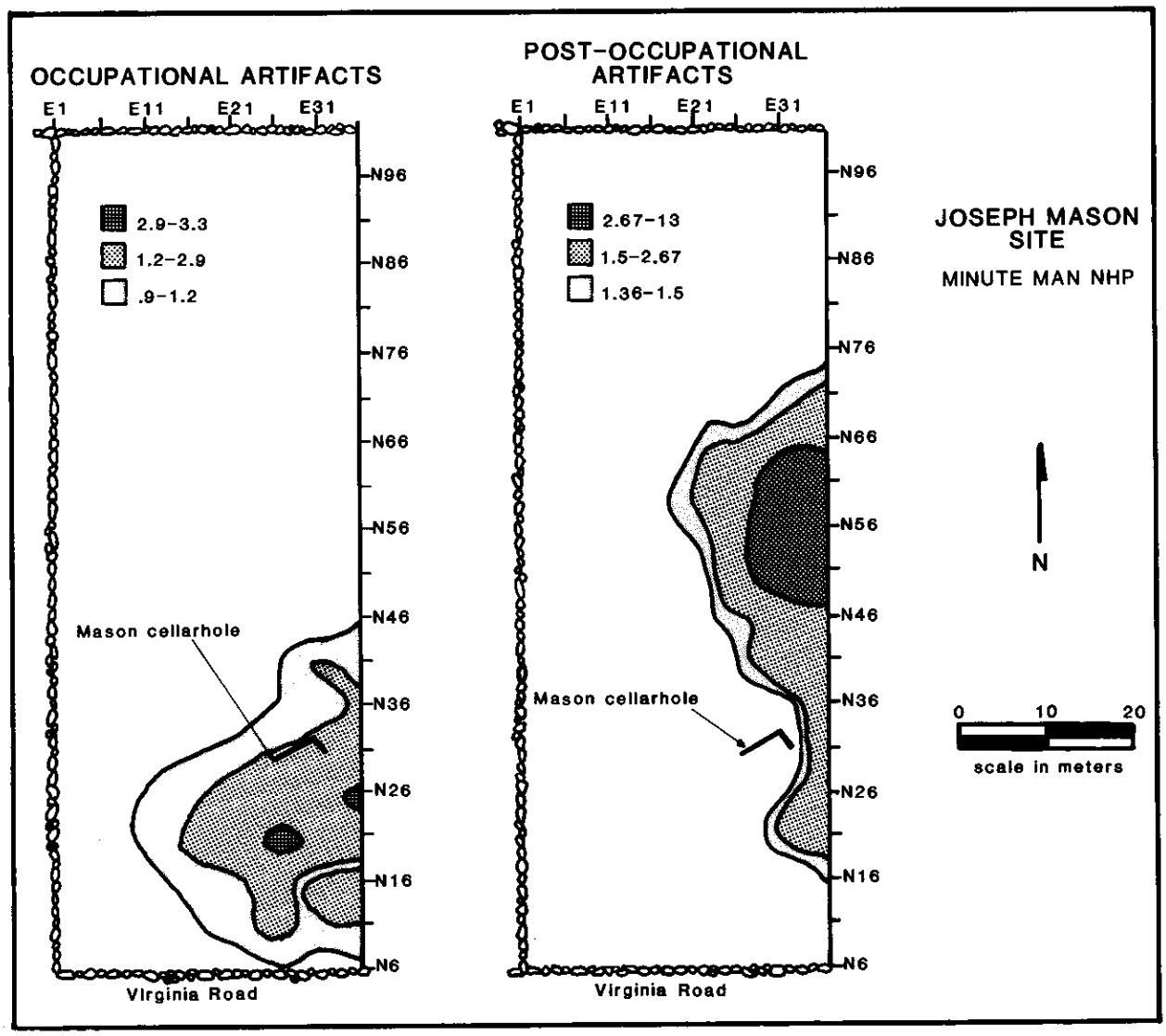


Figure 8-12. Spatial distribution map showing densities of occupational and post-occupational artifacts recovered at the Joseph Mason site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are number of items per quarter cubic meter.

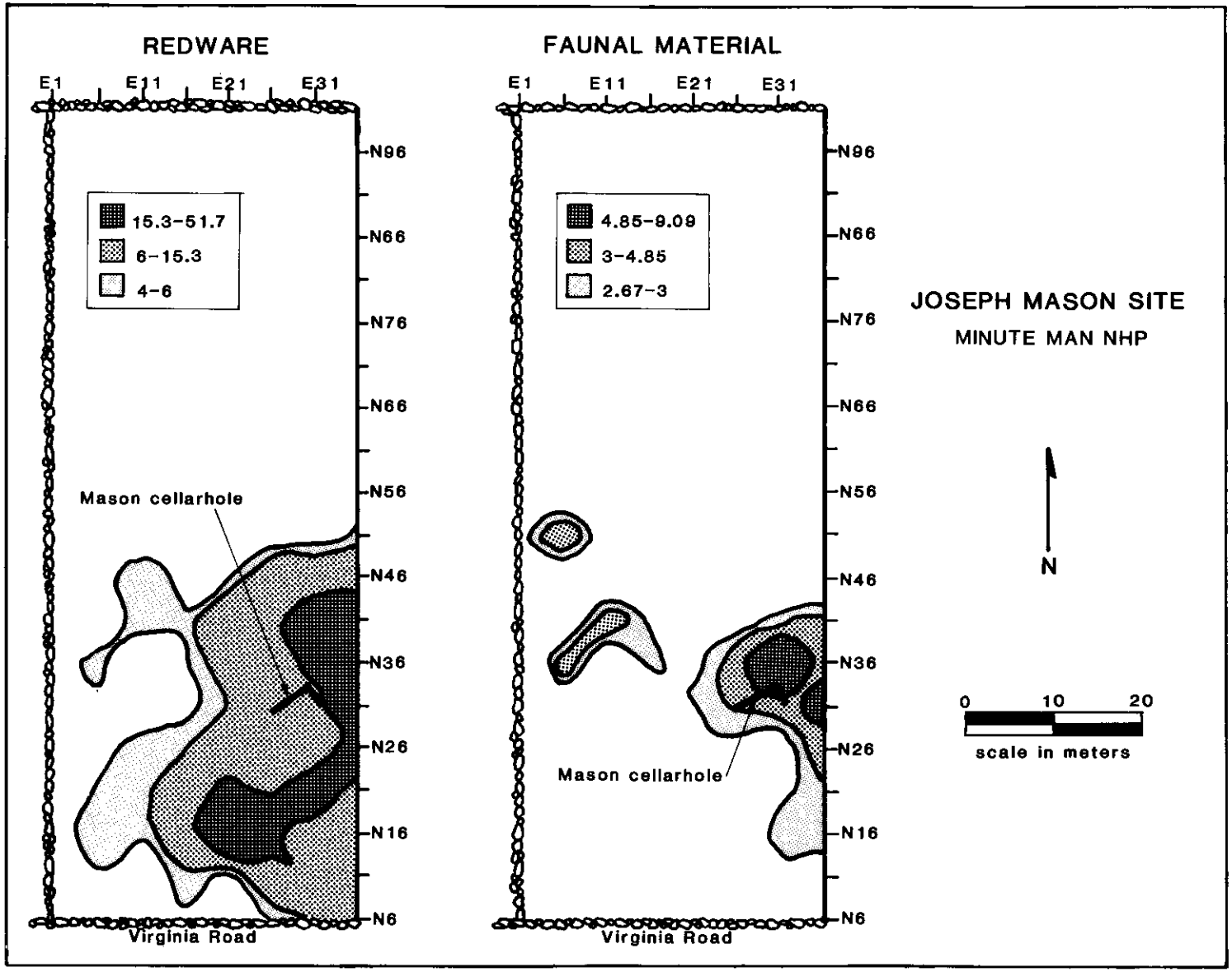


Figure 8-13. Spatial distribution map showing densities of faunal material and redware recovered at the Joseph Mason site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are number of items per quarter cubic meter.

part of the analysis was to determine which concentrations were likely to have been deposited during the site's occupation versus those deposited after the site ceased to be used as a residence. To accomplish this, artifacts were grouped according to occupational and post-occupational categories.

The occupational artifacts consisted of materials recovered from the site that were manufactured prior to 1800—these included tin-enameled and coarse buff-body earthenwares, salt-glazed stoneware, early pipestems (5–8/64" bore diameter), and free-blown glass. Because the site was occupied until the early 19th century, creamware and pearlware were also considered occupation-period ceramics. Post-occupational artifacts included whiteware, yelloware, wire nails, machine-cut nails and plate glass. In addition to these artifacts, certain soil compounds (e.g., phosphates) were analyzed. Data from 120 STPs within the homelot and 120 STPs from the pasture area were used in the analysis.

Analysis of the data indicates that although refuse appears to have been disposed throughout the homelot, the highest densities of materials occur near the house (Figures 8-12 and 8-13). The proximity of this debris to the house, especially the bone, may indicate that the occupants were either unaware of or unconcerned with the effects of this debris on their health. The absence of relatively high densities of materials north of the Mason house may also indirectly indicate where the tillage acreage mentioned in the documentary record was. Interestingly, with the exception of the faunal remains, the south yard was one location where comparatively high densities of domestic materials were present (Figures 8-12 and 8-13). Assuming that the refuse in the Mason homelot was not deposited in a single episode, this pattern does not appear to have changed throughout the 18th century. This is evidenced by the fact that the highest densities of both early ceramics (e.g., tin-enameled and coarse buff-body earthenware) and later ceramics (e.g., creamware and pearlware) exhibit similar spatial distributions. Such a pattern of disposal suggests that there was little concern for the physical appearance of the yard most visible from the road. It also seems to imply that the south yard was never used as a formal yard area.

Two other areas of the homelot also deserve brief mention. To the northeast of the Mason house cellar there were relatively high densities of both bone and redware (Figure 8-13). These concentrations together may be indicative of the location of one of the kitchen's refuse disposal areas. Lastly, it should also be noted that the highest densities of phosphates, an indicator of organic wastes, do not appear to correspond to the above patterns (Figure 8-14). It is possible that the high densities of phosphates in the southwestern area of the homelot are indicative of the location of the 18th-century barn or barnyard. The presence of hand-wrought nails may provide corroborating evidence of this. More detailed analyses in conjunction with further archeological investigations are needed to more conclusively determine the causes of the high densities of phosphates, particularly in the southwestern area of the homelot.

Pasture

As discussed earlier, while the documentary data do not indicate where the barn and schoolhouse were located, it was predicted that both were located west of the extant fieldstone wall that appears to have separated the homelot and pasture (Figure 8-2). Unfortunately, analyses of the materials recovered from the pasture area failed to reveal the location of either the barn or the schoolhouse. Only one STP (N4W21) contained a relatively large amount of brick—enough to suggest the schoolhouse's location. In comparison to the homelot area, the pasture consisted of significantly fewer 18th-, 19th-, and even 20th-century remains. The relative absence of occupation-period refuse in this area provides further support to the earlier hypothesis that this area was the Masons' pasture. The occupation-period materials that were recovered in this area consisted predominately of ceramics. These ceramics, as well as the redwares, were located in the southern or eastern part of the pasture (Figures 8-15 and 8-16) and appear to represent

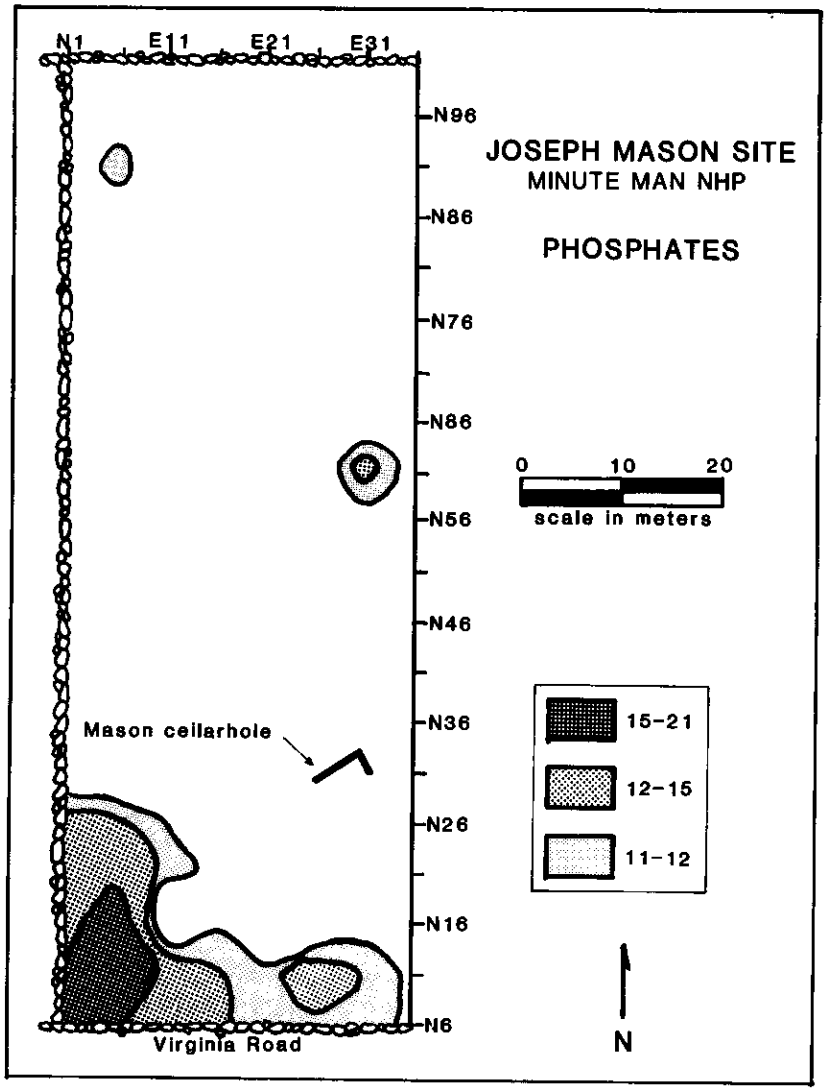


Figure 8-14. Spatial distribution map showing densities of phosphates recovered at the Joseph Mason site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are parts per million per quarter cubic meter.

field trash deposited either near the road or just over the wall from the homelot.

Summary and Conclusions

Archeological investigations of the Joseph Mason farmstead uncovered the remains of the Mason house cellar just northeast of where the Wood house and attached garage existed in the 1950s (Figure 8-2). The cellar that was uncovered is believed to be the one originally constructed on the property sometime prior to ca. 1691. No archeological evidence was uncovered to support or reject Malcolm's hypothesis (Chapter 7) that the original house, either its cellar and/or its superstructure, was enlarged or rebuilt in the present cellar's location sometime before 1753. The archeological data seem to indicate that the cellar was initially filled in a relatively rapid, contemporaneous fashion sometime after ca. 1820 but probably before ca. 1830. This date range is

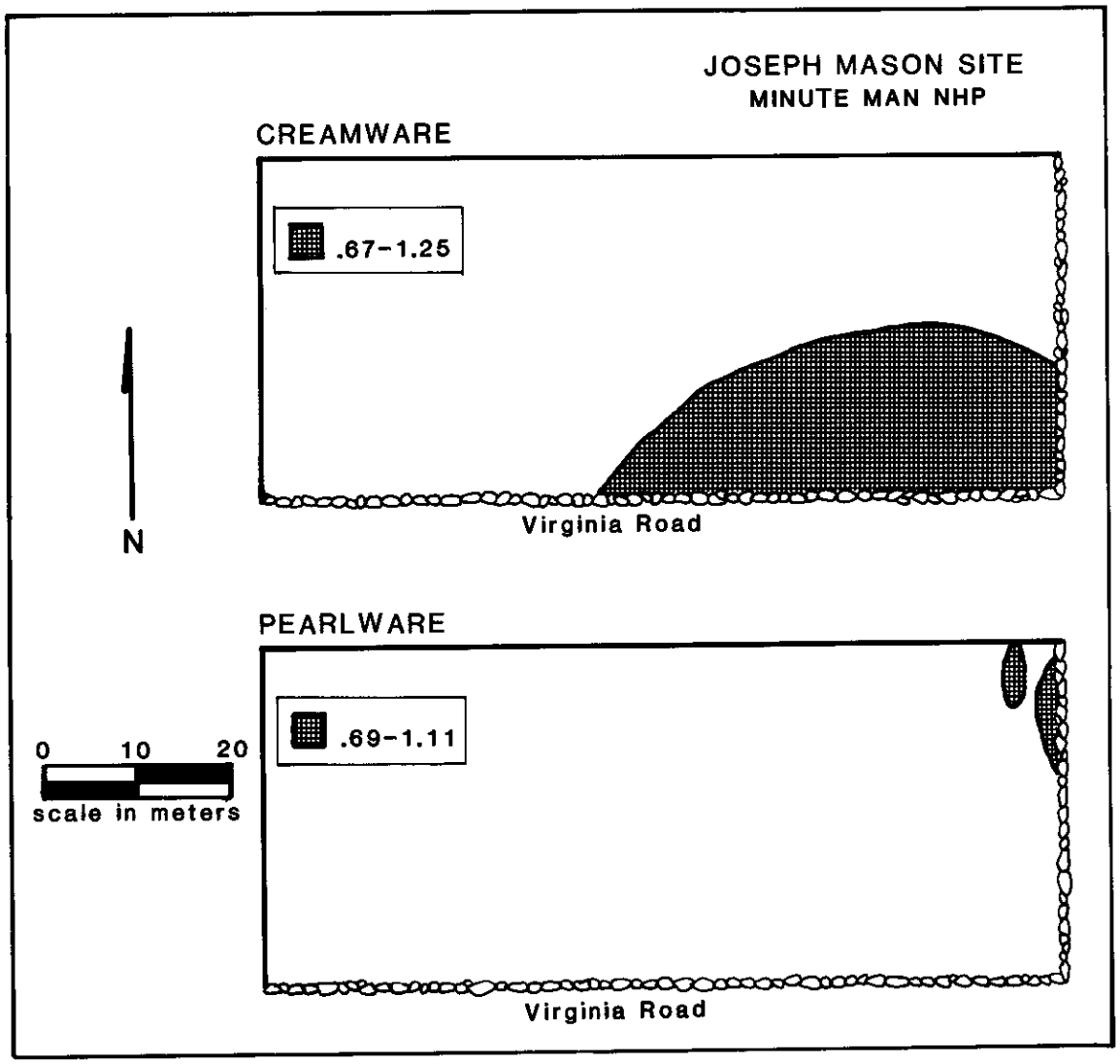


Figure 8-15. Spatial distribution map showing densities of creamware and pearlware recovered at the Joseph Mason site, in the pasture west of the homelot. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are number of items per quarter cubic meter.

consistent with the documentary record (Chapter 7). Although the origin of the cellar's fill is uncertain at this time, it is suspected that some of it may have originated off-site as appears to have been the case at the David Brown farmstead (Chapters 4 and 5). The archeological integrity of the cellar, save the upper courses of its walls and perhaps its southern portion, appears to be high despite subsurface alterations resulting from the construction, occupation, and destruction of the Wood house and the tillage of the area sometime prior to the construction of the Wood house. The location of the Mason house cellar, along with its associated sheet refuse, indicates that the area east of the fieldstone wall was once the farmstead's homelot and that the area west of the wall was once the pasture. No conclusive archeological evidence was uncovered to indicate where the worsted weaver's shop was located. In contrast, some data exist suggesting where the

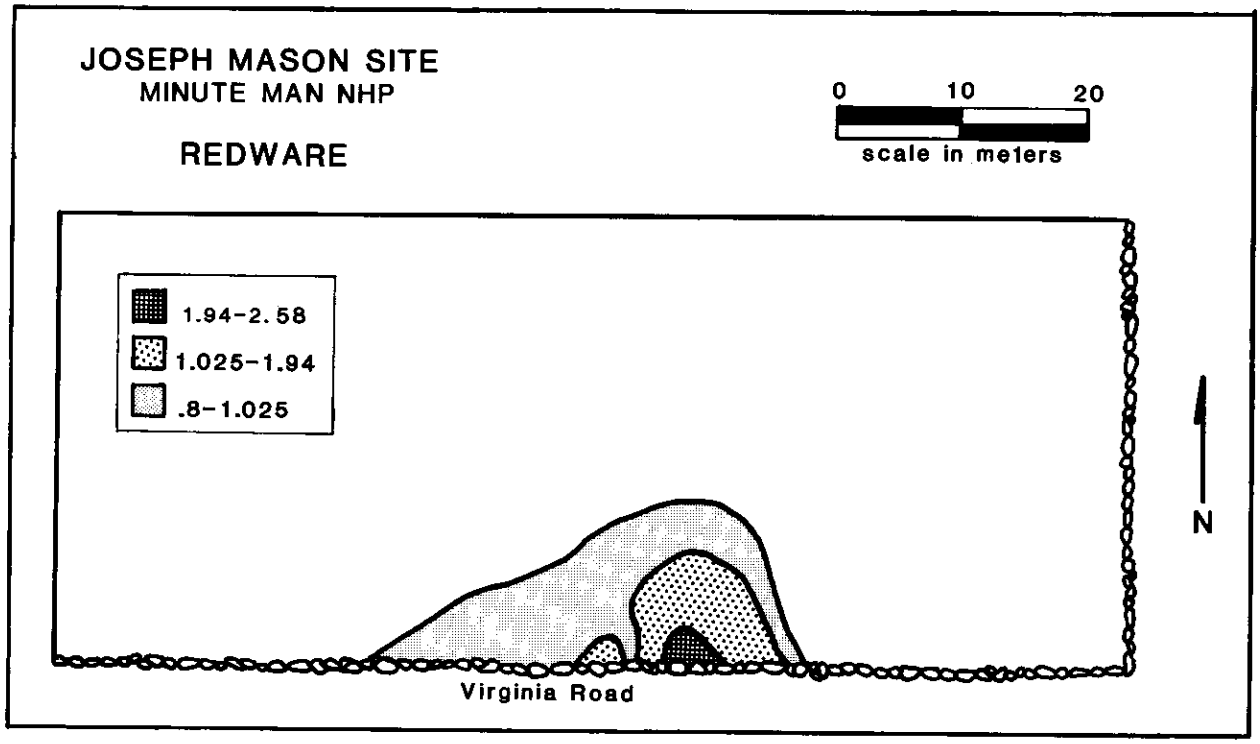


Figure 8-16. Spatial distribution map showing densities of redware recovered at the Joseph Mason site, in the pasture west of the homelot. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are number of items per quarter cubic meter.

barn and the schoolhouse may have been located. No archeological remains of other 17th-, 18th-, or early 19th-century buildings, water or waste management facilities (e.g., wells, privies, and drains), or discrete features were uncovered either in the homelot or pasture areas. Furthermore, no large-scale earth removal or filling episodes appeared to have occurred within the homelot or other areas of the site in the 18th or 19th centuries.

The spatial analysis indicates that the highest densities of occupation-period refuse were deposited near the house. Furthermore, with the exception of certain artifact types, the highest densities of domestic debris were located in the south yard, which abuts Virginia Road. These data suggest that the south yard may never have served as a formal yard. Instead, the data may indicate that the occupants were unconcerned with the physical appearance of the homelot and perhaps unconcerned with or unaware of the possible health effects of debris being deposited close to the house.

Chapter 9

Exploratory Pollen Analysis of Historical Matrices at the Joseph Mason Farmstead

G. K. Kelso

Objectives

Pollen analysis at the Joseph Mason farmstead (see base map, Appendix A-2) had four objectives: 1) the investigation of the quality of pollen preservation and the potential for analysis of relatively dry historical-era rural matrices; 2) the determination of whether the cellar was filled rapidly or slowly; 3) the determination of whether the cellar fill originated locally or off-site; and 4) the definition of structure function. The principles of pollen production, transport, and degradation applicable to each of these objectives have been discussed in the pollen report on the David Brown site (Chapter 5) and will not be repeated here.

Methods

The Joseph Mason farmstead was the first site excavated by the MIMA Archeological Project (Figure 8-4), and the part that pollen analysis would play in the project had not yet been determined. The normal archeological practice of bulk sampling of natural levels for sediment and botanical analysis, with some profiles collected at 5–10-cm intervals, was followed for deposits within the cellarhole (Feature 1). Samples from three interior loci were examined (Figures 9-1, 9-2, 9-3, 9-5, and 9-6), as were samples from one locus outside of the cellarhole (Figures 9-4, 9-5, and 9-6).

The brief sample descriptions that follow are based on the more complete stratigraphic and archeological data that are presented in Chapter 8. The cellar fill is organized into five classes of characteristic age, origin, and matrix type:

1. Deposit 1 is a disturbed layer, high in the profile, characterized by a mixture of 19th- and 20th-century artifacts.
2. Deposit 2 contains late 18th- and early 19th-century artifacts and is thought to have been placed in the cellarhole fairly soon after the house was dismantled.
3. Deposit 3 consists of fieldstone rubble with some brick and is probably foundation material that collapsed into the cellar or was intentionally placed there when the house was dismantled.
4. Deposit 4 consists of brick fragments and structural debris mixed in some areas with a high concentration of artifacts. Gray clay deposits of varing thickness were interspersed among the brick debris. This clay is thought to have been chimney mortar or chimney lining. Deposits 2–4 are thought by the excavators to be relatively contemporaneous as indicated by the crossmend data (Chapter 8).
5. Deposit 5 is the original floor level. Clear indications of an occupation surface were evident only in EU N31E26. The bottoms of most excavation units were irregular and defined by the absence of artifacts in deeper deposits. The Mason house cellar floor was only partially surfaced and may have been disrupted when the house was dismantled. Because the floor is difficult to define, most samples from this zone will be considered to be part of Deposit 4.

Sample numbers in the discussion refer to the 5–10-cm arbitrary excavation level from which the sample was collected in a particular EU.

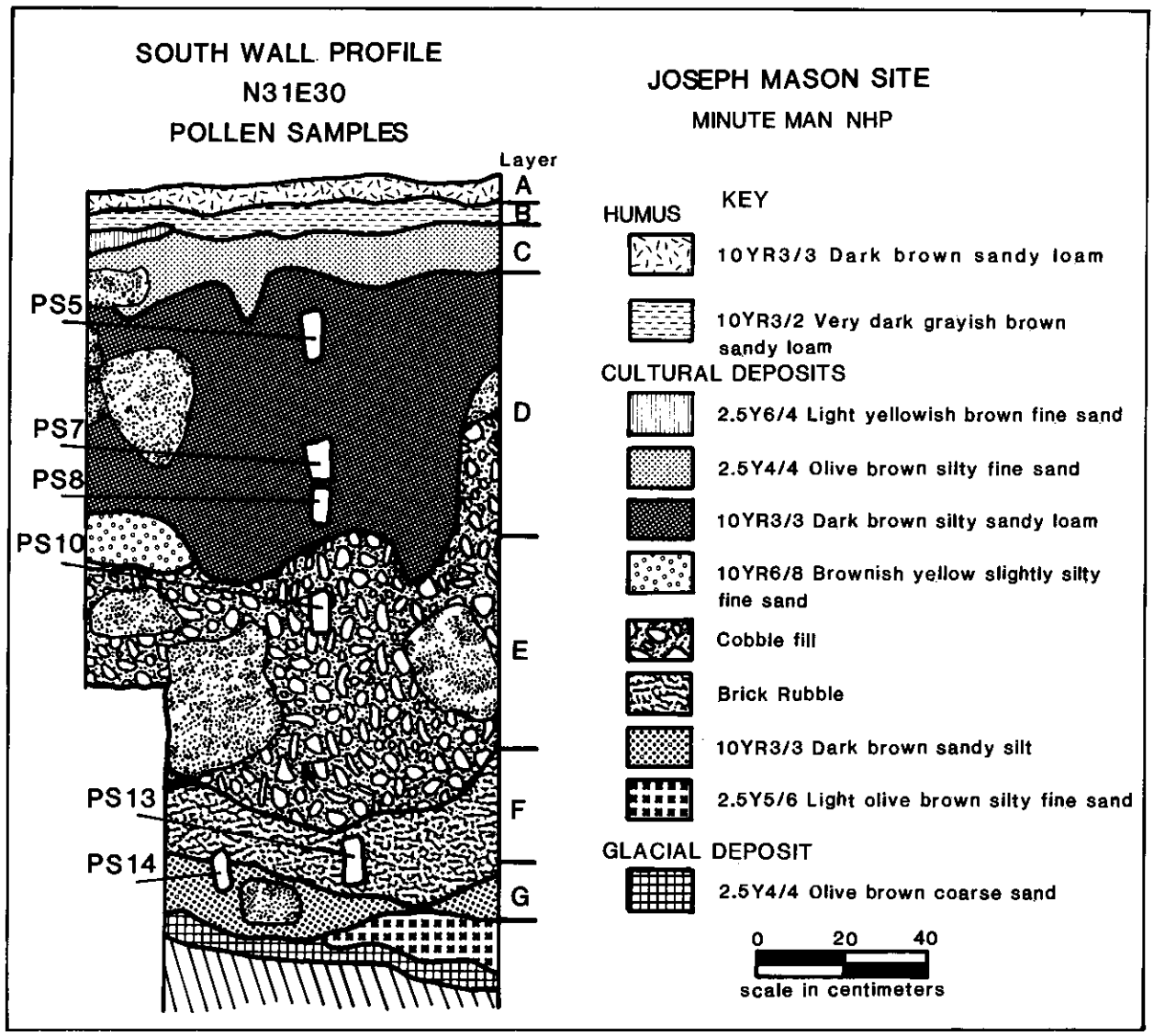


Figure 9-1. South wall profile of EU N31E30 at the Joseph Mason site showing the locations from which pollen samples were taken.

Interior Sampling

EU N31E30

Samples were taken from four layers in EU N31E30, representing all five cellarhole deposits (Figures 9-1 and 8-5). The three uppermost layers (A, B, and C) were not sampled in this unit as they contained 20th-century material and probably relate to landscaping during the Wood occupation (Chapter 8).

Layer D contained a mixture of early and late artifacts and stones from the top of the Mason foundation. It may have been a former ground surface developed on early 19th-century matrix. It was subsequently disturbed to ca. 50 cm by the construction of the Wood family dwelling in the 1950s. This relatively artifact-free dark brown (10YR3/3) deposit dips toward the center of the cellar (Figure 9-1), and the excavators consider it to be an artificial fill introduced after the Mason house was dismantled (Chapter 8). Layer D was

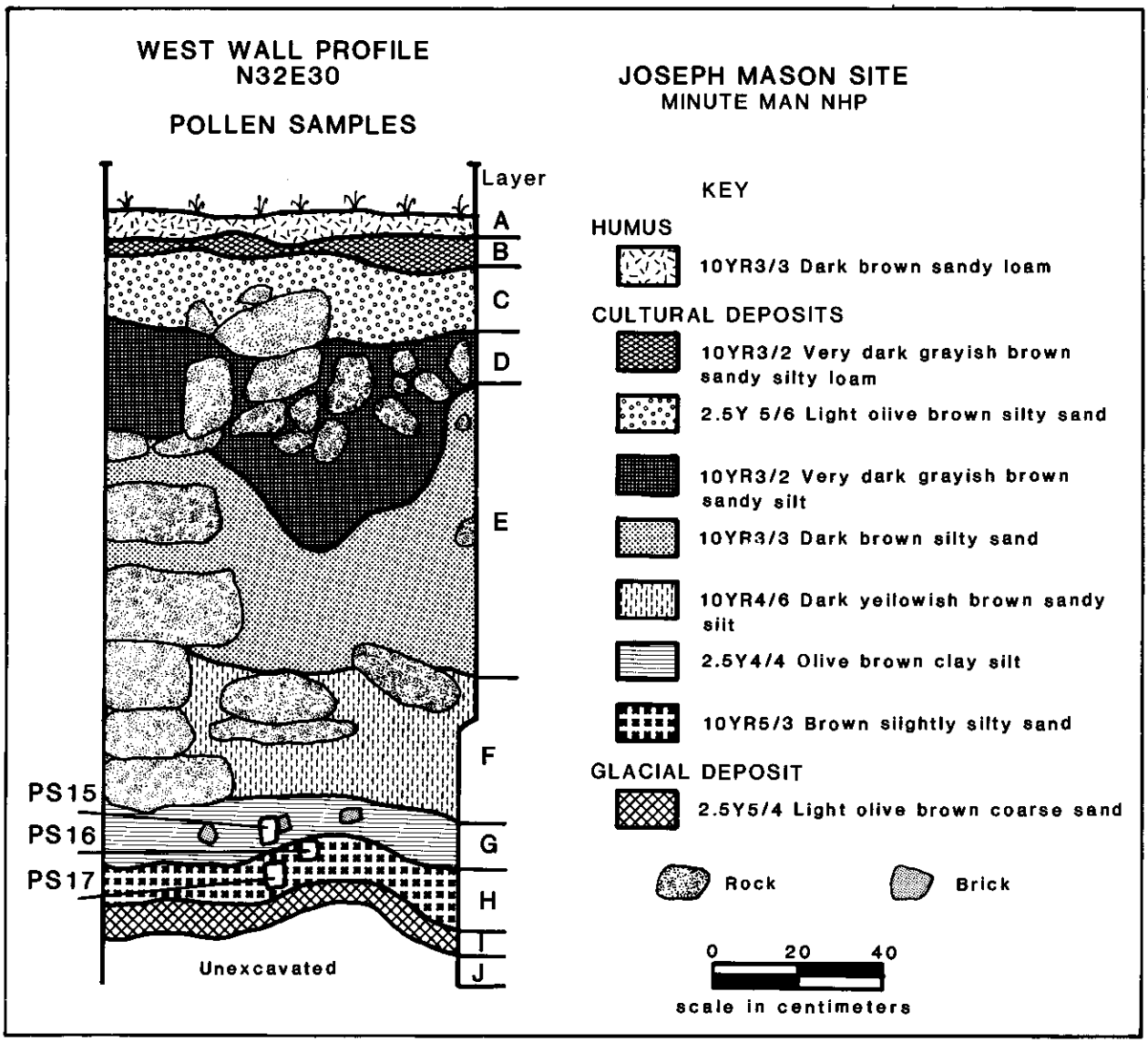


Figure 9-2. West wall profile of EU N32E30 at the Joseph Mason site showing the locations from which pollen samples were taken.

sampled at excavation level 5 in the disturbed zone (classified as Deposit 1) and at levels 7 and 8 in the undisturbed portion of the deposit (Deposit 2; Figure 8-5).

Layer E comprised a considerable quantity of late 18th- or early 19th-century artifacts among cobbles and boulders. It appears to be foundation or chimney debris that tumbled into the hole when the house was dismantled and was covered too rapidly for sediment to accumulate between the rocks (Chapter 8). The Deposit 3 fill of layer E (Figures 9-1 and 8-5) was sampled at excavation level 10.

Layer F is a densely packed brick and clay deposit below the rocky debris and appears to be a thinner extension of the chimney remains found

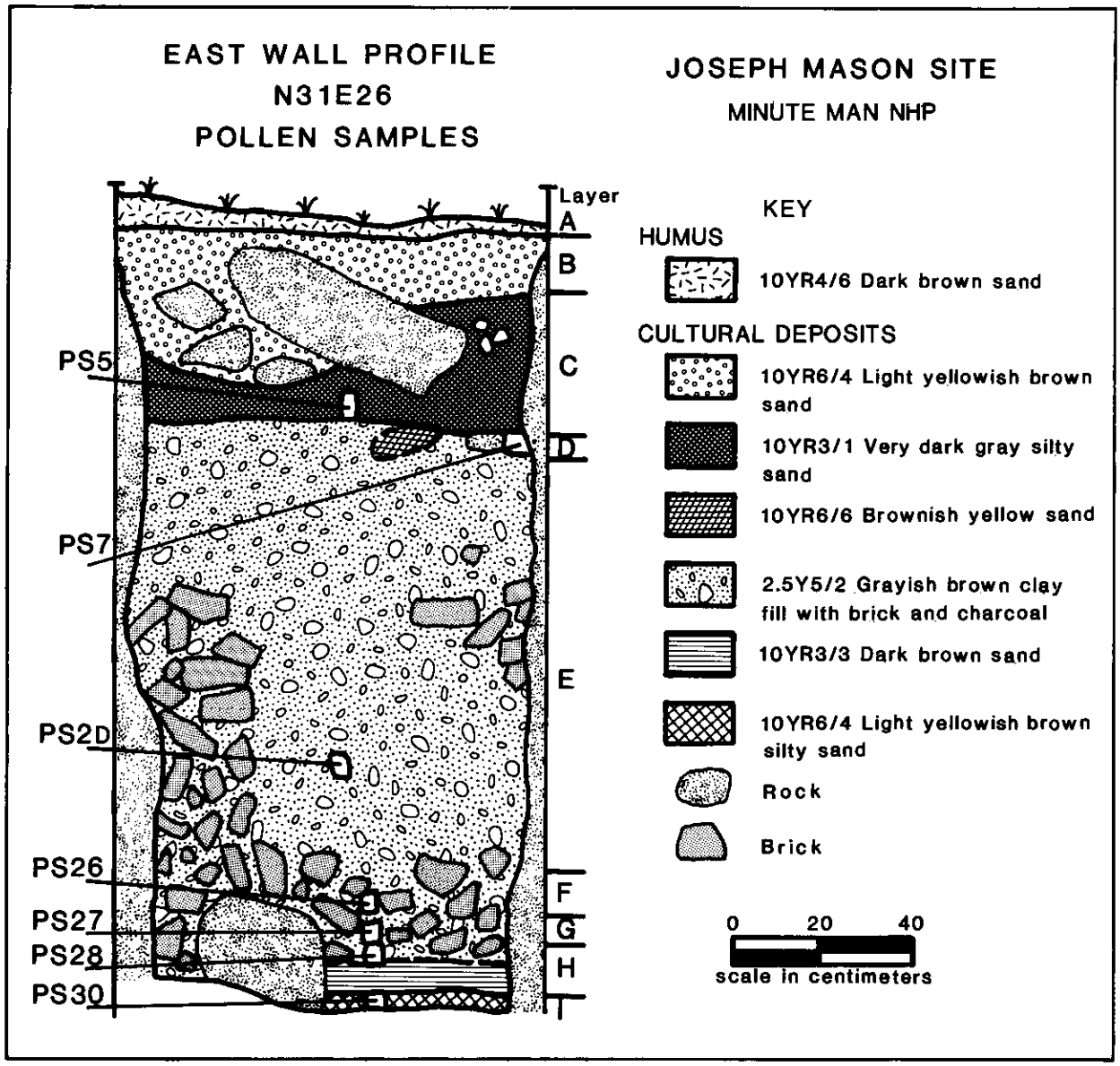


Figure 9-3. East wall profile of EU N31E26 at the Joseph Mason site showing the locations from which pollen samples were taken.

in massive quantities in EU N31E26. Its deposition probably dates to the dismantling of the Mason structure. Layer D was sampled at excavation level 13 and is part of Deposit 4 (Figures 9-1 and 8-5).

Layer G was the last layer that was sampled in EU N31E30. This mixture of brick from the chimney and apparent floor zone incorporates creamware fragments but no pearlware and probably dates to the late 18th century. Layer G constitutes the uppermost portion of Deposit 5 (Figures 9-1 and 8-5), which was identified as the

original floor level of the cellar. The pollen sample from this zone was collected from level 14.

EU N32E30

The upper layers of N32E30 are replicated in the other EUs. Only Deposit 5 samples from the general floor zone were analyzed for pollen.

Layer G (Figure 9-2) is an olive brown clayey silt (2.5Y4/4) incorporating few artifacts. It may be associated with the early 19th-century dismantling of the house as opposed to being part of the occupation-period floor (Chapter 8). It was sampled at excavation level 15.

It was not possible to locate precisely the floor in EU N32E30. Layer H (Figure 9-2), however, may be more appropriately classified as floor zone rather than as a demolition-period cultural deposit. This brown (10YR5/3) mix of sand and silt was relatively compact and was characterized by a late 18th-century artifact assemblage of creamware, crown/cylinder window glass, and free-blown bottle glass. One pollen sample was collected in the vicinity of a free-blown bottle in excavation level 16, where artifacts were most abundant. The quantities of artifacts recovered from deeper excavation levels declines both markedly and progressively, and the sample from excavation level 17 may actually have been collected within a floor zone not apparent in sediment color or texture.

EU N31E26

Field observations indicated that the upper N31E26 deposits were severely disrupted by the ca. 1950–1967 Wood house construction, occupation, and dismantling activities. Sampling commenced at the dark gray sandy silt (10YR3/1)

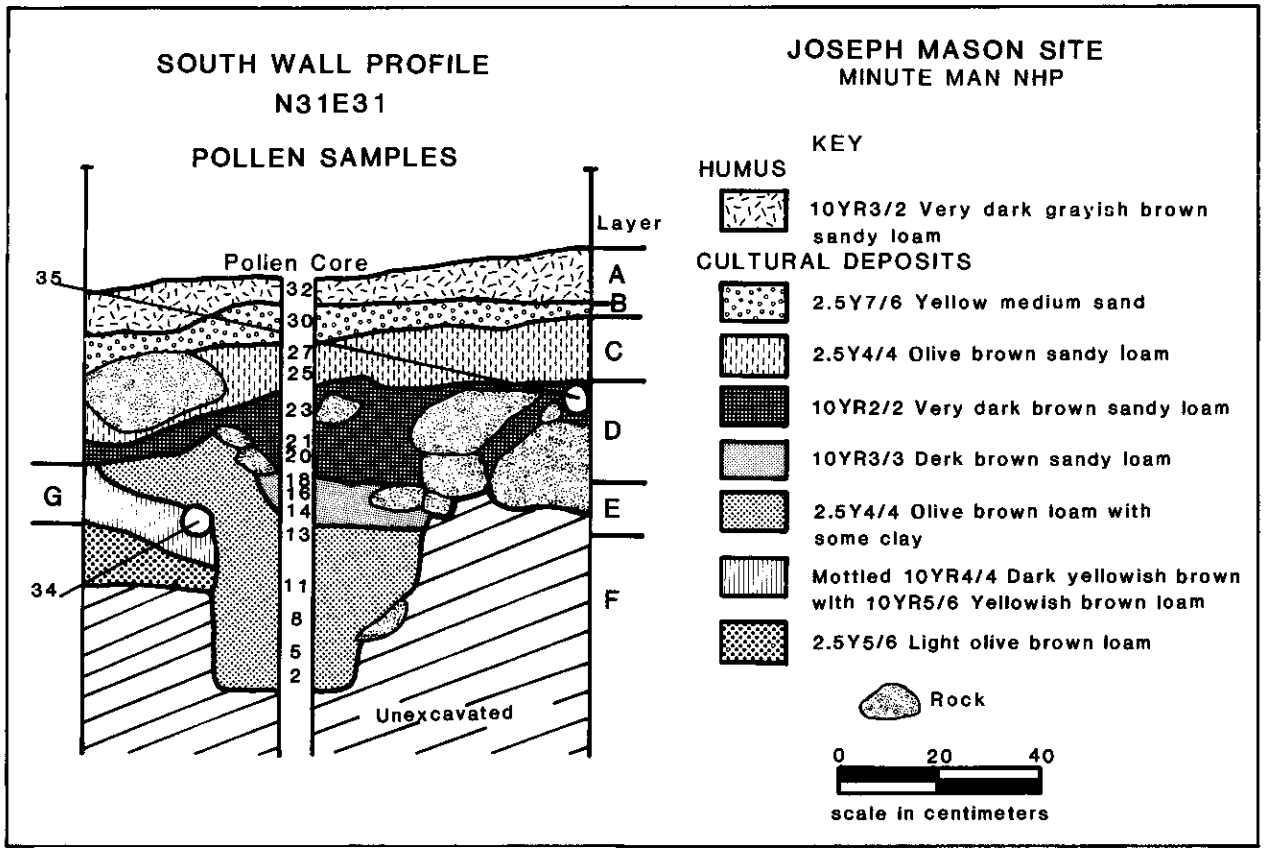


Figure 9-4. South wall profile of EU N31E31 at the Joseph Mason site showing the location from which pollen profile was taken.

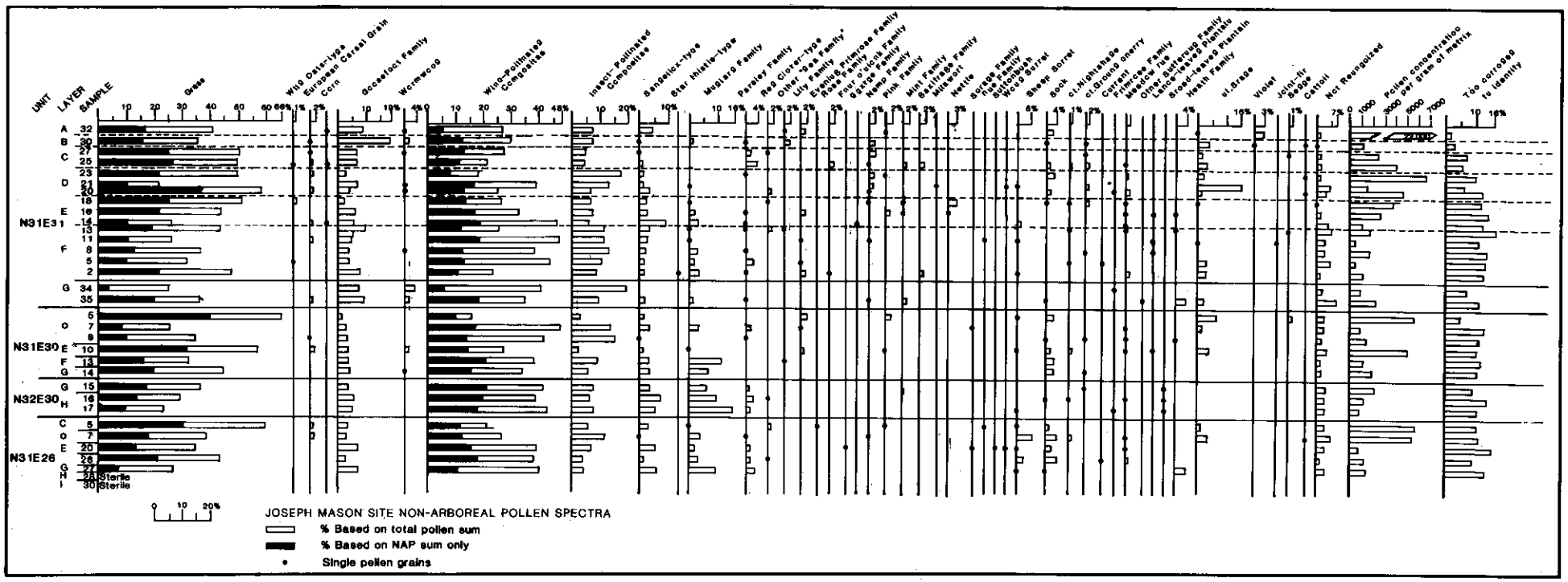


Figure 9-5. Joseph Mason site non-arboreal pollen spectra.

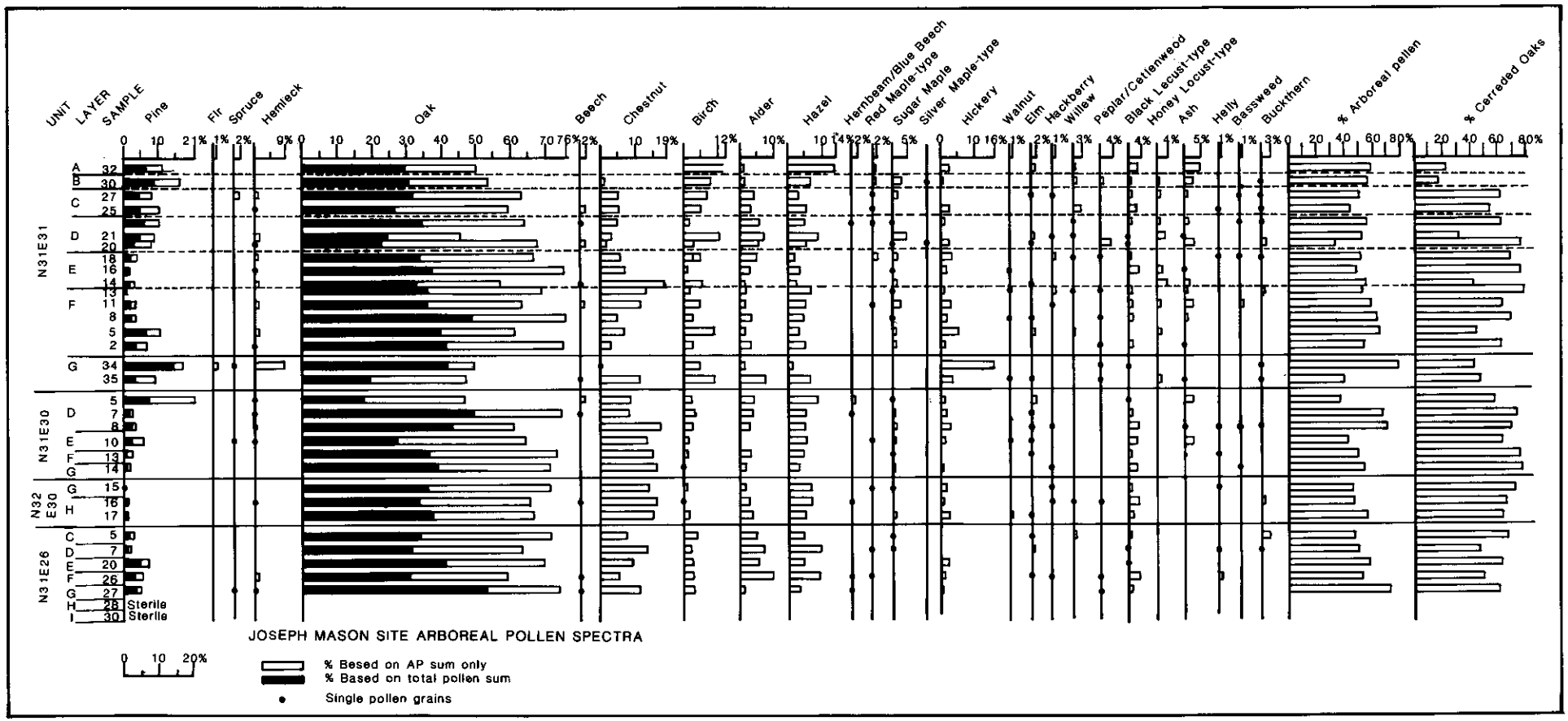


Figure 9-6. Joseph Mason site arboreal pollen spectra.

layer C (Figure 9-3). This layer was largely incorporated in excavation level 5. Artifact content suggests that this was also contaminated Deposit 1 fill. It was analyzed to provide interior comparative data for deeper matrices.

Artifacts usually considered diagnostic of modern deposits (e.g., wire nails) were not encountered below 50 cm depth in N31E26, but the top of the layer E clay may have suffered some disruption. Layer D (Figure 9-3) was a brown lens at the top of the clay in the southwest corner of N31E26. The whole layer fell within excavation level 7. It appears intrusive and may be either Deposit 1 (modern/contaminated) or Deposit 2 (dismantling period) fill.

Layer E (Figure 9-3) is a dense clay deposit thought to have originally been chimney mortar or lining (Deposit 4). Relatively early artifacts associated with the floor beneath this clay layer suggest that this section of floor was protected by the thick clay deposit. It may more accurately reflect the occupation period than the artifact assemblages of the floor zones in other excavation units (Chapter 8). Time and money constraints balanced against the improbability of recovering culturally significant differences in stratigraphic pollen spectra within this deposit dictated that only a single sample should be analyzed. The sample from excavation level 20 was chosen.

Layer F (Figure 9-3) is a jumble of debris and brick fragments that contained a few fragments of pearlware and probably dates to when the house was dismantled. It is also part of Deposit 4. The sample that was analyzed was drawn from excavation level 26.

Layer G (Figure 9-3) is characterized by a discontinuous surface of flat-topped stones. It is reasonable to interpret layer G as the occupation-period cellar floor (Deposit 5). A mixture of cultural debris incorporating food remains in the form of bird and animal bone as well as hand-wrought and early machine-cut nails is consistent with this interpretation. Excavation level 27 constitutes the sampling unit for this floor.

A few artifacts were found in layer H (Figure 9-3)—the dark brown sandy layer (10YR3/3) below the layer G floor—but no pollen was recovered from this deposit, which was sampled at excavation level 28. Layer I (Figure 9-3), underneath layer H, is a light yellowish brown (10YR6/4) sandy deposit. The sample from excavation level 30 of this layer, which is apparently glacial outwash, contained neither artifacts nor pollen.

Exterior Deposits

It was anticipated that evidence for maturing land use and culturally significant former surfaces might be registered in exterior matrices. These were sampled in continuous profiles (i.e., there were no intervals between the samples). Analysis has not been completed on any of the exterior profiles. Work on the profile from EU N31E31 (Figure 9-4) is, however, sufficiently advanced to provide at least comparative data. It was collected outside of and immediately adjacent to the cellar foundation (Figure 8-5). Sample numbers from this profile do not reflect the excavation level, but rather the consecutive number assigned by the palynologist from the bottom of the profile up to the ground surface. The sample numbers that were analyzed from each layer are listed on Figures 9-5 and 9-6.

EU N31E31

Layer A (Figure 9-4) is the humus zone root mat developed since the Wood house was dismantled by the National Park Service ca. 1967. The sample from this layer serves as a modern comparative sample for the site.

Layers B and C (Figure 9-4) contained a mixture of 19th- and 20th-century artifacts, and there were no indications of humus development or artifact concentration at the contact between them to suggest a stable surface. The excavators (Chapter 8) interpreted layer B as the product of Wood occupation-period landscaping (Figure 8-5). Layer C was interpreted as part of the disturbed Deposit 1 fill (Figure 8-5).

Layer D (Figure 9-4) is a darker (10YR2/2), somewhat organic-appearing horizon that contained a hand-wrought nail and transfer-printed whiteware. Unfortunately, the post-1820 ceramics

were found deeper in the fill than the 18th-century iron. Some mixing has occurred, but no 20th-century material was found here. To the excavators, the deposit appeared to be Deposit 1 fill that spread out from the cellarhole and was probably deposited after the initial filling of the cellarhole (Figure 8-5).

The relatively dark (10YR3/3) matrix of the layer E horizon (Figure 9-4) suggests humus development or the accumulation of organic cultural debris in a surface zone. Artifacts that could date at least into the early part of the 19th century were recovered from this deposit. Layer E is considered by the excavators to be the upper deposit of a posthole (Figure 8-5), possibly deposited to create a level surface after the posthole was initially filled. Three machine-cut nails and other building-related debris were recovered from this layer suggesting that the posthole was filled during or after the early part of the 19th century.

Layer F (Figure 9-4) is a pit-like anomaly that the excavators have interpreted as a possible posthole (Chapter 8 and Figure 8-5). Very few artifacts were recovered from layer F—just one hand-wrought nail and 69.5 g of brick.

According to the archeological interpretation, Layer G (Figure 9-4) appears to be the matrix through which the possible posthole was cut. The presence of crossmendable creamware fragments in layer G and in Deposits 2 and 3 of the cellar fill suggests that the posthole may postdate the initial filling of the cellarhole (Chapter 8).

Laboratory Methods and Data Presentation

The same laboratory procedures and analytical methods used at the David Brown site (Chapter 5) were applied to the Joseph Mason farmstead. At least 400 grains per sample were tabulated and these are presented in Figures 9-5 and 9-6 as relative frequencies (percentages) based on both total sums (solid bar histograms) and arboreal pollen or non-arboreal-pollen-only sums (hollow bar histograms). A Latin and vernacular plant name list is presented in Table 5-1.

Results

Pollen Preservation

No pollen was recovered from either of two sub-floor samples of apparent glacial sand, levels 28 and 30, of Joseph Mason EU N31E26 or from one similar sample, level 20, of EU N32E30. Sand is not a good pollen preservation environment and it is not surprising that pre-occupation spectra, if ever present, have not survived. Such deposits sometimes incorporate historical pollen spectra leached down from a higher surface and subsequently preserved by a culturally derived overburden (Kelso 1987b:108, figure 6-2). That this has not occurred here suggests that the sub-floor deposits were not exposed long enough, or at the right season perhaps, for significant pollen deposition and leaching to take place. The absence of pollen among the artifacts under the EU N31E26 stone floor contrasts with the situation in the similar matrix at the David Brown site (Chapter 5).

Pollen concentrations from the remaining samples collected at the Joseph Mason site ranged from 22,000 pollen grains per gram of matrix in the root mat just below the surface of the exterior profile (EU N31E31; layer A) down to 431 grains per gram in sample 11 in the possible posthole at the bottom of the same sample series (EU N31E31; layer F). These quantities are comparable to those recovered from the older portions of dry urban archeological sites, where significant urban land-use data have been recovered (Kelso 1986b, 1987b; Kelso et al. 1989) and should prove adequate for the definition of any such patterns preserved in rural matrices.

The Exterior Profile

THE OCCUPATION-PERIOD POLLEN ZONE

The profile can be divided into two segments at the layer D/layer E boundary on the basis of larger quantities of pine (*Pinus*), grape (*Vitis*), hemp family (Cannabinaceae), and, perhaps, dock (*Rumex mexicanus* type) pollen above this point, and larger amounts of mustard family (Cruciferae) pollen below.

The pollen spectra in layer E and the possible posthole constitute the oldest of the two palynologically distinctive segments of the EU N31E31 profile. The diagnostic features here are mustard family (Cruciferae) counts that are higher and more regularly present than in more shallow samples, and lower or less frequent contributions of pine, grape, hemp family, and dock pollen.

The excavators interpreted layer E as the uppermost deposit of the possible posthole. This layer appears to be a leveling fill and may have been deposited after the posthole was initially filled (Chapter 8). The pollen data suggest that layer E may have remained exposed as a surface. Rising pollen concentrations toward the top of the layer are accompanied by relatively stable corrosion measures rather than the improving pollen preservation that we might expect to find in a normally accumulating deposit. Rising grass pollen percentages and declining wind-pollinated Compositae counts through layer E to the layers E/D interface suggest a stabilizing surface on a fill as grass pollen percolating down into the deposit replaces the original Compositae-dominated spectrum and masks degradation of older pollen.

The pollen spectra in the possible posthole differ from those of the overlying layer E in several ways. All of the insect-pollinated Compositae counts, all hazel (*Corylus*), and the majority of the wind-pollinated Compositae (*Aster* type) percentages are higher while most grass frequencies and pollen concentration figures are lower. These are differences without internal patterning and the measure of pollen too corroded to be identified is quite uniform. The characteristics of this fill are more consistent with what might be expected in a rapidly closed pit than in one that gradually filled. Oak pollen percentages as a function of total pollen are slightly lower in the upper two samples from the feature where the chestnut contribution is larger. These, however, are paralleled by a modestly depressed total arboreal pollen contribution and could be functions of leaching from a higher matrix.

The real anomalies among the possible posthole spectra are the high grape and pine frequencies in the deepest two samples, #5 and #2. These counts could record the existence of an earlier flora incorporating grape vines growing right up against the east side of the foundation. It is more probable that a post or some similar item was removed from the feature without digging to the bottom. The subsequent collapse of the posthole might then produce a reverse stratigraphy with some pine and grape pollen-bearing material from layers D, C, or B at the bottom of the fill.

THE FILL POLLEN ZONE

The pollen spectra from sample 20 at the bottom of layer D to the surface constitute the second and youngest semi-pollen zone of the EU N31E31 profile. Its distinctive features are, by definition, mirror images of those in the deeper profile segment: less mustard pollen and more pine, hemp family, dock, and grape pollen.

According to the archeologists, layers C and D are Deposit 1 fill that was added to the cellarhole depression in the 20th century. Layer D was interpreted as the lower part of Deposit 1 even though the artifacts in it date to the late 18th and early 19th centuries.

Pine pollen is wind-transported and widely dispersed. The parent trees require a number of years to reach the reproductive stage (Fowells 1965:333). The pollen spectrum of a developing population of pine trees contributing to a normal, progressive profile accumulation would gradually increase. The changes in the pine and grape pollen spectra at the layer E/layer D interface are abrupt. They suggest that a sudden change in the depositional regimen had occurred, and the absence of a normal soil profile pollen corrosion gradient in layer D is consistent with assigning the origin of the layer to episodic filling.

Layer A is the current root mat, and the archeologists have defined layer B as mid 20th-century episodic fill laid down when the Woods landscaped the property in the 1950s. The very recent origin of the layer A and B spectra is established by the blight-caused absence of

chestnut (*Castanea*) pollen in the root mat and the sharply depressed representation of that type in layer B (Anderson 1974). Small increases in the birch (*Betula*), hazel (*Corylus*), and ash (*Fraxinus*) frequencies are evident in the root mat (layer A). Birch and hazel are recognized pioneer species, and opportunistic occupation of space vacated by blight-killed chestnuts may be indicated. Pollen concentration in both oak (*Quercus*) and total pollen corrosion measures, and the chestnut data, suggest separate origins in time and/or place for the layer B and layer C fills.

Grape pollen is not a major element in historical-era pollen spectra (McAndrews, Berti, and Norris 1973), and only one grain of the type was recovered from layer A, the current root mat. There is no good evidence of post-deposition pollen transport within the matrices, and the grape pollen in layers B, C, and D probably came in with the fill. The same cannot be said with equal certainty for the pine pollen. Twelve percent of the arboreal pollen in the root mat was derived from these trees, and there is one line of evidence from interior EU N31E26 that suggests that some pine pollen was being produced within wind-transport range of the cellar about the time it was filled.

The cellar floor in EU N31E26 was sealed by a massive clay deposit, and no crossmends to other interior or exterior layers were recognized among the ceramics. The material culture here reflects the occupation period at or before abandonment, not the post-occupation period when the cellar was filled. Where pine pollen frequencies are prominent in exterior and interior episodic fill levels they are accompanied by grape pollen. There is no grape pollen with the high pine pollen percentages on the floor, just above the floor, or in the chimney clay of EU N31E26. These pine pollen grains blew in from trees close enough for their pollen contribution to register as distinctive from that in the exterior layer E and layer F (possible posthole) matrices. The distance to these trees cannot be determined. Turner's (1964:585) 300 yards or less for the recognition of individual stands of pines as arboreal pollen sources overlain on the regional pollen deposition might not be a bad guess. The Mason property itself might have been the source. A paucity of occupation data for the homestead between the death of Joseph Mason in 1788 and the ca. 1820–1823 dismantling of the house (Chapters 7 and 8) suggests neglect of the property, and a mature stand of white pines may be observed at the present time some 100 yards north of the house.

The Interior Profiles

Sample intervals within the Joseph Mason cellarhole were too wide to permit the sort of fill spectra developmental analysis undertaken at the David Brown site, but the grape pollen data indicate that no layer D fill was deposited below the clay in EU N31E26. This indicates that there was no contamination of that particular floor section with post-occupational fill.

FILLING SEQUENCE AND SOURCES

The distribution of grape pollen is as diagnostic inside the cellar as out. Grape pollen occurs in only five interior samples. All but one of these incidences were in Deposit 1 fill samples (i.e., mixed 19th- and 20th-century or dismantling period). Only one incidence was Deposit 3 type foundation stones, and none were chimney clay, dismantling brick/clay (Deposit 4), or floor samples (Deposit 5). All but one grape count, the definite dismantling period level 7, N31E30 sample, coincided with the high pollen concentrations diagnostic of former soil surfaces (Dimbleby 1985:4).

The grape pollen distributions indicate that the exterior episodic fill Deposit 1/layer D was imported after dismantling of the structure was essentially complete. The foundation layer in which grape pollen occurred (Deposit 3/level 10 of EU N31E30) was high in the stone deposit, and the matrix may have filtered down through the numerous air spaces between the stones. The surface-like pollen concentrations do not indicate static periods in the filling. These concentrations record the mining of surface deposits for fill. The expected pine did not accompany grape pollen in either of the EU N31E26 samples with high

pollen concentrations. This may indicate that the two types had separate sources in the exterior profile. Both samples from EU N31E26 (levels 5 and 7) were, however, in the transition zone from *in situ* fill to 20th-century disrupted deposits. Their spectra may have been modified by later events.

Pine and grape pollen have been emphasized in this analysis because they are long-lived and relatively slow to mature. Their pollen spectra should be less subject than those of annuals to the noise of short-term variations in growing conditions. They were not, however, the only taxa that were diagnostic within the Joseph Mason cellarhole. The distribution of mustard family pollen indicates that the type is a historical occupation period indicator. In exterior EU N31E31 mustard was present in all samples below the layer E/layer D interface, and there were only three pollen grains of the type, divided between two samples, above. The largest counts inside the foundation occurred on floors and in Deposit 4 matrices. Only one pollen grain was recovered from a Deposit 1 (recently mixed 19th and 20th century) level, and the type is not well represented above the Deposit 4 level of the longest profile (EU N31E30).

CELLARHOLE FUNCTION

In our evaluation of pollen dispersal and type resolution for the analysis of structure function at the David Brown site we concluded that only European cereal pollen, corn pollen, and perhaps fodder legume pollen such as clover (*Trifolium*) would be recognizable as economic types in historical farmsteads (Chapter 5). It was also postulated that these types would be much more conspicuous in barns than in dwellings. Only three grains of corn pollen were recovered from the Joseph Mason site and all were found in the EU N31E31 exterior profile. One corn grain was from the occupation-era layer F/layer E interface and the other two were from the modern root mat and the 20th-century landscaping fill of layer B. Clover and other pea family (Leguminoseae) pollen was almost as rare, although a few grains were noted in scattered interior fill samples above the floor.

European cereal pollen was better represented at the Joseph Mason site. No count exceeded 2%, however, and five out of seven instances of the type in the EU N31E31 exterior profile were located in the episodic fill of layers D, C, and B. Cereal pollen was recovered from 4 of the 14 analyzed interior samples, but three of the four occurrences were in mixed modern or post-demolition early 19th-century fill. Some was found among the tumbled-in foundation stones, but the type was completely absent from floor and near-floor samples.

Intuitively, the corn, legume, and cereal pollen grains recovered from the Joseph Mason matrices are too few in number and placed too shallow in the fill to reflect agricultural produce on the magnitude predictable in a barn. The excavated cellar is more likely that of a house or other structure.

Summary and Conclusions

Conclusions in problem-oriented archeology should be couched in terms of the objectives around which the investigation was organized. This is especially true in ancillary scientific/technical studies where results, but not necessarily data, must be synthesized by archeologists who may not have extensive experience in the same or related fields.

Pollen Preservation

This first objective was purely exploratory. Pollen preservation has proven generally bad in eastern terrestrial sediments (King, Klipple, and Duffield 1975), and there was some question whether interpretable quantities of pollen would be preserved in rural matrices as dry and exposed as those at the Mason farmstead. Prehistoric pollen was not recovered, but that of the historical era proved well enough preserved for the definition of a number of cultural patterns. Pollen concentrations were, however, rather lower than those encountered in bog and lake matrices. Adequacy is a function of economics, and the cost of archeological palynology will have to be

considered by archeologists planning to incorporate such analysis into their projects.

The best land-use pollen data in historical sites are provided by the minor pollen types (Kelso and Beaudry 1990). Patterns among minor types are not clear in spectra based on total raw sums of less than 400 grains. Samples with pollen concentrations of less than 2,000 grains per gram characteristic of the Mason matrices require 16 or more hours of counting for the accumulation of the requisite 400 grains. Time investments of this magnitude are expensive. They are justifiable on the basis of the cumulative pollen degradation and post-deposition transport data that they provide and that are the ultimate source of some of the best land-use information from historical-era sites.

Origin and Chronology of Cellar Fill

The analysis of filling processes is organized around the characteristic distribution of pollen within natural soil profiles. In this pattern, pollen concentrations are higher at the top of the profile and the proportions of surviving pollen grains that appear to be degraded increase toward the bottom (Dimbleby 1985:figure 3; Kelso, Stone, and Karish 1990:10, figure 2). Patterns that differ from this reflect cultural activity of various kinds. When pollen concentrations are higher at the bottom of a deposit and percentages of degraded pollen grains are larger at the top, an episodic fill that was exposed for a period but not colonized by plants is indicated (Kelso and Beaudry 1990:75). Where degradation measures are relatively uniform and pollen concentrations are higher at the surface, an episodic fill that remained exposed long enough to develop a ground cover may be recorded (Kelso 1987b:figure 6-3).

Only the second alternative pattern (colonized fill) is evident among our Joseph Mason pollen spectra. Degradation measures within the cellarhole are quite uniform, and peaks of high pollen concentrations occur at the upper ends of those profiles that extend into Deposit 1 materials where surface contamination could have occurred. The cellar apparently did not collapse and fill naturally. It was intentionally filled in several episodes. The first, deepest deposit consisted of house debris. The pollen spectra of this layer resemble those of layers E and F in the posthole and suggest that the posthole and the cellarhole were filled with the same material. The house debris was covered with a matrix containing grape pollen, which was exotic to the locality. Some filtration of this cover layer down among the loose foundation stones of the deeper fill is suggested by the high pollen concentration and grape pollen in level 10 of EU N31E30.

Unfortunately for our ultimate goal of defining houselot ground cover, a similar surface development sequence on fill prevailed outside the foundation at EU N31E31. The possible posthole fill and layer E appear to be a unit of exotic fill with grass colonization at what became the layer E/layer D interface. This apparently remained exposed at the surface long enough for leaching of grass pollen to dilute the original wind- and insect-pollinated Compositae content of layer E. The lack of patterning among the mustard family spectra in the possible posthole and layer E suggests that this pollen was imported with the fill. This could generate interpretive difficulties because mustard pollen was critical in separating local from exotic fill spectra inside the structure. The essentially mutually exclusive distributions of mustard and grape pollen suggest that the "local" and contemporaneous interpretation of the type may actually be correct but that the inside pollen did not come from the outside fill. A third source for the pollen in both matrices would be consistent with the stratigraphic distribution of the type and would render the apparent interior over-representation of this insect-dispersed type more palatable.

Layers D–B in exterior EU N31E31 appear to be episodic fills that originated at different times in waste ground with a cover of second-growth pines and grape vines. The pollen spectra in layers D and C are similar, however, suggesting that these two layers could represent one fill as suggested by the archeologists (Chapter 8).

Pollen concentration and corrosion figures

Chapter 10

Archeological Investigations of David Fiske's 17th-Century "homestall"

Alison D. Dwyer, Alan T. Synenki, and Nora Sheehan

Introduction

In 1721 David Fiske III inherited from his father "sixteen acres of land of ye homestall about where ye old mansion house of sd Left. Fisk stood..." (Middlesex Probates #7560). Although the documentary record is unclear precisely when his father, Lieutenant David Fiske, acquired and resided on the 16-acre homestall, there is some data to suggest that he may have acquired it shortly after 1647, built a house at some point thereafter, and began living there with his second wife Seaborn ca. 1655. David, Seaborn, and perhaps two of their three children lived on the homestall until David's death in 1710 or possibly until 1721 when Seaborn died (Snow 1968:3). The original 16-acre homestall, plus additional land that Lieutenant David Fiske and subsequent generations acquired, remained in the family until 1847 (Snow 1968:13–14). Today approximately 2½ of the original 16 acres, some of which encompass the homelot, are located between present-day Massachusetts Avenue and Route 128 in the town of Lexington, Massachusetts. This acreage lies within the Fiske Hill area of MIMA (see base map, Appendix A-4).

According to Hudson (1913:208), Lieutenant David Fiske was born in England in 1624 and came to North America ca. 1636, residing with his father, sister, and perhaps his mother in Watertown, Massachusetts, before moving to Cambridge Farms (i.e., Lexington, which was incorporated in 1713). Lieutenant David Fiske was the first member of the Fiske family to settle in Cambridge Farms and his appears to have been one of the first farmsteads established in the Fiske Hill area. During his residence in Cambridge Farms, Lieutenant David Fiske served the town in a variety of ways including as town clerk and selectman (Hudson 1913:208).

In the summer of 1987 archeological investigations were conducted within the Fiske homelot to locate and identify the number and kinds of subsurface remains present. As discussed in greater detail below, although previous archeological excavations had been conducted within the homelot (Snow 1969b), the excavations were primarily restricted to the house cellar's interior and thus provided little information about other possible subsurface remains within the homelot (Towle 1987:328–330).

The David Fiske site, situated at the base of Fiske Hill between Massachusetts Avenue and Route 128 (Figure 10-1 and 10-2), is characterized by a grassy terrain that slopes gently to the east. The topography adjacent to the western and northern boundaries of the site rises sharply along the edge of Massachusetts Avenue. A swampy area is present along the southwestern portion of the site. Deciduous trees are situated along the southern and northeastern edges of the site, and grape vines and brambles are present along the western edge of the site. Dry-laid fieldstone walls are present to the east, west, and south of the site (Figure 10-2). The precise construction date for these walls has not been determined, but it seems that they mark the boundary for a portion of Lieutenant David Fiske's property (Towle 1987:274).

As mentioned in Chapter 1, the purpose of the current investigations was to provide MIMA

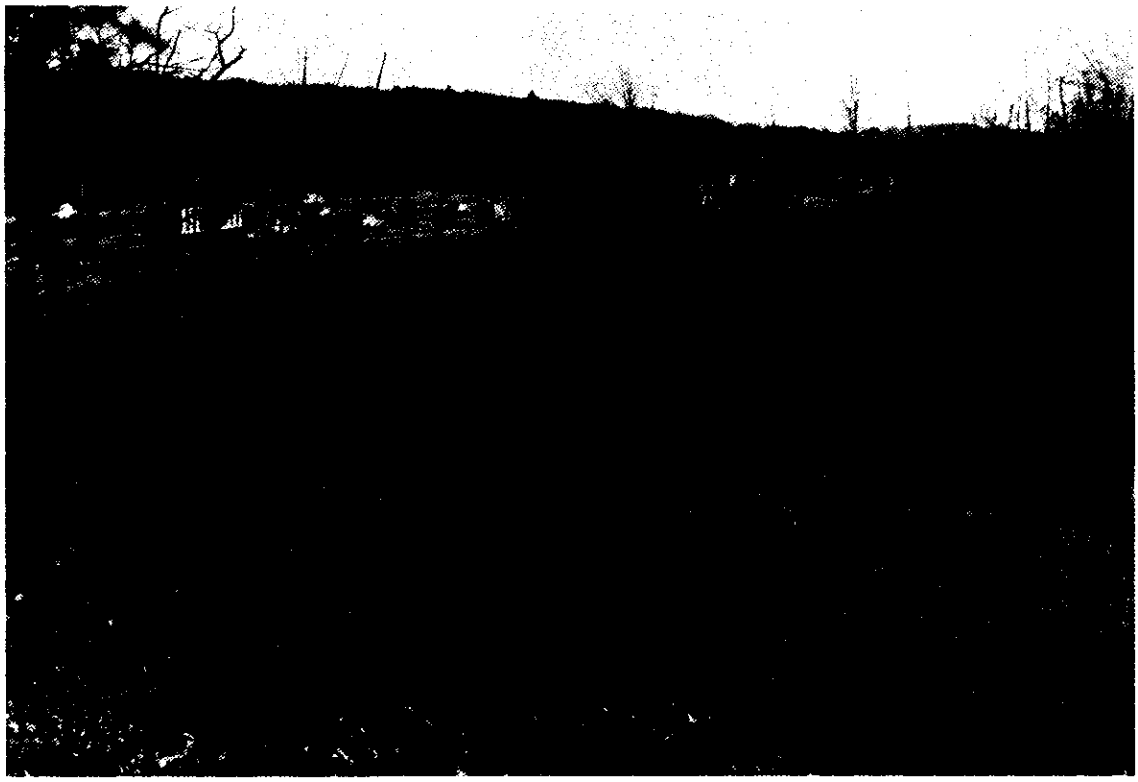


Figure 10-1. 1989 Project photograph of the David Fiske site area at the base of Fiske Hill adjacent to Route 128. The photograph is looking to the southeast.

with an inventory of the Fiske homelot's subsurface archeological remains in order to explicate the utilization of its space, including the arrangement of its facilities. To this end, the subsurface investigations not only attempted to determine the presence or absence of such well-defined water and waste management facilities as privies, wells, and discrete trash pits, but also sought to identify other significant ephemeral cultural remains through the spatial distribution of selected consumer goods and soil compounds. Detailed stratigraphic analyses were conducted to determine, to the extent possible, the processes responsible for the spatial patterns identified, including any earth-moving episodes that might have occurred both during and after the use of the homelot as a residence. This information will hopefully allow MIMA to better manage not only this site's subsurface remains but possibly those of other sites that have a 17th- and/or early 18th-century component. This information should also allow a better understanding of the initial settlement and utilization of space on one rural, 17th-century New England farmstead, and provide comparative data for other sites within MIMA and rural sites within eastern Massachusetts as a whole. As argued in Chapter 1, such pre-Revolution data are considered essential to a more complete understanding of the evolution and variability of MIMA's 1775 landscape, and the factors responsible for it. The Fiske homelot was considered important for providing such information since it was only occupied by a single generation for a relatively short period of time from the mid-17th until the early 18th century and does not appear to have been subject to extensive post-occupational alterations. While there is currently a considerable number of

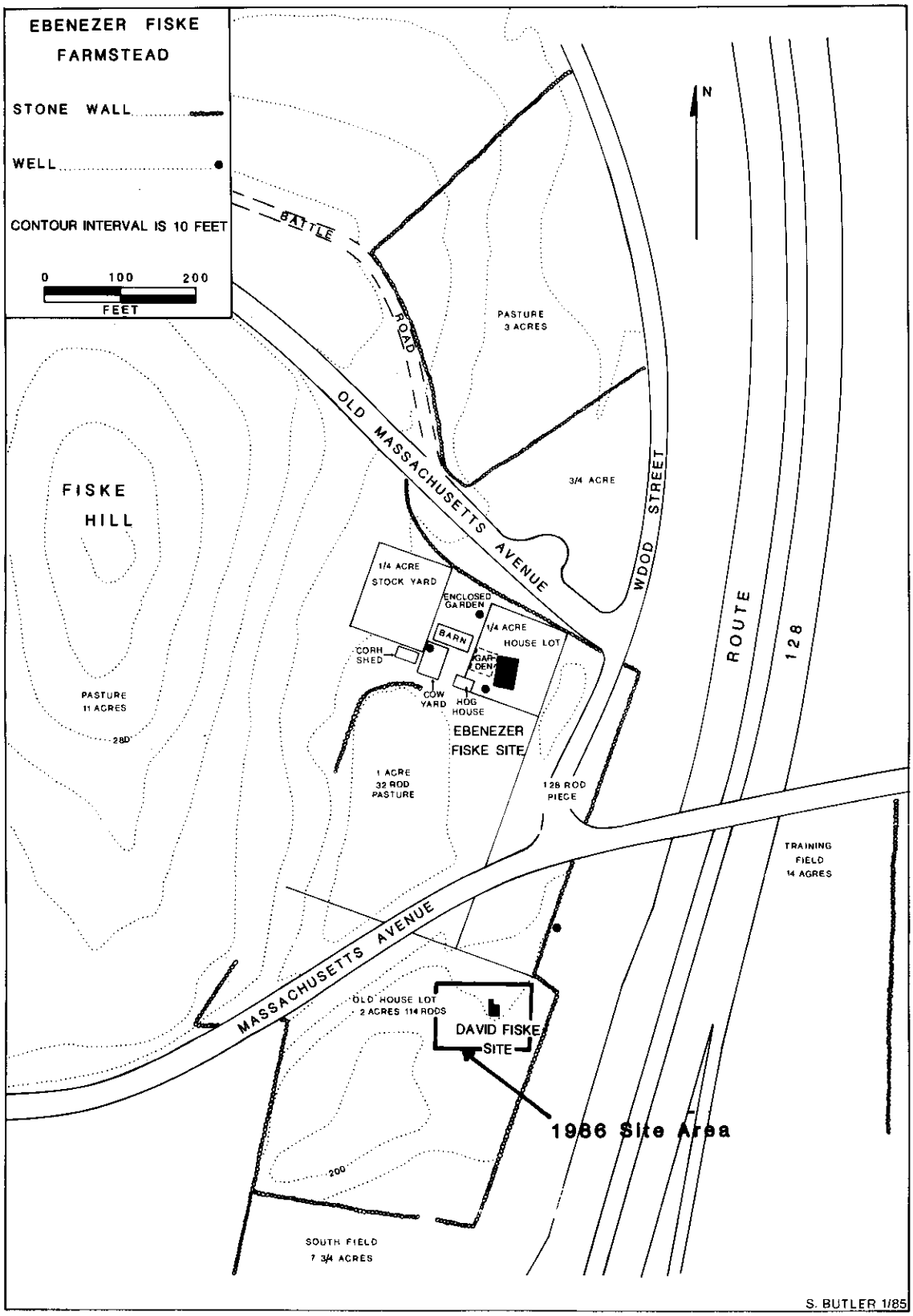


Figure 10-2. Composite site map of the Fiske property showing the MIMA Archeological Project excavations (adapted from Towle 1987:331).

detailed comparative studies regarding the use of space on rural 17th-century homelots in other areas of the eastern United States such as the Chesapeake (e.g., Keeler 1978; King and Miller 1987; Pogue 1988), there are relatively few comparative studies of rural New England homelots to date.

Lastly, the Fiske site was also considered important for providing comparative data about houses constructed prior to ca. 1660 in New England since our current sample of extant vernacular architecture from this time period is both small and lacks adequate documentation (Travers 1987:2). Because of this, our knowledge of the range of variation in houses constructed during this time may be limited. Archeology may be able to provide data otherwise unavailable (Deetz 1979; Beaudry and George 1987; Travers 1987), as demonstrated by Carson et al. (1981) and others.

Previous Research

Previous work at the David Fiske farmstead consisted of documentary research (Snow 1968), archeological investigations (Snow 1969b), and a reanalysis of the artifacts and reassessment of the archeological research (Towle 1987). The objective of the documentary research and archeological investigations was to clarify the location of the 1775 house of Ebenezer Fiske (Lieutenant David Fiske's grandson). The goal of Towle's work (1987) was to make the previously excavated materials accessible to researchers and to evaluate the site's archeological potential for answering site-specific questions.

DOCUMENTARY

As noted above, Lieutenant David Fiske was born in England in 1624 (Hudson 1913:208). He and his father, David Fiske I, came to the colonies and settled in Watertown, Massachusetts, in ca. 1636 (Hudson 1913:208). Between 1636 and his death in 1660, David Fiske I purchased a considerable amount of land in Watertown (Snow 1968). Lieutenant David Fiske inherited all of his father's holdings in 1662, which he then sold in 1673 (Hudson 1913:208–209; Snow 1968:2).

Lieutenant David Fiske was admitted as a freeman ca. 1647 (Hudson 1913:208). In that year, or perhaps just before that date, David married Deacon Gregory Stone's step-daughter Lydia Cooper (Hudson 1913:209). All five of Lydia and David's children were born in Boston (Hudson 1913:209; Figure 10-3). Unfortunately, the documentary record is unclear regarding not only when or from whom Fiske received the 16-acre homestall parcel in Cambridge Farms, but also when he began residing there. Cordelia Snow (1968:1–2) assumes that Deacon Stone gave David the 16 acres of land in Cambridge Farms in 1647 as part of Lydia's "dowry or an inheritance." David Snow (1969b:14) also assumes this and suggests that David, Lydia, and their children probably did not reside on the Cambridge Farms homestall since, as mentioned above, the recorded birth place of all of their children was Boston, not Cambridge Farms (Hudson 1913:209). Lydia died just after the birth of their last child in 1653 (Snow 1968:1; Snow 1969b:14; see Hudson 1913:209). Based on this information, Snow (1969b:10) suggests that the Cambridge Farms homestall was not occupied until shortly after 1654 or in 1655 when David married Seaborn Wilson. David and Seaborn probably resided on the homestall shortly before 1658 since all of their five children appear to have been born in Cambridge Farms after that date. In 1664 David purchased additional land in Cambridge Farms, and by 1683 he owned approximately 68 acres there (Snow 1968:1–2). David died in 1710 (Hudson 1913:208). The only documentary information about the house and homestall appears in his 1710 will and 1711 probate inventory (Snow 1968:3; Middlesex Probates, Record Books 12A:429–431). These records indicate that the estate consisted of a house, a barn, and approximately 86 acres (Snow 1968:3–4). The inventory (Table 10-1) suggests that in 1711 Fiske's house was a typical 17th/18th-century central chimney, two room plan. The house included "a bed in the parlor; a bed and a press in the chamber; two beds in the east end of the house; brass and lumber in the east end of the house; pewter and

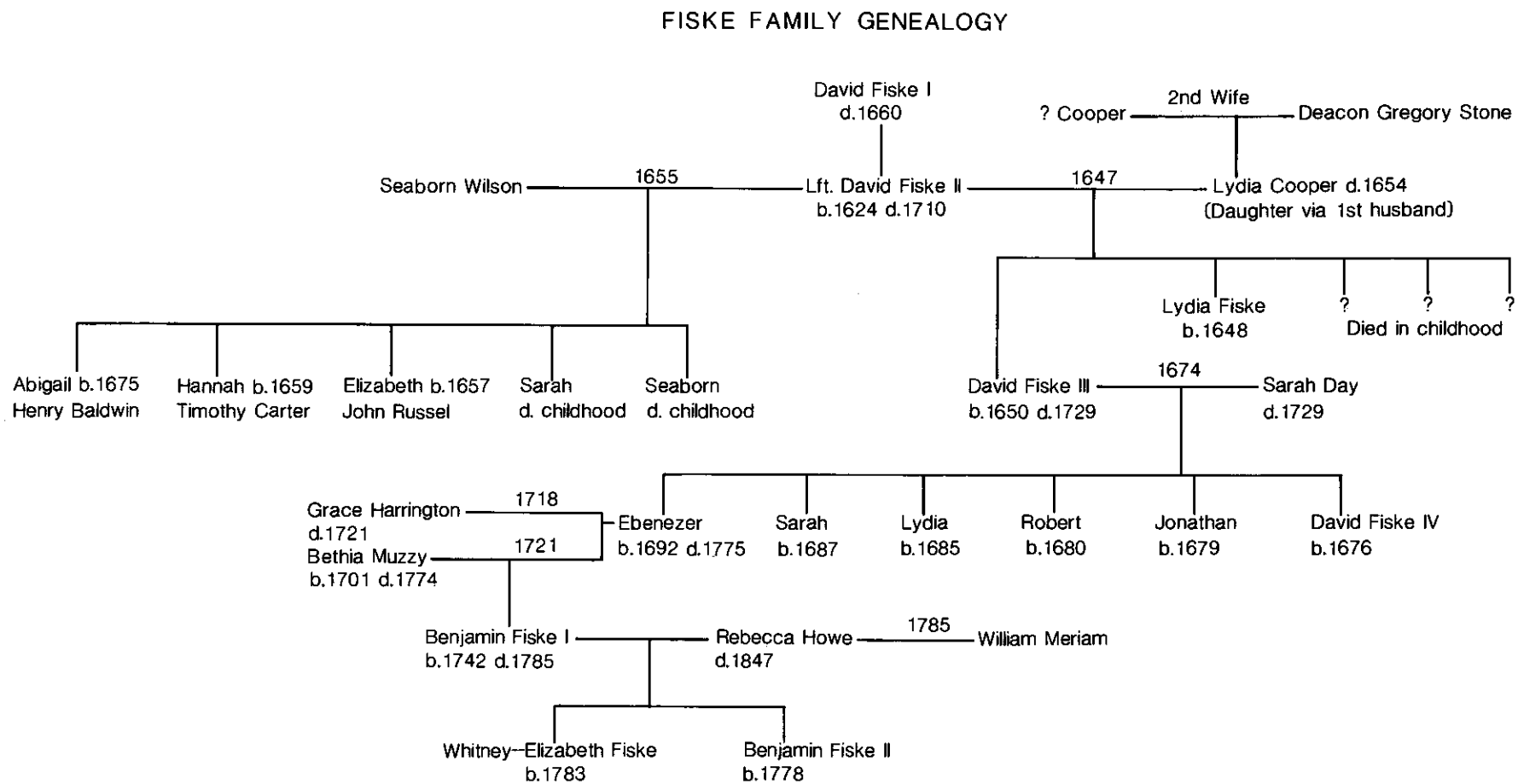


Figure 10-3. Fiske family genealogy (from Towle 1987:327).

Table 10-1. "Inventory of the Estate of L^{t}. David Fiske who Dec^{d}. february y^{e}. 14. 1710/11."*

Item(s)	*Value*
His wearing Cloaths	6 1 0
In Linen	9 9 6
A bed in ye parlor with beding	9
A Table & Carpet & Form	1 10
A Chest a barrel of a Gun & Chayers	0 14
A bed in the Chamber	2 0 0
A press in ye Chamber	2 0 0
A Saddle & pillions & panniel & flax & a smal wheal	1 12 0
In ye East end of the house 2 beds wth Beding	11 - -
A Cubboard & hetchel & belmettle mortar & pestel	1 16
Brass & Lumber in ye East end of ye house	3 10
Puter & Books in ye hall	5
Lumber	1
Iron & brass wth. a Silver Spoone	3 6
A pair of Andirons, Iron box a Chane & Traces	1 3
In ye Seller Lumber	0 14
The Stillyards, Cart & Wheels wth other Irons	2 2
In Stock	32
A house & barn, orchard & Yards 26 Acres by estimation, belonging to the homestead.	142
10 Acres of Medow and 30 Acres of Upland by Estimation	100
Twelve Acres of Medow, In Swamp medow & twelve Acres of Swampland	70 0 0
[Total]	405 17 6

*Transcribed from Middlesex Probates, Record Books 12A:431–432.

books in the hall; and 'in ye sellar lumber' " (Snow 1969b:5).

David's estate, was not settled until February of 1721, one month after Seaborn died (Hudson 1913:208–209). The fact that at the time of her death Seaborn was recorded as being from Woburn, Massachusetts, suggests that she had moved from the Cambridge Farms homestall sometime before that date. In any event, David's only son, David Fiske III, inherited "sixteen acres of land of ye homestall about where ye old mansion of sd Left. Fisk stood" (Middlesex Probates #7560). It is from this information that Cordelia Snow (1968:4) surmised that a house existed on Lieutenant David Fiske's original 16 acres. David Snow (1969b:10) further suggested that the house was no longer standing by 1721. These 16 acres, plus other land that David Fiske III bought, were then sold to David Fiske III's son, Ebenezer, in 1729 (Snow 1968:7). In 1756 Ebenezer gave his son Benjamin 25 acres of land, and Benjamin inherited the remaining property in 1775 (Snow 1968:9). Benjamin's son, Benjamin Fiske II, inherited two-thirds of his father's property upon his father's death in 1799; his mother received the other third (Snow 1968:14).

Included in Benjamin's share was a 2-acre, 114-rod plot of land referred to as "the old house lot" (Snow 1969b:5). This probably refers to the area immediately surrounding the Lieutenant David Fiske foundation (Snow 1969b). Benjamin sold his share and the right to his mother's share in 1799 (Snow 1968:14).

One other document indirectly refers to Lieutenant David Fiske's land. In 1725 three acres of pasture land were quitclaimed to his son David Fiske III (Snow 1969b:12). The land was described as being bounded on the west by "the way leading from Concord Road to said David Fiske..." (Middlesex Deeds, Book 29:486–487). According to Cordelia Snow (1968:7), the way "appears to have been a lane or driveway to Fiske's house." David Snow believes that, "[t]he 'way' clearly led to the land David Fiske, Jr. inherited from his deceased father's estate four years previously" (1969b:12).

ARCHEOLOGICAL INVESTIGATIONS

In the summer of 1968 Snow (1969b) conducted field investigations on the same parcel that was investigated by the MIMA Archeological Project in 1988. The purpose of his excavations was "to locate the site of the 'house lot' and 'old mansion house' referred to in eighteenth century Fiske deeds of the area" (Snow 1969b:2). Snow (1969b:2) reasoned that if he could find the remains of the 17th-century Lieutenant David Fiske's house, then he could "possibly" locate the houselot's property boundaries and hence the location of Ebenezer's (i.e., Lieutenant David's grandson's) farmstead.

As discussed in much greater detail elsewhere (Towle 1987:328–330), Snow's (1969b) field investigations uncovered the house cellar of Lieutenant David Fiske, which is situated 170 ft south of present-day Massachusetts Avenue and 150 ft west of Route 128 (Figures 10-2 and 10-4). Although "a number of trenches and test pits around the cellar" were excavated, it was reported that the investigations did not uncover any other "structure(s), or other features" (Snow 1969b:6) in the immediate vicinity of the house.

The cellar uncovered by Snow (1969b) consists of a double row of dry-laid fieldstones that rest on bedrock. Snow (1969b:6) reported that the cellar walls were approximately 3 ft in height;

Figure 10-4. Snow's photograph of the excavated cellarhole at the David Fiske site (1969b:photograph 2).

its dimensions were 12 ft east-west × 15 ft north-south; and it was oriented according to magnetic north (Figure 10-4). Measurements made of the outside and inside dimensions by the MIMA Archeological Project, however, revealed that the outside dimensions are actually 13 ft east-west × 17 ft north-south and that the inside dimensions are 11 ft east-west × 14 ft north-south (see also Snow 1969h:figure 1b). A bulkhead is located in the northwest corner (Figure 10-5). Snow suggested that since the house is oriented on a north-south axis, the front door was most likely located along the southern facade. Unfortunately, no archeological data (e.g., artifacts within a builders' trench) were uncovered by Snow (1969b) to indicate when the cellar was constructed.

Based on these data, Towle (1987:330) suggests that the cellar "may represent a colonial half-house or a two-room central chimney house with a half cellar." Towle (1987:332) suggests that if the Fiske house was a half-house, then it may have been an extremely small one based on Cummings's (1979:22) survey of 39 one-room houses constructed in the 17th or early 18th centuries. Cummings's (1979:232-238) data, however, refer to the dimensions of the *superstructures* not the *cellars* of the houses. Towle's (1987:332) comparison may therefore not be appropriate if the superstructure of the Fiske house extended beyond its cellar. Towle (1987:332) also mentions that if the house was a two-room central chimney house with a half cellar then the "second room would have been added on the south side of the existing room, and the front door would have probably faced east." Towle's (1987:332) assertions, however, are not borne out since, as discussed in detail below, the current archeological investigations uncovered the remains of a cellar east of the one that Snow (1969h) uncovered.

Snow (1969b:7) suggests that subsequent to the abandonment of the homestall and the dismantling of the house's superstructure, the interior of the cellar was filled relatively rapidly sometime after 1723. Snow (1969b:7) further speculates that the superstructure may have burned. According to Snow,

> [t]he cellar fill consisted of fallen wall stones, a large number of broken, handmade bricks and charcoal and ash, mixed with a fine grey clay. This fill extended, in most places, from about 4 inches below the surface, down to the bedrock floor. Occasional thin pockets of dark soil occurred on, and near, the floor in the south end of the cellar. The implication is that the cellar filled rapidly with debris from the chimney and hearth(s). Bricks were present throughout the fill, and on the floor, but in no recognizable pattern...Unless the hearths were never cleaned out, the amount of charcoal and ash in the fill, suggests that the house (or a portion of it) might have burned. (Snow 1969b:7)

As Towle (1987:333) notes, 45% of the artifacts that were recovered from the cellar fill could have been manufactured in the 17th or 18th centuries. One of the artifacts is a 1723 Hibernia penny recovered "near the floor in the southeast corner" (Snow 1969h:9). These data, in conjunction with the absence of later materials within the cellar's fill, seem to support Snow's contention that the cellar was filled relatively rapidly, sometime after 1723. Unfortunately, Snow's assertions cannot be definitively confirmed or rejected since, as Towle notes, neither the "depths for the levels [in the cellarhole] nor the rationale by which each level was determined" is known (1987:333). Snow (1969b:7–10) apparently excavated the cellar's fill in four levels. Snow (1969b) and Towle (1987) believe that some of the artifacts recovered from level 4 (i.e., the floor level) were deposited during the occupation of the house. Except for the Hibernia penny mentioned above, this is possible. Snow (1969b) contends that the materials associated with levels 1–3, which existed above level 4, date to after the abandonment of the homestall. In particular, Snow (1969b) believes that the material associated with levels 2 and 3 date to the early-to-mid 1720s when the house had been abandoned and dismantled. On the other hand, level 1, which contained pearlware, creamware, whiteware, and other post–18th-century artifacts, is believed to have been deposited very recently (Snow 1969b).

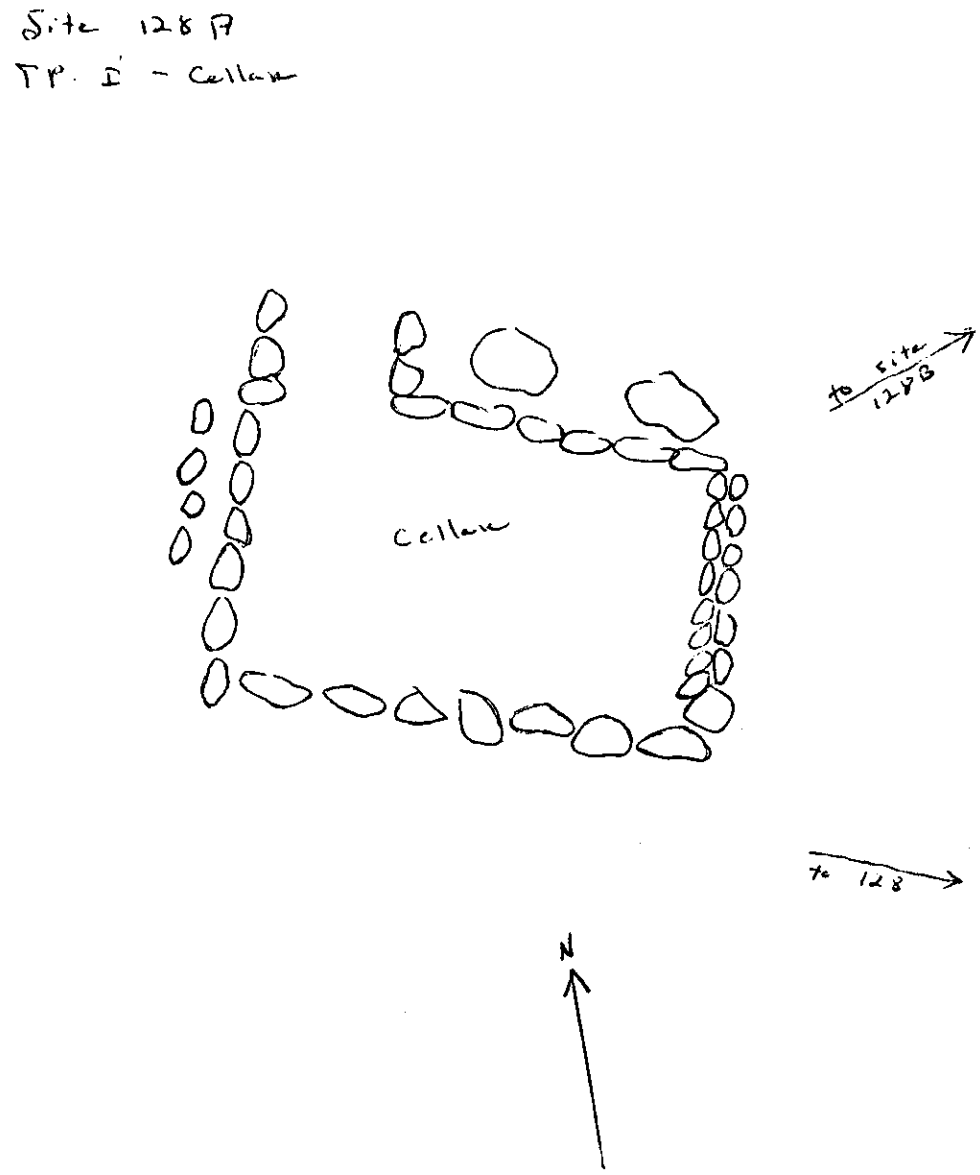


Figure 10-5. Snow's sketch map of the David Fiske cellar (1969b).

In addition to the cellar, Snow (1969b:14–15) purportedly located a well and recovered material from several other site areas—Test Pit 1, 128a Feature 2, 128b Feature 2, and an unknown provenience—whose locations are not certain at this time.

The supposed well was reported to be located 150 ft northeast of the cellar. Snow (1969b:15) noted that the well was open and "clogged with stones and brush" (Snow 1969b:15). Given its distance from the foundation and the fact that it was located beyond the boundaries of Lieutenant Fiske's property makes it highly unlikely that the well was for domestic purposes during the 17th and early 18th centuries (Towle 1987).

According to Towle (1987:320), Test Pit 1 appears to be the shovel test pit mentioned by Snow (1969b:6) in which the cellar was initially located. A sketch map, which was presumably drawn by Snow, was labeled "Site 128A TP. I" (Figure 10-5). Unfortunately, the precise location of this shovel test pit within the cellar is unknown (see Snow 1969b:6). "128b Feature 2" may refer to a circular depression, 1 m in diameter, that currently exists east of the house (cf. Towle 1987:319–321; Figure 10-5). This depression may represent a shovel test pit originally excavated by Snow (1969b).

Except for the fact that 90 artifacts were excavated from 128a Feature 2, there is no other documentation of this unit. Towle (1987:320) suggests that it refers to the circular depression just mentioned. While this is possible, it seems more likely that 128*b* (not *a*) Feature 2 is the circular depression, as discussed above.

Methods

As mentioned above, the purpose of the current archeological investigations was to determine the presence or absence of subsurface features in the homelot—that is, the yard space in the immediate vicinity of the house. In order to accomplish this, archeological expectations were generated, field investigations were conducted, and analysis of the data was carried out according to the project-wide, multistage strategies outlined elsewhere (Chapter 2).

Archeological Expectations

As noted earlier, with the exception of the house and the presence of a barn somewhere on the 16-acre homestall, no documentary information exists about the number, kinds, or locations of other facilities that might have existed, or the kinds of activities that were conducted within the Fiske's homelot. Consequently, archeological data from previously excavated sites within MIMA and elsewhere in New England were used in conjunction with the 17th-century farmstead layout model suggested by St. George (1982) to generate the following archeological expectations. Although it is recognized that the core of the homelot was the house, the expected material remains of the house are not discussed here because the focus of the investigations was on the utilization of the space *surrounding* the house, not the house itself. A discussion of the house itself, however, is provided in the *Results* section that follows since the unexpected discovery of the remains of the house's eastern cellar occurred during the course of the archeological investigations.

According to St. George (1982:15), the spatial organization of the 17th-century farmstead was conditioned by both the subsistence and psychological requirements of its residents. Both were constrained by the "pre-Newtonian" English mentality of the time, as well as by cultural tradition (St. George 1982). St. George (1982:16) argues that the 17th-century New Englander's "cultural baggage" was a "predisposition to order." Furthermore,

> [t]he New England yeoman's emphasis on artifice and order demanded that his world be rigorously outlined by regular fences, well-maintained buildings, and fields ploughed and cross-ploughed in geometric patterns. (St. George 1982:15)

Yet St. George (1982:17) also argues that the ways each farmstead's space was "ordered" was in part determined by each family's cultural heritage, that is, their native English county. He

presents two overall farmstead "types" that may have been used in rural, 17th-century New England (St. George 1982:17). The first consisted of a connected house and barn complex referred to as a "byre-and-dwelling" (St. George 1982:17). According to St. George (1982:17), this plan was derived from the northern and western counties of England and apparently was not prevalent or used for very long in 17th-century New England. In this plan there was very little separation between the domestic and agricultural spheres and consequently the uses of the yard spaces of the homelot. If St. George (1982:17) is correct about the origin of this plan then it should not have existed at the Fiske homestall since the Fiskes appear to have originated in the southeastern part of England (Hudson 1913:208).

The second farmstead plan consisted of a physical separation of the house and its associated domestic activities, presumably conducted within the homelot, and the barn(s) and its agricultural activities. St. George (1982:18; see also Cronon 1983:138) asserts that the separation of house and barn appears to have been the predominant farmstead plan used in 17th-century New England, and, according to Anderson (1971), the plan commonly employed throughout most of the 17th-century countryside of England.

In Anderson's (1971) view, farmsteads were divided into two zones—the "toft" and the "croft." The toft is "the inner zone or homelot, the area closely connected to the house" while the croft is the " 'outer' zone, or the holdings distant from the house" (Anderson 1971:28). The toft was the woman's domain—"[s]he held domestic dominion over the yard with its garden, livestock pens, and dairy barns" (Anderson 1971:29). The croft, which bordered the toft, was primarily the male's responsibility. The croft contained the "barns or 'hovels' (storage buildings), bee hives, dovecote, rabbit hutches and inclosed pasture[s]. The food potential of this area was the responsibility of the husbandman, his sons and hired hands" (Anderson 1971:31).

St. George (1982:17) suggests that although the use of two physically distinct facilities—one for grain and one for livestock—existed in 17th-century New England, a single barn for both grain and livestock appears to be the most "commonly employed." In four instances where the use of a single barn was observed, the barn was located an average of 140 ft southeast or southwest of the house and near the road (St. George 1982:21). If the Fiske's homestall was organized in a similar manner, then the remains of its barn should not be located within the area investigated by this project, but to its south. For this reason, the physical characteristics of 17th- and early 18th-century barns and their expected archeological remains are not discussed here (for a discussion of these see Chapters 8 and 16).

While St. George (1982) does not specify what some of the specific facilities or activities associated with the homelot were, he does suggest that "a series of smaller service structures" that housed livestock or stored grain (St. George 1982:30–31) and a kitchen garden existed somewhere between the house and barn. Their location, according to St. George (1982:31), signifies a pattern of farmstead yard-space utilization characteristic of the 17th century—that is, the intensification of usage of existing yard space rather than an expansion of it outward. As St. George argues:

> With new functions constantly imploding, this pattern marks the prevailing "enclosure" aesthetic of the New England yeomanry as one of pronounced formal constriction and concern for inviolate boundaries manifest in everything from town planning and land use to house plans and furniture design. (1982:31)

If St. George (1982:31) is correct about the location of the house and barn and the increasing intensification of land use between them, then one might expect to find some evidence of this reflected in the archeological remains. Evidence of this intensification may include the remains of "service structures" (i.e., outbuildings) and/or the remains of certain domestic or agricultural activities in the south yard of the Fiske homelot. For example, outbuildings probably consisted simply of wooden superstructures atop either four large fieldstone or wooden corner

supports. Archeological evidence of the supports may consist of the presence of stones or postholes or postmolds from the wooden supports. Although nails from the superstructure may also exist, their numbers are not expected to be large or exhibit concentrations of high density. The outbuildings were probably ephemeral and not maintained or repaired, and their materials were most likely removed for reuse off-site. Also, any nails that did remain in place were probably dispersed when the homelot was plowed subsequent to its use as a residence (see below). The presence of high concentrations of phospates—an indicator of where organic wastes were once deposited—in conjunction with the nails, however, may indicate the general vicinity in which an outbuilding was located and/or provide evidence of the usage of this area for some yet unknown agricultural or domestic tasks.

Vegetable, herb, and to a certain extent even flower gardens appear to have been an integral part of the 17th-century homelot (Cronon 1983; Russell 1976; St. George 1982). For example, St. George (1982) quotes a 17th-century English observer (John Worlidge) who stated that the ideal yeoman's house should have "a garden on every side inclosed with a noble fence..." (Worlidge as quoted in St. George 1982:16). Similarly, Isaac De Rasieres, who visited Plymouth eight years after it had been founded, commented that the gardens were "*enclosed* behind and at the side with clapboards, so that the houses and courtyards are arranged in very good *order*" (De Rasieres as quoted in St. George 1982:16). If the garden was manured and was not in a raised bed, then its remains might appear as a high concentration of phosphates near the house. Associated with the phosphates may be postholes or postmolds—the remains of fencing. In the 17th century, fences are purported to have existed around the gardens and orchards to keep the animals out, and around the animals to keep them enclosed (Cronon 1983:134–139; Russell 1976:35–38). Freely grazing animals, as were common in England, wreaking havoc on the New England crops (Cronon 1983:134–135). Laws were passed in the mid-1600s requiring colonists to build fences around their crops in order to protect them from grazing cattle. This law was eventually extended to all types of livestock, resulting in owners allocating each type of animal to its "separate section of a settlement's lands" (Cronon 1983:137).

Other facilities or utilities that are expected to have existed within the Fiske's homelot are related to water and waste management. In terms of water, two utilities are expected. The first is a well for procuring drinking water to meet both human and livestock needs.

As mentioned above, Snow (1969b:14–15) reports that a well was uncovered approximately 150 ft northeast of the cellar. Snow (1969b:15) reports that the supposed well was relatively open although it was "clogged with stones and brush." It is highly unlikely that this well was for domestic purposes during the Fiske occupation in the 17th- and early 18th-centuries given that it is so far away from the foundation and is actually beyond the Fiske's property boundary (Towle 1987). It is therefore anticipated that another well may have been located nearer the house.

The second expected water-related utility is a stone or wood-lined drain. The purpose of the drain would have been to carry water away from the house in order to prevent the sill of the superstructure from rotting and the cellar from becoming wet or extremely damp. This expectation is based on limited data that have been collected on drains at several historical sites both within MIMA and elsewhere (Armitage, Coxshall, and Ivens 1971; Charles and Towle 1986; Feister 1987; Hanson 1968; Harvey 1979; Towle 1986a; Wilson and Southwood n.d.). Although a late 17th-century/early 18th-century drain in Enfield, England, consisted of cow-horn cores laid into the clay subsoil, this appears to be a rare construction technique (Armitage, Coxshall, and Ivens 1971). A more common drain appears to have consisted of stone or wood. This type of drain was used in the 18th and 19th centuries in the United States and Canada (Feister 1987; Hanson 1968; Harvey 1979; Wilson and Southwood n.d.).

With regard to MIMA specifically, a drain was located within the 18th-century Thomas Nelson, Sr., homelot. This drain, or culvert, consisted of

> two parallel rows of stones placed about ten to twelve inches apart on the floor of a trench, which formed a channel about eight to ten inches deep. This was covered by more stones and the trench filled with dirt; the fill contained no artifacts. (Snow 1969a:7)

A fieldstone-lined drain was located at the 18th-century Ephraim and Willard Buttrick homelot (Charles and Towle 1986:46). Although Abel, the original excavator, believed that the drain was associated with the 18th-century occupation of the site, Charles and Towle suggest that "due to its depth and location in comparison with the 19th century foundation remains, the drain most likely served to aid drainage of the 19th century foundation..." (Charles and Towle 1986:46). Lastly, two stone-lined drains were uncovered at the David Brown farmstead (Tremer 1973:44; Towle 1986a:210). Both drains were embedded 6–8 in in the cobble floor of a probable 19th-century barn cellar (Chapter 4).

No remains of 17th-century privies have been located within MIMA or at any other 17th-century rural site within New England. It is not known whether they existed, or whether the field strategies employed in previous archeological investigations were simply inadequate for locating their remains. On the other hand, 17th- and early 18th-century privies, albeit rare, have been uncovered at urban sites in Boston, Massachusetts, and may provide some data regarding the physical appearance of privies at rural sites, if they existed. For example, a 17th-century privy was uncovered in association with the Three Cranes Tavern in Charlestown, Massachusetts (DePaoli 1989). The tavern appears to have been the site of John Winthrop's "Great House," which was converted to a tavern in 1635. The tavern continued to be occupied into the third quarter of the 18th century. A total of five privies were uncovered at the tavern site, one of which (Privy #1) appears to date after the second half of the 17th century. The privy was wood-lined, and two sides have survived. Its fill consisted of a dark brown, organic-appearing deposit. One Venetian wine glass and several belly pipe bowls (ca. 1660–1680) were recovered from the bottom of the privy. The privy was located approximately 12 m west of the northwest corner of the tavern's foundation (Neill DePaoli, personal communication, 1990).

Lastly, a scatter of both domestic and building-related materials is expected to be present within the Fiske's homelot since this "sheet" refuse is one of the most pervasive archeological features of sites within MIMA and rural sites elsewhere. According to Deetz, "[a] hallmark of archeological sites of the seventeenth century is the broadcast sheet of refuse that surrounds them" (1977:125). Deetz hypothesizes that this refuse was often disposed of at "an alarmingly short distance from the door" until approximately 1750 when trash disposal shifted to trash pits (1977:125). Deetz's hypothesized shift is proposed to be the result of a shift from a pre-Georgian, organic mentality to a rational, formalized Georgian world view (1977:125). Recent archeological research (e.g., Mrozowski 1981), however, has revealed that disposal of unwanted materials occurred in both trash pits and "sheet" refuse concurrently in the 18th and 19th centuries. The appearance of trash pits appears to be an economical and efficient response to the need to dispose of more refuse in a smaller area (Starbuck 1980). In any event, discrete trash pits are not expected to be present at the Fiske site.

It is interesting to note that Deetz's (1977:125) model of changing refuse disposal patterns contrasts somewhat with the model proposed by St. George (1982:15). As discussed above, St. George's (1982:15) farmstead model suggests that the utilization of 17th-century farmstead space reflected the "predisposition for order" that prevailed at the time. If St. George (1982:15) is correct, then one might not expect refuse to have been randomly disposed of throughout the homelot as Deetz (1977) suggests, but to be concentrated in certain areas.

Recent studies in both New England and elsewhere have demonstrated that the practice of

broadcasting refuse has wide behavioral implications. As mentioned in Chapter 1, the interpretive potential derived from the configuration and/or content of "sheet" refuse ranges from issues regarding class and status as it relates to participation (or lack thereof) in regional and international markets (Paynter 1982), to the processes of colonization and ethnic affiliations (King and Miller 1987), to household transitions (Beaudry 1986), changing loci of intra-site activities (Pogue 1988), and matters regarding social display, health and hygiene, and spatial constraint (Starbuck 1980).

Field Methods

Archeological field investigations were conducted in the summer of 1986 and consisted of a systematic walkover, an intensive site survey, and limited site examination based upon the archeological expectations discussed above. The field investigations were conducted within a 35 m × 40 m area surrounding the cellar uncovered by Snow (1969b) in order that approximately 15 m of the north, south, east, and west yards could be examined (Figure 10-6). Prior to the actual field work a background study was conducted. This study involved reviewing previous historical and archeological reports that had been written about the David Fiske site (Snow 1968; Snow 1969b; Malcolm 1985; and Towle 1987), studying aerial photographs taken between the 1930s and 1980s, and studying maps that were drafted by the Department of Public Works for the construction of Route 128 and the relocation of Massachusetts Avenue and Wood Street. The results of the documentary review have been discussed in the preceding section. The aerial photographs did not reveal the presence of potential features, but they did indicate that the site has remained a field since at least 1938. The Department of Public Works maps indicate that only the eastern- and westernmost edges of the site may have been disturbed by the construction and relocation of roads.

The systematic walkover of the area investigated, conducted prior to the subsurface testing, was undertaken in order to identify areas of vegetational or topographic anomalies. The only topographic anomaly that was identified was a small depression to the east of the cellar that may have been the remains of one of Snow's (1969b) test pits as discussed above. The site datum was established during this phase of the investigations and vegetation was cleared away from the cellar that Snow (1969b) uncovered.

INTENSIVE SURVEY

The intensive survey consisted of the excavation of 1,467 soil cores and 56 STPs using a stratified, systematic, aligned probability sampling design. The cores were excavated at 1-m intervals, and the STPs were excavated at 5-m intervals using the project-wide techniques described elsewhere (Chapter 2). As at the Daniel Brown (Chapter 12) and Jonas Bateman (Chapter 6) sites, the cores were used to identify areas of deep stratigraphy, and therefore the possible location of features or areas of landscape fill. The STPs were excavated to locate features and to provide data for an analysis of the spatial distribution of artifacts.

Roots or rocks obstructed many of the soil cores. Only 777 cores were able to go beyond the humus or plowzone, and only 708 of these reached the glacial subsoil. Despite this, the location of several significantly deep deposits led to the identification of a wood-lined drain (Feature 1), a plowscar (Feature 2), and a well (Feature 3) during the site examination phase of the field investigations (see below). In addition, a post-occupational organic deposit (present in the western area of the site) and a deep deposit of road construction debris (in the western portion of the site) were initially identified as a result of the excavation of the cores. Seventy-six additional cores were excavated to determine the extent of the organic deposit and the limits of the cellar (Feature 4), which was located during the excavation of the STPs.

LIMITED SITE EXAMINATION

Limited site examination, using the project-wide methods described elsewhere (Chapter 2), was conducted to explore in more detail areas

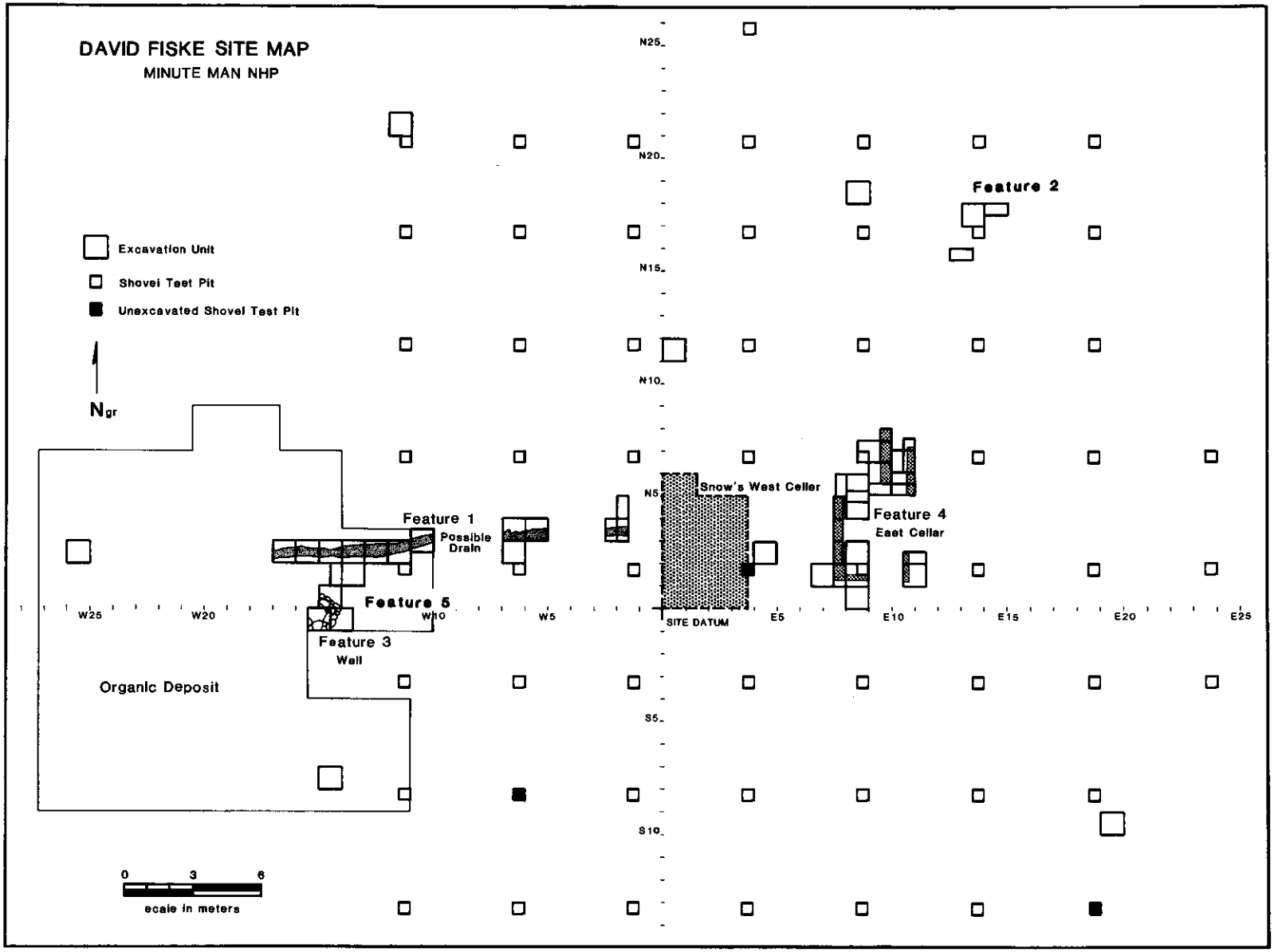


Figure 10-6. David Fiske site map showing the boundaries of the MIMA Archeological Project excavations, including all uncovered features and the cellar uncovered by Snow (1969b).

where the cores indicated a deep stratigraphy and to further investigate features located as a result of the excavation of the STPs. As a result of this phase of the investigations a wood-lined drain (Feature 1), a plowscar (Feature 2), and a well (Feature 3) were identified. During the investigation of the well and the drain, a possible "connector" drain (Feature 5) was located. A total of 52 units, ranging in size from 50 cm × 50 cm to 1 m × 1 m were excavated to investigate the features. All units within the cellar were backfilled with sterile sand obtained from a local sand and gravel company. The sand was placed to clearly distinguish excavated from unexcavated areas, and to preserve the integrity of the remaining portions of the cellar (Thorne, Fay, and Hester 1987:26).

Results

Archeological investigations of the Lieutenant David Fiske site yielded significant data regarding the presence and absence of facilities and utilities and the utilization of the homelot's yard space. Additional data regarding the size and configuration of the house were also recovered unexpectedly.

Archeological excavations uncovered a well (Feature 3) and a drain (Feature 1) west of the house and a possible connector drain (Feature 5) between the well and the drain (Figure 10-6). With the exception of these utilities, no other expected homelot facilities, including a barn or outbuildings, were uncovered. The presence and spatial distribution of certain material remains, however, revealed that both the north and south yards were used intensively, perhaps as the loci of domestic and/or agricultural activities. In contrast, the east yard yielded domestic debris exclusively. These data may provide some support for St. George's (1982) assertions regarding the partitioning of activities and the intensity with which the space in the vicinity of the house was used. No evidence exists to suggest that large amounts of earth were moved about during the 17th or early 18th centuries.

During the course of this project's subsurface investigations of the homelot, the remains of a dry-laid cellar (Feature 4) were uncovered approximately 3.75 m east of the cellarhole uncovered by Snow (1969b). Both cellars appear to be part of one house whose plan by the early part of the 18th century may have been a typical two-room, central chimney one as opposed to a cross-passage or longhouse type (Beaudry and George 1987; Brunskill 1982; Cummings 1979; Deetz 1977, 1979; St. George 1982; Travers 1987). The house's plan, however, must remain speculative until more complete excavations of the area surrounding the cellarholes are conducted. While the form of the house in the early 18th century just before its abandonment is currently conjectural, so too are its initial form, its date of construction, and any changes that may have occurred to the house throughout the 17th century. For example, it is possible that the original house was either a temporary earthfast structure built around hole-set posts or a single room dwelling atop one of the two fieldstone cellars just discussed. If the latter is true, then one of the two cellars may have been a later addition. While the documentary record suggests that the house, or a portion thereof, was constructed ca. 1655, no data were recovered to support or reject this. No evidence exists to indicate that the superstructure of the house burned as Snow (1969b) suggested was possible.

Site Stratigraphy

Archeological investigations of the yard areas immediately surrounding the house revealed that, except for the features uncovered and the deposits described below, there was very little stratigraphic variation throughout the site. The investigations further revealed that, although there appears to be spatial integrity to most areas of the site, there seems to be little stratigraphic integrity to the occupational-period horizon since the site appears to have been plowed and used for the disposal of off-site debris in the 18th and 19th centuries. Five overall stratigraphic horizons were distinguished in the yard areas: 1) humus, 2) plowzone, 3) a highly organic-appearing silty fine sand, 4) road debris associated with the construc-

tion of Route 128 and the new Massachusetts Avenue, and 5) a mottled deposit.

The most extensive site-wide deposit, which existed throughout the homelot's yard areas, was the plowzone. The plowzone consisted of a predominantly brown silty fine sand that ranged in depth from 5 to 77 cm below the present ground surface in the cores and STPs. The average thickness of this cultural deposit was 29.3 cm. Immediately above the plowzone was a humic layer defined by a relatively thin but dense root mat. The formation of the humic layer is believed to be the result of what Eidt (1985) has termed the humification process—the gradual decomposition of organic materials. The formation of the humic layer appears to be a relatively recent occurrence based on the presence of small amounts of 20th-century debris associated with it. The presence of a mottled horizon, which represented a mixing of the plowzone and the glacial subsoil, was present in 194 of the cores and in 14 of the STPs. Where present, this horizon began between 11 and 60 cm below the ground surface. The average thickness of this horizon was 9.6 cm.

Evidence of plowing consisted of the following. First, possible plowscars (Feature 2) were identified northeast of the house (Figure 10-6). Second, post-occupational debris, particularly ceramics (e.g., creamware, pearlware, whiteware, and yelloware), was mixed with occupation-period debris throughout all of the arbitrary levels that were excavated, including the mottled deposit that is present at the interface of glacial subsoil. Feature 2 was initially identified in EU N18E13, which had been excavated to investigate an anomalous deep deposit. Two additional units were excavated before it became clear that Feature 2 was probably the remains of a plowscar.

In profile, the scar appeared as a series of serrations of brown silty fine sand that extended into the glacial subsoil (Figures 10-7 and 10-8). In EUs N18E13 and N18E14 these bands were indistinct but concave in shape. In EU N16E12.5, however, a distinct plowscar could be easily discerned (Figure 10-8).

In plan view the scar appeared as linear bands oriented in a north-south direction (Figure 10-9). These bands, which ranged in width from 16 to 42 cm, probably represent the furrows created by the plow's blades. Although only three units were excavated, the spacing between the bands uncovered may indicate that they were created by a single blade, or at most a double blade, plow. According to Rogin (1931:9), single blade plows were in use at least through 1837.

It appears that shallow plowing was the norm throughout most of the 18th and 19th centuries (Rogin 1931:13). Accounts from this time period indicate that farmers practiced shallow plowing because it was considered poor plowing procedure to bring up the glacial deposit and because deep plowing required a lot of labor and time (Rogin 1931). According to Rogin (1931), until the 20th century most farmers only plowed to a depth of 4–5 in (10–12.5 cm).

The second most spatially-extensive stratigraphic layer was a dark organic-appearing deposit that was present west of the house (Figures 10-6 and 10-10). This deposit, which was a black silty fine sand, began between 19 and 115 cm below the ground surface. The average depth of the deposit was 57.8 cm below the ground surface, with an average thickness of 5.2 cm.

Two hypotheses were initially posited to account for the formation of this deposit, neither of which currently appear to be plausible. The first hypothesis was that the organic deposit is the remains of decomposed charcoal from the burning off of the site's vegetation when it was initially cleared to establish the homelot. The second hypothesis was that the deposit is the remains of decomposed organic waste from livestock. Stratigraphic, artifactual, soil compound, and paleobotanical (Chapter 11) data were assembled and analyzed to determine the processes responsible for the formation of the deposit and when this may have occurred.

Analyses of the data indicate that while it is plausible that the organic-appearing deposit is the remains of charred vegetation, it is unlikely that it is the result of clearance activities prior to the use of the site as a residence. The low

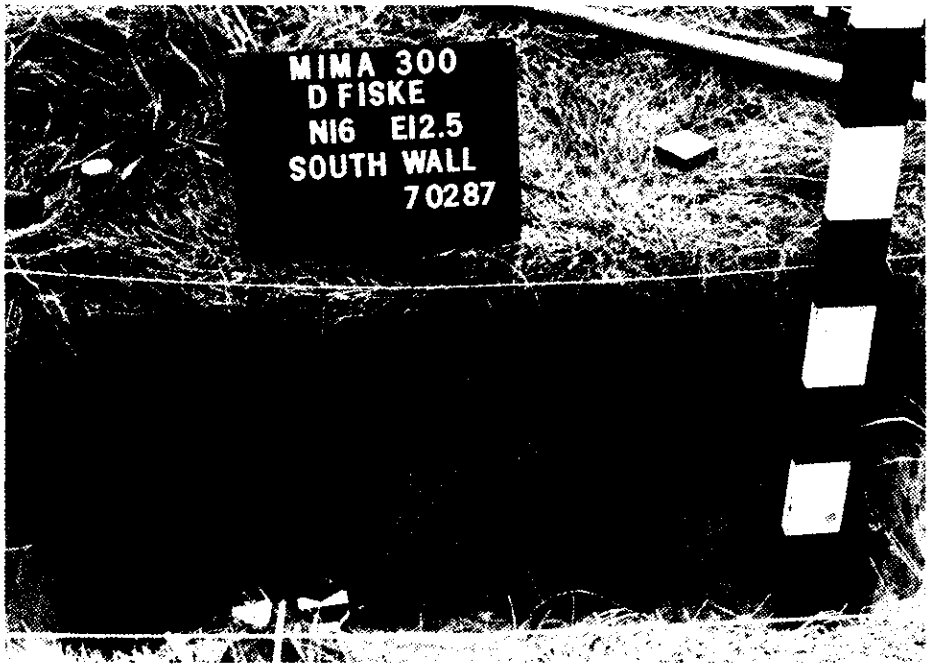


Figure 10-7. Profile view of plowscars (Feature 2) in the south wall of EU N16E12.5 at the David Fiske site.

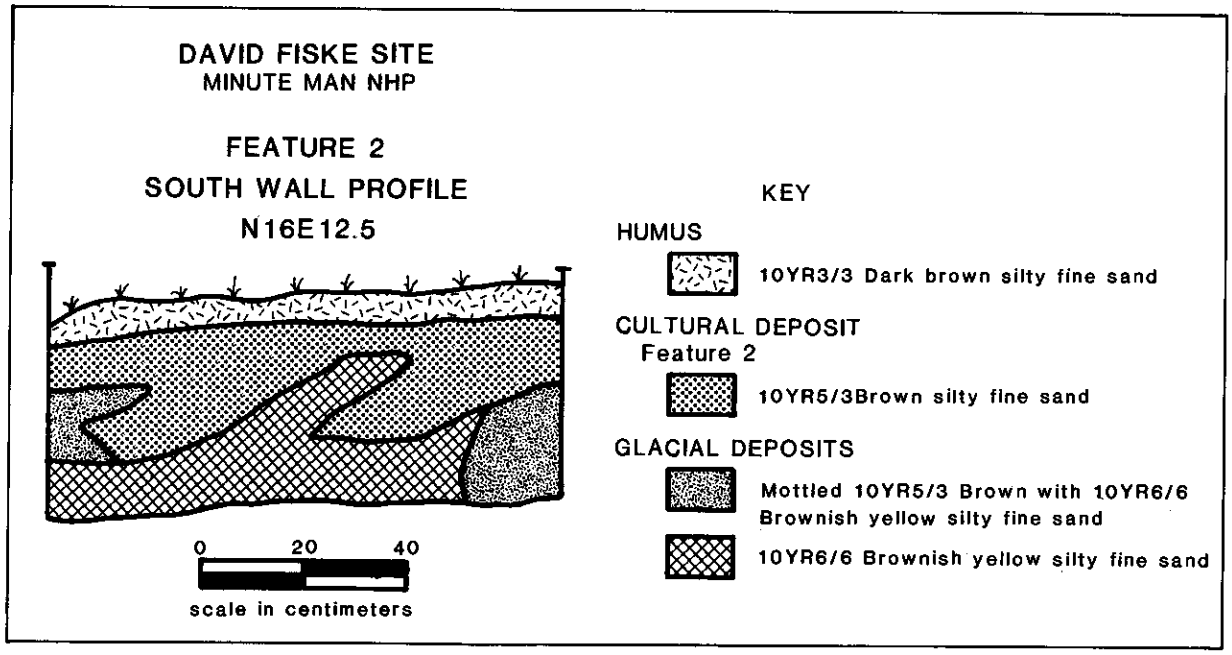


Figure 10-8. South wall profile of EU N16E12.5 showing Feature 2 (the possible plowscar) at the David Fiske site.

Figure 10-9. Plan view of plowscars (Feature 2) before excavation in EU N16E12.5 at the David Fiske site.

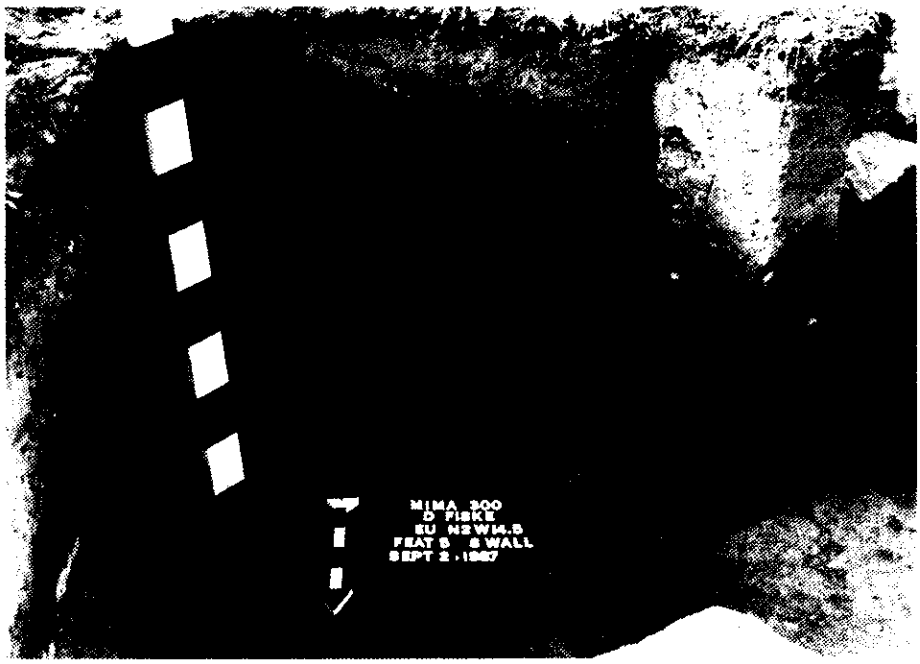


Figure 10-10. Organic-appearing deposit west of the Fiske house cellar. Photograph faces south.

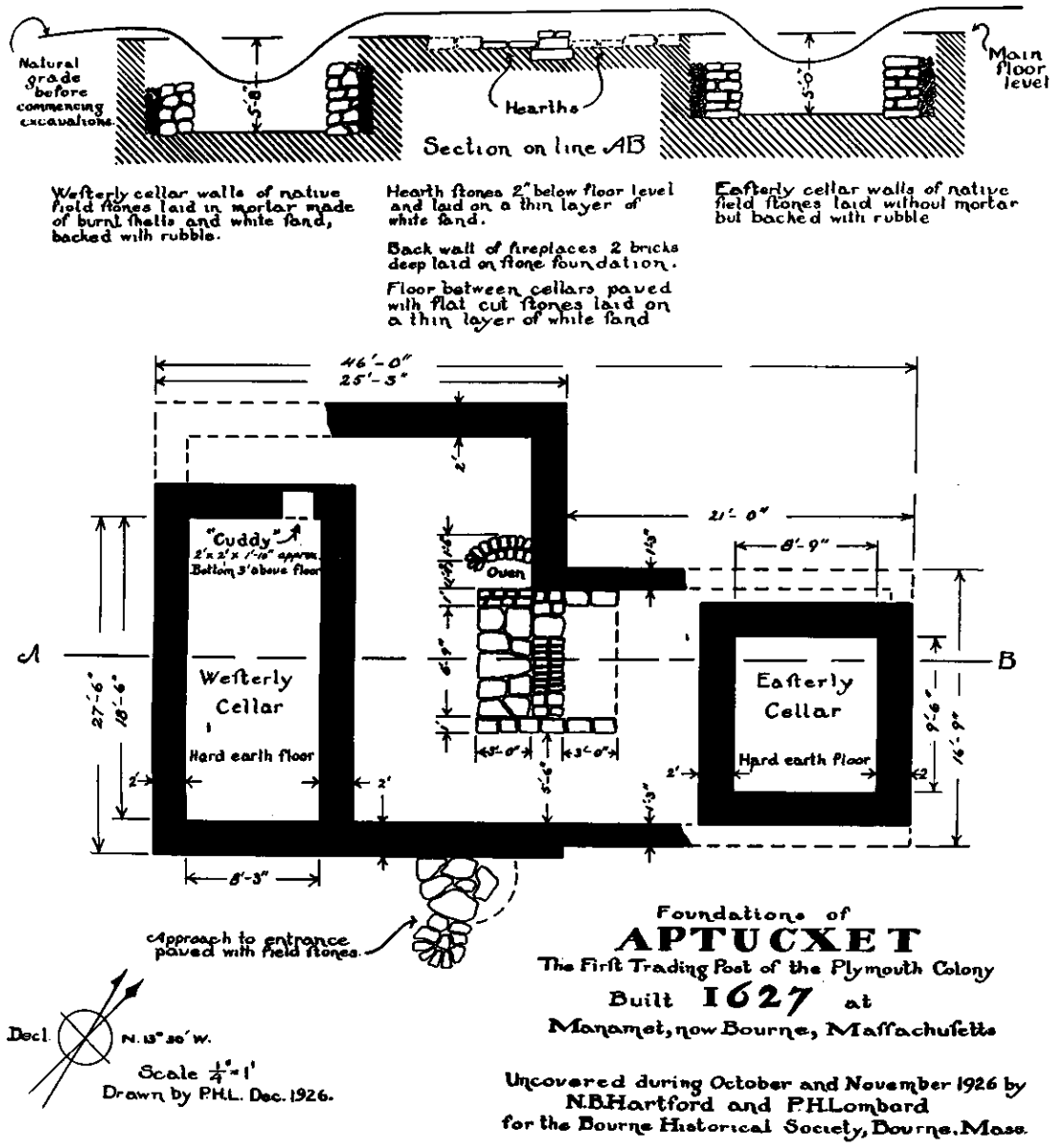


Fig. 6.---Plan of the Foundations

Figure 10-11. Plan drawing of the dwelling uncovered by Lombard (1933) at the alleged site of the Aptucxet Trading Post (reproduced courtesy of the Bourne Historical Society).

two cellars were filled relatively rapidly, and probably contemporaneously, sometime after ca. 1723. No evidence exists to indicate that the superstructure of the house burned as Snow (1969b) suggested. For reasons of convenience, the cellar uncovered by Snow (1969b) will be referred to as the west cellar, and the one uncovered by this project as the east cellar. The east cellar was initially uncovered in STP N2E8.5. This STP was expanded into a 1 m × 1 m unit. Twenty-three additional EUs and one STP were excavated to identify the size and configuration of the foundation.

The east cellar, like the west cellar, is a small rectangular foundation constructed of dry-laid fieldstones (Figures 10-12 and 10-4). The cellars are similar in size and configuration and are situated approximately 3.75 m apart (Figure 10-6). The outside dimensions of the east cellar appear to be approximately 3.5 m (11.7 ft) east-west × 3.8 m (12.6 ft) north-south, with a bulkhead in the northeast corner. Unfortunately, the precise measurements of the cellar are unknown because the remains of its north wall were not found because of time constraints. As noted earlier, the west cellar measured 4 m (13 ft) east-west × 5.2 m (17 ft) north-south with a bulkhead in the northwest corner. Although the east and west cellars have somewhat similar dimensions, the former is slightly smaller than the latter. The spatial proximity and similarity in size and configuration of the two cellars suggest that they are part of one house. This would corroborate the documentary data derived from the 1711 probate inventory discussed above. Unfortunately, no builders' trenches appear to be associated with either cellar, and therefore no data exist to determine when the house or each of the two cellars was built, the initial configuration of the house, or any changes that were made to the structure throughout the 17th century. The fact that the southern wall of the east cellar is approximately 1.2 m north of the west cellar's southern wall may suggest that the two cellars were not constructed contemporaneously (Figure 10-6).

Figure 10-12. View of east cellar (Feature 4) at the David Fiske site, facing west.

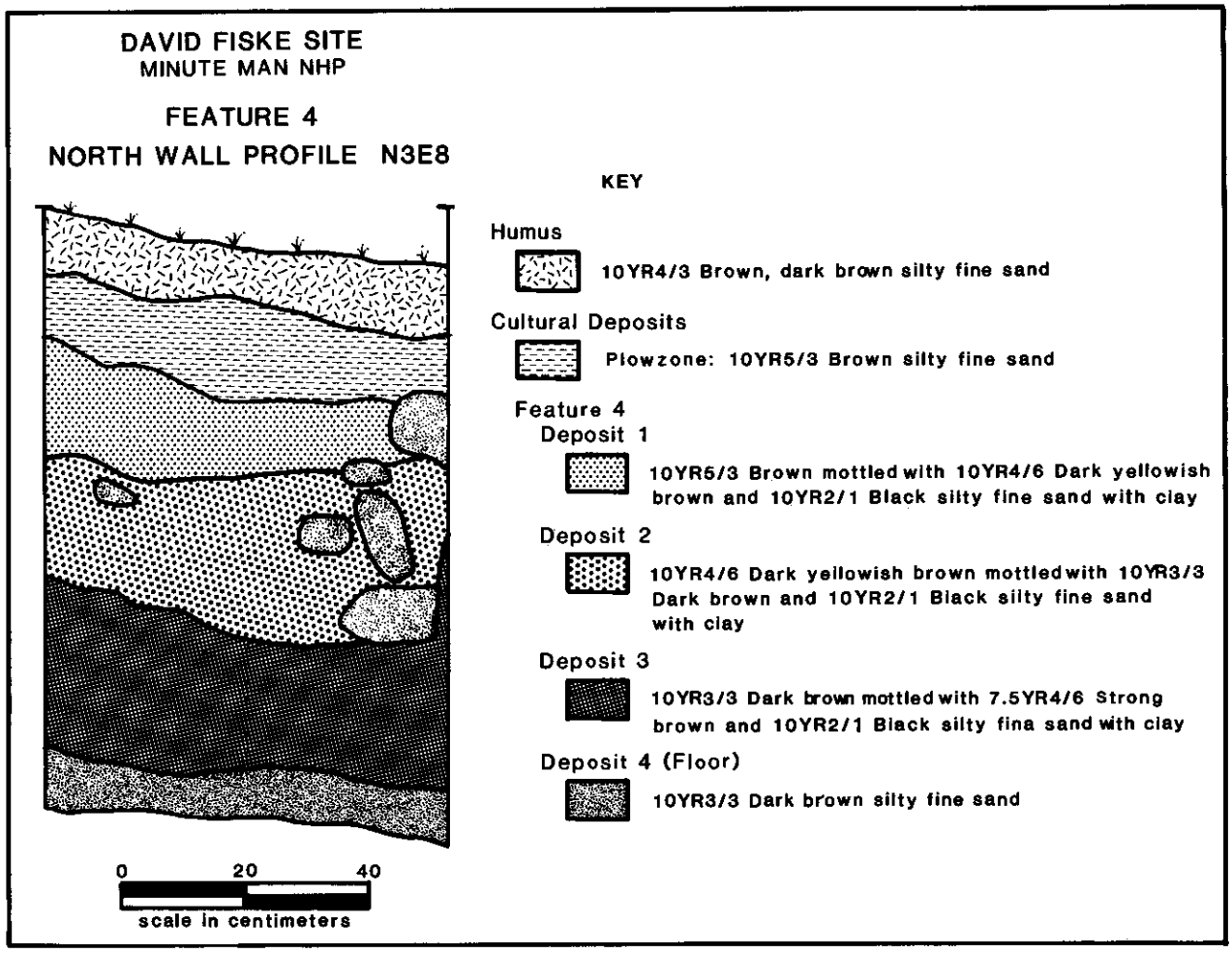


Figure 10-13. North wall profile of EU N3E8 within the east cellar (Feature 4) of the Fiske house.

Based on the above information, the overall dimensions of the house just before its abandonment appear to have been approximately 11.3 m (37 ft) east-west × 5.2 m (17 ft) north-south. The Fiske house, therefore, was similar in size to the 20 two-room, central chimney 17th-century houses Cummings (1979:24) observed. These houses ranged in width between 16 and 20 ft, and their lengths were between 30 and 50 ft. If the Fiske house did consist of a two-room plan with a central chimney, then the chimney would have been located between the two cellars, as was the case with the dwelling located at the alleged site of the Aptucxet Trading Post (Lombard 1933; Figure 10-11).

There were four physically distinct deposits within the interior of the east cellar (Figure 10-13). While physically distinct, they are believed to have been deposited relatively contemporaneously based on the presence as well as the absence of similar kinds of artifacts (Figure 10-14). Although no evidence was uncovered in the east cellar to indicate when it was filled, the presence of a 1723 coin at the base of the west cellar fill indicates that at least the west cellar (and therefore possibly the east cellar) was filled

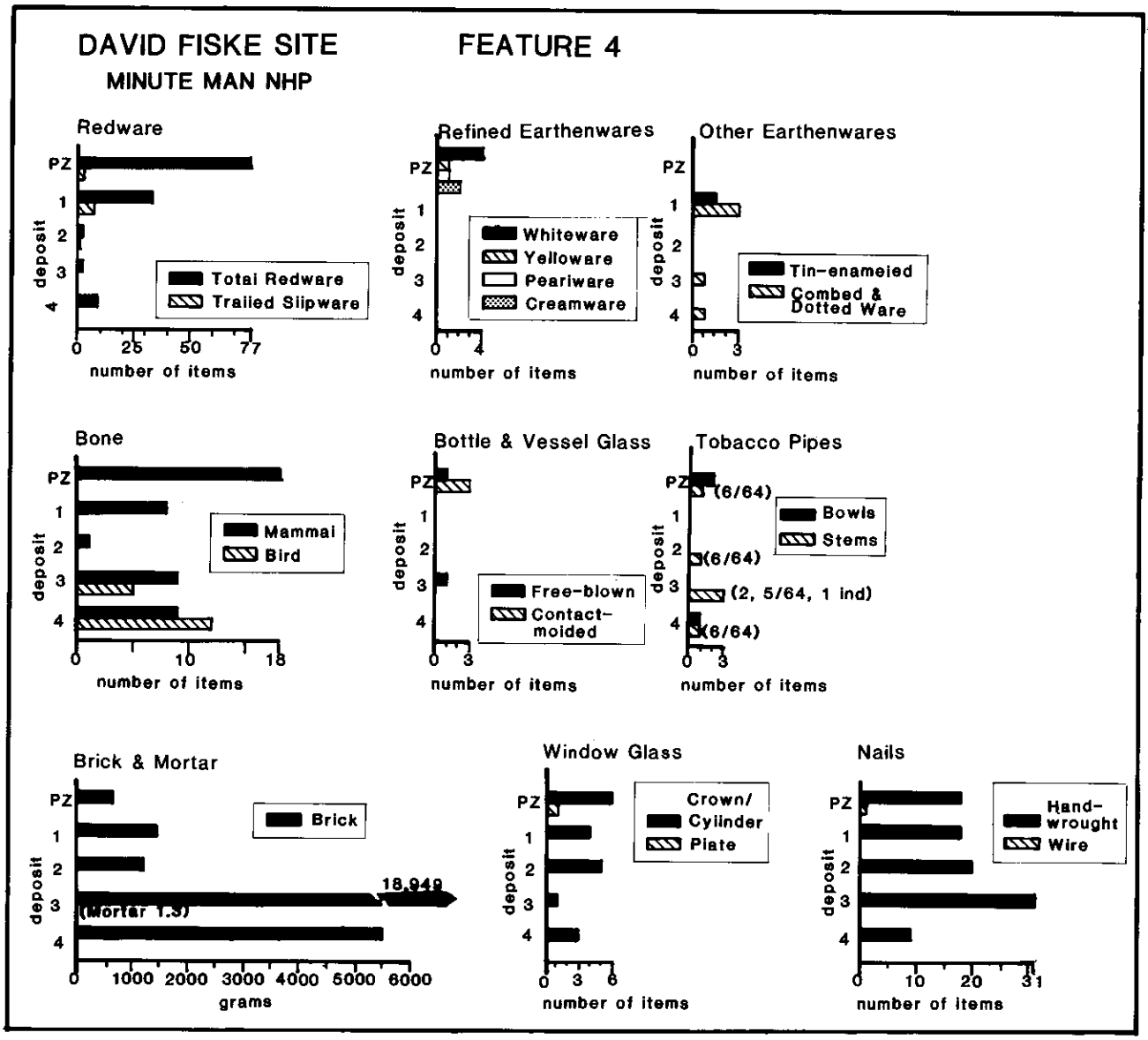


Figure 10-14. Frequencies of selected artifacts in the east cellar (Feature 4) at the David Fiske site.

after that date. Further analyses (e.g., artifact crossmends and pollen), however, are needed to confirm this.

Deposit 1 existed below the plowzone and consisted of a mixture of building-related and domestic debris within a mottled brown silty fine sand with some clay (Figures 10-13 and 10-14). The deposit was approximately 21 cm thick. In contrast to the plowzone, the absence of post-1770 materials in this deposit, like the deposit below it, suggest that the debris was laid down when the house's superstructure and chimney were dismantled or demolished.

The interface of the plowzone and Deposit 1 existed at the uppermost course of the cellar's walls. The plowzone here was similar in soil color and texture, as well as in artifact content, to that which exists throughout the rest of the

homelot (Figures 10-13 and 10-14). The presence of materials that date to after the third quarter of the 18th and the 19th centuries indicates that the Fiske site was used for the periodic disposal of building-related and domestic trash throughout the late 18th, 19th, and, to a limited extent, into the 20th centuries.

Deposit 2, like Deposit 1, consisted of building-related and domestic trash, except that there was less redware and bone and an absence of tin-enameled and combed and dotted ware vessel fragments (Figure 10-14). The debris recovered from Deposit 2 was embedded within a mottled, strong brown silty fine sand (Figure 10-13). Like Deposit 1, less brick was recovered from this deposit than from Deposits 3 and 4. Deposit 2 was approximately 20 cm thick. As with Deposit 3, fieldstones were present throughout the deposit, indicating perhaps that the original walls of the cellar were once higher than they are now.

Deposit 3 was approximately 32 cm thick and consisted of a relatively high amount of building-related debris, especially brick, within a mottled dark brown silty fine sand and clay (Figures 10-13 and 10-14). Fieldstones ranging in size from 8 cm × 8 cm to 20 cm × 34 cm were present throughout the deposit. This deposit appears to have been formed primarily as a result of the demolition of the chimney since it comprised larger amounts and higher densities of brick and clay than the deposits above or below it; over 50% of the brick recovered from the EUs excavated within the east cellar came from this deposit. The highest density of charcoal also occurred in this deposit. While Snow (1969b) suggests that the presence of charcoal in the west cellar indicated that the superstructure of the house burned, this seems unlikely. It is more plausible that the charcoal recovered from this deposit and the cellarhole excavated by Snow (1969b) was simply the remains of expended wood that was once burned in the fireplaces. Furthermore, if the wooden superstructure had burned, one might expect to find the remains of larger charred timbers and evidence of other burned and perhaps melted remains. No such evidence was found within the cellar or anywhere else on the site.

Deposit 4 consisted of the remains of the cellar's dirt floor and its associated materials. Deposit 4 was approximately 7.5 cm thick and consisted of a dark brown silty fine sand (Figure 10-13). Like the deposits above it, it contained both building-related and domestic debris (Figure 10-14). It is difficult, however, to determine which domestic materials were deposited during the use of the cellar versus those deposited subsequent to its abandonment. Their small amounts and the presence of a William III copper half penny (dating to the period from 1695 to 1699 [Mitchell and Reeds 1986; Jim Skalbe, personal communication, 1989]) in the bottom of level 14 of EU N3E8 may indicate that they were deposited while the house was occupied. Unfortunately, level 14 straddles Deposit 3 and the dirt floor, so it is difficult to determine from which deposit the coin came. Interestingly, a higher density of utilitarian redware vessel fragments was recovered in the lowest levels of the west cellar (8 sherds per sq m) than in Deposit 4 of the east cellar (1 sherd per sq m). Assuming that the majority of this redware was used in various dairy-related activities (Beaudry and George 1987:24), and that the vessels were discarded during or subsequent to their use on the cellar floor, then the west cellar may have been used as a dairy or buttery. Cummings (1979:30) has uncovered documentary data indicating that some 17th- and 18th-century cellars were used to conduct activities associated with butteries and dairies or milk houses. Indeed, Cummings (1979:30) argues that perhaps the widespread adoption of the cellar in eastern Massachusetts could be due to a need for "a suitable area for both provisions requiring cooler temperatures and items appropriate to the buttery." The fact that the inventory of David Fiske's estate fails to mention the existence of a buttery or dairy/milk house may provide some indirect evidence that one of the cellars was used as a buttery and/or a dairy or milk house (see Cummings 1979:30 and Table 10-1). This in-

ference should be viewed as a working hypothesis, however, given the limited nature of the excavations inside the east cellar, questions regarding the formation processes associated with both floor deposits, and possible issues regarding comparability of data between the two cellars.

Yard Areas

Archeological excavations of the yard areas surrounding the Fiske's house uncovered a well (Feature 3) and a drain (Feature 1) in the yard west of the house. While the former was most likely used to procure water, perhaps for domestic purposes, the latter appears to have been used to divert water downslope and away from the house. A possible connector drain (Feature 5) between the well and the above-mentioned drain also exists. With the exception of these water management utilities, no expected features—including a barn or possible outbuildings—were uncovered in the yard areas. The presence and spatial distribution of certain artifactual remains (e.g., utilitarian redwares and soil compounds), however, revealed that both the north and south yards appear to have been used intensively, perhaps as the loci of either domestic and/or agricultural activities. In contrast, the area east of the house appears to have been the locus of exclusively domestic activities based on the presence of significant densities of domestic debris.

DRAIN

Feature 1 is the remains of a drain that may have carried water downslope, away from the house and to its west (Figure 10-6). This drain may have transported water from the well (Feature 3), when the water table became extremely high, via a possible north-south oriented drain (Feature 5). The function of Feature 5 as a drain, however, is by no means conclusive as is discussed below.

In plan view, the drain began at the western wall of the west cellar and extended approximately 15.5 m downslope to the west (Figure 10-6). Unfortunately, the western limits of the drain were not located because of time constraints. The average width of the drain was 42 cm.

In profile, the drain was concave in shape and consisted of two deposits (Figures 10-15 and 10-16). Deposit 1 consisted of a mottled yellowish brown silty fine sand fill that contained both building and domestic materials (Figures 10-15 and 10-16). These included 5 fragments of redware, 1 of whiteware, 1 of nottingham stoneware, 1 pipe bowl, 16 hand-wrought nails, 9 indeterminate nails, 7 mammal bones, 133.5 g of brick, and 12.2 g of charcoal. Deposit 2 was present below Deposit 1 and consisted of a dark yellowish brown silty fine sand at the very bottom of the feature that ranged in thickness from 3 to 8 cm (Figures 10-15 and 10-16). Despite the thinness of the deposit, the number and density of nails was quite high. A total of 49 nails—32 hand-wrought, some of which were encased in wood, and 17 nails whose date of manufacture could not be determined—were recovered, resulting in a density of 4.4–19.7 nails per quarter cubic meter. Several brick and charcoal fragments were also recovered in Deposit 2. Deposit 2 had a relatively low phosphate content, thus indicating that the drain functioned to remove water, as opposed to some type of organic waste.

Based on the presence of hand-wrought nails encased in wood at the bottom of Feature 1 (i.e., Deposit 2), the drain appears to have been wood-lined. It is uncertain whether the sides were also wood-lined or if a wooden or stone cover existed over the drain, which appears to be the case with the stone-lined drain associated with the barn cellar floor located at the David Brown farmstead (Chapter 4). It is not known precisely when the drain at the Fiske site was constructed since no temporally diagnostic materials other than the nails were recovered from the bottom of the feature. It is therefore unknown whether the drain was constructed when the house was originally built, or if it was added at some later date. The presence of a whiteware vessel fragment in Deposit 1—if not intrusive to the fill of the drain—may indicate that the drain remained unfilled until at least the first quarter of the 19th century. The drain was initially identified in EU

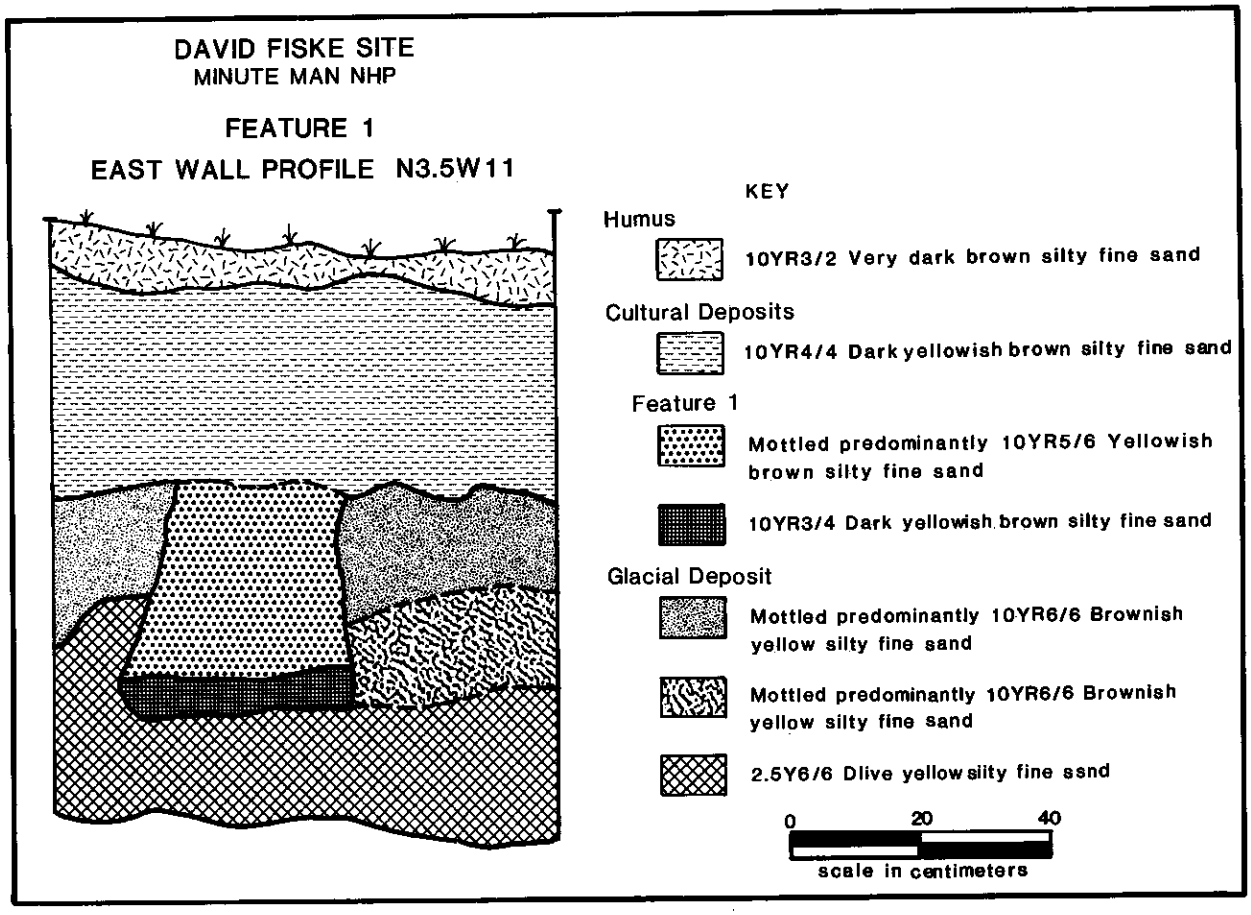


Figure 10-15. East wall profile of EU N3.5W11 at the David Fiske site showing the drain (Feature 1).

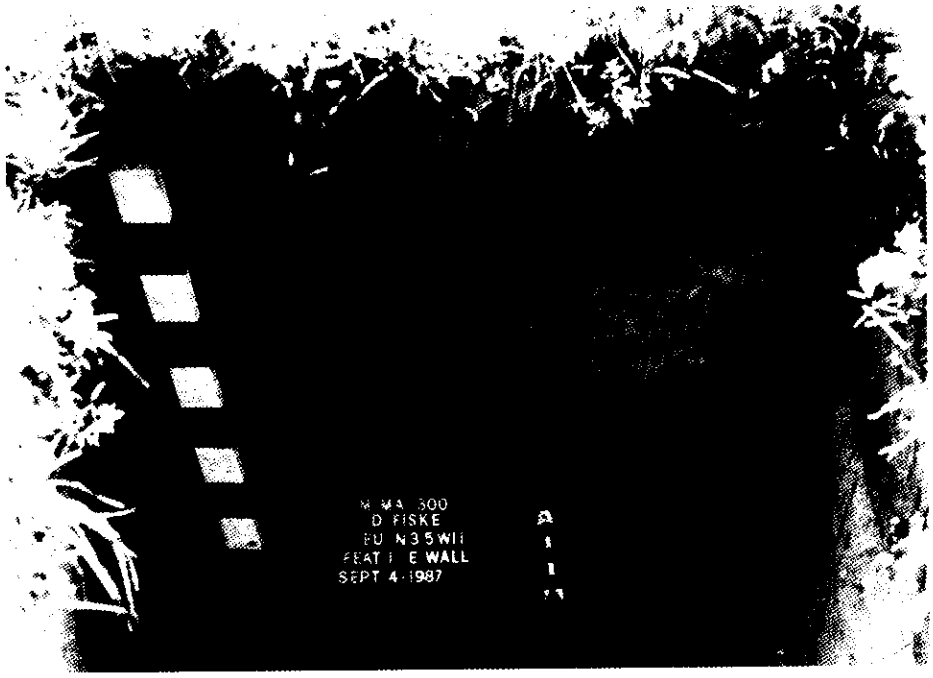


Figure 10-16. Project photograph of the drain (Feature 1) that may have carried water downslope and away from the house at the David Fiske site.

N3W15, which was excavated to investigate the organic-appearing deposit discussed above. Eleven additional units were excavated to follow the course of the feature (Figure 10-6).

The western portion of Feature 1 *appears* to cut through a black, highly organic-appearing deposit, a mottled deposit, and the glacial subsoil. The stratigraphy in the units where the drain was present consisted of a number of discontinuous deposits and was therefore very complex. This complexity is probably the result of sheetwash (see Chapter 11). As discussed earlier, the temporal relationship between the drain and the organic-appearing deposit is not completely understood at this time. The fact that the deposit does not exist above the drain suggests that it was formed prior to the construction of the drain. On the other hand, Kelso suggests (Chapter 11) that the organic-appearing deposit was formed during the site's occupation, but *after* the drain and the well (see below) were constructed. If this is the case, then the deposit may have formed up against the drain and the well. The presence of two creamware vessel fragments in the deposit, in addition to the stratigraphy associated with Feature 5 suggests, however, that it *may* have formed subsequent to the abandonment of the drain. If the creamware is not intrusive to the organic-appearing deposit, then the deposit may have formed sometime after the third quarter of the 18th century against the sides of the drain after the site had been abandoned as a residence.

WELL

A dry-laid, fieldstone-lined well (Feature 3) was located approximately 1.5 m south of the 16-m long drain (Feature 1) that originated at the house (Figures 10-6 and 10-17). The location of this well is different from the ones found at the Daniel Brown site and at other sites within MIMA (see Chapter 12). As mentioned above, possible overflow from this well may have been diverted to the drain (Feature 1) via a short, north-south oriented "connector" drain (Feature 5). Feature 3 was first uncovered in EU N1W15. Because the interpretation of its function was inconclusive, two additional units were excavated.

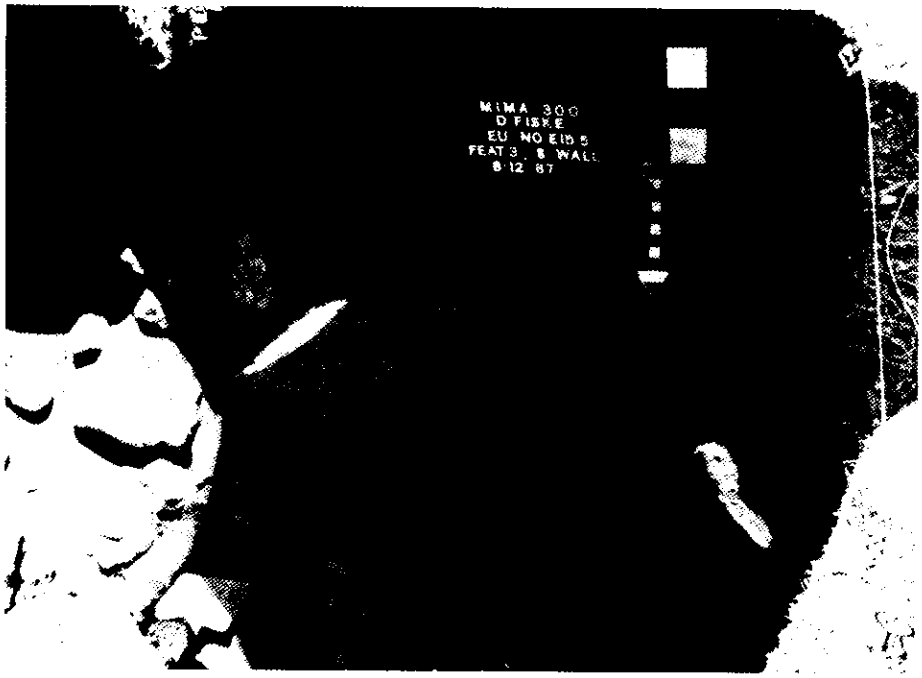


Figure 10-17. Project photograph of the well (Feature 3) at the David Fiske site, facing south.

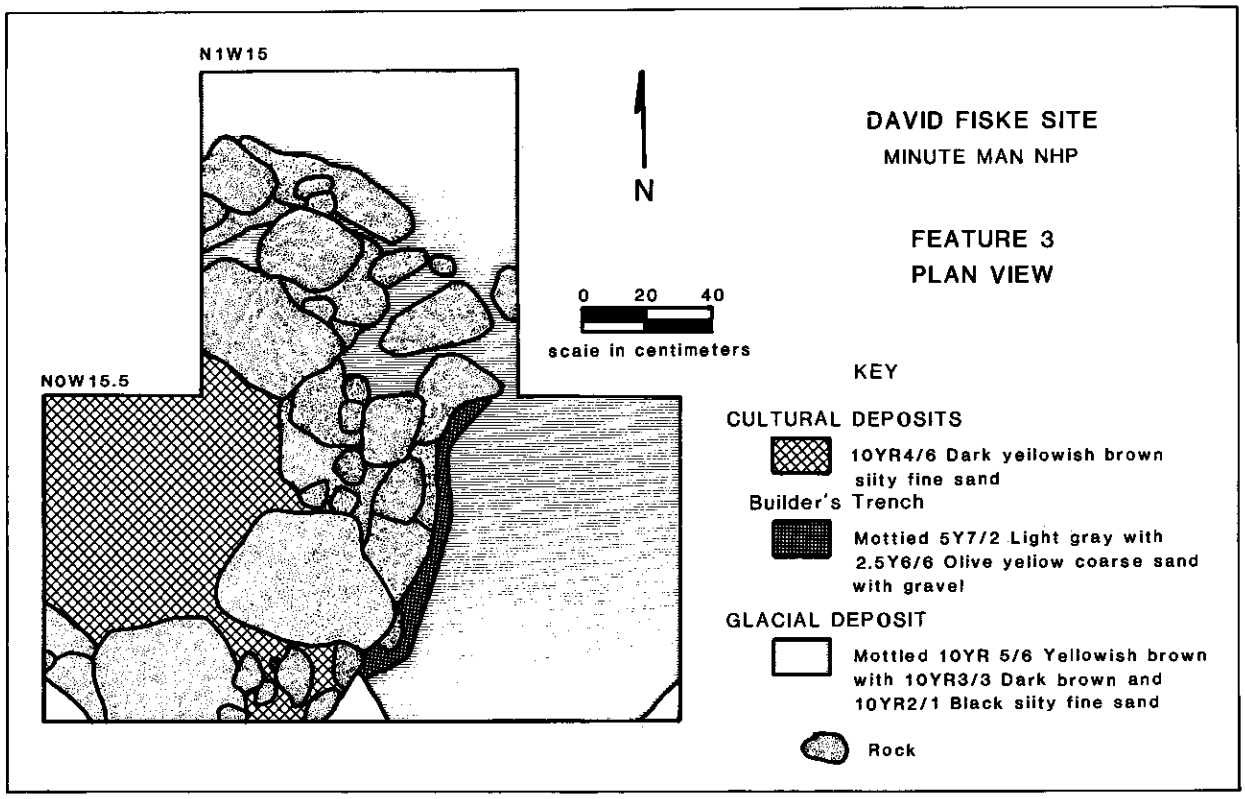


Figure 10-18. Composite plan view of the well (Feature 3) at the David Fiske site.

Once partially exposed, the well interior was not completely excavated because of a lack of time. As a result, neither the date when the well was constructed nor when it went out of use is certain at this time. The well and the Feature 1 drain seem, however, to have been constructed at the same time since both have similar stratigraphic deposits associated with them.

In plan view, the well's diameter is approximately 95 cm (Figure 10-18). This well is therefore considerably larger than the one exposed at the Daniel Brown farmstead but similar in size to others located within MIMA (see Chapter 12). A mottled light gray and olive yellow coarse sand adjacent to the well appears to be the remains of a builders' trench (Figure 10-18). This deposit appears to be the backfilled area of the hole that was initially excavated in preparation for the construction of the well. Its presence suggests that the well was constructed from the bottom up, rather than the top down (Noël Hume 1969:13–17). Unfortunately, no artifacts were recovered from the upper portion of the trench.

Five primary deposits were identified in the units that contained the well: 1) the plowzone; 2) a thin, light olive brown silty fine sand; 3) the black organic-appearing deposit associated with Feature 1; 4) a thin deposit of dark yellow brown sand; and 5) the remains of a potential builders' trench. Forty-three artifacts—20 redware and 1 combed and dotted ware vessel fragments, 4 pipe bowls and 1 pipestem, 8 hand-wrought and 5 indeterminate nails, and 4 pieces of indeterminate metal—and 194.2 g of brick were recovered from within the well.

The top of the well was under 60–70 cm of the plowzone. As with the rest of the site, this deposit consisted of building-related and domestic debris deposited from the dismantling and demolition of the Lieutenant David Fiske house, and

from off-site. A thin (3–8 cm), discontinuous deposit of a light olive brown silty fine sand was present beneath the plowzone in the units surrounding the well. Because of its similarity to the glacial subsoil in terms of color and texture, and the fact that the well did not cut through it, this deposit may represent the soil that was excavated from the hole in which the well was constructed. No artifacts were recovered from this deposit. Directly beneath this sand was a dark organic-appearing deposit that the drain (Feature 1) appeared to cut through. The well and the builders' trench also appeared to cut through this deposit. Beneath the organic-appearing deposit was 1–10 cm of a dark yellowish brown deposit that probably represents the leaching of the organic-appearing deposit into the glacial deposit. No artifacts were recovered from either of these two deposits.

As mentioned above, Feature 5 may be the remains of a "connector" drain that transported water from the well to the drain (Feature 1) since Feature 5 was somewhat elongated in plan view and appeared to slope northward toward Feature 1. No evidence, however, was uncovered to indicate that they were physically connected or that Feature 5 was wood-lined as appears to have been the case with Feature 1. It is therefore possible that the functions of Features 1 and 5 are not related. While it is possible that Feature 5 is simply the result of rodent disturbance (since such disturbance is certainly evident elsewhere on the site), this seems unlikely given its morphology (Figure 10-19) and the fact that Feature 5 appears to have a set of stratigraphic deposits similar to those associated with Features 1 and 3. One hand-wrought nail, one machine-cut nail, one indeterminate nail, 37.2 g of brick, 1.9 g of charcoal, two mammal bones, and one indeterminate piece of metal were associated with the feature. Although the feature was evident in the south wall of N3W14, it was not apparent in

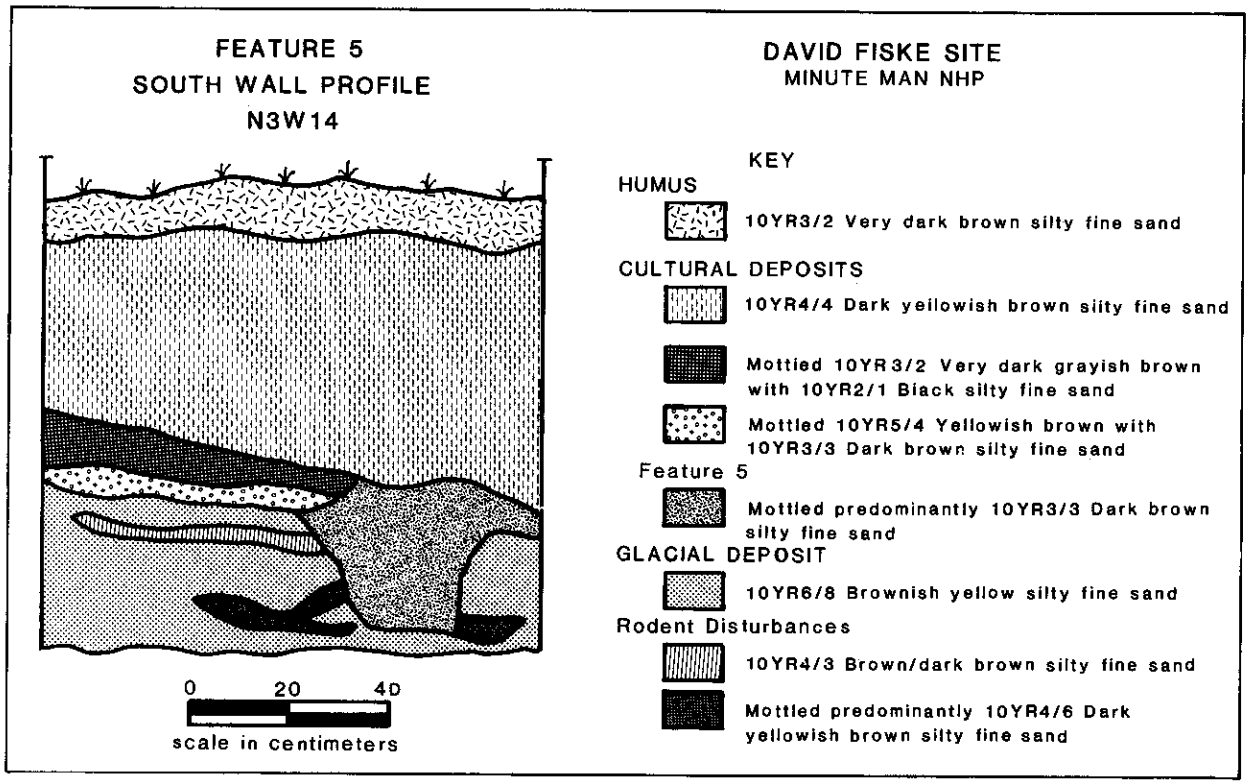


Figure 10-19. South wall profile of EU N3W14 showing Feature 5, the possible "connector" drain at the David Fiske site.

plan view. EUs N2W14 and N2W14.5 were excavated to investigate the feature. The feature is roughly oriented in a northeast-southwest direction.

In profile, the feature tapered from 38 cm wide at the top to 20 cm at the bottom, and consisted of a mottled dark brown silty fine sand (Figure 10-19). The stratigraphy in EUs N2W14 and N2W14.5 was similar to that present in the western portion of Feature 1. A 52–60 cm deposit of the plowzone was present above the feature. Beneath the plowzone were discontinuous lenses of the dark organic-appearing deposit. Beneath this deposit was a mottled deposit and then glacial subsoil. As discussed earlier, the stratigraphic evidence in N3W14 (Figure 10-19) *seems* to indicate that the organic-appearing deposit and the mottled deposit beneath it developed after Feature 5 was formed since both deposits *appear* to extend over a portion of the feature. If this is the case, these data provide support for the inference that the well and the Feature 1 drain may have also existed prior to the formation of the organic-appearing deposit.

SHEET REFUSE

As mentioned earlier, one of the predominant types of archeological remains uncovered was what Deetz (1977:125–126) has termed "sheet" refuse. In conjunction with the above data, spatial analyses of the homelot were conducted according to the project-wide methods discussed in Chapter 2. Preliminary spatial analyses of the distributions of the sheet refuse revealed several ways in which the Fiske homelot may have been used. In general, the presence and spatial distribution of certain material remains (e.g., utilitarian redwares and soil compounds) revealed that both the north and south yards appear to have been used intensively, perhaps as the loci of either domestic and/or agricultural activities. In contrast, the area east of the house appears to have been the locus of exclusively domestic activities based on the presence of high densities of domestic debris.

As at the David Brown, Joseph Mason, and Daniel Brown sites (Chapters 4, 8, and 12), material from all time periods was recovered in the plowzone; hence analyses were conducted to determine which concentrations were likely to have been deposited during the site's occupation versus those deposited after the site ceased to be used as a residence. To accomplish this, artifacts were grouped according to occupational and post-occupational categories.

Because of the lack of clearly datable pre-1723 artifacts, materials that could have been manufactured during this time were considered occupational artifacts, including tin-enameled and coarse buff-body earthenwares, salt-glazed stoneware, early pipestems (5–8/64" bore diameter), and free-blown glass. Post-occupational materials included post–ca. 1770 ceramics, wire nails, machine-cut nails, and plate glass. In addition to these artifacts, the spatial distribution of phosphates was analyzed for reasons discussed earlier. Data from the plowzone of 52 STPs were used in this study.

Analysis of the data indicates several distinct concentrations. For example, the highest concentration of utilitarian redwares occurs in the east yard of the homelot (Figure 10-20). These redwares extend from the house to the eastern limit of the site and most likely beyond. Within this concentration, the highest density of redwares (including the interior glazed redwares) was located northeast of the house (Figures 10-20 and 10-21). Interestingly, one of the highest concentrations of phosphates also occurs in approximately the same area (Figure 10-22). The spatial association of the redwares and phosphates—an indicator of the presence of organic wastes—may suggest that this area of the site was used by the occupants to dispose of kitchen refuse. The highest density of other occupation-period artifacts was also located just outside and to the northeast of the house and may provide corroborating evidence for this (Figure 10-23). These concentrations do not appear to be the result of later, post-occupational activities since the highest concentrations of this later debris do not correlate spatially with the earlier debris (compare Figures 10-23 and 10-24). The proximity of the occupational debris to the house may

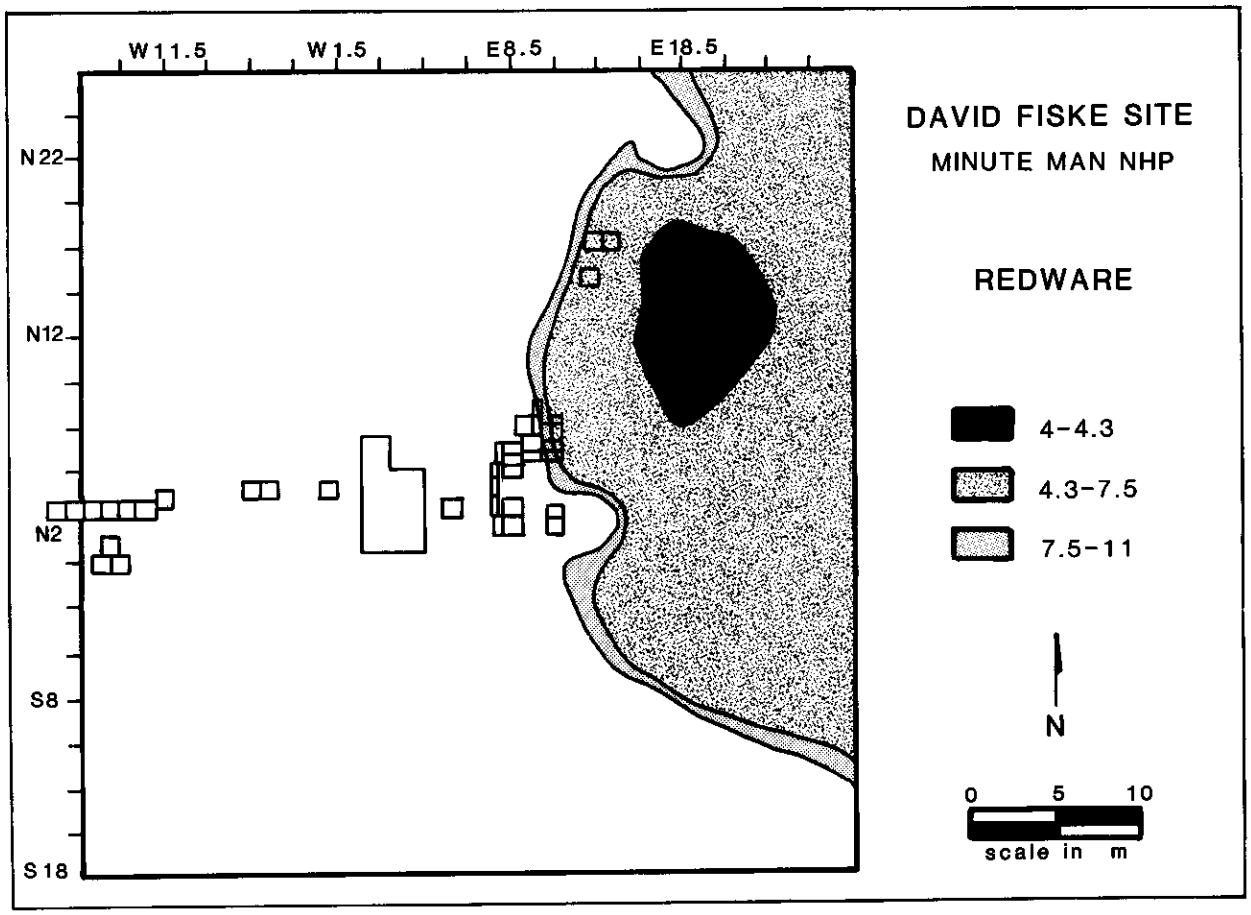


Figure 10-20. Spatial distribution map showing densities of redware recovered at the David Fiske site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

indicate that the occupants were either unaware of or unconcerned with the effects of this debris on their health.

The south and north yards also appear to have been intensively used, perhaps for various domestic and/or agricultural activities. This is suggested by the distribution of the highest concentrations of phosphates and bone (Figures 10-22 and 10-25). Although it is possible that there were once small, agricultural-related "service structures" located in these yards, no corroborating evidence (e.g., hand-wrought nails) was uncovered to suggest this. Much more in-depth research and detailed analyses are needed, however, to identify the specific kinds of activities conducted in these yards. The concentrations of phosphates are particularly interesting because they may indicate a lack of concern for the physical appearance of these yards. This pattern may also imply that the yards were never used as formal yard areas but rather as working ones.

Lastly, it should be mentioned briefly that

while the north, south, and east yards of the Fiske's homelot appear to have been the loci of intensive activity, the west yard does not. The reasons for this are uncertain. Perhaps the west yard served as the formal yard, although this is purely speculative at this time.

Summary and Conclusions

The purpose of the current investigations was to provide MIMA with an inventory of the Fiske homelot's subsurface archeological remains in order to explicate the utilization of its space, including the arrangement of its facilities and utilities. Archeological investigations of the Lieutenant David Fiske site uncovered some interesting information regarding the use of yard space. Additional data regarding the size and configuration of the house were also recovered unexpectedly.

Archeological excavations of the yard areas surrounding the house uncovered a well and a drain west of the house. With the exception of these water management utilities, no expected features, including a barn or outbuildings, were uncovered. The presence and spatial distribution of certain artifactual remains, however, revealed that both the north and south yards were used

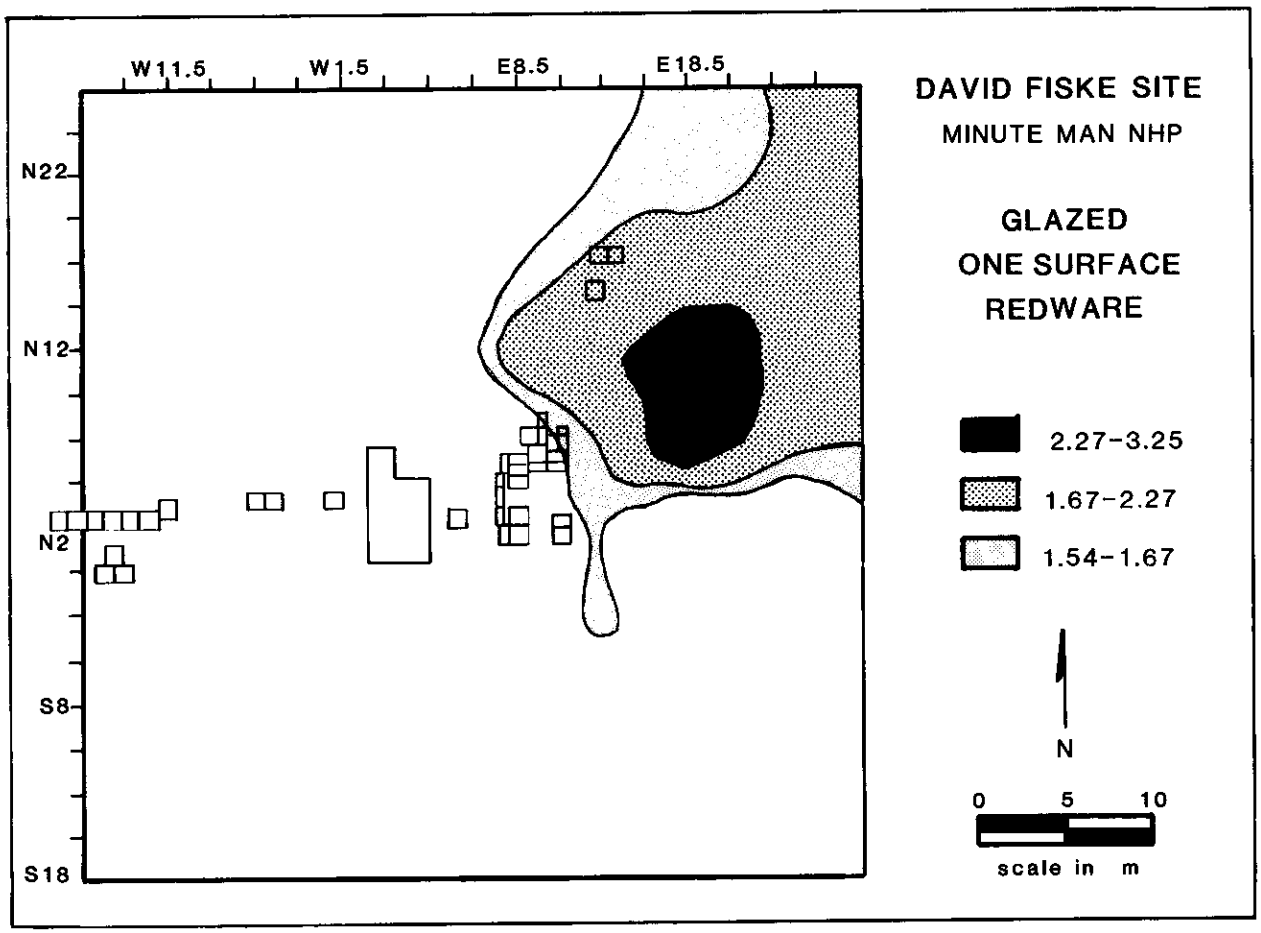


Figure 10-21. Spatial distribution map showing densities of interior glazed redware recovered at the David Fiske site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

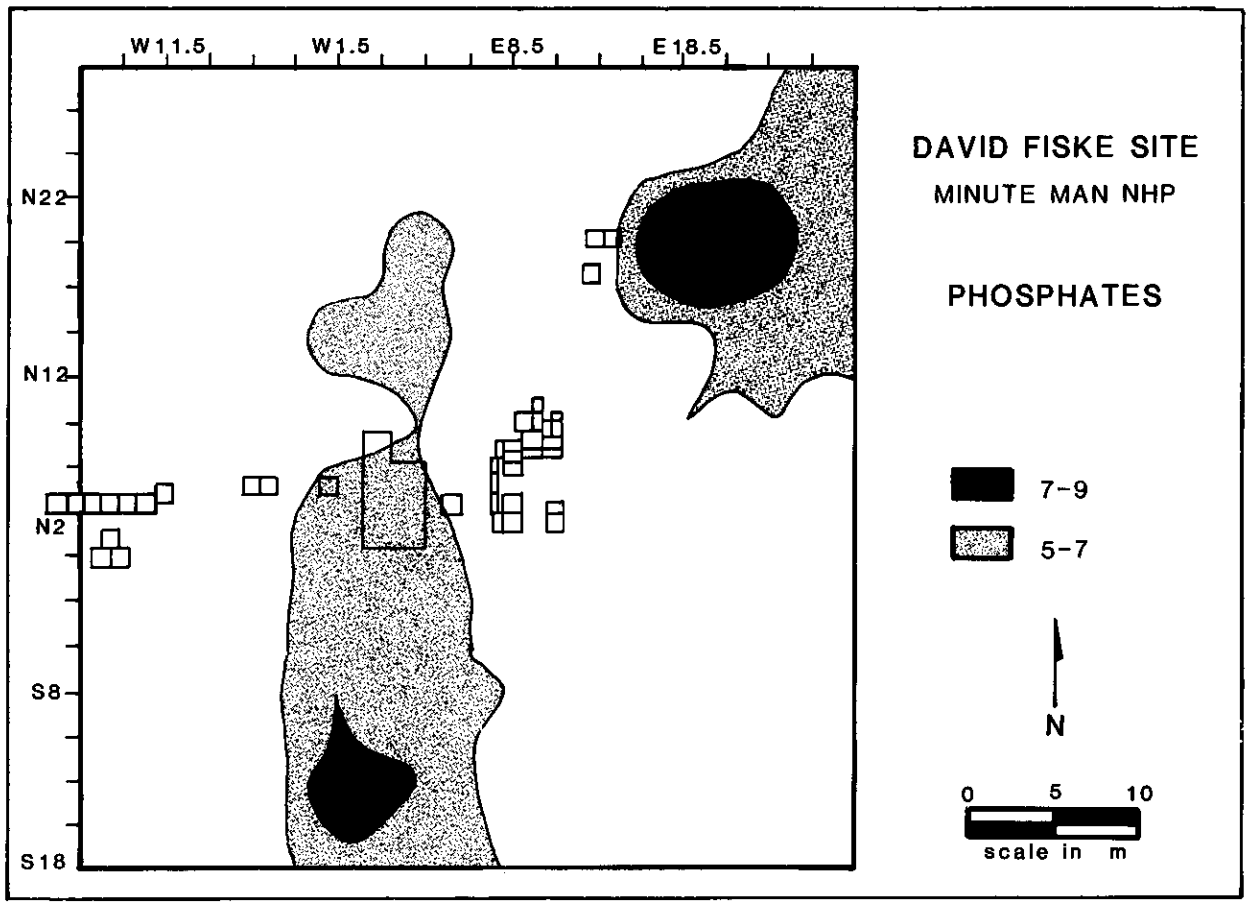


Figure 10-22. Spatial distribution map showing densities of phosphates recovered at the David Fiske site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are parts per million per quarter cubic meter.

intensively, perhaps as the loci of either domestic and/or agricultural activities. In contrast, the east yard appears to have been used exclusively for domestic activities given the presence of high concentrations of domestic debris.

The archeological investigations also unexpectedly uncovered the remains of a dry-laid cellar approximately 3.75 m east of the one uncovered by Snow (1969b). Both cellars appear to be part of one house whose plan by the early part of the 18th century may have been a typical two-room, central chimney one as opposed to a cross-passage or longhouse type (Beaudry and George 1987; Brunskill 1982; Cummings 1979; Deetz 1977, 1979; St. George 1982; Travers 1987). The house's plan, however, must remain speculative until more complete excavations of the area surrounding the cellarholes are conducted. While the form of the house in the early 18th century just prior to its abandonment is currently conjec-

tural, so too are its initial form, its date of construction, and any changes that may have occurred to the house throughout the 17th century. For example, it is possible that the original house was either a temporary earthfast structure built around hole-set posts or a single room dwelling atop one of the two fieldstone cellars just discussed. If the latter is true, then one of the two cellars may have been a later addition. While the documentary record suggests that the house, or a portion thereof, was constructed ca. 1655, no data were recovered to support or reject this. No evidence exists to indicate that the superstructure of the house burned as Snow (1969b) suggested was possible. The archeological integrity of both cellar remains is high.

As discussed in Chapter 1, this information will hopefully allow the park to better manage not only this site's subsurface remains but possibly those of other sites that have a 17th- and/or early 18th-century component. Any potential subsurface alterations to the yards in the immediate vicinity of the house should be carefully

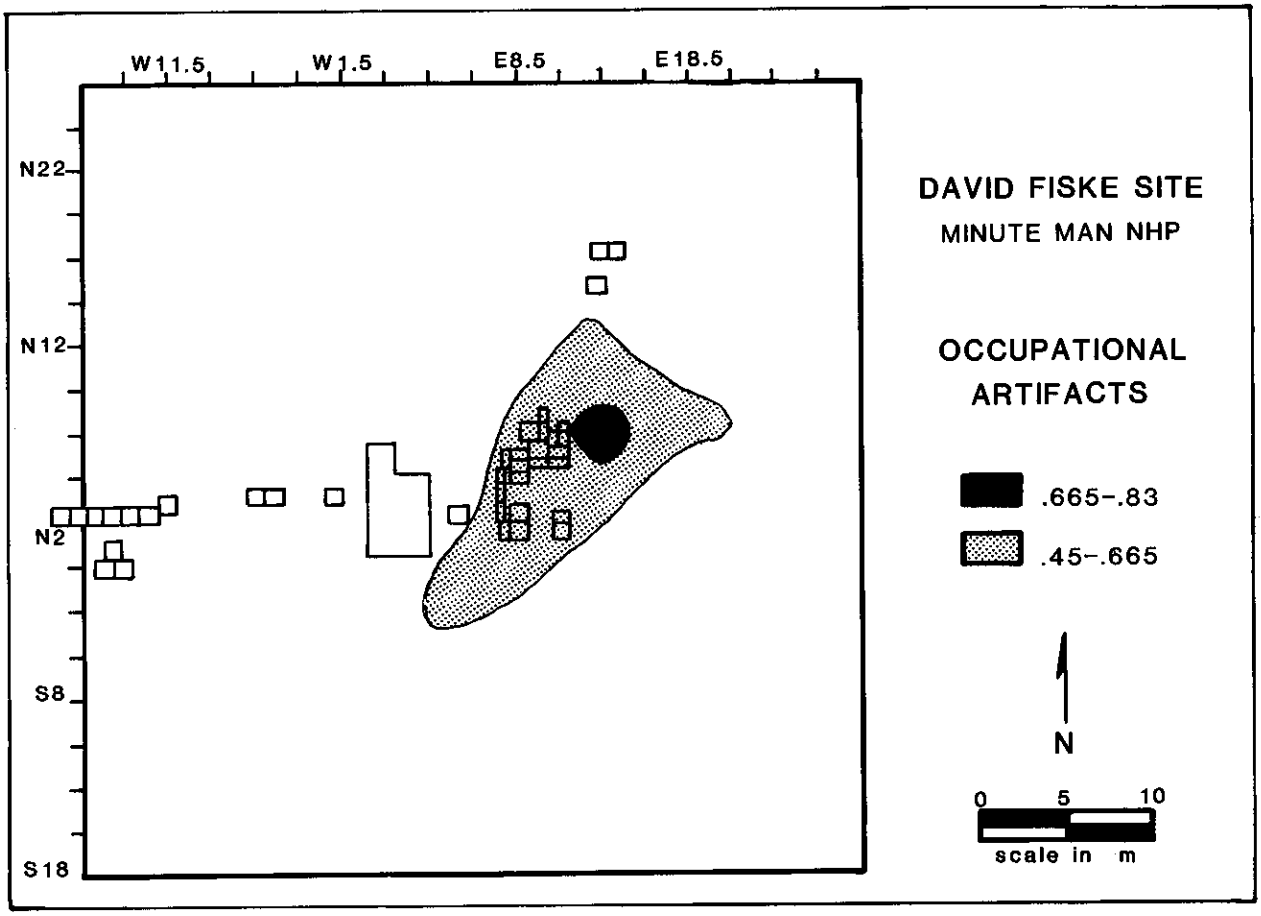


Figure 10-23. Spatial distribution map showing densities of occupation-period artifacts recovered at the David Fiske site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

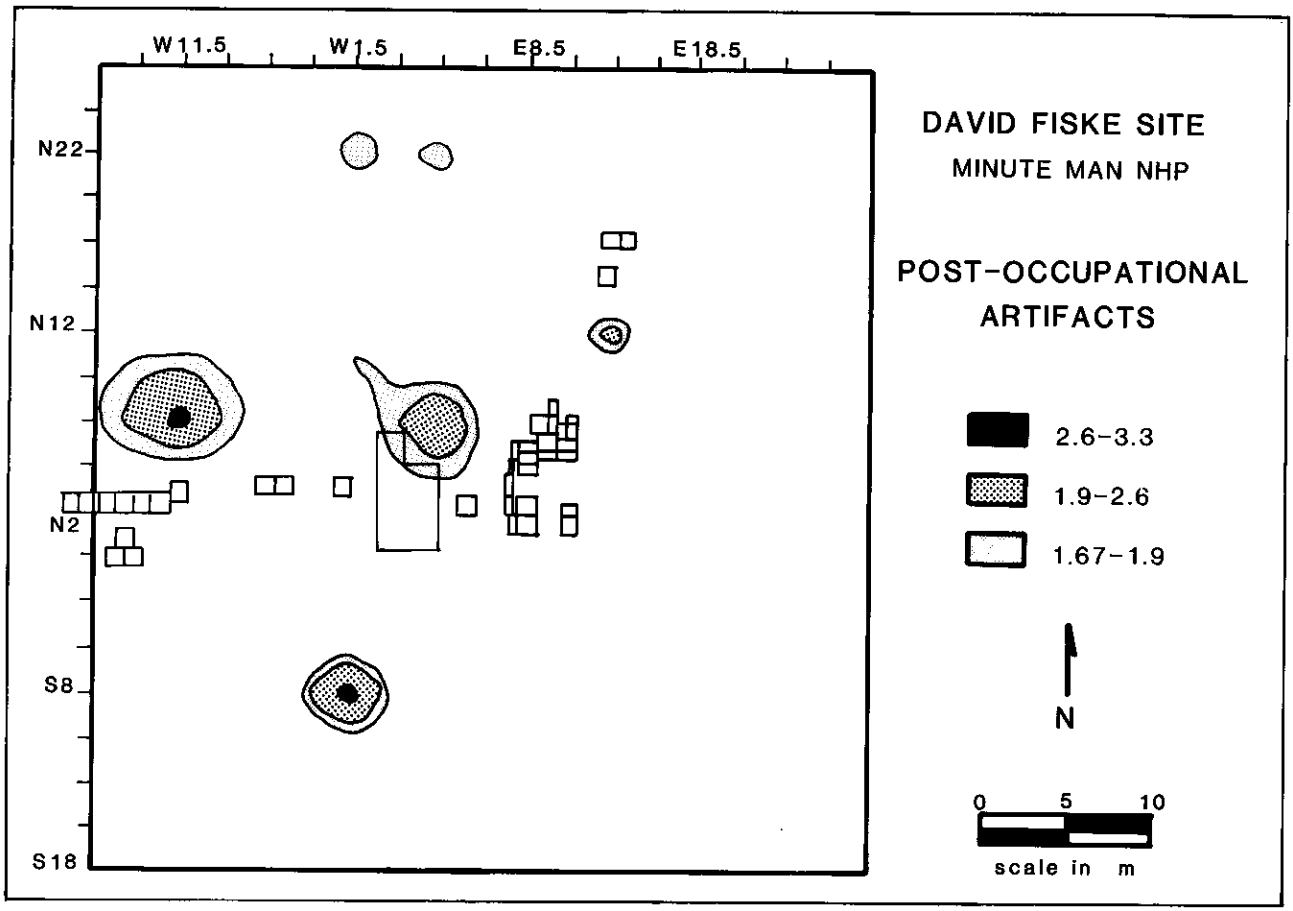


Figure 10-24. Spatial distribution map showing densities of post-occupational artifacts recovered at the David Fiske site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

weighed since they may contain evidence of how space was used and quite possibly evidence of the initial house form.

It is important that these data be preserved because, in conjunction with other kinds of information (e.g., architectural, paleobotanical, and documentary), they may help us to understand better the *process* of transplantation of 17th-century immigrants to the New World. At the Fiske site, for example, if the original house was not a temporary earthfast dwelling but one with a cellar, this may indicate that settlement of the area (unlike other areas of the New World) was intended to be permanent from the outset. This permanency could indicate, in turn, that the actual or perceived prospects for economic prosperity were high.

In terms of the use of space at the Fiske site, the ways in which the yard areas were used seem to follow traditional patterns as proposed by St. George (1982). The area was used intensively and there appears to have been some partitioning of

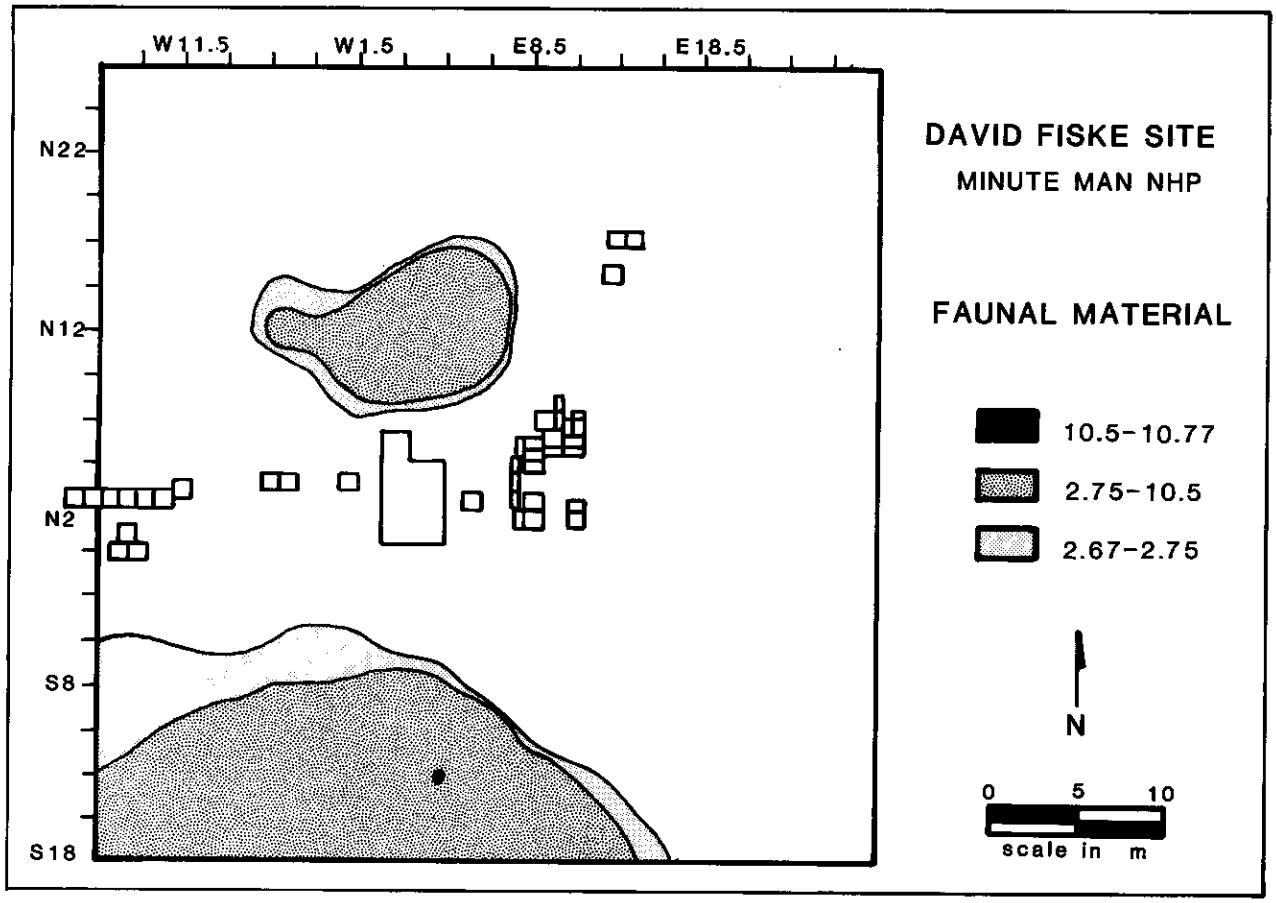


Figure 10-25. Spatial distribution map showing densities of faunal material recovered at the David Fiske site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

activities. Evidence of the separation of activities may also exist in the possible differential use of the two cellars. Archeological data suggest that the west cellar of the Fiske house may have been used for dairying activities, and the documentary data suggest that the east cellar was used for the storage of various articles.

These inferences should not be viewed as conclusive, but rather as hypotheses worthy of future testing at both the Fiske site and other sites. Only then can we more fully understand the transplantation process, its range of variation, and the extent to which it persisted into the 18th century.

Chapter 11

The Botanical Context at the David Fiske Homestead

G. K. Kelso and W. F. Fisher

Introduction

This study consists of pollen and phytolith analyses of the deepest 36 cm of a profile taken from the south wall of EU N3W17 (Figure 11-1) at the ca. 1655–1710 David Fiske farmstead in Lexington, Massachusetts (see base map, Appendix A-4). Frequencies of microfossils that were considered representative of vegetation structure and indicators of site formation processes are employed in this study. Our general goal was to explore the floristic setting of the farmstead. In particular we sought to address the excavators' questions concerning the origin of an enigmatic black lens of organic-appearing material that was identified west of the house (Figures 10-6 and 11-1). This lens was 3 cm thick and ca. 80–82 cm below the present ground surface where sampled in EU N3W17. Two hypotheses have been advanced to explain this deposit. One hypothesis postulates that the black lens consisted of charcoal derived from clearance burning at the initial occupation of the site. The other hypothesis attributes the black color of the deposit to the organic element of manure deposited in a barnyard.

Stratigraphy

The general stratigraphy of the David Fiske site is discussed in Chapter 10. The profile that was analyzed was taken from the south wall of EU N3W17 (Figure 11-1). This locus was selected because it incorporated the recognized major depositional units at the site and because the enigmatic black lens previously mentioned was capped by a 6-cm deposit of sand that the excavators hypothesized might be derived from construction of the nearby well. Contiguous pollen samples (i.e., with no interval between samples) in approximately 2-cm segments were collected from the bottom of the excavation to the surface. Samples 7, 8, and 9 were each 3 cm to avoid sampling across stratigraphic boundaries.

The palynologist's layer designations and the loci from which pollen samples were taken are indicated in Figure 11-2. The stratigraphy as recorded by the palynologist in EU N3W17 is slightly different than that recorded by the archeologists for the well in nearby units (see Chapter 10). The palynologist was able to distinguish different levels within the sand that capped the black lens of organic-appearing material. The archeologists interpreted this sand as backdirt from the original excavation of the well. During sample collection it was noted that the bottom 3 cm (sample 12) of the layer just above the sand was composed of mixed sand and overburden and was, consequently, somewhat darker (10YR4/6) than the sand below. This deposit and its dark brown overburden are designated palynologist's layers F and E respectively. The sand in sample 11 was lighter in color and more coarse in texture than the other 4 cm of sand below. This coarse sand constitutes palynologist's layer G, and the finer sand of samples 10 and 9 is assigned to palynologist's layer H. The black lens between ca. 80 and 83 cm below the surface was designated palynologist's layer I, and the 3 cm of the deposit (sample 7) directly beneath the 3-cm black lens, which was darkly stained with material apparently leached down from the black lens, is palynologist's layer J. The next underlying 8 cm (samples 6–3) is a blackish brown mottled deposit that displayed numerous discrete black spots,

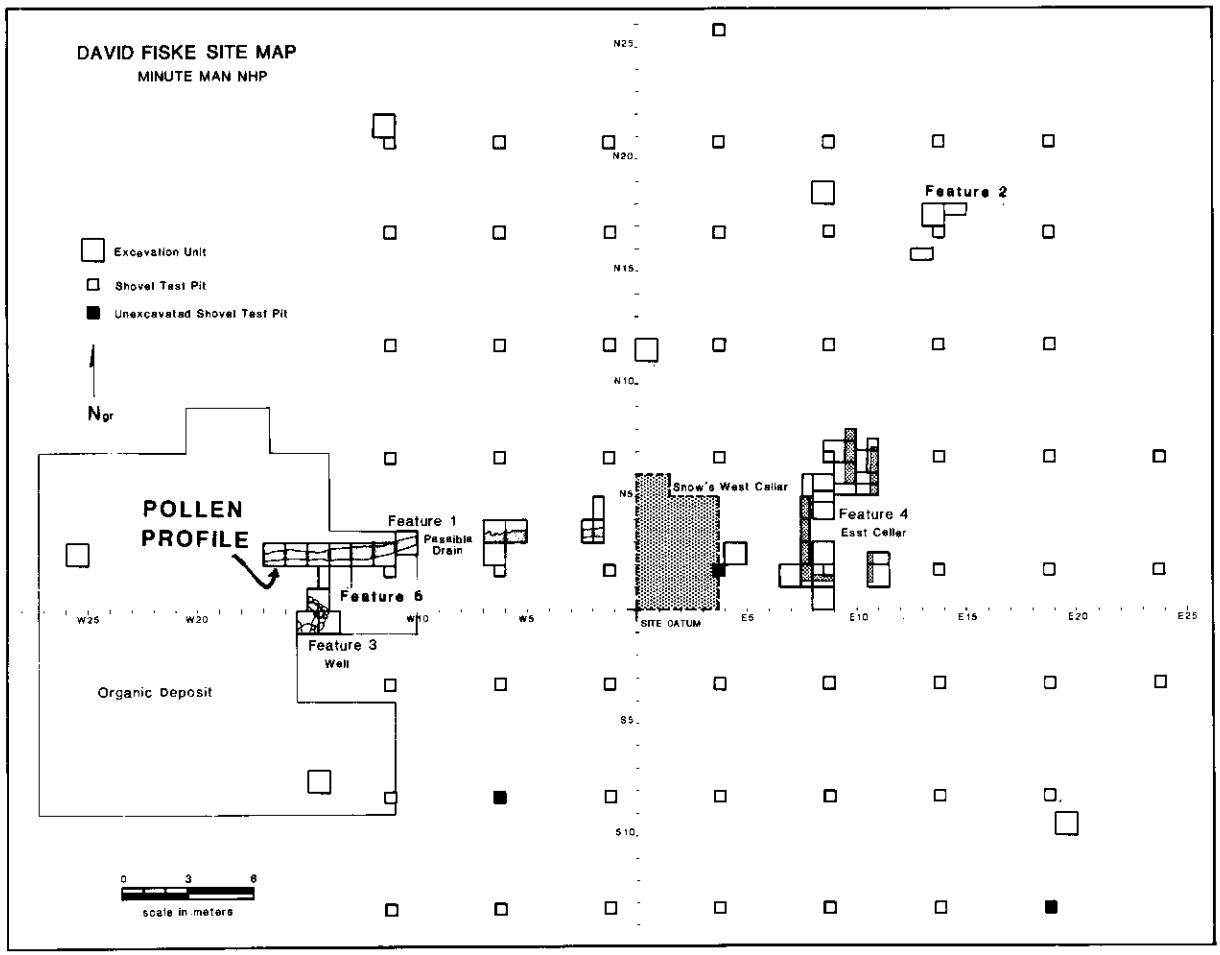


Figure 11-1. Site map of the David Fiske farmstead with pollen profile locus indicated.

which could not be clearly indicated in the profile drawing. They constitute palynologist's layer K, while the mottled brownish orange sediment in the deepest 4 cm of the profile is designated palynologist's layer L.

Chronology

Archival data indicate that Lieutenant David Fiske was given 16 acres incorporating the current site by his father-in-law sometime prior to 1654 (Chapter 10). He may have settled on the property sometime between 1655 and 1660 (Snow 1969b:4, 14). He died in 1710, and probate documents imply that the house, at least, had been dismantled by 1721 (Snow 1969b:4). The archeological data do little to refine the chronology. The general site deposits encompassing the profile segment above sample 17 (62 cm below surface) contained a mixture of 18th- and 19th-century artifacts. Diagnostic 19th-century material is absent from the profile segment between samples 17 and 12, but none of the few datable pieces—creamware fragments and machine-cut nails—predates the second half of the 18th century. The sand layers of samples 11, 10, and 9 were culturally sterile, but a creamware sherd and a few brick and redware fragments were recovered from the upper portion of the black lens (sample 8) in EU N3W17. Below sample 8 only hand-wrought nails and one

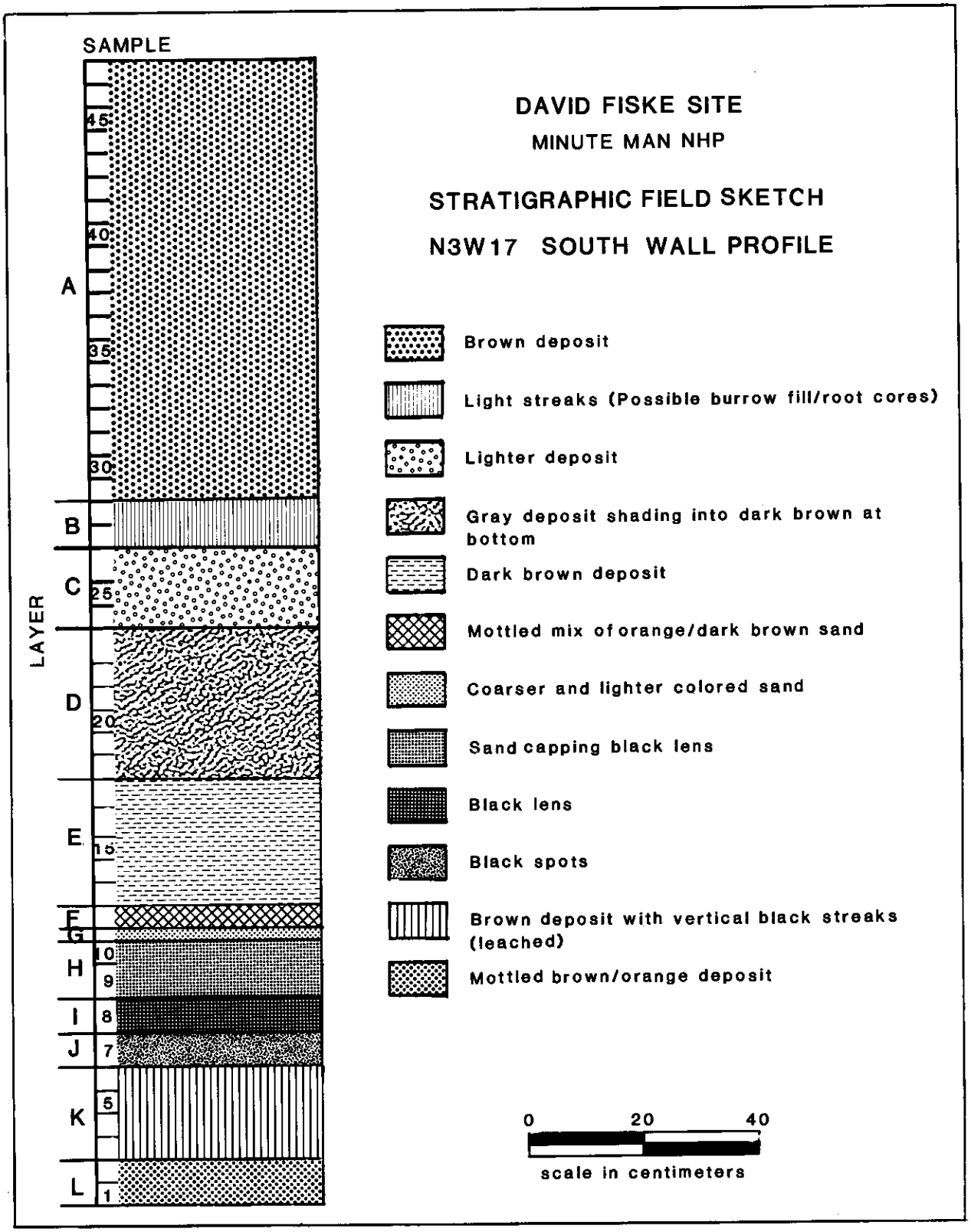


Figure 11-2. Stratigraphic field sketch of the south wall of N3W17 at the David Fiske site showing the locations of pollen samples within the layers defined by the palynologist.

fragment of Nottingham ware (ca. 1700–1810) were found. This last item was found with the mixed blackish brown deposit incorporating pollen samples 6–4.

Methodology and Results

Phytolith Analysis

THEORETICAL CONSIDERATIONS

Opal phytolith analysis has been shown to be a valuable tool in environmental reconstruction and interpretation of archeological sites. Recent studies from historical sites by Fisher and Kelso (1987) and Piperno (1988a, 1988b) illustrate the utility of this analysis and demonstrate new techniques for understanding processes of deposition. Phytolith analysis is not a new technique, but because few archeologists have recognized the value of phytolith data, phytolith studies are not common, phytolith collections are rare, and techniques are still being developed.

Opal phytoliths are microscopic bodies that vary in size from 1 to 1,000 microns. Phytoliths are formed in plants when hydrated silicon dioxide precipitates out and is deposited along cell walls and intercellular spaces where it forms a hard, durable opaline fossil cast (Rovner 1983:226). Opal phytoliths are composed of a non-crystalline form of quartz, known as amorphous opal A, which weathers like rock (Jones and Segnit 1971:58). Phytoliths are produced in most plants in a variety of soil and drainage conditions. Production of phytoliths is usually heaviest in the epidermal tissue of the stems and leaves, although they are also produced in root, flower, and fruiting cells. Phytoliths make their way into the soil when a plant or plant part dies and decomposes. Phytoliths have been shown to be relatively stable components in soil, susceptible to the same depositional and post-depositional translocation processes as pollen but resisting other processes such as percolation (Rovner 1986:23). Since phytoliths are released into the soil as plants decay, rather than into the air like pollen grains, a larger part of the phytolith record represents "in situ deposition" (Piperno 1988a:44). Phytolith movement is therefore usually the result of mass movement of soil by wind, water, or animals.

There are basically two methods used in phytolith analysis; they are based on differential production and individual morphology of phytoliths. Jones and Beavers (1964:711) note that grasses contribute more opal to the soil than do trees. By extracting and weighing phytoliths from weighed soil samples it is possible to determine the percentage of phytolith by weight in the soil. The difference in gross production between grasses and trees can then be used in determining whether a soil was formed under grass or arboreal conditions. This method has been shown to be of great utility in the reconstruction of the vegetational histories of forest and grassland areas (Witty and Knox 1964; Wilding and Drees 1968; Verma and Rust 1969; Miles and Singleton 1975; Fisher, Jenkins, and Fisher 1987).

The use of this method in archeological contexts must take into consideration aspects of the depositional process relating to human behavior, which studies of natural contexts need not consider. Because of the added effect of human behavior, differences in opal phytolith content in archeological deposits may not be related to vegetative patterns but rather to such human activities as garbage disposal, latrine deposits, mulching, fertilizing, landfill, land reclamation, or charcoal manufacturing, to name just a few. The number of variables that affect phytolith concentration in archeological contexts is so great as to render this method nearly useless when applied alone. By comparing the data gleaned from historical sources, stratigraphy, associated artifacts, and from soil, pollen, and macrobotanical analyses, however, it is possible to reconstruct more accurately the vegetative histories and human activities that are indicated by the concentration of phytoliths in archeological deposits (Fisher and Kelso 1987:43).

Since phytoliths are casts of plant cells, they may be morphologically distinct at the family, genus, or species level. By extracting phytoliths from plant specimens taken from identified herbarium collections, it is possible to develop a collection of phytoliths that, when compared by

morphological variation, can establish diagnostic types identifying given plant families, genera, or species. Twiss, Sues, and Smith (1969:111) identified morphological differences in the phytoliths of three groups of grasses; Geis (1973) separated 365 species of trees and shrubs at the family and genus levels; and Klein and Geis (1978:115) described the differences in phytoliths from 15 taxa of the family Pinaceae.

Regional comparative collections are necessary for identification of phytoliths from archeological sites. Pearsall (1982:868) and Rovner (1983:257) both suggest that the development of comparative collections of opal phytoliths is of primary concern as they are an integral part of archeological phytolith analysis. There are relatively few regional collections of phytoliths, however; they include those reported by Starna and Kane (1983), Piperno (1984, 1988b), Brown (1986), Mulholland (1986), and Fisher and Fisher (1988). These collections add significantly to the number of plants from which phytoliths can be identified in soil deposits. The identification of individual phytoliths to family, genus, or species designation has been accomplished successfully at archeological sites (Piperno 1984:373; Fisher and Kelso 1987:41; Fisher and Fisher 1988:5). Phytoliths have also been used to describe changing climate and vegetation (Fisher, Jenkins, and Fisher 1987: 253; Fisher and Kelso 1987:42; Lewis 1985:45, 1987:451).

Morphological differences in phytoliths found in different grass species are an important source of paleobotanical information, as pollen grains from nearly all grass species are indistinguishable from each other. Faegri and Iverson (1964) and Kelso and Schoss (1983) identify the pollen of some species of European domesticates and corn by size attributes, but native North American grasses tend to be lumped into one large category. Grass phytoliths can be separated into a number of different classes, each containing a number of tribes and genera. For this study grass phytoliths are classified into four groups (Twiss, Sues, and Smith 1969:111; Brown 1986:80): the Festucoid (Table 11-1); the Chloridoid (Table 11-2); the Panicoid (Table 11-3); and the Polylobate (Table 11-4).

The use of opal phytolith analysis in conjunction with pollen and macrobotanical analyses has been suggested by Pearsall who noted that "the technique [phytolith analysis] is strongest when applied as one component of a paleoethnobotanical study" (1982:862). Rovner concurs, suggesting that "the most productive use of phytoliths should be in conjunction with collateral paleoethnobotanical methods" (1983:258). Rovner also notes that using phytolith, pollen, and macrobotanical studies in concert "allows phytolith data to be matched against both microbotanical and macrobotanical remains" (1983:258).

PHYTOLITH METHODS

Opal phytolith analysis at the David Fiske site employed the same contiguous sample series used for pollen analysis (Figure 11-2). Fisher and Kelso (1987:36) recommend taking a phytolith sample from each pollen sample to facilitate comparison of results. We were unable to do this at the David Fiske site because of budgetary constraints, so 10 samples organized around the enigmatic black lens (sample 8) were selected for analysis. Phytolith percentages are presented by pollen sample number in Figure 11-3. One problem with the sample method used at the David Fiske site was the limited amount of soil that was available for both the pollen and phytolith extraction. It was difficult to re-extract if there were problems with the extraction method or a need for additional slides. A new sampling strategy for the pollen, phytolith, and soil samples has been suggested (Fisher 1989), which should alleviate this problem.

The procedure for extraction followed Mulholland (1983:4) with one exception: a solution of 30% hydrogen peroxide was used to remove organic matter. The final amounts of opal were inspected under a compound microscope to assure uniform purity and were then weighed to determine the soil's phytolith content. The phytoliths from each sample were mounted in cedar oil and analyzed under a compound micro-

Table 11-1. Grass species occurring in Massachusetts that produce Festucoid (trapezoid) phytoliths. Table is based on phytolith data from Brown (1986) and Mulholland (1986) and habitat data from Hitchcock (1971).

Species	*F**	*C†*	*Pa‡*	*Po§*	*Description of habitat*
Bromus commutatus	x				weed in waste areas/fields
Bromus Mollis	x				weed in waste areas/cultivated soil
Bromus tectorum	x				waste areas/roadsides
Bromus ciliatus	x				moist woods/rocky slopes
Festuda rubra	x				meadows/bogs/marshes
Festuca octaflora	x				open sterile ground
Pao compressa	x				open ground/waste areas
Poa pratensis	x				lawn grass/woods/meadows
Dactylis glomerata	x				field/meadows/waste areas
Lolium perenne	x				lawn/pasture/meadow/waste areas
Schizachne purpurascens	x				rocky woods
Distichlis spicata	x				seashore
Spartina pectinata	x				fresh water marshes
Sporobolus cryptandrus	x				sandy open ground
Agropyron repens	x				meadow/pasture/waste areas
Agropyron subsecundum	x				moist meadows/open fields
Agropyron trachycaulum	x				mountain meadows
Elumus canadensis	x				prairies
Hordeum jubatum	x				meadow/open ground/waste areas
Triticum aestivum	x				cultivar/fields
Avena sativa	x				cultivated
Hierochloe odorata	x				bogs/meadows/moist places
Phalaris arundinacea	x				marshes/river banks
Agrostis scabra	x				mountain meadows/fields
Calamagrostis canadensis	x				marshes/wet places
Cinna latifolia	x				moist woods
Phleum pratense	x				cultivar/fields/roadsides
Phragmites communis	x	x			banks of lakes/streams
Eragrostis cilianensis	x	x			cultivated ground/fields/waste areas
Eragrostis pectinaceae	x	x			fields/open ground/waste areas
Eragrostis spectabilis	x	x			sandy soil
Glyceria borealis	x		x		wet places/shallow water
Danthonia spicata	x		x	x	dry sterile rocky soil
Brachyelytrum erectum	x		x		moist/rocky woods
Oryzopsis asperifolia	x		x		wooded slopes/dry banks
Aristida tuberculosa	x		x		open sandy woods

*Festucoid
†Chloridoid
‡Panicoid
§Polylobates and cross-shaped

Table 11-2. Grass species occurring in Massachusetts that produce Chloridoid (saddle) phytoliths. Table is based on phytolith data from Brown (1986) and Mulholland (1986) and habitat data from Hitchcock (1971).

Species	*F**	*C†*	*Pa‡*	*Po§*	*Description of habitat*
Phragmites communis		x	x		banks of lakes/streams
Eragrostis cilianensis		x	x		cultivated ground/fields/waste areas
Eragrostis pectinaceae		x	x		fields/open ground/waste areas
Eragrostis spectabilis		x	x		sandy soil
Bouteloua gracilis		x	x		plains
Bouteloua curtipendula			x		plains/prairie/rocky hill
Cynodon dactylon			x		open grassland/waste areas
Leptochloa fascicularis			x		brackish marshes

*Festucoid
†Chloridoid
‡Panicoid
§Polylobates and cross-shaped

Table 11-3. Grass species occurring in Massachusetts that produce Panicoid (bilobate) phytoliths. Table is based on phytolith data from Brown (1986) and Mulholland (1986) and habitat data from Hitchcock (1971).

Species	*F**	*C†*	*Pa‡*	*Po§*	*Description of habitat*
Danthonia spicata	x		x	x	dry sterile rocky soil
Glyceria borealis	x		x		wet places/shallow water
Brachyelytrum erectum	x		x		moist/rocky woods
Oryzopsis asperifolia	x		x		wooded slopes/dry banks
Aristida tuberculosa	x		x		open sandy woods
Echinochloa crusgalli			x	x	cultivated fields/waste areas
Panicum virgatum			x	x	prairie/open ground/woods
Setaria lutescens			x	x	cultivated fields/waste areas
Andropogon gerardi			x	x	prairies/open woods
Sorghastrum nutans			x	x	prairies/open woods
Sorghum halepense			x	x	open ground/fields
Zea mays			x	x	cultivar
Zizania aquatica			x		marsh/stream banks
Panicum capillare			x		cultivated fields/waste areas
Digitaria sanguinalis			x		field/garden/waste areas
Tridens flavus			x		old fields/open woods

*Festucoid
†Chloridoid
‡Panicoid
§Polylobates and cross-shaped

Table 11-4. Grass species occurring in Massachusetts that produce Polylobate and cross-shaped phytoliths. Table is based on phytolith data from Brown (1986) and Mulholland (1986) and habitat data from Hitchcock (1971).

Species	*F**	*C†*	*Pa‡*	*Po§*	*Description of habitat*
Andropogon gerardi			x	x	forage grass/dry soil
Andropogon scoparius			x	x	prairie/open woods
Sorghastrum nutans			x	x	forage grass/dry soil
Sorgum halepense			x	x	open ground/waste areas
Panicium virgatum			x	x	open ground/open woods
Cenchrus pauciflorus			x	x	weed in sandy fields
Echinochloa crusgalli			x	x	forage in field/waste areas
Setaria lutescens			x	x	cultivated soil/waste areas
Danthonia spicata		x	x	x	dry sterile rocky soil

*Festucoid
†Chloridoid
‡Panicoid
§Polylobates and cross-shaped

scope using phase contrast for identifying morphological characteristics. Identifications of the phytoliths were made following Twiss, Sues, and Smith (1969:111), Geis (1973:115), Klein and Geis (1978:148), Mulholland (1986:51), Brown (1984:347), Piperno (1988a), and Fisher and Fisher (1988:11). Fisher and Kelso (1987:40) propose a method of determining phytolith degradation that provides data on site formation. This method uses phytoliths that are too corroded to identify as evidence for degradation. This technique is not ideal since many phytoliths are as yet unrecognized and can be mistakenly included in this sample. A refined method has been proposed (Fisher 1989) and is used in this analysis. Identifiable phytoliths were examined for evidence of corrosion and degradation and the percentage of corroded phytoliths in each sample was then compared.

PHYTOLITH RESULTS

The percentage of opal phytoliths by weight in samples is an important measure that can yield significant information on the type of ground cover, vegetal inclusions, and other depositional processes. The David Fiske samples were processed in a limited time without the use of a scale capable of weighing to thousandths of a gram, and this information was not available. Identification of individual phytoliths from the David Fiske site deposits, however, provided some very interesting data. Identification followed procedures outlined in Fisher and Kelso (1987) with changes noted in Fisher (1989). Figure 11-3 provides phytolith percentages for each sample.

For analysis of the David Fiske site, it was assumed that shifts in the frequencies of the four main grass phytolith classes were not substantially altered by grasses that produce multiple classes of phytoliths and instead accurately represent changes in the environment (Fisher and Kelso 1987:41). Tables 11-1 through 11-4 illustrate four classes of phytoliths produced by grasses and the grasses that produce each type. Each class of grass phytoliths has quite a number of genera, many of different ecological niches; the Festucoid and Chloridoid classes, however, are represented by grasses indicative of different environmental conditions. Twiss, Sues, and Smith (1969:110) suggested that, in the midwestern states, the

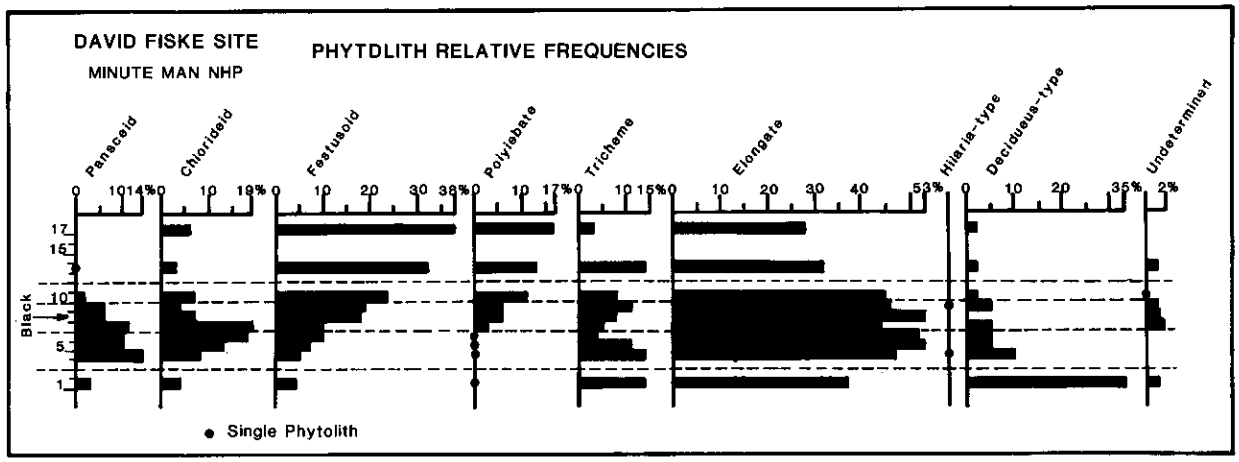


Figure 11-3. Relative frequencies of phytoliths at the David Fiske site.

Festucoid class represented the domestic grasses, while the Chloridoid represented the "short grass" prairie and the Panicoid the "tall grass" prairie.

These midwestern definitions are not applicable to 18th-century Massachusetts. It was therefore necessary to create a new typology from the midwestern studies using grasses that also appeared in Massachusetts. Tables 11-1 through 11-4 show the grasses studied by Brown (1986) and Mulholland (1986) that are found in Massachusetts. This typology was suggested by Fisher and Kelso (1987:41) to indicate that the Festucoid-class grasses represent agriculturally important genera, forage grasses, and lawn grasses, while Chloridoid-class grasses represent weed types that colonize waste areas and open ground. There are a number of environmental conditions suggested by the presence of either Festucoid or Chloridoid classes of grass phytoliths. Using the comparative method it is possible to generate a more complete picture of the environmental mosaic by integrating data from the pollen and macrobotanical analyses with phytolith data.

The phytolith assemblage from the David Fiske site is very informative. Samples 1–7 from the bottom of the profile all contain distinctive phytoliths from deciduous angiosperm trees. The phytoliths closely resemble those recovered by Geis (1973) from various species of oak, maple, alder, and beech. Because of the existing state of phytolith typologies for dicotyledonous angiosperms, all the tree phytoliths are grouped under "deciduous type" in Figure 11-3. The obvious trend from forest to grassland is apparent in the percentages of the deciduous type and the increase in the grass types.

The extremely high percentage of deciduous-type phytoliths and the low amounts of grass types in sample 1 indicates an environment dominated by trees but with some grasses—an environment probably similar to the native forest of the region. The rapid decline of deciduous-type phytoliths (samples 4–7) documents the loss of forest due to clearing, fire, or selective removal for firewood or other uses. Chloridoid-type phytoliths are produced by grasses generally associated with open grassland or waste areas. The increase of Chloridoid-type phytoliths along with the drop in deciduous-type phytoliths indicates a removal of trees and the colonization by native open-ground plants rather than the planting of European cereal grasses or forage grasses.

Sample 8 records a dramatic event. Festucoid-type and Polylobate-type phytoliths replace Panicoid and Chloridoid as the dominant types of grass phytoliths. Deciduous-type phytoliths become very rare, indicating a cleared landscape

Table 11-5. Percentage of corroded phytoliths recovered from the David Fiske site.

Sample number	*Percent corroded*
17	7
16	not analyzed
15	not analyzed
14	not analyzed
13	11
12	not analyzed
11	not analyzed
10	10
9	11
8	1
7	2
6	1
5	0
4	2
3	not analyzed
2	not analyzed
1	0

dominated by forage and/or domesticated grasses. This level marks the beginning of intensive farming or grazing of the area. Festucoid-type phytoliths are associated with species of grasses that, in the Northeast, most often indicate forage grasses, domesticated grains, and lawn grasses.

The absence of any deciduous-type phytoliths in sample 8 indicates that forest clearing had been accomplished previously and that grasses were dominating the site. This would indicate that the black lens of sample 8 does not represent the clearing and burning of a forested tract. The organic component of this dark soil may be caused by burning of an open grassland area, or the inclusions of large amounts of vegetal matter from animal manure. The predominance of Festucoid-type grass phytoliths rather than Chloridoid-type grass phytoliths in sample 8 suggests that the organic material deposited in the dark soil lens was composed of domestic- and forage-type grasses.

Phytolith corrosion data are shown in Table 11-5. Phytoliths from all samples were found to be in excellent condition. It was extremely unusual, however, to find the preservation at the bottom of the profile to be better than the preservation at the top of the profile. Fisher and Kelso (1987:39) found that phytoliths weather in patterns similar to pollen grains. A normal pollen degradation profile will reflect greater corrosion of pollen grains as depth increases. Human activities such as garbage disposal, filling, and landscaping, however, can suddenly produce an overburden that serves to protect the deposits underneath, thus creating deposits of phytoliths and pollen grains that are not as weathered as those beneath or above.

The data presented in Table 11-5 indicate a rapid fill sequence in samples 1–8. The phytoliths in the deepest sample are pre-settlement in age. The preservation of the pre-Colonial data that they provide is the indirect result of the deforestation of the area. Clearing the forest increased erosion on the upland areas above the site. The eroded soil was deposited on the site, protecting earlier deposits from degradation.

Pollen Analysis

THEORETICAL CONSIDERATIONS

Mainstream palynology focuses on tree pollen recovered from lakes and reflects vegetation at the formation level. Such data are too generalized for historical landscape reconstruction. Historical landscape palynology must concentrate on the local pollen record in terrestrial deposits. In such matrices the vegetational composition record of the pollen spectra have often been modified by physical site formation processes. Two primary processes are recognized. These are pollen movement within the matrix and pollen degradation. Pollen movement is affected by percolating ground water and earthworms (Dimbleby 1985:4–9; Walch, Rowley, and Norton 1970:42). Pollen degradation is brought about by exposure to oxygen in aerated ground water (Tschudy 1969:95) and digestion of the pollen grain walls by aerobic fungi (Goldstein 1960:453). These processes are reflected in pollen concentrations per unit of matrix and in the quantities of pollen grains that are poorly preserved. Such measures vary with factors such as rate of matrix accumulation and can be used to define differen-

ces in cultural activities through time and between sampling loci.

A basic palynological site formation pattern is found in natural deposition situations and in cultural sites where matrix deposition is slow. Pollen leaches down from the surface into the matrix and is destroyed by oxygen in percolating rainwater (Tschudy 1969:95) and by aerobic fungi (Goldstein 1960:544) as it moves (Erdtman 1969:147; Dimbleby 1985:figure 3). This produces a pollen profile in which pollen concentrations are progressively lower and the proportion of pollen grains that appear degraded becomes larger in the lower portion of the profile where the oldest pollen grains are located. When the flora change, a stratigraphic sequence of pollen types will be registered, even though little or no sediment has actually accumulated. An example of the pollen profile characteristic of such site formation processes is presented in Figure 11-4. These data from Fort Necessity National Historical Battlefield record primordial forest in the tree pollen counts of the deepest samples, clearance in the proliferation of wind-pollinated Compositae (i.e., ragweed) pollen in the central portion of the diagram, and pasture development in the grass (Gramineae) dominance of the upper samples and surface spectra.

Human activities interfere with these "normal" or "natural" pollen leaching and degradation processes. On plots where there has been a lot of human activity, sediment accumulation outpaces leaching, and soil compaction prevents percolation. The product is a pollen profile in which pollen concentrations correlate with plant pollen taxa and record the relative density of ground cover. Pollen degradation in these circumstances is unpatterned (Kelso n.d.). Other human activity patterns recording buried surfaces (Kelso and Beaudry 1990), changing soil disturbance related to shifting land use (Kelso, Stone, and Karish 1990:11; Kelso and Beaudry 1990), earthworm activity (Kelso, Stone, and Karish 1990:10), episodic fills within features (Kelso et al. 1989:255), seasonality of episodic fill (this volume, Chapter 5), exposed episodic fill on which ground cover failed to develop (Kelso and Beaudry 1990), episodic fill supporting ground cover (Kelso, Mrozowski, and Fisher 1987:112), and denudation of a surface (Kelso et al. 1989:250) have been observed.

POLLEN METHODOLOGY

Artifact data suggested that the profile matrices between layer E and the surface were probably of 19th-century origin. These layers were disregarded and only the deepest 17 pollen samples were analyzed. Pollen extraction was undertaken in the palynology laboratories of the Boston University Center for Archaeological Studies and followed Mehringer's (1967) procedure. Residues were mounted in glycerol for viewing and analysis was conducted at the Archeology Branch of the Cultural Resources Center, Division of Cultural Resources Management, National Park Service, Charlestown, Massachusetts. The pollen was identified at 400× with problematical grains examined under oil immersion at 1000×. The pollen spectra of minor herbs and palynological site formation measures often provide the best data in historical era matrices. The study of these requires larger counts than the 200 grains normally employed in Quaternary studies (Kelso and Beaudry 1990:62). A minimum of 400 pollen grains were tabulated for all David Fiske samples except samples 10 and 12, where pollen concentrations were quite low and dense concentrations of microscopic vegetal matter obscured the few pollen grains present. Pollen sample 12 received a 200 pollen grain count while only a 100 grain count was feasible for sample 10.

The pollen spectra from the David Fiske site are presented in Figures 11-5 and 11-6. All pine pollen grains were examined for the "belly warts" that distinguish white pine (*Pinus strobus*) from the other species of *Pinus* growing in New England (Kapp 1969:38). A histogram of these data is presented in Figure 11-5. Pollen concentrations per gram of sample were computed following Benninghoff's (1962) exotic pollen addition method as a check against preservation-related differences in the spectra. Pollen concentration figures were not computed for in-

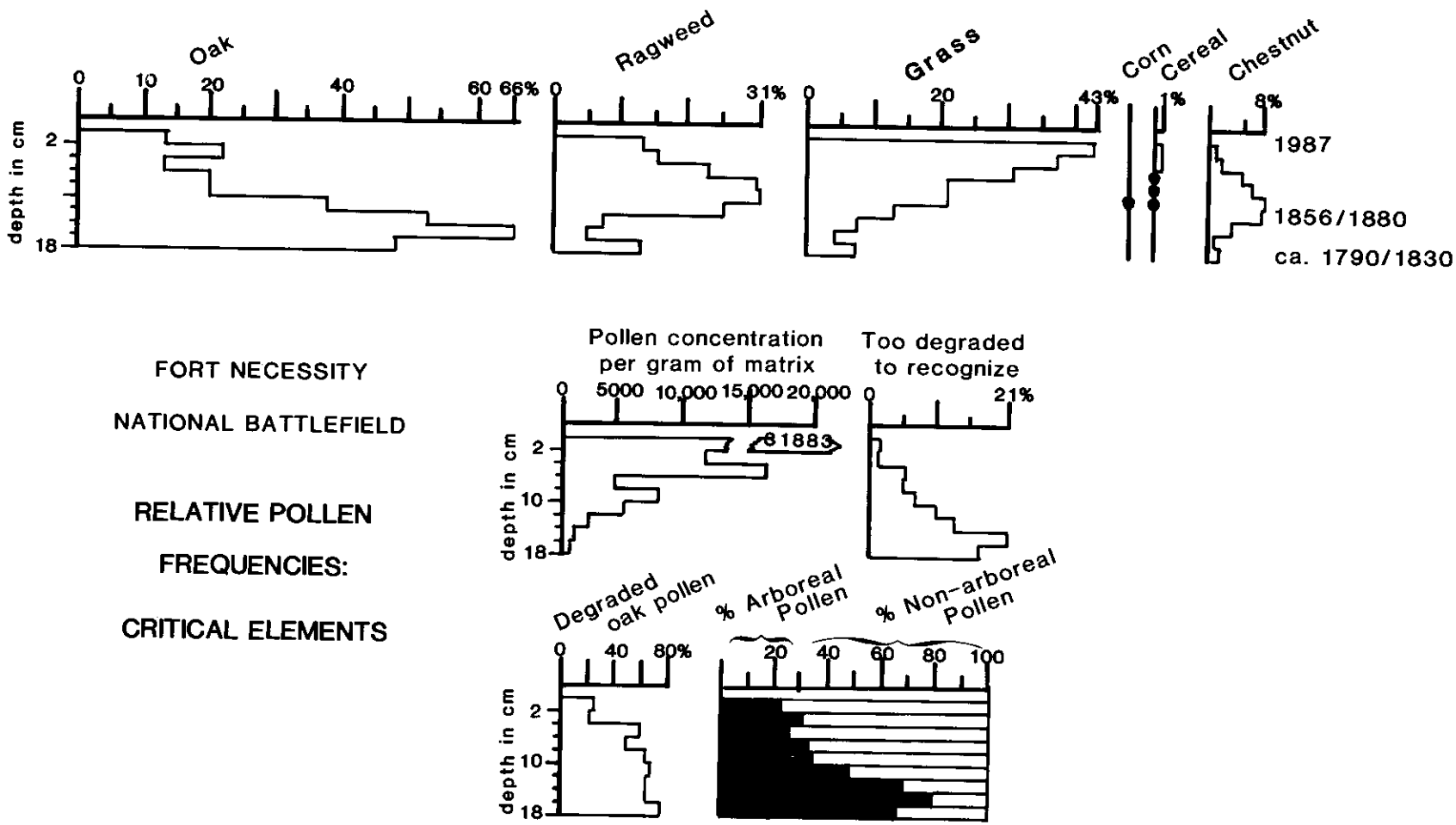


Figure 11-4. Natural pollen record formation processes illustrated in Core 3 from Fort Necessity National Historical Battlefield, Pennsylvania.

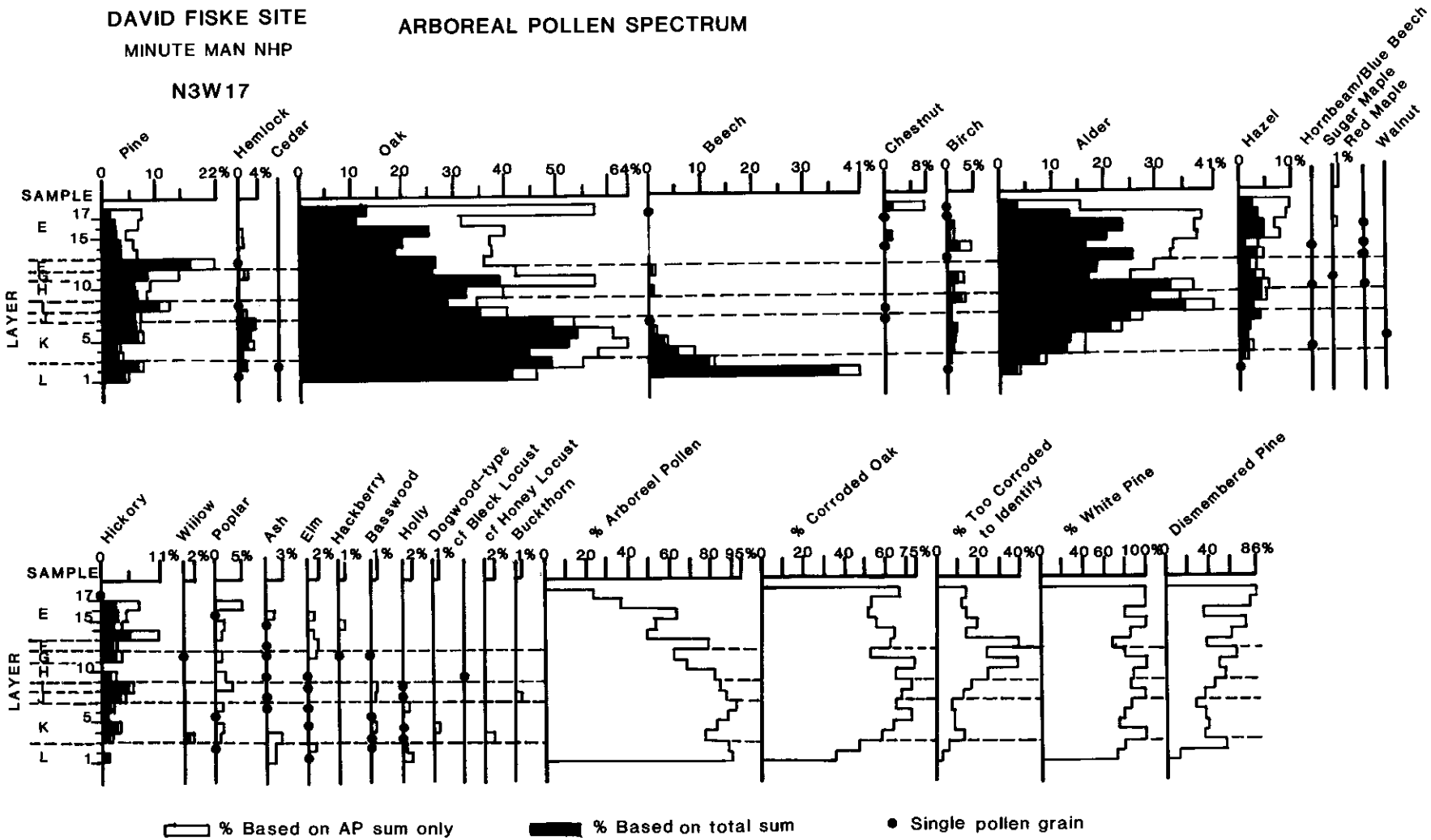


Figure 11-5. David Fiske site arboreal pollen spectra.

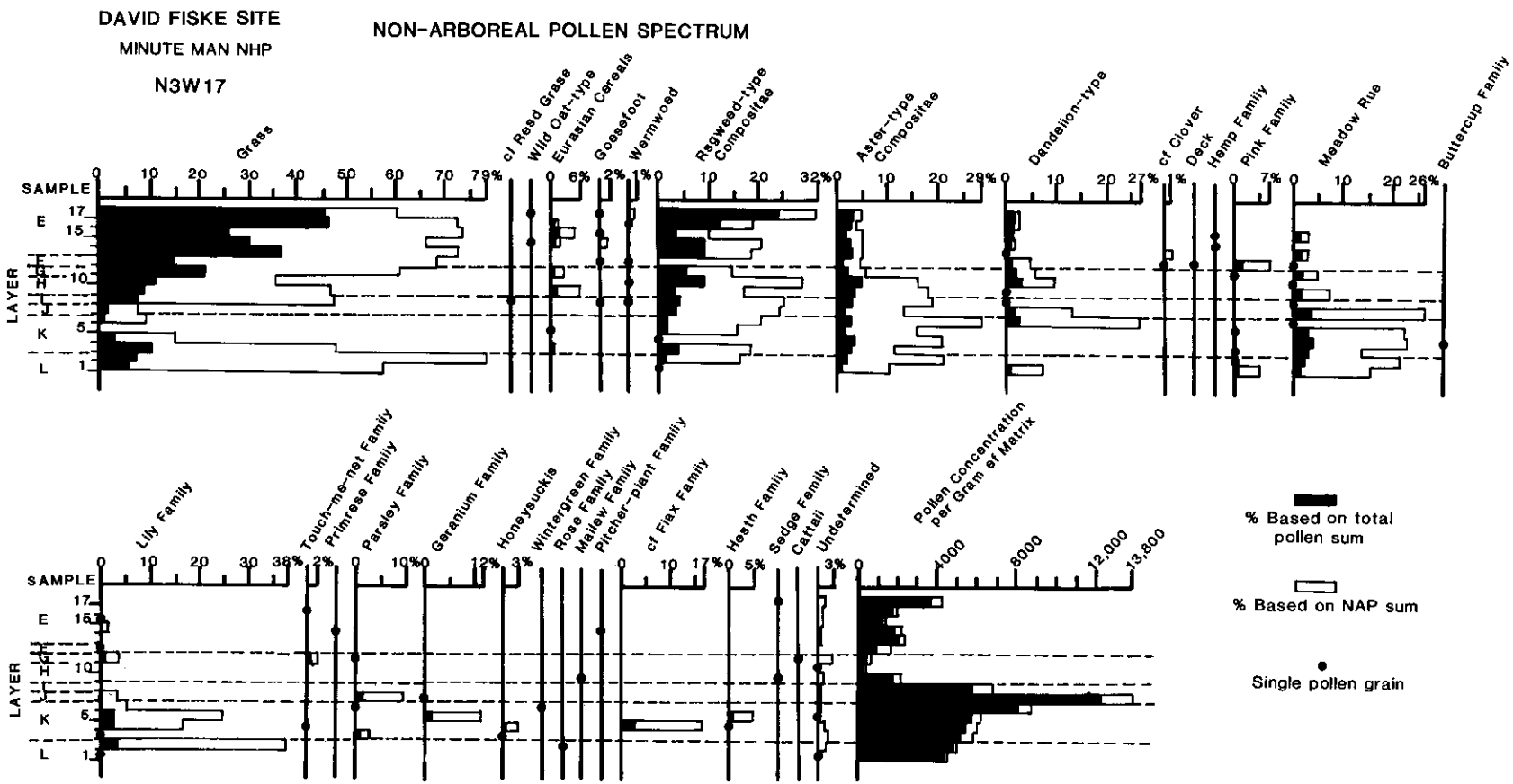


Figure 11-6. David Fiske site non-arboreal pollen spectra.

dividual taxa. These would not be meaningful in the absence of chronological control over sedimentation rate and might be mistaken for pollen influx data. All pollen grains too degraded to be identified were tabulated to provide further control over corrosion factors. Unidentifiable pollen grains were not incorporated in any sum from which the frequencies of other types were computed, but the data for this pollen group, as a percentage of total identifiable and unidentifiable pollen, are presented in Figure 11-5. Corroded oak pollen grains, a prominent type that retains its identity while readily degrading (van Zeist 1967:49), were also tabulated and appear in Figure 11-5. The terms "corroded" and "degraded" are used interchangeably here and refer to any kind of pollen deterioration other than tearing. They are not intended as references to the specific classes of deterioration defined under these terms by Cushing (1964) and Havinga (1984).

Historical archeologists most frequently encounter plants under English names in their documentary sources, and therefore the common New England names for plant taxa are employed in both the text and the diagrams. A conversion table (Table 5-1) of vernacular and Latin names is provided for those wishing to place these data in context with those of the paleoecological research community.

The hollow bars in the pollen diagrams are based on relative frequencies (percentages) computed from separate sums for arboreal and non-arboreal pollen types, while the solid bars in the diagrams reflect percentages computed from the total sum of all pollen types present (arboreal, non-arboreal, and undetermined). This separation serves to differentiate regional and local pollen sources to some extent and reduces the statistical distortions that the contributions of pollen types reflecting different phenomena induce in each other in the hollow bar diagrams. It has the disadvantage of producing misleadingly high percentages among minor pollen types with small counts. Such disparities employed in conjunction with percentages computed from total pollen may, however, provide valuable data concerning the relative importance of given taxa in the ground cover at different times.

POLLEN RESULTS

The David Fiske pollen taxa spectra (Figures 11-5 and 11-6) may be divided into two broad zones on the basis of dominant vegetation type. The arboreal pollen types are most prominent at the bottom of the profile from samples 1–9. The non-arboreal pollen types become more important toward the top of the analyzed profile segment in samples 9–17.

THE ARBOREAL POLLEN ZONE (SAMPLES 1–9)

The most conspicuous feature of the deeper half of the profile is the sudden decrease in beech (*Fagus*) between samples 1 and 2 and the subsequent orderly decline of the type through sample 6. This is too abrupt to reflect a natural phenomenon. It must record tree cutting. Total tree pollen is depressed only in samples 3 and 4, and both oak and alder percentages rise in the David Fiske profile in the wake of the fading beech counts. This arrangement implies that only beeches were cut and that either populations of the other two main arboreal types colonized the space created or that the pollen percentages of these two taxa statistically expanded in response to the shrinking of the beech pollen contribution.

Phytolith data (see above) indicate what happened. The deciduous tree phytolith frequencies in the David Fiske profile (Figure 11-3) drop off markedly between samples 1 and 4. They subsequently decline steadily toward the top of the profile. While pollen blows around to varying degrees, phytoliths, for the most part, do not. They are deposited where the parent plants decompose and are generally considered to reflect in-situ vegetation (Piperno 1988a:44). The distribution of deciduous-tree phytoliths in the profile (Figure 11-3) conforms almost exactly to the beech pollen spectra (Figure 11-5). The vicinity of the sampling locus must have been clear-cut. The dominant tree-type was beech and therefore beech trees were the primary victims, although all other trees were removed as well.

Beech pollen production is about one-seventh

that of oak (*Quercus*) and roughly one-seventeenth that of alder (*Alnus*). Beech pollen is also not as widely disseminated (Erdtman 1969: 117–118, 121; Raynor, Ogden, and Hayes 1974: 88). The cut beeches must have been growing on or immediately adjacent to the sampling locus, and phytoliths indicate that they were not replaced by other trees. The oak and alder pollen was blown to the site from adjacent stands. The clearance episode recorded must have been quite local and did not noticeably affect adjacent oak-dominated forests.

The alder pollen frequencies are part of a different cultural phenomenon. Alder counts were initially quite low. The increase in the type up through the profile was proportionately much greater than that of oak, and alder counts continued to rise after the oak contribution went into eclipse. A real expansion in the local alder population during deposition of the lower half of the profile appears to be indicated. Alders like moist soil. They are most frequently encountered on low ground around swamps, on the margins of streams and wet meadows (Fernald 1970: 537–538). In paleoenvironmental investigations alder counts are often interpreted in terms of greater or lesser precipitation. What they really register, however, is relative soil moisture, and they will colonize habitat made available as lakes and ponds fill in or are drained (Janssen 1959: 56).

The correlation of the David Fiske site alder sequence with land clearance suggests that cultural rather than climatic mechanisms were most likely responsible for the increase in the alder population. The most fertile, least drought-prone soils of New England lay in the swamps, and these were drained and converted to meadow at an increasing rate in the 18th and early 19th centuries (Eliot 1760:10; True 1934:lvi; Russell 1976:459; Donahue 1983:53). A pioneer 17th-century wetland reclamation episode could be recorded in the David Fiske alder pollen sequence. The opposite may also be true. Seventeenth-century efforts at ponding are recorded, and creation of artificial wet meadows was practiced in the early 18th century (Eliot 1760:10, 11). The possibility also remains that the new alder habitat/wetland that was created was an unintended by-product of increased runoff resulting from land clearance.

Pollen frequencies increase or decrease relative to both the numbers of contributing plants and the distance to the parent population. This makes it difficult to ascertain either population size or location from counts of taxa well adapted to wind pollination. The distribution of alder frequencies in a series of cores down a low hill and across a wet meadow at Fort Necessity in southwestern Pennsylvania (Kelso, Stone, and Karish 1990:11, figure 2), however, suggests that alder pollen percentages decline a short distance from the source plants. The Fiske alder population developed quite close to the sampling site, perhaps within 100 ft. Phytolith data from samples 9 and 10 confirm this.

Changes in sedimentary processes are also recorded among the David Fiske pollen and phytolith spectra. Pollen concentrations rise modestly but steadily from sample 1 at the bottom of the profile through sample 5 and then peak abruptly in samples 6 and 7. This concentration sequence resembles the Dimbleby (1985:figure 3) pollen concentration model for a normal soil profile as seen at Fort Necessity (Figure 11-4). Most of the pollen in a modern soil is located in the upper 4 cm (Dimbleby 1985:5), and concentrations such as those in samples 5 and 6 are considered horizon markers for the surfaces of buried soils (Dimbleby 1985:45–60; Kelso and Beaudry 1990:75). The David Fiske pollen concentrations do not decline toward the bottom of the profile as much as in most profiles with which Dimbleby (1985) illustrates this pattern, but the overall pattern seems to reflect such a buried surface.

The pollen preservation data appear to disagree. In a normally developing soil profile the pollen should be less well preserved at the bottom of the profile than at the top because it is attacked by oxygen and fungi as it leaches down. At David Fiske the opposite occurs. Both "% corroded oaks" and "% too degraded to recognize" are relatively low in the bottom two

samples where beech is still prominent, and both increase abruptly above sample 2 in the matrix deposited after clear cutting. Better preservation at the bottom of a sequence normally means that the pollen at the bottom was rapidly and deeply buried under an episodic fill (Kelso et al. 1989:241, figure 5; Kelso and Beaudry 1990:75, figure 7).

The pollen concentration and preservation data indicate a deposition rate slow enough to permit some pollen leaching but rapid enough to curtail pollen degradation. Steady sheetwash onto the sampling locality from the cleared hill above the site may best account for this phenomenon. Changes in soil color and texture above sample 2 also suggest that there was a change in the sedimentation regimen, and an abrupt increase in the fragmentation of pine pollen grains in sample 2 may have resulted from battering of the pollen grains during hillwash.

Phytoliths apparently do not percolate downward in soil profiles like pollen (Rovner 1986:23), and the recovery of the highest deciduous phytolith counts in the same level as the highest beech pollen counts (Figure 11-3) supports the burial hypothesis. Phytoliths weather in patterns similar to pollen grains (Fisher and Kelso 1987:39), and the David Fiske phytoliths display a sequence of better preservation at the bottom of the profile (Table 11-5). Phytolith degradation does not, however, become apparent until sample 9, implying that deposition of samples 1–8 must have been quite rapid. Extensive upland erosion onto lowland habitation sites has been a normal facet of historical-era land use in Middlesex County (Carroll 1968:plate 30; Snow 1969:10, 13) and apparently occurred here as well. If this sheetwash interpretation is correct, the hillsides around the farmstead must also have been cleared, and the statistical oak pollen increase in samples 2–5 was most probably derived from the regional rather than the immediate local oak populations.

Herbs contributed only 10–25% of the pollen in the deeper David Fiske pollen zone and it is obvious that all quantities of non-arboreal pollen exceeding 10% of the total sum resulted, statistically, from the tree cutting. Eurasian cereal grass (*Cerealia*) pollen is present in the spectra indicating that human interest in the sampling site persisted after the trees were cut. It appears, however, that at the David Fiske site there was little or no expansion of the local herbaceous ground cover in the wake of clearance, and this interest apparently ran counter to the normal processes of secondary succession. Particularly notable is the absence of any significant increase in the wind-pollinated Compositae (*Ambrosia*-type). Ragweeds (*Ambrosia*) took over the similarly clear-cut hillside at Fort Necessity (Figure 11-4) and were ultimately superseded by grasses (Gramineae). The very modest gains in these two types immediately following the David Fiske clearance were soon lost, along with dandelion type (Liguliflorae) between samples 3 and 8. Phytolith data assign the few grasses present to the weedy Chloridoid category (Figure 11-3) and it would appear that David Fiske's farmyard was even more barren at this point in time. The abrupt depression and recovery of grass frequencies in samples 4–7 correlate with the appearance of Eurasian cereal grass pollen on the site and with the rise of the Festucoid phytolith taxa associated with agricultural, fodder, and lawn grasses (Fisher and Kelso 1987:41). Meadow hay is cut in the late summer and fall, after most grasses have completed anthesis. If cereal pollen reflects the presence of cattle, as it did at Fort Necessity (Kelso 1987c:1), the association between declining grass pollen frequencies and rising grass phytolith percentages could reflect fodder remnants deposited with the manure of domestic livestock. Local plants should dominate the soil surface pollen spectrum at any given point (Janssen 1973:33), and the absence of a local ground cover would account for the overrepresentation of alder pollen wind-transported from off site.

The remaining non-arboreal pollen types are, by and large, insect pollinated and probably originated on or very near the sampling locus. None could have been a major element in the local flora, but their presence where even grass and ragweed were suppressed seems incongruous.

In spite of their name, the majority of the species of meadow-rue (*Thalictrum*) present in New England prefer wooded habitat (Fernald 1970:656–659), and it is difficult to imagine even a small population of lilies (Liliaceae) persisting in the barren soil of the David Fiske houselot. It is probable that most of the lily, meadow-rue, and other herb pollen in this deeper pollen zone originated in the pre-clearance woods on the hillside above the site and washed to its present, post-clearance, stratigraphic position.

Grass pollen frequencies rebound somewhat, and the domesticated Festucoid grasses expand at the expense of the weedy Chloridoid taxa among the phytoliths (Figure 11-3) in the sample 8 black lens. The most distinctive attribute of this sample, however, is the abrupt drop in pollen concentration from the 4-cm deep peak in samples 6 and 7, which defines a fossil surface (Dimbleby 1985:5, 45). The streaks of black extending down into sample 7 suggest percolation from sample 8, but the change in grass pollen, grass phytolith, and pollen concentration frequencies at the sample 8/7 boundary are abrupt, and, oak pollen excepted, the sample 7 spectra seem rather more closely allied to those of sample 6 than to those of sample 8. Both pollen concentration and sediment color suggest that some changes in very local land use occurred at this point of deposition, and the low concentrations may be the byproduct of dilution of the sample 8 matrix by mixture with much less polliniferous sand from above. Sand rarely retains pollen, and mixing would account for the intermediate pollen concentration of sandy sample 9 as well.

Rapid, relatively deep burial is required for preservation of a surface pollen spectrum (Dimbleby 1985:5, 45) such as that visible in sample 7. To cap and fossilize this surface, the black lens must have been quickly deposited and followed immediately by the sand. This would place the black lens in the episodic fill category. There is, however, nothing distinctive about the sample 8 spectra to mark it as exotic to the site. Its spectrum appears consistent with local developments. If dilution by sand accounts for the intermediate pollen concentration in sample 8, the surface indicated by the pollen concentration samples 6 and 7 may have actually lain *in* rather than *under* the black lens.

Neither our clearance nor our manure hypothesis finds much support in the paleobotanical data. The pollen data strongly suggest that this black lens postdates local land clearance by a significant stratigraphic interval, and the phytoliths tend to confirm this view. Forage grasses (i.e., Festucoid) largely displace the weedy Chloridoid taxa in sample 8, but the relative quantity of all grass pollen present seems rather small, and the Eurasian cereal pollen that registered the presence of cattle droppings in all four cores at Fort Necessity (Kelso 1987c:figures 1–5) is completely absent in this sample spectrum. The sample 8 black lens is more likely associated with the onset of the different kind of land use recorded in the site formation process spectra of the upper, non-arboreal pollen zone.

THE NON-ARBOREAL POLLEN ZONE (SAMPLES 7/9–17)

This profile zone is characterized by marked changes in the nature of site formation processes as well as major shifts among the pollen taxa. The most closely related, most readily explained changes are the abrupt decrease in pollen preservation indicated by the rise in the "% too corroded to identify" category and the marked depression of pollen concentrations in samples 9–12. These changes correspond to the lens of sand deposited on the sample 8 black lens and mixed into the bottom of the dark brown sediment of palynologist's layer E above. Sand is porous, permitting both oxygen and percolating rainwater easy access to all parts of a deposit. Sandy sediments rarely contain significant quantities of identifiable pollen. Most contain no pollen at all. Good preservation in samples 8 and 7 suggests that the sand lens accumulated quite rapidly, and the presence of sufficient pollen to warrant analysis in this deposit suggests that the sand itself did not long remain exposed. Burial was not instantaneous, however. Sand was mixed into the overburden, and pollen concentrations suggest that it may have intruded into the black lens below.

There was a change in pollen source as well as sediment source during deposition of the David Fiske sand. The proportion of oak pollen that appears corroded should have increased as the percentage of pollen that was "too corroded to identify" became larger in samples 9–13. It did not. The "corroded oak" category decreases in the middle of the sand lens, indicating that oak pollen preservation had improved. This shift suggests that the source of oak pollen in the deposit shifted from old oak pollen recycled by slopewash from pre-occupation deposits on the hill above the site to new wind-transported pollen. The local trees, other than alder, had already been cut off. This new oak pollen must have originated off site.

Regional vegetation events are registered by low amplitude, low frequency changes among pollen spectra while local events are recorded in high amplitude, high frequency shifts among counts. Spectra derived from a pollen-source area larger than the immediate site area but not regional in scale (i.e., "extra-local") produce intermediate patterns (Janssen 1973:35). Oak pollen percentages computed from both total pollen and arboreal-pollen-only sums decline steadily from sample 7 to the top of the profile. This means that the input of oak pollen to the sampling locus was really declining. Total arboreal pollen follows suit. Oak pollen is dominant in the regional pollen rain of New England because oaks were dominant in the regional forest. This parallel decline in oak and total arboreal pollen probably records the progressive deforestation of the region, which characterized land use in the colonial era (Davis 1965:395). The oak pollen frequencies record a cultural process on a regional scale.

Alder percentages based on total pollen remain high until sample 10. At that point they decline abruptly and then fluctuate markedly to the top of the sequence, where they again drop off abruptly in sample 17. Alder percentages calculated from arboreal-pollen-only also decline abruptly in sample 10, but they subsequently increase until they fall off again in sample 17. Statistical constraint is responsible for this last pattern. The alder population really dropped off above sample 9 and then roughly stabilized until sample 17. Its pollen contribution to the arboreal-pollen-only spectrum rose because the oak decline first noted in sample 7 persisted after alder stabilized.

Alders are short trees with relatively narrow habitat preferences. Alder pollen, although wind-dispersed, is best considered an edaphic indicator (Janssen 1959:56). Deciduous tree phytoliths (Figure 11-3) also decline again at layer I. The David Fiske alder decline has the aspect of an event. Alders were not progressively eliminated. The numbers of these trees in the immediate vicinity of the site were simply reduced and maintained at a lower, relatively uniform figure over a period of time. The remaining alders were apparently removed about the time samples 16 and 17 were deposited. The parallels between the alder pollen frequencies and deciduous tree phytolith patterns further suggest that the alders were growing close enough to the site for leaves to blow onto the sampling locus.

Grass and the wind-pollinated Compositae frequencies increase as the arboreal types decline. Fisher's phytolith data (Figure 11-3) suggest that the Festucoid agricultural, fodder, and lawn grass group had largely supplanted the weedy Chloridoid grass taxa, and that the representation of the insect-pollinated herbs was depressed. This suggests that a local ground cover dominated by grass but incorporating a few weeds was developing. Pollen concentrations suggest an alternative interpretation.

Tree pollen dominates the regional pollen rain because it starts out higher than herb pollen, but only a small proportion of the tree pollen produced is actually drawn up into the higher atmosphere. The regional arboreal pollen spectrum, therefore, contains much lower concentrations of pollen than locally produced deposits of non-arboreal pollen (Janssen 1973:40). Insect-pollinated plants produce much smaller quantities of pollen than wind-pollinated taxa (Erdtman 1969:63). Pollen concentrations in the upper profile at the David Fiske site should have increased when the regional oak and the local

insect-pollinated herb populations were replaced by a local wind-pollinated herb population that included the pollen-prolific ragweed. Quite the opposite occurs. Pollen concentrations increase only modestly in the sand (layers H–F) and are rather uniform in layer E. Pollen concentrations in the upper pollen zone do not reach levels comparable to even the lowest concentrations of the deeper pollen zone until the ragweed-caused peak in sample 17 at the top of the series.

When one pollen contributor to a fixed numerical sum declines, the remaining sources statistically take up the slack to fill out the sum. This sometimes leaves the false impression that the contributing populations of the statistically increasing pollen types are getting larger. The low pollen concentrations in this segment of the upper profile, together with the corresponding decline in arboreal pollen and rising grass frequencies suggest that such statistical constraint is responsible for the apparent grass and wind-pollinated Compositae dominance of the upper profile. What appear to be recorded here are generally stable concentrations of non-arboreal pollen statistically expanding to fill the vacuum created by the demise of the trees, rather than the development of any significant local ground cover. An increase in pollen concentration contemporaneous with the wind-pollinated Compositae and grass peaks of sample 17 suggests development of some ground cover, but during deposition of most of the upper profile the area may well have been even more barren at this time than during the clear-cut phase below sample 8.

Pollen concentration, "corroded-oak" and "too corroded to identify" frequencies in palynologist's layer E contrast with those of the equivalent measures in the sand below. The changes generally correspond to sediment type and must be the by-products of site formation processes. Normal site and pollen record formation agents in such a rural soil should leave a pattern of highest pollen concentrations at the top of the profile and largest proportion of degraded pollen at the bottom, as at Fort Necessity (Figure 11-4). An episodic fill without a ground cover would be indicated by the opposite—highest pollen concentrations at the bottom and highest degradation figures at the top (Kelso and Beaudry 1990; Kelso et al. 1989:239, figure 12-6). An episodic fill with a ground cover would present a normal pattern at the top and a fill-type pattern toward the bottom (Kelso, Mrozowski, and Fisher 1987:112, figure 6-3). None of these patterns is evident here. The unsystematic, minor irregularities in pollen concentrations and pollen preservation measures in palynologist's layer E most closely resemble the irregular patterns of these measures observed within individual 19th-century layers at the Kirk Street Agents' House backlot in Lowell, Massachusetts (Kelso, Mrozowski, and Fisher 1987:figures 6-1, 6-2, 6-3), and 17th- and 18th-century layers at Scottow's Dock in Boston, Massachusetts. Archeological data from these sites suggest that such patterns are attributable to soil compaction, which prevents penetration of the soil by percolating ground water and oxygen, and to continuous soil disturbance associated with active human utilization of the plots.

There was a small but abrupt increase in the percentages of degraded phytoliths above sample 8 in the David Fiske profile. This appears to reflect ongoing agitation of the matrix and tends to support the pollen-based inference that the upper portion of the David Fiske profiles may have been in a constant state of flux. The presence of Eurasian cereal pollen in the spectra strongly suggests that the disturbance mechanisms were cultural rather than natural in origin, and the segment above the sample 8 black lens may constitute the main portion of the occupation period in the houselot. The deeper portion of the profile may have been deposited so rapidly as to constitute an essentially "proto-occupation" record. Constant soil disturbance implies a level of activity inconsistent with the few artifacts recovered from the area. Some of the disturbance can possibly be attributed to non-human inhabitants of the farmyard.

The pollen grains of the primary Eurasian cereal grains—wheat, barley, rye, and oats—are distinguishable from other grasses on the basis of their size. They are not native to this hemi-

sphere. Where encountered, this pollen almost certainly reflects the presence of persons under the influence, at least, of European culture. Rye pollen is wind dispersed, but wheat, barley, and oats are self-pollinating (autogamous). They produce little pollen, and the relatively few grains produced rarely escape until the grain is threshed (Vuorela 1973:10). Cereal pollen is not often found in natural deposits. It adheres to grain and cereal plant parts (Behre 1983:227) and within the cultural milieu is usually recovered where people have been processing cereal grains or waste products (Behre 1983:227; Greig 1982:54; Kelso 1985a:386-391, 1985b:79).

In urban situations cereal pollen frequencies have been found to vary with the kind and intensity of human activity on given plots (Kelso and Beaudry 1990; Kelso, Mrozowski, and Fisher 1987:112, figure 6-4). In the rural sequences at Fort Necessity (Kelso 1987:figures 1–4) a few grains of cereal pollen per sample were deposited with manure on developing pasture. The cattle dropping this manure browsed both holly (*Ilex*) and stump-sprouted chestnuts (*Castanea*) out of existence, and the churning of their hooves produced a horizon of poor pollen preservation in the profile.

Eurasian cereal was present in 5 of the 9 samples in the upper half of the David Fiske pollen profile, and counts of the type were somewhat larger than in the lower part of the profile. Human-related activities had either intensified or become more frequent, and persistent soil disturbance may account for the relative uniformity of the pollen concentrations and the pollen preservation measures. The increase in ragweed (wind-pollinated Compositae) above sample 9 is consistent with this interpretation. So is the appearance of goosefoot (Chenopodiaceae) and mugwort (*Artemisia*) in small but regular amounts. These last two types are nitrophylic, and their percentages increased at the Shattuck Farm site with late 19th-century improvements in soil fertility resulting from the documented application of large quantities of manure (Kelso 1985a:347). The site formation and pollen taxa data for palynologist's layer E suggest several conclusions about conditions at the sampling locus: 1) the sediments were frequently, perhaps continuously, disturbed; 2) this disturbance was cultural in origin; 3) soil fertility had improved; 4) the area may have been relatively barren, even compared to the clear-cut ground recorded in earlier deposits; and 5) domesticated or at least semi-cultivated grasses were replacing weedy grasses in spite of the relative increase in ragweed relatives (wind-pollinated Compositae) in the counts.

When synthesized these inferences about layer E imply that the sampling locus lay in a cowpen or barnyard. The Festucoid grass phytoliths would have been derived from fodder grasses deposited with the Eurasian cereal pollen in manure, and the manure would make the soil both more fertile and darker brown. The trampling of the cattle would have maintained a steady state of soil disturbance, as well as keeping the alders in the vicinity of their water supply browsed back.

Palynologist's layer E is about as thick, 12 cm, as the depth of normal colonial-era plowing (Rogin 1931:13), and the poor pollen preservation and cereal pollen in layer E could also reflect cultivation of the site and the application of manure fertilizer following abandonment of the dwelling. Tillage, would, however, have homogenized the matrix and eliminated the rising herb/declining tree patterns registered among the spectra.

Summary and Conclusions

Archeological interest in phytolith and pollen analysis at the David Fiske site centered on testing two hypothetical explanations for the 3-cm thick black lens from which sample 8 was taken. One hypothesis proposed that the black lens reflected burning remnants from land clearance. The other hypothesis interpreted the black lens as organic residue of livestock manure. The lens contained no tree phytoliths and was stratigraphically located far above the point at which both tree phytoliths and local arboreal pollen disappear from the record. It therefore does not reflect land clearance. The percentages of phytoliths from forage grasses increase in and above

the black lens but are not as large as in later samples. Eurasian cereal grass and corn pollen indicate the deposition of manure on other sites. Neither is present in or immediately below sample 8. The black lens is not an organic remnant of manure. Neither of our working hypotheses was substantiated, but phytoliths did provide considerable information about land use at the David Fiske site.

The local woods in the immediate vicinity of the sampling site were dominated by beech trees. These, and all other kinds of trees in the vicinity, were removed in a clearance episode contemporaneous with deposition of the sample 2 matrix. Abnormally good preservation of both pollen and phytoliths in the deep portion of the profile and a subsequent decline in the conditions of these microfossils indicates rapid burial of the sampling site by sediments washed off of the hill above the site. This implies that the clearing episode included the hill above the site. The increase in oak pollen in samples 2–5 is, therefore, a statistical response of the regional pollen rain to the destruction of the beech pollen sources around the sampling locus rather than an indication of selective cutting or reforestation. Much of the herb pollen in the deeper samples of the profile may have been redeposited by sheetwash, and the site itself appears to have been denuded of even most herbaceous vegetation at this time. The establishment of the David Fiske farmstead apparently included a water control project of some kind, drainage or ponding, which produced a habitat suitable for alder. Subsequent correlations between pollen and phytolith data suggest that this expanded alder population was close enough to the farmyard to drop phytoliths on the sampling site.

Regional deforestation is recorded in the progressive decline of oak pollen above sample 5, but the local alder population continued to expand until the sample 7–9 level. This expansion stopped and the alder population was sharply reduced above sample 9. Percentages suggest a smaller, fairly stable alder population up through sample 16 when the numbers of these trees were again sharply reduced.

A change in the matrix deposition regimen occurred contemporaneously with the first suppression of the alders. A rapidly applied sand deposit resulted in the fossilization of a surface at sample 7, and the subsequent matrix accumulated rapidly enough to preserve pollen in the sand itself. The replacement of phytoliths attributable to weedy grass species by those of domesticated or fodder grasses as cereal pollen became a regular element in the counts above sample 8 suggests an intensification of human activity, probably associated with stock raising. Both pollen and phytolith site formation process measures suggest that soil disturbance intensified, while reduced pollen concentrations suggest that the area was probably quite barren of vegetation. The earlier deposits, below sample 8, may have accumulated very rapidly, and it appears probable that the sample 8–17 profile segment records the main portion of the David Fiske occupation.

Chapter 12

Archeological Investigations of the Daniel Brown Farmstead

Alison D. Dwyer, Alan T. Synenki, and Nora Sheehan

Introduction

In 1739 Daniel Brown purchased a 7-acre, 62-rod parcel of land north of Nelson Road, which contained a house, orchard, and pasture, and a 23-acre parcel with a barn south of this same road (Ronsheim 1968b:9). Although the documentary record is unclear regarding the precise length of time that the parcel north of Nelson Road was used as a residence, it is clear that it was occupied for at least 32 years—from ca. 1722 up to at least 1754. It is possible that the parcel was inhabited for as long as 61 years (ca. 1700–1761), but certainly no longer than that (Abel and Snow 1966:3; Ronsheim 1968b:48; Malcolm 1985:36; MacMahon 1986b:314). Sometime in the third quarter of the 18th century, perhaps ca. 1770, a 4-acre, 146-rod parcel north of Nelson Road appears to have been sold to Josiah Nelson, Daniel Brown's neighbor to the east. This parcel is believed to have encompassed the area in which Brown's house existed (Abel and Snow 1966:3; Ronsheim 1968b:9–10; MacMahon 1986b:317–318; but see Malcolm 1985:37). Subsequent to the use of this parcel as a residence, it appears to have been used as orcharding and upland in the second half of the 18th century and possibly through the 19th century (Ronsheim 1968b:1; Malcolm 1985:figure 2).

Daniel Brown was a cordwainer—a person who made shoes. According to Hudson (1913:64), Daniel was born in Watertown, Massachusetts, in 1703 and served as a tithingman, a selectman, and an assessor in the town of Lexington. When Daniel Brown purchased the above mentioned property from Joseph Meriam's heirs in 1739, it already had a house on it (Ronsheim 1968b:9). The documentary record indicates that a house was built sometime between 1700 and 1722 when Sherebiah Kibby, also a cordwainer, purchased the property from Samuel Angier, its first owner (Ronsheim 1968b:64). Kibby then sold the property to Thomas Cutler who in turn sold it to Joseph Meriam (Table 12-1). No other buildings were mentioned in the documentary record. In 1966 archeological investigations uncovered the remains of the house and another building, which was perhaps a leatherworking shop (Abel and Snow 1966:59–60).

In the summer of 1987 three weeks of archeological field work were conducted within the homelot area and beyond to locate and identify the number and kinds of other possible subsurface remains present. This was deemed necessary since Abel and Snow's (1966) investigation focused primarily on the house and alleged shop.

The Daniel Brown site is currently located in Lincoln, Massachusetts, within the Nelson Road area of MIMA (see base map, Appendix A-3 and Figure 12-1). The area immediately surrounding the house remains consisted primarily of small oak, pine, and juniper trees. This vegetation was cleared prior to this project's investigations. Larger pine trees existed beyond this area to the east, west, and north. A dry-laid fieldstone wall completely encompassed the area where the archeological investigations were conducted. Nelson Road exists to the south of the area investigated, and the Hanscom Air Force housing project is located to the north.

As mentioned in Chapter 1, the purpose of the current investigations was to provide MIMA with an inventory of the subsurface archeological remains in the Daniel Brown homelot in order to

Table 12-1. Property transactions for land within the Daniel Brown site.*

Date	*Transaction*
17th century	Property part of Cambridge Farms.
late 17th century	*Samuel Angier* is first owner of property.
ca. 1700	Angier sells to *Sherebiah Kibby*, a cordwainer. No buildings present.
ca. 1722	Kibby sells to *Thomas Cutler*. Property has at least a house by this time.
1725	Cutler sells to *Joseph Meriam* who dies in 1727.
1739	Meriam's heirs sell to *Daniel Brown*, a cordwainer.
1754–1764	Brown still present in 1754 but moves to Lexington by 1764.
1770	Brown sells eastern portion of his land north of road to *Josiah Nelson*. Sites 22 and 23 were located on this nearly 5-acre parcel, although no house or buildings were mentioned in the 1770 deed. House was probably gone by this time.
1818	Josiah's heirs split his property and *Joshua Nelson* gets the houselot including the parcel from Daniel Brown.
1845	Joshua's heirs sell to *Samuel A. Houghton* and *Joseph D. Brown*, who in the same year sell back to *John Nelson*. John later left property to heir George.

*Adapted from MacMahon (1986b:315), which was taken from Ronsheim (1968b:9–12, 48–50), Abel and Snow (1966:2–3), and Malcolm (1985:36–38).

explicate the utilization of space, including the arrangement of some of the homelot's facilities. To this end, as with the Joseph Mason and David Fiske farmsteads (Chapters 8 and 10), the subsurface investigations not only attempted to determine the presence or absence of such well-defined water and waste management facilities as privies, wells, and discrete trash pits, but also sought to identify other no less significant ephemeral cultural remains through the spatial distribution of selected consumer goods and soil compounds. Detailed stratigraphic analyses were conducted to determine, to the extent possible, the processes responsible for the spatial patterns identified, including any earth moving episodes that might have occurred during or after use of the homelot as a residence. This information will hopefully allow MIMA to better manage not only this site's subsurface remains but possibly those of other sites that have an early-to-mid 18th-century component. This information should also allow a better understanding of the use of space on one rural 18th-century New England farmstead, which was occupied for a relatively short period of time and does not appear to have been subject to extensive post-occupational alterations (MacMahon 1986b:339). This information is considered important because there is a lack of published comparative data from MIMA and elsewhere in eastern Massachusetts. As indicated in Chapter 1, such pre-Revolution data are not only considered essential to a more complete understanding of variation in MIMA's 1775 landscape and the factors responsible for it, but to our broader understanding of change (or lack thereof) in the use of space through time.

Previous Research

In the course of the archeological investigations of the Josiah Nelson farmstead in 1964, a walkover of the parcel west of the farmstead was conducted to look for surface evidence of outbuildings that might have been associated with it (Abel and Snow 1966:2; see Appendix A-3). As a result of the walkover, "two peculiar shallow depressions [that contained] bits of broken bricks and sherds of red earthenware" were located (Abel and Snow 1966:2). Confident that one of these depressions was the remains of a house,

Figure 12-1. 1989 Project photograph of the Daniel Brown site area, facing west.

but uncertain as to who owned it in the 18th century, the two depressions were designated Sites 22 and 23, the next available accession numbers at MIMA. At the time of their discovery, funds were not available for subsurface investigations of Sites 22 and 23; therefore subsurface excavations were postponed until 1966 when money was allocated for this purpose (Abel and Snow 1966:2). In the interim, a documentary search for the ownership of the property ensued (Abel and Snow 1966:2–7; Ronsheim 1968b:9–10). In 1985 a reassessment of this previous research was conducted, which included a reinventory of the archeological materials recovered from this research (MacMahon 1986b).

DOCUMENTARY EVIDENCE

As mentioned above, Samuel Angier appears to have been the first owner of the parcel under investigation, having acquired it sometime in the late 17th century (Ronsheim 1968b:64). At that time, Lincoln was still part of what was referred to as Cambridge Farms. According to MacLean (1987:29), this portion of Cambridge Farms—including much of the northeastern part of present-day Lincoln—was granted by the General Court to Cambridge Farms in 1641 as part of the Shawshin grant. It wasn't until 1714 that this portion of Cambridge Farms was incorporated into Lexington (Hudson 1913:15). In 1754 this part of Lexington became Lincoln (MacLean 1987:127).

As Table 12-1 indicates, Sherebiah Kibby, a cordwainer, acquired the property from Samuel Angier ca. 1700. Although it is unknown whether Angier actually resided on the property, it is likely that Kibby did since a house is recorded as part of the sale of the property from Kibby to Thomas Cutler in ca. 1722. Cutler sold the property three years later to Joseph Meriam who

seems to have lived there for 14 years until his death. Meriam died in 1727 and his heirs then sold the property to Daniel Brown in 1739. The property that Brown purchased consisted of a 7-acre, 146-rod parcel north of Nelson Road with a house, orchard, and pasture, and a 23-acre parcel with a barn south of Nelson Road. These parcels are presumably the same parcels mentioned in the previous deeds of sale.

As mentioned above, it is unclear precisely how long Brown lived on the parcel under investigation. Furthermore, it is unclear who, if anyone, resided in the house after Brown did, and when the house was removed from the property. As MacMahon (1986b:314–315) notes, this uncertainty is primarily due to the lack of deeds documenting the transfer of various parts of the 30 acres. Because of this, several previous researchers (Abel and Snow 1966:3; Ronsheim 1968b:9; Malcolm 1985:37–38) have offered several hypotheses regarding these issues.

As MacMahon (1986b:314) indicates, it seems likely that Daniel Brown moved from the house he occupied north of Nelson Road sometime between 1754 and 1757. This inference is based on the following information. Brown appears to have still been residing on the property in 1754 because in that year he signed a "Petition to the Inhabitants of Lexington" asking that his property not be part of the "proposed town of Lincoln" (Abel and Snow 1966:3). The petition was unsuccessful and his property became part of Lincoln when the town was incorporated. Although Brown appears to have retained ownership of a portion of the property until 1771, he probably ceased living there by 1757 since in that year he was referred to as "of Lexington" in his father's will (Malcolm 1985:36). He most certainly moved by 1761 since in that year he served as a selectman for the town of Lexington (Malcolm 1985:36). Furthermore, he is listed on the 1764, 1770, and 1771 tax records as a non-resident owner in Lincoln (Ronsheim 1968b:48). It is clear that Brown no longer owned any property in Lincoln by 1774 since he is not on the tax list for that year (Malcolm 1985:37).

Based on Ronsheim's (1968b:48) research, Abel and Snow (1966:3) suggest that Brown vacated the house sometime between 1754 and 1762 and that the house remained empty but extant in 1775. Abel and Snow (1966:6) suggest the house was the vacant house that contemporary accounts mention as the place where Paul Revere's famous ride of 1775 ended.

On the other hand, while Malcolm (1985:37–38) entertains the possibility that the house was extant in 1775 and perhaps later, she indicates that the "most sensible hypothesis" is that Nathaniel Whittemore, Jr., Brown's neighbor to the west, purchased Brown's western parcel in 1754 and resided in the house until 1770. This hypothesis presumes that the house was located on the western rather than the eastern part of Brown's parcel north of Nelson Road. It also presumes that the remains uncovered by Abel and Snow (1966) are not the remains of a house, but rather "an old storage cellar" that was too insignificant to record in the sale of the 5-acre parcel Brown sold to Josiah Nelson, Brown's neighbor to the east in 1770.

Although more recent research (MacMahon 1986b) has not provided any further insight into precisely when Brown ceased living on the property, or if the house was occupied by someone else after that, it has confirmed two important things. The first is that the remains uncovered by Abel and Snow are indeed those of a house as Abel and Snow (1966) originally proposed (MacMahon 1986b:334). The second is that the 5-acre parcel north of Nelson Road, which was sold to Josiah Nelson in 1770, encompasses the area in which the remains of a house and a possible outbuilding or shop (i.e., Site 23) existed (MacMahon 1986b:316–318). Therefore, the house remains uncovered by Abel and Snow (1966) are most likely the remains of Daniel Brown's house. This house was razed by 1770 and therefore cannot be the one that is associated with Paul Revere's famous ride (MacMahon 1986b:334).

ARCHEOLOGICAL INVESTIGATIONS

As discussed in detail elsewhere (Abel and Snow 1966; MacMahon 1986b), archeological investigations of Sites 22 and 23 were conducted

to determine if either of the two shallow depressions was the remains of Daniel Brown's house and shop or the "abandoned farmhouse" that oral history suggested was the place where "William Dawes hid from the British patrol" and where Paul Revere's well-known ride ended in 1775 (Abel and Snow 1966:6). According to Abel and Snow (1966), the investigations revealed that one of the depressions (i.e., Site 22) was the remains of a house cellar once occupied by Daniel Brown and "almost certainly" the abandoned farmhouse mentioned above; the other depression (i.e., Site 23) was identified as the possible remains of a leatherworking shop (Abel and Snow 1966:59–60).

As with most of the previous archeological excavations at MIMA (Synenki 1987), archeological excavations at the Daniel Brown site focused on the interiors of the presumed cellarholes. Limited excavations exterior to the cellarholes at the Daniel Brown site were also conducted, however (Figure 12-2). For example, prior to the excavation of the interior of Site 22, "several small test pits...[were excavated] to obtain typical soil profiles in areas which appeared to be undisturbed" (Abel and Snow 1966:8). Unfortunately, the location of these units is currently unknown. In addition to these excavations, "a three-foot-wide strip around all four sides" (Abel and Snow 1966:10) of the cellar was excavated to look for additional portions of the house, and the humus from an area measuring 20 ft × 25 ft to the west of the chimney base was removed in an attempt to locate the foundation of "the western part of the structure" (Abel and Snow 1966:12).

As just mentioned, based on the data at hand, MacMahon (1986b:334) concludes that although "it seemed likely" that Site 22 is the remains of a house that "may well be" the one that was last occupied by Daniel Brown prior to his move to Lexington in the 1750s or 1760s, no evidence exists to confirm Abel and Snow's (1966:6) assertion that the house was extant in 1775. According to MacMahon (1986b:334), there is some data to suggest that the house was moved or carefully dismantled by 1770 and its material reused elsewhere. In regard to Site 23, MacMahon (1986b:334) states that there is no evidence—documentary or archeological—to suggest that it is the remains of a cordwainer's house. As indicated below, no archeological evidence was uncovered during the current archeological investigations to ascertain the function of Site 23.

Methods

The purpose of the current archeological investigations was to determine the ways in which the yard spaces of the homelot were used. To accomplish this, archeological expectations were generated, field investigations were conducted, and analysis of the data was carried out according to the project-wide, multistage strategies outlined elsewhere (Chapter 2).

Archeological Expectations

With the exception of the house, no documentary information exists about the number, kinds, or locations of facilities that might have existed within the Brown's homelot. Nor is there any information about the kinds of activities that may have been conducted on the homelot. Consequently, as with the investigations of the Fiske homelot (Chapter 10), archeological data from previously excavated sites within MIMA and elsewhere in New England were used to generate the archeological expectations. These expectations were detailed in Chapter 10 and therefore will not be repeated here. Although it is recognized that the core of the homelot was the house, its expected material remains are not discussed here since the focus of the investigations was on the utilization of the space *surrounding* the house, not on the house itself. Furthermore, no additional archeological data regarding the house uncovered by Abel and Snow (1966) were exposed by the current investigations.

Field Methods

Archeological field investigations were conducted in the summer of 1986. The investigations

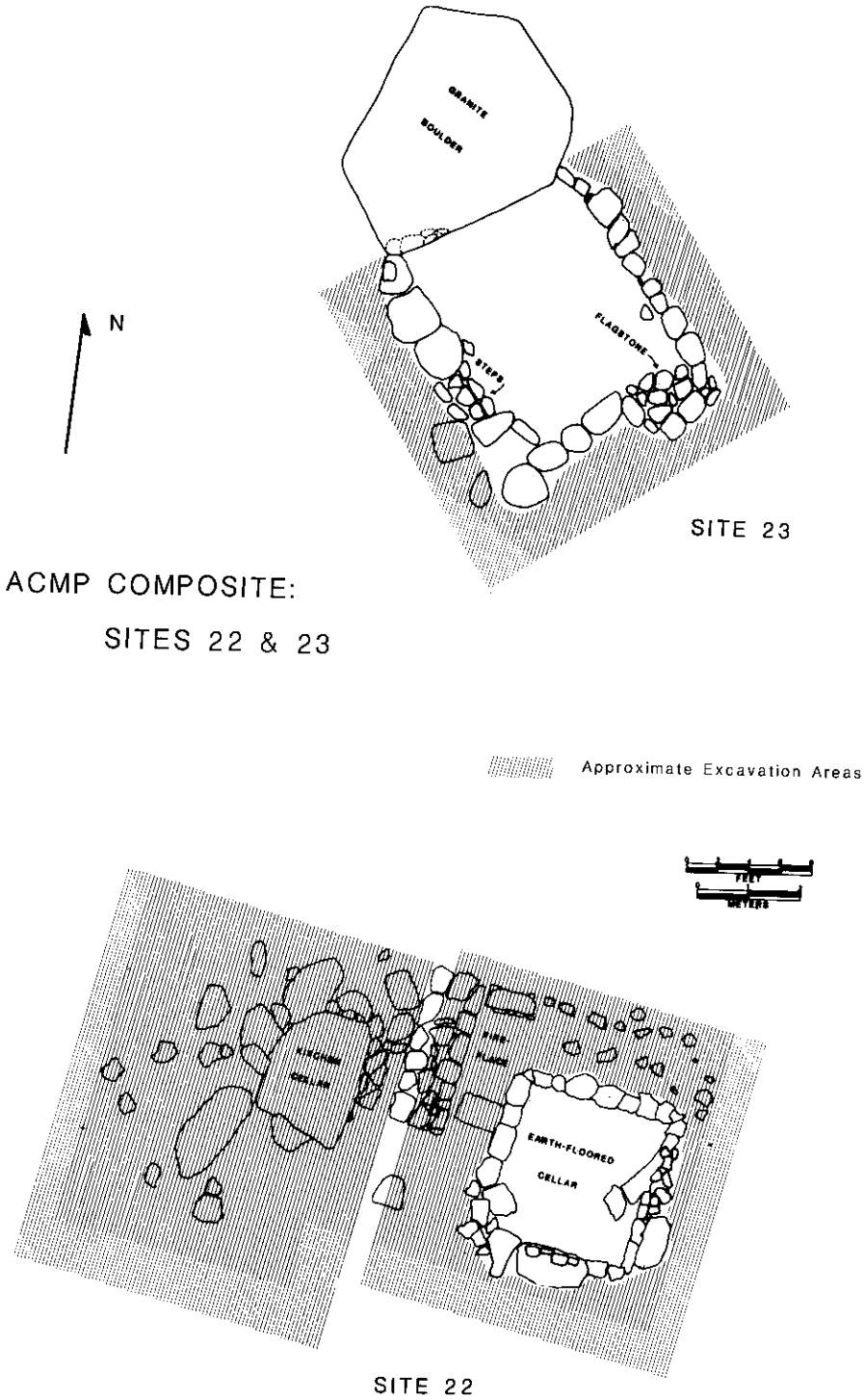


Figure 12-2. Composite plan of the areas that have been excavated within and exterior to Sites 22 and 23 (from MacMahon 1986b:306).

consisted of a systematic walkover, an intensive site survey, and limited site examination. Prior to the actual field work a background study was conducted. This study involved a review of the previous historical and archeological reports as discussed above (Abel and Snow 1966; Ronsheim 1968b; Malcolm 1985; MacMahon 1986b), and a visual inspection of aerial photographs taken between the 1930s and 1980s. Inspection of the aerial photographs indicates that the character of this site's landscape has not changed.

The systematic walkover of the area investigated was conducted prior to the subsurface testing to identify areas of vegetational or topographic anomalies. No anomalies were noted. Site datum was established during this phase of the investigations, and vegetation was cleared from the areas to be archeologically investigated.

INTENSIVE SURVEY

The intensive survey consisted of the excavation of 1,273 soil cores and 195 STPs within two strata using a stratified, systematic, aligned probability sampling design. Four STPs were mistakenly excavated on the west 8.5 line rather than on the west 9.5 line. When the error was identified, the correct STPs were excavated on the west 9.5 line.

The cores were excavated at 1-m intervals, and the STPs were excavated at 5-m intervals using the project-wide techniques described elsewhere (Chapter 2). As at the David Fiske (Chapter 10) and Jonas Bateman (Chapter 6) sites, the cores were used to identify areas of deep cultural deposits, and therefore the possible locations of features or areas of landscape fill.

The STPs were excavated to determine the presence or absence of features, but also to provide data regarding the spatial distribution of artifacts. Stratum I encompassed an area approximately 15 m on all sides of the house cellar uncovered by Abel and Snow (Figure 12-3). Stratum II comprised the STPs over the rest of the site.

Only 217 of the cores penetrated beyond the humus or the organic-appearing cultural deposit below the humus because of the presence of either roots or rocks; only 178 of those reached the glacial subsoil. Nevertheless, areas that appeared to have relatively deep deposits were identified and further investigation of these areas led to the identification of Features 2 and 3. A dry-laid fieldstone-lined well (Feature 1) was uncovered as a result of the excavation of one of the randomly-generated STPs. Excavation of the cores and STPs did not uncover any evidence of large-scale earth moving episodes, significant post-occupational alterations, or plowing.

LIMITED SITE EXAMINATION

Limited site examination consisted of the excavation of 12 units—1 m × 1 m or 1 m × 50 cm—using the project-wide methods described elsewhere (Chapter 2). Four of these units (S2W24, S19W24, S4W24, and N11E9) were initially excavated to investigate areas where the cores had indicated that a deep organic-appearing deposit existed. The remaining units were excavated to investigate the features that were uncovered. As a result of this phase of the investigations, the well (Feature 1), a posthole (Feature 4), and three other features were uncovered. All units that encompassed the well were filled with sterile sand obtained from a local sand and gravel company. The sand was placed to distinguish excavated from unexcavated areas and to preserve the integrity of the remaining portions of the well (Thorne, Fay, and Hester 1987:26).

Results

Archeological excavations of the yard areas immediately surrounding the Brown house and further to its east and north yielded significant data regarding the use of yard space, including the presence and absence of expected facilities. Most striking is the fact that, like the homelot area of the Joseph Mason farmstead (Chapter 8), most of the occupation-period debris at the Daniel Brown site was disposed of in the immediate vicinity of the house. Also, as at the Joseph Mason homelot, the south yard at the Daniel Brown site appears to have been used intensively, not only for the disposal of kitchen-

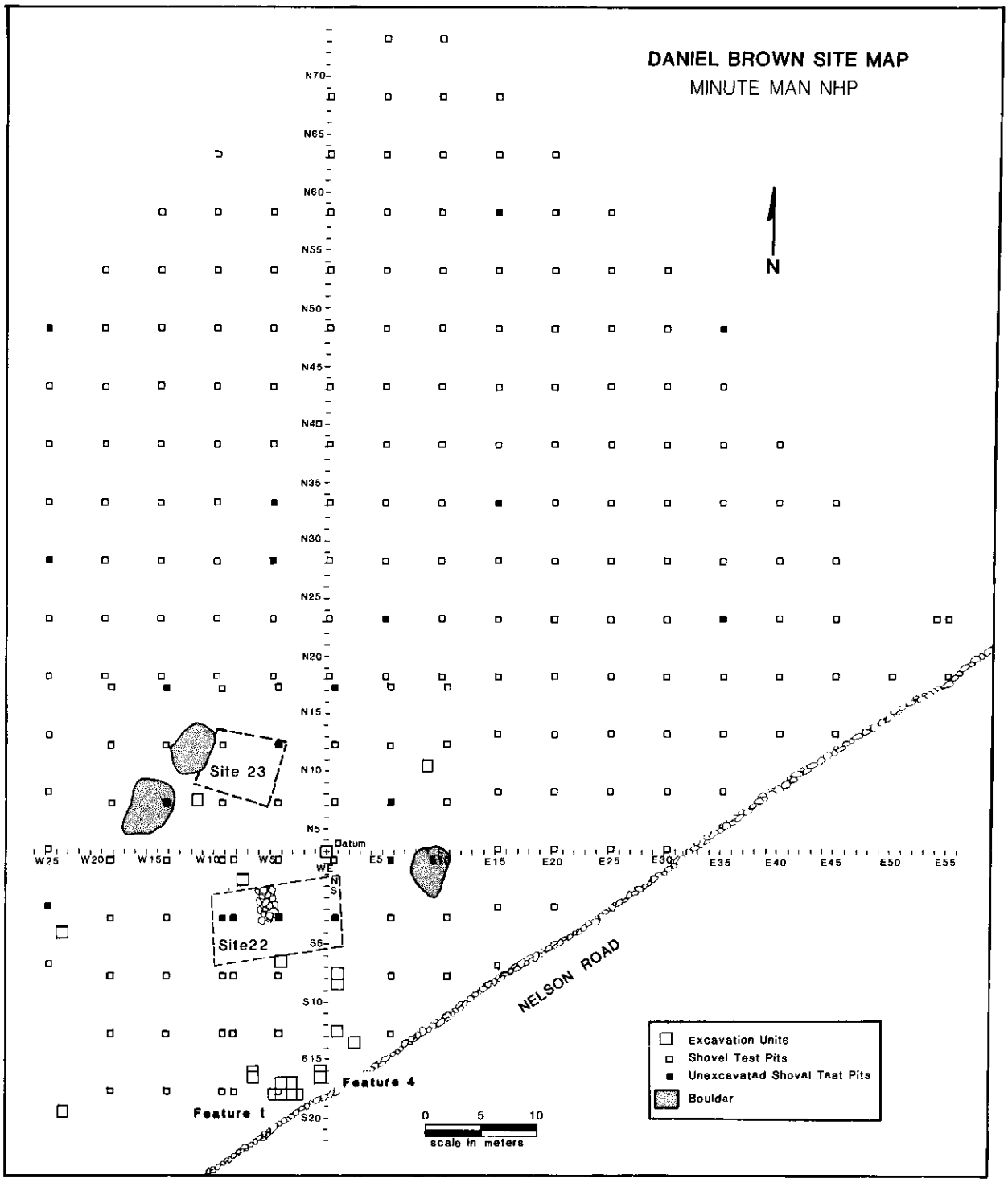


Figure 12-3. Daniel Brown site map showing STPs, EUs, and locations of features.

related debris but also as the locus of currently unknown domestic and possibly agricultural activities. This contrasts somewhat with the 17th-century Fiske site where kitchen refuse does not appear to have been dispersed across the homelot but was concentrated in one general area (i.e., east of the house). Its disposal appears to have been kept separate from the well yard, and apparently from where other domestic and possibly agricultural activities occurred.

At the Daniel Brown site, with the exception of a well (Feature 1) and a posthole (Feature 4) located in the south yard, no remains of utilities, facilities, or discrete trash pits were uncovered. The absence of discrete trash deposits in conjunction with the spatial distribution of debris in the immediate vicinity of the house does not contradict Deetz's (1977) hypothesis regarding the dispersal of refuse on sites that date to the first half of the 18th century or earlier. Although two additional features (Features 2 and 3) were uncovered, they appear to have been created after the site was abandoned as a residence. The data collected from this project's subsurface investigations provide no evidence that significant amounts of earth were moved about the house. In addition, no new data regarding the function of Site 23, the alleged shop uncovered by Abel and Snow (1966), were found. Subsequent to the use of the property as a residence, the two cellarholes were used for the disposal of off-site debris (MacMahon 1986b), which was also dispersed across the northern portion of the parcel.

Site Stratigraphy

Archeological investigations of the yard areas immediately surrounding the house (Stratum I) and beyond (Stratum II) revealed a similar overall stratigraphy. Both strata typically exhibited three physically distinct stratigraphic horizons: a root mat, an organic-appearing deposit, and a mottled layer.

With the exception of a layer of pine-tree needles located in the northernmost area of Stratum II, a relatively thin root mat existed over the entire site. Both appear to have developed after the parcel was abandoned as a residence based on the presence of limited amounts of 19th- and 20th-century materials.

Below the root mat was an organic-appearing horizon in which most of the occupational debris and post-occupational materials were recovered. The organic-appearing horizon consisted of a predominantly dark brown (10YR4/3) to very dark grayish brown (10YR3/2) silty fine sand. The horizon ranged in thickness from 10 to 55 cm (mean = 23.6 cm). A preliminary analysis of this variation suggests that it is attributable to factors other than deliberate earth moving episodes by the 18th-century occupants of the parcel.

A mottled horizon was present in 80 of the cores and in 5 of the STPs at the interface of the organic-appearing deposit and the glacial subsoil. Relatively few artifacts were recovered from this horizon. The formation of this horizon appears to be the result of biophysical processes—the leaching of organic debris and minerals into the existing subsoil. Where present, this horizon began between 10 cm and 45 cm below the ground surface and had an average thickness of 7.7 cm.

Yard Areas

WELL

The presence of a small, dry-laid fieldstone-lined well (Feature 1) was discovered 14 m south of the house and 2.5 m north of the stone wall that parallels Nelson Road (Figures 12-3, 12-4, and 12-5). The well was apparently constructed from the bottom up as opposed to the top down. The location of the well uncovered at this site is different from that of the well at the Fiske site (Chapter 10), but similar to other wells within MIMA (e.g., the mid 18th- to 19th-century wells in the Josiah Nelson and Thomas Nelson, Jr., homelots to the east [Snow 1973:figure 2; Abel 1966b:map of the Josiah Nelson Farmery]). As discussed elsewhere (Chapter 10), although there is certainly variation in the location of 17th- and 18th-century wells in relation to houses and roads, their existence in the south yard, often between the house and road, is not unusual. The location of the well at the Daniel Brown site is

Figure 12-4. Project photograph showing Feature 1 (the well) at the Daniel Brown site.

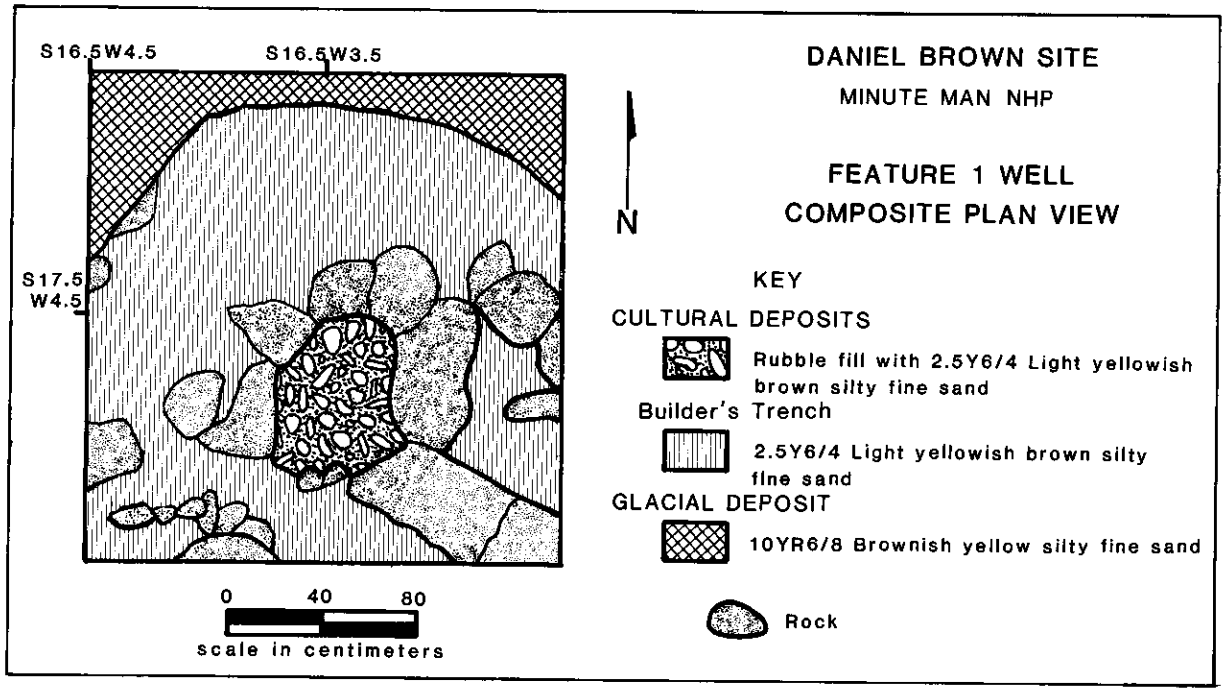


Figure 12-5. Plan view of Feature 1 (the well) at the Daniel Brown site.

Table 12-2. Selected artifact categories recovered from Feature 1 (the well) at the Daniel Brown site.

Material	*Organic-appearing horizon (count/weight)*	*Fieldstone rubble (count/weight)*	*Interior fill (count/weight)*	*Builders' trench (count/weight)*
Domestic:				
Redware	219	45	2	5
Trailed slipware	12	6	—	—
Delft	4	—	—	—
Combed ware	1	—	—	—
Pipe bowls	16	7	—	—
Pipestems	13	2	—	1
Indeterminate pipestems	2	2	—	—
Molded vessel glass	1	—	—	—
Bone	54	19	1	5
Building-related:				
Hand-wrought nails	11	8	—	1
Machine-cut nails	3	—	—	1
Indeterminate nails	2	1	—	—
Crown/cylinder window glass	8	1	—	1
Plate window glass	2	—	—	—
Indeterminate window glass	2	1	—	1
Brick	1,990.7 g	8,018.2 g	10.1 g	166.4 g
Fuel and fire by-products:				
Coal	4.1 g	.2 g	—	—
Charcoal	1.8 g	1.7 g	.1 g	.1 g
Other:				
Miscellaneous items	6	4	—	2

yet another instance of this pattern. Although it is unknown precisely when the well was constructed or filled, it appears to have been covered over when the house was removed from the site. This may have occurred sometime before the third quarter of the 18th century. The well was initially identified in STP S17.5W4.5. The STP was expanded into a 1 m × 1 m unit, and four additional units were excavated to determine the extent of the feature. Three deposits were associated with the well: 1) fieldstone rubble; 2) interior fill; and 3) a builders' trench.

A 55–65 cm thick deposit of fieldstone rubble was present above the interior of the well and below the organic-appearing horizon. Amongst the rubble was a light yellowish brown (2.5Y6/4) silty fine sand as well as building-related materials, domestic debris, and fuel and fire by-products (Table 12-2). Like the fill inside the well (see below) and the debris associated with the house cellar that MacMahon (1986b:327–329) designated "post-abandonment," there was an absence of materials that were clearly manufactured in the third quarter of the 18th century or later (Table 12-2). The absence of these materials in conjunction with the amount of brick recovered from the fieldstone rubble suggests that the well probably remained open until the house was removed from the site—perhaps sometime prior to the third quarter of the 18th century.

Beneath the fieldstone rubble, at approximately 85 cm below the present ground surface, the excavations revealed that the well was circular in shape and its interior diameter only 47 cm (the outside diameter was 79 cm; Figure 12-5). The well is considerably smaller than the one uncovered at the Fiske homelot (95 cm), which is believed to have been constructed in the 17th century (Chapter 10), and the wells uncovered at the homelots of Josiah Nelson (ca. 90 cm) and Thomas Nelson, Jr. (ca. 60 cm). Because of time constraints and safety concerns, the interior of the well was only excavated to a depth of 196 cm.

The fill within the interior of the well was relatively homogeneous and was identical to that of the fieldstone rubble above it except that it had significantly fewer artifacts (Table 12-2). An attempt was made to excavate the well's interior in its entirety. This was begun by bisecting the well from east to west. Excavation proceeded by removing the fieldstones from the northern wall. After removing several courses, however, excavation was terminated because it became apparent that further investigation would require the dismantling of the entire well. Time constraints did not permit doing so.

Around the perimeter of the well was a deposit measuring approximately 60 cm wide and at least 230 cm deep of light yellowish brown silty fine sand (Figure 12-5). This deposit appears to be the backfilled hole that was initially excavated in preparation for the construction of the fieldstone walls or lining of the well. The presence of this builders' trench indicates that the well was constructed from the bottom up, rather than from the top down (Noël Hume 1969b:13–17). As with the interior of the well, few materials were recovered from this deposit, none of which provided any information regarding when the well was constructed (Table 12-2). The machine-cut nail recovered from the builders' trench is considered to be intrusive to the deposit because of a lack of other late 18th- or early 19th-century materials and the existence of animal disturbance in the level from which it was recovered.

POSTHOLE

Feature 4 (Figure 12-3) appears to be the remains of a posthole located 1.5 m to the west of the well (Feature 1) at the interface of the organic-appearing horizon and the glacial subsoil. The posthole was a circular deposit of mottled black and brownish yellow silty fine sand that intruded at least 28 cm into the glacial subsoil (Figures 12-6 and 12-7). The sides of the posthole were straight and well-defined. Like Feature 6, one of two postmolds uncovered at the Jacob Whittemore site (Chapter 14), the posthole uncovered here appeared to be surrounded by small cobbles that were possibly used to support a post within the hole (Figure 12-6). Unfortunately, no temporally diagnostic materials were recovered within Feature 4. The only materials associated with the posthole were two small fragments of a redware ceramic vessel, 12.6 g of brick, and .8 g of charcoal—all of which were probably deposited when the post was removed. The posthole was first uncovered in EU S16W7, which was excavated to investigate a relatively deep deposit identified by the cores. EU S15.5W1 was excavated to determine the extent of the feature.

Given the proximity of the posthole to the well, it is possible that the post was associated with the well in some way. Noël Hume (1969b) notes that a well (abandoned about 1765–1770) at the James Geddy house in Williamsburg, Virginia, was surrounded by "holes for fence posts" to prevent children and animals from falling in (Noël Hume 1969b:32). If the post once associated with Feature 4 was part of such a fence, then future excavations should reveal the presence of other similar postholes or postmolds encircling the well.

OTHER FEATURES

During the course of the excavations, two other anomalous deposits were uncovered and designated Features 2 and 3. Neither feature appears to have been created while the site was still occupied, and the processes responsible for their formation are not completely understood at this time.

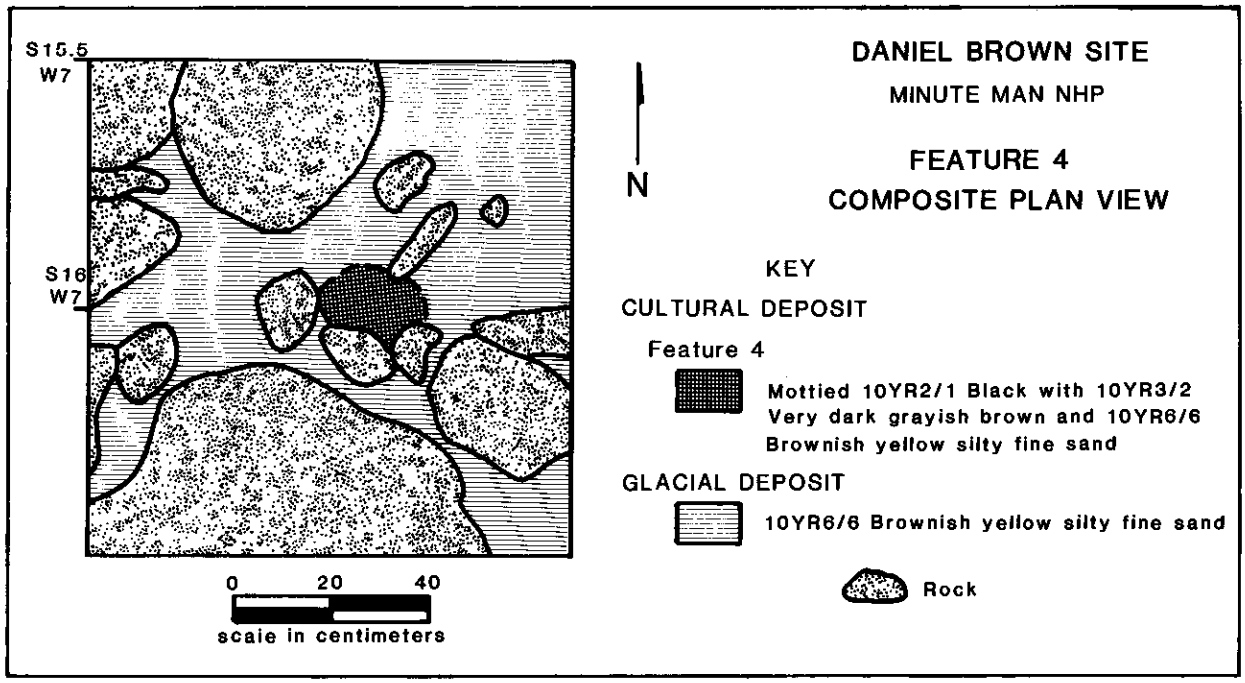


Figure 12-6. Composite plan view of Feature 4, a posthole, at the Daniel Brown site.

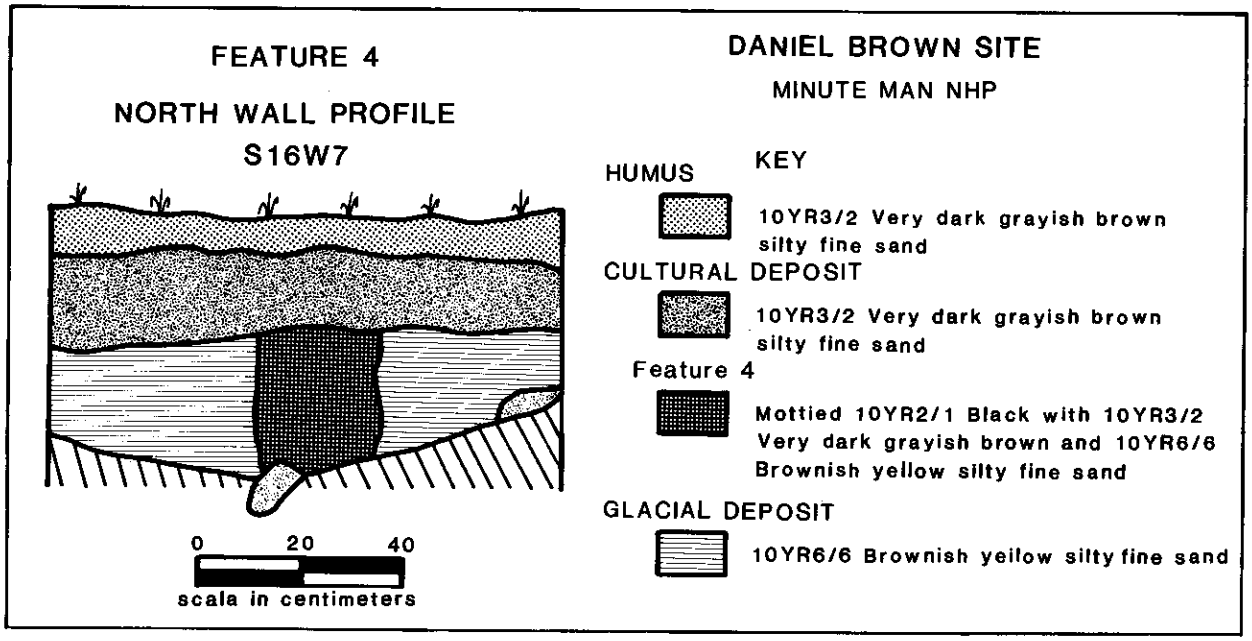


Figure 12-7. North wall profile of EU S16W7 showing the posthole (Feature 4) at the Daniel Brown site.

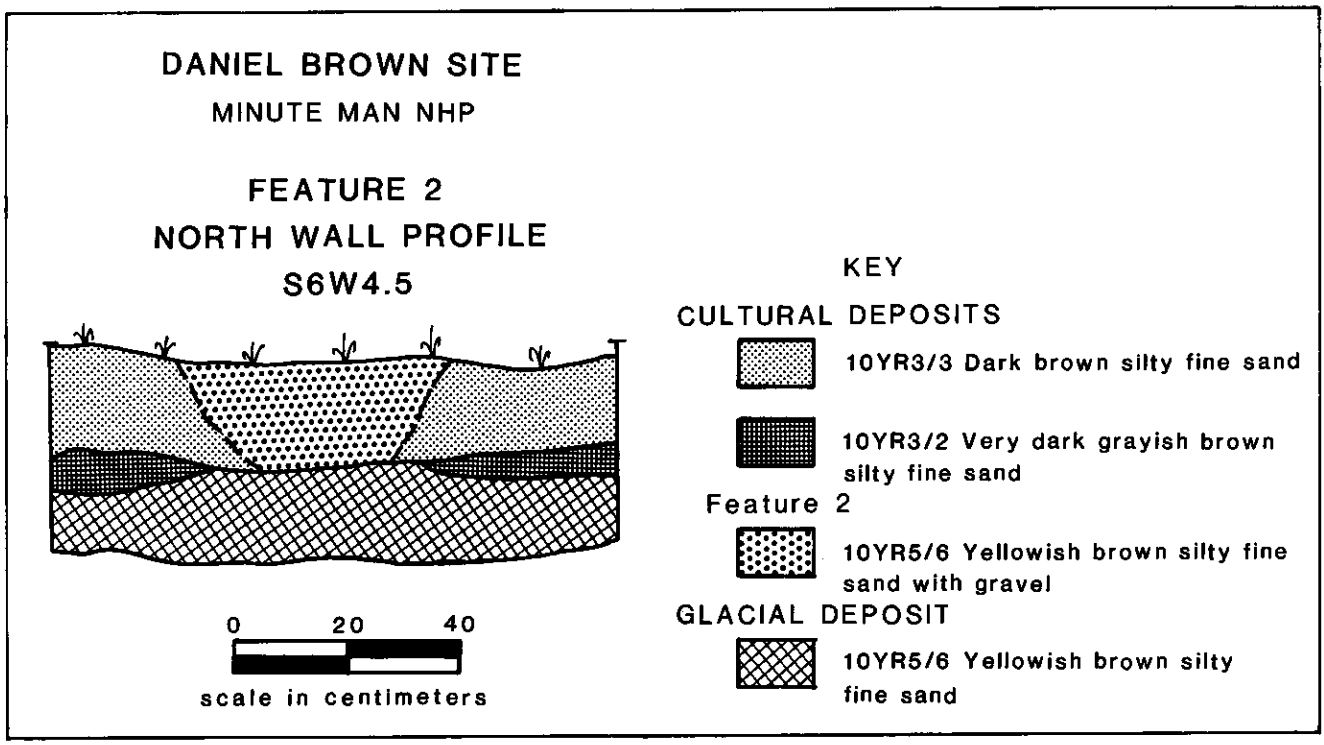


Figure 12-8. North wall profile of EU S6W4.5 showing Feature 2 at the Daniel Brown site.

FEATURE 2

Feature 2 appears to be the result of excavations that were conducted by Abel and Snow (1966) around the perimeter of the house. Not only is the feature in the vicinity of Abel and Snow's investigations, but it is also very close to the present ground surface (Figures 12-2 and 12-3). Feature 2 was initially identified at 16 cm below the present ground surface in EU S6W4.5, which was excavated because the cores indicated that the stratigraphy in this area was anomalous. In plan view the feature was a 48-cm wide area of yellowish brown (10YR5/6) silty fine sand with gravel and was oriented in a north-south direction. Although in profile the feature was relatively amorphous, its shape appeared to be concave. Feature 2 cut through the organic-appearing horizon but did not intrude into the glacial subsoil (Figure 12-8).

The only artifacts associated with Feature 2 were one redware vessel fragment, one small pipestem fragment whose bore diameter could not be determined, one contact-molded bottle glass fragment, a fragment of a nail whose date of manufacture could not be determined, one indeterminate object, 22.8 g of brick, .3 g of coal, and .1 g of charcoal. If Feature 2 is the result of Abel and Snow's (1966) subsurface investigations, then this debris was probably deposited when the excavated area was backfilled. The presence of these materials does not contradict the interpretation of Feature 2 as backfilled excavation units since Abel and Snow did not screen any of the dirt they excavated.

FEATURE 3

Feature 3 is an amorphous deposit of dark brown silty fine sand that intruded approximately 14 cm into the glacial subsoil (Figure 12-9). The morphology of the feature's profile may indicate that it is the remains of a posthole and postmold that were disturbed by the roots of a nearby tree. Alternatively, it is possible that Feature 3 was simply created by the tree roots. Feature 3 was

first identified in EU S16W1, at the interface of the organic-appearing horizon and the glacial subsoil 36 cm below the present ground surface, which had been excavated in order to investigate an anomalous stratigraphy that was identified by the cores. One additional unit (EU S15.5W1) was excavated to determine the extent of the feature. Only 18 g of brick and .2 g of charcoal were recovered from the tapered portion of the feature. The upper portion of the feature had more material in it: 26 pieces of redware, 2 fragments of combed ware, 1 pipestem, 1 hand-wrought nail, 38.1 g of brick, and 1 indeterminate object.

SHEET REFUSE

With the exception of the well (Feature 1), the only archeological data that provided significant information regarding the use of the site was the distribution of "sheet" refuse (Deetz 1977). As will become apparent below, while the distribution of the refuse at the Daniel Brown site was similar to that at the Joseph Mason and David Fiske farmsteads (Chapters 8 and 10), there were differences.

The spatial distribution of sheet refuse from the plowzone of 173 STPs within the area immediately surrounding the house as well as areas to its north and east was analyzed. The analysis was conducted according to the project-wide methods discussed in Chapter 2. Like the Joseph Mason and David Fiske sites (Chapters 8 and 10), the Daniel Brown farmstead also appears to have been used periodically for the disposal of debris after the site was abandoned as a residence. In order to control for this, analyses were conducted to determine which temporally undiagnostic concentrations (e.g., utilitarian redwares, phosphates, and bone) were likely to have been deposited during the site's use as a residence. To accomplish this, artifacts were grouped according to occupational and post-occupational categories in the same way they were at the David Fiske farmstead (Chapter 10).

Analyses of the data revealed that, much like

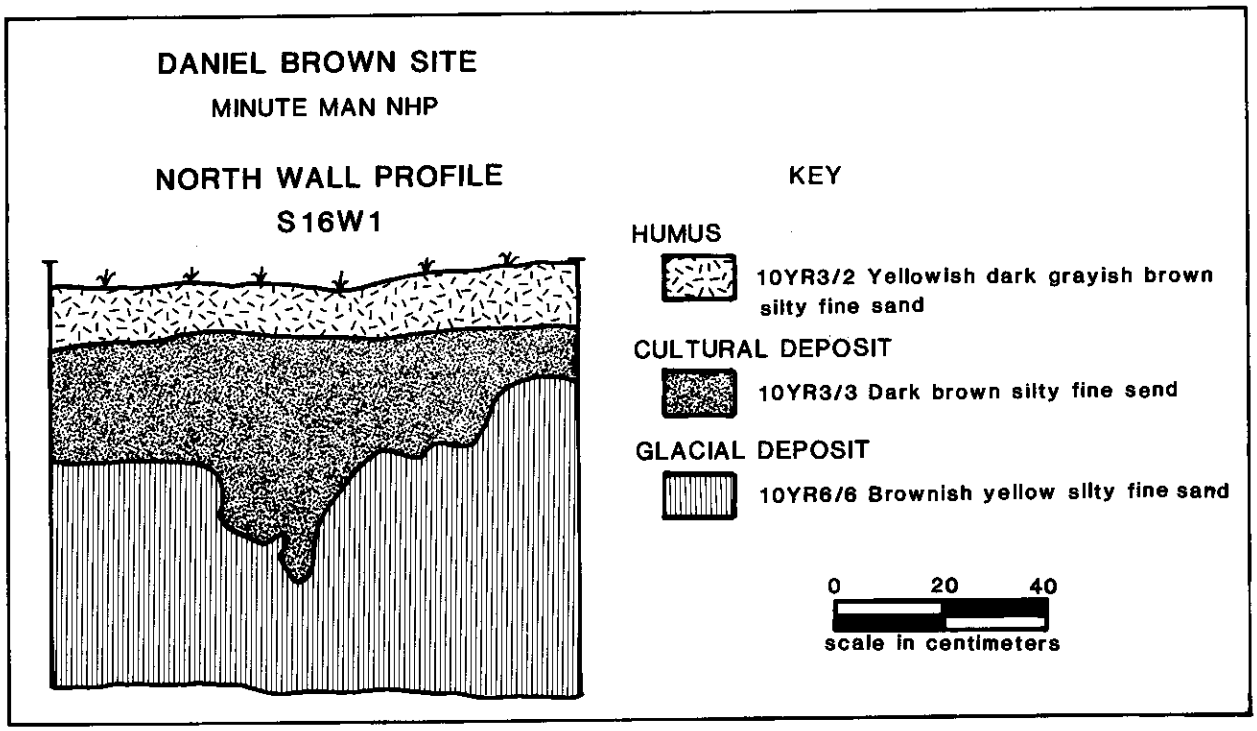


Figure 12-9. North wall profile of EU S16W1 showing Feature 3 (the possible posthole) at the Daniel Brown site.

the homelot area of the Joseph Mason farmstead, although the highest densities of occupation-related debris were scattered throughout the site, they were concentrated primarily in the immediate vicinity of the house (Figures 12-10, 12-11, 12-12, and 12-13). This debris does not appear to have been deposited after the site was abandoned since the highest concentrations of temporally diagnostic post-occupational materials were clearly deposited in the northern portion of the parcel investigated (Figure 12-14). At this time, it is unknown whether the concentration of redware vessel fragments in the northeastern portion of the parcel was deposited during the use of the site as a residence or subsequent to it (Figure 12-10). The relative absence of debris, save the redware concentration just mentioned, in the northern and western portions of the property may indicate the location of the orchard mentioned in the documents.

Although occupation-related debris existed throughout the yard areas, the highest densities of ceramics and one of the two highest concentrations of phosphates were present immediately south of the house remains (Figures 12-10, 12-11, and 12-12). In addition, the highest concentrations of bone existed primarily southwest of the house (Figure 12-13). Of the redwares, the

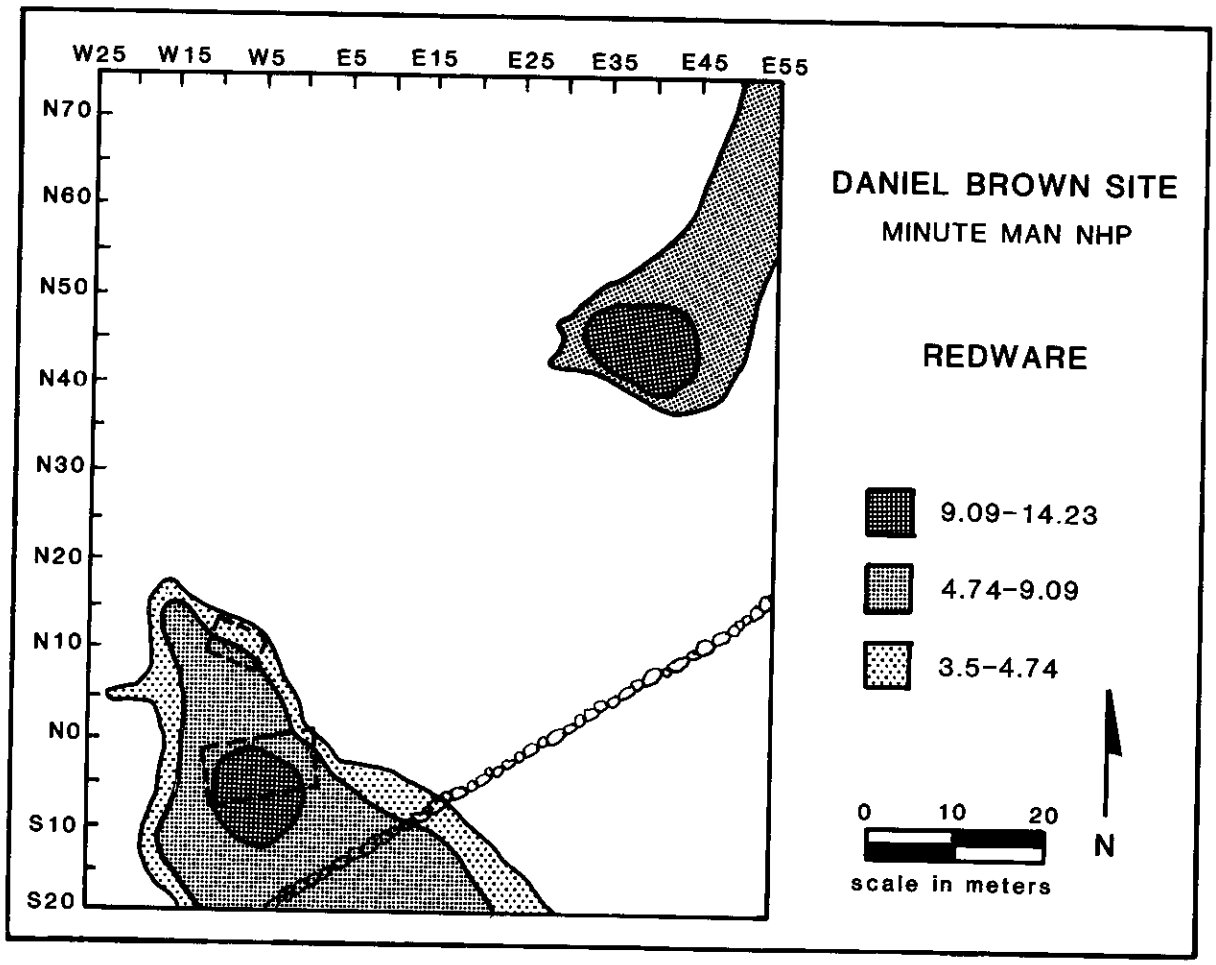


Figure 12-10. Spatial distribution map of redware recovered from the Daniel Brown site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

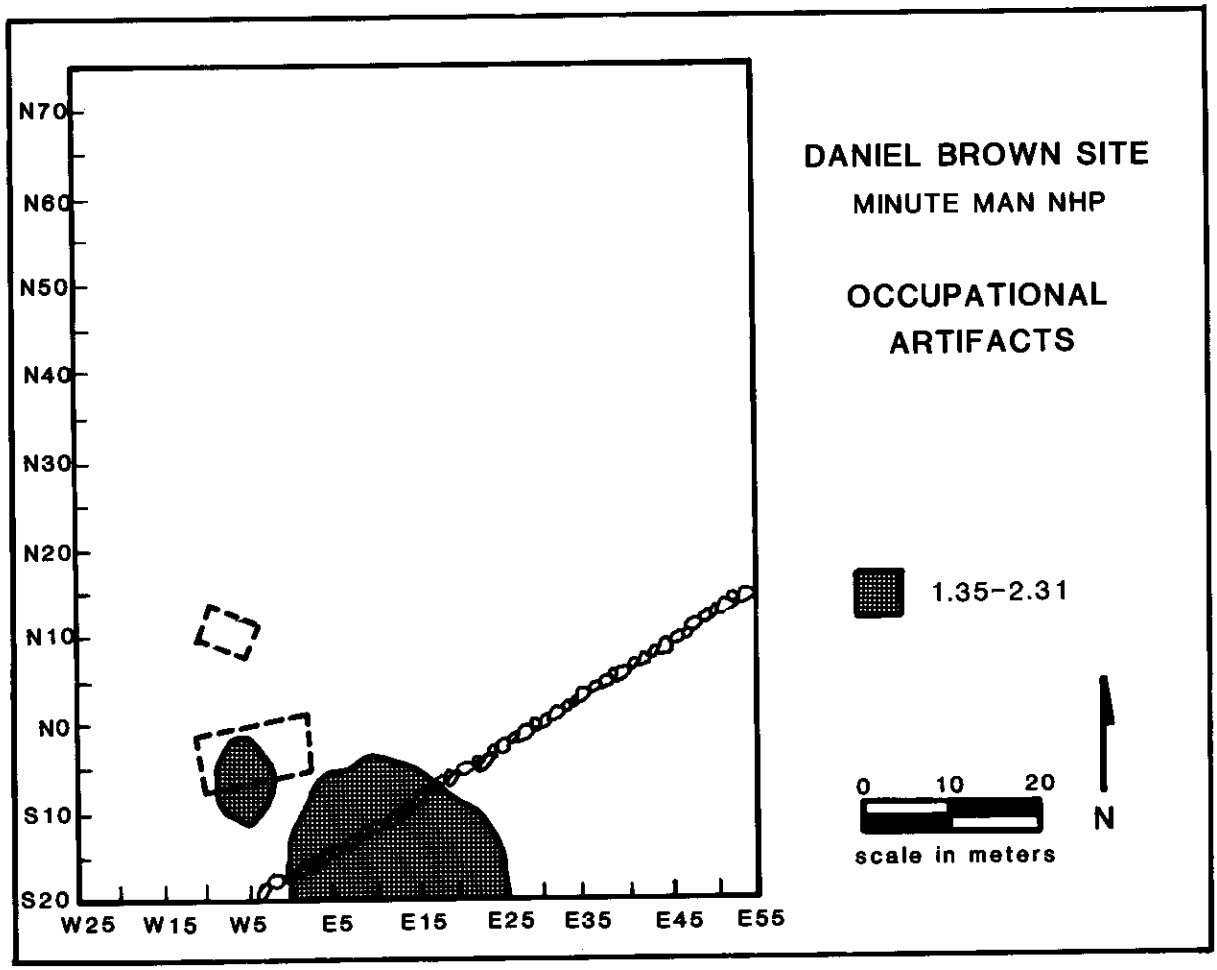


Figure 12-11. Spatial distribution map of occupation-period artifacts recovered from the Daniel Brown site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

highest density of interior glazed vessel fragments was to the north of the house remains. These concentrations may indicate that kitchen refuse was deposited throughout the yard areas, including the south yard. The proximity of the debris to the house, well, and the road may indicate that the occupants were either unaware of or unconcerned with the effects of this debris on their health and the physical appearance of the yard that was most visible to the public. These data also imply that the south yard may never have served as a formal yard area.

In addition to these concentrations, there were three smaller concentrations of phosphates southwest, northwest, and northeast of the house (Figure 12-12). These concentrations do not covary spatially with any of the above mentioned concentrations of materials and therefore do not appear to be associated with kitchen-related refuse. It is possible that they are indicative of where currently unidentified small-scale domestic and/or agricultural tasks were conducted or where small animals were kept. There is some documentary evidence that small animals were kept

close to houses in the 17th and early 18th centuries (see Chapter 10) as well as in the late 18th century (Snow 1969). No corroborative data (e.g., hand-wrought nails or fence postmolds) were recovered in association with these smaller phosphate concentrations at the Daniel Brown site, however. At this time it is not known whether the absence of other evidence is due to the limited nature of the subsurface investigations, or whether in fact no other evidence exists.

Summary and Conclusions

The purpose of the current investigations was to provide MIMA with an inventory of the subsurface archeological remains within the Daniel Brown homelot in order to explicate the use of space, including the arrangement of utilities and facilities. To this end, the subsurface investigations not only attempted to determine the presence or absence of well-defined features, but also sought to identify other no less sig-

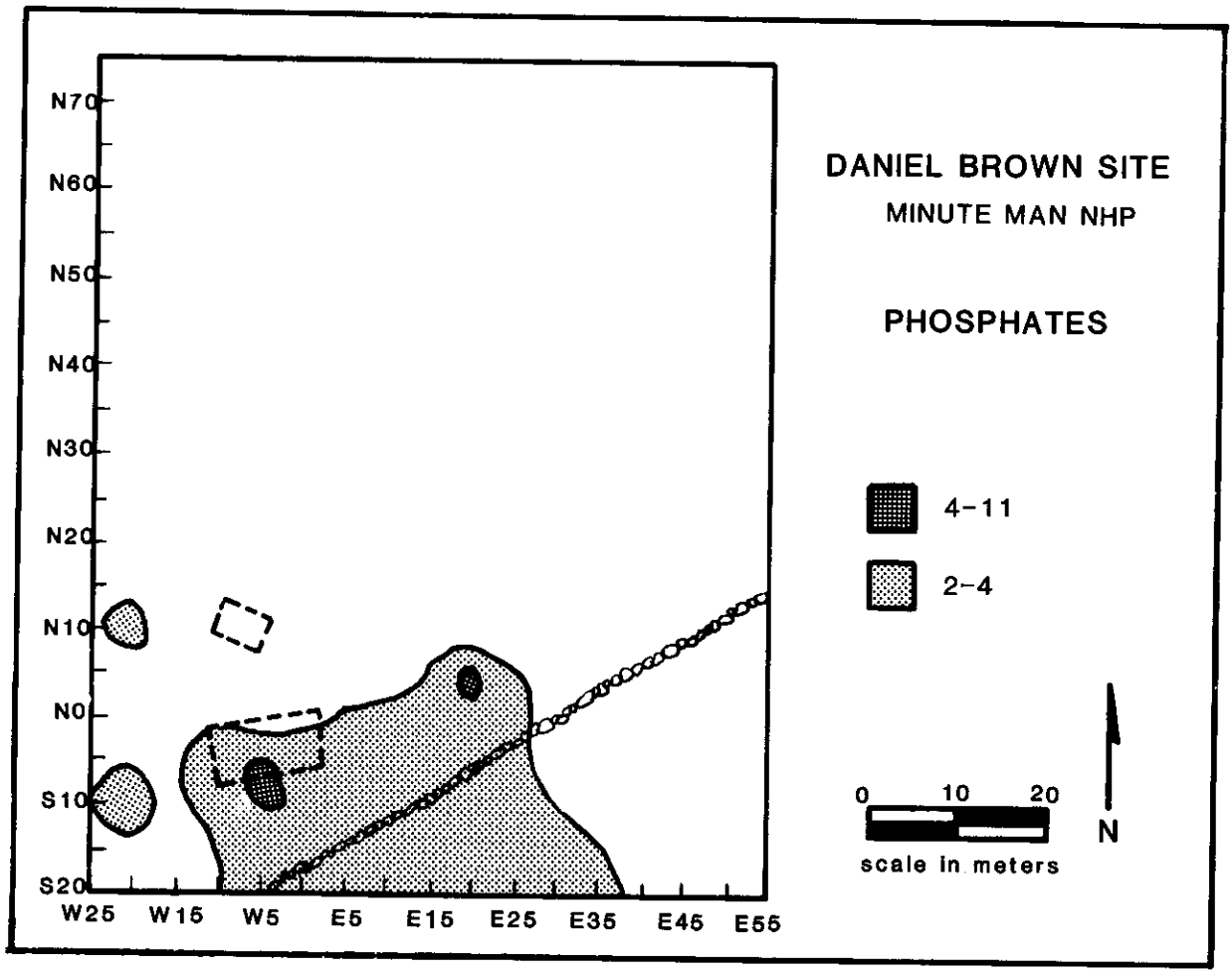


Figure 12-12. Spatial distribution map of phosphates recovered from the Daniel Brown site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are parts per million per quarter cubic meter.

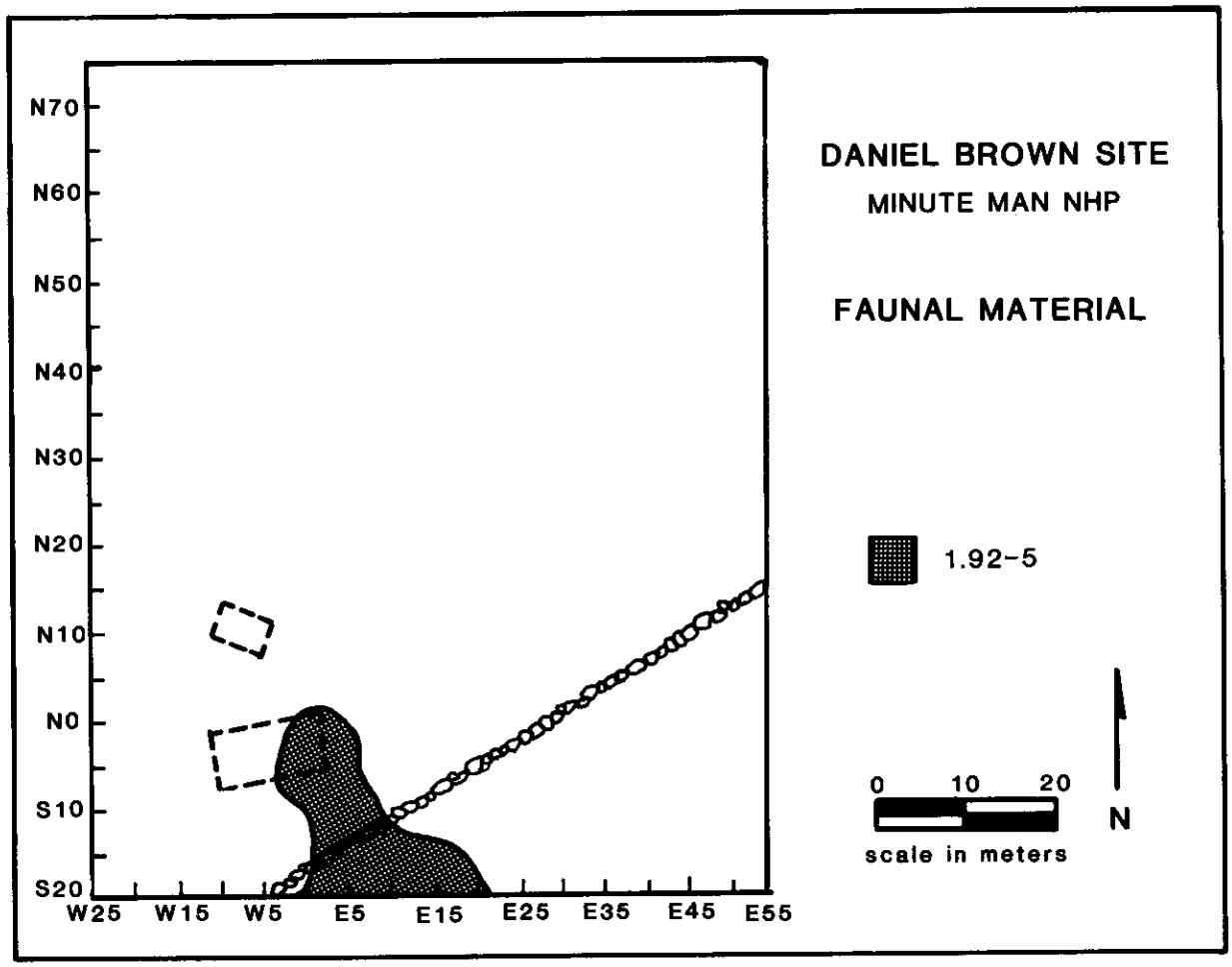


Figure 12-13. Spatial distribution map of faunal material recovered from the Daniel Brown site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

nificant ephemeral cultural remains through the spatial distribution of selected consumer goods and soil compounds.

Archeological excavations of the yard areas surrounding the house uncovered a well and a posthole that may have been associated with it. With the exception of these, no occupation-period utilities or facilities were uncovered. Spatial analyses yielded significant data regarding the use of yard space on the Daniel Brown property. Most striking is the fact that, like the homelot area of the Joseph Mason farmstead, most of the occupation-period debris at the Daniel Brown site was disposed of in the immediate vicinity of the house, despite the lack of apparent spatial constraints. Similarly, as with the Joseph Mason homelot area, the south yard at the Daniel Brown site appears to have been used intensively, not only for the disposal of kitchen-related debris but also as the locus of currently unknown domestic and possibly agricultural activities. This contrasts somewhat with the

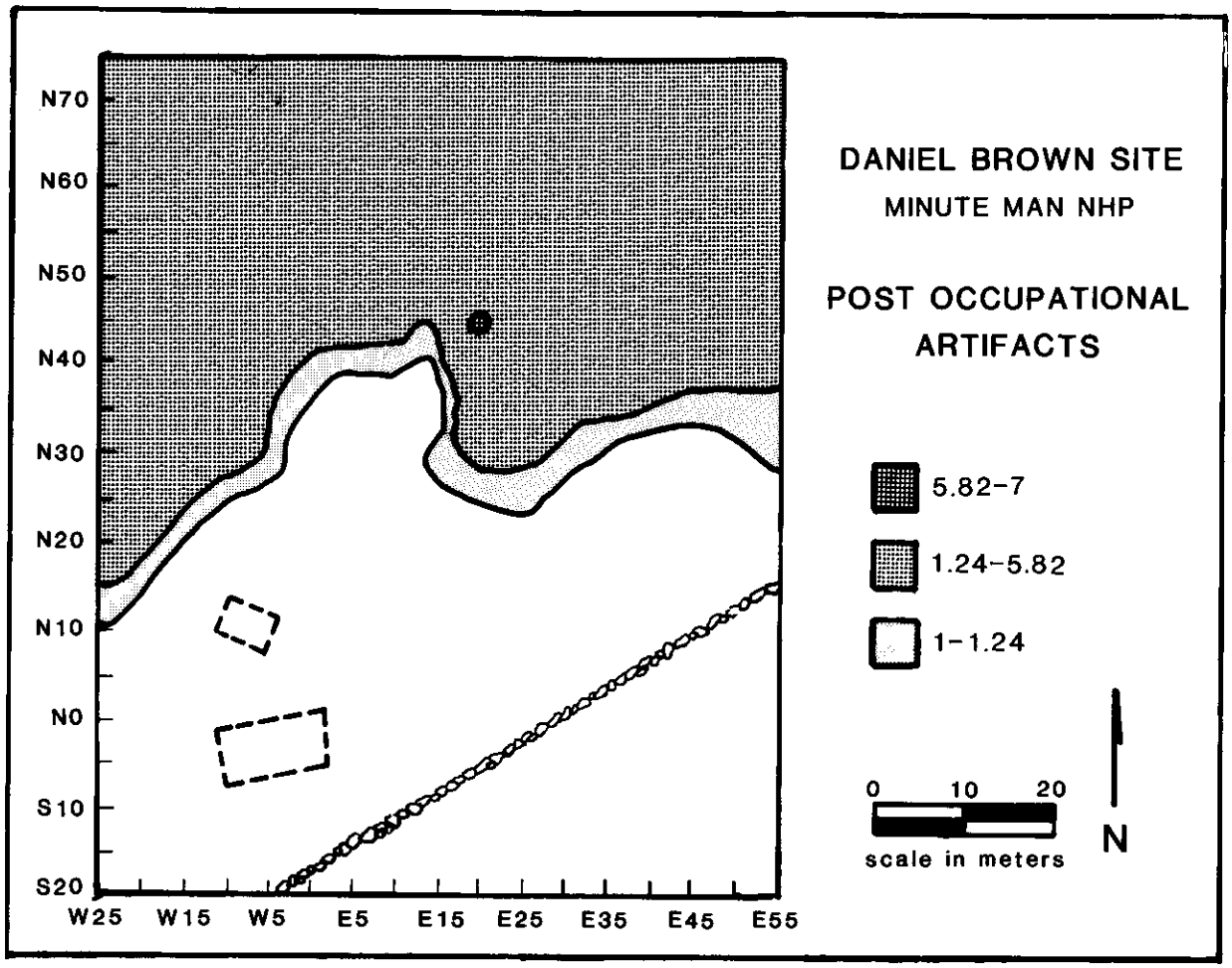


Figure 12-14. Spatial distribution map of post-occupational artifacts recovered from the Daniel Brown site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

17th-century Fiske site where the disposal of kitchen-related refuse does not appear to have occurred throughout the homelot, but was concentrated in one general area (i.e., east of the house). Its disposal appears to have been kept separate from the well yard, and apparently from areas in which other domestic and possibly agricultural activities took place.

At the Daniel Brown site, the absence of discrete trash deposits in conjunction with the spatial distribution of debris in the immediate vicinity of the house does not contradict Deetz's (1977) hypothesis regarding the dispersal of refuse on sites that date to the first half of the 18th century or earlier. The data collected from this project's subsurface investigations provide no evidence that significant amounts of earth were moved about the house. In addition, no new data regarding the function of Site 23, the alleged shop uncovered by Abel and Snow (1966), were found. Subsequent to the use of the property as a residence, the two cellarholes were used for the

disposal of off-site debris (MacMahon 1986b), which was also dispersed across the northern portion of the parcel.

The information recovered will hopefully allow the park to better manage not only this site's subsurface remains but possibly those of other sites that have an early-to-mid 18th-century component. This information also provides comparative data regarding the use of space on rural 18th-century New England farmsteads. The Brown homelot is considered important for providing such information since it was occupied for a relatively short period of time in the early-to-mid 18th century and does not appear to have been subject to extensive post-occupational alterations.

Chapter 13

Documentary Research on the "site of supposed Blacksmith Shop"

Martha Holland

Introduction

Numerous sites within the boundaries of MIMA have been the focus of documentary and archeological research. One of these sites is a blacksmith shop that the documentary record indicates was present on the Jacob Whittemore property in 1779 and 1781 (Foley 1964:27; Malcolm 1985:11, 15, 26; Ronsheim 1968b:23). Oral history suggests that the shop was located near the bluff north of Marrett Street as indicated on a 1902 sketch map of the area by George Nelson. On this map Nelson labeled the spot "site of supposed Blacksmith Shop" (Figure 13-1). At present there is a depression north of Marrett Street that corresponds with the suggested location of the shop (see base map, Appendix A-3). Oral history also claims that the shop in question was located on a farm known as the Muzzey farm, which was owned by two of the Minutemen who participated in the events of April 19, 1775 (Towle 1986b).

The following documentary research was conducted in conjunction with archeological investigations (Chapter 14) in order to determine if the parcel north of Marrett Street is indeed the site of the blacksmith shop since previous research was inconclusive. The documentary research was also conducted to evaluate previous interpretations regarding the likely shop operators and its dates of existence. Deeds, probate records, taxes, and town records were examined in detail in order to document the existence of the blacksmith shop and to whom it belonged. Historical maps, although useful in many instances, were not helpful for determining the location of the blacksmith shop and its dates of existence.

Previous Research

The presence of a blacksmith shop on the Jacob Whittemore property was initially identified by Ronsheim (1963; 1968b:23) as a result of his research regarding the history of the property's ownership. Ronsheim (1968b:24) uncovered evidence of the shop in a deed filed in 1779 transferring the property from Whittemore to Ezekial Hall (Middlesex Deeds, Book 80:496). Despite no explicit mention of the blacksmith shop prior to 1779, Ronsheim (1968b:23) suggested that it may have existed in 1775. Based on a 19th-century letter written by H. M. Houghton describing the area in 1775, Ronsheim (1968b:23) concluded that the shop was located on the north side of Marrett Street on property belonging to Jacob Whittemore. Ronsheim (1968b:23) did not address the question of who the operators of the shop might have been.

Malcolm (1985:15) agreed with Ronsheim (1968b:23) that the blacksmith shop could have been in existence by 1775, and in fact inferred that the shop was part of Jacob Whittemore's inheritance from his father, Nathaniel, in 1755 even though no record of the blacksmith shop (or any shop for that matter) exists for that time. Malcolm (1985:11) also concurred with Ronsheim that the shop was located north of Marrett Street as Houghton had indicated (Figure 13-2). Malcolm (1985:17) suggested that after 1779 John Muzzey was a tenant on the Whittemore property and that the blacksmith shop was owned by the Browns—a Lexington family of blacksmiths—or operated by Josiah Mansfield and Benjamin Danforth who occupied the farm across Marrett Street (Malcolm 1985:11–14; Ronsheim 1968b:19;

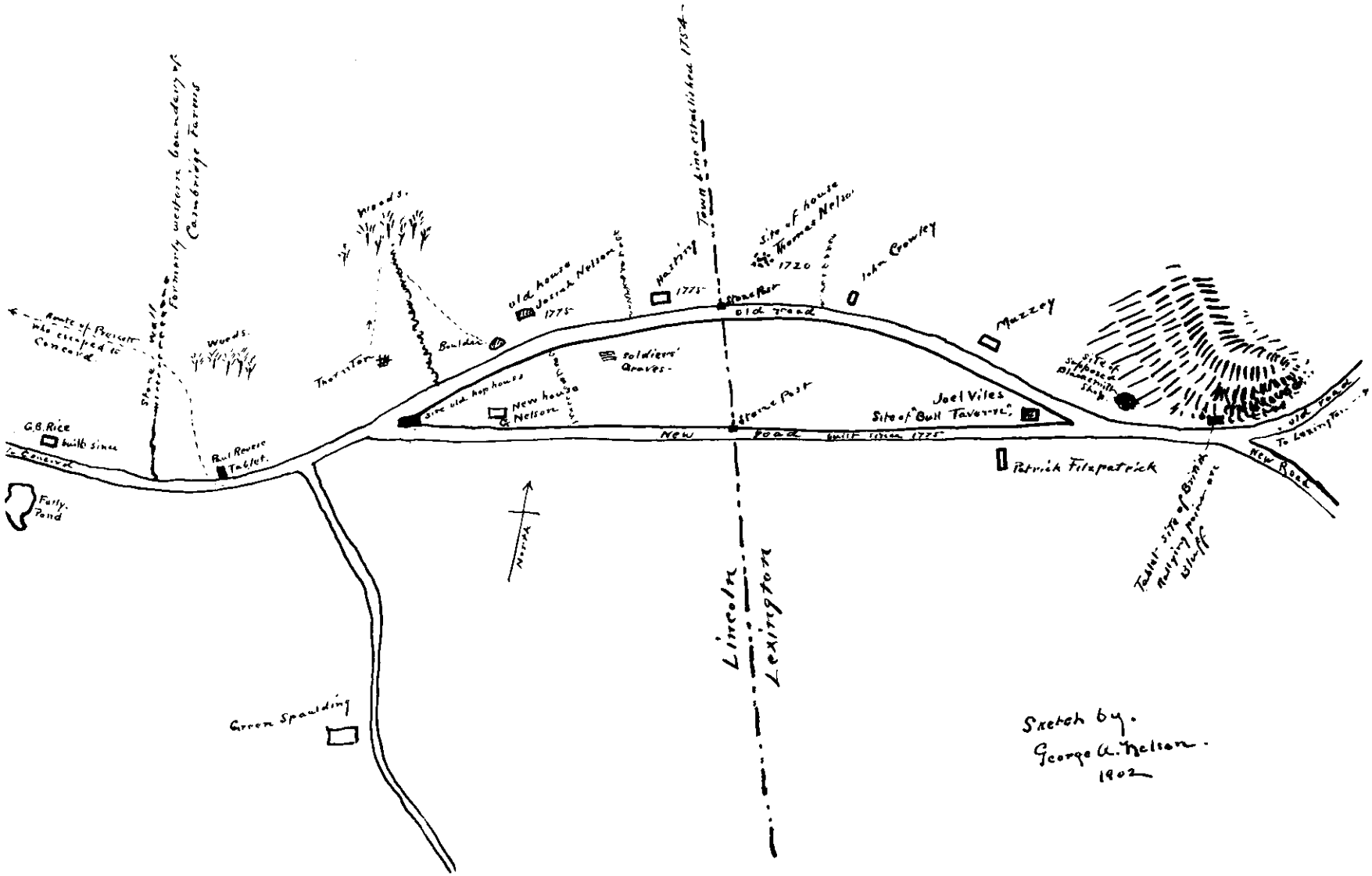


Figure 13-1. 1902 sketch map by George Nelson showing the "site of supposed Blacksmith Shop" at the foot of the bluff just north of the eastern intersection of the "old" and "new" roads (on file, Minute Man National Historical Park, Concord, Massachusetts).

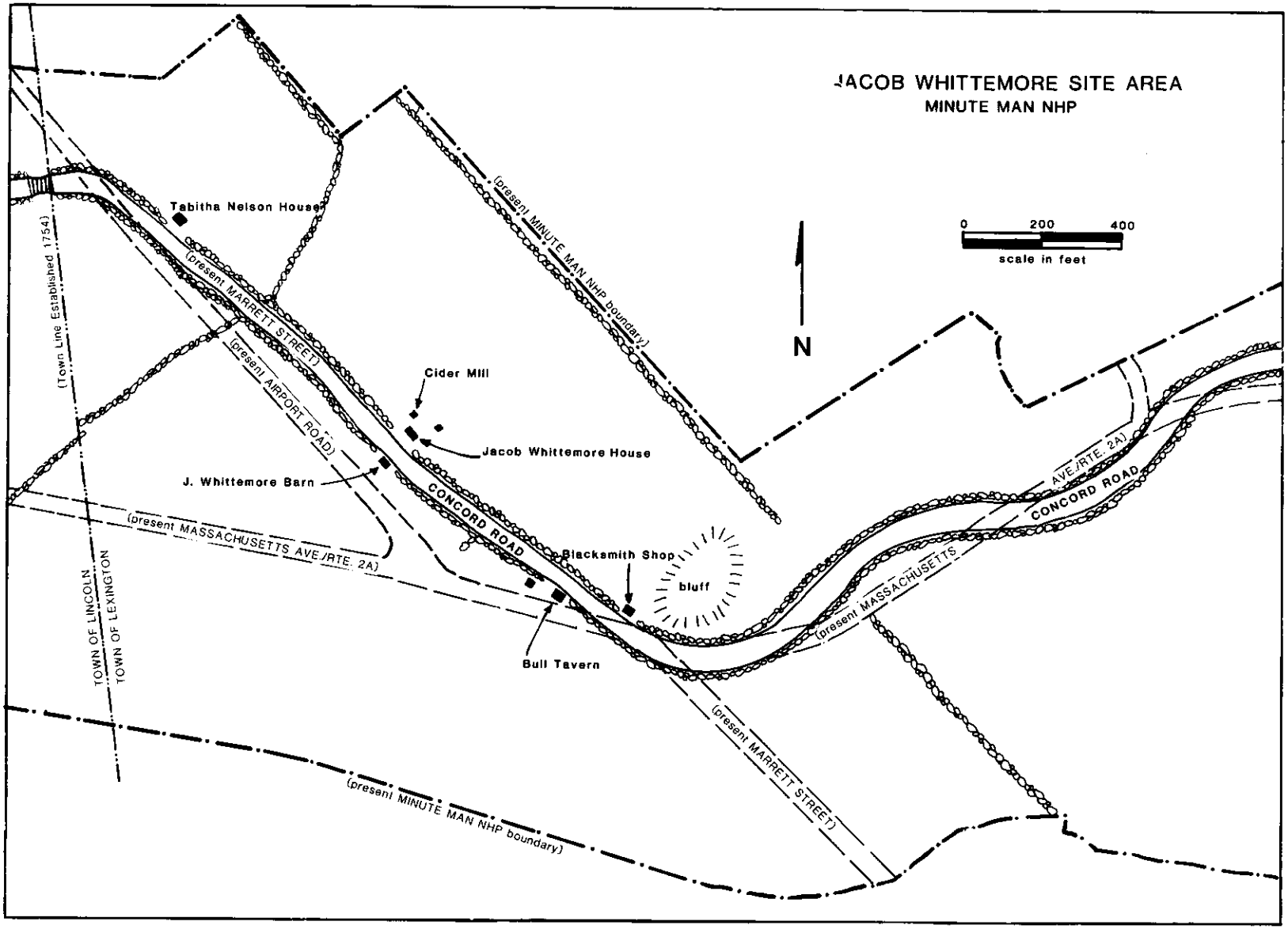


Figure 13-2. Composite map of the Jacob Whittemore site area based on Malcolm's (1985:3) interpretation of the historical features.

Towle 1986b:30).

In reanalyzing the archeological materials associated with the Whittemore property, Towle (1986b:59) reviewed Ronsheim's (1968b), Malcolm's (1985), and Foley's (1964:27) research regarding the blacksmith shop. While Towle (1986b:59) concurred with Malcolm (1985:11) that the depression that currently exists north of Marrett Street may be the remains of the blacksmith shop, Towle's reanalysis did not support Malcolm's contention that the shop was in existence in 1755. Citing Ronsheim (1963:85), Towle (1986b:59) noted that a blacksmith shop was not included in Nathaniel Whittemore's will of 1755. Towle (1986b:59) pointed out that a "shop" was part of the property sold to Jacob by Nathaniel's widow in 1761, but that it had perhaps been built by William Benet, a saddler, whom she had married after Nathaniel's death.

In summary, then, despite the intensive research done on the Whittemore property, there still remains some uncertainty regarding not only who owned and operated the blacksmith shop, but also when it existed. Since previous research concentrated on the 18th century, further research, especially regarding the 19th century, was considered necessary.

Results

Eighteenth-Century Land Ownership and Use

The property containing the blacksmith shop has a direct title chain from the U.S. Government in 1961 back to John Muzzey in 1824. Known as the Muzzey farm, the property had long been considered the traditional home of two Muzzey Minutemen, John and Isaac (Ronsheim 1963:8–9). Using an extremely detailed examination of 18th-century deeds relating to the property, combined with comparisons of the deeds of abutters, Ronsheim (1963:11) reached the conclusion that Jacob Whittemore, rather than John Muzzey, owned the property in 1775 (see Table 13-1 for sequence of property transfers).

Jacob Whittemore was the son of Nathaniel Whittemore, a prominent Lexington resident. Nathaniel published almanacs, sold drugs, and called himself a "physician" (Hudson 1913:754). He purchased many pieces of property in Lexington between 1716 and 1732, and there is a good chance that he sold his drugs from his own house, or possibly from a shop, because his almanacs carry advertisements for his drugs giving his address simply as Lexington (Ronsheim 1963:23–24). The advertisements also mentioned that he was available to do surveying (Hudson 1913:754).

Nathaniel Whittemore died in 1754 and left his property to his son, Jacob (Middlesex Probates #24828). The property of 114 acres included a dwelling house, cornhouse, barn, and cider mill, and Nathaniel's widow, Abigail (his second wife), was to have rights to half the house. With the exception of the barn, all the structures were north of the current-day Marrett Street (formerly Concord Road; see Figure 13-2); the exact location of the cornhouse and the cider mill is not known.

Abigail remarried, and in 1765 she and her new husband, William Benet, a saddler, sold her widow's share to Jacob (Middlesex Deeds, Book 65:547). The description of the buildings remained the same as in Nathaniel's will (Middlesex Probates #24828) except that the words "Corn house" were followed by the words "or Shop." This would seem to indicate that the cornhouse had been reused as a shop by William Benet.

If the building mentioned in the will as a "Corn house or Shop" was not the cornhouse, it may have been a small building used previously by Nathaniel for his apothecary business and not mentioned in his will, or it may have been built by William Benet to conduct his saddlery business. In any case, it is possible that a shop was part of the property in 1765. It is also possible that if a shop did exist it was later reused as a blacksmith shop.

In 1779, four years after Battle Road witnessed the advance and retreat of the British forces, Jacob Whittemore sold 110 acres to Ezekial Hall, a distiller from Watertown (Middlesex Deeds, Book 80:496). Hall, however, apparently never lived on the property. The build-

Table 13-1. Household and ownership changes at the Jacob Whittemore site.

Grantor	*Grantee*	*Acres*	*Date*	*Source*
John Comey	Samuel Hancock	2 w/16 rods	1700	M.D.*, Book 14:517
Samuel Hancock	Nathaniel Whittemore	2 w/16 rods	1716	M.D., Book 20:64
Timothy Carter	Nathaniel Whittemore	30	1716	M.D., Book 18:328
Walter Cooper	Nathaniel Whittemore	35	1720	M.D., Book 24:340
Nathaniel Whittemore	Jacob Whittemore	114	1755	M.P.† #24828
William Benet	Jacob Whittemore		1765	M.D., Book 65:547
Jacob Whittemore	Ezekial Hall	60 43 5 2	1779	M.D., Book 80:496
Ezekial Hall	Ephraim Hammond	60 43 5 2	1781	M.D., Book 84:505
John Muzzey	Jonas Muzzey John Muzzey Mary Reed		1824	M.P. #38228
Jonas Muzzey	John Muzzey	45 3	1838	M.D., Book 371:338
John Muzzey	Daniel Chandler	47 3½	1838	M.D., Book 374:307–308 (Mortgage)
John Muzzey	Mary Melvin	—	1840	M.D., Book 401:330 (Mortgage)
Mary Melvin	William P. Gibbs	47 3½	1845	M.D., Book 466:485 (Right to redeem mortgage)
William P. Gibbs	Mary Gibbs	—	1846	M.D., Book 491:477
Daniel Chandler	Nehemiah Ball	—	1849	M.D., Book 564:113 (Mortgage assigned)
Mary Melvin	Nehemiah Ball	—	1849	M.D., Book 615:343–344 (Mortgage transfer)
Nehemiah Ball	Reuben Kingsbury	47 3	1855	M.D., Book 708:473
Reuben Kingsbury	John Crowley	¾	1863	M.D., Book 913:156
Reuben Kingsbury	George M. Rogers	½	1867	M.D., Book 1017:362
Reuben Kingsbury	William H. Hawkes	47 2	1870	M.D., Book 1028:169
William H. Hawkes	Patrick Kelley	47 2	1870	M.D., Book 1110:437
Patrick Kelley	Bradley C. Whitcher	47 2	1877	M.D., Book 1316:488 (Mortgage)
Bradley C. Whitcher	Leonard C. Saville	47 2	1877	M.D., Book 1434:181–183 (Mortgage default)
Leonard A. Saville	Charles McMahon	47 2	1897	M.D., Book 2617:231

(table continued on next page)

Table 13-1. Household and ownership changes at the Jacob Whittemore site (cont.).

Grantor	*Grantee*	*Acres*	*Date*	*Source*
Charles McMahon	Jacob F. Stickel	47 2	1901	M.D., Book 2901:119
Jacob F. Stickel	Henry Kane	47 2	1902	M.D., Book 2955:174
Henry Kane	Ernest Ballard	47 2	1907	M.D., Book 3339:156
Ernest Ballard	Terance Gavin	15 2	1910	M.D., Book 3502:532
Terance Gavin	Clayton Goodwin	152	1923	M.D., Book 4598:516
Clayton Goodwin	George Sweetland	15 2	1925	M.D., Book 4818:165
George Sweetland	Edwin John Lee	—	1947	M.D., Book 7102:399
George Sweetland	Charles E. and Harriet Trenholm	15	1948	M.D., Book 7280:175
John E. Trenholm	Russell and Vivian Wolfe	137,886 sq ft	1955	M.D., Book 8429:142
Russell and Vivian Wolfe	U.S. Government	137,886 sq ft	1961	M.D., Book 9762:361

*M.D. = Middlesex Deeds
†M.P. = Middlesex Probates

ings listed in the deed of sale were the same as those mentioned in the previous deeds except for a "blacksmith shop" that was specifically reserved from the sale. The blacksmith shop was also reserved when Ezekial Hall sold the farm to Ephraim Hammond in 1781 (Middlesex Deeds, Book 84:505). Jacob Whittemore was not, however, a blacksmith. As Malcolm's (1985:17) research indicates, no blacksmith tools were listed in Whittemore's inventory when he died, nor was he taxed for any sort of shop on the Massachusetts Tax Valuation List of 1771 (Pruitt 1978:228). If the shop was not his, whose was it?

Malcolm (1985:17) postulated that while the land on which the shop was located belonged to Jacob Whittemore, the shop itself belonged to and was operated by Daniel and/or Benjamin Brown of Lexington, both of whom were blacksmiths. Daniel died in 1786 and left a house, barn, and blacksmith shop on Concord Road. Benjamin died in 1802 and left his house and "the other house which is called the Shopp" (Malcolm 1985:17). There is some evidence that the property of Benjamin Brown, inherited from his father Joseph (Middlesex Probates #3101), was located along the stretch of Concord Road near the Whittemores (Malcolm 1985:10), but there is no documentary proof. Malcolm speculated, therefore, that the "Shopp" may refer to the blacksmith shop that was located on the Whittemore property. There is, however, no record of any property transfers involving the Browns and this parcel. A more likely possibility, also mentioned by Malcolm (1985:19), is that the Whittemore blacksmith shop was operated by Josiah Mansfield, a blacksmith from Acton who purchased the farm across from Whittemore's in 1772, and Benjamin Danforth, also a blacksmith, who lived on this farm through a succession of owners until he was evicted in 1782 (Ronsheim 1963:48).

The documentary record is also unclear as to when the blacksmith shop ceased to operate after 1781. Furthermore, it is unclear who owned the Whittemore property or who may have resided there. Ephraim Hammond, who purchased the

Whittemore property in 1781 from Ezekial Hall, was listed as a non-resident owner of property on the south side of Lexington and was taxed for the value of his real estate until 1792, when he no longer appeared on the tax lists (Lexington Tax Records 1729–1818). During this period he made several small purchases of land in Waltham (Middlesex Deeds, Books 102:353, 105:310, 104:514), and in each case, was listed as being "of Waltham." What then, did he do with the Whittemore farm?

Ronsheim (1963:3) suggests that John Muzzey had purchased the farm from Hammond sometime before 1784. As evidence Ronsheim cites a deed for land adjacent to the Whittemore property south of Concord Road that mentions Muzzey as one of the abutters. Since John Muzzey appears to be an abutter of this adjoining property, then he must have owned land here in 1784—possibly the Whittemore farm. This date appears to be too early for Muzzey ownership of the Whittemore farm, however, because as mentioned above Hammond was listed as a taxpayer until 1792, and this is the only property he seems to have owned in Lexington.

It is probable that Hammond did indeed sell the Whittemore farm in 1792. On March 31, 1792, Ephraim Hammond is listed as selling five acres in Lexington to Joshua Reed, Jr. (Middlesex Deeds, Book 119:482). The deed lists the bounds of the property, and one of the boundaries on the southwest corner is stated as lying along "land this day sold John Muzzey." Since the only land owned in Lexington by Hammond was the Jacob Whittemore farm, it is likely that part of the farm was sold to John Muzzey, Jr., on this date. Thus, we have the link from Hammond to Muzzey in 1792.

Malcolm (1985:13) asserts that John Muzzey, Sr., was living on the Whittemore property as early as 1779 when he was evicted from the property across the road, which he was renting. This is certainly a possibility. John was born in 1716, married, and raised a large family (Hudson 1913:478). He lived on a substantial farm located near Wood Street in Lexington, an area that is very close to the Whittemore farm. He and his first wife Rebecca had 10 children, including 3 sons: Isaac (1744), Ebenezer (1750), and John (1754). Rebecca died in 1771, and on August 19, 1773, John married Mrs. Rebecca (Watts) Munroe. Five days later he mortgaged his Wood Street farm to Joseph Lee of Cambridge for £100 (Middlesex Deeds, Book 74:512). At that time Ebenezer was not living at home, as he is not listed on the Massachusetts Tax Valuation List of 1771. John, Sr., and Isaac are listed, but not young John who would have been under 17 (Pruitt 1978). It is interesting to speculate on the possible connection between John Muzzey, Sr's., remarriage and a need to borrow £100. Perhaps the money was necessary to expand the farm property due to the large number of individuals residing there.

Malcolm (1985:19) makes a case for John Muzzey, Sr., *selling* his farm in 1773, and suggests that he then moved to the farm, which may have been vacant, across the street from the Whittemore farm. The deed is a mortgage deed, however, and has the date of discharge, 1783, written in the margin (Middlesex Deeds, Book 74:512). A mortgage deed was filed when the owner of a piece of property needed to borrow money. The deed was drawn up granting title to the property if the borrower was unable to repay the loan within the time stipulated. The mortgage was "discharged" on final payment.

April 19, 1775, found three of the Muzzeys on the green in Lexington. John was there with his two sons, John Muzzey, Jr., and Isaac, who was killed. The Lexington tax lists for this period show John Muzzey, Sr., owning his own farm until 1783 (Lexington Tax Records 1729–1818) when he sold it to Joshua Reed, Jr., the father-in-law of his eldest son, Ebenezer (Middlesex Deeds, Book 83:504–505). John, who died a year later in 1784, was probably living with John Muzzey, Jr., by then. John Muzzey, Jr., took his father's place on the Lexington tax rolls, having married his stepmother's daughter, Rebecca, in 1777. It is not clear where John Muzzey, Jr., was living at this time, but he was assessed for both real estate and personal taxes, and his name is on the north side of town on the tax list (Lex-

ington Tax Records 1729–1818). If he was living on the Whittemore-Hammond farm at this time, as Malcolm (1985:13) postulates, his name would have been listed on the south side of town, and Hammond would not have been listed as a taxpayer. Malcolm bases her conclusion on a change in Muzzeys' location in the tax rolls, but this author found no such evidence.

Interestingly, in 1791 John Muzzey, Jr., began to be charged for the operation of a "faculty." A tax for a faculty was assessed on tradesmen or craftsmen such as blacksmiths or leather tanners (Wheeler 1967:appendix E). As mentioned above, since Muzzey appears to have purchased a part of the Whittemore farm from Hammond in 1792, it is possible that he was renting part or all of the farm from Hammond during 1791, and began to operate his "faculty" in the former blacksmith shop. There is no documentary evidence to indicate what sort of faculty Muzzey was being taxed for, and the only clue we have for John Muzzey, Jr.'s, occupation is a document filed in 1784 when he served as the executor of his late father's estate and is listed as "John Muzzey, housewright" (Middlesex Probates #15763).

Nineteenth-Century Land Ownership and Use

Muzzey was taxed for a faculty until at least 1820, according to the Lexington tax rolls (Lexington Tax Records 1729–1818), and it is interesting to speculate what sort of business was associated with this faculty. Could it have pertained to the former blacksmith shop? The deeds list John Muzzey, Jr., as a "yeoman" so there is no help there.

John Muzzey, Jr., farmed the land until his death in 1824, but his tax figures are not very prepossessing. He seems to have owned a horse or two, four cows, and one pig. He produced no grain, and only one or two barrels of cider a year. His chief earnings must have come from the faculty for which he was being taxed (Lexington Tax Records 1729–1818).

John Muzzey, Jr., died in 1824 and left his farm to his son Jonas, to his daughter Mary, who was married to Nathan Reed, and to his son John (Middlesex Deeds, Book 371:336–338). Jonas was living in the center of Lexington in 1818, according to the Lexington Tax Records (1729–1818), and Mary had married Nathan Reed in 1798 (Lexington Vital Statistics 1898:136). The documentary record mentions that John purchased their shares from them (Middlesex Deeds, Book 371:336, 338). The probate inventory does not delineate the buildings on the farm but refers to a "homestead containing about fifty acres with the Buildings thereon" (Middlesex Probates #38228).

The payment of $200 to Mary and $1600 to Jonas must have left John short of cash, because in the same year, 1838, he took out a mortgage with Captain Daniel Chandler (Middlesex Deeds, Book 374:307–308), and two years later another one with Mary Melvin (Middlesex Deeds, Book 401:330), who assigned it to William Gibbs (Middlesex Deeds, Book 466:485).

In 1840 John Muzzey, Jr.'s, son John owned a house and a barn but no shop. He was taxed for one outbuilding, however, at $24. He had 18 acres in tillage and English mowing, 6 in meadow, 26 in pasture, 10 in woodland, 23 unimproved, and 1 acre unimprovable (Lexington Tax Records 1840). The increased acreage in tillage and the absence of a faculty tax indicate a change in the Muzzeys' economic base from part-time craftsmen and farmers to perhaps full-time commercial farmers, as well as a change in the use or presence of the faculty.

William Gibbs became the owner of the farm upon John's death in 1843. The Muzzey farm under William Gibbs's hands in 1851 was taxed for 12 acres of tillage, 6 acres of meadow, 11 acres of pasture, 13 acres of woodlot, and 8 acres of unimproved land. In addition, the farm had shrunk from 80 acres to 50 acres (Lexington Tax Records 1851). He farmed it and paid taxes on it until 1855 when Nehemiah Ball of Concord purchased the farm (Middlesex Deeds, Book 615:343–344).

The property was sold to Reuben Kingsbury in 1855 (Middlesex Deeds, Book 708:473), who farmed it until 1868 when he sold it to William Hawkes (Middlesex Deeds, Book 1028:169), who in turn sold it to Patrick Kelley in 1870 (Middlesex Deeds, Book 1110:437). Patrick Kelley sold

it to Bradley C. Whitcher in 1874 (Middlesex Deeds, Book 1316:488), and then it was sold again in 1877 to Leonard A. Saville (Middlesex Deeds, Book 1434:181–183). Saville farmed it until 1897 when it was sold to Charles McMahon (Middlesex Deeds, Book 2617:231).

According to the 1860 census, Reuben Kingsbury owned one horse, one milk cow, two other cattle, and two pigs. He raised 25 bushels of Indian corn, 200 bushels of Irish potatoes, and 10 tons of hay (U.S. Government. Bureau of the Census 1860).

Ten years later, Patrick Kelley had a horse, two cows, and a two-year-old animal. His farm was divided into 7 acres of mowing land, 3 acres of tillage, 17 acres of pasture, 20 acres of woodland, and 2 acres of meadow (Lexington Tax Records 1870).

The tax figures for Gibbs, Kingsbury, and Kelley indicate continued use of the property as farmland and there is no documentary evidence of the presence of a faculty or the blacksmith shop building.

Twentieth-Century Land Ownership and Use

During the years from 1897, when Charles McMahon bought the Whittemore-Muzzey farm, until 1961 when it was finally sold to the U.S. Government, the farm had a total of nine owners. The farm property was divided and sold off in small pieces and was finally sold as 137,886 sq ft.

Summary and Conclusions

Documentary evidence has shown that there was a blacksmith shop located on the north side of Marrett Street from 1779 until 1781 on land belonging to Jacob Whittemore, who was not a blacksmith. It was probably operated by Josiah Mansfield and Benjamin Danforth, blacksmiths, who were living across the street at the time. It is possible that the shop that appears to have existed in 1765, or perhaps earlier, was reused as the blacksmith shop and then reused as a shop of some sort until 1820. It is also possible that the structure was still standing in 1840 when John Muzzey was taxed for an outbuilding in addition to his barn.

Working backwards from the 20th century, it is possible to follow the ownership of the Whittemore property back to John Muzzey in 1824. Coming from the other direction, we find that Jacob Whittemore owned the property until 1779, followed by Ezekial Hall, and then Ephraim Hammond in 1781. There the trail ends, with the exception of a tenuous mention of the sale of land by Hammond to John Muzzey, Jr., in 1792. This research has shown that, in all likelihood, Muzzey did not acquire the Whittemore property until 1792 although it is possible that he lived there earlier as a tenant.

Chapter 14

Archeological Investigations of the "site of supposed Blacksmith Shop"

Jeannine A. Disviscour, Alan T. Synenki, and Nora Sheehan

Introduction

As noted in the previous chapter (Chapter 13), a blacksmith shop was "reserved" (i.e., excluded) from the sale of the Jacob Whittemore property in 1779 and 1781. Unfortunately, the transactions of sale fail to indicate the shop's precise location north of Concord Road or what other facilities, if any, were associated with the shop. Oral tradition claims that the blacksmith shop was located at the base of a bluff just north of present-day Marrett Street in Lexington, Massachusetts (Figure 13-1), and that a British soldier was shot near it in 1775 (Ronsheim 1968a:23).

Despite the fact that no documents before 1779 or after 1781 mention the blacksmith shop, researchers have suggested that the blacksmith shop may have been in existence as early as 1755 or 1765, and perhaps as late as 1820 or 1840. For example, Malcolm (1985:15) suggests that a blacksmith shop was part of Jacob Whittemore's inheritance from his father Nathaniel in 1755. With the exception of a cornhouse, however, no such record of a blacksmith shop, or any shop for that matter, appears to exist (Ronsheim 1963:85). In 1761 there was a change in the designation of the cornhouse to "Corn house *or Shop*" (Middlesex Deeds, Book 65:547 [emphasis added]). Holland (Chapter 13) suggests that this change indicates that a shop *was* present on the property, and that this shop was reused as a blacksmith shop shortly thereafter. Since the cornhouse is listed along with the blacksmith shop in 1779 and 1781, however, it seems unlikely that the "Corn house or Shop" was reused as a blacksmith shop. Instead, it is hypothesized here that the blacksmith shop was constructed and began operating sometime after 1772 when Josiah Mansfield, a blacksmith from Acton, appears to have owned the property across from the Whittemore's (Chapter 13).

Because of the limitations of the documentary record, and, as indicated below, the unsuccessful attempts of previous archeological investigations to locate the blacksmith shop, further archeological investigations were undertaken during the summer of 1988. The immediate goals were to locate the site of the blacksmith shop, to determine its overall configuration and integrity, and to ascertain whether it was present in 1775. The current archeological investigations were conducted on a .1-acre parcel north of Marrett Street where a large depression exists. Designated the Jacob Whittemore site, the investigations focused on this parcel because the depression appears to correspond to where oral history suggested the blacksmith shop may have been located (Foley 1964:1; Malcolm 1985:15; Towle 1986b:59). The site exists within the Nelson Road area of MIMA (see base map, Appendix A-3) between a bluff to the east, a dry-laid fieldstone wall to the north and northwest, and Marrett Street to the south (Figure 13-1). The site's terrain is relatively flat. A thick brush and vine understory combined with a dense secondary woodland growth (e.g., oak trees) of apparent uniform age characterizes the site's vegetation (Figure 14-1).

Like tanners (see Chapter 16), blacksmiths were vital artisans of 17th-, 18th-, and 19th-century New England towns such as Lexington,

Figure 14-1. 1989 Project photograph of the Jacob Whittemore site area, facing north.

Lincoln, and Concord (MacLean 1987:185–189). Their work included the manufacture and repair of a variety of metal products and implements used by artisans and others in domestic, agricultural, and building contexts (Larkin 1988:48). Beyond their existence in these towns, however, full knowledge of smithing, the facilities employed in the work, and its particular contribution to the development of industrialism is yet to be realized. Fortunately, archeological investigations in central Massachusetts and Connecticut (John Worrell, David Simmons, and Greg Hill, personal communications, 1989), Maine (Faulkner 1986), and Ontario, Canada (Light 1984a, 1984b, 1987), have provided much needed information regarding the material remains of smithies.

As discussed in Chapter 1, in addition to assisting MIMA in the management and interpretation of its cultural resources, investigations of the blacksmith shop will contribute information on the physical characteristics of late 18th-century rural blacksmith shop sites and perhaps their role in the development of industrialism in eastern Massachusetts.

Previous Archeological Research

As noted above, prior to the current archeological investigations limited excavations were conducted to locate the remains of the site of the blacksmith shop (Foley 1964:27). Foley's (1964:27) investigations consisted of the excavation of a trench dug approximately 3.7 m (12 ft) north of the stone wall that borders the current site boundaries (Figure 14-2). Foley's trench, oriented northeast-southwest, measured 91 m (300 ft) × ca. 7.4 m (24.3 ft). As Foley (1964:27) indicates, no evidence of the shop or any other features was uncovered. Recent analysis of the materials uncovered do not contradict this (Towle 1986b:60). Foley (1964:27) concluded from his excavations that the shop may have been located just east of the stone wall where the remains of

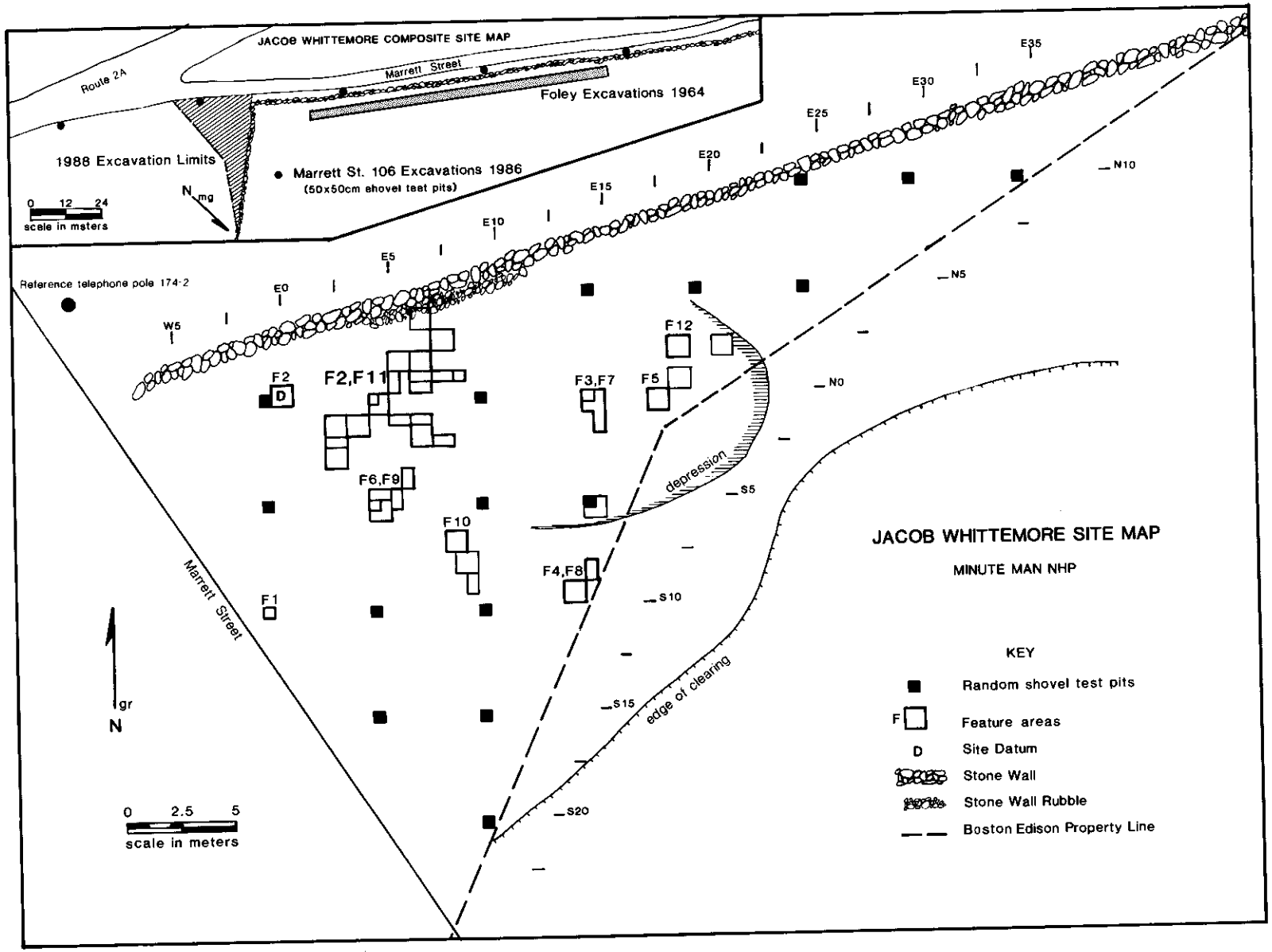


Figure 14-2. Jacob Whittemore site map showing STPs and EUs. The site of Foley's (1964) trench is shown in the inset.

a "foundation and structure hollow" appeared to exist. This presumably refers to the depression that currently exists on the site. Foley (1964:27) recommended that archeological investigations of the area east of the stone wall should commence when the property was purchased by the National Park Service. Subsequent researchers concurred (Malcolm 1985:15; Towle 1986b:60).

In addition to these excavations, an archeological survey was conducted along Marrett Street and Airport Road in 1987 to determine the presence or absence of archeological remains in an area where New England Telephone proposed underground conduits and associated manholes (Synenki 1986). Of the STPs that were excavated along Marrett Street, only one was located within the current site's boundaries (Figure 14-2), and no remains of the blacksmith shop were uncovered.

Methods

In order to accomplish the above goals, archeological expectations were generated, field investigations were conducted, and analysis of the data was carried out according to the project-wide, multistage strategies outlined elsewhere (Chapter 2).

As noted earlier, no documentary information exists about the facilities that were present on the Whittemore property, save the shop itself. Consequently, the archeological expectations were generated from existing archeological and documentary data (Faulkner 1986; Light 1984a, 1984b, 1987; John Worrell, David Simmons, and Greg Hill, personal communications, 1989; Anonymous 1806:69–76; Light and Wylie 1986), the activities expected to be associated with a blacksmith shop, and post-abandonment formation processes. Field investigations consisted of a site walkover, which was conducted during the background phase, an intensive survey, and limited site examination.

Archeological Expectations

Like tanners (see Chapter 19), blacksmiths were essential artisans from the time of initial settlement in New England through the 19th century. Unfortunately, with few exceptions (e.g., Innes 1983:86–88; John Worrell, personal communication, 1988), little is currently known about the range of services and products that blacksmiths provided within the towns in which they were situated, the geographical extent to which their commerce ranged, and how these changed through time.

Innes (1983:86–88) documents the significance of 17th-century blacksmiths in Springfield, Massachusetts, and the products and services they provided. For example, Springfield's first blacksmith, John Stewart, was paid by the town to manufacture both window and door hardware for the meeting house (Innes 1983:87). Stewart was also paid by the town to locate all swine under 3 years of age and place metal rings in their noses so that they could be restrained during the planting season (Innes 1983:87). Seventeenth century blacksmiths within the towns of Lincoln, Lexington, and Concord may have provided similar products and services.

Blacksmiths appear to have provided some of the same products and services during the 18th-century. For example, in the 1760s and 1770s the town of Lincoln, Massachusetts, commissioned blacksmiths to manufacture door hardware for both the meeting house and schoolhouse (MacLean 1987:188–189). Other services rendered during this time included the shoeing of horses and oxen (MacLean 1987:188). Since the blacksmith shop on the Whittemore property was present in 1779 and 1781, it is expected that the activities of the smith who worked there may have been similar.

The first half of the 19th century was a period of change for many rural New England artisans, or "mechanicks" as they were often called, including blacksmiths (Larkin 1988:60). For some blacksmiths change consisted of a shift from the manufacture and repair of a variety of items to the manufacture or repair of a few items or even a single one. Larkin (1988:60) suggests that in some cases shops were enlarged at this time to accommodate the production of single items. As one early 19th-century American writer noted,

Figure 14-3. Drawing of the Bull Tavern, ca. 1828, which was located across Marrett Street from the blacksmith shop (C. Henry Jackson, photographer, used by permission of the Lexington Historical Society, Inc., Lexington, Massachusetts).

> since the demand for particular articles is frequently so great...the whole attention may be directed to the multiplication of individuals of the same kind. Some smiths make only anchors, axes, scythes, hoes, or shovels. (Hazen 1837:232)

There is currently a lack of data regarding the extent to which specialization occurred within the towns of Lexington, Lincoln, and Concord. Nevertheless, if the blacksmith shop on the Whittemore property was still in operation during the early 19th century (as Holland suggests is possible [Chapter 13]), then it is conceivable that the smith's activities became increasingly specialized. This specialization may have been transportation related. For example, the smith's activities may have become devoted primarily to shoeing the horses or perhaps repairing the carts and chaises of people who frequented the "Bull Tavern" (Figure 14-3) that existed across the road in the early 19th century (Ronsheim 1968a:19).

Given the expected activities of those who operated the smithy that was located on the Whittemore property, it is anticipated that, in addition to the shop itself, the smithy might have consisted of an exterior cobble area for shoeing horses and perhaps oxen, an outside fuel storage area, and perhaps other buildings. Refuse is expected to be found in the form of "sheet" refuse—that is, debris broadcast over the surface of the site in the areas within and/or adjacent to the shop.

SHOP

As one 19th-century writer described it, the work of a blacksmith "is a laborious business, which chiefly consists of the management of the

Table 14-1. East-west and north-south dimensions of known blacksmith shops dating to the 17th, 18th, and 19th centuries.

Location	*Date*	*Dimensions (E-W × N-S)*
Barre, Massachusetts	1824–1855	7.9 m × 6 m 26 ft × 20 ft
Phoenixville (Eastford), Connecticut	1822–1835	4.9 m × 6 m 16 ft × 20 ft*
Fort St. Joseph, Ontario	1796–1812	5.1 m × 6 m 17 ft × 20 ft
Fort Pentagoet, Maine	1635–1654	9.2 m × 6 m 30 ft × 20 ft

*Only one wall was identified.

fire, the hammer, and the file" (Kauffman 1966:53). While brief, this observation aptly summarizes the overall operations that were conducted within the shop itself.

Existing data indicate that a blacksmith shop characteristically consisted of a wooden superstructure atop a dry-laid fieldstone foundation or corner supports. For example, the foundation of the shops located in Barre (David Simmons, personal communication, 1988), Fort St. Joseph (Light 1984a:figure 6), and Fort Pentagoet (Faulkner 1986:figure 4) consisted of dry-laid fieldstones; the shop located in Phoenixville, Connecticut, simply consisted of corner supports (David Simmons, personal communication, 1988). Interestingly, as can be observed in Table 14-1, although the east-west dimensions of the shops varied, their north-south measurements were identical. Unfortunately, very little specific information exists about the physical appearance of the wooden superstructures, save for the presence of windows at Fort St. Joseph (Light 1984b:7).

The principal features of the shop's interior, according to another 19th-century writer, were the "forge, an anvil and block, [and] a vice fastended to an immovable bench..." (Anonymous 1806:70; see Figure 14-4).

The forge was the most prominent if not the most significant of the features. Its purpose, in the words of the same 19th-century writer, was to act as "a sort of furnace for heating metals so hot as to render them malleable" (Anonymous 1806:70). Although there are very detailed accounts regarding a forge's size, construction, and location within the shop (e.g., Moxon 1703:1–2), the physical attributes of the forge are expected to vary according to a number of factors—principally the kind of fuel being used and the availability of construction materials. As Light has aptly noted:

> A forge can be made of almost any durable construction material: stone or brick, mortared or dry laid. In its original form it generally exists as a hollow rectangular box, approximately waist high, with a chimney on one side or one end. Its interior will have been filled with rubble on top of which will have been laid a fire bed either of firebrick, sand, or other material which will both hold the fire and keep the iron from contamination. Through the fire bed will have protruded a *tuyere*, the nozzle directing air from the bellows to the fire. It may feed air to the forge either from below (a bottom *tuyere*) or from the side (a side *tuyere*)... (Light 1984b:56)

The forge associated with the shop in Barre was constructed of fieldstones upon a large

THE BLACKSMITH, AND THE NAILER.

Figure 14-4. Etching of the "Blacksmith and the Nailer" (reproduced from Hazen 1837).

fieldstone base and was filled with rubble (David Simmons, personal communication, 1988). The presence of sand-encrusted and bowl-shaped slag suggests that the forge's firebox was sand-lined and the tuyere was side-mounted (David Simmons, personal communication, 1988). Although this slag indicates that charcoal was the primary fuel used at the smithy (Light 1987:662), the archeological evidence indicates that coal was also used (David Simmons, personal communication, 1988). Light suggests that although the use of coal supplanted the use of charcoal by the last quarter of the 19th century, the precise date when this occurred at any given smithy is a "site-specific question" (1987:659). The Barre forge was located adjacent to the back (north) wall of the shop and measured approximately 2.4 m (7.9 ft) × 2.2 m (7.2 ft [David Simmons, personal communication, 1988]). The forge at Fort St. Joseph was constructed of similar materials and in a similar manner to the forge identified at the shop in Barre (Light 1984b:66). The Fort St. Joseph forge was smaller (1.5 m [4.9 ft] × 1.7 m [5.6 ft]), but also located against the north wall of the shop (Light 1984b:62). The forge of the shop at Fort Pentagoet was constructed of slate and measured 1.4 m (4.6 ft) × 1.2 m (3.9 ft [Faulkner 1986:70]).

Once the metal was heated in the forge, it was usually hammered into its intended shape on an anvil by one person or two or more people working together (Hazen 1837:284; Moxon 1703:3; Anonymous 1806:73–74). If needed, the metal was then bent, riveted, or filed in a vise (Moxon 1703:4–5; Anonymous 1806:74). These activities are depicted in Figure 14-4.

The anvil was usually located very near the forge, was constructed of cast iron or steel, and was anchored to a wooden block or tree stump (Moxon 1703:3; Anonymous 1806:73). The stump may have been set into the ground and materials wedged under it to provide greater stability

and/or support (Light 1984b:6; 1984b:57). At the shop in Barre, the location of the anvil was inferred from three pieces of information (David Simmons, personal communication, 1990): 1) a soil depression where a stump was thought to have been, 2) a relatively high concentration of iron in the soil, and 3) a concentration of small hot-punched metal slugs. These slugs appear to be from holes that were punched in the metal during the manufacture and/or repair of hinges and the like. A relatively high concentration of very small pieces of metal was also associated with the Phoenixville shop. At Fort St. Joseph the remains of the actual spruce stump were uncovered in "a hole" (Light 1984b:6). Beneath the stump were "several large rocks...packed with earth, small stones and scrap iron" (Light 1984b: 6). A relatively high concentration of iron scale—very small pieces of metal that flake off of hot metal when worked—and iron in the soil were found in the vicinity of the anvil (Light 1984b:40; 1984a:58–59).

The vise in blacksmith shops was attached to a wooden workbench located against one of the walls of the shop (Anonymous 1806:74; Moxon 1703:4–5; Light 1984b:40; 1984a:58). Light (1984a:60) suggests that the workbench would be located near a window since many of the activities conducted at the workbench require proper lighting. At both the Fort St. Joseph (Light 1984a:40) and the Barre (David Simmons, personal communication, 1990) shops, the location of the workbench and its associated vise were inferred from a relatively high concentration of iron in the soil. In addition to the iron concentration, iron filings, bottle glass (from bottles that held acids and fluxes) and a variety of small, broken, or damaged metal objects once worked at the workbench were also found at Fort St. Joseph (Light 1984a:60). Finally, because the workbench may have been located near a window, a concentration of window glass in conjunction with the above materials may strengthen inferences regarding the location of the workbench (Light 1984a:58–60).

Three other likely internal shop areas that were associated with the Fort St. Joseph shop, and therefore might be present at other shops, include a general storage area where fuel, stock, and perhaps tools were kept; a domestic area where food was consumed, transactions took place, and social discourse ensued; and refuse areas where debris was discarded (Light 1984a: 55–56). Archeological investigations at Fort St. Joseph revealed a charcoal storage area (adjacent to the northwest corner of the shop), the possible location where reusable metal stock was stored (Light 1984b:9), and four areas where refuse was discarded, two within the interior, and two adjacent to the exterior of the shop (Light 1984a:figure 2). Refuse was also uncovered at the shop at Barre, both within and adjacent to the back of the shop (David Simmons, personal communication, 1988).

COBBLE AREA

As noted above, it is anticipated that a related shop component that may be present is a dry-laid cobble area that would have been used to shoe horses and oxen, and perhaps to repair carts and chaises. Such a cobble area, measuring 2 m (6.6 ft) × 2 m (6.6 ft), was uncovered in front of the shop in Barre (David Simmons, personal communication, 1988). A large number of whole and fragmentary horseshoe nails was uncovered in association with the cobble area (David Simmons, personal communication, 1988). According to Simmons (personal communication, 1990), the cobbles would have provided a relatively flat, firm, well-drained surface on which to shoe animals.

FUEL STORAGE AREA

In addition to small amounts of fuel being stored within the shop itself, a fuel storage area, perhaps a separate building, may exist. An area for storing fuel outside of the shop would be particularly necessary if large amounts of charcoal were being used since it is a highly combustible material (Light 1984a:56). At the Phoenixville smithy the foundation of a 10 ft × 10 ft wooden superstructure to store charcoal was located approximately 5–10 ft from the shop (David Simmons, personal communication, 1988). The

building's floor appeared to be elevated by dry-laid fieldstones to keep the charcoal from becoming damp (David Simmons, personal communication, 1988). Interestingly, this facility was referred to in the documents as a "coal house" even though its function was to store charcoal.

As noted above, there were possibly other buildings present that were associated with the smithy. For example, a semi-subterranean building was identified south of the shop at Fort St. Joseph (Light 1984b:5, 39). Unfortunately, the function of this building is unknown, and investigation of the building apparently did not occur.

SUMMARY

Based on the above information, if the parcel investigated at MIMA is where the smithy mentioned in the 1779 and 1781 deeds of sale was located, then the remains of a shop should exist. Evidence of the shop's foundation may be either in the form of an alignment of dry-laid fieldstones or several rather large fieldstone corner supports. This assumes, however, that the fieldstones were not removed from the site for use elsewhere, or scattered randomly about the site as a result of subsequent uses of the parcel. Disturbance of subsurface remains by root activity is likely given the current vegetation. Other evidence of the superstructure should consist of the presence of hand-wrought nails and perhaps crown/cylinder window glass. If the shop continued to be used into the 19th century as Holland (Chapter 13) suggests, and repair and/or alterations to its superstructure occurred, then the presence of some machine-cut nails may also be expected.

Evidence of the internal components of the shop, especially the forge, may also exist. Again, their "visibility" will depend, in part, on the effects of land use of the parcel subsequent to its being used as a smithy. Their visibility will also depend on the data collection and analytical methods employed. Evidence of the forge should consist of several courses of fieldstones or several layers of dry-laid cobbles. The presence of sand-encrusted and bowl-shaped slag is expected since it is anticipated that charcoal would have been the predominant fuel used in the 18th century. As noted above, these characteristics of slag are indicative of a sand-lined firebox and a side-mounted tuyere respectively. If the shop was in operation into the 19th century, however, coal may also have been used as a fuel source. If this was the case, then some evidence of alterations to the forge's firebox and tuyere may be present. A posthole or postmold near the forge may be evidence of a bellows if it was floor-mounted. Evidence of the location of the anvil may include the remains of a stump, a block, or a depression in the soil where it was once located. Although soil analyses were not conducted because of time and resource constraints, a concentration of scale and the presence of small metal slugs may also be indicative of the anvil's location. Evidence of the vise and workbench should consist of a concentration of metal filings, small metal fragments, and possibly bottle glass. Other possible activity areas within the shop may be revealed in the following ways: a concentration of metal fragments and broken tools may be indicative of where stock was kept; a concentration of coal may suggest where small amounts of fuel were stored; and a concentration of domestic debris (e.g., ceramics, vessel glass, and bone) may indicate where the smith consumed his food.

It is also expected that if a large amount of charcoal was used, then a charcoal storage area may be located exterior to the shop itself (if, that is, the charcoal was not used up or removed from the parcel when the shop went out of use). Hand-wrought nails and an alignment of dry-laid fieldstones (or perhaps four stone or wooden corner supports) may also exist, indicating the presence of a building.

As discussed above, it is hypothesized that the smith may have specialized as a farrier—a shoer of horses and oxen—to fulfill the needs of not only local residents but also travelers who may have frequented the tavern across the road. The smith may also have repaired carts and chaises. If so, a large cobble area may exist exterior to the shop. The presence of horseshoe fragments,

nails, and possibly small, broken vehicle parts could be expected in association with the cobble area.

Refuse is expected to be present across the entire site, perhaps concentrated near the shop itself. This refuse should consist of fuel (charcoal and coal), fuel by-products (e.g., slag, cinders/clinkers, and ash), scrap metal too small or not fit for reuse, broken tools, and domestic refuse (ceramics, bottle glass, and pipe stems). If the smith was manufacturing building hardware, then in addition to the metal slugs mentioned above, hinges, locks, keys, pintles, etc. may be found if they were not melted down and their metal reused. Lastly, if the smith was involved in tinkering—that is, the repair of domestic items such as pots and kettles—small amounts of sheet copper and/or brass may be found in conjunction with ferrous rivets or brass lugs (Light 1984b:31).

Field Investigations

Archeological investigations were conducted at the Jacob Whittemore site during June of 1988. A multistage sampling design, based on the expected archeological remains, was used as the framework for this investigation. Three phases of field work were conducted: a systematic walkover, an intensive survey, and limited site examination. In all, a total of 21 STPs and 34 1 m × 1 m or 1 m × 2 m EUs were excavated.

The systematic walkover was expected to possibly reveal surface evidence of the shop's foundation and the forge's base. The remnants of fuel by-products were also possibly expected to be found. Although none of these remains were found on the site's present ground surface, machine-made bottles, postdating ca. 1880, were found. The site's boundaries and datum were established, and the vegetation cleared prior to the intensive survey. The boundaries of the depression were mapped prior to the subsurface investigations.

The intensive survey phase consisted of the excavation of 50 cm × 50 cm STPs placed at 5-m intervals using a systematic, stratified, aligned, probabilistic sampling strategy (Figure 14-2). Given the expected characteristics of the shop and its related facilities, this strategy was considered to be an effective and efficient means for initially determining the presence or absence of the blacksmith shop, cobble area, fuel storage area, and the spatial distribution of refuse. The last would be helpful for establishing the site's boundaries. The intensive survey phase uncovered the remains of a cobble area (Feature 2), a concentration of cobbles whose reason for deposition is unknown (Feature 1), and a concentration of building-related debris and fuel by-products within the depression (Feature 3).

Limited site examination consisted of the judgmental placement and excavation of 34 EUs. Site examination was initially conducted to determine the function, date, and spatial extent of the cobble area and the depression. A core was used in some areas to determine tentatively the presence or absence of cobbles, and hence the placement of the EUs. As a result of the investigation of the cobble area, the northwestern foundation wall of the blacksmith shop and the forge base (Feature 10) were uncovered. A postmold (Feature 6) was uncovered adjacent to the shop's wall. Two refuse deposits—one within the shop itself (Feature 9), and one beneath the cobble area outside the shop (Feature 11)—were also uncovered. Lastly, an attempt to ascertain the temporal relationship between the cobble area and stone wall bordering the northwest edge of the site was made but with no definitive results. Three additional features (5, 7, and 12) were uncovered in the depression. As discussed in the following section, these features appear to be refuse from the demolition of the chimney and/or the firebox associated with the forge.

At the completion of the field work, a permanent copper disk set in concrete was used to mark the site's datum. All STPs and EUs were backfilled. EUs that encompassed or were adjacent to features were filled with washed sand purchased from a local sand and gravel company. The reasons for the use of sand have been discussed elsewhere (Chapter 2). Cobbles removed from S1E3 and S5.5E7.5 were placed in their original location on top of a layer of

washed sand at the request of MIMA's superintendent.

Results

Archeological investigations revealed that the parcel investigated was the site of the smithy that was present on the Whittemore property. Evidence of the smithy consisted of the remains of the shop's superstructure and possibly its foundation, its forge and possibly its workbench, a possible cobble work area, a charcoal storage area, and two refuse deposits. The preponderance of forge-related debris, in conjunction with the relative absence of domestic-related materials, provides corroborative evidence. The possible remains of another building (whose function is not known at this time), perhaps in existence when the smithy was in operation, was also uncovered. Lastly, archeological investigations of the depression, originally suggested by Foley (1967:27) to be the remains of the "foundation and structure hollow" of the smithy, revealed that the depression may have been created prior to or during the operation of the smithy and subsequently altered (probably after the third quarter of the 19th century but before ca. 1958).

No data exist indicating that the shop was used for some other purpose before or after its use as a blacksmith shop as suggested by Holland (Chapter 13). The archeological evidence does provide some data that suggest the shop's 18th-century superstructure was repaired or altered and remained extant until at least the early 19th century, after ca. 1820. Although no archeological evidence was uncovered to suggest when the shop began or ceased to operate as a smithy, the current data suggest that it is unlikely that it was in operation before the third quarter of the 18th century. The archeological evidence seems to suggest that the superstructure was moved from the site or carefully dismantled and its construction materials reused elsewhere. Subsequent to the use of the shop, the forge box appears to have been demolished and its brick chimney dismantled. Both the forge box's rubble fill and the chimney's fragmentary bricks were then dispersed over portions of the site; the whole bricks appear to have also been removed from the site and reused elsewhere.

Site Stratigraphy

Archeological investigations revealed the presence of three site-wide deposits: 1) humus, 2) forge and building-related demolition debris, and 3) an organic-appearing deposit. In general, the humic deposit consisted of a thin root mat and an underlying silty fine sand. The depth of the deposit varied from 10 to 33 cm, with an average thickness of 23 cm. The color of this deposit varied from dark brown (10YR3/3 and 10YR4/3) to dark yellowish brown (10YR4/4 and 10YR3/4). In most areas of the site this deposit lay directly above a culturally sterile glacial subsoil. The glacial subsoil varied in color from a dark yellowish brown (10YR4/6—designated in the field as the *B* horizon) silty fine sand with occasional gravel and cobbles to a light yellowish brown to olive yellow (2.5Y6/4 to 2.5Y6/6) medium to fine silty sand in some areas of the depression. The formation of the humic deposit appears to have occurred after the removal and/or demolition of the smithy's buildings and in particular the shop's forge. The formation of this deposit is believed to be the result of what Eidt (1985) has termed the humification process—that is, the gradual decomposition of organic materials. The presence of post–late-19th-century debris (e.g., machine-made bottle glass, macadam, and a rubber windshield wiper blade) in the humic deposit indicates that the parcel was used periodically for the disposal of trash.

Beneath the humic deposit in the northern portion of the site was a single layer of cobbles and fieldstones, some of which were embedded in a dark brown silty fine sand (Figure 14-5). This cobble area measures approximately 6 m × 6 m. As discussed below, while the southwestern portion of the cobble area may be the remains of an exterior work area where livestock were shoed and vehicles were repaired, the northern portion appears to be forge-related debris deposited as a result of the demolition of the forge after the

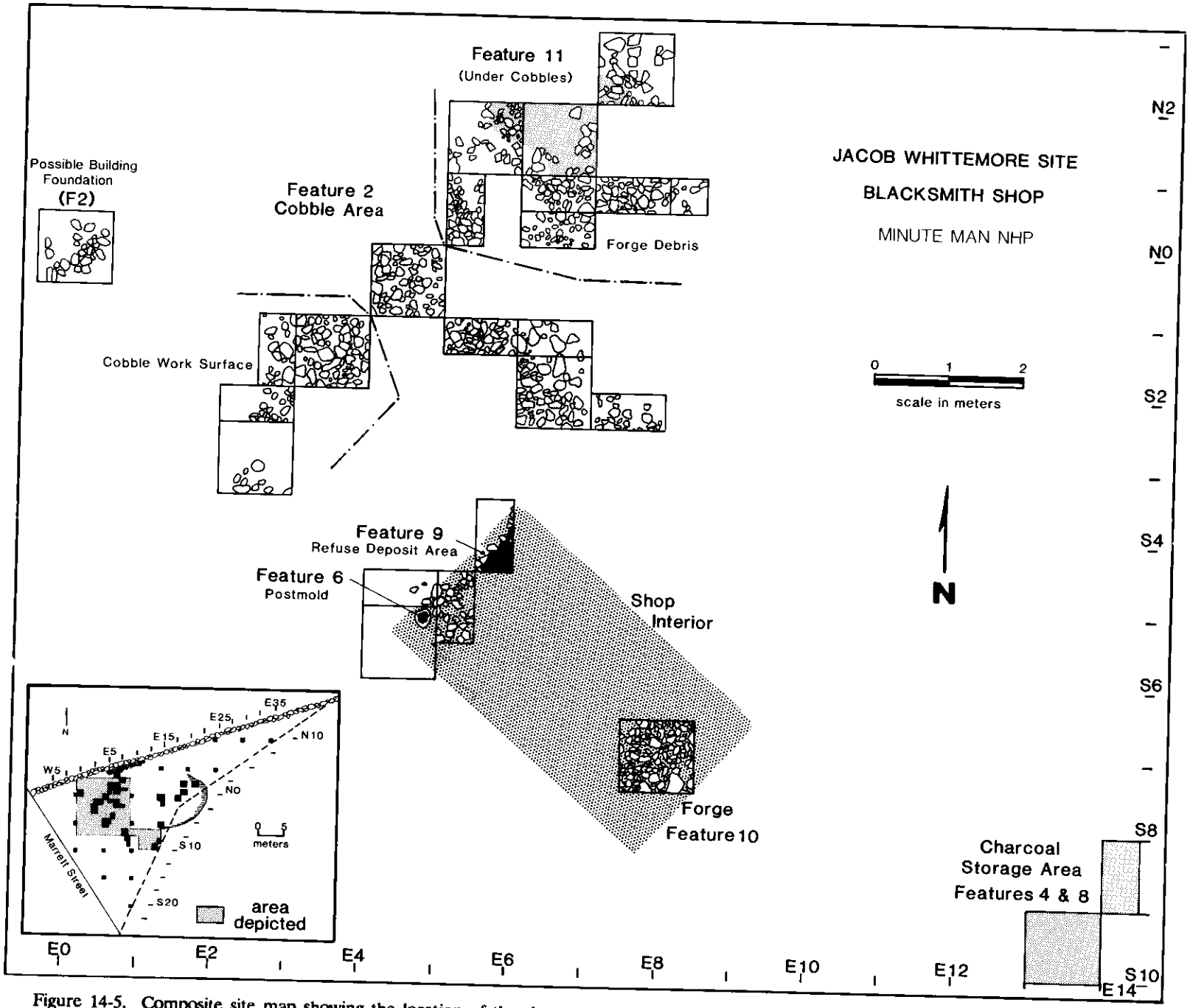


Figure 14-5. Composite site map showing the location of the shop, cobbled area, and associated features at the Jacob Whittemore site.

shop ceased operating as a smithy. Feature 11 (a refuse deposit below the northern area of cobbles) and the central and southeastern portions of the cobble area also appear to have been created as a result of the demolition of the forge.

As discussed in greater detail below, a dark, organic-appearing deposit was present adjacent to and, where excavated, below the cobbles at the southern and western edges of the cobble area (i.e., S1E2, S1E2.5, S2E2, S2.5E2). This deposit also existed in S1E3 where it consisted of a dark yellowish brown silty fine sand. Few artifacts, and none that were temporally diagnostic, were present in the deposit. This deposit may represent a ground surface on which debris from the smithy was deposited prior to the construction of the cobble work surface. If the cobble area above this deposit is demolition debris, however, then it is possible, although unlikely, that this deposit may simply be the result of the demolition of the forge.

SHOP

Archeological investigations revealed the presence of a blacksmith shop approximately 10 m north of Marrett Street (Figure 14-5). The shop's location is inferred from the remains of the forge and the presence of a possible foundation wall. The presence of both nails and window glass associated with these features also provides some corroborative evidence of the shop's location. The presence of crown/cylinder window glass indicates that the superstructure had at least one, if not more, windows. The presence of certain kinds of debris (e.g., iron scale and hot punches) in various areas of the site provides evidence of some of the smithy's activities and therefore indirect evidence of some of the shop's interior components (e.g., anvil and vise). No direct physical evidence of these components was found, however, since very little of the shop's interior was excavated because of time constraints. Nevertheless, excavations did uncover the remains of a refuse deposit and a postmold that could be the remains of one of the legs of the workbench. The precise dimensions of the shop are unknown, as is its construction date. No archeological evidence was recovered to indicate that the blacksmith shop was operating before the 1770s, or possibly earlier than ca. 1762. No archeological evidence was uncovered to indicate when the shop ceased to operate or precisely when the shop was removed from the premises. The presence of early machine-cut nails (ca. 1795–1840), however, suggests that the superstructure was repaired or altered and that it was extant up until the early or perhaps even the mid-19th century. No data currently exist to suggest that the superstructure was used either before or after its use as a blacksmith shop. The lack of large amounts of certain kinds of building-related materials (e.g., nails and window glass) recovered from the site suggests that the superstructure was either moved from the site, or carefully dismantled on the site, and its materials reused elsewhere. The relative absence of whole bricks suggests that the bricks from the forge's chimney were also removed from the site and reused elsewhere.

FORGE

Feature 10 appears to be the remains of a forge, the size of which is currently undetermined. Archeological evidence of the forge consisted of the remains of the forge box's interior rubble fill, its hearth, and possibly the remains of its fieldstone base. The presence of brick within the feature and throughout the site suggests that the forge's chimney was constructed of brick. The archeological investigations revealed that the forge's hearth was, for a period of time, sand-lined. These data, in conjunction with the presence of relatively large amounts of charcoal throughout the site (7,622.8 g), indicate that charcoal was the predominant fuel used at the smithy. The presence of very small amounts of coal (102.8 g) at the site, however, indicates that coal was also used. Unfortunately, no archeological evidence was recovered to indicate when the smithy switched from charcoal to coal. As discussed earlier, the use of coal may have required the modification of the forge box's hearth and tuyere. Some possible archeological evidence of forge modifications may exist, although this is by

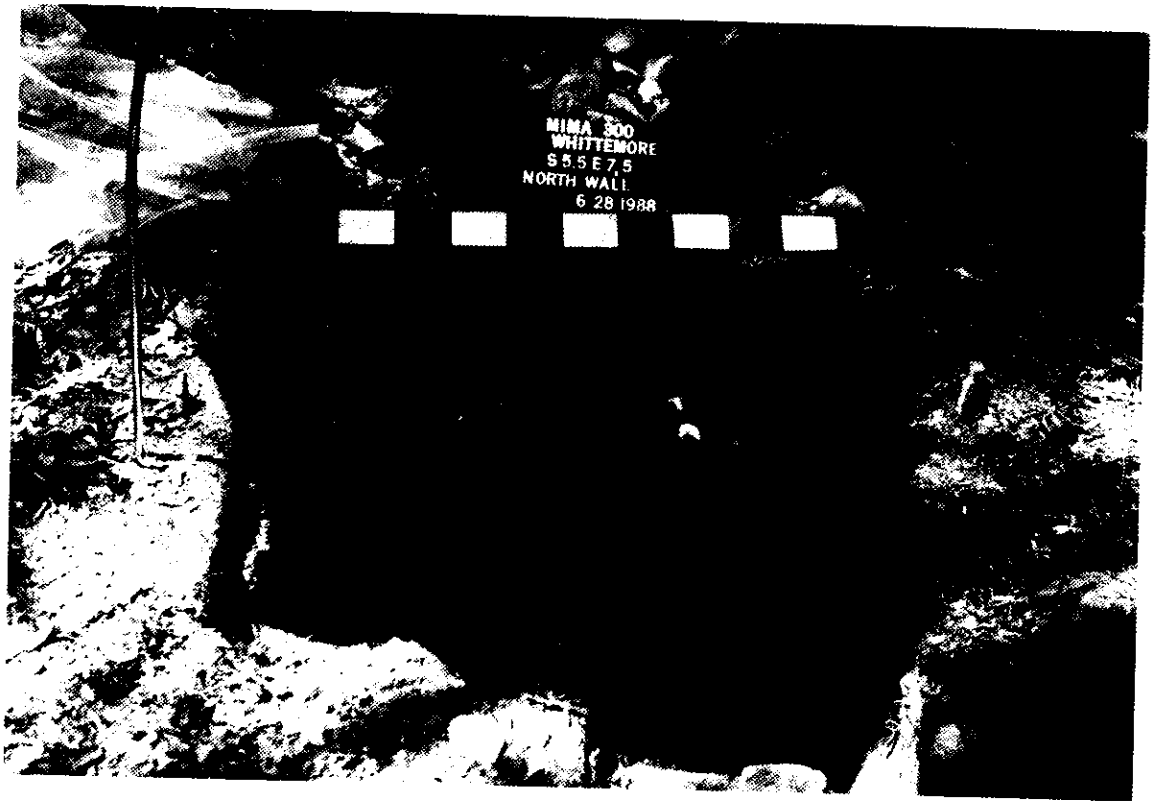


Figure 14-6. North wall of the forge box and its rubble fill at the Jacob Whittemore site.

no means conclusive. The forge appears to have been either part of the southeastern wall of the shop or located directly against it (Figure 14-5).

Evidence of the forge box and its rubble fill consisted of a thickness of approximately 33 cm of mid-to-large sized fieldstones and cobbles, some of which displayed evidence of being fire-reddened, recovered in the eastern portion of the site (Figure 14-6). These fieldstones and cobbles are similar to those recovered at the blacksmith shop in Barre, Massachusetts, and appear to be the remains of both the forge's box and its interior rubble fill (Light 1984a:56). This was the only area of the site where more than one layer of fieldstones and cobbles was present. With the exception of its southeastern edge, the limits of this debris, and hence the forge's dimensions, are unknown. Large, flat fieldstones were present at the southeastern edge of the feature and may be the remains of the forge's base or the forge's box. A similar fieldstone base was uncovered at Barre (David Simmons, personal communication, 1990).

Slag-encrusted sand recovered from the site is similar to that recovered at blacksmith shops at Barre (David Simmons, personal communication, 1988) and Fort St. Joseph in Ontario, Canada (Light 1987:662). According to Light (1987:662), the presence of this sand and slag suggests that the forge box's hearth was sand-lined.

Throughout the fieldstone and cobble deposit—which was excavated primarily in arbitrary levels—was a homogeneous, dark grayish brown medium fine sand and forge-related debris (Figure 14-7). While some of this debris is believed to have been deposited gradually over the course of the forge's use, some of it may have been deposited relatively rapidly when and if the forge was rebuilt or modified to accommodate the use of coal (Light 1987:660). The presence of 515.4

g of blue slag within the forge's fill would have provided a good heat reservoir and reflected heat well (Lester Ross, personal communication, 1989). Blue slag is apparently a by-product of using copper and borax flux (Greg Hill, personal communication, 1988). If this is true, then the presence of blue slag within the feature as well as elsewhere on the site (Figure 14-8) suggests that one of the smithy's activities was welding, which would have been conducted in the course of repairing various items.

If indeed the entire forge or portions of it were rebuilt, the precise date when this occurred is unknown although the presence of one machine-cut nail in the bottom level of Feature 10 may indicate that it occurred in the early 19th-century (Figure 14-7). It is also possible, and perhaps even more likely, that this nail was deposited when the shop's superstructure was moved or dismantled and the forge was demolished. As discussed in greater detail below, the forge's hearth and its rubble fill were distributed northeast of the shop after the forge was demolished (see discussion of the cobble area below). The existence of a relatively high density of brick below and among the cobbles as well as in the depression northeast of the shop (see discussion of depression area below) suggests that the bricks were also dispersed across the site when the forge's chimney was dismantled. The relative absence of whole bricks suggests that these bricks were removed from the site and reused elsewhere. Although it is uncertain how common or widespread the practice of reusing bricks was in the late 18th and 19th centuries, some documentary and archeological evidence of brick reuse exists (see Chapter 4).

As mentioned above, the southeastern wall of

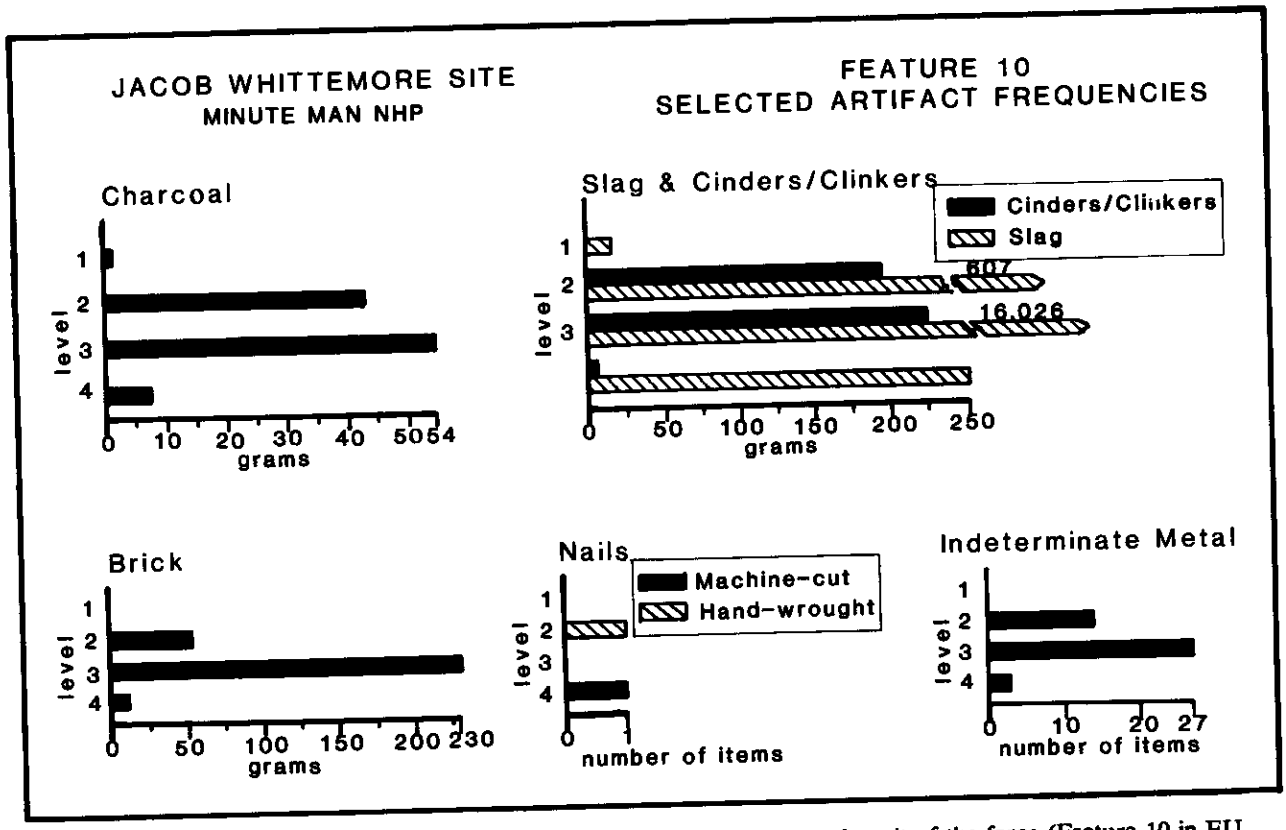


Figure 14-7. Frequencies of selected artifacts in the fieldstone and cobble deposit of the forge (Feature 10 in EU S5.5E7.5) at the Jacob Whittemore site.

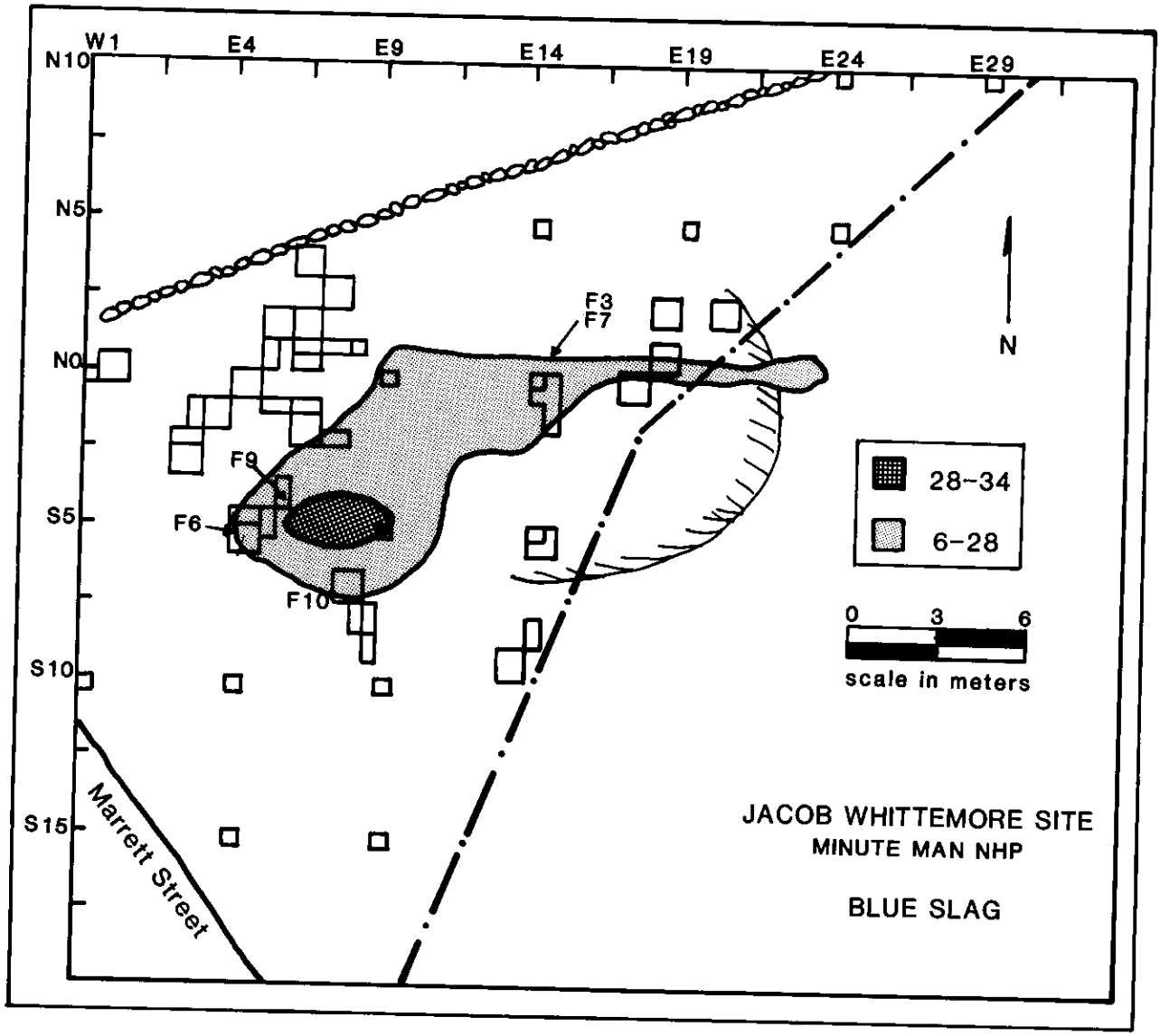


Figure 14-8. Spatial distribution map showing densities of blue slag recovered from the Jacob Whittemore site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are grams per quarter cubic meter.

the forge appears to have been either part of the southeastern wall of the shop or located directly against it. The presence of four pieces of crown/cylinder window glass within Feature 10 (out of a site total of seven) in conjunction with three nails provides further support for this inference.

FOUNDATION WALL

Possible evidence of one of the shop's foundation walls consisted of a northeast-southwest alignment of dry-laid fieldstones located northwest of Feature 10, the forge (Figures 14-5 and 14-9). As discussed below, two features—a postmold (Feature 6) and a deposit of forge-related

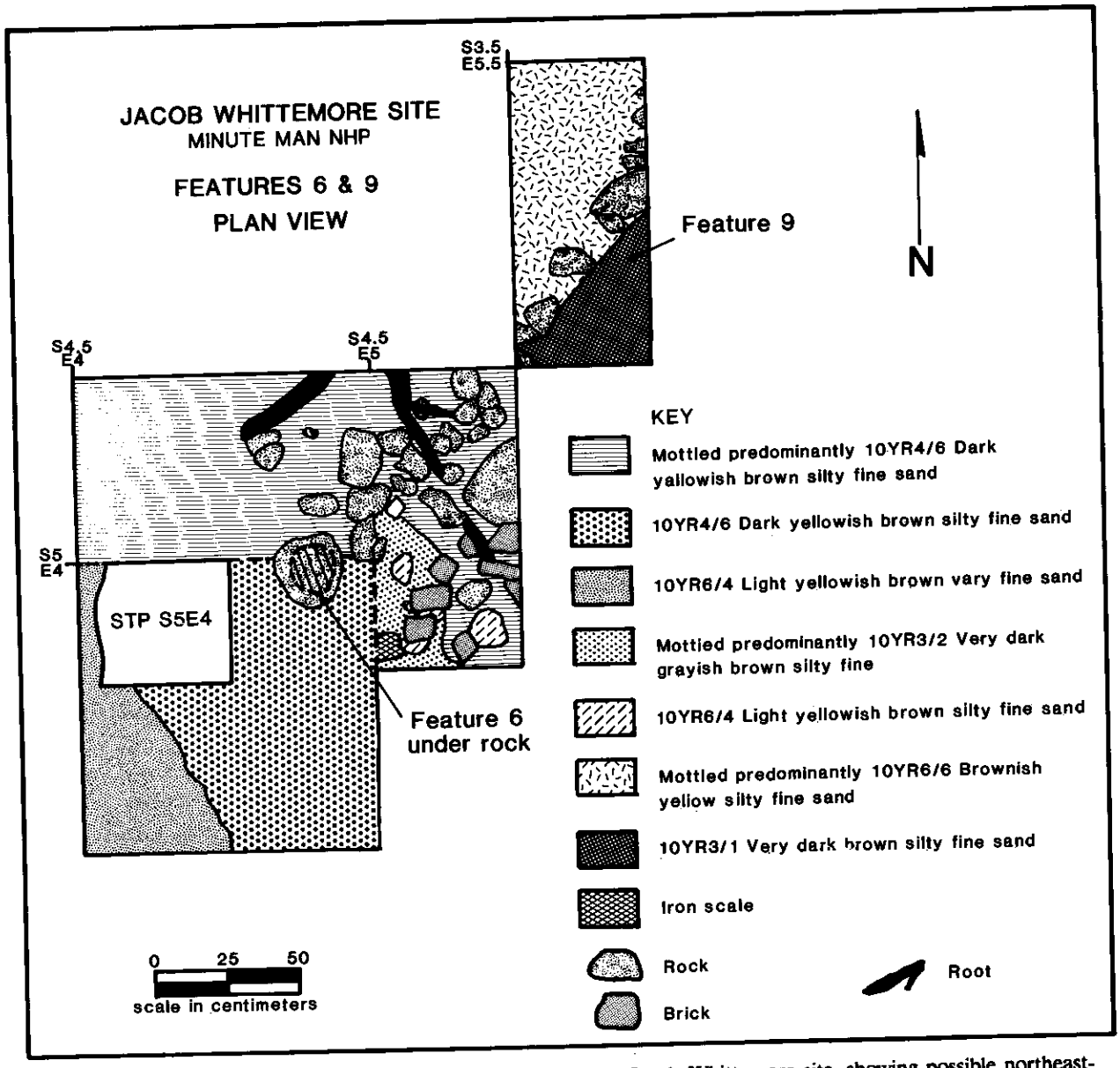


Figure 14-9. Composite plan view of Features 6 and 9 at the Jacob Whittemore site, showing possible northeast-southwest foundation wall of shop, postmold, and interior refuse deposit.

debris (Feature 9)—were uncovered in association with the possible fieldstone wall. It should be noted that the possible foundation wall was also designated as Feature 6 in the field, but for the purposes of this report Feature 6 refers only to the postmold. Twenty-one nails—20 hand-wrought and 1 machine-cut—were recovered in the units that encompass the fieldstones and provide additional data regarding the location of the shop. As discussed earlier, there were dry-laid foundations at both the Fort St. Joseph (Light 1984:figure 6) and the Barre (David Simmons, personal communication, 1988) blacksmith shops.

Although the precise length of the fieldstone wall is uncertain, it extended for at least 2 m (6.6 ft), thus indicating the shop's minimum

northeast-southwest length. Assuming that the forge (Feature 10) was either part of, or located adjacent to, one of the shop's exterior walls, the east-west dimension of the shop was at least 4.4 m (14.4 ft). Disturbance of the southwestern portion of the fieldstone wall appears to have occurred during the course of the demolition of the forge and, more recently, as a result of tree root activity.

In profile, the fieldstones were angular in shape, one course deep, and ranged in size from 3 cm × 7 cm to 23 cm × 18 cm. For the most part, the fieldstones were embedded within a mottled dark yellowish brown deposit of silty fine sand, save the northeastern portion of the possible foundation wall where they existed within a darker, more organic-appearing silty fine sand. Associated with the fieldstones was forge-related debris: 288 g of brick, .7 g of cinders/clinkers, 19.9 g of charcoal, 19 g of slag, an unidentified fragment of metal, and iron scale. The existence of a postmold (Feature 6) may be indicative of where the workbench was located. The presence of iron scale, however, is not entirely consistent with this interpretation unless the scale is not in its primary depositional context. Scale results from working hot metal on an anvil (which would have been located near the forge at the other end of the shop) and not from working cold metal on a vise attached to a workbench. It was expected that metal filings, not iron scale, would be found in association with the workbench. What is more, no crown/cylinder window glass was recovered in association with the fieldstones to provide possible corroborative evidence regarding the workbench's location (Light 1984a:60).

POSTMOLD

Feature 6, a postmold, was located beneath one of the large fieldstones that is believed to have once been part of the shop's foundation wall (Figure 14-9). This postmold may be the remains of one of the wooden legs of the workbench or conceivably a support post of the shop or an earlier structure. The postmold was surrounded by three courses of small cobbles. The cobbles appear to have been used to provide stability to the workbench's leg or the post. The presence of the postmold beneath the fieldstone wall suggests two possibilities. Perhaps the postmold was present before the fieldstones were laid down, and therefore before the wall was constructed. This may be evidence of a reorganization of the shop. It is also possible that some of the fieldstones were moved from their original location during the removal or dismantling of the shop's superstructure and the demolition of the forge.

The postmold was semi-circular in shape and tapered to a rounded point, extending 15 cm into the subsoil (Figure 14-10). The postmold and its associated cobbles cut through a dark yellowish brown to dark brown organic-appearing deposit that existed just to their northwest. This organic-appearing deposit lay beneath a mottled deposit that was similar in color and texture to the mottled deposit associated with the fieldstone wall. The organic-appearing deposit consisted almost exclusively of forge-related debris, save for one piece of a redware vessel fragment and one hand-wrought nail.

The matrix of the postmold consisted of a mottled very dark grayish brown silty fine sand and contained 59.1 g of brick, 1.9 g of coal, 1.6 g of cinders/clinkers, 15.7 g of charcoal, 3.6 g of slag, and 1 unidentified fragment of metal. These materials were probably deposited within the postmold when the wooden leg of the workbench or the post was removed. This is corroborated by the fact that the postmold's matrix (i.e., color, texture, and artifact types) is similar to the mottled deposits above it. The precise date when this occurred is not certain due to the lack of temporally diagnostic materials within the postmold.

The mottled deposit above the postmold consisted of a relatively substantial amount of forge-related debris, hand-wrought nails, unidentified metal fragments, and 5 undecorated creamware vessel sherds. All five creamware fragments crossmend with one another and therefore are part of the same vessel; they were the only creamware recovered from the site save perhaps

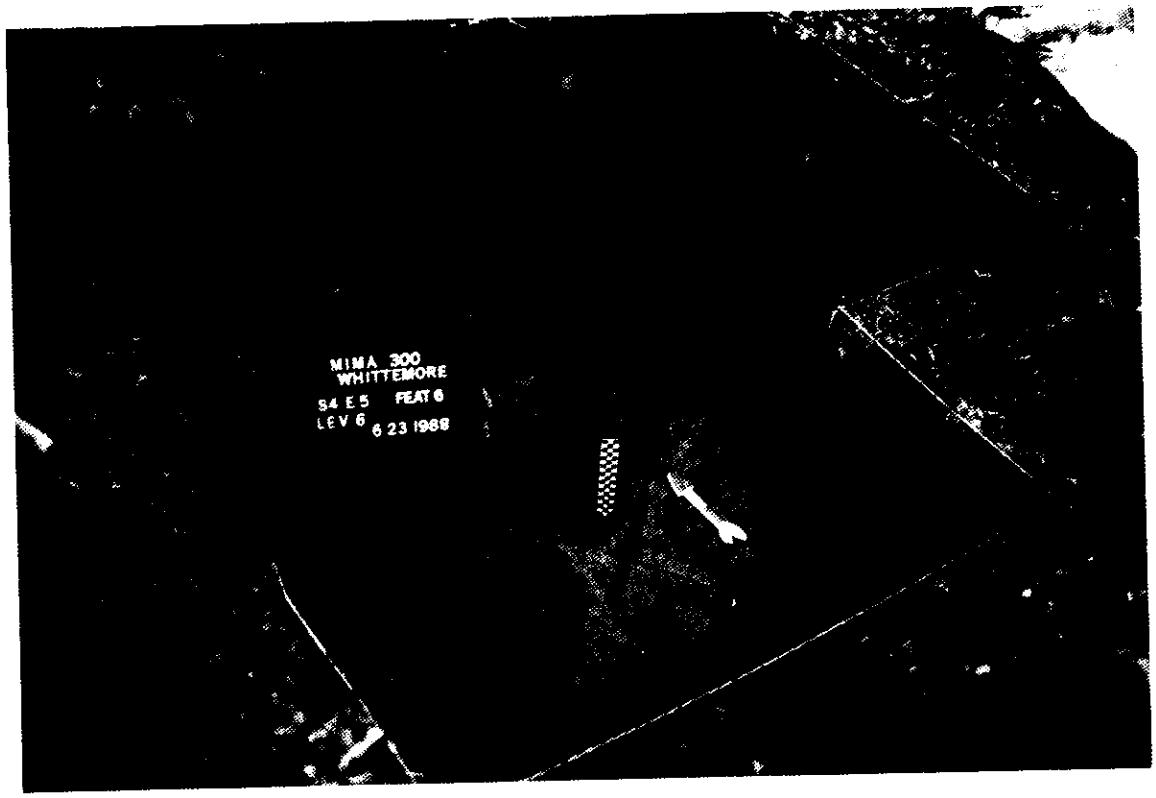


Figure 14-10. View of postmold (Feature 6) in section at the Jacob Whittemore site. Photograph faces northeast.

the possible ones associated with Feature 11. Their presence in conjunction with the absence of diagnostic pre–ca. 1770 material suggests that the smithy probably was not in operation prior to the third quarter of the 18th century (see Miller 1987). It is uncertain at this time whether or not the development of the mottled deposit was relatively rapid and contemporaneous and the result of a single process (e.g., post-abandonment demolition), or if its development was a rather slow one and the result of several unrelated processes (e.g., periodic cleaning of the shop's interior), or both.

INTERIOR REFUSE DEPOSIT

Feature 9, located adjacent to the northwestern portion of the possible fieldstone wall and to the northeast of Feature 6 (Figure 14-9), appears to be the remains of an approximately 21-cm deep interior refuse deposit of forge-related debris. As discussed earlier, interior refuse deposits were uncovered at the Fort St. Joseph (Light 1984a:figure 2) and the Barre (David Simmons, personal communication, 1988) blacksmith shops. The spatial extent of the deposit is unknown at this time because no units other than EU S3.5E5.5 were excavated to define its limits. The upper levels of the feature's matrix consisted of a dark gray silty fine sand. At approximately 30 cm below unit datum. the deposit became dark brown. Feature 9 contained a large amount of forge-related debris, particularly slag. The debris recovered within Feature 9 consisted of 818 g of slag, 72.1 g of ash, 95.2 g of charcoal, .5 g of coal, 32.6 g of brick, one hand-wrought nail, and one fragment of redware.

COBBLE AREA

Feature 2 is a cobble area located north of the remains of the shop (Figure 14-5). Archeo-

logical investigations identified two main loci of interest within the cobble area. The southwestern portion may be the remains of an exterior work area where horses and oxen were shod and carriages and chaises were repaired. The northern portion appears to be the remains of forge-related debris deposited as a result of the demolition of the forge subsequent to the use of the shop as a smithy. A refuse deposit (Feature 11) below the cobbles in a portion of the northern area may suggest that parts of the forge were rebuilt. As discussed below, however, it is more likely that this refuse deposit is also debris from the demolition of the forge. The central and southeastern portions of the cobble area also appear to have resulted from the demolition of the forge, although this is inconclusive because time constraints prevented extensive excavation beneath the cobbles.

COBBLE WORK SURFACE

The interpretation of the southwestern portion of the cobble area (i.e., EUs S1E2.5, S1E3, S2E2, and S2.5E2; Figure 14-5) as an exterior work area is based on the physical appearance of the cobbles and the presence of a high density of horseshoe nails (Figure 14-11). Such a work area would provide the blacksmith with a stabler and drier surface on which to shoe horses and perhaps oxen and to possibly service carriages and chaises. As mentioned earlier, a cobble work surface for shoeing horses was uncovered at the blacksmith shop in Barre (David Simmons, personal communication, 1987). Unfortunately, the dimensions of this possible work area are unknown at this time because its edges are not well defined. The presence of an organic deposit beneath the cobble surface may indicate that the smithy was in operation for a period of time before the cobble work area was constructed.

In plan view, the cobbles appeared to be densely packed and of uniform size (Figure 14-12). The cobbles showed no evidence of being reddened or fire-cracked as was apparent in other portions of the cobble area. The surface created by the cobbles appeared to be relatively level, although tree root activity apparently disturbed some of the cobbles (Figure 14-12).

In profile, the cobbles were one course thick (Figures 14-13 and 14-14) and were embedded within a dark yellowish brown silty fine sand. Two hundred and nineteen horseshoe nails were recovered either among, above, or adjacent to the cobbles. In addition to the horseshoe nails, forge-related (717.9 g brick, 281.9 g charcoal, 2.1 g coal, 3.8 g cinders/clinkers, and 30.7 g slag) and building-related (52 hand-wrought nails, 3 fragments crown/cylinder window glass) debris, and 115 pieces of unidentified metal fragments were also recovered. Among the metal fragments were hot punches and cut-offs. Hot punches are the small pieces of metal discarded from holes that were punched in the course of manufacturing hardware such as door hinges or during the repair of various metal items. Hole punching was done at an anvil while the metal was hot. Cut-offs are the small pieces of metal that have been sheared off metal bars. Eight pieces of miscellaneous hardware, 1 hand-wrought screw, 31 g of wood, 3 fragments of mammal bone, 2 fragments of redware, 1 contact-molded bottle fragment, and 4 fragments of machine-made bottle glass were also recovered. Most of these last materials were probably deposited after the smithy ceased operation, probably when the superstructure was removed or dismantled and the forge was demolished. The presence of the machine-made bottle glass in the uppermost, humic deposit indicates that this area of the site was used for the deposition of various kinds of trash in the late 19th and 20th centuries.

In EU S1E3 the cobbles lay on top of a dark yellowish brown organic-appearing deposit (Figures 14-13 and 14-14) that contained very little debris. The debris recovered from this deposit consisted of 6.1 g of brick, 41.1 g of charcoal, and 31.3 g of slag and clinkers/cinders. This organic-appearing deposit indicates that the smithy may have been in operation for a period of time prior to the construction of the cobble area. Unfortunately, precisely when this occurred is unknown because of the lack of temporally diagnostic materials associated with this deposit.

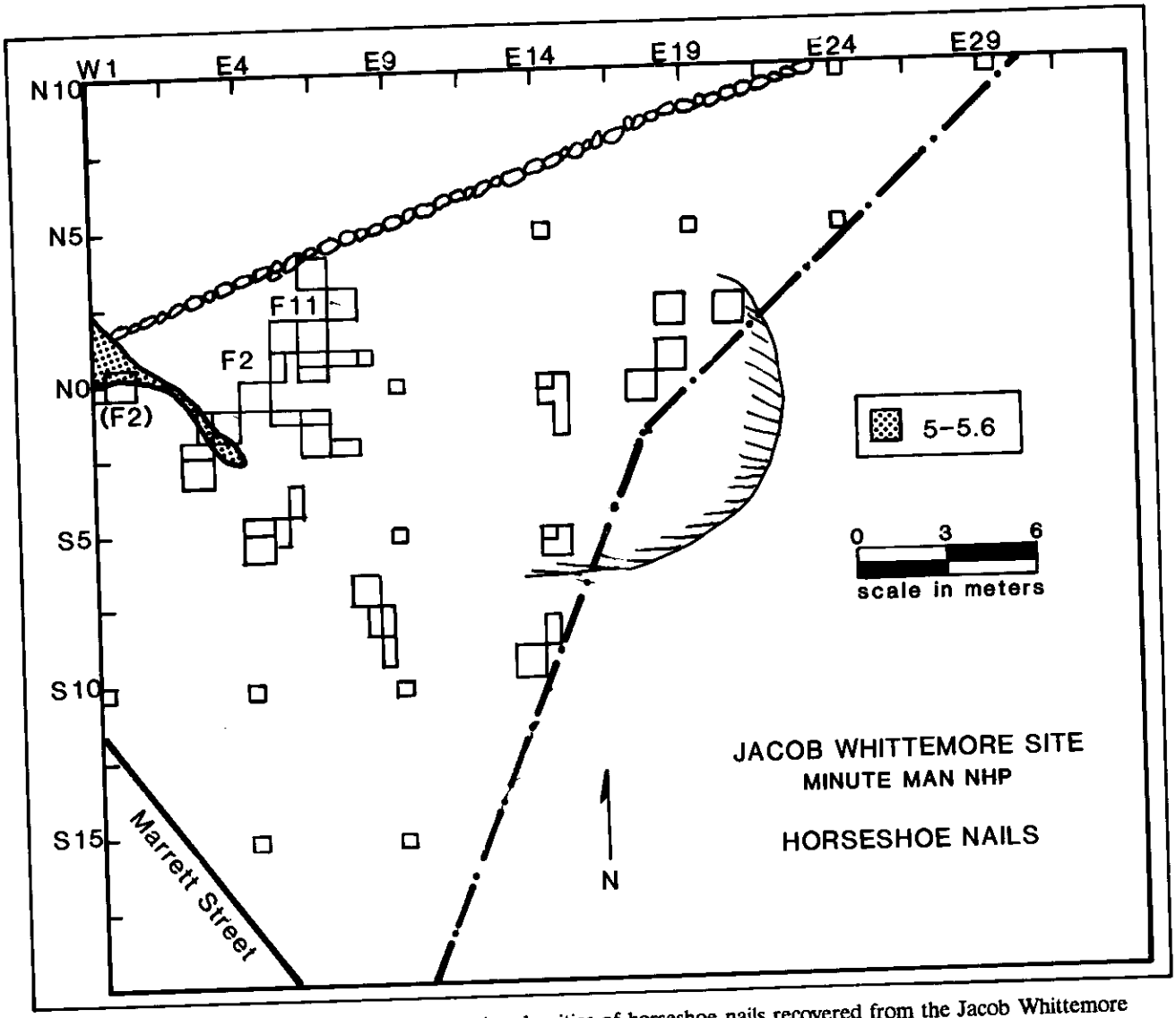


Figure 14-11. Spatial distribution map showing densities of horseshoe nails recovered from the Jacob Whittemore site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are items per quarter cubic meter.

FORGE DEBRIS

The northern portion of the cobble area (EUs N.5E6, N1E6, N1E7, N1E8, N2E5, N2E6, and N3E7; Figure 14-5) is apparently debris from the demolition or modification of the forge. This inference is based on the physical appearance of the cobbles and the presence of relatively high amounts and densities of forge-related debris associated with the cobbles.

The concentration of cobbles in this area varied. In some places the cobbles were widely dispersed; in other areas they were densely packed (Figure 14-5). Thus, there was no discernible overall shape to this portion of the cobble area. In the densely packed areas, the cobbles existed among larger, angular fieldstones, several of which were fire-reddened or fire-cracked. The cobbles and fieldstones appeared to have been deposited without regard for the preparation of a level, usable surface (Figure 14-15).

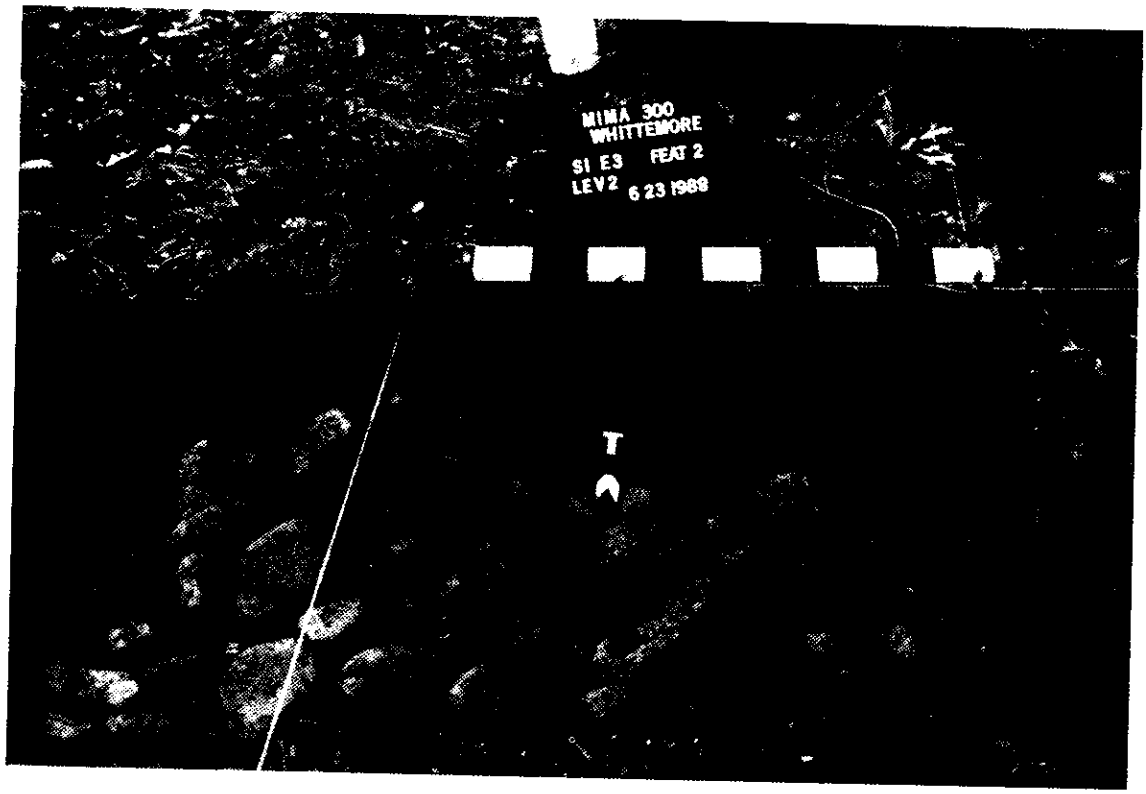


Figure 14-12. Southwest portion of cobble area (Feature 2) at the Jacob Whittemore site, which could be an exterior work surface. Photograph faces north.

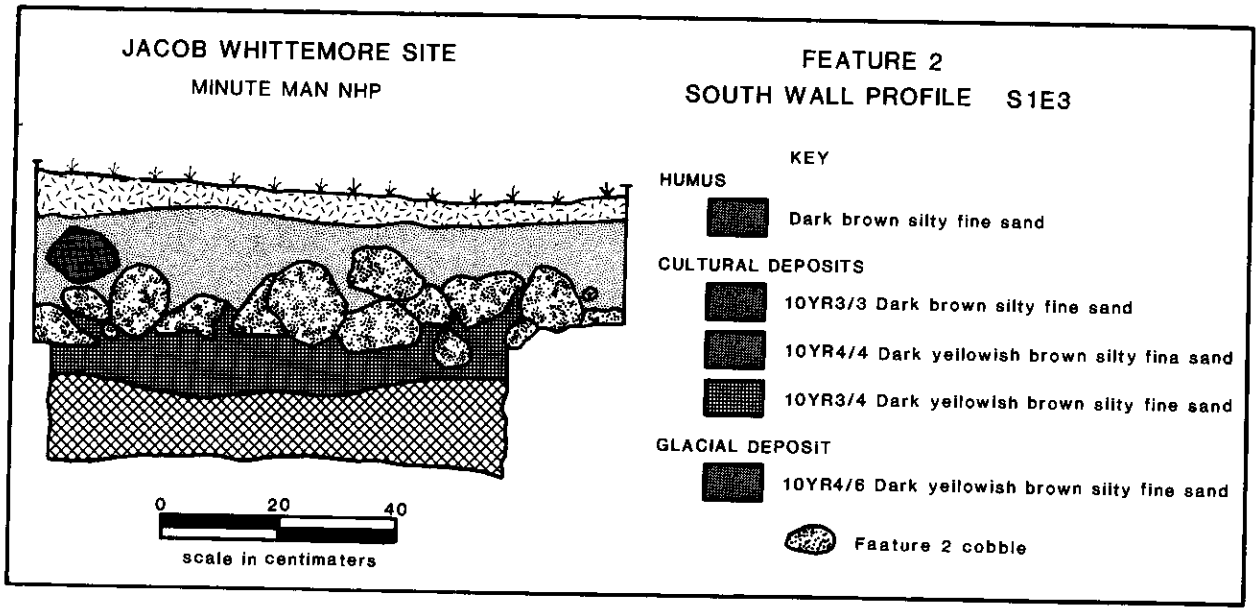


Figure 14-13. South wall profile of EU S1E3 showing cobbles in the southwestern area of Feature 2 at the Jacob Whittemore site.

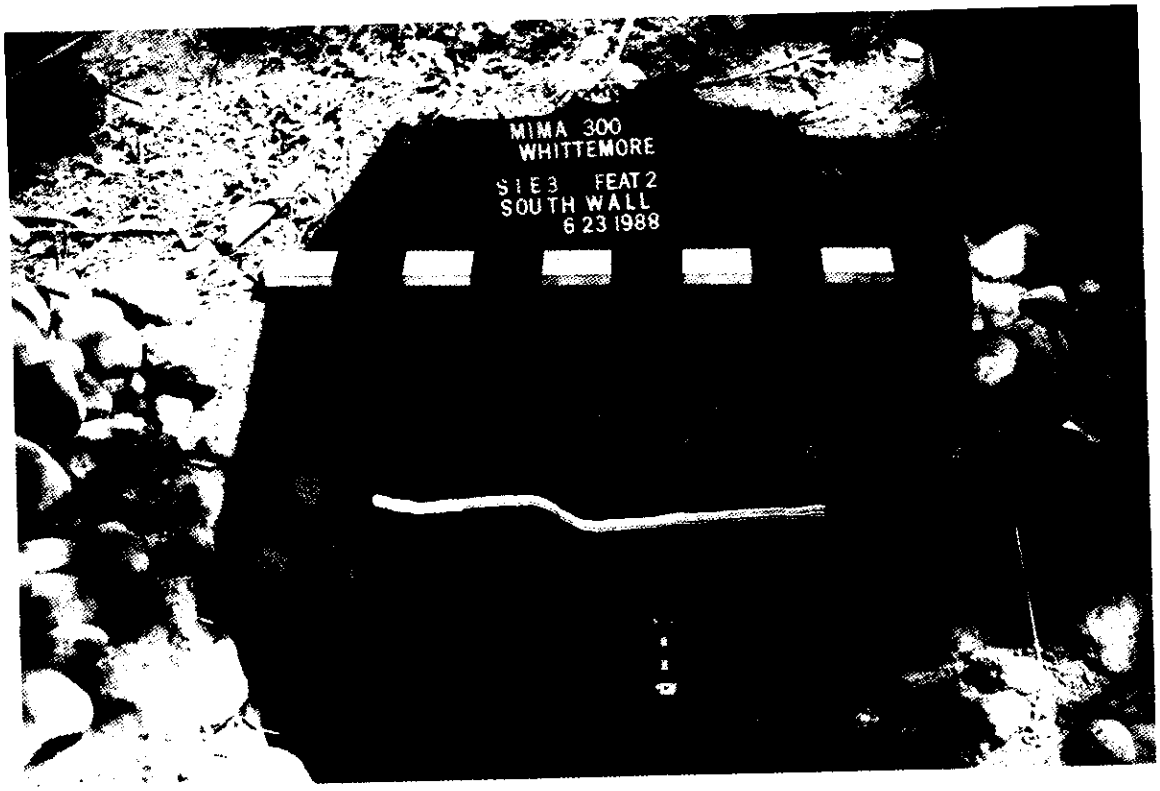


Figure 14-14. Project photograph of the south wall of EU S1E3 showing the cobbles in the southwestern area of Feature 2 at the Jacob Whittemore site.

In profile, the cobbles and angular fieldstones were embedded within a very dark brown medium fine silty sand (Figure 14-16). Relatively large amounts of forge-related debris contrasted with the small amounts of building-related debris and domestic materials that were present above and among the cobbles and fieldstones (Table 14-2). Of particular interest is the presence of two machine-cut nails. These nails, in conjunction with six whiteware fragments, suggest that the demolition of the forge, and perhaps the abandonment of the smithy, did not take place until ca. 1820.

Limited excavations beneath areas of the northern portion of the cobble deposit (EUs N2E5, N2E6, and N3E7) uncovered the remains of Feature 11, a refuse deposit. Feature 11 contained a high percentage of the site totals of both domestic and forge-related debris (except coal and charcoal). In contrast, Feature 11 contained only a small percentage of the site totals of building-related debris (Table 14-3). Among the domestic debris were possible creamware or pearlware sherds (cataloged as unidentified earthenware). Of particular interest regarding these sherds is the presence of crossmendable fragments of a vessel in levels 3 and 5 of EU N2E6, and crossmendable fragments of another vessel in level 3 of EU N2E6 and level 4 of EU N2E5. It is also interesting to note that several pieces of the pearlware or creamware fragments, as well as the domestic stoneware sherds and the brick, had a coating of slag on one surface. The ceramics also appeared to be slightly melted. The slag-encrusted brick is probably the remains of the forge's hearth. In addition to this debris, several fire-reddened cobbles were also present within the refuse deposit. This debris was in a

Figure 14-15. Project photograph of EUs N2E6 (level 1) and N2E5 (level 2) at the Jacob Whittemore site, showing cobbles and fieldstones in the northern area of Feature 2 deposited without regard for the preparation of a level, usable surface. Photograph faces west.

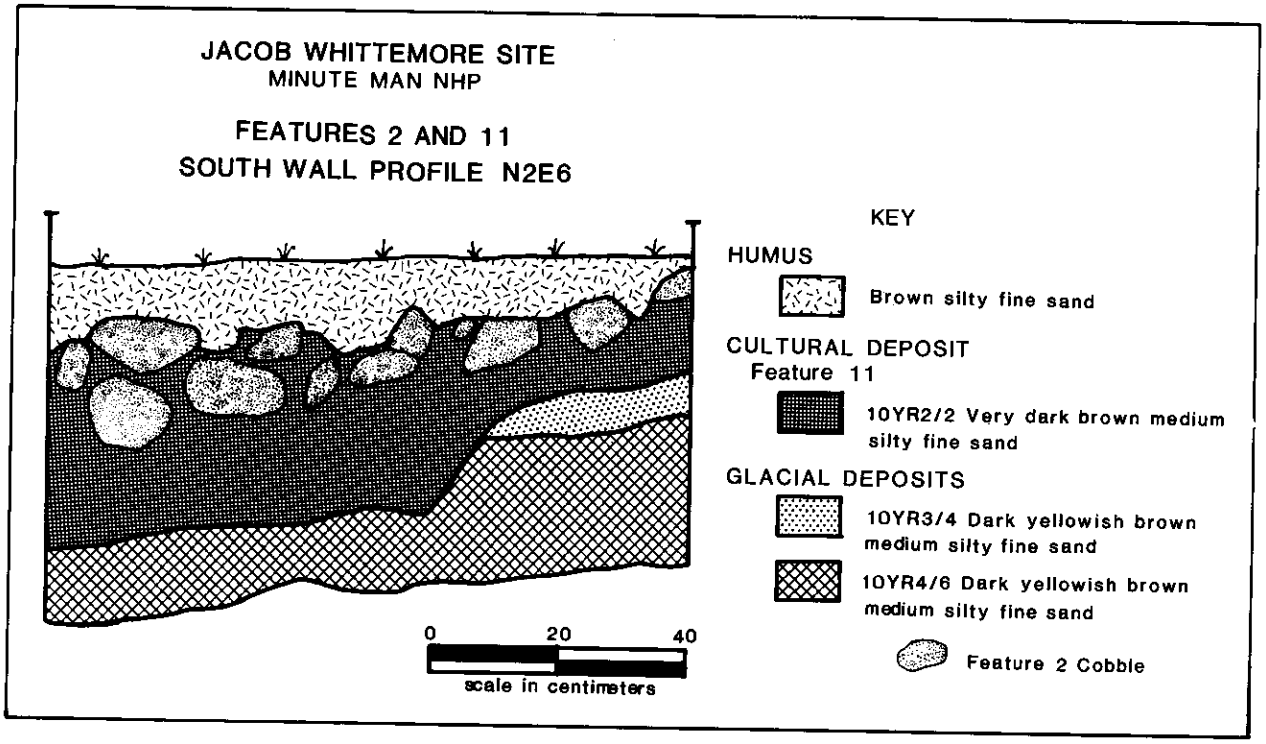


Figure 14-16. South wall profile of EU N2E6 showing Features 2 and 11 at the Jacob Whittemore site.

Table 14-2. Artifacts recovered from the forge debris area of Feature 2 (the cobble area) at the Jacob Whittemore site.

Material	*Count/Weight*
Forge-related:	
Brick	5,638.4 g
Mortar/plaster	1.1 g
Charcoal	271.9 g
Coal	15.2 g
Slag	3,463.9 g
Cinders/clinkers	701.9 g
Solidified ash	1.7 g
Fire-cracked rock	786.9 g
Iron scale	3.8 g
Indeterminate metal objects	11
Horseshoe nails	2
Building-related:	
Wood	.2 g
Hand-wrought nails	1
Early machine-cut nails	2
Indeterminate nails	1
Domestic:	
Creamware	1
Pearlware	1
Whiteware	6
Vessel glass	1

matrix of relatively homogeneous, very dark grayish brown to very dark brown silty fine sand. In profile, the refuse deposit intruded approximately 15 cm into the glacial subsoil (Figure 14-16). Unfortunately, the precise dimensions of the refuse deposit are uncertain at this time because it was not completely excavated. Some data indicate, however, that the refuse deposit was at least 2 m × 1.2 m (Figure 14-17).

The presence of a homogeneous soil color and texture throughout the refuse deposit in conjunction with the crossmendable ceramic vessel fragments suggests that Feature 11 was deposited relatively rapidly. Unfortunately, the temporal relationship between the refuse deposit and the cobbles above it is not known. Therefore, it is not certain whether the refuse deposit was created while the blacksmith shop was in operation (perhaps during the possible reconstruction of the forge) or whether it was created when the forge was demolished. The presence of large amounts of brick and fire-reddened cobbles within both the refuse deposit and the cobble deposit above it argue for the latter interpretation.

OTHER AREAS

Two other loci within the cobble area where there was either an alignment or a concentration of fieldstones or cobbles need to be discussed briefly.

In preparation for pouring the permanent concrete datum marker at the end of the field season, a northeast-southwest alignment of fieldstones located to the west of the rest of the cobble area (N.5W.5; Figures 14-5 and 14-18) was uncovered. These fieldstones may be the remains of a building's foundation, which was possibly in use when the smithy was in operation. Unfortunately, the dimensions, function, and precise dates of construction, use, and abandonment of the building are unknown at this time. The presence of two machine-cut nails—one above and one below the fieldstones—however, suggests that the building could have been constructed (or at least extant) in the early 19th century. The presence of 2,535.4 g of brick recovered above the fieldstones may indicate that the building was abandoned or removed from the site when the forge was demolished.

In profile, the fieldstones were one course deep and dry-laid. The fieldstones appear to have been laid directly on the ground surface since no evidence of a builder's trench was observed. A light yellowish brown silty fine sand was present among and below the fieldstones. Three nails (one machine-cut and two other nails whose dates of manufacture are uncertain), 7.7 g of brick, one unidentified metal object, and 1.6 g of charcoal were recovered beneath the fieldstones. Immediately above the fieldstones was a light brown silty fine sand. One machine-cut nail, 2,144.2 g of brick, 3.2 g of charcoal, 1 fragment of redware, and 115 pieces of what may have

Table 14-3. Artifacts recovered from Feature 11 (a refuse deposit) at the Jacob Whittemore site.

Material	*Count/Weight*	*Percent of site total*
Forge-related:		
Brick	33,413.5 g	57
Mortar/plaster	33.0 g	64
Charcoal	157.1 g	2
Coal	2.1 g	2
Slag	20,680.5 g	42
Cinders/clinkers	2,209.1 g	62
Iron scale	18.5 g	76
Indeterminate metal objects	110	26
Building-related:		
Hand-wrought nails	6	2
Indeterminate nails	3	13
Crown/cylinder window glass	1	14
Domestic:		
Redware	99	76
Unidentified earthenware	20	95
Stoneware	2	100
Shell	4.4 g	100
Bone	13	81

been a metal pail were present within this deposit. Above this deposit was a grayish brown silty fine sand. Two fragments of contact-molded bottle glass, 2.7 g of macadam, and 391.2 g of brick were present in this deposit. The macadam and glass materials appear intrusive to the feature as macadam was not manufactured until ca. 1876 (Tillson 1897:224).

Finally, a concentration of cobbles (Feature 1) was located beneath the humic deposit in STP S10W1 (Figures 14-2 and 14-19). Either this configuration of cobbles is natural, or it is possible that the cobbles are part of the remains of the forge's rubble fill, deposited when the forge was demolished. In profile, a dark brown (10YR3/3) sandy fine silt was associated with the upper portion of these cobbles. The artifacts recovered within this matrix and above it consisted of late 18th- and 20th-century debris, including machine-made bottle glass, plate window glass, macadam, and a rubber windshield wiper. A dark yellowish brown (10YR4/4) fine silty sand existed at the base of the cobbles. One small piece of charcoal, too small to save, was recovered from the base of the cobbles, and .1 g of charcoal was found in the glacial subsoil.

CHARCOAL STORAGE AREA

Feature 4, located approximately 5 m east of the shop's forge (Feature 10), was identified as a high concentration of charcoal and was probably the location of the smithy's charcoal storage area (Figures 14-5 and 14-20). As discussed earlier, it was preferable to store large amounts of charcoal outside of the shop because of its combustibility. At the Phoenixville smithy, the foundation of a 10 ft × 10 ft wooden charcoal storage structure was located approximately 5–10 ft from the shop

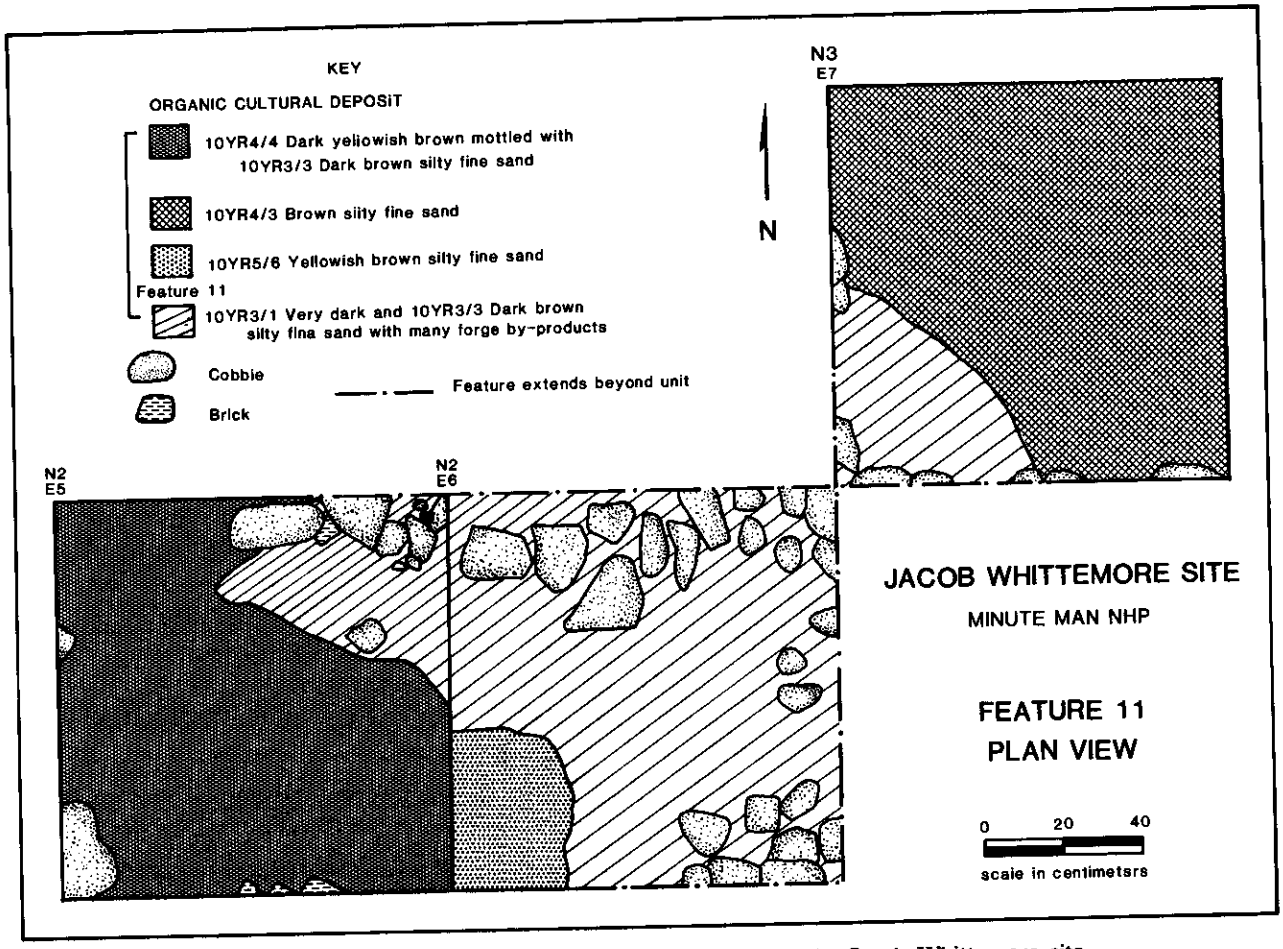


Figure 14-17. Plan view of the exterior refuse deposit (Feature 11) at the Jacob Whittemore site.

(David Simmons, personal communication, 1988). The building's floor appeared to be elevated by dry-laid fieldstones to keep the charcoal from becoming damp (David Simmons, personal communication, 1988). A possible posthole (Feature 8) uncovered beneath the charcoal deposit in the southeastern area of the Jacob Whittemore site could be the remains of a support post for some sort of wooden superstructure although this is highly conjectural at this time for reasons discussed below.

Feature 4 consisted of a dense concentration of charcoal beginning in level 2 of EUs S9E13 and S8E14 (Figure 14-21). Feature 4 was initially identified in EU S9E13. Situated along the southern edge of the depression, this unit was originally excavated as part of a judgmental sample of units aimed at investigating the depression. An additional unit, EU S8E14, was also excavated.

The precise dimensions of Feature 4 are unknown. The feature was exposed in EU S9E13 and 90 cm north across EU S8E14. The feature did not extend west or south into EU S10E9 or EU S15E9. Its eastward extent could not be determined because it crossed the MIMA boundary. The units that were excavated indicate that the charcoal storage area measured at least 1.9 m north-south and 1 m east-west. If the depression was created after the abandonment of the smithy, then a portion of the charcoal storage area may have been removed. Possible disturbance to the

Figure 14-18. Project photograph of EU N.5W.5 at the Jacob Whittemore site, showing the possible building foundation. Photograph faces north.

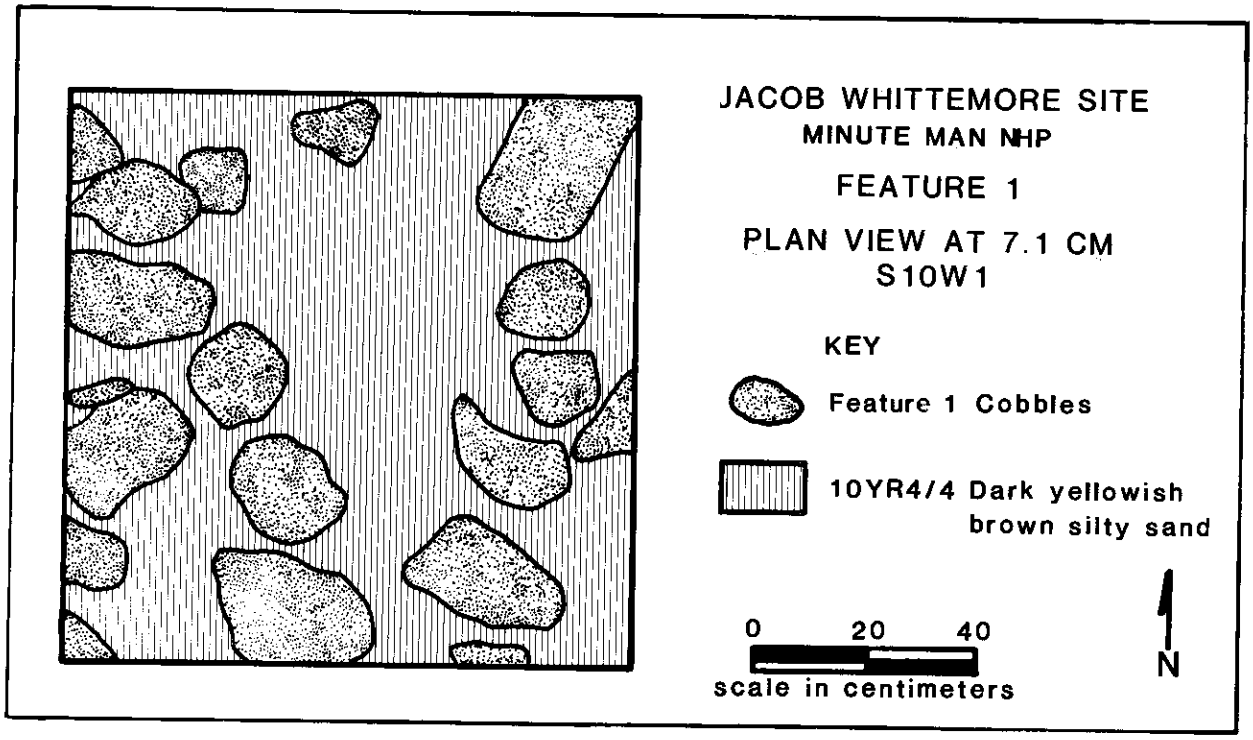


Figure 14-19. Plan view of STP S10W1 showing Feature 1, a concentration of cobbles, at the Jacob Whittemore site.

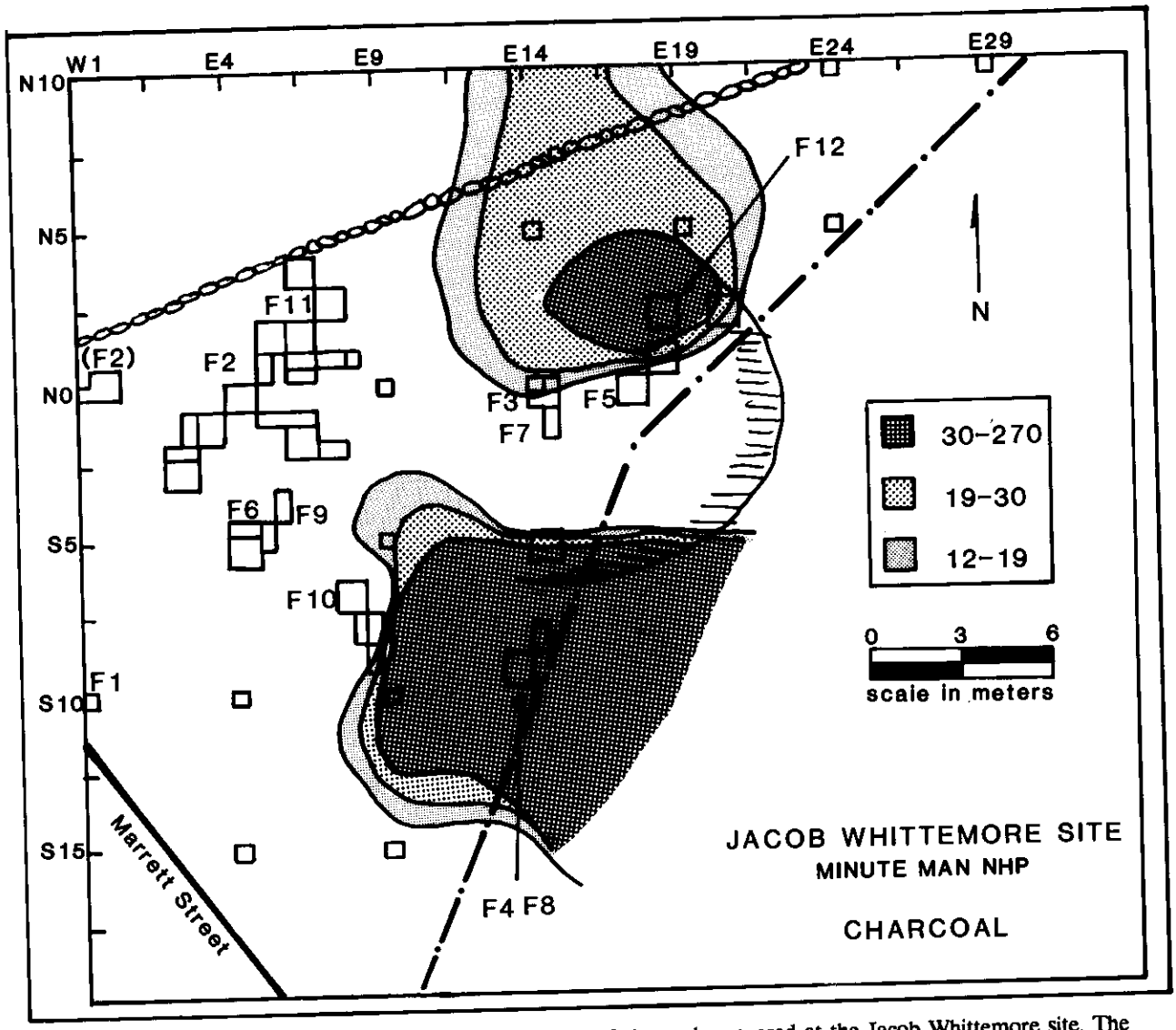


Figure 14-20. Spatial distribution map showing densities of charcoal recovered at the Jacob Whittemore site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are grams per quarter cubic meter.

charcoal storage area is evident in EU S8E14.

In profile, the charcoal concentration in level 2 of S9E13 ranged from 5 to 14 cm thick and varied in color from brown to very dark brown to very dark grayish brown medium fine sand (10YR5/3 to 10YR3/1 to 10YR2/2). Other artifacts that were recovered from level 2 consisted of a few small fragments of mortar/plaster and a piece of plain redware. Level 3 of the same unit contained a smaller amount of charcoal and a small fragment of mortar/plaster. The glacial subsoil contained a small amount of charcoal that was probably deposited by either roots or rodents.

As noted above, if this was a charcoal storage area, the charcoal would probably have been stored above the ground surface in a wooden superstructure of some sort. Located beneath

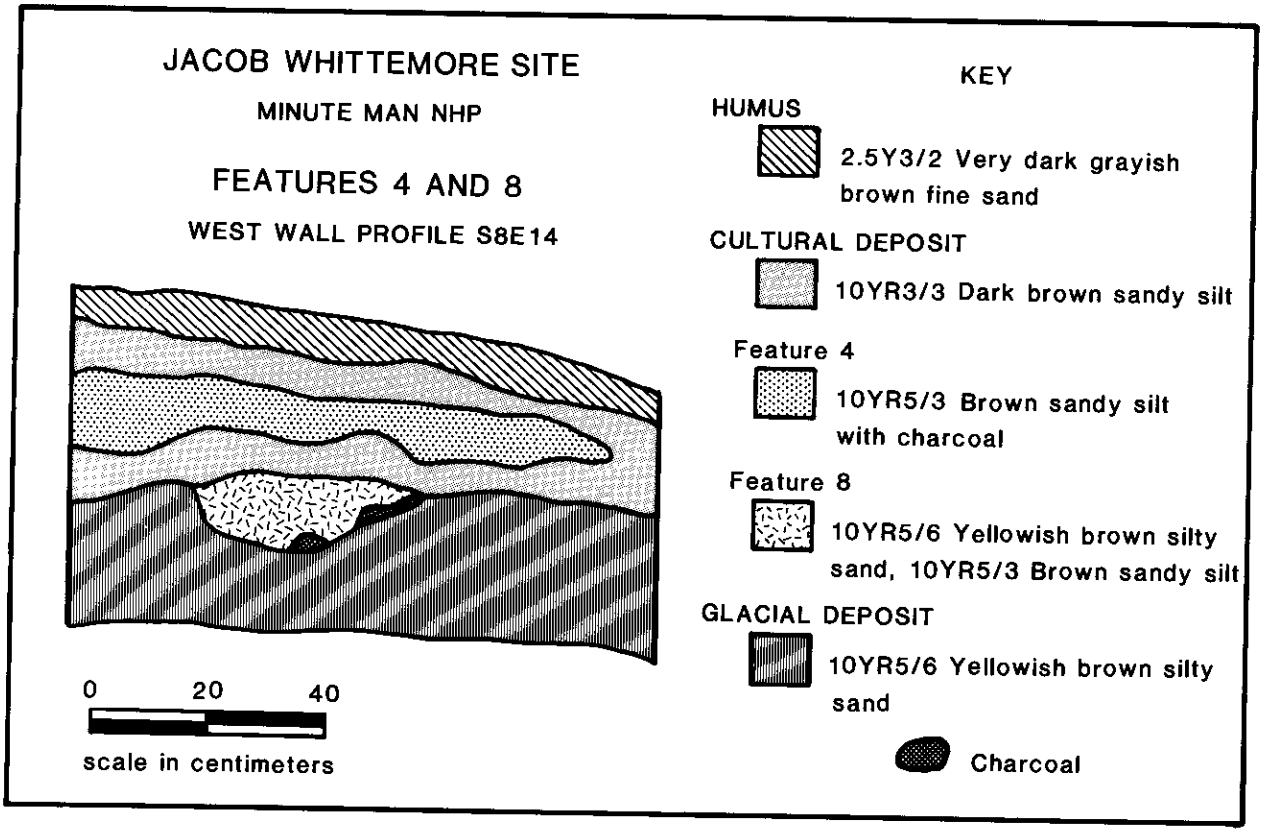


Figure 14-21. West wall profile of EU S8E14 showing Features 4 and 8 at the Jacob Whittemore site.

Feature 4 in S8E14 were the possible remains of a posthole (Feature 8; Figure 14-22), perhaps that of a wooden support post for a superstructure. If the charcoal was stored in a wooden superstructure, no other evidence of it was uncovered.

In profile, Feature 8 was a small pit located beneath Feature 4 in levels 4 and 5 of S8E14 (Figure 14-21). The posthole was identified at the bottom of level 3 by an oval-shaped dark yellowish brown sandy silt; surrounding the posthole was a brown sandy silt with charcoal staining that cut 11 cm into the glacial subsoil (Figures 14-21).

The dimensions of Feature 8 were defined by the contrast between the above matrices. The western edge of the feature was not identified. The other edges indicated that the feature was irregular in shape and appeared to curve to the west. The dimensions of the feature in S8E14 were approximately 60 cm × 36 cm (Figure 14-22).

DEPRESSION

As mentioned earlier, Foley (1964:27) noted the presence of a depression in the ground surface east of the wall that borders the parcel investigated by their project (Figure 14-2). Foley (1964:27) suggested that this depression may have been the remains of a "foundation and structure hollow" related to the blacksmith shop. The depression that currently exists in the north-central portion of the Jacob Whittemore site is presumably the same depression. As mentioned previously, the presence of a semi-subterranean building was identified south of the blacksmith shop at Fort St. Joseph (Light 1984b:5, 39). Unfortunately, no details of the semi-subterranean building were reported.

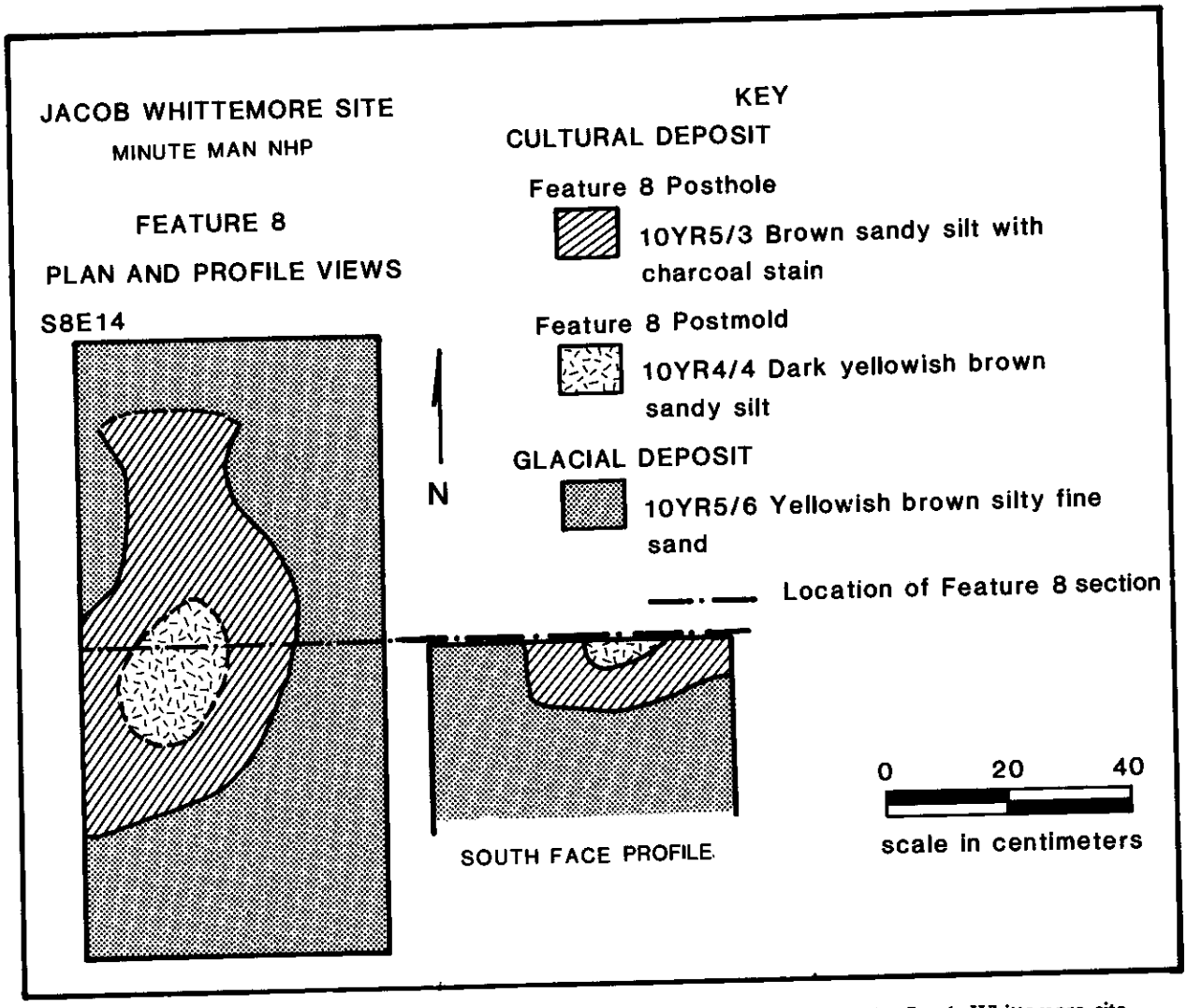


Figure 14-22. Plan view and section of Feature 8, the posthole, in EU S8E14 at the Jacob Whittemore site.

Archeological investigations of the depression were conducted by the MIMA Archeological Project to determine if it is the remains of a building or some other facility related to the operation of the smithy. The investigations uncovered the presence of two charcoal concentrations (Features 3 and 12), a small pit filled with brick and cobbles below Feature 3 (Feature 7), and a small pit containing charcoal and fire-cracked rock (Feature 5). The presence of these features in addition to the fact that the depression contained one of the highest densities of brick on the site (Figure 14-23) suggests that the depression was created before or during the smithy's existence. No evidence was uncovered to indicate that the depression is the remains of a building, however. Instead, the area appears to have been used to dispose of smithy-related debris, most if not all of which took place when the forge was demolished. The reasons for the creation of the depression are unknown at this time.

Some evidence exists, however, to indicate that portions of the depression were altered if not

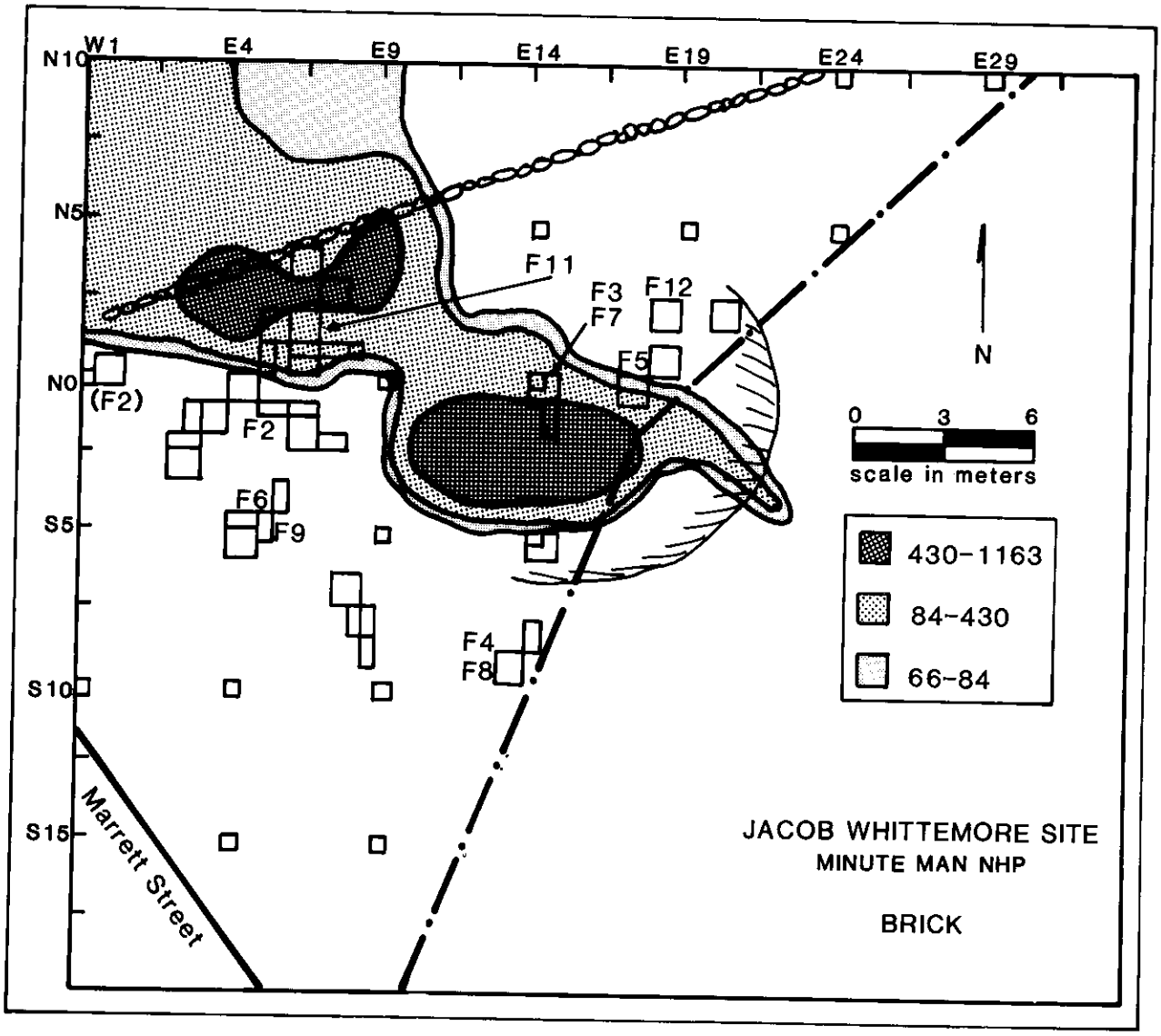


Figure 14-23. Spatial distribution maps showing densities of brick recovered at the Jacob Whittemore site. The upper quartile, broken down into high, moderate, and low densities, is shown. Values are grams per quarter cubic meter.

removed after the abandonment of the smithy. Evidence of this consists of a thinner humic deposit than that over the rest of the site (i.e., an average of 5 cm less) and the presence of macadam. Precisely how and when this alteration occurred is not known at this time. The presence of macadam in conjunction with the number of tree rings—30—of an extant tree stump indicate that these disturbances occurred sometime between 1876 and 1958. It is possible that the depression was disturbed when Massachusetts Avenue (Route 2), located to the south of the site, was constructed or altered.

Regardless of the processes responsible for the creation of the depression or when it was made, it is difficult to judge how much soil was re-

moved from this area because the height of the previous ground surface is not known. It is possible, however, that up to 46.5 cm of soil was removed to create this depression.

FEATURE 3

Feature 3 appears to be a concentration of forge demolition debris, principally brick and charcoal. The concentration was situated beneath 10–12 cm of humus in the depression (Figure 14-2). The feature was first identified in STP N0E14, which was later expanded into a 1 m × 1 m unit (EU N0E14) to determine the feature's function, its date of formation, and its archeological integrity. Because of the localized nature of the feature and limited time, additional units were not excavated. The exact size of the concentration is unknown at this time. The southern edge of the feature appears to fall along the south wall of the unit excavated. The feature was not present 5 m to the north and west or 3 m to the east. Judging from its southern edge, the feature may only exist in the unit excavated.

The main area of Feature 3 (i.e., level 2) ranged from 6 to 27 cm in depth and consisted of 1,855.2 g of brick, 22.9 g of charcoal, 2.1 g of mortar/plaster, and 4.3 g of macadam within a mottled dark yellowish brown silty fine sand (Figure 14-24). Other areas of EU N0E14 were also designated Feature 3 even though there were some significant differences. The soil matrix was a lighter yellowish brown silty fine sand and the artifacts, though similar in type, existed in smaller concentrations. Furthermore, in addition to brick and charcoal, these areas contained cinder/clinkers, hand-wrought horseshoe nails, and slag. Beneath Feature 3 in the southeastern area of the unit and in the northeast corner of S1E14.5 was Feature 7 (see discussion below). No crossmends were identified between artifacts from N0E14 and other units across the site. The date when this feature was created is unknown because of the lack of diagnostic materials, save the macadam (ca. 1876; Tillson 1897:224). The lack of other late 19th-century material in Feature 3 may indicate that the macadam in level 2 is intrusive to the deposit. This intrusive material may be indicative of a disturbance that was not evident in the stratigraphy of the feature. With the exception of the macadam, the artifact types found in the feature are the same as those found in other units across the site. This similarity in artifact types supports the hypothesis that the material in Feature 3 was deposited when the smithy was still in operation or shortly thereafter.

FEATURE 7

Feature 7 was a small, circular pit of brick fragments and cobbles that lay beneath Feature 3 in N0E14 and was also in the northeast corner of EU S1E14.5 (Figures 14-24 and 14-25). Feature 7 first appeared as a cluster of bricks in the southeast corner of EU N0E14. EU S1E14.5 was excavated south of the bricks to define the feature's extent and to clarify its relationship to Feature 3. The excavation of EU S1E14.5 revealed that while Features 3 and 7 were physically distinct, neither their precise temporal relationship nor the processes responsible for their formation can be ascertained at this time.

In profile, Feature 7 is approximately 10 cm deep and intrudes into the glacial subsoil along the south and east walls of N0E14 and the east wall of S1E14.5. The debris recovered within the feature comprised 5,809.3 g of brick, 28.9 g of charcoal, 4.1 g of mortar/plaster, and 4 redware sherds. The redware does not crossmend with any other redware recovered from the site. The feature's matrix in S1E14.5 was a mottled olive brown fine silty sand. This matrix was slightly different than what was present in N0E14—a dark yellowish brown fine silty sand. This difference may be due to soil disturbance. The soil disturbance is evident in the mottled *A* horizon, the truncated *B* horizon, and the presence of the *C* horizon in some areas directly beneath the *A* horizon 23–27 cm below unit datum.

By the nature of its stratigraphic position, Feature 7 predates Feature 3. Unfortunately, the date when Feature 7 was created is unknown since, like Feature 3, no temporally diagnostic materials were recovered within it. It is possible that Feature 7 was also created when the forge was demolished.

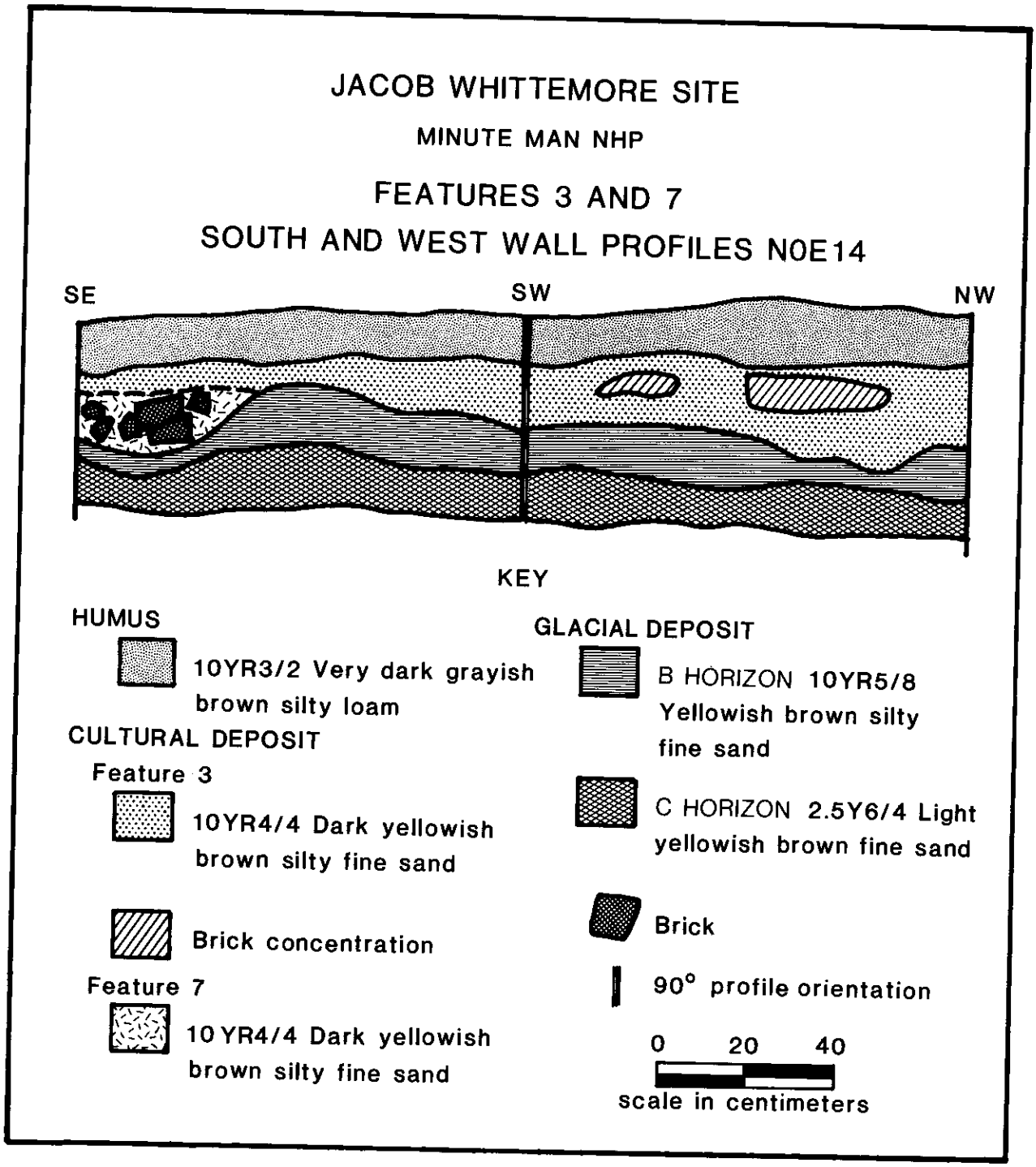


Figure 14-24. South and west profiles of EU N0E14 at the Jacob Whittemore site, showing Features 3 and 7.

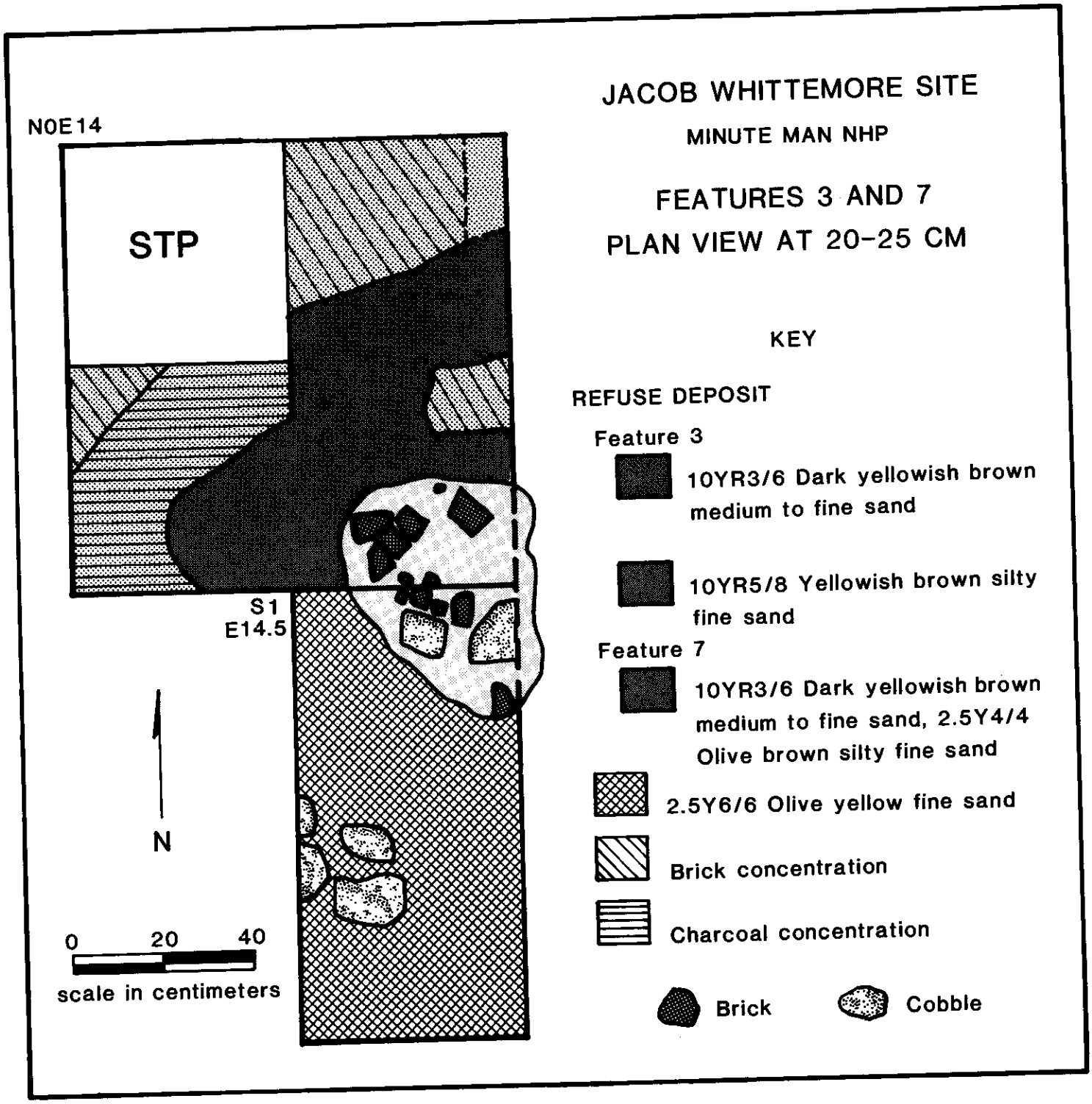


Figure 14-25. Composite plan view of EUs N0E14 and S1E14.5 at the Jacob Whittemore site, showing Features 3 and 7.

FEATURE 5

Feature 5 also appears to be a small, circular pit located along the eastern wall of EU N0E17 (Figure 14-26). This unit was originally excavated to investigate when and why the depression was formed. The feature was identified as a very dark brown silty sand that intruded into glacial subsoil, which appeared as a light yellowish brown silty sand (identified in the field as a *C* horizon) along the eastern wall of the unit. The feature appeared to continue to the east, but no additional units were excavated. Based on this information, Feature 5 appears to be approximately 50 cm (north-south) × 10 cm (east-west). It should be noted that a fair number of cobbles existed at the top of the glacial subsoil; these, however, appear not to be cultural. The deposit above the feature was similar in color and texture to that identified in N0E14, 3 m to the west.

The feature contained only a small amount of charcoal (2.9 g) and two pieces of what appeared to be fire-cracked rock. The surrounding matrix contained brick, charcoal, and cinders/clinkers. This debris suggests that Feature 5, like Features 3 and 7, was also created as a result of the demolition of the forge.

FEATURE 12

Feature 12 was a concentration of 367.8 g of charcoal within a matrix of dark brown and mottled dark yellowish brown fine sandy silt (Figure 14-27). No other debris existed within the feature. The presence of this charcoal in conjunction with the absence of other debris seems to indicate that Feature 12 was created when the smithy was in operation. This is not certain, however, due to the lack of diagnostic materials.

Summary and Conclusions

The objective of the archeological investigations at the Jacob Whittemore site was to determine if a blacksmith shop, mentioned in oral history and in deeds dated 1779 and 1781 (Chap-

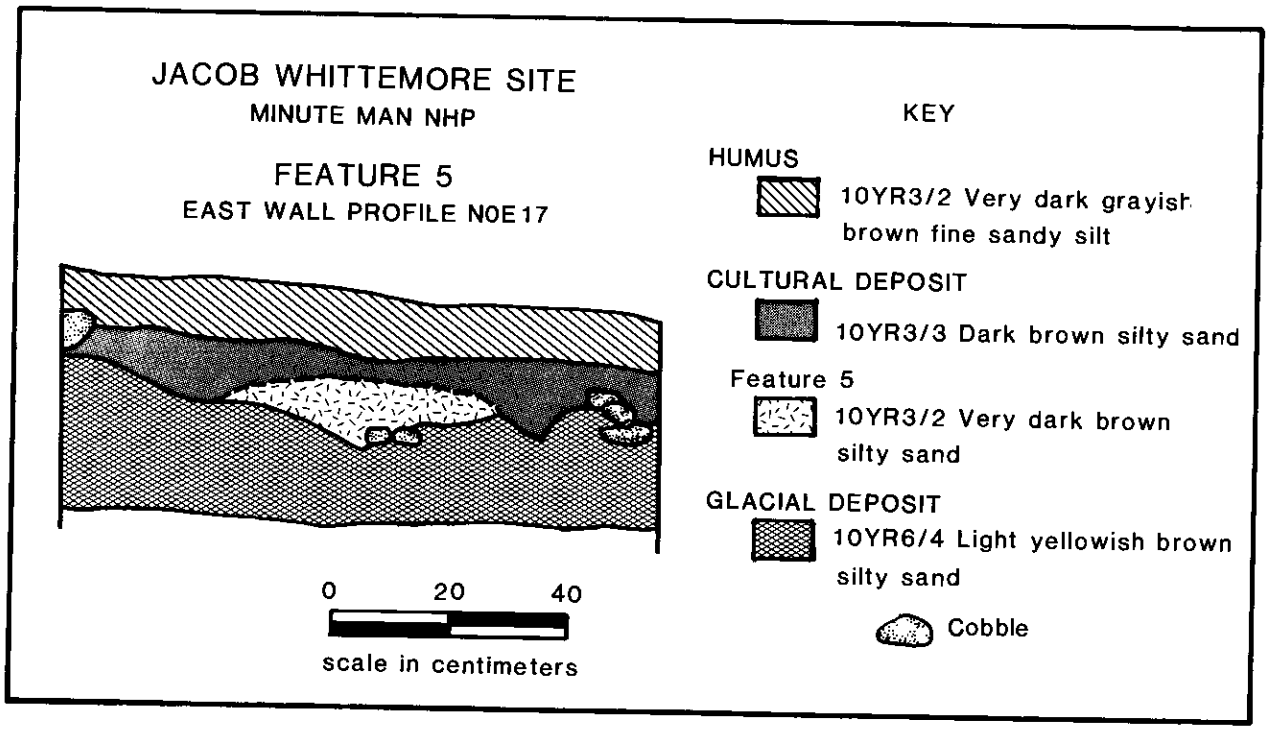


Figure 14-26. East wall profile of EU N0E17 at the Jacob Whittemore site, showing Feature 5.

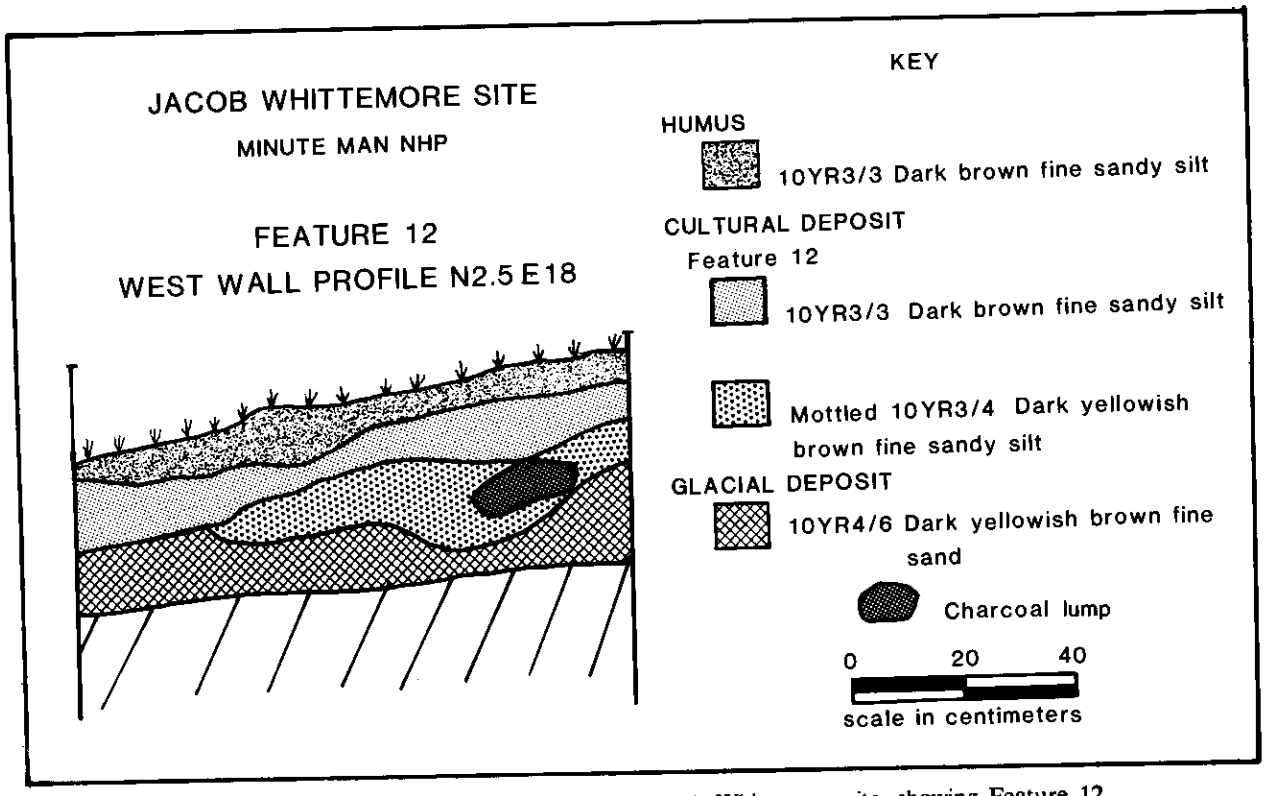


Figure 14-27. West wall profile of EU N2.5E18 at the Jacob Whittemore site, showing Feature 12.

ter 14), was present on this parcel of property. Archeological investigations revealed that the parcel investigated was the site of the smithy that was present on the Whittemore property. Evidence of the smithy consisted of the remains of the shop's superstructure and possibly its foundation, its forge and possibly its workbench, a possible cobble work area, a charcoal storage area, and two refuse deposits. The preponderance of forge-related debris in conjunction with the relative absence of domestic materials provides corroborative evidence that this is the site of a blacksmith shop. The possible remains of another building, perhaps in existence when the smithy was in operation, were also uncovered. Lastly, archeological investigations of the depression, originally identified by Foley (1964:27), did not uncover any conclusive evidence regarding the processes responsible for the creation of the depression or when this may have occurred.

The shop appears to have consisted of a wooden superstructure with one or possibly more windows situated on a dry-laid fieldstone foundation. The precise dimensions of the shop are unknown at this time. The interior of the shop appears to have consisted of a forge, an anvil, a refuse deposit, and a vise, presumably attached to a workbench. With the exception of the anvil and vise, the location of each of these components was identified. Whether or not other likely interior shop components (e.g., fuel and stock storage areas, domestic area) were present at the site is unknown at this time. No data exist to indicate that the shop was used for some other purpose before or after its use as a blacksmith shop as Holland (Chapter 13) suggests. The archeological evidence does provide some data that suggest the shop's 18th-century superstructure was repaired or altered and remained extant up until at least the early 19th century, after ca. 1820. Although no archeological evidence was uncovered to suggest when the shop began or

ceased to operate as a smithy, the current data suggest that it is unlikely that it was in operation before the third quarter of the 18th century. The archeological evidence seems to suggest that the superstructure was moved from the site or carefully dismantled and its building-related materials reused elsewhere. Subsequent to the use of the shop, the forge box appears to have been demolished and its associated brick chimney dismantled. Both the forge box's rubble fill and the chimney's fragmentary bricks were then dispersed over portions of the site; the whole bricks appear to have been removed from the site and reused elsewhere.

A cobble work area exterior to the shop may have been added at some point after the smithy was in operation. The purpose of this cobble work area may have been to shoe horses and perhaps service carriages and chaises. If a cobble pad did exist, there is no current archeological evidence to indicate when it was built. In addition to doing farrier work, there is archeological evidence that the blacksmith also may have manufactured various kinds of items such as building hardware (e.g., door hinges) and repaired others. Some data suggest that these activities may have been conducted contemporaneously.

The archeological investigation uncovered the remains of a charcoal storage area that existed outside of the shop. The presence of this storage area, in addition to the presence of charcoal throughout the entire site, indicates that charcoal was the predominant forge fuel even though coal also appears to have been used. When coal began to be used at this smithy is not known at this time.

Above and beyond simply documenting the existence of the blacksmith shop and its possible activities, the archeological data may speak to broader issues of change and continuity in the late 18th and early 19th centuries in eastern Massachusetts. One important change was the transformation of a number of agrarian communities into industrial ones. While the towns of Lincoln and Lexington remained essentially agrarian during this time, they certainly participated, if not played an active role, in this transformation. For example, as MacLean (1987:318) has noted, with increasing commercial traffic from this area to Boston came improved roadways and greater usage of wagons, chaises, and the like. One would assume that with increasing traffic came an increase in the demand for the shoeing of horses and the repair of varous kinds of wheeled vehicles. The so-called "Bull Tavern" that was in existence across the road during this time most certainly would have provided such a demand. While the archeological data seem to suggest that the smithy on the Whittemore property may have performed a variety of services—from the repair and/or manufacture of items to the shoeing of livestock and/or repair of wagons and chaises—the latter activities may have increased during the late 18th and early 19th centuries as a result of this demand. The presence of the cobble surface and its associated horseshoe nails, as well as possible evidence of the remodeling of the shop and its forge may be indicative of this growing demand and perhaps a reorientation of the smithy's activities and hence his economic strategy.

Chapter 15

Documentary Research on the "site old hop house"

Martha Holland

Introduction

One of the sites located in MIMA is an extant foundation on the former John Nelson property in the Nelson Road area (see base map, Appendix A-3). Located at the intersection of Nelson Road and Route 2A, it was labeled "site old hop house" on a sketch map of the area made by George A. Nelson in 1902 (Figure 15-1). The purpose of the current research was to determine if there is any documentary evidence indicating that the foundation is indeed the remains of a hop house and to ascertain whether it was present and/or in use in 1775 since, as discussed below, previous interpretations are inconclusive.

As discussed in greater detail in Chapter 16, hops are an important component in the production of beer and, according to some (Bidwell and Falconer 1941:243; Kelsey 1967; Russell 1976:134, 276, 298–299), were an important cash crop in northern Middlesex County during the 18th and especially the early part of the 19th century. Hops are a temperamental crop and must be properly dried using a controlled heat source in a special building called a hop house. As indicated in Chapter 1, establishing the existence of a hop house along the Nelson Road in MIMA is important for understanding the agricultural economy of the local residents and the ways in which the land was used throughout the historical period.

There is a large collection of documentary source material concerning the Nelson properties including deeds, vital records, wills, tax records, census material, and maps. Some of these are part of a private collection of papers donated to the National Park Service by the descendants of John Nelson (the 1902 sketch map mentioned above is one of these [Figure 15-1]).

As discussed below, none of the primary documents examined mentions the existence of a hop house and, unfortunately, two important documents regarding the parcel on which the extant foundation is located are missing. One is the will of Thomas Nelson, Sr., which would have inventoried his land and holdings in 1771; the other is the deed that transferred the hop house site to the Nelson family sometime between 1771 and 1774.

Previous Research

Although the Nelson family lands have been studied extensively by Malcolm (1985), Ronsheim (1968a, 1968b), and Towle (1986c), no systematic, in-depth research regarding the extant foundation has been conducted. Even so, some interpretations of the foundation's use and dates of existence have been offered (Malcolm 1985:31; Ronsheim 1968a:37).

Ronsheim (1968a:37) presented the hypothesis of Edwin B. Worthen, Sr., a Lexington historian, as well as his own. According to Ronsheim (1968a:37), Worthen suggested that the foundation may have been the remains of the Hoar tavern. Later research has shown, however, that the Hoar tavern was of a later period and located in a different part of Lincoln (MacLean 1987:331–333). Ronsheim (1968a:37) himself suggested that the "foundation might have been connected with the Daniel Brown house, [perhaps] one of the farm buildings" but did not believe that it was still present in 1775.

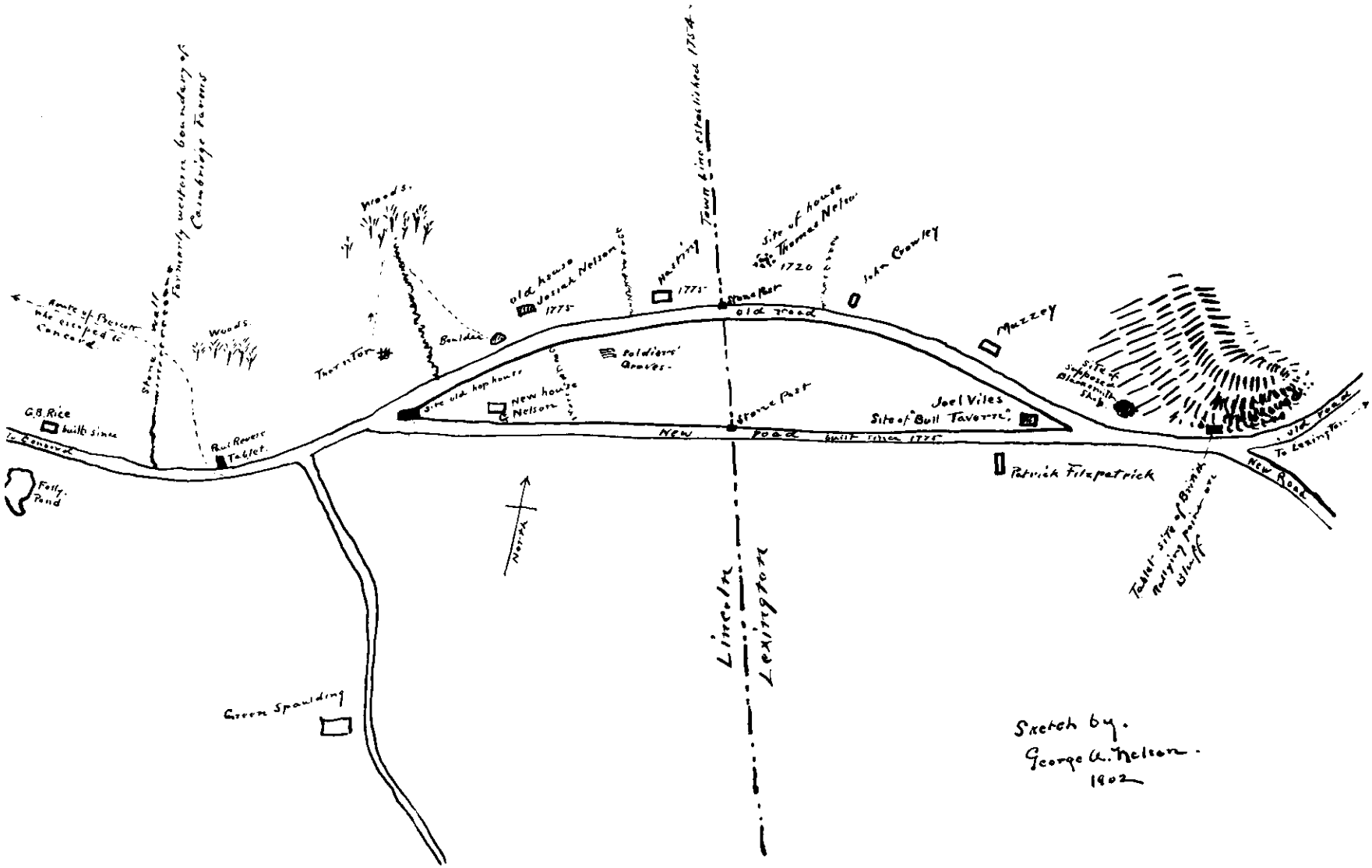


Figure 15-1. 1902 sketch by George A. Nelson of the Nelson Road area showing the "site old hop house" at the junction of the "old road" (Nelson Road) and the "new road" (Route 2A) (on file, Minute Man National Historical Park, Concord, Massachusetts).

Malcolm (1985) expanded upon Ronsheim's research regarding the Nelson lands. She suggested (1985:31) that the extant foundation was a hop house that Josiah Nelson used himself or jointly with his brother Thomas to malt beer for Thomas's retail liquor business. According to the records (Middlesex Sessions Dockets), Thomas was granted an annual retail license to sell liquor from 1766 to 1773 (Malcolm 1985:31).

In order to evaluate the plausibility of these interpretations and to contribute to the interpretation of the archeological data, a systematic review of the existing documentary record was conducted. The research focused on the parcel on which the extant foundation is located with particular attention to land ownership and use from the 18th through the 20th century.

Results

Eighteenth Century

The parcel on which the extant foundation is located was part of the property purchased by Daniel Brown in 1739 (Middlesex Deeds, Book 40:346–347). According to the deed, the parcel north of Nelson Road included a house and orchard and the parcel south of Nelson Road included a barn. Daniel Brown's nearest neighbor to the east was Thomas Nelson, Sr., at the time (Middlesex Deeds, Book 27:366–367; see Figure 15-2). By 1755, Josiah Nelson, one of Thomas Nelson, Sr.'s three children, had become Brown's nearest neighbor to the east (see Table 15-1 for a sequence of property transfers; see also Figure 15-3).

As noted above, Ronsheim (1968a:37) suggested that the extant foundation may be the remains of one of Daniel Brown's "farm buildings." Although it is possible that the foundation is the remains of Daniel Brown's barn, it is unlikely given the differences in the physical and environmental requirements between early 18th-century agricultural barns and hop houses (see Chapter 16). While it is also possible that the extant foundation was intially built and used by Daniel Brown as a barn and then altered for use as a hop house, archeological investigations uncovered no evidence of this (see Chapter 16).

Ronsheim (1968b:46) suggested that Josiah Nelson purchased Daniel Brown's property sometime between 1771 and 1774 although the deed of sale for Daniel Brown's property is missing. Ronsheim's (1968b:46) conclusion was based on the following data. First, Daniel Brown appeared on the Lincoln tax records as a non-resident taxpayer in 1764, 1770, and 1771, but not in 1774 or later. This indicates that even though he was living elsewhere from 1764 to 1771, he was clearly the owner of the property. Second, in 1774, the year Daniel Brown no longer payed taxes on the property, Josiah Nelson's tax assessment increased by £19 over his 1771 assessment. In comparison, his brother Thomas's assessment increased only £3 for the same period. According to Ronsheim (1968b:46), it is likely that the increase was the result of the addition of the Brown property to Josiah's land holdings.

Malcolm (1985:34) concurred with Ronsheim (1968b:46) that Josiah Nelson had acquired the property by 1774 and suggested that the property was probably bought in 1772. Malcolm's (1985: 34) inference was based on a comparison of Josiah's tax assessments for 1773 (to which Ronsheim apparently did not have access) and 1774, which revealed that there was no change in land use on his property in the two years. For those two years, Josiah was taxed for 3 acres of tillage, 13 acres of meadow mowing, 1 acre of orchard, and 15 acres of pasture. Both Ronsheim's (1968b:46) and Malcolm's (1985:34) interpretations appear to be the most plausible given the data at hand.

As mentioned previously, Malcolm (1985:31, 32, 35) asserted that the extant foundation is the remains of a hop house that Josiah owned himself or owned and operated jointly with his brother Thomas for the purpose of brewing beer. Malcolm's (1985:31) assertion was based on the fact that Thomas Nelson, Jr., was a retailer of liquor from 1766 to 1773 and on the "presumption that the malting of beer" (Malcolm 1985:31) was conducted within a hop house. While it is certainly possible that Thomas and/or Josiah

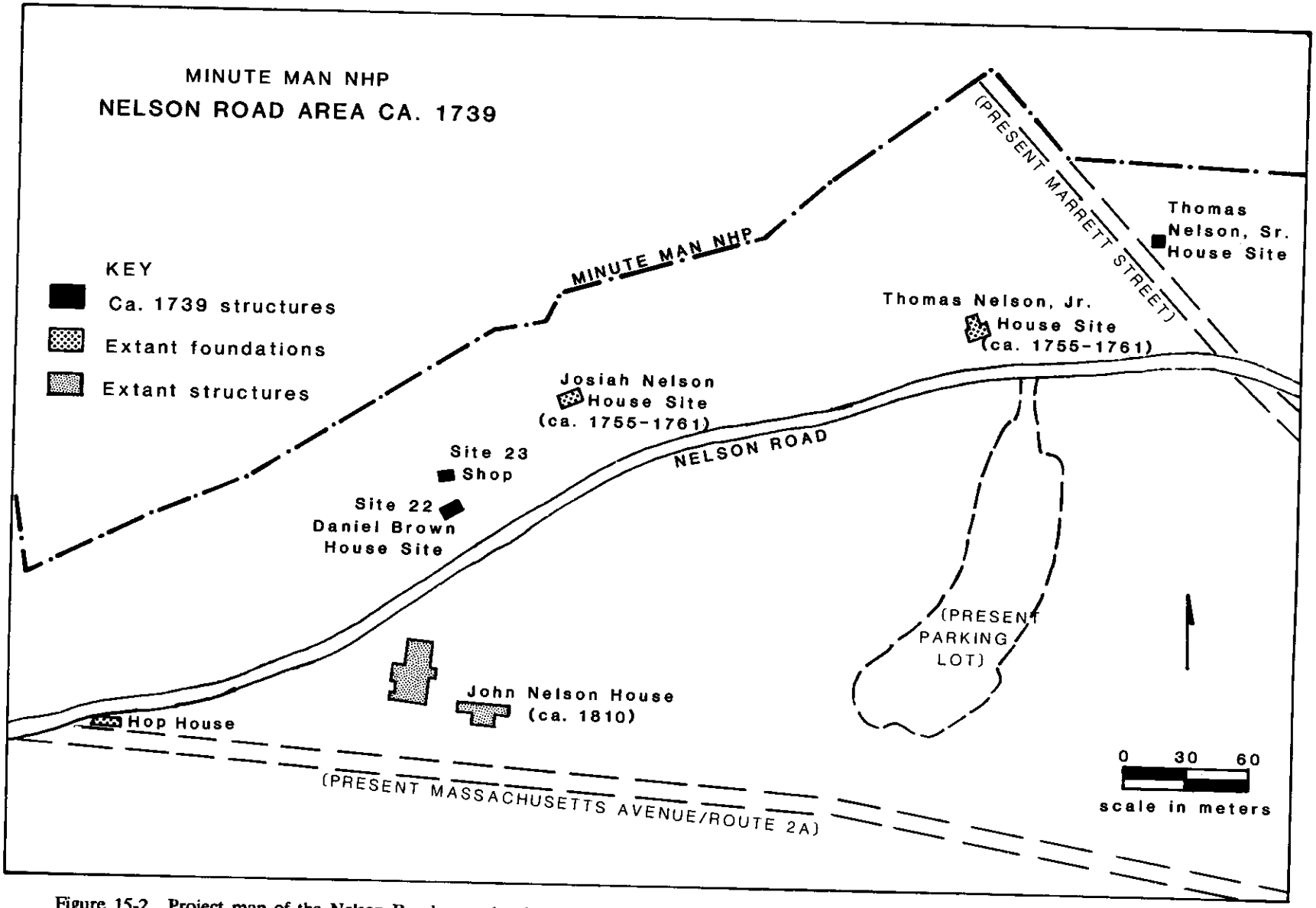


Figure 15-2. Project map of the Nelson Road area showing the properties of Daniel Brown and Thomas Nelson, Sr.

Table 15-1. Household and ownership changes at the Josiah Nelson site.

Grantor	*Grantee*	*Acres*	*Date*	*Source*
—	Daniel Brown	—	1739	M.D.*, Book 40:346–347
Daniel Brown	Josiah Nelson	—	1772	missing
Josiah Nelson	John Nelson	5	1818	M.D., Book 258:235–237
John Nelson	George Nelson	20 58 rods	1859	Will
George Nelson	George A. Nelson	20 58 rods	—	Will
George A. Nelson	John Walter Nelson	20 58 rods	1912	M.P.† #96560
John Walter Nelson	W. Newton Nelson	20 58 rods	—	Will
W. Newton Nelson	U.S. Government	20 58 rods	1965	M.D., Book 10943:489

*M.D. = Middlesex Deeds
†M.P. = Middlesex Probates

were involved in some way with the production of hops, there is no documentary evidence to indicate that the production and sale of beer was a consolidated, family-operated industry in the late 18th century (see Chapter 16). Furthermore, it is quite clear that hop houses were not used to brew beer (see Chapter 16). Hop houses were specifically designed to dry and store hops which were then transported off-site to other specially designed buildings referred to as brew houses. The archeological investigations indicate that the extant foundation is without a doubt the remains of a hop house and not a brew house (see Chapter 16).

Nineteenth Century

Between 1808 and 1810 several changes occurred to the parcel of land south of Nelson Road where the extant foundation is located. Although archeological investigations indicate that the foundation is the remains of a hop house that was constructed ca. 1810–1820 there is no explicit mention of a hop house in the 19th-century documents currently at hand. While there are some documentary data that might suggest its existence, the data are inconclusive.

According to Ronsheim (1986b:35), Josiah Nelson, Jr., built the extant John Nelson house in ca. 1808 in preparation for his marriage in 1809. This house is located to the east of the extant foundation (Figure 15-2). Ronsheim's assertion is based on "several itemized bills," dated 1808, for stone and brick work. According to Ronsheim (1968b:35), the reference to brick work, which specifically mentions the construction of brick ends, "especially point[s] to this being the John Nelson house" because the extant house is brick-ended. This date appears to be correct since Josiah Nelson, Jr., was taxed for a house in 1810 (Ronsheim 1968b:35) and the architectural evidence does not contradict this date (Orville Carroll, personal communication, 1988). In addition to the house, Josiah Nelson, Jr., along with his brother Joshua, each were taxed for half of a barn. This barn was probably the one that was located north of Nelson Road, which their father and uncle had inherited upon the death of their aunt Tabitha in 1778 (Middlesex Deeds,

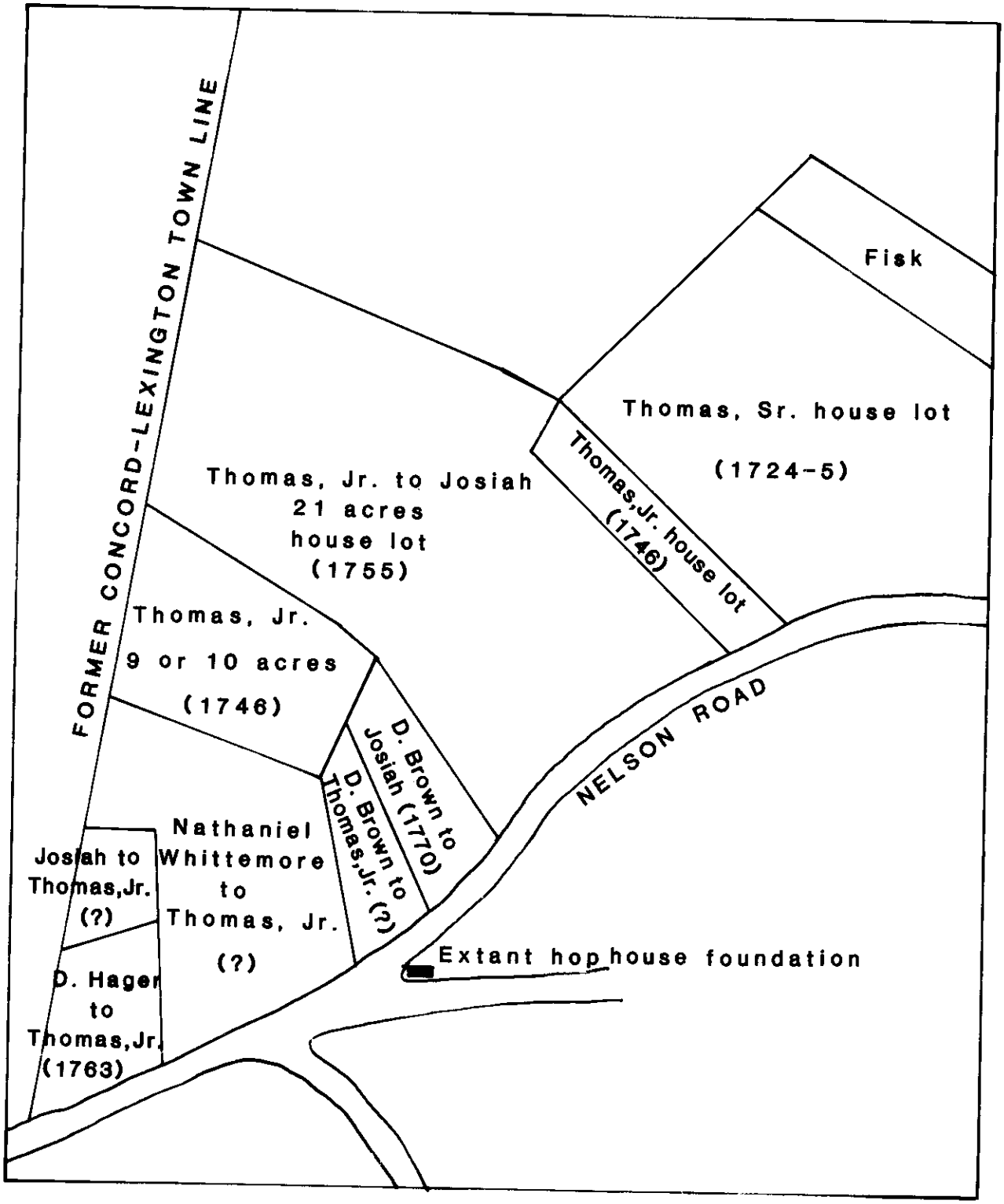


Figure 15-3. Map showing the 18th-century land purchases of Thomas Nelson and Josiah Nelson (adapted from Ronsheim 1968b:15).

Book 3943:45–46). In Chapter 16, it is suggested that the hop house could have been built at the same time the house was constructed since one of the above-mentioned bills was for "splitting" stones and "stoning the cellar" (Ronsheim 1968b:35). While this is certainly possible, no other documentary evidence of the hop house's presence at this time (i.e., ca. 1808–1810) exists.

According to Ronsheim (1968b:35), Route 2A was built through the 23-acre parcel south of Nelson Road in 1810. Also in 1810, Josiah Nelson, Sr., died and his lands were divided among his children in 1818 (Ronsheim 1968b:35). Josiah Nelson, Sr.'s son John, a housewright, was given the west end of the extant Nelson house and a 5-acre parcel of land west of the west end of the house. This parcel includes the extant foundation (Figure 15-2).

In 1821 neither Josiah Nelson, Jr., nor his brother John were taxed for a barn or other buildings. This indicates that either the hop house did not exist at this time or that if it did exist, it was too small to be taxed. A third possibility is that someone other than the Nelsons was using the building and hence being taxed for it. Who that might have been is not clear. In any case, the absence of a hop house in the documentary record is somewhat perplexing because, as mentioned above, the archeological data (Chapter 16) indicate that it most likely was constructed between ca. 1810 and 1820, and certainly was substantial.

In 1824 Josiah Nelson, Jr.'s, assessment for "houses and other buildings" was the same as in 1821. John's assessment for this period, however, increased from $12.00 to $16.50 (Ronsheim 1968b:36). While it is possible that the increase reflects the presence of the hop house, the increase probably reflects the construction of the extant barn west of the extant Nelson house since, according to Sullivan (1963), the barn appears to have been constructed between 1821 and 1824. Architectural evidence does not contradict this inference (Orville Carroll, personal communication, 1988). Furthermore, in 1831 the tax assessment for "houses and other buildings" was divided into "house" and "barn" categories. John's assessment was $12.00 for his half of the house and $4.80 for a barn. Since the increase of $4.50 from 1821 to 1824 in John's assessment is similar to the assessment of $4.80 in 1831 for a barn, the additional $4.50 in 1824 almost certainly refers to the barn (Ronsheim 1968b:36). Unfortunately, the documentary record is unclear as to whether the category of "barn" refers to agricultural barn or hop house.

No other buildings are mentioned in the tax lists of 1836 when, in addition to a house and barn, John was assessed $4.50 for an "outbuilding." It is possible that the "outbuilding" was the hop house.

In 1859 George Nelson inherited his father John's property, which included the parcel where the extant foundation is located (Middlesex Probates #96560). No mention of a hop house or other buildings was made. George farmed the property intensively, and the 1860 census (U.S. Government. Bureau of the Census 1860) indicates that his crops were well diversified. George's 140-acre farm included 60 acres of improved land from which he harvested 100 bushels of rye, 97 bushels of oats, 2 bushels of peas, 100 bushels of Irish potatoes, 25 tons of hay, 7 bushels of grass seed, $300 of orchard products, and $300 of market produce. There is no indication that he cultivated hops.

Twentieth Century

George Nelson passed the farm to his son George A. Nelson, Jr., who was born in 1852. George A. Nelson, Jr., was the one who sketched the 1902 map (Malcolm 1985:25). His choice of the word "site" on the map seems to indicate that the building itself was no longer in existence in 1902 (Figure 15-1).

George A. Nelson willed the property to John Walter Nelson in 1912 (no probate record), who left it to the last owner, W. Newton Nelson, in his will (no probate record).

Summary and Conclusion

None of the primary documents mention the presence of a hop house nor do they indicate that hops were cultivated by the Nelsons, despite the archeological evidence indicating that the extant foundation is the remains of a hop house, most likely built ca. 1810–1820 (see Chapter 16). There may be some documentary evidence of the hop house in 1836 or perhaps even 1824 and 1831, however. Evidence of the hop house in 1836 may be the "outbuilding" that John Nelson was assessed for in addition to his house and barn. The amount of the assessment, $4.50, would seem to indicate a fairly substantial building. The possible documentary evidence of the hop house in 1824 and 1831 consists of an increase in John's tax assessment over that of 1821 for a "barn." As discussed above, however, it is likely that the assessments were for the extant barn.

If the Nelsons were growing hops in the mid-to-late 19th century, the censuses of 1850, 1860, and 1870 do not seem to indicate that they were cultivating large quantities of them. Hops are one of the categories of agricultural produce enumerated, but the censuses indicate that only one person in Lincoln or Lexington was growing hops in 1850, 1860, and 1870. John Farrar of Lincoln is listed as growing 10 pounds of hops in 1860. The censuses indicate that large quantities of hops were not grown in Lincoln at this time. It is unclear, however, whether hops were not cultivated at these times or if quantities under 10 pounds were considered too small to be taxed.

No documentary or archeological evidence was recovered to support Malcolm's (1985) contention that the extant foundation was used in the third quarter of the 18th century to malt beer. Likewise, no documentary evidence was recovered to indicate that the hop house was Daniel Brown's early 18th-century barn or any other farm building as Ronsheim (1968) suggested, or that it was later reused for some other agricultural purpose as Kelso (Chapter 17) suggests.

Chapter 16

Archeological Investigations of the "site old hop house"

Nora Sheehan and Alan T. Synenki

Introduction

As noted in the previous chapter (Chapter 15), the rectangular mark on George Nelson's 1902 map labeled "site old hop house" (Figure 15-1) presumably refers to the extant fieldstone foundation that is located at the intersection of Nelson Road and present-day Route 2A in the Nelson Road area of MIMA (see base map, Appendix A-3 and Figures 16-1 and 16-2). A hop house—a wooden superstructure atop a stone or brick kiln—was a facility for drying and storing hops prior to transporting them to a brew house where they were used to make beer (Blanchard 1823).

During the summer of 1988 the extant foundation and the area immediately adjacent to it, designated the John Nelson site, were investigated by the MIMA Archeological Project. The primary goal of the archeological investigations was to determine if the extant foundation is indeed the remains of a hop house that was in use in 1775 (Malcolm 1985:31) or one that was built in the early-to-mid 19th century, sometime between 1821 and 1836 (see Chapter 15), since the documentary data are inconclusive. The archeological investigations were also expected to determine the extant foundation's archeological integrity and to determine if it, or its associated wooden superstructure, may have also been Daniel Brown's 1739 barn prior to its use as a hop house.

As discussed in Chapter 1, this information is important to our understanding of the kinds of strategies that individual farmers used as part of the transformation to modern agricultural capitalism. As discussed in greater detail below, while hops were grown throughout the 17th and 18th centuries, it wasn't until the first half of the 19th century that they became a booming industry in eastern Massachusetts, particularly in northern Middlesex County (Bidwell and Falconer 1941: 243; Kelsey 1967; Russell 1976:298). Unfortunately, the geographical and temporal extent to which hops were grown and processed in the southern part of the county, particularly in the towns of Lincoln, Lexington, and Concord, is relatively unknown.

Methods

In order to accomplish the above goals, archeological expectations were generated, field investigations were conducted, and analysis of the data was carried out according to the project-wide, multistage strategies outlined elsewhere (see Chapter 2). The expectations were based on research regarding the history and activities of the hops industry in New England, the physical attributes of hop houses and early 18th-century barns, combined with the known or predicted post-abandonment site formation processes. Field investigations consisted of a site walkover, which was carried out during the background phase, and limited site examination.

Archeological Expectations

According to Kelsey (1967), hop roots were among the first articles brought to North America by the Massachusetts Bay colonists. Bidwell and Falconer (1941:243), Kelsey (1967), and Russell (1976:298) assert that, although the cultivation of hops occurred throughout the early-to-mid 18th century, it wasn't until the late

Figure 16-1. Project photograph of the John Nelson site showing the east wall extension of the hop house foundation. Photograph faces southeast.

18th and early 19th centuries that they became a major commercial enterprise in New England. For example, hops were grown in Woburn, Massachusetts, as early as 1702, and were exported as early as 1718 (Russell 1976:134). In 1763 a schooner carried 3,000 pounds of hops from Boston to New York (Russell 1976:134, 298). Yet Russell (1976:134) believes that, judging from estate inventories, hops were not widely grown before 1775 because cider, not beer, was the preferred drink in New England. Bidwell and Falconer (1941:243) suggest that the growth of the hops industry in the late 18th and 19th centuries in New England was due to western competition for market staples such as wheat and pork. This competition forced New England farmers to seek an alternate specialized crop to market, and hops became one of those crops. Hops were considered by some farmers to be a risk not worth taking, however, because even though prices were high, they were known to fluctuate rapidly, as happened in the late 1830s (Bidwell and Falconer 1941:244–245; Kelsey 1967). In addition, the crop was thought by some farmers to rob the soil of nutrients and absorb most of the farm's manure (Russell 1976:381). In any event, by the end of the 18th century, there was a thriving hops industry in about a dozen towns of northwestern Middlesex County, Massachusetts, according to Bidwell and Falconer (1941:243). By the early 19th century, Tewksbury, in northern Middlesex County, was said to grow more hops than any other area in the country (Russell 1976:298–299). In 1806 strict standards of inspection and grading were set by the Massachusetts state legislature to improve the quality and hence the demand for hops (Bidwell and Falconer 1941:243–244). Bidwell and Falconer (1941:244) suggest that the industry reached a peak in production in Massachusetts in 1836,

Figure 16-2. Project photograph of the John Nelson site showing the surface of the hop house foundation. Photograph faces northeast.

when about 850,000 pounds were inspected, then began to decline due to a collapse of prices brought on by western competition, especially from central New York. They further assert that by 1860 the industry had declined considerably in New England, while New York was producing nearly 90% of the total hop crop of the country (Bidwell and Falconer 1941:384).

HOP HOUSES

Once harvested, hops were dried over a moderate charcoal fire located either within a fieldstone or brick kiln that was pargetted (*plastered* in the 19th-century vernacular) or in a "stove or furnace" adjacent to the kiln (Blanchard 1823; New Hampshire State Agricultural Society 1854). By the early 19th century, wooden superstructures—called hop houses—were commonly built atop kilns to assist with the drying and storage of the hops (Blanchard 1823). The development of a distinctive, specialized hop house in New England appears to be associated with the rise, albeit brief, of the commercial importance of hops (Hubka 1984:63). Hubka (1984:183) suggests that it is possible that some hop houses may have been shared among neighboring families given the expense of construction.

There is no archeological data regarding the physical appearance of kilns or the superstructures of hop houses. There is some rather detailed, albeit limited, documentary information, however, regarding their appearances and use in the early-to-mid 19th century. These documentary data, combined with recent observations of an extant 19th-century hop house on the Howard Watkin's farm located in Berlin, Massachusetts, were used to help identify or at least suggest the range of variation in the formal properties of kilns, superstructures, and other associated features.

The process of drying hops was a delicate one and therefore demanded a well-constructed kiln and a highly controlled heat source. In 1823 the following recommendation was made regarding the location, construction, and associated heat source of the kiln:

> For convenience of putting the hops on the kiln, the side of an hill is generally chosen for its situation. Care should be taken that it be a dry situation. The kiln should be dug out the same bigness at the bottom as at the top; the side walls laid up perpendicularly, and filled in solid with stone to give it a tunnel form. Twelve feet square at the top, two feet square at the bottom, and at least eight feet deep, is deemed a convenient size. On top of the walls sills are laid, having joists let into them in like manner as for laying a floor—on which laths, about ½ inches wide, are nailed, leaving open spaces between them ¾ of an inch, over which a thin linen cloth is spread, and nailed at the edges to the sills. A board about 12 inches wide is set up on each side of the kiln, on the inner edge of the sill, to form a bin to receive the hops. The larger the stones made use of in the construction of the kiln, the better; as it will give a more steady and dense heat. The inside of the kiln should be well plaistered with mortar to make it completely air tight. Charcoal (that made from yellow birch or maple I should prefer,) is the only fuel proper to be used in drying hops. The kiln should be well heated before any hops are put on, and carefully attended to keep a steady and regular heat... The green hops should be spread as evenly and as light as possible over the kiln. The fire at first should be moderate, but it may be increased as the hops dry and the steam is evaporated. (Blanchard 1823)

Thirty years later the "most approved kiln" (New Hampshire State Agricultural Society 1854) appears to have been similar to the one just described with two important exceptions. The first was that the kiln's walls were constructed of brick instead of stone. Second, the heat source was located in a "stove or furnace" exterior to the kiln, instead of directly within the kiln itself. Cold air was furnished to the kiln through openings in the wall of the kiln. The description of the construction of a kiln was as follows:

> A brick foundation wall is built seven or eight feet high, and ten by eleven feet in dimension. It is well to have this wall plastered internally. In the centre of the front wall, at the base, there is placed a large stone or brick furnace from without, and furnished with a funnel passing around within the foundation, above three feet from the top, and terminating in a chimney provided for the purpose. At the base also of this front wall, and on each side of the stove or furnace, there are two small openings, one foot by three foot in diameter, to let in cold air at the bottom of the kiln. The top of this foundation is laid with lathing, one inch wide, the strips being one inch apart, and covered with a thin flaxen cloth. Boards about ten inches wide are placed lengthwise around this cloth, leaving a narrow walk around the kiln... The green hops are placed in the kiln box and spread upon the cloth about eight inches deep. (New Hampshire State Agricultural Society 1854)

The kiln of the extant hop barn in Berlin consists of an approximately 3.83 m × 3.83 m (12.6 ft × 12.6 ft) fieldstone foundation located beneath the eastern half of the wooden superstructure (Figure 16-3). The kiln was built into the side of a small hill, approximately 1.5–2.4 m (5–8 ft) from the road. The interior of the kiln appears to have been pargetted. No other attributes of the kiln's interior could be observed because of the existing superstructure's floor directly above the kiln. A small opening, 42 cm × 26 cm (16.8 in × 10.4 in), is present in the south wall of the kiln (Figure 16-4).

It is not clear when the practice of building a wooden superstructure over the kiln began, nor how widely this occurred in New England. As noted above, however, it is clear that by the early 19th century superstructures were reported to be commonly built atop the kilns. In 1823, for example, it was noted that it is

> now common for those who have entered considerably into the cultivation of hops, to build houses over their kilns, which in wet weather, are very convenient; otherwise, a kiln in the open air, would in my opinion, be preferable. (Blanchard 1823)

Another purported advantage of a superstructure was that large quantities of hops could be stored after they were dried "which is a great saving of labor" (Blanchard 1823).

Although the range in variation in the physi-

Figure 16-3. Project photograph of the Berlin hop house showing ramp and doors at east end.

cal appearance of the superstructures of hop houses is unknown, the Berlin hop house provides detailed information regarding one such superstructure. The superstructure rests on a three-sided fieldstone foundation laid without mortar. The sill of the northern wall of the superstructure sits at grade level; the sill of the southern wall is located approximately .3–1.5 m (1–4.9 ft) above grade and has no foundation beneath it (Figure 16-3). There is also an earthen ramp leading from the road up to large double doors at the eastern end of the hop barn (Figure 16-3). The structure was constructed of a timber-pegged frame with vertical pine sheathing. The sheathing was attached to the frame with machine-cut nails that appear to date after ca. 1820 but prior to 1840. The superstructure measures 6.77 m × 4.88 m (22.2 ft × 16 ft). The floor consists of wide planks, presumably nailed to joists below. It is probable that part of the floor, if not the entire floor, is not original since, as described above, wooden lattice was the preferred material to be used above the kiln. There are two large wooden doors at the eastern end of the structure whose hinges and bolts are hand forged. There are two small windows, one roughly in the middle of the western end, the other in the western half of the south side of the structure (Figure 16-5). Documentary evidence from as early as 1823 mentions that windows and doors were common features of hop barns in order for the buildings to be "well ventilated" (Blanchard 1823:53).

Based on the above data, if the extant foundation is the remains of a hop house, then it should exhibit the following characteristics.

The kiln should be rectangular in shape and built into a hillside. An earthen ramp could also be present. The kiln's interior should taper from top to bottom. Its walls should be constructed of

Figure 16-4. Project photograph of the Berlin hop house showing rectangular opening at the base of the south wall.

either dry-laid fieldstone or brick and exhibit evidence of being pargetted. The remains of the heat source should be present either at the bottom of the chambers or just outside the north wall of the extant foundation. If the heat source was located within the chambers, a layer of charcoal and ash should be present at or near the bottom of the chambers. If the heat source was exterior to the kiln, then a concentration of charcoal and ash should be present outside the north wall. The north wall may also have one or more openings at its base for providing cold air to the kiln.

If a wooden superstructure once existed above the kiln at the John Nelson site, the northern extension of the east wall (Figure 16-6) may be evidence of its foundation. If this is the remains of the superstructure's foundation, then the extension should be bonded to the north wall of the rectangular portion of the foundation. Evidence of a northern extension of the west wall is not expected since it is likely that it was destroyed as a result of the widening of Nelson Road as previous research (Synenki 1985), aerial photographs, and the presence of road-related debris in and around the foundation seem to indicate. Nails and perhaps window glass in the primary deposits of the chambers would also be evidence of the existence of a superstructure.

If the kiln and its associated superstructure were built in the third quarter of the 18th century as Malcolm (1985:31) suggests then there should be a relatively high proportion of 18th-century, and a relatively low proportion (perhaps even an absence) of 19th-century, building-related materials in the primary deposits of the extant foundation. If, on the other hand, the kiln and superstructure were built between 1821 and 1836

Figure 16-5. Project photograph of Berlin hop house showing windows on west and south sides of structure.

as Holland (Chapter 15) suggests, then the primary deposits should have a high frequency of ca. 1820–1840 machine-cut nails, an absence of pre–ca. 1820 machine-cut nails, and a low frequency or absence of hand-wrought nails. There should also be relatively few, perhaps even an absence of, post–ca. 1840 machine-cut nails. While the primary deposits are expected to be relatively intact, some horizontal or vertical movement of the artifacts within the deposits may have occurred as a result of the growth of roots of several trees and bushes present within the foundation. In addition, some mixing of the primary and secondary refuse might have occurred as indicated by the presence of modern trash within the kiln.

DANIEL BROWN'S 1739 BARN

As discussed earlier, Holland (Chapter 15) suggests that the extant foundation may have originally been that of Daniel Brown's 1739 barn. Given this possibility, it is necessary to discuss here the physical characteristics and associated activities of early 18th-century barns. These characteristics are derived from project-wide background research conducted by Synenki (Chapter 2). It is important to recognize that the following discussion is based on 17th- and mid-to-late–18th-century barns since no current information regarding the physical appearance and the specific activities associated with early 18th-century barns is available.

According to St. George (1982b:29–30), barns were multipurpose service structures used to house livestock, store and process cereals and grains, and store farm implements. Overall, 18th-century barns consisted of a wooden superstructure atop a row of fieldstones, granite slabs, or, according to one 19th-century observer, a few wooden blocks (Hubka 1984:55, 183). Recent

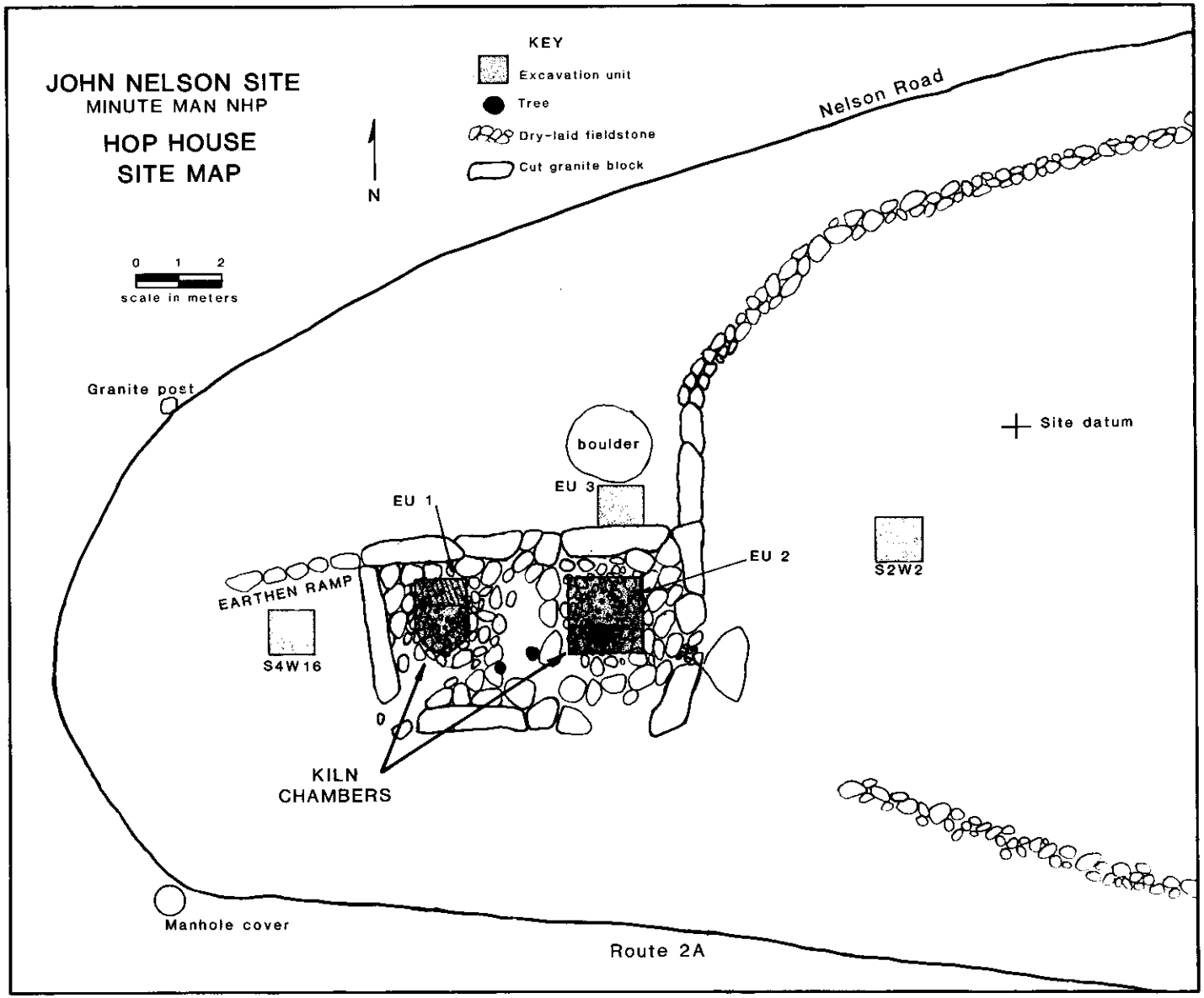


Figure 16-6. John Nelson site map showing EUs and site features.

field investigations in central Massachusetts (John Worrell, personal communication, 1987) have revealed that the spaces between the individual fieldstones of 18th- and early 19th-century barn foundations were filled with small angular pieces of stone, termed "chinking stones." Although the range of variation in the size of early 18th-century barns is unknown, Hubka (1984:165) suggests that pre–19th-century barns were typically 20 ft × 15 ft. These dimensions are similar to those suggested by St. George (1982b:26) for 17th-century barns, although much larger ones were built during this time as well (see, e.g., Albright, Carroll, and Cummings 1977:179, 187; St. George 1982b:25–26).

If the superstructures of early 18th-century barns were constructed similarly to 17th-century barns, some information regarding their physical appearance exists. In general, 17th-century barns had timber-pegged frames and "riven oak clapboarding and later were sheathed with milled cedar weatherboarding" (St. George 1982b:25; see also Albright, Carroll, and Cummings 1977:179). Barns typically had a lean-to (St. George 1982b:25) or porches (Albright, Carroll, and Cummings 1977:179). According to St. George (1982b:26), roofs were constructed of a variety of materials, although pine boards appear to have been most commonly used (Albright, Carroll, and Cummings 1977:179). Two large doors, and in some cases several small doors, also existed (Albright, Carroll, and Cummings 1977:179). Barns do not appear to have had windows (Albright, Carroll, and Cummings 1977:179; St. George 1982b:26). The floors of barns appear to have consisted primarily of wooden planks, although the area in which the livestock were sometimes housed consisted of dirt (Albright, Carroll, and Cummings 1977:179; St. George 1982b:25).

Based on the above, if the extant foundation or its wooden superstructure is also that of Daniel Brown's 1739 barn prior to it being used as a hop house, some, albeit limited, archeological evidence *may* be present. For example, a primary deposit that consists of a relatively high proportion of 18th-century building materials (e.g., hand-wrought nails) in conjunction with perhaps other datable early 18th-century materials might suggest its presence. Unfortunately, other than its size, no evidence of the barn's foundation is expected to exist because it is likely that it would have been extensively modified given the differences in the kinds of activities and hence the physical requirements (e.g., a kiln) of hop houses and agricultural barns.

Limited Site Examination

Site examination consisted of the judgmental placement and excavation of five units during June and July of 1988 (Figure 16-6). Data regarding the size and characteristics of the aboveground foundation were also collected at this time. Prior to the site examination phase, visual inspection of the extant foundation and the parcel on which it is situated was conducted. At this time, surface vegetation in and around the foundation was removed and the site datum was established. A permanent copper disk set in concrete marks its location.

EUs 1 and 2 were placed within the chambers of the foundation—EU 1 in the west chamber and EU 2 in the east chamber (Figure 16-6). The units were excavated to determine if the chambers are the remains of a hop kiln and to possibly date its construction, use, and abandonment. To determine this, approximately half of the west chamber and almost the entire east chamber were excavated to record their morphology, dimensions, and fabric, and to collect stratigraphic and associated artifactual data. Bisecting the west chamber left a portion of the archeological record for future researchers.

A 1 m × 1 m unit (EU 3) was excavated adjacent to the north wall of the east chamber (Figure 16-6) to gather information that would contribute to the identification of the use and activities associated with this area and the characteristics of its ground surface (e.g., cobble vs. compacted earth).

Two other 1 m × 1 m units (S2W2, S4W16) were excavated (Figure 16-6) to determine the original size and configuration of the foundation

and to collect any associated artifactual materials. S4W16 was located west of the foundation to determine if there was originally a third chamber or if this area is the remains of an earthen ramp. S2W2 was located east of the foundation to determine the eastern extent of the original foundation.

Results

The archeological investigations of the John Nelson site revealed that the extant foundation is the remains of a hop house—both a kiln and a superstructure—that was constructed in the early 19th century, perhaps no later than ca. 1810–1820. It is unlikely, but not impossible, that the extant foundation or its superstructure was that of Daniel Brown's 1739 barn. The precise date at which the hop house was no longer used to dry and store hops is unknown, although the archeological evidence may indicate that the wooden superstructure was repaired or altered in some fashion after ca. 1840 and removed from the site after ca. 1880. While the pollen data (Chapter 17), including corn and cereal pollen, suggest that it is likely that the wooden superstructure had a different agricultural use subsequent to its function as a hop house, no archeological evidence was found to support or reject this. The archeological data seem to suggest that the superstructure was not demolished on-site. Instead, the superstructure may have been moved or carefully dismantled and some of its materials used elsewhere. Subsequent to the removal of the superstructure, portions of the foundation were used periodically as trash receptacles from the late 19th century until the present day. With the exception of the possible removal of the northern extension of the west wall of the extant foundation, the integrity of its remains appears to be good.

Kiln

Both above-ground and below-ground information indicate that the rectangular portion of the extant foundation is the remains of a kiln. The kiln's interior is divided into two fieldstone chambers that taper from top to bottom and are pargetted. The kiln was built into the side of a hill adjacent to Nelson Road with an earthen ramp adjacent to its western wall.

Above-ground evidence indicates that the extant foundation is constructed of both dry-laid fieldstone and cut granite and is oriented roughly east-west with its long axis parallel to Route 2A (Figure 16-6). Two courses of the south wall and several courses of the north wall, 1.7 m (5.6 ft) in height, exist above the present ground surface showing that the kiln was built into the side of the hill, as the documentary data (Blanchard 1823) indicate was customary. As noted previously, the hop house in Berlin, Massachusetts, also was built into the side of a hill adjacent to the road.

Archeological investigations (i.e., S2W2 and S4W16) revealed that the extant foundation did not extend beyond its above-ground east or west walls. The outside dimensions of the extant foundation are approximately 7.1 m × 4.9 m (23.3 ft × 16 ft). The kiln is therefore much larger than early-to-mid 19th-century kilns mentioned in the documentary record (from 10 ft × 11 ft to 12 ft × 12 ft) and the kiln of the hop house located in Berlin, Massachusetts (approximately 3.83 m × 3.83 m [12.6 ft × 12.6 ft]). Its large size appears to be related to the fact that the interior of the foundation consists of two chambers rather than one. Although the average number of chambers for early-to-mid 19th-century kilns is uncertain at present, the documentary data discussed earlier imply that one was customary. It is interesting to note that the hop house located in Berlin, Massachusetts, has only one chamber. Regardless of how many chambers were customary in early-to-mid 19th-century hop houses, the Nelson kiln apparently had the potential for drying large quantities of hops.

Archeological investigations of the chambers revealed that the morphology and fabric of their interiors were not only similar to one another, but also similar to those early-to-mid 19th-century kilns mentioned in the documentary literature (Blanchard 1823; New Hampshire State Agricultural Society 1854). Archeological inves-

tigations of the chambers also indicated that the heat source for drying the hops was most likely located within each chamber rather than external to the kiln as was recommended in 1853 (New Hampshire State Agricultural Society 1854). Finally, investigations of the chambers' interiors suggest that the hop house—kiln and wooden superstructure—was most likely constructed ca. 1810–1820, repaired or altered in some fashion after ca. 1840, and its superstructure possibly removed after ca. 1880.

WEST CHAMBER

The interior of the west chamber was constructed of dry-laid fieldstone that tapered from approximately 2.5 m × 2.5 m (8.2 ft × 8.2 ft) at the present ground surface to approximately 35 cm (14 in) in diameter at the bottom (Figure 16-7). The chamber was approximately 1.7 m (5.6 ft) deep.

The upper deposit (Figure 16-8; Deposit 1 [levels 1–9]) is characterized by a mixture of domestic (e.g., plastic and porcelain toilet fragments), recreational (e.g., automatic and machine-made beer-bottle glass), building (e.g., wire nails, plate glass, coal and clinkers), and road-related (e.g., macadam) debris within a grayish brown or yellowish brown sand. Furthermore, Deposit 1 is characterized by the absence of the pre–ca. 1880 building materials (e.g., hand-wrought and machine-cut nails, crown/cylinder window glass) that were recovered from the deposits below it (Figure 16-9). Levels 1–6 appear to have been deposited after ca. 1880 based on the presence of crossmendable automatic machine-made bottle glass (Figure 16-9). The presence of 2.18 g of macadam in levels 5–7 provides material evidence of the road construction activities discussed earlier. There was a relative absence of materials in levels 8 and 9. The material in these levels included five contact-molded bottle glass fragments whose dates of manufacture could not be

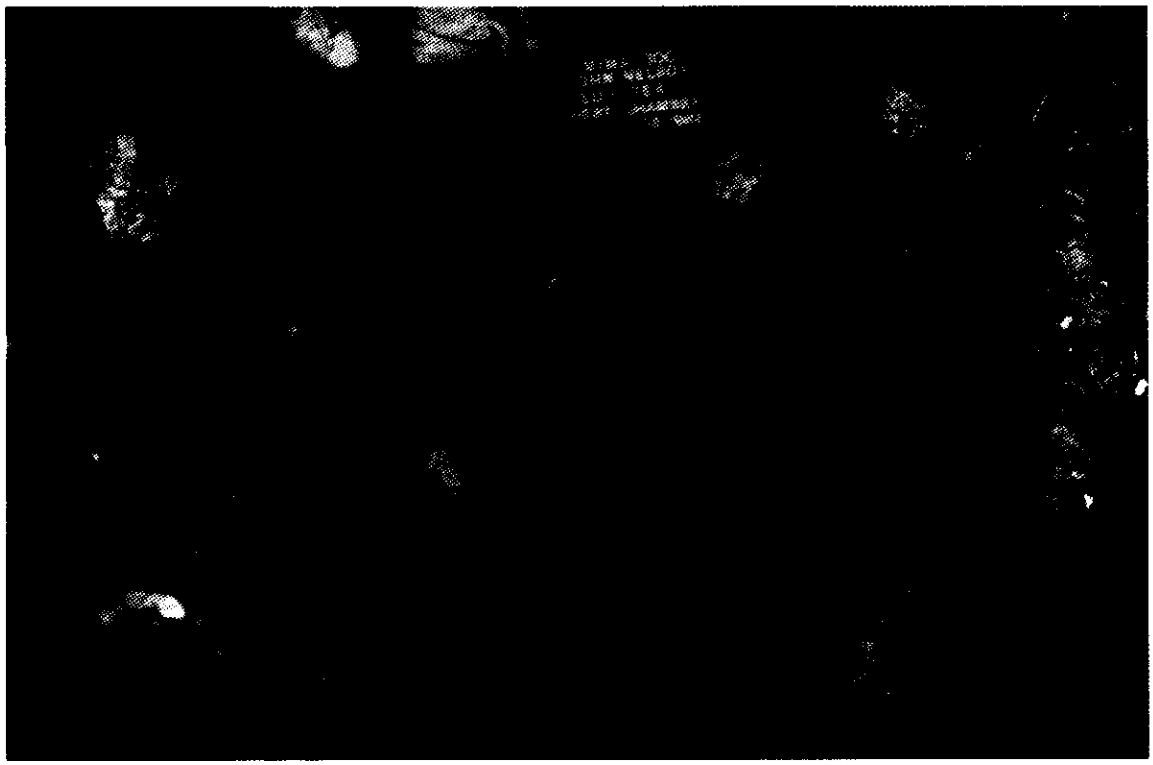


Figure 16-7. Project photograph of EU 1 at the John Nelson site showing funnel shape and rock lining of the west chamber of the hop house foundation.

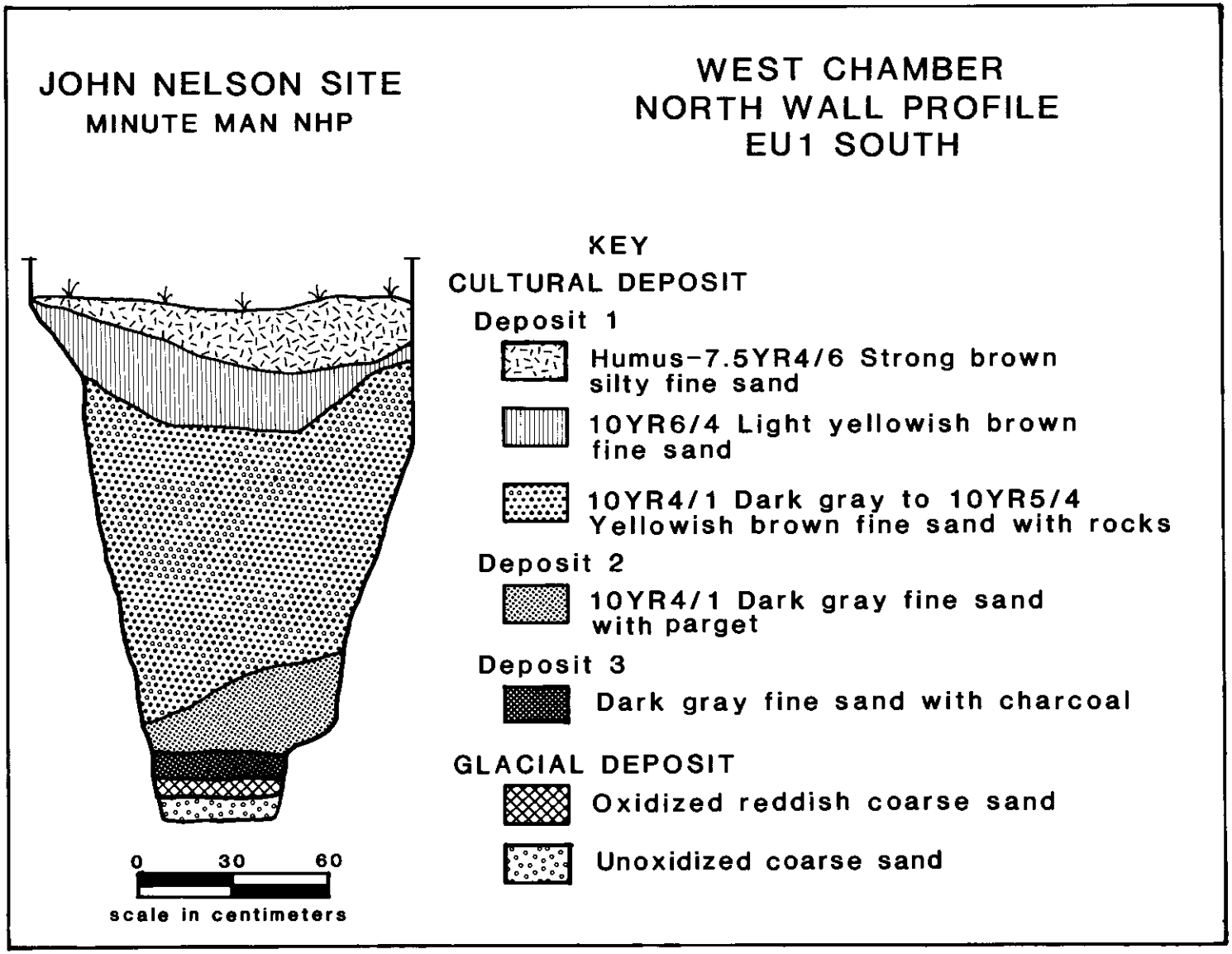


Figure 16-8. North wall profile of EU 1, west chamber, at the John Nelson site showing fill stratigraphy, including parget and charcoal layers.

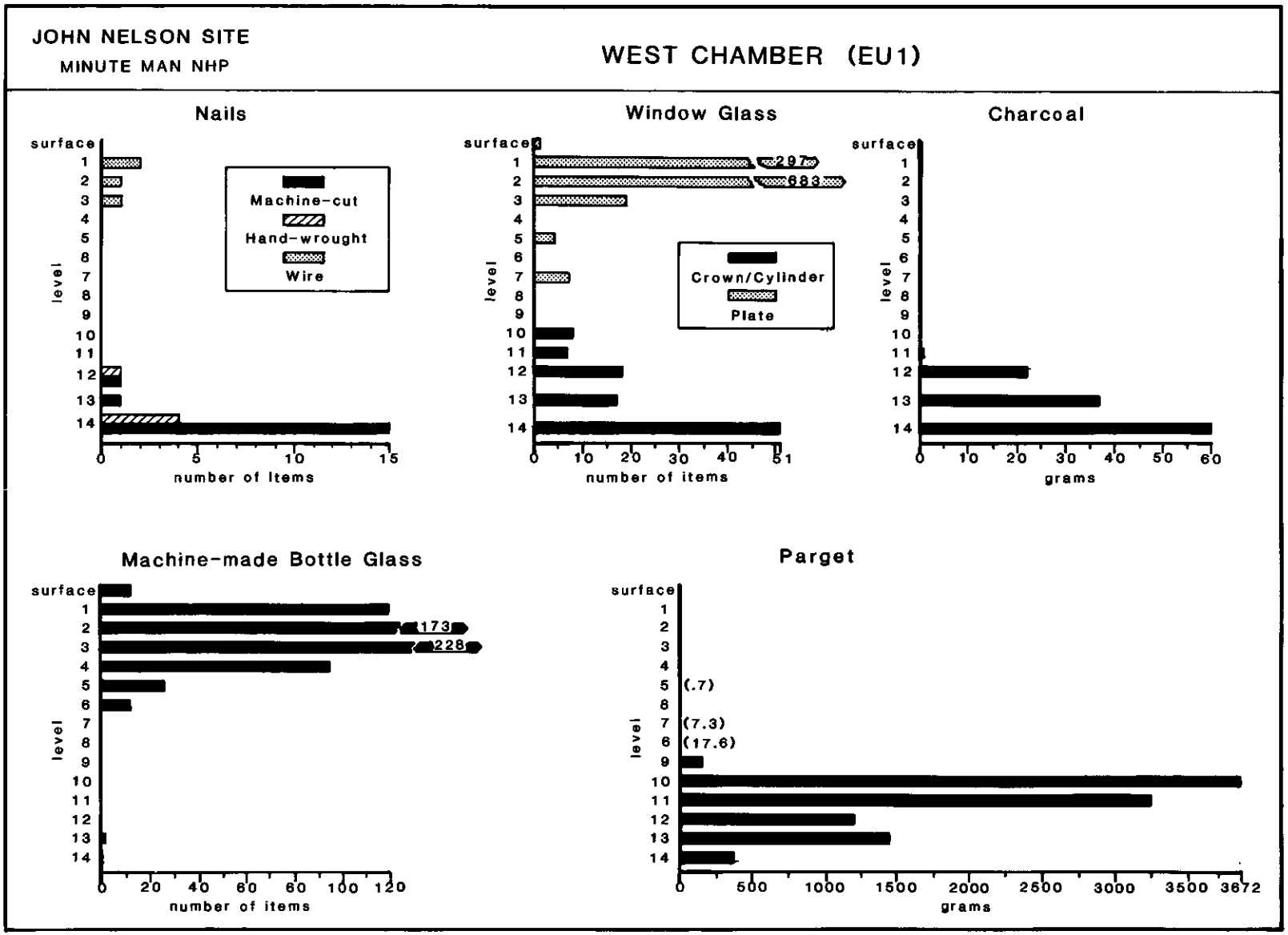


Figure 16-9. Frequencies of selected artifacts in EU1 (the west chamber) at the John Nelson site.

determined, 2.2 g of coal, and 24.9 g of lime-based parget (cataloged as mortar/plaster). With the exception of the parget, the above materials appear to have originated off-site.

The second deposit (Figure 16-8; Deposit 2 [levels 10–13]) is characterized by a relatively high amount of parget and charcoal, the presence of crown/cylinder glass, hand-wrought and machine-cut nails, and, with the exception of one automatic machine-made bottle glass fragment, the absence of later materials such as those recovered in Deposit 1 (Figure 16-9). The fieldstone walls in this deposit still exhibit evidence of being pargetted. As discussed below, the contents of this deposit in conjunction with the configuration of the foundation indicate that a superstructure once existed. According to Kelso (Chapter 17), the pollen data indicate that this material was probably deposited after the superstructure was removed from the site. Although the date when this occurred is not certain, it is possible that the superstructure was not removed until after ca. 1880 if the bottle glass recovered from the bottom of this deposit (i.e., level 13) is in its original context. The absence of similarly datable materials may indicate, however, that this glass is intrusive to the deposit.

The very bottom cultural deposit (Figure 16-8; Deposit 3 [level 14]) is characterized by a relatively high amount of charcoal, hand-wrought and machine-cut nails, crown/cylinder window glass, and a relatively low amount of parget within a dark gray fine sand (Figure 16-9). The glacial sand immediately below this deposit (Figure 16-8) is reddish in color, suggesting that it has been oxidized. The charcoal and reddish glacial sand suggest that Deposit 3 is, in part, the remains of the charcoal fire that was used to dry the hops. The absence of ash in the deposit may indicate that the kiln was cleaned out after its last use. The pollen data (see Chapter 17) suggest that the dark gray fine sand may have been deposited after the hop house was no longer used to dry and store hops. This inference is based in part on the corn and cereal pollen (Chapter 17) recovered from the deposit, which suggest that the wooden superstructure may have been reused for another agricultural purpose subsequent to its use as a hop house. The current archeological data from Deposit 3, or other deposits for that matter, neither support nor conflict with the pollen data and do not indicate precisely when the facility ceased to operate as a hop house. The data from Deposit 3 do suggest, however, that the wooden superstructure was most likely constructed ca. 1810–1820, and was possibly remodeled or altered prior to its removal from the site. For example, 2 of the 15 machine-cut nails have heads that are clinched and have grain fibers that run perpendicular to the shanks. This type of nail was manufactured and commonly used in eastern Massachusetts ca. 1810–1820 (Nelson 1968; Phillips 1989:38–40). The presence of these nails in conjunction with four hand-wrought nails strongly suggests that the wooden superstructure was constructed ca. 1810–1820. While it is certainly possible that the hand-wrought nails are from an earlier structure, such as Daniel Brown's 1739 barn, it is highly unlikely given their association with the pre–ca. 1820 machine-cut nails. Microscopic analysis of the machine-cut nails also revealed the presence of post–ca. 1840 machine-cut nails. These nails have grain fibers that run parallel to the shanks (Nelson 1968). These nails, in conjunction with the presence of two different colors of crown/cylinder window glass in Deposit 3, may suggest that the wooden superstructure was altered subsequent to its construction.

EAST CHAMBER

The east chamber, like the west chamber, was constructed of dry-laid fieldstone that tapered from the present ground surface to the bottom and was pargetted (Figure 16-10). At the present ground surface the chamber measures approximately 2.5 m × 2.5 m (8.2 ft × 8.2 ft). Unfortunately, the precise dimensions of the chamber's bottom, and its depth, are unknown because the stone rubble could not be physically removed without destroying a significant portion of the walls. Between 22 and 51 cm below datum in the east and west walls of the chamber, several pieces

Figure 16-10. Project photograph of EU 2 at the John Nelson site showing funnel shape and rock lining of the east chamber of the hop house foundation.

of fieldstone extended inward to form a ledge. The function of the ledge is uncertain, although it is possible that it may have supported the lattice upon which the hops were laid, if the lattice was not nailed directly to the sills of the wooden superstructure as the 19th-century literature indicates was common (Blanchard 1823; New Hampshire State Agricultural Society 1854). A similar ledge was not detected in the west chamber.

The presence of a small opening, 33 cm × 55 cm (1.1 ft × 1.8 ft), was located near the bottom of the east chamber (Figure 16-11). This opening appears to have provided cold air to the east chamber, as was customary in the mid-19th century (New Hampshire State Agricultural Society 1854:137). The opening also appears to have provided access to the bottom of the kiln's interior for the purpose of removing the spent charcoal and ash. The presence of 125.1 g of charcoal and 4.2 g of parget recovered from EU 3 adjacent to the opening appears to support this supposition. It is not known whether a similar opening exists at the base of the west chamber since time did not permit the investigation of this area. The size and general location of the opening is similar to that recommended in 1853—1 ft × 3 ft (New Hampshire State Agricultural Society 1854)—and the opening associated with the hop house located in Berlin, Massachusetts, which is approximately .86 ft × 1.4 ft.

A series of deposits similar to those in the west chamber was found in the east chamber although they were not as distinct, due in part to root disturbance from a large tree that exists within the chamber's interior.

Like the west chamber, the upper deposit (Deposit 1 [levels 1–5]) of the east chamber

Figure 16-11. Project photograph of EU 3 at the John Nelson site showing ventilation hole. Photograph faces south.

consisted of a mixture of similar domestic, recreational, building, and road-related debris within a dark brown, dark yellowish brown, or very dark gray or brown silty fine sand. With the exception of the parget (Figure 16-12), the other materials are likely to have originated off-site and probably were deposited after the superstructure was removed. The presence of automatic machine-made bottle glass in levels 1–5 (Figure 16-12) indicate that the materials were deposited after ca. 1880. Again, the presence of 296.7 g of macadam in levels 1–4 provides material evidence of the road maintenance and alterations discussed earlier.

The second deposit (Deposit 2 [level 6]) consisted of a relatively high amount of parget and an absence of building-related materials and automatic machine-made glass (Figure 16-12). The soil matrix of Deposit 2 was a mottled dark brown, yellow, and orange silty fine sand. This suggests that the walls of the kiln's east chamber, like the west chamber, also were once pargetted. The only artifact associated with this deposit is a small piece of contact-molded bottle glass, whose precise date of manufacture is not known. Consequently, the date when this material was deposited is uncertain.

Directly beneath the parget was a thin layer of charcoal in level 6 (Figure 16-12). The charcoal most likely indicates that, similar to the west chamber, the heat source was located within the east chamber of the kiln. Although only 13.9 g of charcoal were recovered from this deposit, its amount is still relatively high in comparison with

the levels above it (with the exception of level 1 [Figure 16-12]), especially given the small area from which it was retrieved. The absence of ash in the chamber and the presence of 125.1 g of charcoal recovered immediately adjacent to the opening at the exterior of the kiln in EU 3 suggest that the interior of the east chamber of the kiln was cleaned out after it ceased operation. No artifacts were found in association with the charcoal deposit. Sterile glacial sand exists below the charcoal deposit.

Superstructure

As discussed previously, the documentary data indicate that by the early 19th century wooden superstructures were commonly built atop kilns (Blanchard 1823). The north extension of the east wall of the rectangular portion of the extant foundation and the presence of nails and window glass in the primary deposits of the chambers indicate that a wooden superstructure once existed atop the kiln.

Field investigations of the hop house in Berlin, Massachusetts, indicated that the wooden superstructure was supported by a fieldstone foundation that extended beyond the walls of the kiln (Figure 16-3). At the Nelson site, the northern extension of the east wall appears to represent such a foundation. The northern extension primarily consists of cut granite. The southern part of the extension is bonded to the north wall of the rectangular portion of the extant foundation, implying that the superstructure and kiln were constructed contemporaneously. The northern portion of the extension abuts the stone wall that borders Nelson Road. No evidence of a similar extension of the west wall survives as a result of the widening of Nelson Road as discussed earlier. Nevertheless, the northern extension and the rectangular portion of the foundation suggest that the dimensions of the superstructure were 7.3 m × 7.1 m (23.9 ft × 23.3 ft).

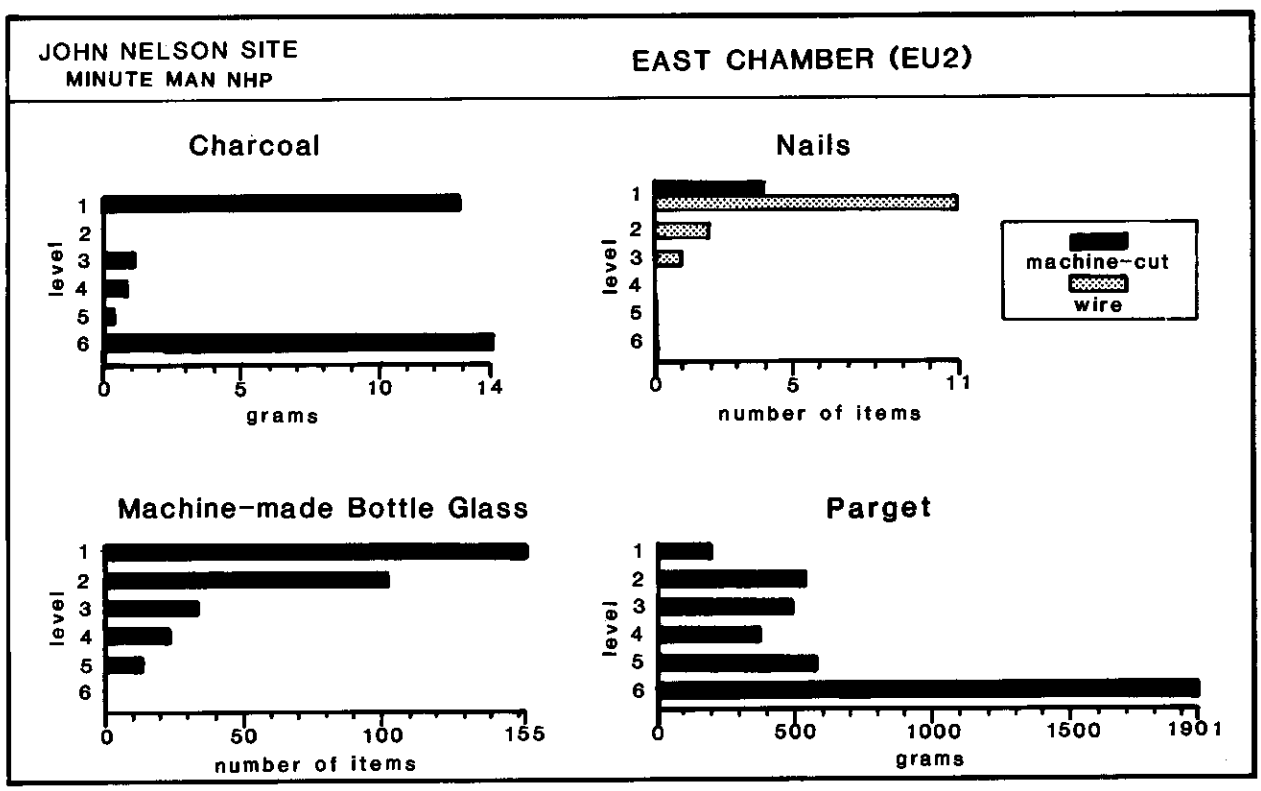


Figure 16-12. Frequencies of selected artifacts in EU 2 (the east chamber) at the John Nelson site.

Its size is therefore larger than the superstructure of the hop house located in Berlin, Massachusetts (6.8 m × 4.9 m [22.3 ft × 16 ft]).

Evidence of the superstructure also consisted of the presence of window glass and nails in the primary deposits of the kiln's west chamber. As discussed earlier, crown/cylinder window glass was recovered in Deposits 2 and 3 of the kiln's west chamber. Seven fragments of crown/cylinder window glass were also recovered in S4W4 adjacent to the exterior of the west chamber. No such window glass was recovered in the east chamber. These data may indicate that the windows once were located at the west end of the superstructure. It is also possible that the glass's location simply may be a function of where building-related debris was deposited, however. The presence of nails in the primary deposits of the west chamber in conjunction with the absence of nails and other building-related debris in the primary deposit of the east chamber may be suggestive of this.

As discussed previously, the attributes of the machine-cut nails in conjunction with the presence of the hand-wrought nails recovered from Deposits 2 and 3 of the kiln's west chamber suggest that the superstructure probably was constructed no later than ca. 1810–1820 and that the superstructure may have been repaired or altered after ca. 1840. The absence of nails and other building-related debris in the east chamber's primary deposit is consistent with their relative absence in the other units excavated (EU 3, S2W2, S4W4) and perhaps across the rest of the site. This may indicate that the superstructure was moved rather than demolished on-site, although the evidence for this is certainly not conclusive.

As noted previously, no archeological data were uncovered that would indicate when the wooden superstructure went out of use as a hop house, or that it served a different agricultural function subsequent to its use as a hop house as suggested by Kelso (Chapter 17). While the precise date when the superstructure was removed is uncertain, the presence of one piece of automatic machine-made bottle glass recovered at the bottom of Deposit 2 of the west chamber may suggest that it was not removed from the site until after ca. 1880.

Ramp

As discussed earlier, there is an earthen ramp leading from the road up to large double doors at the eastern end of the Berlin hop house (Figure 16-3). The topography and associated stratigraphy of the unit (S4W16) excavated adjacent to the west wall of the west chamber of the kiln at the Nelson hop house indicate that a ramp once existed in this location.

The topography adjacent to the west chamber rises gradually from the junction of Nelson Road and Route 2A to the west wall of the west chamber (Figure 16-1). A dry-laid fieldstone retaining wall follows this topography. The stratigraphy of S4W16 is congruent with the topography although the dates of its associated deposits are unclear (Figure 16-13). The present ground surface consisted of a thin layer of humus. Beneath the humus was a thin layer of dark grayish brown silty fine sand. The deposits contained very recent domestic and building-related materials. Under this deposit was a light yellowish brown silty fine sand that contained one piece of redware, .1 g of cinders/clinkers, and 12.3 g of slag-encrusted granite. Beneath this deposit was a yellowish brown silty fine sand that only contained three redware fragments. A brown/dark brown silty fine sand beneath this deposit in the north portion of the unit contained one redware fragment, one animal harness stud, four pieces of mammal bone, and .1 g of brick. This deposit may have been added to this area to level the ground surface (Figure 16-13). The lack of 19th-century and later materials in this deposit and the one above it may indicate that they were deposited when the hop house was initially constructed or in use although this is by no means certain.

Daniel Brown's 1739 Barn

Before closing it should be mentioned that no conclusive data were recovered to indicate that

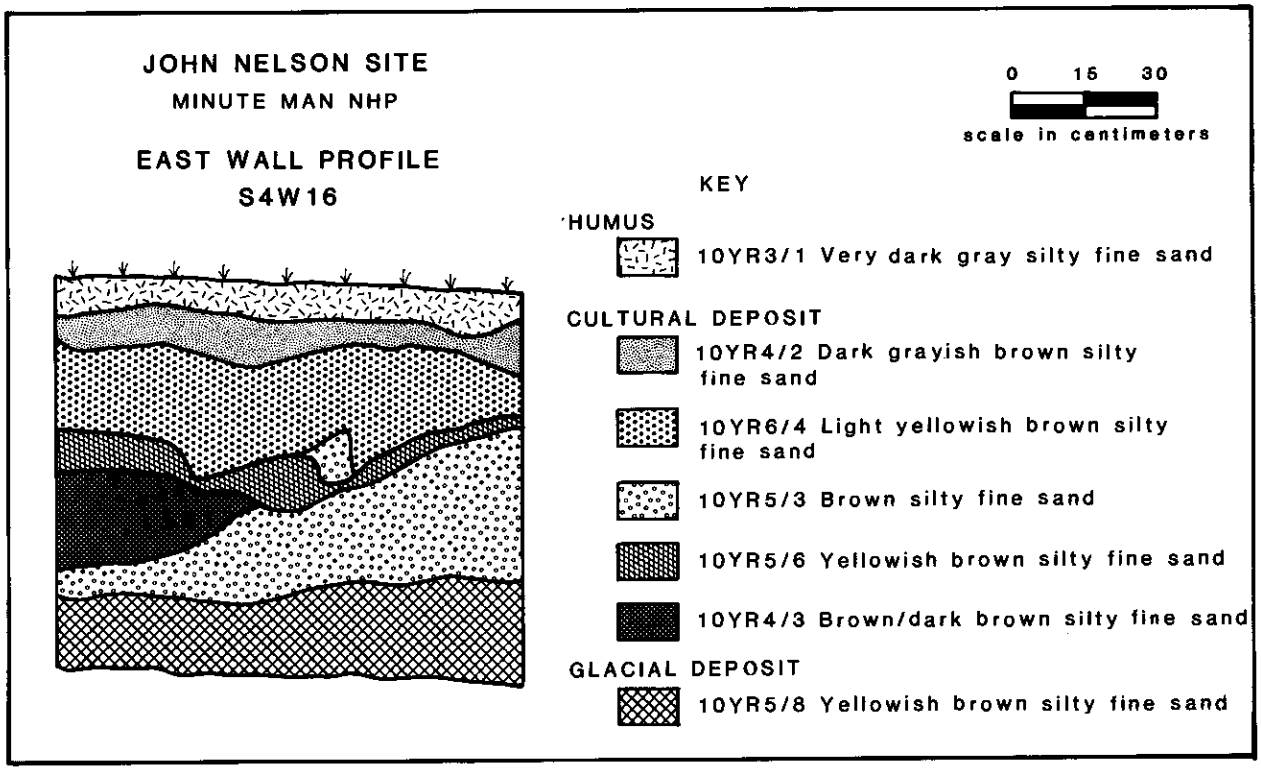


Figure 16-13. East wall profile of EU S4W16 at the John Nelson site showing stratigraphy of ramp.

the extant foundation or the wooden superstructure associated with it was originally Daniel Brown's 18th-century barn. For example, although the hop house's size (7.3 m × 7.1 m [23.9 ft × 23.3 ft]) is not dissimilar to the average size of 18th-century barns (i.e., 20 ft × 15 ft), no deposit(s) containing a relatively high proportion of 18th-century building-related materials or diagnostic early 18th-century artifacts was recovered on the site. While some hand-wrought nails were uncovered from the kiln's west chamber, their amount is relatively small in relation to the 19th-century machine-cut nails. Although it is possible that the hand-wrought nails are the remains of an earlier structure, such as Daniel Brown's barn, their association with the ca. 1810–1820 machine-cut nails indicates that it is more plausible that both types of nails were used in the construction of the hop house.

Summary and Conclusions

The archeological investigations indicate that the extant foundation and its associated remains are that of a hop house—kiln and wooden superstructure—that was most likely constructed ca. 1810–1820. The construction of the hop house therefore appears to have occurred after the extant John Nelson house was built ca. 1808 and possibly just before the extant barn was built (see Chapter 15). As discussed in Chapter 15, however, no evidence of its existence during this period of time was uncovered. Furthermore, no evidence was uncovered to indicate that it existed in the third quarter of the 18th century as

Malcolm (1985) suggested or that it originally may have been that of Daniel Brown's 1739 barn (see Chapter 15).

With the exception of its size, the attributes of the extant foundation are similar to early and mid-19th-century kilns mentioned in the documentary literature (Blanchard 1823; New Hampshire State Agricultural Society 1854). The Nelson kiln was built into the side of a hill with an earthen ramp adjacent to its west end. The interior of the kiln consisted of two dry-laid fieldstone chambers that tapered from top to bottom and were pargetted. The presence of two chambers indicates that the potential for drying large quantities of hops certainly existed. The charcoal fire to dry the hops appears to have been located within the interior of the kiln as was customary in 1823 (Blanchard 1823) rather than in a stove or furnace exterior to the kiln as was suggested in 1853 (New Hampshire State Agricultural Society 1854). The opening near the bottom of the north wall of the extant foundation appears to have served the purpose of providing cold air to the interior of the kiln as suggested in 1853 (New Hampshire State Agricultural Society 1854), and provided a means for removing the spent charcoal and ash.

The northern extension of the east wall of the rectangular portion of the extant foundation, and the presence of nails and window glass in the primary deposits of the west chamber indicate that a wooden superstructure once existed atop the kiln. Therefore it is likely that the northern extension of its western foundation wall was destroyed as a result of the widening and/or resurfacing of Nelson Road. Holland (Chapter 15) suggests that the documentary data imply that the hop house was built between 1821 and 1836. Kelso (Chapter 17) suggests that the pollen evidence indicates that the superstructure may have been reused for some other agricultural purpose subsequent to its use as a hop house. Unfortunately, no archeological data were recovered that would indicate how long the hop house was used to dry and store hops or if it was used for another agricultural purpose subsequent to its use as a hop house. Some archeological data exist, however, that suggest that the wooden superstructure was still standing after ca. 1840, perhaps as late as ca. 1880. Based on George Nelson's sketch map (Figure 15-1), the superstructure appears to have been removed from the site by 1902. There is some archeological evidence to suggest that the superstructure was removed or carefully dismantled rather than demolished on-site. The movement or reuse of building materials elsewhere appears to have been a common occurrence in the 19th century (Hubka 1984). Subsequent to the removal of the superstructure, the extant foundation was periodically used as a trash receptacle from the late 19th century until the present.

Chapter 17

Functional Pollen Analysis of the "site old hop house"

G. K. Kelso

Introduction

The objective of the present study was to use data derived from pollen analysis to test the documentary hypothesis (Chapter 15) that the extant foundation at the junction of Nelson Road and Route 2A (see base map, Appendix A-3) is the remains of a hop house—that is, a facility for drying hops that consists of a wooden superstructure atop a fieldstone or brick kiln (see Chapter 16). There is at least one precedent for this. Hill and Hevly (1968) demonstrated that structure function can be determined from the pollen content of prehistoric floors in the arid southwestern United States.

Pollen Dispersal and Preservation Considerations

Pollen sticks to Euroamerican vegetal foods and is transported into habitational and food processing areas (Bohrer 1972:table 7; Greig 1982:54, 58–59; Vuorela 1973:10–12). Old world cereal pollen, namely, wheat (*Triticum*), barley (*Hordeum*), oats (*Avena*), and rye (*Secale*)—here lumped under the rubric "Eurasian cereal grass"—is the most common economic type recovered from Euroamerican era matrices. More cereal pollen has been recovered from commercial sites than from houselots, however, and cereal pollen percentages have been highest during intervals of most intense commercial activity (Kelso and Beaudry 1990:74; Kelso and Schoss 1983:75). Larger quantities of Eurasian cereal, and perhaps corn, pollen should have accumulated in barns than in houses. Studies of profiles from the house cellars of historical farmsteads within MIMA have demonstrated that occupation-period botanical data are preserved in the cellar floor zones by the overburden introduced during dismantling (see Chapters 5, 9, and 11), and it should be possible to at least distinguish the cellar of a barn or hop kiln from that of a house.

Palynological identification of a hop house should be fairly straightforward. Only two genera of the Cannabinaceae (hemp family) grow in New England: *Cannabis* (hemp) and *Humulus* (hops). Hemp is represented by a single species (*C. sativa*) and hops by only two: *H. lupulus*, common hops, and *H. japonicus*, an introduced Asiatic species (Fernald 1970:555). Some authors profess to separate hemp from hop pollen on the basis of pore internal morphology (Godwin 1966). Others, including myself, have not been able to do so (van Zant et al. 1979). Both hemp and hops were grown in New England. Different products were sought from each, however, and it is unlikely that they would be processed or stored in the same structure.

Members of the hemp family do contribute to the background pollen rain. *Cannabis* cultivation, at least, has been recognized in lake and marsh pollen sequences in both Europe and the midwestern United States (Godwin 1966; van Zant et al. 1979). Occasional grains of hemp-family pollen are recognized on New England historical era sites, and a few grains were recovered from the earliest, pre-1643 sample at the bottom of the Scottow's Dock marsh profile in central Boston (Kelso and Beaudry 1990). The quantities in question should not be sufficient to mask economic hemp-family pollen in a profile within a structure.

There are potential barriers to the develop-

ment of a palynological record of the hop house at the Nelson site. The first of these is the kiln floor. As discussed in Chapter 16, hops were not dried in the kiln itself. They were dried above the kiln by laying them on cloth that was attached to a wooden lattice. This lattice was attached to the sills of the superstructure. As a result, there is less chance of pollen from produce being directly incorporated into the pollen sample matrix than in a barn cellar where polliniferous manure was deposited directly on the floor. In a hop house, pollen or small macrofossils would have to filter down through the cloth that was attached to the wooden lattice. The fire used to dry the hops constitutes the second problem. The chamber from which our pollen samples had to be drawn was the actual kiln. Pollen is destroyed by oxidization. Fire pit and ash deposits rarely contain pollen, and only the pollen deposited after the last fire in the kiln is likely to have survived. This reduces the probable size of our source to the remnants filtered down from the floor after the last use. On the positive side, post-fire pollen that has leached down into an ash deposit may survive in an excellent state of preservation under otherwise adverse conditions because the ash serves to discourage biological agents of pollen degradation (DiBlasi and Kelso 1985:74).

Methods

Two probable chambers were found within the kiln of the extant foundation (Chapter 16). The profile from the west chamber was selected for analysis because the stratigraphy was better defined and less altered by post-abandonment processes than in the east chamber (Chapter 16). This stratigraphy is presented in the archeologist's profile drawing with the palynologist's sample numbers superimposed (Figure 17-1). The earliest apparent cultural layer was a 3-cm wide red band (sample 4) in the upper portion of the glacial sand (samples 1–3) underlying the site. The red band was followed by a 9-cm wide organic-appearing dark band (Deposit 3; samples 5–7) incorporating some charcoal. A lime-based parget was mixed with the upper few centimeters of this stratum. The organic layer was succeeded by 34 cm of parget (Deposit 2; samples 8–12) that apparently had fallen from the chamber's wall. Organic material was mixed with the parget, but the proportion of the organic component decreased notably up through the layer. The top sample was almost entirely parget. The remaining layers (Deposit 1) between the top of the parget and the present ground surface appeared to be episodic fill (see Chapter 16). A profile of contiguous 4-cm samples was collected from ca. 12 cm into the glacial sand underlying the site to the present ground surface. Sediments were very loose, and smaller, more precise samples were not feasible.

We were concerned only with functional interpretation of the extant foundation. Only strata that developed in situ would provide appropriate data, and analysis was restricted to the deposit of parget and layers below. Some parget was mixed with the bottom of the episodic fill (Deposit 1) overlying the parget, and a single sample (number 13) from the bottom of Deposit 1 was incorporated in the analysis for comparative purposes.

Pollen extraction was undertaken in the palynology laboratories of the Boston University Center for Archaeological Studies and followed Mehringer's (1967) procedure. Residues were mounted in glycerol for viewing, and analysis was conducted at the Archeology Branch, Cultural Resources Center, National Park Service, Charlestown, Massachusetts. The pollen was identified at 400× with problematical grains examined under oil immersion at 1000×. We were basically seeking functional data in the percentages of a single pollen type, and economical 100-grain counts were considered adequate for this purpose. Pollen concentrations per gram of sample were computed following Benninghoff's (1962) exotic pollen addition method as a check against preservation-related differences in the spectra. Pollen concentration figures were not computed for individual taxa. These would not be meaningful in the absence of chronological control over the sedimentation rate and might be mistaken for

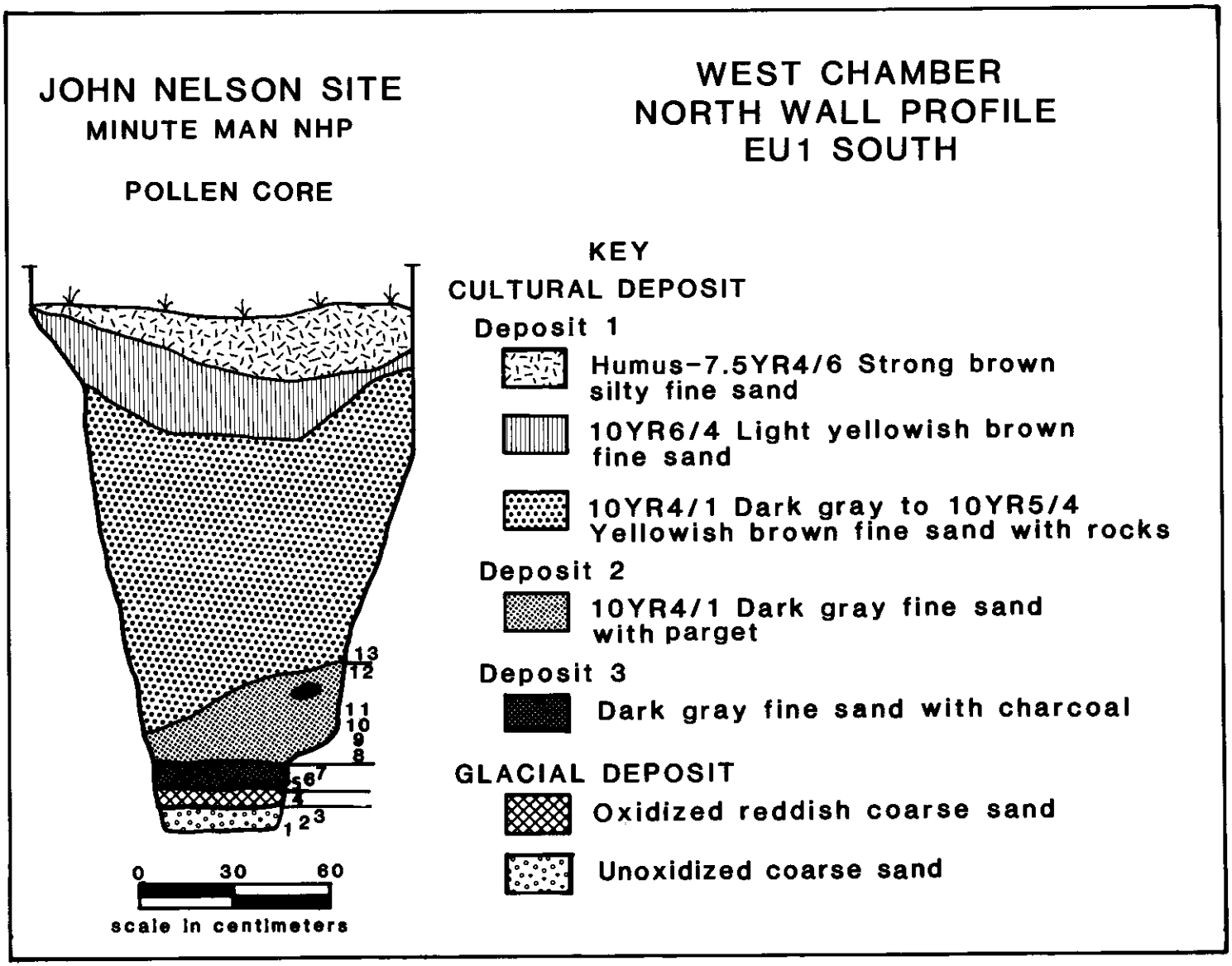


Figure 17-1. North wall profile of EU 1, west chamber, at the John Nelson site showing loci of pollen samples.

pollen influx data. All pollen grains that were too degraded to be identified were tabulated to provide further control over corrosion factors. Unidentifiable pollen grains were not incorporated in any sum from which the frequencies of other types were computed, but the data for this pollen group, as a percentage of total identifiable and unidentifiable pollen, are presented in Figure 17-2. Corroded oak pollen grains, a prominent type that retains its identity while readily degrading (van Zeist 1967:49), were also tabulated and appear in Figure 17-2. The terms "corroded" and "degraded" are used interchangeably here and refer to any kind of pollen deterioration other than tearing. They are not intended as references to the specific classes of deterioration defined under these terms by Cushing (1964) and Havinga (1984).

Historical archeologists most frequently encounter plants under English names in the documentary record, and for their convenience the common New England names for plant taxa are employed in both the text and the diagrams. A conversion table (Table 5-1) of vernacular and Latin names is provided for those wishing to place these data in context with those of the paleoecological research community.

Results

Historical pollen records are frequently found leached down into subsoil sand under urban sites. These predate the main occupations and may record construction episodes or the activities of previous inhabitants of the plot. They were apparently preserved by the rapid development of the overlying occupation period strata (Kelso and Beaudry 1990; Kelso, Mrozowski, and Fisher 1987:107, figure 6-2; Kelso et al. 1989:245, figure 12-9). This did not occur within the west chamber of the extant foundation. Neither the main body of the glacial sand nor its reddened upper 3 cm contained pollen. The earliest pollen grains appear abruptly in sample 5 at the bottom of the dark organic-appearing deposit (Deposit 3). Two grains of hemp/hop pollen were recovered here, but this is not enough to confirm the utilization of the extant foundation as the kiln of the house. Small amounts of either corn or Eurasian cereal pollen were recovered from all samples, and the non-arboreal spectra display a rising wind-pollinated Compositae (ragweed relatives) and declining grass (Gramineae) sequence that suggests increasing soil disturbance around the foundation. None of this pollen was mixed down into the sand below. Some charcoal was present at this level, but this clearly was not an ash deposit. It appears that the reddened upper portion of the glacial sand may be attributable to fire and that the west chamber of the kiln was cleaned after its last firing (see Chapter 16). The clean break between samples 4 and 5 may indicate that the reddened sand was truncated, and the pollen spectra of the dark layer (Deposit 3) apparently record events postdating the last fire in the chamber. The lack of leaching from this deposit into the underlying sand also suggests that the superstructure was still in place and that the chambers of the kiln were protected to some extent from the elements.

Corn and most European cereals are not widely wind-transported (Behre 1983:223; Martin 1963:50). The few grains of these types recovered could have been tracked into the wooden superstructure. They could also reflect produce stored in the superstructure above the kiln. Either way, the presence of both suggests that the superstructure was part of a mainstream agricultural, rather than a hops-farming, milieu during the deposition of samples 5, 6, and 7.

The Deposit 3 pollen concentrations rise toward the top of the layer while pollen preservation, as registered in the "too-corroded-to-identify" category, improves. In a normal exposed soil profile, pollen degrades as it is leached downward by percolating groundwater (Dimbleby 1985:5, figure 3; Kelso 1987c:1, figure 1). This produces pollen concentration and preservation patterns strongly resembling those seen here. Progressive degradation produces a pattern in which most of the pollen in a profile is found in the upper 4 cm (Dimbleby 1985:5). The abrupt peak of pollen concentration evident in sample 7 at the top of this dark layer (Deposit 3) and in

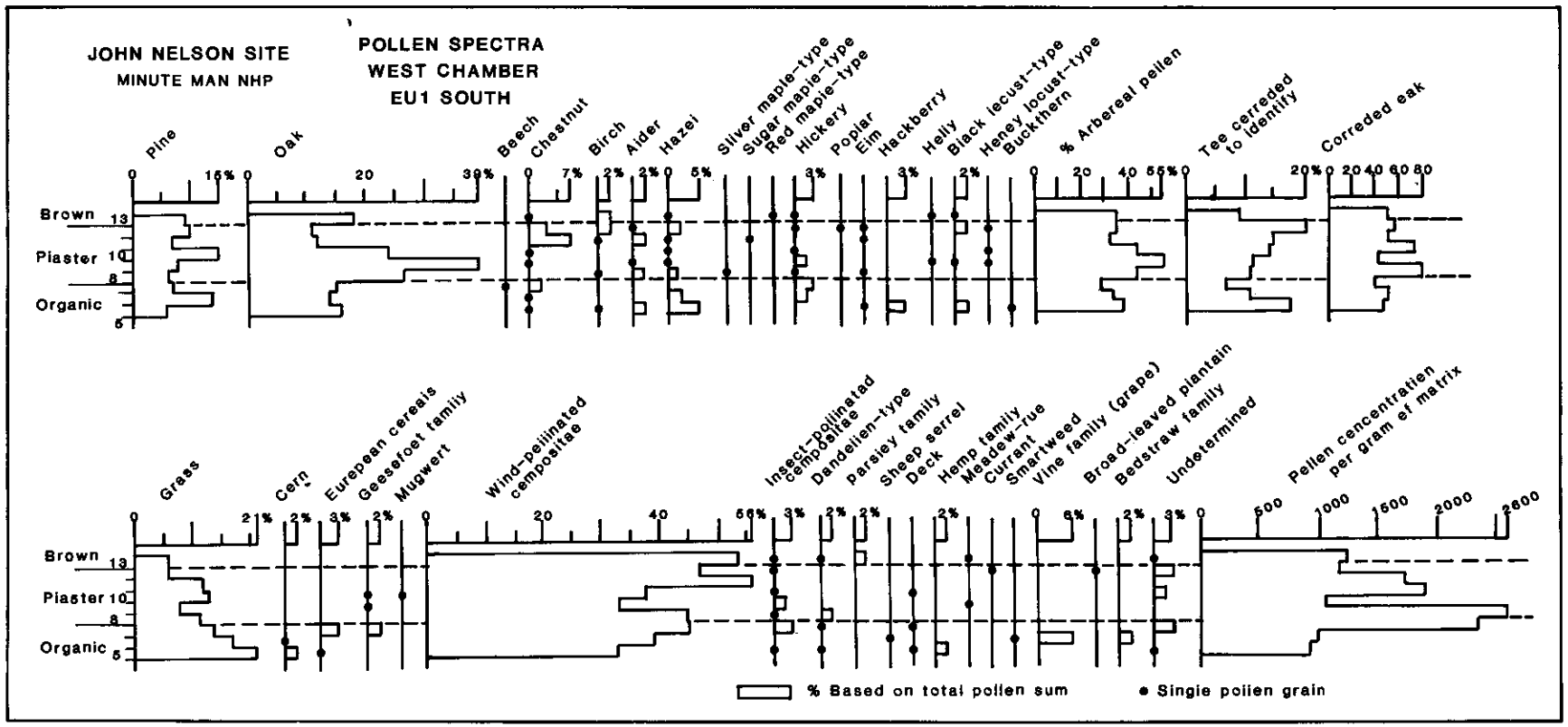


Figure 17-2. John Nelson site pollen spectra from EU 1, west chamber, at the John Nelson site.

sample 8 at the bottom of the deposit of parget (Deposit 2) closely resembles buried surfaces observed at other sites (Dimbleby 1985:45; see also Chapter 11). The fossilization of such a surface requires rapid burial to a considerable depth (Dimbleby 1985:4, 61). The deposit of parget must have accumulated quite quickly.

The pollen in a rapidly applied artificial fill will be attacked by oxygen in percolating groundwater (Tschudy 1969) and aerobic fungi (Goldstein 1960) working their way down from the top. If pollen input at the surface of the profile is not renewed by colonizing plants, a pollen degradation pattern in which numbers of degraded pollen grains are highest at the top and pollen concentrations are highest at the bottom should develop (Kelso et al. 1989:241, figure 12-6). Such a pattern is evident in the deposit of parget in the west chamber of the kiln. This supports the inference that the transfer of the parget from the wall to the chamber floor did not take long, and the declining proportion of soil in the parget upward in the profile suggests that the process accelerated as it progressed. Physical weathering is implied, and the west chamber of the kiln was probably exposed to the elements during this interval. The pollen taxa support this inference. Total arboreal pollen frequencies go up in samples 8, 9, and 10 parallel to oak, and the pollen concentration is lowest where oak peaks. Quantities of pollen thin out as they are drawn up into the atmosphere, and the tree-dominated, rainfall-deposited regional pollen rain contains much less pollen in absolute terms than the herb-dominated, gravity-fed local pollen spectra (Janssen 1973:40). The west chamber of the kiln's pollen spectrum appears to have been heavily influenced by the regional pollen rain in samples 8, 9, and 10, suggesting that it was open to the atmosphere and protected from a local herb contribution by a surviving wall. Under these circumstances it would function rather like a jar-type pollen trap, collecting the rain-scavenged regional pollen spectra from the upper atmosphere while the wind-transported herb pollen blew on by. The twin peaks in corroded oak in this oak-dominated segment suggest that perhaps some of the oak pollen was old pollen reintroduced into the atmosphere from disturbed soils. In the subsequent three samples (numbers 11, 12, and 13), arboreal pollen percentages are lower, oak declines, grass peaks briefly, and the wind-pollinated Compositae (ragweed relatives) contribution resurges. This suggests that weedy taxa were colonizing the foundation in the period immediately before the artificial filling process recorded in the upper layers of the west chamber began. No surface comparable to that at the top of the dark layer below was fossilized at the upper boundary of the layer of parget. The layer above, incorporating sample 13, may not have accumulated quite as rapidly as the parget apparently did.

Summary and Conclusions

It is not possible to disprove a hypothesis. It is only possible to say that the data do not support it. This is the case with the pollen data and the interpretation of the extant foundation. The pollen spectra provide no support for the hypothesis that it is the remains of a hop house as the archeologically recovered architectural data indicate (Chapter 16). They do, however, suggest that the chambers were cleaned out after the last fire, truncating the profile. The corn and cereal pollen in the dark lens above the fire-reddened sand must postdate the last firing of the kiln, and the absence of rainwater-caused pollen percolation into the sand indicates that the superstructure must have been intact at this time. The corn and Eurasian cereal may reflect the cultivation of traditional agricultural crops, but the function they reflect for the superstructure can only postdate any use as a hop house. The dismantling of the superstructure is recorded in the weathering of the parget and its relatively rapid transfer to the floor of the kiln.

Chapter 18

Documentary Research on the Brooks Tanyard

Martha Holland

Introduction

The Brooks tanyard, a business operated for over 100 years by successive generations of the same family, has left behind a wealth of documentary information but no material traces on the present ground surface (see Chapter 19). Located on a small ¼-acre parcel north of the Concord Road on the Concord-Lincoln line in the Bedford Road area of MIMA (see base map, Appendix A-2), the tanyard was in operation from the early 18th century until just after the first quarter of the 19th century and was the oldest business in Lincoln in 1825 (MacLean 1987:426). The tanyard would have been part of the scene that the British passed on their way to and from Concord on April 19, 1775.

Documentary research was conducted in conjunction with archeological investigations (Chapter 19) in order to determine the correct location of the tanyard parcel on today's landscape and to identify the owners and users of the parcel from the 17th century to the present day. This research was necessary because previous research (e.g., Malcolm 1985) suggested two possible locations for the tanyard and did not trace the complete history of its owners or uses. The primary purpose of this chapter is to reexamine the primary and secondary sources with an eye to obtaining clues to the tanyard's exact location.

The documentary record for the Brooks tanyard is extensive. The deeds transferring the tanyard from father to son usually identified the kinds of buildings on the lot at the time. The tanyard was unusual in that it was transferred as a ¼-acre parcel from father to son for more than 100 years without having its boundaries changed. There are also several probate records that include references to the tanyard, as well as tax and census records, town boundary surveys, maps, and newspaper advertisements that provide further information on the tanyard and its owners. Among the maps is a survey of the tanyard meadow done by Henry D. Thoreau in 1852 (Figure 18-1). The personal documents include the papers of Eleazar Brooks, which contain a map of the property (E. Brooks n.d.; Figure 18-2), and the papers of Nathan Brooks, the 19th-century lawyer who handled many of the Brooks family legal affairs (N. Brooks n.d.). In addition, maps and information about road work done on this stretch of Lexington Road are available through the Department of Public Works in Concord and the District 4 headquarters in Arlington. From these diverse sources, it is possible to specify the size and configuration of the tanyard parcel, enumerate the structures built on the site over a period of 100 years, and suggest its likely location.

The Brooks tanyard was an important part of Lincoln's economy from ca. 1700 until 1829 and provided work for tanners and curriers. Although the tanyard parcel was small, by 1823 it contained a tanhouse and tan vats, a currier's shop, and quite possibly a bark mill (see Chapter 19). The Brooks family also owned a slaughterhouse at some currently undetermined location in Concord. As discussed in greater detail in Chapter 19, the process of turning hides into useable leather required a large supply of water with which to wash the hides, vats for soaking them with tannin for preservation, and a building for drying and pounding the leather to make it supple. The more delicate skins such as calves'

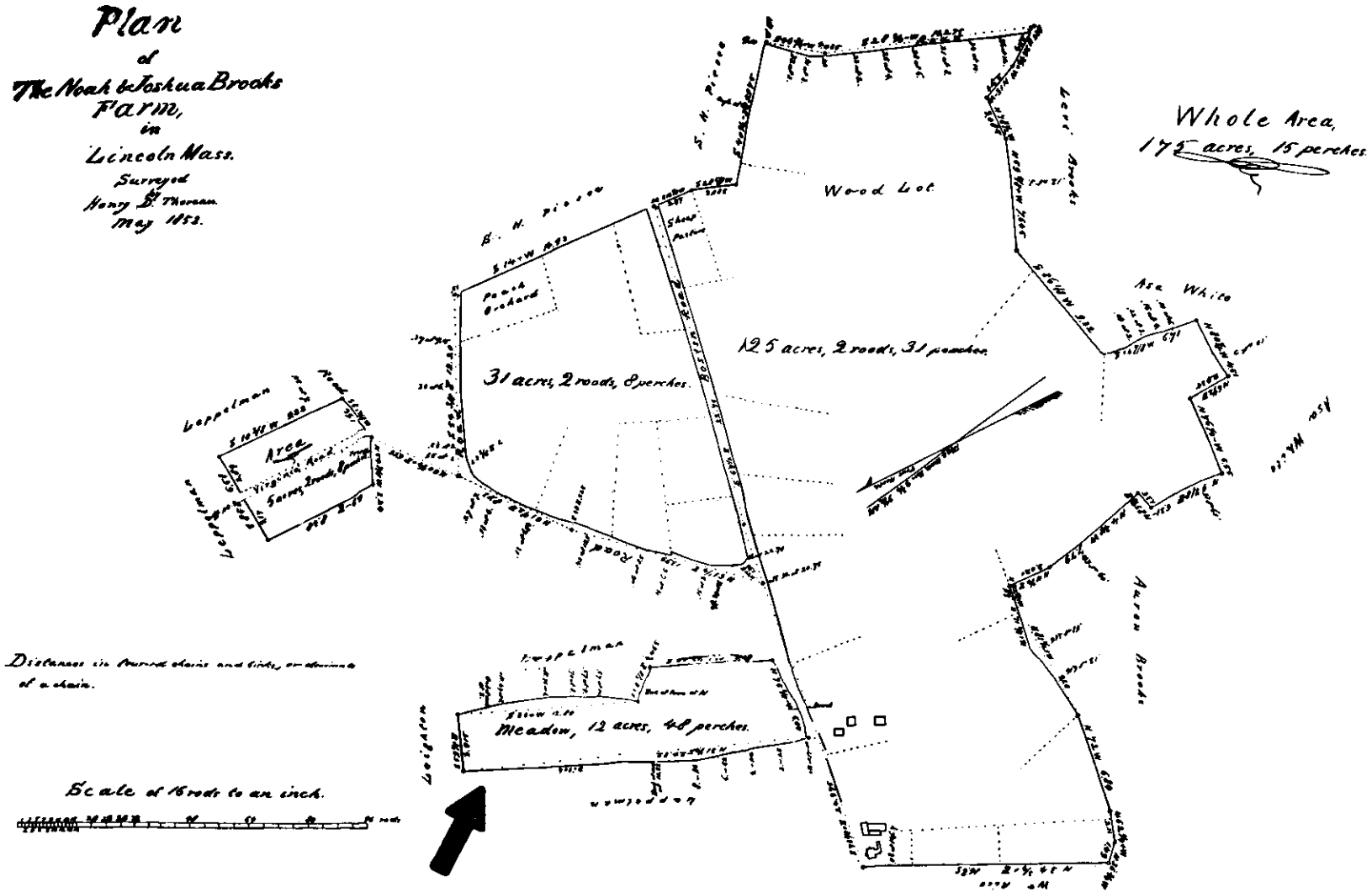


Figure 18-1. 1852 Thoreau map of the property holdings of Noah and Joshua Brooks showing the tanyard as meadowland—arrow points to the parcel (on file, Minute Man National Historical Park, Concord, Massachusetts).

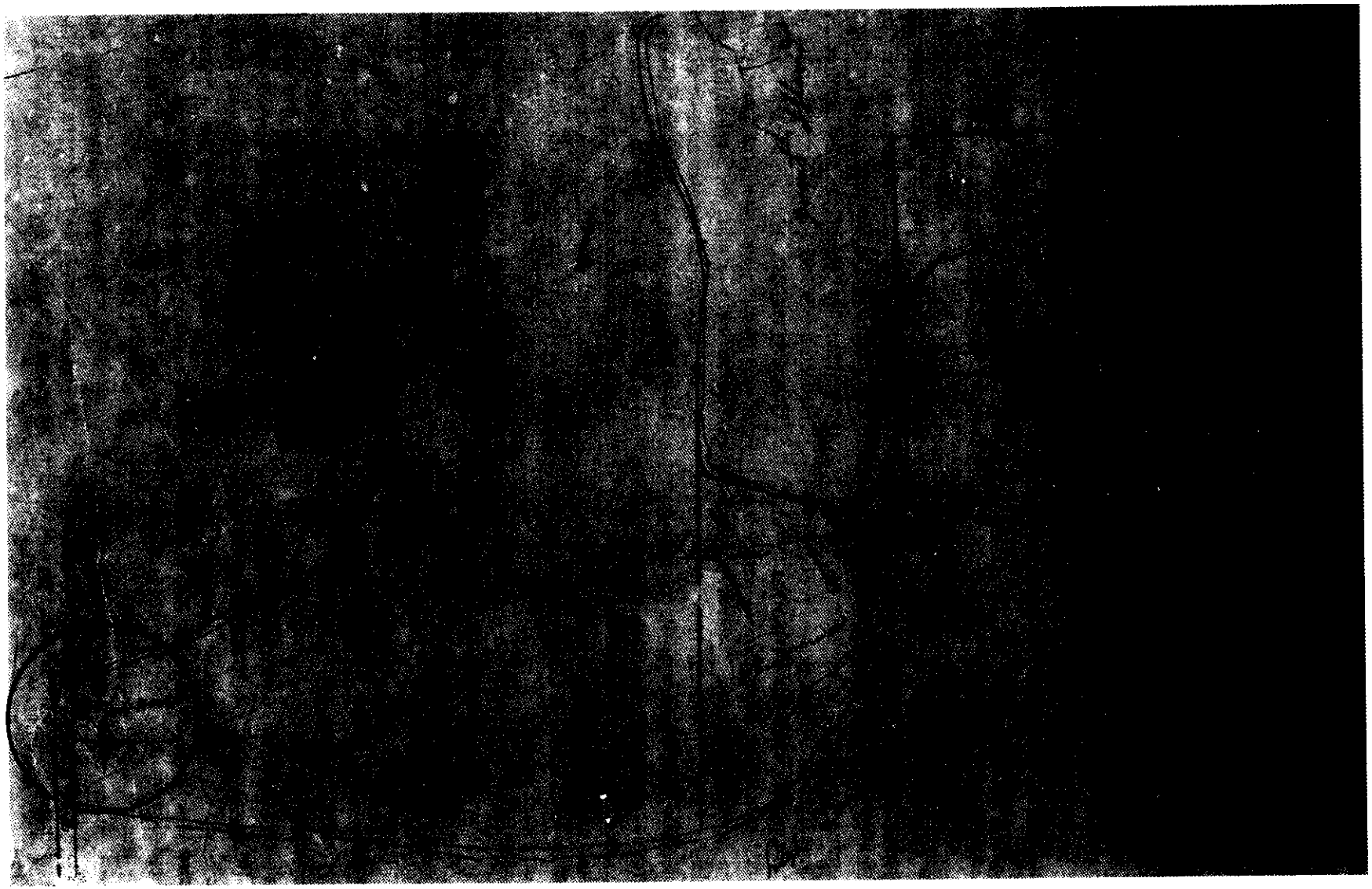


Figure 18-2. 1749 sketch map of Eleazar Brooks' property showing the Brooks tanhouse, which is circled (on file, Minute Man National Historical Park, Concord, Massachusetts).

skins required washing and soaking in vats and then scraping and smoothing by curriers. There were six tanhouses in operation in Concord by 1801 (Gross 1976:172), and one, the Brooks tanyard, in Lincoln. The leather was used by cordwainers, who made shoes and boots, and by saddlers and harness makers. The Brooks tanyard attracted leather workers to the area, who settled along Lexington Road; perhaps among these were Daniel Brown (Chapter 12), Joseph Mason (Chapters 7, 8, and 9), Ephraim Hartwell, Nathan Brown, Sr. (MacLean 1987:167), and William Benet (Chapter 13).

Previous Research

Very little research focusing on the location of the Brooks tanyard has been conducted with the exception of that done by Malcolm (1985). Most research on the Joshua Brooks property (of which the tanyard parcel was a part) has focused on ownership transfers. The tanyard parcel has not been studied in as much detail as other properties in MIMA (Malcolm 1985; Ronsheim 1968a, 1968b), possibly because it contains no above-ground structures. The lack of previous research may also be because no events of significance regarding April 19, 1775, have been recorded or are alleged to have occurred on or near the tanyard parcel.

Malcolm (1985) suggested two different locations for the tanyard (Figure 18-3). The first was at "the spot where Concord Road turned due west to Concord (junction of Old Bedford and Concord Roads)" (Malcolm 1985:68). The second was "at the bottom of the hill where Concord Road has begun to turn due west toward Concord, *just inside* the Lincoln line... A one-fourth acre plot contained the tannery and a currier shop" (Malcolm 1985:72 [emphasis added]). Malcolm's second suggestion is based on the assumption that the location of the current town stone boundary marker has not changed significantly since it was set in 1829.

As will be discussed below, there is much documentary evidence to suggest that the second location is basically the correct one. Instead of the tanyard being *just inside* the Lincoln town line as suggested by Malcolm, however, descriptions of the boundary line and various property deeds indicate that the Brooks tanyard was located *on* the line between the two towns. Unfortunately, there is no certainty that the current boundary line reflects the 18th-century boundary placement since we cannot be sure that the stone boundary marker has not been moved.

Malcolm (1985:73) also noted that Joshua Brooks, whose tanyard and houselot were located on the Lincoln side of the boundary line, was taxed for a slaughterhouse in Concord in 1771. It was speculated that the slaughterhouse would "for convenience sake, have been located next to his tanyard" near the road, just over the Concord line (Malcolm 1985:80; Figure 18-3). She based her inference regarding the location of the slaughterhouse on Joshua Brooks's place in the Concord tax list, which put him among the people owning land along the Lexington Road. This is one possibility for its location. Archeological investigations of this area do not support Malcolm's suggestion, however (see Chapter 19). An alternative is that Joshua Brooks owned 4 acres of meadowland on the Concord side of the town line, and that the livestock waiting to be slaughtered were penned in the meadow further from the road and slaughtered closer to their pasture. The hides would then have been brought to the tanyard for processing.

Results

History of Ownership and Land Use

Because previous research failed to pinpoint the location of the tanyard on today's landscape, a re-examination of the sources was undertaken. Information pertinent to the tanyard's location is present in many of the documents relating to property transfers. Following is a summary of what can be gleaned from the documents regarding the history of the tanyard and the property on which it was located.

The land that was eventually used for the tanyard was bequeathed to Joshua Brooks, son of Thomas, as part of the Second Division of lands

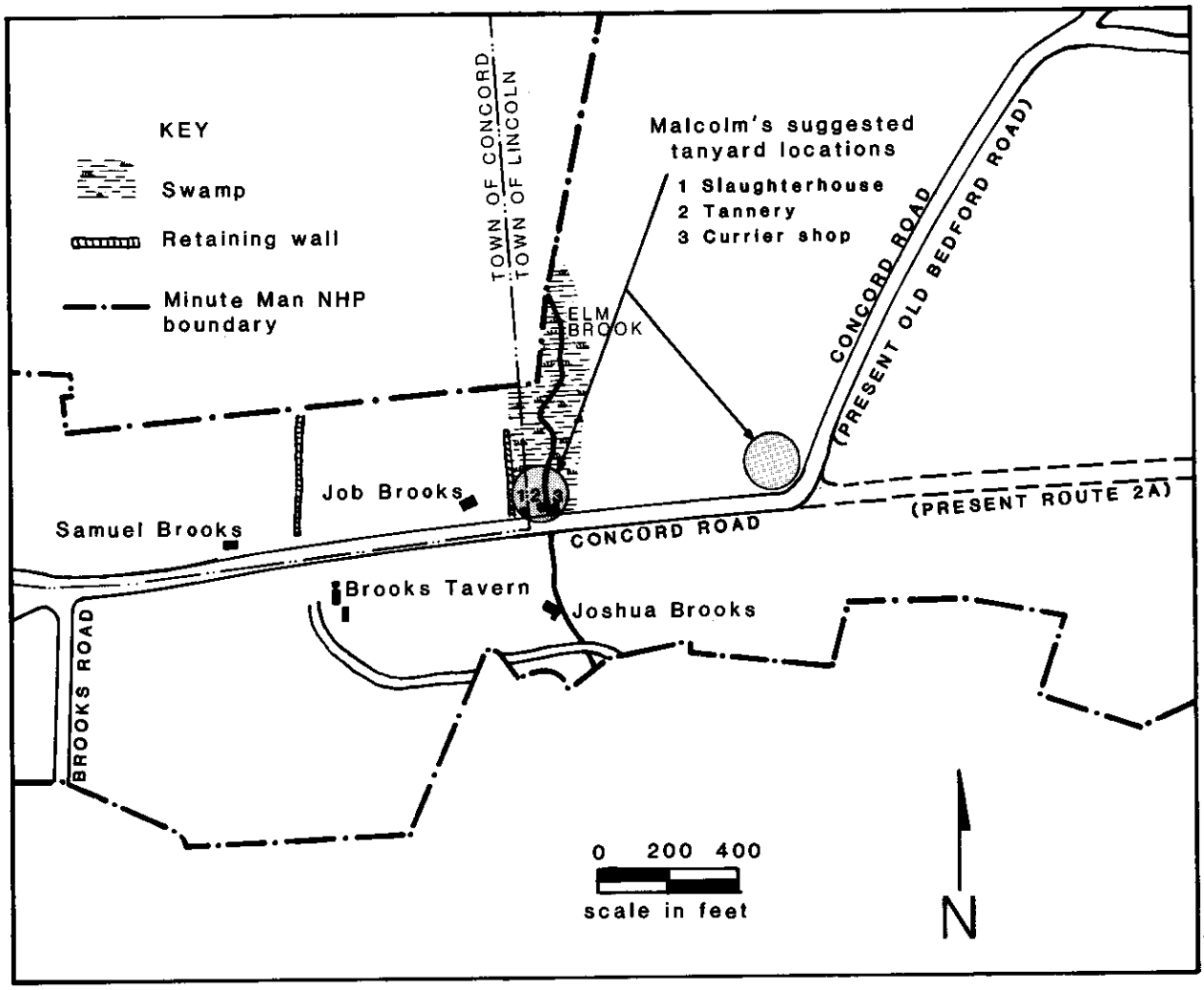


Figure 18-3. Composite map showing Malcolm's (1985) suggested locations for the Brooks tanyard.

in Concord from 1653 to 1660 (MacLean 1987:56). This gave Joshua Brooks 195 acres in the east quarter of Concord (Shattuck 1835:37). MacLean (1987:165) reports that Joshua Brooks was a "yeoman-tanner" but does not say how he reached this conclusion. There is, however, reference to Joshua Brooks as a tanner in Shattuck (1835:365) in the appendix on the genealogy of some of the important early Concord families.

The 1695 deed transferring land from Joshua to his son Noah listed Joshua as a yeoman and Noah as a tanner (Middlesex Deeds, Book 12:71–72). Most of the deeds recording transfer of the tanyard seem to list the person passing on the land as a "yeoman," however (see Table 18-1 for sequence of land transfers).

Interestingly, there is evidence that Joshua Brooks operated a sawmill of some sort. This sawmill, however, does not appear to have been located on the tanyard parcel. For example, Joshua was charged for a faculty on the Concord Assessors' list of 1717 that was separate from the faculty for the tanyard charged to Noah (Wheeler 1967:216). This faculty presumably refers to the "old saw milldam" mentioned in a 1745 deed (Middlesex Deeds, Book 45:624) transferring land

Table 18-1. Household and ownership changes at the Joshua Brooks site.

Grantor	*Grantee*	*Acres*	*Date*	*Source*
Joshua Brooks	Noah Brooks	7 and 2	1695	M.D.*, Book 12:71–72
Noah Brooks	Joshua Brooks	40 rods	1725/26	M.D., Book 39:517–518
Joshua Brooks	Joshua Brooks, Jr.	¼	1745	M.D., Book 45:624–625
Joshua Brooks, Jr.	Joshua Brooks	¼	1791	M.P.† #2863
Joshua Brooks	Isaac Brooks	¼	1823	M.D., Book 246:314
Isaac Brooks	Ephraim Meriam	—	1828	M.D., Book 282:462–463 (Mortgage)
Isaac Brooks	Nathan Brooks	—	1829	M.D., Book 288:167 (Mortgage)
Isaac Brooks	Abel Parker	—	1833	M.D., Book 324:442–443
Abel Parker	Ephraim Meriam	—	1833	M.D., Book 323:244–245
Ephraim Meriam	Nathan and Hiram Brooks	—	1839	M.D., Book 390:148–149
Nathan and Hiram Brooks	Ephraim Meriam	—	1840	M.D., Book 390:201–202 (Mortgage)
Isaac Brooks	Nathan Brooks	—	1845	M.D., Book 470:498 (Quitclaim)
Nathan Brooks	Reuben and Elizabeth Keniston	12 48 perches	1855	M.D., Book 707:168–170
Elizabeth Keniston	William Leighton	12 48 perches	1855	M.D., Book 718:138
William Leighton	Samuel Hartwell	12 48 perches	1857	M.D., Book 774:374
Samuel Hartwell	Edwin H. Rogers	27.36	1899	M.P. #70539
Edwin H. Rogers	Alfred and George Rogers	14.68	1958	M.P. #373123
Alfred and George Rogers	U.S. Government	14.68	1963	M.D., Book 10433:156

*M.D. = Middlesex Deeds
†M.P. = Middlesex Probates

from Noah's son to his grandson. In 1745 the sawmill could have been an adjunct to the tanning business since large amounts of bark were needed to supply the tannin necessary for the tanning process (Tunis 1965:33).

If Joshua was a tanner, he did not conduct his work on the ¼-acre tanyard parcel mentioned in subsequent deeds because the 2-acre plot, part of which encompassed the subsequent tanyard parcel, deeded to his son Noah in 1695 is described as upland and contains no mention of buildings or a tanyard (Middlesex Deeds, Book 12:72). Noah, in 1725/26, gave part of this land to his son Joshua (Middlesex Deeds, Book 39:517–518), and the deed included a tanyard. Since there was no mention of buildings or tanyards in the deed conveying the land to Noah in 1695, and there was a tanyard located on it in 1725/26, it seems likely that Noah Brooks, a tanner, built the tanyard. MacLean (1987) suggests that Noah's brother Hugh, a tanner, started the tanyard, but this is not supported by the documentary evidence. As just noted, the 2-acre plot, part of which subsequently became the tanyard parcel, was deeded to Noah by his father, Joshua (Middlesex Deeds, Book 12:71–72). When Noah in turn passed the land on to his son, also Joshua, he described it as "my tanyard" (Middlesex Deeds, Book 39:517–518).

The land in the deed was described as a 40-rod piece "wherein is contained my tanyard and the boundaries are measured westwardly 6 rods ¾, southwardly on the county road 5 rods ½ and 2 feet, eastwardly 5 rods ¼ and northerly 4 rods ¾" (Middlesex Deeds, Book 39:517–518). There must have been some reason for the configuration of the tanyard parcel. It is possible that Elm Brook curved to the north, and the tanyard, using the brook as its eastern boundary, was constricted by the brook as it flowed northwards. This deed is very important because it indicates that the tanyard was confined to a 40-rod piece of land whose southern boundary was the road, and it gives the exact east-west and north-south dimensions. This basic tanyard acreage maintained its integrity for the next 100 years.

Noah's son Joshua continued to operate the tannery, but was not satisfied with the ecclesiastical policies of the church in Concord. In 1734 he became part of a group of men seeking to form a new parish and town (Shattuck 1835:294). This was accomplished in 1754 when the town of Lincoln was incorporated. Many of Joshua Brooks's relatives, including his cousin Job who lived directly across the road from him adjacent to the tanyard, chose to remain in Concord, so the boundary line for the new town was drawn accordingly (Figure 18-3). Lexington Road was divided in half for 155 rods, with the northern half remaining in Concord and the southern half becoming part of the new town of Lincoln. Joshua Brooks's tanhouse, located across the road from his dwelling house, became the boundary marker between the two towns (Concord Records 1655–1784:414–415). Indeed, the act for creating the new town specified that the boundary line was to join Lexington Road, "thence running easterly with the country road (one half whereof to belong to and be maintained by each town) until it comes to Joshua Brooks Tan-house and from the Northwest corner of said tan house to the northwest corner of John Wheat's land..." (Hurd 1890:626). This description seems to indicate that the tanhouse, in order to serve as a boundary marker, must have been located directly adjacent to the road, and must have been considered a permanent and substantial building at the time.

Lexington Road, at this spot, was fairly wide. By 1713 it was 8 rods (132 ft) in width at the Brooks tanyard (Walcott 1938:n.p.). In 1747 the road was narrowed to 4 rods (66 ft) from the tanyard near Elm Brook to the Ministerial Lot (a woodlot further east toward Lexington). The alteration began at the corner of Joshua Brooks's tanyard at a large rock in Elm Brook (Walcott 1938:n.p.). Other than a slight straightening of the road beyond Elm Brook in 1801, Walcott does not mention any major changes in the configuration of Lexington Road in the 18th or early 19th centuries. This suggests that the tanhouse could have been located adjacent to the road's edge.

Joshua Brooks deeded the tanyard to his son Joshua Brooks, Jr. (1721–1790), in 1745 (Middlesex Deeds, Book 45:623–625). The deed described the land as ¼ acre containing a "Tann House and Tann Pitts" (Middlesex Deeds, Book 45:623–625).

Joshua Brooks, Jr., prospered as a tanner. In 1774 he was among the top 20 landowners with the largest real estate assessments in Lincoln (MacLean 1987:154). He was taxed for 18 acres of meadowland in Concord in 1771 as well as a slaughterhouse (Pruitt 1978).

When Joshua Brooks, Jr., died in 1791, the tanyard was described as "the tanyard and buildings belonging thereto including the currier shop" and valued at £125. In comparison, his dwelling house was valued at £50 (Middlesex Probates, Will #2863). The tanyard was bequeathed to his son Joshua Brooks (1750–1825). Young Joshua had apparently been operating it for some years previously because he is mentioned in the will as having already received his inheritance. He operated it until 1816 and was charged a yearly tax of $30 for his faculty, the tanyard (Lincoln Tax Records 1791–1835). The faculty tax was collected annually from tradesmen (Wheeler 1967:209), and since this is the only faculty tax levied on Joshua Brooks during these years, and the tanning business was his trade, it can be assumed that this tax was based on his tanyard.

Joshua's son Isaac was the last member of the Brooks family to operate the tanyard. Isaac purchased the tanyard and a dwelling house from his father in 1823 for $600. Isaac appears to have begun operating the tanyard as early as 1817, however. This supposition is based on the fact that he paid $30 for a faculty and $300 for money and stock in trade annually from 1817 until 1829 (Lincoln Tax Records 1791–1835). In the deed by which Isaac purchased the tanyard in 1823, the parcel was described as "one quarter of an acre of land... with a Tan Yard, tan house, and currier's shop on the same" (Middlesex Deeds, Book 246:314). The Brooks tanyard was in continuous operation until 1829.

Isaac Brooks's financial status changed dramatically during the years from 1825 to 1830, perhaps in part because of a decrease in the demand for leather and perhaps partly as a result of fiscal mismanagement. MacLean (1987) infers that the lack of railroad facilities in Lincoln for shipping, the limited water supply for the tanning process, competition from the Brighton stockyard for animals for slaughter, and competition from other leather workers able to begin industrialization made the Brooks tanyard no longer profitable. At the same time, Isaac began taking out mortgages on the tanyard and purchasing other pieces of property with the result that he overextended himself financially. Isaac purchased the dwelling house and two-acre homelot that was next to his own house and was subject to the one-third dower rights of his mother Sarah Brooks. In addition, he purchased several fields and pastures of his father's, also subject to dower rights (Middlesex Probates #2866). Compounding Isaac's problems may have been his father's debts—when Joshua died in 1825 his estate was sold at auction to settle his debts.

Isaac also bought the Brooks tavern to the west of his house on Lexington Road in 1828 (Figure 18-3). In the same year, Isaac sold half of the tavern plus half of his tanyard and his dwelling house to Cyrus Brooks for $3,312.50 (N. Brooks n.d.: mortgage deed). Cyrus Brooks was given eight years to pay his half but apparently did not meet the terms, because Isaac obtained a mortgage for $3,100 from Ephraim Meriam later in the same year for the same property (Middlesex Deeds, Book 282:462–463).

In 1829 Isaac's brother Nathan granted him the first of many mortgages (Middlesex Deeds, Books 288:167, 331:457, 470:498) that would occur over the next 18 years until Isaac's death of "delirium tremens" in 1847 (Lincoln Vital Statistics 1908). These mortgages were for the tavern property, for Isaac's dwelling house, and for his tanyard, all of which eventually became the outright property of Nathan Brooks.

After 1829 Isaac did not pay a faculty tax for the next three years, but in 1833 he paid $30 and had $800 for money and stock in trade (Lincoln

Tax Records 1791–1835). In 1835 Isaac borrowed $3000 from Nathan and used the stock in the tanyard as his collateral.

> Stock of Bark, Hides, Skins, and Leather in said Isaac's Tan Yard in said Lincoln of the value ___$1000
> Stock of tanned and curried leather and stock and tools for currying leather in Isaac's shop in Lincoln ___$500
> Two yoke of oxen, two horses and three wagons ___$300
> Four cows and four swine ___$150
> Hay in Barn, 100 bushels of corn 20 bushels rye ___$300
> For the furniture in said Isaac's house in Lincoln ___$200.
> (Lincoln Record of Deeds 1834–1878:26)

A year later he borrowed $1600 from Mason and Brooks, a commercial firm in Cambridge operated by Walter R. Mason and Hiram Brooks (one of Isaac's brothers), using for collateral what was probably his remaining output from the Tanyard:

> 50 Green Hides in Tan Yard ___$150
> 100 Calf Skins in Tan Yard ___$200
> 100 Sides of Leather in Shop and Tan Yard ___$200.
> (Lincoln Record of Deeds 1834–1878:38–39)

The tax records for 1836–1840 record Isaac's real estate taxes, but do not mention his tanyard, so it seems likely that he was no longer operating it. In 1841 Isaac became a non-resident of Lincoln but paid taxes on 11 acres of land but no dwelling house. Isaac took out an advertisement in *The Republican* (August 6, 1841), however, to announce the opening of his shop in Boston which had "for sale Harness, Chaise, and Belt Leather, Calf-Skins, Grain and Waxed etc." (MacLean 1987:426). Where he was getting his leather from is uncertain.

In 1844 he returned to Lincoln and apparently moved in with his mother, Sarah, who still occupied her husband Joshua Brooks's house. Isaac's former dwelling house next door was owned by his brother Nathan. Isaac died in 1847.

Nathan Brooks, Isaac's brother, having acquired the Brooks tavern, the tanyard, and the dwelling house, sold the entire property to Reuben and Elizabeth Keniston in 1855 (Middlesex Deeds, Book 707:168–170). Before this sale, the tanyard had become part of a larger parcel referred to as "meadow." Since the deed mentions the "dwelling house, barns and outbuildings" located on the Brooks tavern parcel and makes no mention of any buildings on the meadow where the tanyard was located, it is likely that by 1855 the tanyard buildings were no longer standing. This is corroborated by the 1852 survey of the Brooks farm done by Henry D. Thoreau on which the tanyard parcel is depicted as "12 acres, 48 perches" of meadow with no structures (Figure 18-1).

Reuben Keniston died soon after purchasing the property, and his widow sold it later in the same year to William Leighton (Middlesex Deeds, Book 718:138), who in turn sold it to Samuel Hartwell in 1857 (Middlesex Deeds, Book 774:374). It remained in the Hartwell-Rogers family until 1963 when it was sold to the U.S. Government (Middlesex Deeds, Book 10433:156). The western side of the meadow that had contained the tanyard was farmed, and one of its last crops was cabbages, according to Harry G. Berglund who was the appraiser of the parcel for the U.S. Government in 1963.

Boundary Marker

Despite the removal of the tanhouse, the currier shop, and the tan vats most likely between 1836 and 1852, one very important part of the tanyard property—the stone "monument" that marks a point on the boundary line between Concord and Lincoln—remains. The laying out of the boundary line between Concord and Lincoln in 1754 incorporated the northwest corner of the Brooks tanhouse for the starting point of the line to the north of Lexington Road. This boundary was scrupulously maintained, and a joint committee with members from each town was appointed to walk the bounds of the town every five years to make sure the boundary lines were in order. In 1829 this committee walked the bounds between Concord and Lincoln and reported that they had gone "to an angle at the road on Hardy's Hill (so called) thence by said road

155¼ rods to an angle at the corner of Mr. Isaac Brooks' Tan Yard; thence n 15 ¾ d[egrees] East 106 rods to an angle..." (Lincoln Record of Deeds 1834–1878:270).

In 1834 the boundary inspectors reviewed the boundaries again. The description was exactly the same with the added notation of new stone markers that had been set out in 1829. The inspectors went down Lexington Road "to a stone monument at the corner of Isaac Brooks Tanyard; thence north..." (Lincoln Roads and Lines 1834–1920:9). According to the Lincoln Town Records, these markers were mandated to be 4 ft tall, have "C/L" carved on them, and be placed at the boundary of Concord and Lincoln.

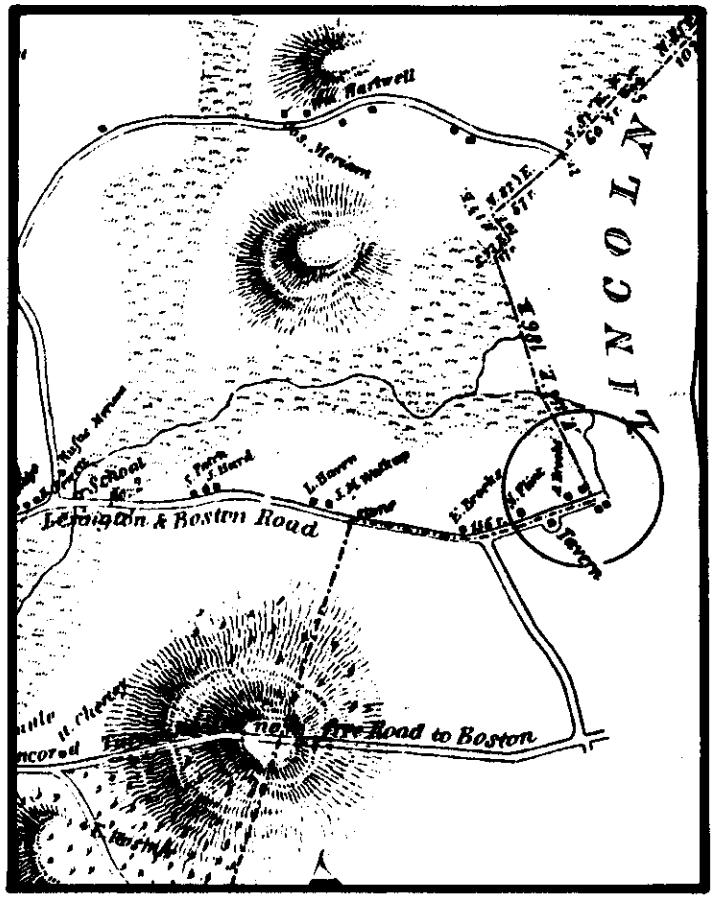
The records of the boundary inspectors do not mention Isaac Brooks's tanyard after 1834. While the surveys of other boundaries continued to be written out in detail, the Lincoln-Concord committee contented itself with a brief report stating that the bounds were correct as previously (i.e., 1834) surveyed. There is no mention of the stone marker at the corner of Isaac's tanyard being replaced or removed.

It will be recalled that the original Lincoln boundary line set in 1754 went from the corner of Joshua Brooks's tan*house*. The 1829 and 1834 boundary lines went from the corner of Isaac's tan*yard*. It is unclear precisely when the tanyard ceased its operations, but the boundary description indicates that it may have been by 1829. Furthermore, Isaac paid no faculty tax from 1830 to 1833, suggesting that this might be a period during which the tanyard was inactive and some of its buildings were dismantled. In support of this inference is the fact that no buildings are indicated on the 1830 Hales map of Lincoln (Figure 18-4). There is an unlabeled building on the Concord side of the town line, but this may be the "Ingalls" house that appears on the 1852 Walling map (Figure 18-5). The remains of this structure may have been found during the archeological investigations (see Chapter 19). On the other hand, Isaac still had stock in the tanyard as late as 1836, which he used for collateral against various loans. This stock was described in an 1835 loan agreement as being "in said Isaac's *shop in Lincoln*" (Lincoln Record of Deeds 1834–1878:26 [emphasis added]), suggesting that at least the shop was still standing in the tanyard at that time. By 1855, if not 1852, the tanyard buildings were certainly gone, however, as the parcel was described as "meadow" and no buildings were mentioned in the deed of sale to the Kenistons (see also 1852 Thoreau map, Figure 18-1).

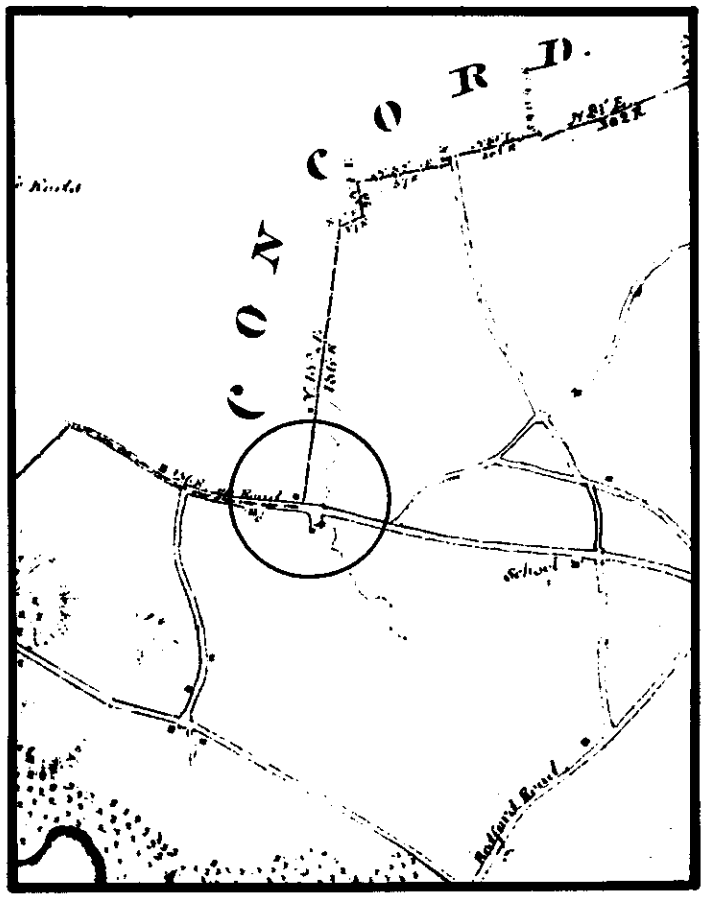
Summary and Conclusions

The Brooks tanyard was begun by Noah Brooks on a piece of land acquired from his father Joshua in 1695. By the time Noah's son Joshua inherited it in 1725/26, the ¼-acre piece of ground was designated "my tanyard." When Joshua passed the tanyard on to his son Joshua Brooks, Jr., in 1745, the land was described as a tanyard with "a Tann House and Tann pitts," but when his son Joshua took over the tanning operation in 1791, the tanyard included "buildings" and a "currier shop."

Isaac, the last Brooks to operate the tanyard, purchased it from his father in 1823 and the land included "a Tan Yard, tan house and currier's shop." From 1829 until 1836, Isaac used the tanyard and its stock as collateral to obtain several mortgages. Although it is uncertain when the tanyard ceased to operate, this may have occurred shortly after 1829 when Isaac no longer paid a faculty tax on the tanyard. The specific date(s) when the buildings were removed from the tanyard parcel is likewise unknown. The fact that the shop, presumably the currier's, was mentioned in 1836 indicates that this building was still in existence at this time. By 1839 the tanyard parcel was owned by Isaac's brother Nathan Brooks. Nathan added the ¼-acre tanyard to some of his other holdings and sold it as "meadow" to Reuben Keniston in 1855. No buildings were present at this time or in 1852 when Thoreau conducted a survey of the Brooks property. Reuben Keniston's widow sold the



1830 Hales map of Concord



1830 Hales map of Lincoln

Figure 18-4. 1830 Hales maps of Concord (left) and Lincoln (right). Note the lack of structures on the Lincoln side of the town line. Also note the Job Brooks house (labeled A. Brooks) and the unlabeled structure to its east on the Concord side of the town line (on file, Massachusetts Archives, Boston).

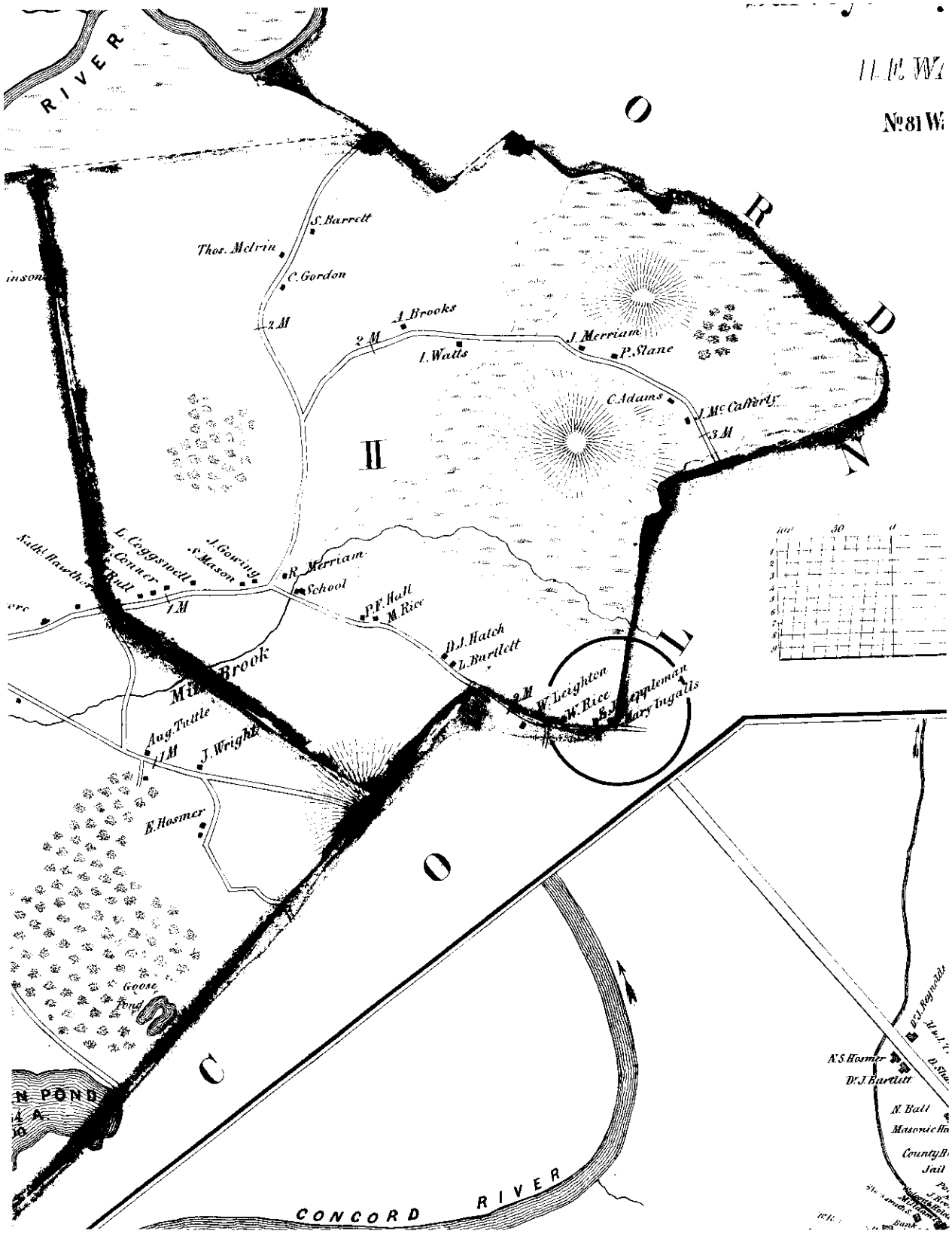


Figure 18-5. 1852 Walling map of Concord showing the Mary Ingalls house and the Job Brooks house (labeled E. J. Leppleman) just over the town line (on file, Cary Memorial Library, Lexington, Massachusetts).

property to William Leighton and in 1857 it was bought by Samuel Hartwell. The land was farmed and cultivated until 1963, and included cabbages among its crops.

In determining the location of the tanyard, the stone Concord-Lincoln boundary marker is pivotal. The tanyard was located on the Lincoln side of the boundary line established in 1754, with the northwest corner of the tanhouse serving as a marker. By 1829 the northwest corner of the tan*yard* was designated as the boundary, and a stone "monument" was set in place. Unfortunately, it is unknown whether the "monument" was put in the same spot that had served as the marker up until that time (i.e., at the northwest corner of the tan*house*). Furthermore, it is unknown whether the stone monument that exists today has been moved since it was set in place in 1829. Town records provide no indication that the monument was ever moved. If the monument has not moved significantly, then most, if not all, of the tanyard parcel should be located east of the existing Concord-Lincoln line, just north of the Concord Road (see Figure 19-3). The archeological investigations appear to indicate this as well (Chapter 19).

The terrain east of the Concord-Lincoln line is flat and marshy and it is difficult to discern the course of Elm Brook. The descriptions of the land in 18th- and 19th-century deeds as upland and meadow indicate that, if this is the same parcel, it must have been well drained at that time. The current road appears to have been built up considerably over this marshy area. According to the Department of Public Works plans in the District 4 office in Arlington, this section of Lexington Road was constructed over the original road in 1895. At that time, gravel fill was brought in to provide a base for the macadam surface. According to the plans, no major road work has been done since that time.

Because of the ample width of the road as it was originally laid out, it seems likely that the 18th-century tanhouse is not under the current road. There is, in all probability, however, a fairly wide area of disturbance beside the road.

The documentary record of the Brooks tanyard is extraordinarily rich. By chance, it was located on a surveyed and well-maintained boundary line between two towns. Its century-long operation by the same family give it a continuity very rare in early New England industries, and the maintenance of the integrity of the ¼-acre plot on which the tanyard was located is extremely unusual in a part of the country where land was constantly being divided and combined.

The Brooks family took care to file their deeds, and to record the exact measurement of the tanyard lot, along with the changing descriptions of the tanyard buildings as it grew and prospered. These provide testimony to the fact that the Brooks tanyard was once an important part of the economy of Concord and Lincoln.

Chapter 19

Archeological Investigations of the Brooks Tanyard

Nora Sheehan and Alan T. Synenki

Introduction

As discussed in the previous chapter (Chapter 18), the Brooks family owned and operated a tanyard from at least 1725 until 1829 on a small ¼-acre parcel in the town of Lincoln, Massachusetts. This parcel is currently within the Bedford Road area of MIMA (see base map, Appendix A-2).

The Brooks tanyard consisted of a tanhouse and tan vats, a currier's shop, and perhaps other related buildings (see Chapter 18). One of the "other" buildings may have been a bark mill since these were sometimes owned and operated by 18th- and 19th-century tanners, albeit not always in close proximity to the tanyard itself (Bishop 1868a:453, 454). Tanyards were essential industries in New England from the 17th century through the 19th century; in Concord, according to Gross (1976:230), there were five tanyards in 1792 and six in 1801. As discussed in greater depth below, tanyards were places where the hides of animals were prepared—cured and curried—for their use in the manufacture of a variety of leather goods (Anonymous 1806:91; Ellsworth 1969).

As Holland (Chapter 18) has discussed, the documentary record is remarkably precise regarding the size, configuration, and even the location of the Brooks tanyard parcel relative to specific features of the 18th- and 19th-century landscape. Unfortunately, it is unclear whether the locations of these reference points have remained the same. Consequently, the location of the tanyard parcel cannot be ascertained on the basis of the documentary record alone. Archeological investigations were therefore conducted to locate the tanyard parcel and, if found, to identify its facilities and evaluate their integrity. Besides assisting MIMA in the management and interpretation of its cultural resources, investigations of the tanyard will generate information regarding the configuration of 18th- and early 19th-century tanyards and perhaps their role in the development of industrialism in New England. No previous archeological investigations have been conducted to locate the Brooks tanyard.

During the summer of 1988 archeological investigations were conducted on a parcel north of Route 2A and west of Elm Brook (Figure 19-1). The parcel is on high, relatively dry ground and has a fairly thick vegetational cover consisting of small to medium-sized trees, bushes, and other shrub-like vegetation, with a distinct lack of grass or weeds (Figure 19-2). This parcel, designated the Joshua Brooks site, is located to the west of a fieldstone wall that divides the site from wet and marshy lower ground to the east (Figure 19-3).

Prior to the archeological investigations, the relationship of the fieldstone wall to the tanyard, as well as its date of construction, was unknown. What is more, the extent to which the current topography and hydrology of the area have changed since the tanyard was in operation was uncertain. The current topography and vegetation strongly suggested that the area west of the fieldstone wall had been terraced and that the wall might have been constructed at this time. The terracing and construction of the wall appeared to have occurred prior to 1938 since existing aerial photographs of the area from 1938 to the present depict the terracing and the stone wall. As will be discussed below, the archeological investigations revealed that the terracing

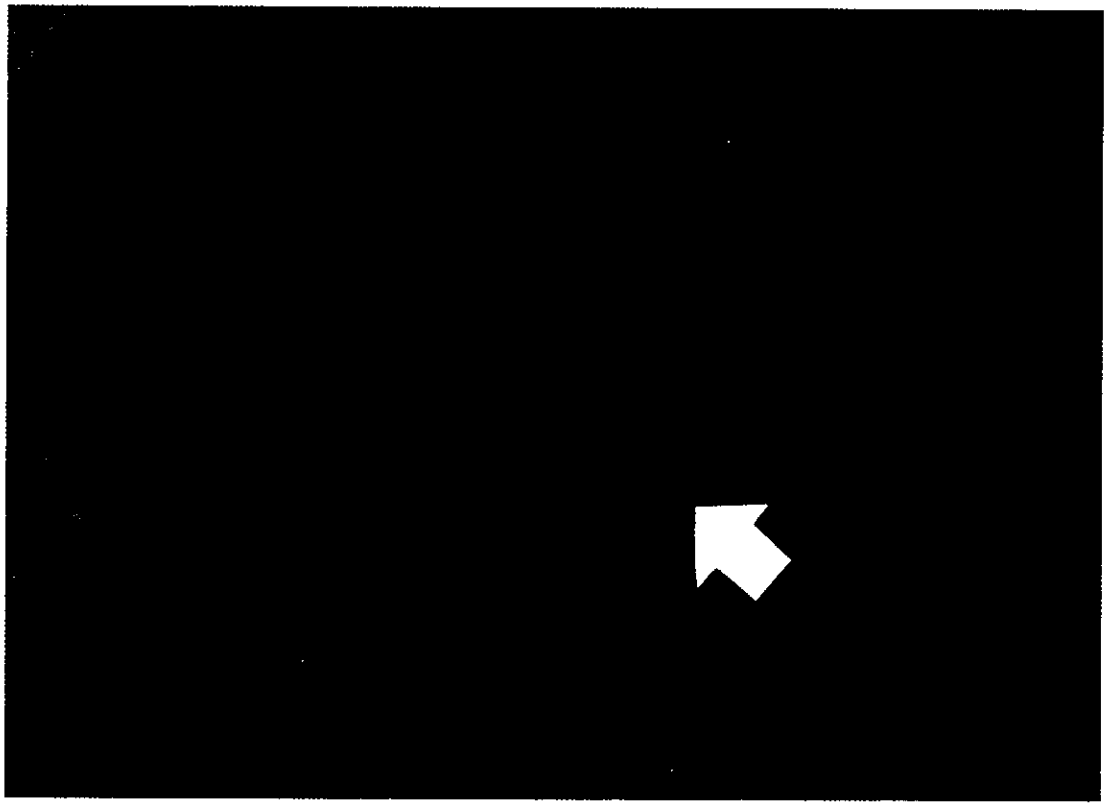


Figure 19-1. Detail of Fairchild 1954 Virginia Road area aerial photograph. The Joshua Brooks site is indicated with an arrow, and north is at the top of the photograph (on file, Minute Man National Historical Park, Concord, Massachusetts).

probably occurred after ca. 1880 and that the wall was constructed at that time. In terms of the area east of the stone wall, it was speculated that the current marshy conditions immediately adjacent to the wall may have been the result of both the modification of Route 2A and the construction of Hanscom Air Force Base to the north. Both may have limited the flow of Elm Brook and consequently expanded the marsh to its current spatial extent. Again, if this did occur, the existing aerial photographs indicate that it would have taken place before 1938. Unfortunately, with the exception of several cores, archeological investigations were not conducted in this area and therefore cannot shed any light on this issue.

The parcel west of the fieldstone wall was chosen for investigation as the Joshua Brooks site for the following reasons. As Holland (Chapter 18) has argued, one of the keys for establishing the location of the tanyard parcel on today's landscape is the granite "monument" or post that marked the northwest corner of the tanyard parcel in 1834. This monument was erected in 1829 to mark the boundary between the towns of Lincoln and Concord. There is a granite post currently on the property that appears to be this monument and is roughly aligned with the fieldstone wall.

Unfortunately, there is no conclusive evidence that the granite post had not been moved since 1829. Furthermore, limited subsurface coring of the area east of the stone wall indicated that the area was extremely wet and that the alluvium was

Figure 19-2. 1989 Project photograph of the Joshua Brooks site area, looking north. Note the heavy tree cover.

quite deep. Because of this, neither time nor resources permitted the investigation of this area. Given this as well as the uncertainties associated with the landscape features discussed above, subsurface investigations were conducted on the parcel west of the fieldstone wall, and the wall itself was chosen as the site's eastern boundary.

Once the eastern boundary of the site was affixed, the other boundaries were determined by the size and dimensions of the tanyard parcel recorded in 1725 as follows:

> 40 rods more or less bounding westerly on land of Hugh Brooks 6 rods and ¾; southwardly on the county road 5½ rods and 2 feet; eastwardly on land of Noah Brooks 5¼ rods to a stake and stones, then it turns and bounds on land of Noah Brooks 4¾ rods on a northeasterly point which reaches to Hugh Brooks' line again. (Middlesex Deeds, Book 39:517–518)

Although the precise location of the road from which the northern boundary of the tanyard parcel was measured in 1725 is not known, the northern boundary of the site was measured from the center of the current roadway. A distance of 19.5 m (65 ft) was added to compensate for any differences between the previous and current road locations and widths.

Methods

In order to accomplish the above objectives, archeological expectations were generated, field investigations were conducted, and analyses of the data were carried out according to the project-wide, multistage strategies outlined previously (Chapter 2). The expectations were generated on the basis of the history of the 17th-, 18th-, and early 19th-century tanning industry, the activities associated with the tanning industry in New England, the physical properties of tanyard facilities, and the known or predicted site formation processes. Field investigations consisted of a systematic walkover of the site, an intensive survey, and a limited site examination.

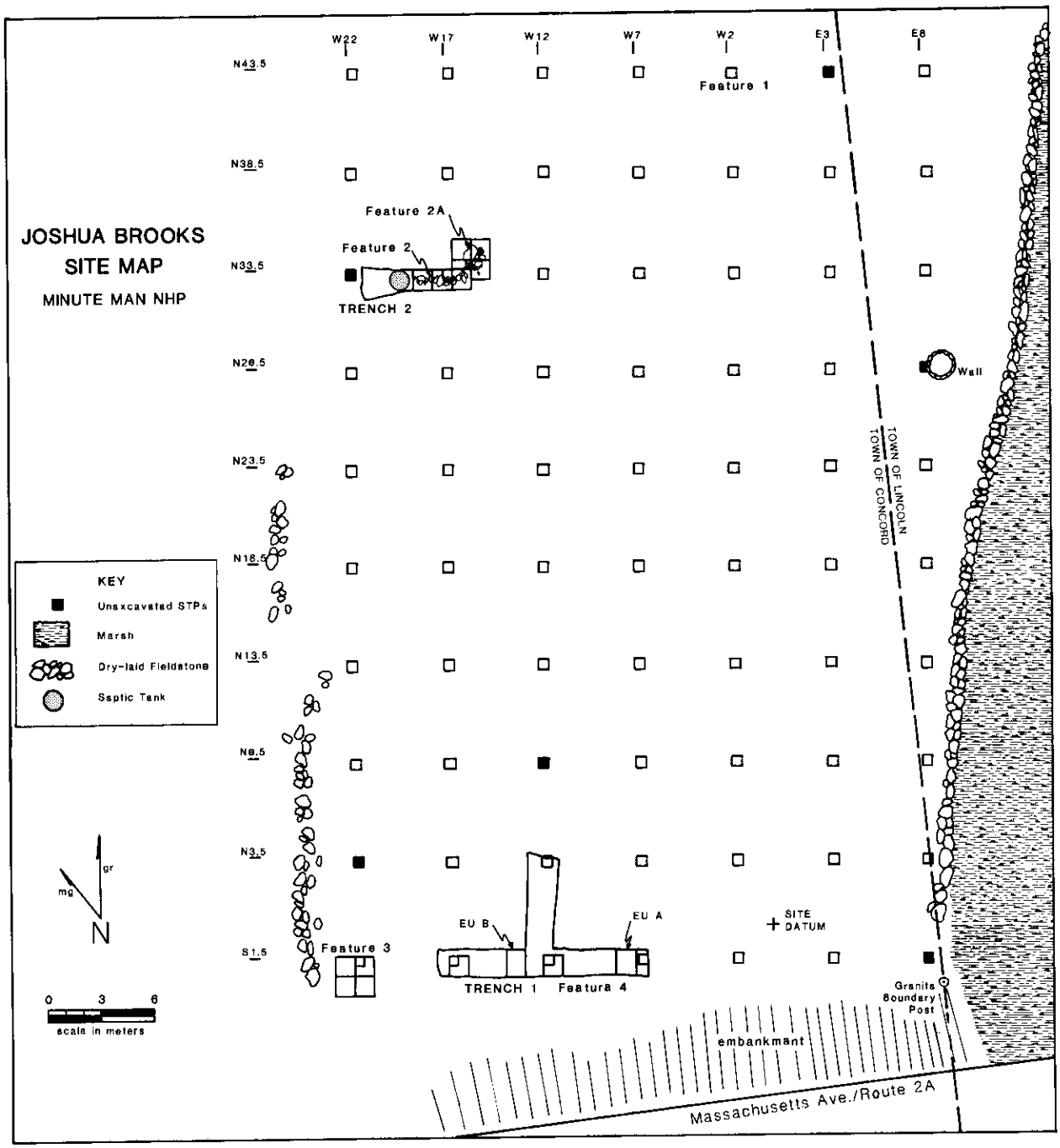


Figure 19-3. Joshua Brooks site map showing excavated EUs, STPs, and features.

Archeological Expectations

According to Ellsworth (1969), Innes (1983), and Welsh (1964), the establishment of tanyards in New England occurred almost immediately after the arrival of the 17th-century colonists because of the immediate demand for essential leather goods. Bishop (1868a:431) contends that the first tanyard was established in 1629 in Lynn, Massachusetts, by Francis Ingalls. A contemporaneous wood engraving of the Ingalls tanyard (Figure 19-4) depicts the tanyard as consisting of a tanhouse and tan vats (Gannon 1945). Although it is uncertain when the first tanyard was established in the towns of Concord, Lincoln, and Lexington, the Brooks tanyard appears to be one of the earliest (MacLean 1987:165). Although the precise date when the Brooks tanyard was established is unknown, it was certainly present by 1725/26, according to Holland (Chapter 18).

Ellsworth (1969:8) indicates that up until 1775 the number of tanyards grew considerably; by 1750 there were more than 1,000 tanyards in existence in New England and their business was local, regional, and international in scope. In 1745 the Brooks tanyard consisted of "Tann House and Vatts" and appeared to be a relatively large operation (see Chapter 18). Although the Brooks tanyard no doubt served the needs of parts of Lincoln and Concord, further documentary research is needed to reveal the extent to which its commerce ranged beyond these towns.

Ellsworth (1969:13) further contends that although the tanning industry in New England, like so many rural industries, appears to have experienced a short period of decline immediately after 1775, the late 18th and early 19th centuries were a time of prosperity for tanners and a period in which the tanning industry experienced a number of innovations, albeit primarily mechanical. In 1791 and 1823, the Brooks tanyard was recorded as having a currier's shop in addition to the tanhouse (see Chapter 18). Although the Brooks tanyard seems to have flourished during the late 18th and early 19th centuries, the effects of the tanning industry's innovations on the Brooks tanyard are uncertain at this time.

The tanning industry continued to grow throughout the 19th century, especially in the urban areas of eastern Massachusetts where the manufacture of leather goods such as shoes predominated (Ellsworth 1969; Lewis 1984). The growth of the tanning industry in the urban areas, however, was associated with an apparent decline in the number of tanyards in the rural areas of eastern Massachusetts, such as Lincoln (MacLean 1987:426). As discussed by Holland (Chapter 18), the precise date when the Brooks tanyard ceased to operate and when its buildings were removed is uncertain. The fact that in 1835 Isaac Brooks used "Stock of tanned and curried leather and stock and tools for currying leather in Isaac's shop in Lincoln" (Lincoln Record of Deeds 1834–1878:26) as collateral against a loan indicates that the shop, at least, was present until this date.

TANYARDS

Tanyards were places where the hides of animals were prepared—cured and curried—for their use in the manufacture of a variety of leather goods. According to Ellsworth, the preparation of leather in the 18th and 19th centuries involved four primary tasks: "the cleaning of the raw hide, the removal of the hair, the actual tanning of the hide, and the drying and finishing of the leather" (1969:5; see also Welsh 1964: 18–19). In the 1860s, J. Leander Bishop, a physician and historian of American industries, described what he believed to be the essential facilities of a tanyard as follows:

> The rude appointments of a tannery...embraced a greater or less number of oblong boxes or hogsheads sunk in the earth near a small stream, and without cover or outlet below, to serve as vats and leeches. A few similar boxes above ground for lime vats and pools, an open shed for a beam house, and a circular trough fifteen feet in diameter, in which the bark was crushed by alternate wooden and stone wheels, turned by two old or blind horses, at the rate of half a cord a day, completed in most cases the arrangements of a tanyard. (Bishop 1868a:453)

The hides were cleaned by first rinsing them in water "to remove dirt, blood, manure, and

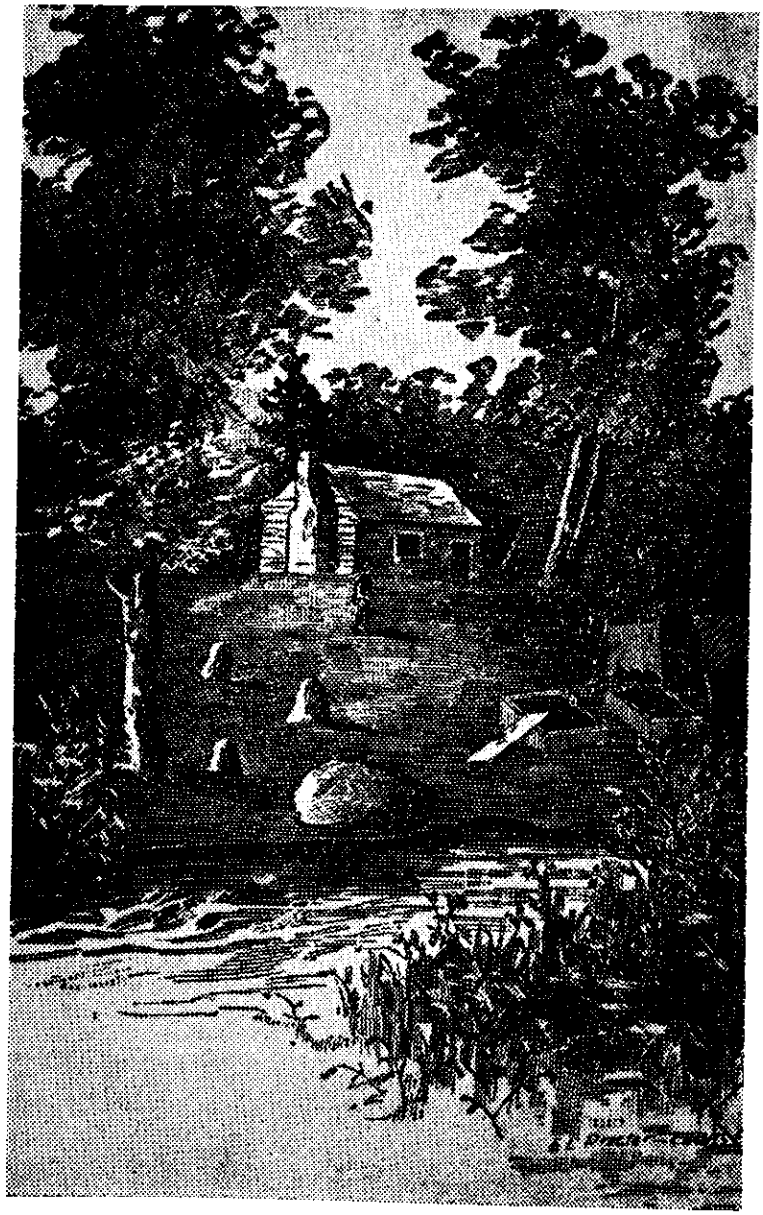


Figure 19-4. A 17th-century Proctor wood engraving of the Ingalls Tannery in Lynn, Massachusetts (reproduced from Gannon [1945] courtesy of the Essex Institute, Salem, Massachusetts).

other foreign matter" (Ellsworth 1969:5). The hides then were soaked in a "lime-and-water solution" in vats near a stream (see Figure 19-4) to loosen the hair on them. The vats were usually situated slightly above the ground, and up until the mid–19th century, were not enclosed within a wooden superstructure (Bishop 1868: 296). According to Welsh (1964:19), the vats

were either round or square, constructed of wood or masonry, lined with clay, and measured 4.5–5 ft in diameter and 4.5–6 ft deep (Boros n.d.:3; Dussause 1865:199). Archeological investigations of an 18th- or early 19th-century tanyard in Charlestown, Massachusetts, uncovered a rectangular, wood-lined vat that measured approximately 3 ft × 3 ft across and 3 ft deep (Joan Gallagher, personal communication, 1988; see also Boros n.d.). The Brooks tanyard vats appear to have been lined with clay since the transfer of the tanyard parcel from Joshua Brooks to Joshua Brooks, Jr., in 1745 included the "liberty and privilege of digging and carting clay from said mine areas" (Middlesex Deeds, Book 45:624).

Once the hair was loosened, the hides were removed from the vats and transported to a wooden superstructure referred to as either a "beaming" or tanhouse. The spatial proximity of the lime vats to the tanhouse is unknown although in some instances they appear to have been close (compare Figures 19-4 and 19-5). Within the tanhouse the hides were placed on a wooden "beam" and the remaining hair was scraped off with a dull "beaming" knife (Ellsworth 1969:6; Figure 19-5). Next, the hide was shaved with a "fleshing" knife to thin it and then rubbed with a whetstone to smooth it (Ellsworth 1969:6). Unfortunately, neither the physical attributes of the Brooks tanhouse or other 18th- or early 19th-century tanhouses are known at present. It seems likely that the superstructure and its foundation were constructed of materials similar to those used in other agricultural facilities in the area (e.g., barns; see Chapter 4). Although the dimensions of the Brooks tanhouse are also uncertain, a 1798 tanhouse in nearby Marlborough was as large as 36 ft × 22 ft (Keune 1962).

Subsequent to the above process, the hides were sometimes soaked in vats within a "mixture of salt, water, and chicken or dog manure" to make the hide more pliable (Ellsworth 1969:6). The hides were then placed in vats among alternating layers of ground sumac, oak, or hemlock bark and then covered with water. The bark and

Figure 19-5. A 19th-century woodcut showing a tanyard and tan vats in the background and the interior of a tanhouse in the foreground. The "beaming" process is pictured at the far right (reproduced from Hazen 1857:67).

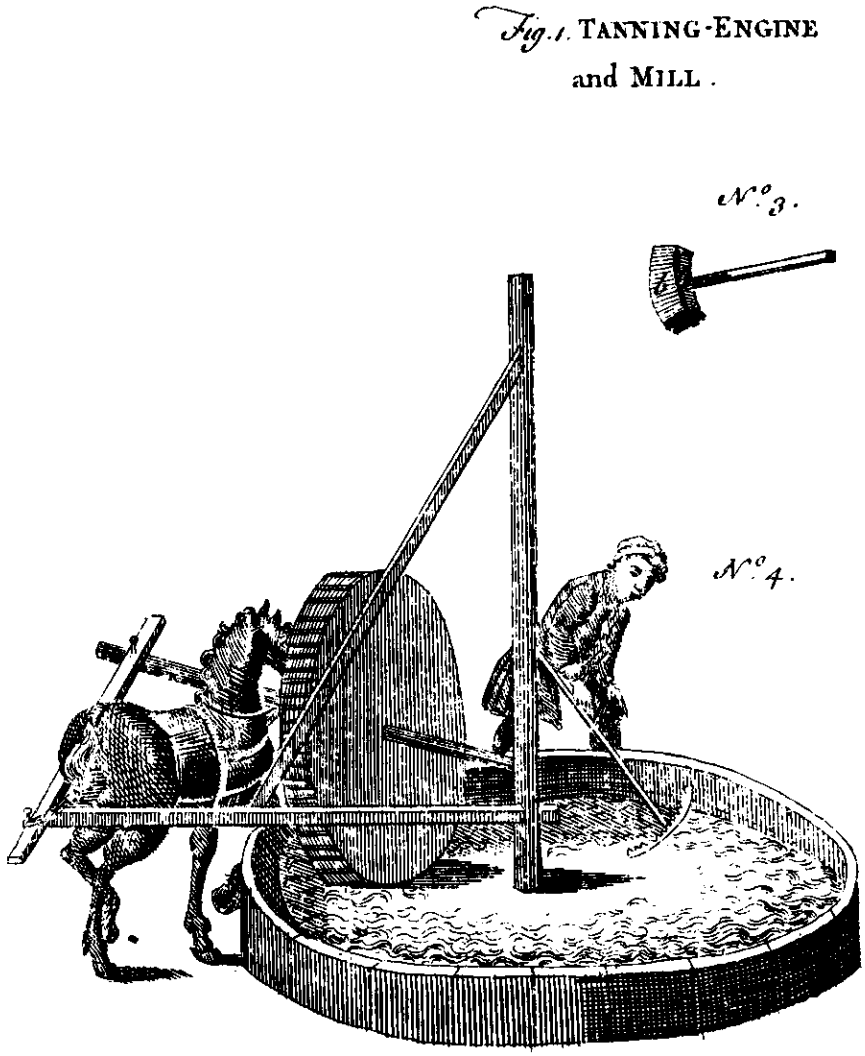


Figure 19-6. A mid 18th-century bark grinding mill as illustrated in *A New and Complete Dictionary of the Arts and Sciences*, published in London in 1764 (reproduced from Welsh 1964:2).

water produced tannin, which transformed the hides into what is commonly regarded as leather (Ellsworth 1969:6). Although it is unknown whether the Brooks tanyard had its own bark mill, it is possible that it did. If it did, it may have been similar to the one described above and depicted in Figure 19-6.

After the hides were transformed into leather, they were pounded with wooden mallets and then hung to dry before the currier "dressed the leather by stretching, beating, and kneading it in animal oil to make it soft and supple. A final rubbing with a stone brought out the grain" (Anonymous 1806:91–95; Ellsworth 1969:6). The leather was now ready to be shipped and manufactured into a variety of leather goods. Unfortunately, like the Brooks tanhouse, neither the physical attributes of the Brooks currier's shop or other 18th- or early 19th-century curriers' shops are known at present. Again, presumably the

superstructure and its foundation were constructed of materials similar to those used in other agricultural facilities in the area. Although the dimensions of the Brooks currier's shop are also uncertain, a 1798 currier's "house" in nearby Marlborough measured 20 ft × 12 ft (Keune 1962).

Based on the above information, if the parcel investigated is where the tanyard was once located, the remains of the tanhouse, tan vats, currier's shop, and possibly the bark mill should exist. The most unambiguous evidence of the tanyard should be the vats, the attributes of which have been presented above. The remains of the tanhouse and currier's shop may be evidenced not only by the presence of predominantly pre–19th-century building-related materials (e.g., hand-wrought nails) but also by the presence of small fragments of leather and perhaps broken or worn tools that were discarded. The presence of a large amount of domestic materials is not expected. If the foundations of these superstructures were constructed similarly to other agricultural facilities, then their remains may also be identified by the alignment of one or two courses of dry-laid fieldstones. The possibility remains, however, that the post-abandonment landscaping, in conjunction with the road-related changes suggested by Holland (Chapter 18), obscured any trace of the tanyard's presence on the parcel that was investigated.

Field Investigations

Archeological field investigations consisted of three phases and were conducted for five weeks in July and August 1988. The systematic walkover revealed that the site had been terraced and used for the deposition of relatively recent trash. The walkover also identified the presence of a well (Figure 19-3).

The intensive survey phase consisted of the excavation of 64 STPs using a systematic, stratified, aligned, probabilistic sampling design (Figure 19-3). The initial design included 70 STPs. Six STPs, however, could not be excavated because of their proximity to trees, rodent holes, or other obstacles/disturbances. Although the intensive survey did not uncover any remains of the tanyard, this phase uncovered several 19th-century domestic-related features. The STPs also revealed that large amounts of fill have been deposited over the entire site, transforming the landscape to its present appearance.

Based on the results of the intensive survey, nine EUs and two backhoe trenches were judgmentally placed and excavated to further explore the features uncovered.

A unit measuring 2 m × 2 m was partially excavated in the southwestern portion of the site to investigate Feature 3, a relatively deep concentration of building-related and domestic debris.

In the northwest corner of the site, seven units were excavated to investigate an alignment of dry-laid fieldstones. These units uncovered Features 2 and 2A (Figure 19-3). A backhoe trench (Trench 2) was dug adjacent to EU N33.5W18.5 to try and delineate the western extent of Feature 2. Excavation of the trench revealed that the fieldstones abutted a large, circular brick-lined septic tank.

A backhoe trench (Trench 1), in conjunction with several EUs, was excavated to determine the spatial extent and characteristics of Feature 4, a large deposit of building-related debris that subsequent analyses indicate is likely to be the remains of the demolished Ingalls house (Figure 19-3). The use of the backhoe was deemed appropriate given the time constraints and since an adequate sample of the overlying deposits had already been collected. The backhoe trench was approximately 1.5 m wide at the top and a little over 1 m wide at the bottom. The walls were shovel-scraped, profiled, and then photographed. Although the eastern extent of the fieldstones—and hence the demolition debris—was identified, its western extent was not delineated due to the inability of the backhoe to excavate beyond several large trees. Its southern extent also was not delineated since the slope in this area prohibited the excavation of a trench in this direction.

Results

Archeological investigations of the Joshua Brooks site failed to discover any evidence of the tanyard on this parcel. Instead, the investigations uncovered the remains of several 19th-century domestic features, including building-related debris from the demolition of a structure—probably the Mary Ingalls house that appears to have existed on the site in 1852 and perhaps as early as 1830 (see Figures 18-4, 18-5, and discussion of Feature 4 below). The date when this house was demolished is not completely certain, although the archeological remains, in conjunction with historical maps of the area (Figure 19-7), indicate that the house no longer existed by 1875. In addition to these features, the archeological investigations revealed that subsequent to the demolition of this structure, large amounts of fill were deposited on the parcel in order to terrace the site. This fill transformed the pre–19th-century landscape to its present appearance.

These data appear to imply that the parcel investigated was the eastern portion of Job Brooks's homelot, which once existed adjacent to and west of the tanyard parcel. A large portion of the tanyard parcel, if not its entirety, therefore, is probably in the marsh east of the fieldstone wall, although this is by no means conclusive at this time. The possibility still remains that the landscaping activities just mentioned, in addition to changes to Route 2A, obscured if not destroyed any traces of the tanyard's existence. If the tanyard did indeed exist east of the parcel investigated, then the archeological investigations uncovered no data to support Malcolm's (1985:73) assertion that a slaughterhouse was located west of and adjacent to the tanyard.

Site Stratigraphy

Three primary depositional episodes appear to have occurred at the site: 1) landscape fill; 2) demolition debris; and 3) natural humification processes.

The deposition of large amounts of fill for decorative and/or small-scale agricultural purposes is indicated by the site's current topography, its vegetational cover, and its subsurface remains. The site's current topography consists of several north-south running terraces. Terraces appear to have been created frequently on both urban and rural sites in New England for both decorative and agricultural reasons (see Chapter 6). Associated with the terraces at the Brooks tanyard site are both decorative plants and rows of fruit-bearing trees. Decorative plants consist of wisteria, Virginia creepers, and lilac bushes, none of which are indigenous to the area. The lilac bushes in particular appear to have been planted in rows along the terrace. Subsurface evidence of landscape fill at the Brooks site consists of a deep deposit of homogeneous dark brown (10YR3/3) to grayish brown (10YR4/2) silty fine sand. This deposit was significantly deeper along the eastern edge of the site, adjacent to the fieldstone wall. These data suggest that the fill was deposited in conjunction with the construction of the wall to create a relatively flat terrain. The deposit's artifact assemblage was also homogenous throughout the site and consisted of both building-related and domestic debris (Figure 19-8). The presence of wire nails and other diagnostic materials throughout the deposit indicates that it was laid down sometime after ca. 1880.

A second large-scale depositional episode existed at the southern edge of the site. Designated Feature 4, it consisted of a large, deep deposit of building-related and domestic debris. As discussed below, Feature 4 appears to be the remains of a house that seems to have existed immediately east of the Job Brooks house, and was occupied by Mary Ingalls in 1852 (see Figure 18-5). This house may have existed as early as 1830 (see Figure 18-4), but was demolished sometime prior to 1875.

A mottled deposit of yellowish brown sand existed over the entire site immediately above the glacial subsoil. This mottled deposit consisted of a mixture of both prehistoric and historical-period materials. Historical-period materials include both building-related and domestic debris, some of which postdate the 18th century (Figure

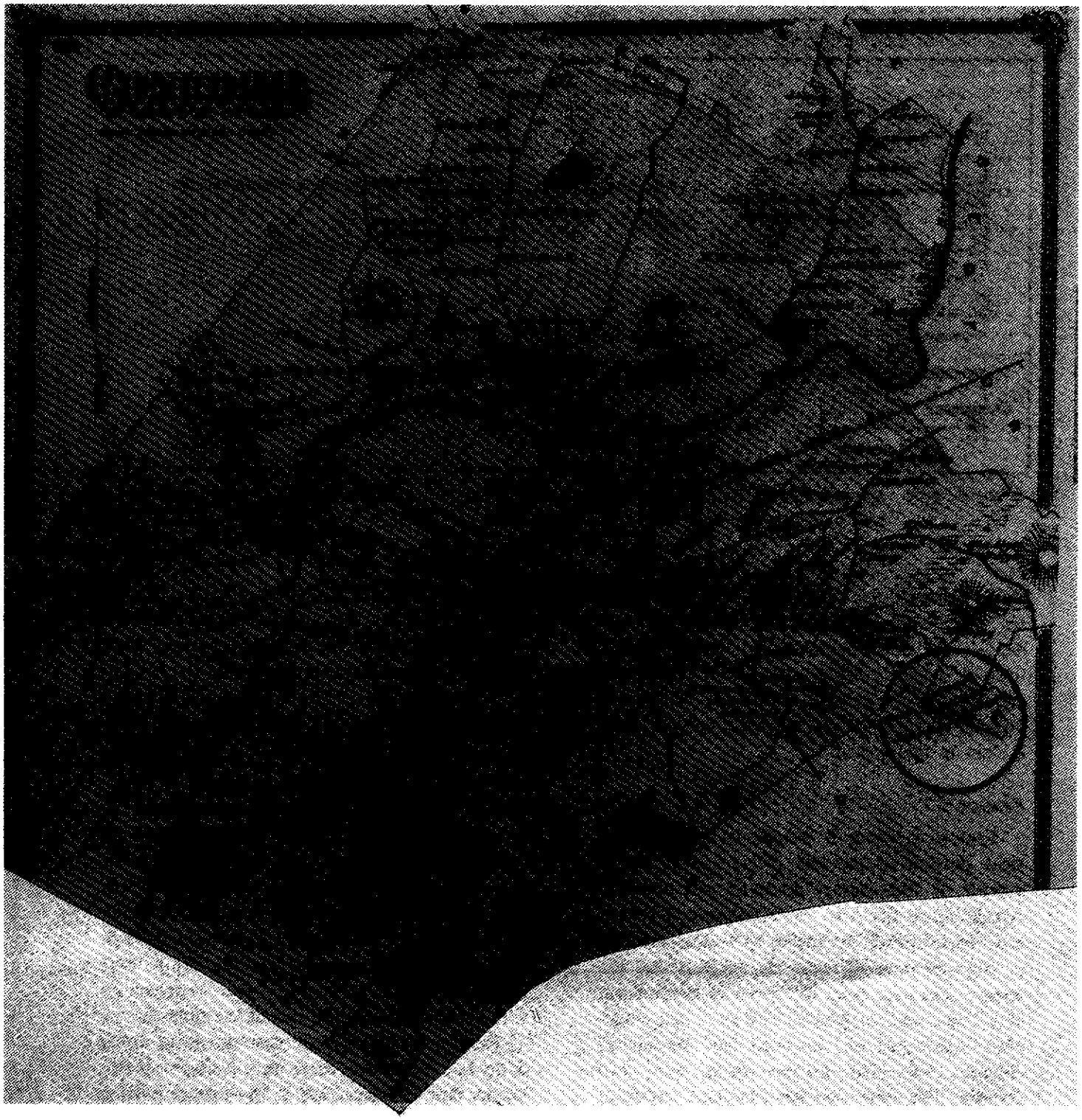


Figure 19-7. 1875 map of Concord from Beers' *County Atlas of Middlesex, Massachusetts* (J. B. Beers and Co., New York, 1875).

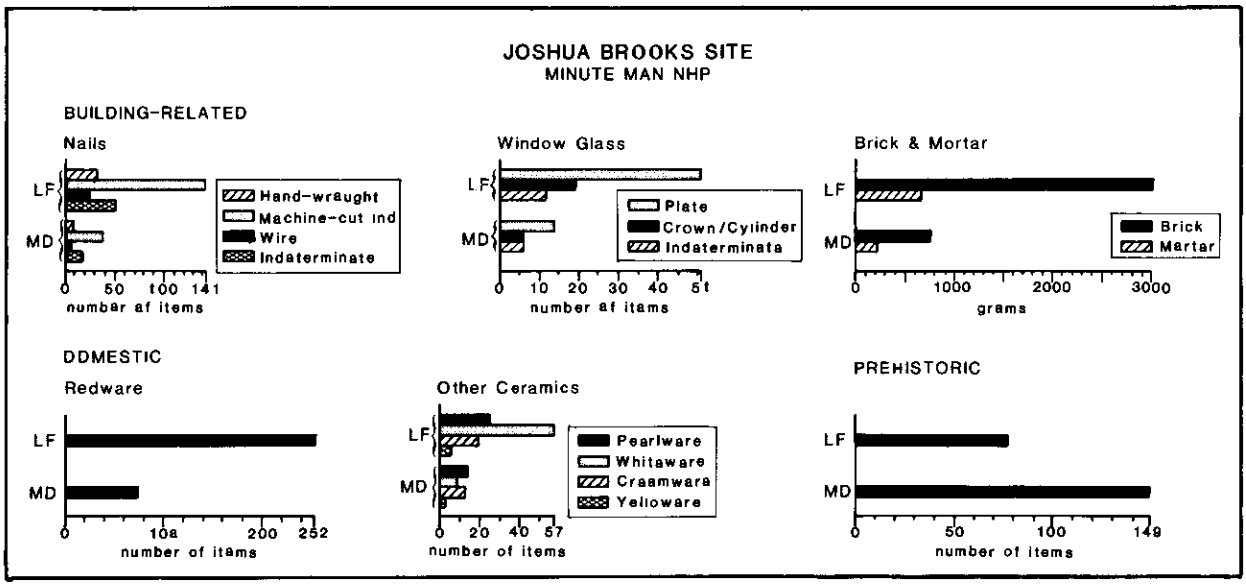


Figure 19-8. Site-wide frequencies of selected artifact classes at the Joshua Brooks site (LF = landscape fill; MD = mottled deposit).

19-8). Although the number and kinds of processes responsible for the development of this deposit are not completely understood at this time, it is clearly the result of both biophysical and small-scale cultural processes. No unambiguous evidence of the tanyard's remains were evident in this deposit.

Feature 1

Feature 1, which is located in the northernmost portion of the site (Figure 19-3) was a deposit of 19th-century domestic and building-related debris that also contained several prehistoric felsite flakes. Its shape, as well as the lack of large amounts of materials, suggests that the feature may have been the result of the removal of a tree trunk. In profile, Feature 1 was somewhat bell-shaped and intruded into the subsoil (Figure 19-9). The feature consisted of two deposits. The upper one was a mottled deposit of pale yellow and brown silty fine sand. The upper deposit overlay a very thin deposit of brown silty fine sand. The precise date when this feature was created is uncertain because of the lack of diagnostic materials associated with the deepest deposits. The feature appears to predate the deposition of the landscape fill, however, since Feature 1 existed beneath the fill.

Features 2 and 2A

Features 2 and 2A are part of the waste management system associated with a large, circular, brick-lined septic tank uncovered in Trench 2 (Figure 19-3). The waste management system appears to have been associated with the Job Brooks house located to the west and upslope from the site (Appendix A-2). Unfortunately, neither time nor resources were available to confirm this or to investigate the septic tank itself since it was uncovered rather unexpectedly with a backhoe near the end of the field season.

Feature 2 appears to be the remains of either a dry-laid fieldstone drain or primary leaching facility that was connected to the eastern portion of a large, circular, brick-lined septic tank (Figure 19-3). In plan view, Feature 2 extended eastward and downslope from the bottom of an opening at the top of the tank to a gravelly area that

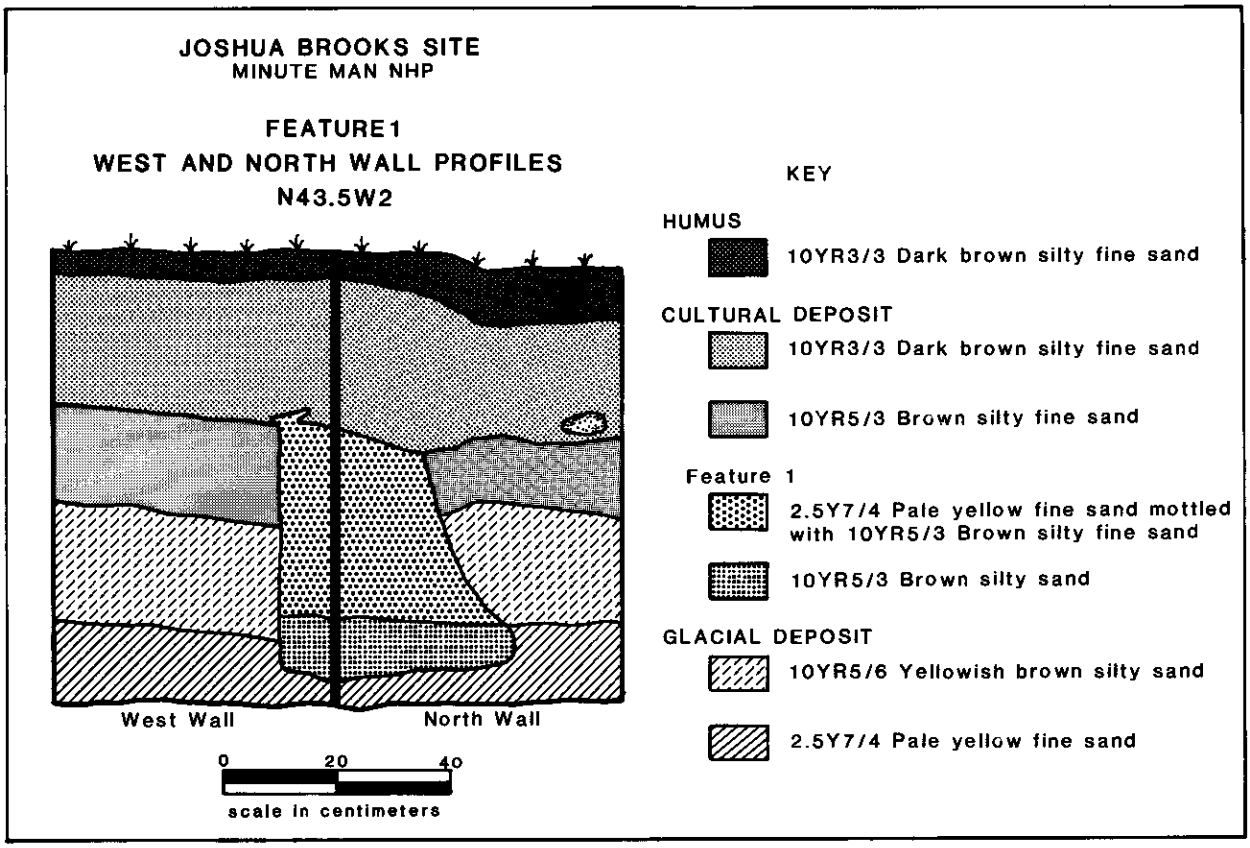


Figure 19-9. West and north wall profiles of STP N43.5W2 at the Joshua Brooks site showing Feature 1.

perhaps served as a leach field (Figure 19-10). Feature 2A, a dense concentration of cobbles adjacent to a very large rock, is located north of and adjacent to the eastern extension of Feature 2 (Figure 19-11). Although the temporal or precise functional relationship between Features 2 and 2A is not completely certain, they appear to be related in use. Features 2 and 2A appear to predate the landscape fill deposit.

In profile, Feature 2 consisted of from one to three courses of dry-laid fieldstones that appear to have been placed within a trench. The courses of fieldstones were embedded within a brown silty fine sand with some pockets of a yellowish brown silty fine or coarse sand (Figure 19-12; Deposit 3). Although both historical and prehistoric materials were associated with the courses of fieldstones, they were few in number and do not appear to provide any significant insight regarding when the drain was constructed or in use. The only artifacts recovered from among the fieldstones were one nail, whose date of manufacture is not certain, 26.4 g of brick, 1 g of coal, 1.2 g of cinders/clinkers, 7.9 g of slag, .2 g of charcoal, and one prehistoric flake.

A deposit of distinctive light olive brown soil existed directly beneath the fieldstones at the very bottom of the trench (Figure 19-12; Deposit 4). Unfortunately, no artifacts were associated with this deposit.

A series of mottled dark yellowish brown and very dark grayish brown silty fine sands existed immediately above the fieldstones (Figure 19-12; Deposit 2). If Feature 2 was below grade when it was in use, then it is likely that Deposit 2 represents the material used to backfill the

Figure 19-10. Project photograph of the Joshua Brooks site showing Features 2 and 2A in plan view, looking west. Feature 2A is the cluster of cobbles in front of the large boulder in the foreground. Feature 2 is the line of cobbles on the left.

feature. The artifacts within this deposit comprised four nails, whose dates of manufacture could not be determined, five pieces of redware, four pieces of undecorated whiteware, two pieces of molded vessel glass, four pieces of indeterminate metal, 49.7 g of brick, 12.1 g of mortar, 22.4 g of coal, 73.3 g of cinders/clinkers, 1.2 g of charcoal, 21.9 g of slag, and two prehistoric flakes. If this material was backfilled relatively soon after the fieldstones were laid in place, then the artifact assemblage associated with Feature 2 suggests that the feature may have been constructed in the 19th century.

Above the mottled deposits was a thin layer of a very dark brown silty fine sand. This deposit (Figure 19-12; Deposit 1) contained a small amount of both domestic and building-related debris. The presence of wire nails may indicate that this deposit postdates ca. 1880. It is also possible, however, that this deposit is earlier in date and that the nails, and some of the other materials associated with it, are intrusive since there appears to have been some mixing of materials this close to the present ground surface in other areas of the site. Whatever its date, if Deposit 2 is the backfill of Feature 2, then Deposit 1 is most likely unrelated to the use of Feature 2 as a drain or primary leaching facility. Instead, Deposit 1 may simply represent the accumulation of materials that were conveniently deposited in a slight depression above the feature perhaps when the landscape fill described above was deposited.

As noted above, a dense concentration of small cobbles adjacent to a large boulder was uncovered just north of the eastern extent of

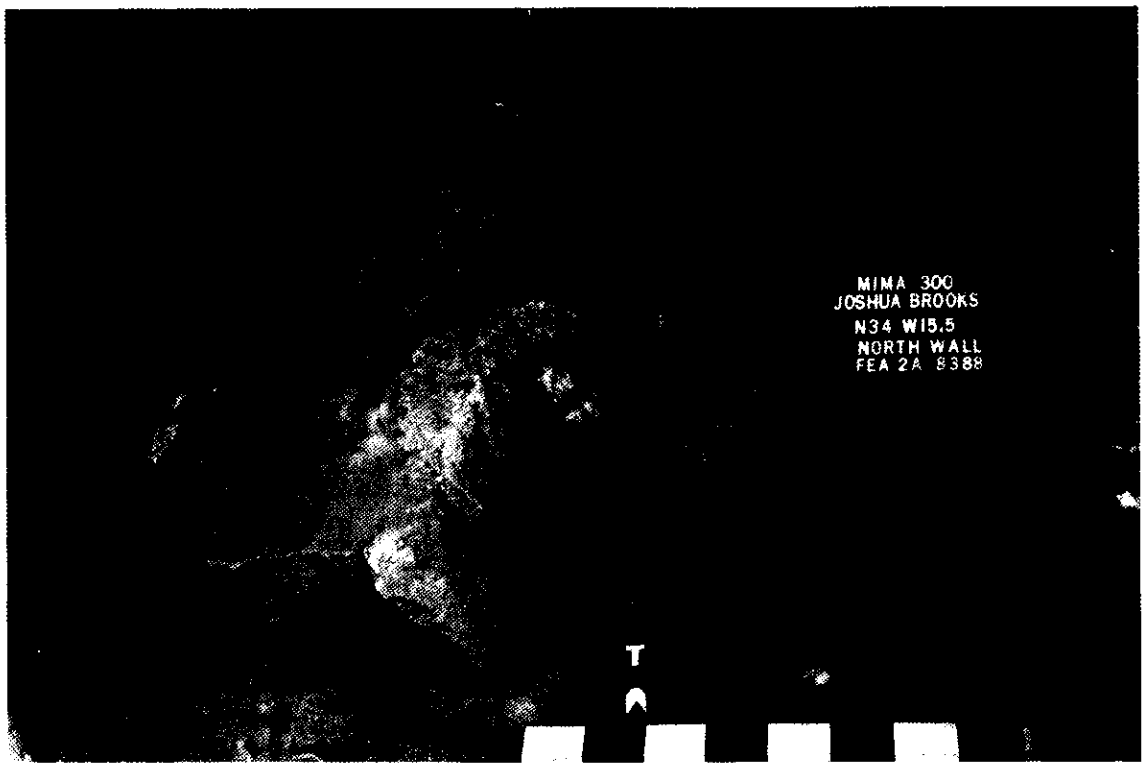


Figure 19-11. Project photograph of the Joshua Brooks site showing Feature 2A in plan view, looking north.

Feature 2 (Figures 19-10 and 19-11). This concentration was designated Feature 2A. The presence of subsoil between the cobbles and the trench in which Feature 2 was located seems to indicate that the two features were not physically connected in any manner. Yet, the features' stratigrapies appear to be somewhat similar. This similarity implies that either Feature 2A is part of Feature 2, or that Feature 2A is somehow related in its use, perhaps as a secondary leaching area. Unfortunately, other archeological data are not sufficient to clarify the relationship between the two features.

In profile, Feature 2A (Figure 19-13) consisted of several layers of densely-packed cobbles within a slightly mottled dark yellowish brown silty fine sand. Although no artifacts were recovered from beneath the cobbles, several historical-period materials were recovered among the cobbles. The artifacts associated with this deposit consisted of two pieces of redware, two pieces of creamware, three indeterminate metal fragments, 5.9 g of brick, and .1 g of charcoal. In addition to these materials, a broken scythe blade (Frank White, personal communication, 1990), whose date of manufacture could not be determined, was embedded within the cobbles. Because of its upright position, the implement may have served to mark the location of the drain's extent and/or its gravel leach field, like "stake and stones" were often used to mark some property boundaries (Middlesex Deeds, Book 39:518). This inference is purely conjectural, however. Directly above the cobbles was a more mottled, very dark brown silty fine sand (Figure 19-13). Small amounts of the same kinds of artifacts that were associated with Feature 2A were also affiliated with the cultural deposits above it. These deposits included four pieces of redware, one piece of creamware, one piece of other earthenware, 31.8

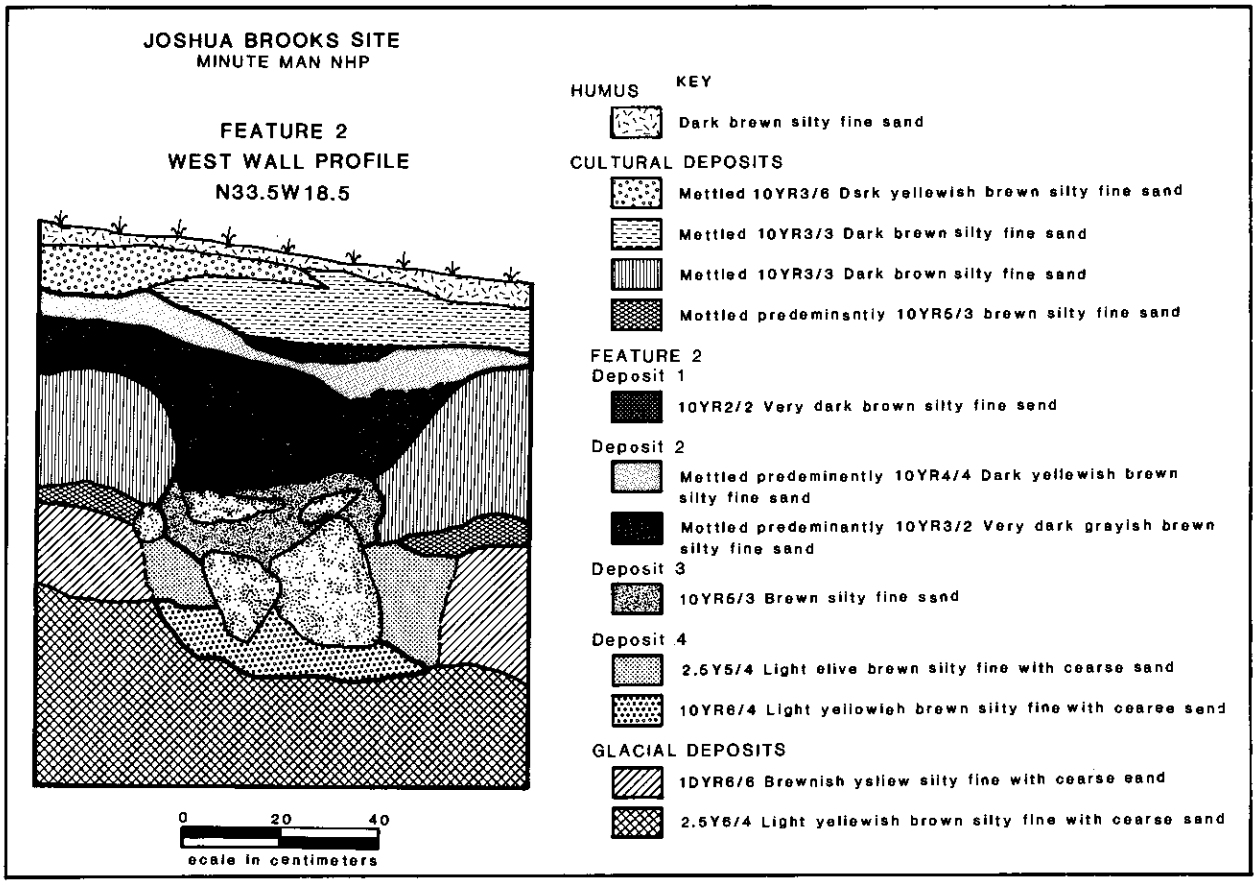


Figure 19-12. West wall profile of EU N33.5W18.5 at the Joshua Brooks site showing Feature 2.

g of brick, 5.1 g of coal and clinkers, and .2 g of charcoal. While the presence of creamware, in conjunction with the absence of clearly diagnostic 19th-century materials, could indicate that Feature 2A dates to the late 18th century, it is unlikely that it does. Instead, Feature 2A, like Feature 2, may date to the 19th century, although this date is by no means certain given the small amount of materials associated with it.

Feature 3

Feature 3, located in the southwestern portion of the site (Figure 19-3), is a 57–75 cm deep deposit of both building-related and domestic debris mixed among cobbles within a very dark grayish brown silty fine sand matrix with gravel inclusions (Figures 19-14 and 19-15, Level 3). Prehistoric materials were also present within the deposit. Several large roots from adjacent trees intruded into the feature. Unfortunately, the spatial limits of Feature 3 were not determined due to time and resource constraints.

Feature 3 appears to have been deposited in a single episode in the last half of the first quarter of the 19th century. This inference is based on the presence of similar kinds of material found throughout the deposit, including light blue transfer-printed pearlware, and the absence of later diagnostic mid-to-late 19th-century materials. Because of its likely date of deposition, Feature 3 predates Feature 4 (another large deposit of both building-related and domestic debris, which is discussed below) and the landscape fill deposit described above. The debris

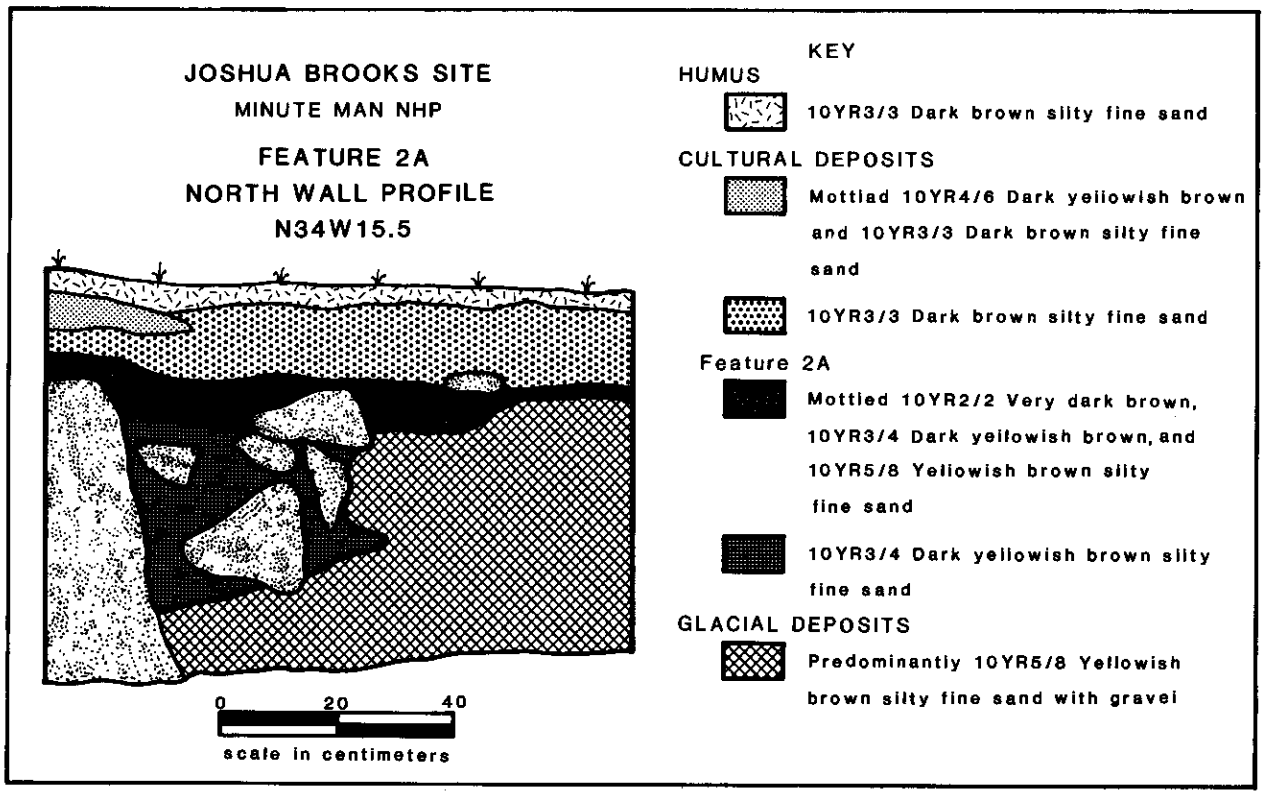


Figure 19-13. North wall profile of EU N34W15.5 at the Joshua Brooks site showing Feature 2A.

associated with Feature 3 may have originated from the Job Brooks house, which is just west of the site, and is possibly the result of a remodeling episode during the time when Asa Brooks, Jr., and Job Brooks, Jr. (1816–1847), or conceivably Asa Brooks, Sr. (1794–1816), owned the property (see Table 19-1 for chain of title of the Job Brooks property). It is also possible, however, that these materials were transported to the site from elsewhere. At present, the origin of the debris must remain speculative until further, more detailed analyses of the materials and the Job Brooks property occur.

Large amounts of building-related and domestic debris were also present directly above Feature 3 (Figure 19-15, Levels 1 and 2). While some mixing of the materials associated with Feature 3 and the deposit immediately above it has no doubt occurred, most of this debris appears to have been deposited in the 19th century, some from the demolition of a possible house that seems to have existed east of the Job Brooks house in 1852 and perhaps as early as 1830 (i.e., the Mary Ingalls house as discussed with Feature 4 below). The other materials appear to be associated with the post—ca. 1880 landscaping efforts discussed above.

Beneath Feature 3 was a 16-cm mottled deposit of very dark grayish brown and brownish yellow silty fine sand (Figures 19-14 and 19-15, Level 4). Beneath the mottled deposit was glacial subsoil (Figure 19-15; Level 5). The mottled deposit contained both building-related and domestic materials, like the deposits above it. Yet their amounts in the mottled deposit were significantly less than the deposits above it, save for the prehistoric materials (Figure 19-15; Level 4). This deposit is part of the mottled deposit discussed above and therefore is the result of the gradual accumulation of materials due to both

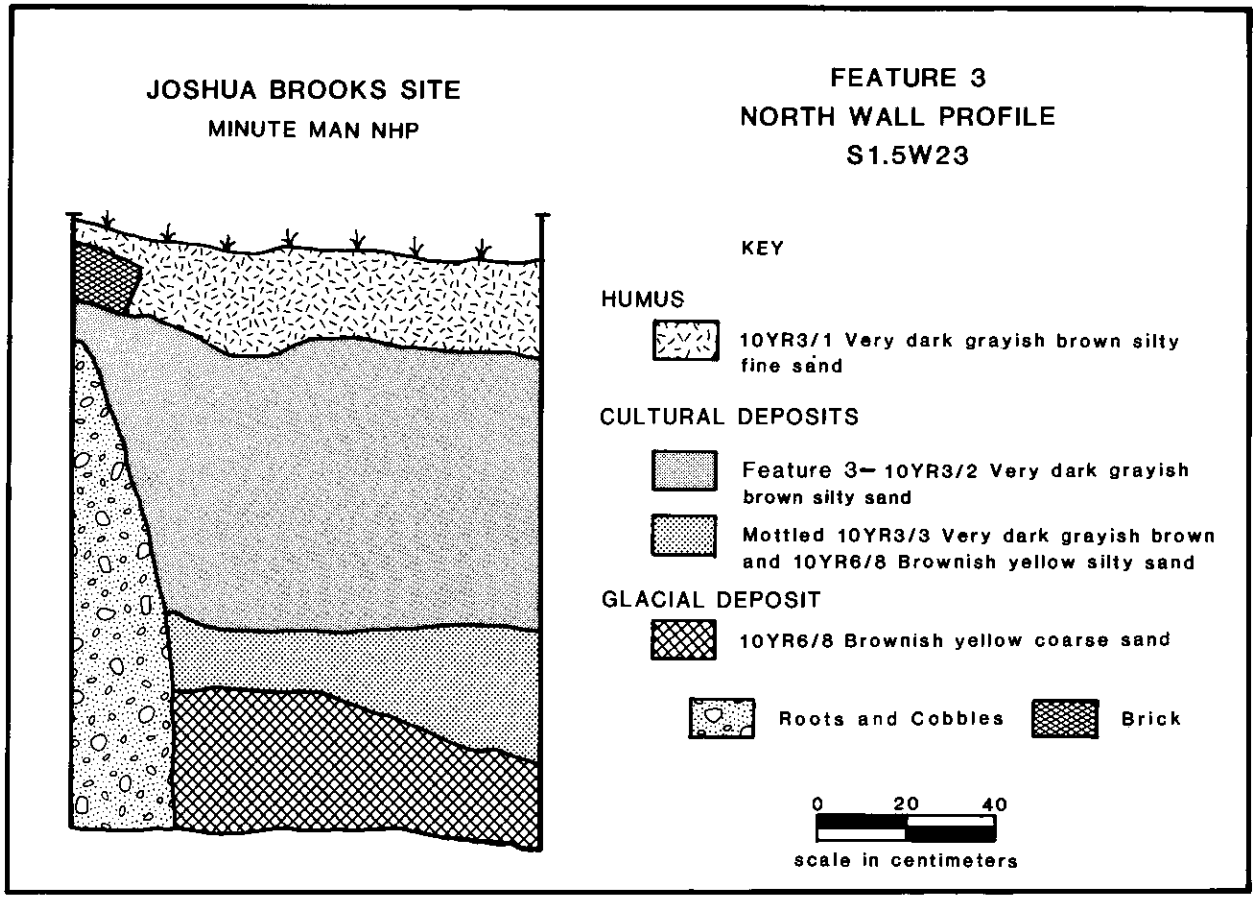


Figure 19-14. North wall profile of EU S1.5W23 at the Joshua Brooks site showing Feature 3.

biophysical and small-scale cultural processes prior to the early part of the 19th century.

Feature 4

Although time and resource constraints only permitted limited excavation and materials analysis of Feature 4, the investigations indicate that the feature is a large deposit of building-related and domestic debris that is most likely the remains of the demolition of Mary Ingalls's house. This structure seems to have existed east of the Job Brooks house in Concord in 1852 and possibly as early as 1830. Evidence for the presence of this house is taken from historical maps. The 1852 Walling map of Concord and Lincoln (Figure 18-5) shows the Job Brooks house (then in the possession of E. J. Leppleman) and a structure to the east labeled "Mary Ingalls." The 1830 Hales map (Figure 18-4) also shows two structures; the Job Brooks house, owned at that time by Asa Brooks, and another, unlabeled building to the east. The date when this house was demolished is not certain at this time, although the absence of late 19th-century materials associated with Feature 4, in conjunction with historical maps of the area (Figure 19-7), seem to indicate that the house no longer existed in 1875. The demolition of the house may have occurred subsequent to the sale of the original Job Brooks property by E. J. Leppleman to Myrick Benner in 1854, or after the sale of the property from Benner to Charles Sawyer in 1858

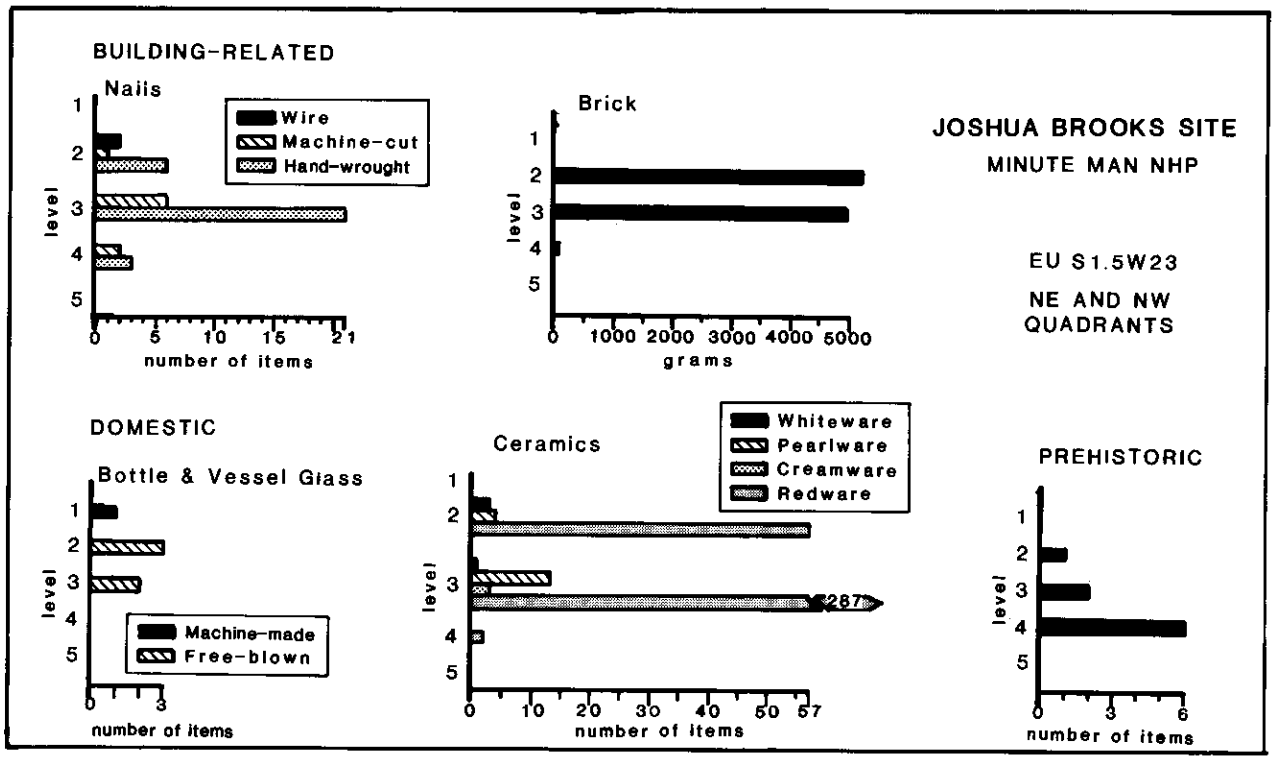


Figure 19-15. Frequencies of selected artifact classes in EU S1.5W23 at the Joshua Brooks site.

(Table 19-1). Further documentary research is needed to confirm this, however. Sawyer apparently owned the property until 1890, when he sold it to Elizabeth Fitzgerald (Table 19-1). If the debris of Feature 4 is the remains of the Ingalls house, it provides relatively conclusive evidence that the tanyard parcel is located in the marshy area of Elm Brook just east of the fieldstone wall that is the eastern boundary of this site.

Feature 4 consisted of four major deposits that appear to be relatively contemporaneous (Figures 19-16 and 19-17). Deposit 1 was a compact dark grayish brown medium fine sand. Although more artifacts were present within this deposit than the ones above it, the amounts were less than the levels below it. Deposit 2 consisted of an olive brown medium fine sand and larger amounts of materials than in Deposit 1 above it.

Deposit 3 consisted of a dense concentration of bricks within a very mottled dark yellowish brown silty fine sand. These bricks are most likely the remains of the house's chimney or chimneys. In some areas of Feature 4 (e.g., Unit B in Figure 19-16), the brick concentration was approximately 35 cm deep and consisted of a number of whole or nearly whole bricks, some of which displayed evidence of being burned. Window glass and domestic materials were also recovered from this deposit. Deposit 4 consisted of a relatively dense concentration of large fieldstones, presumably the remains of demolition of the house's cellar. In Trench 1, the fieldstones appeared to be oriented in an east-west direction for approximately 10.8 m and extended approximately 10 m north of the southern boundary of the site. This alignment may be fortuitous, however, since the fieldstones beneath this alignment did not appear to be arranged in courses as is typical of 18th- and 19th-century house cellars located within MIMA.

Table 19-1. Chain of title of the Job Brooks property.*

Date	*Transaction*
1666	*Joshua Brooks* owns land; house present.
1695	Joshua sells to *Job Brooks* (house and barn).
1697	Job dies; quitclaimed to *Hugh Brooks.*
1740	Hugh gives the houselot to his son *Job Brooks* (the second). New house may have been constructed during Job's ownership.
1794	Job dies; property (with "mansion house") goes to his son *Asa Brooks.*
1816	Asa dies; property goes to twin sons *Asa Brooks* (the second) and *Job Brooks* (the third); Asa Brooks gets the house.
1847	Asa sells to *Emelius Julius Leppleman.*
1854	Leppleman sells to *Myrick Benner.*
1858	Benner sells to *Charles Sawyer.*
1890	Sawyer sells to *Elizabeth Fitzgerald.*
1890	Fitzgerald sells to *Rufus and Daniel Brown.*
1892	Browns sell to Arthur Wilson.
1905	Wilson sells to *William Goodell.*
1909	Goodell sells to *Louise Leonard.*
1915	Leonard sells to *Flora Keizer.*
1959	Keizer sells to *Reed Beharrell* and *Nicholas Deraney*; house vacant.
1962	Beharrell and Deraney sell to *U.S. Government.*

*adapted from MacMahon 1986a:146

Summary and Conclusions

The archeological evidence indicates that it is highly likely that the parcel investigated was not the tanyard parcel. Instead, the tanyard parcel appears to have been located in the marshy area east of the dry-laid fieldstone retaining wall that currently exists. This area was probably drier and more habitable before the flow of Elm Brook was restricted primarily as a result of the construction of Hanscom Air Force Base to the north and partly due to the alteration to Route 2A to the south. If this is the case, then the parcel investigated was the eastern portion of Job Brooks's homelot, which once existed adjacent to and west of the tanyard parcel. No evidence of a slaughterhouse, as Malcolm (1985:73) proposed, was found. The possibility still remains, however, that the eastern part of the site investigated is the remains of the tanyard parcel and that the subsequent activities associated with the parcel, in addition to changes to Route 2A, obscured if not destroyed any traces of its existence.

Archeological investigations of the site did uncover the remains of several 19th-century domestic features, including building-related debris from the demolition of what was probably Mary Ingalls's house. The date when this house

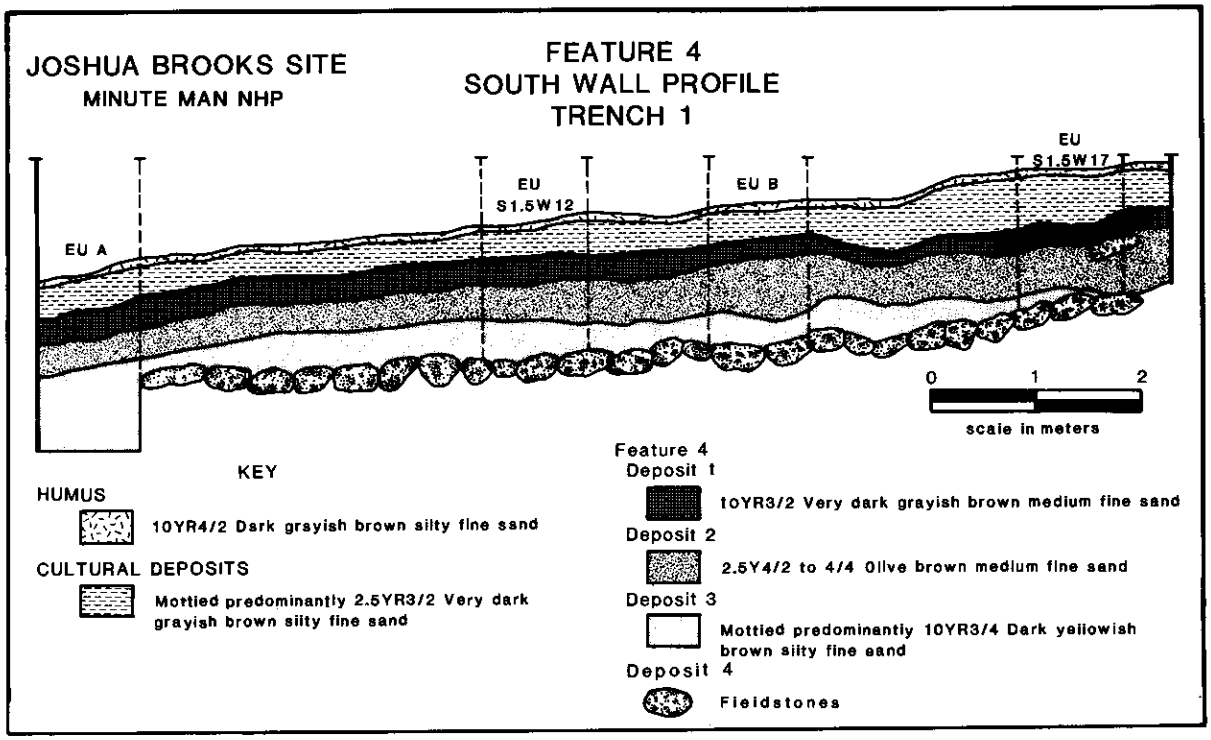


Figure 19-16. South wall profile of Trench 1 at the Joshua Brooks site showing Feature 4.

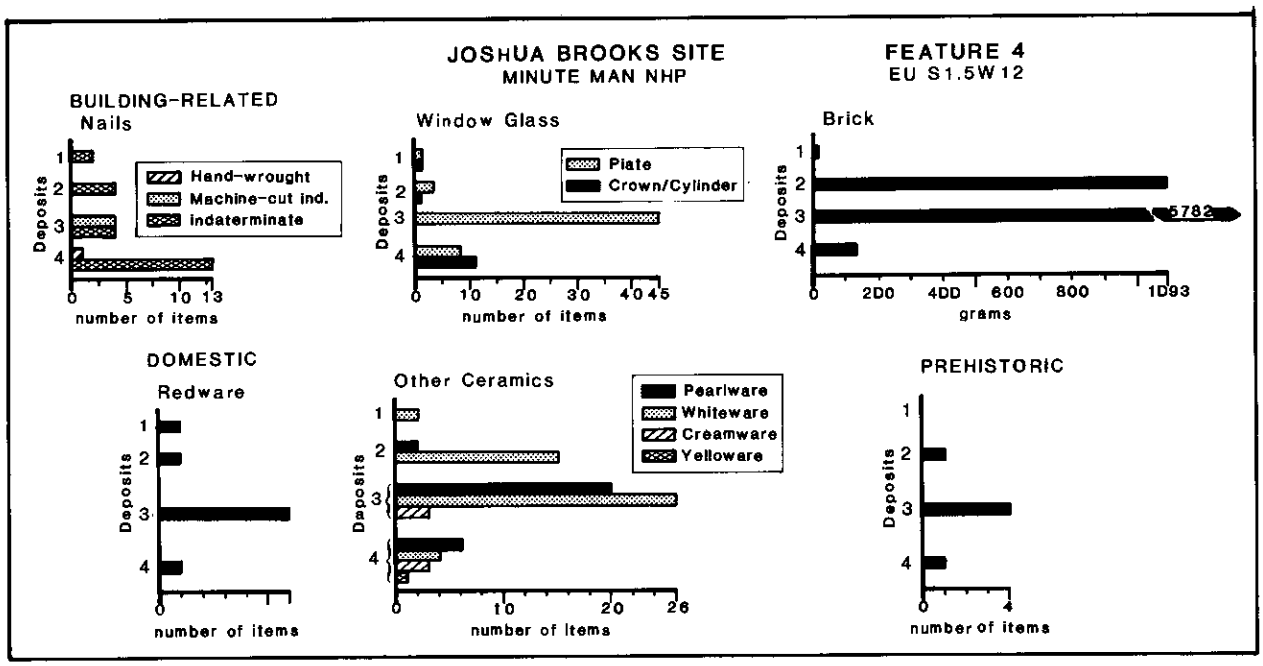


Figure 19-17. Frequencies of selected artifact classes in EU S1.5W12 at the Joshua Brooks site.

was demolished is not certain, although the archeological remains, in conjunction with historical maps of the area, seem to indicate that the house no longer existed by 1875. In addition to these features, the archeological investigations revealed that subsequent to the demolition of this possible house, large amounts of fill were deposited on the parcel in order to terrace the site. This fill transformed the pre–19th-century landscape to its present appearance.

Chapter 20

Summary and Conclusions

Alan T. Synenki

As mentioned in Chapter 1, the primary goal of the MIMA Archeological Project was to answer certain site-specific and Park-wide interpretive questions as they related to the events of 1775 and the cultural landscape in which these events occurred. Most of these questions required the investigation of known sites, the majority of which had been previously investigated. Other questions, however, demanded the investigation of areas of the Park in which the archeological remains were either unknown or only partially known. In order to comprehend some of the forces that helped shape the evolution of the landscape over time, our research not only focused on aspects of the Revolutionary–War-period landscape, but also on the transformations it underwent, both before and after 1775. In this study, as in others in historical archeology, the landscape is viewed not only as a *result* of human actions and biophysical processes, but in many instances is an active *participant*, if you will, in both maintaining the status quo and bringing about larger local, regional, and in some cases, international changes (Beaudry 1984, 1989; Harrington 1989a; Mrozowski and Beaudry 1990; Paynter and Reinke 1984; Rubertone 1986, 1989; Worrell 1980). To accomplish the objectives of the MIMA Archeological Project, an interdisciplinary approach was employed (see Chapter 2).

As can be observed in the preceding 17 chapters, this project's investigations provided answers to most of the site-specific and Park-wide questions that were originally asked. As a result of these investigations, not only were a number of significant features of the 1775 landscape uncovered, but a number of important elements of the 17th-, early-to-mid 18th-, and 19th-century landscapes were also discovered. Through the resolution of the Park-related interpretive questions, a more complete inventory of the numbers and kinds of cultural resources in certain areas of MIMA was achieved, thereby enhancing the effectiveness of the management of these resources.

As mentioned in Chapter 1, beyond their site-specific and Park-wide significance, these data also provided meaningful information about broader regional issues such as the settlement of inland towns in the 17th century, the development of rural industries, and the emergence of agricultural capitalism. These issues relate directly to the people and processes that transformed the landscape in this part of rural Massachusetts from primarily an agriculturally-based settlement to one in which industrial capitalism played an important role. Below, I briefly summarize these questions and issues, and review the data uncovered by this project to address them.

Farmsteads

David Brown and Jonas Bateman Farmsteads

Interdisciplinary investigations of the David Brown and Jonas Bateman sites provided important interpretive information regarding the 1775 landscape in the North Bridge area of MIMA, particularly the location of David Brown's house and the route of the west branch of the Groton Road. These investigations also provided some significant information about the changes in this physical landscape through time—from the mid-17th century through the mid-to-late 19th cen-

tury—and some of the forces that may have helped shape it.

For example, if the original David Brown house, like the David Fiske house (see below), was built with a cellar (evidence of which was uncovered by Tremer [1970, 1973]) as opposed to being a temporary earthfast dwelling, it may indicate that settlement of this part of Concord in the mid-17th century was intended to be permanent from the outset. This permanency could indicate, in turn, that the actual or perceived prospects for economic prosperity were high. Regardless of precisely when the Brown family prospered, they were certainly economically prosperous and socially and politically prominent in the community by at least the mid-18th century. The Browns, like a number of their counterparts in Concord, were part of the new, emerging social order of "elites" (Gross 1984:3). The construction of a new, and most likely larger, house ca. 1752/55 by David Brown not only reflected this prosperity and prominence but most certainly legitimized, if not actively helped create, it. By the late 18th century, however, the Brown family's economic well-being, unlike many of their fellow Concordians, was in jeopardy and continued to be so until the farmstead was sold in the early 19th century. Soon after the farmstead was sold and until at least the third quarter of the 19th century, however, owners and residents of the farmstead modified the landscape in significant ways, as part of the emergence of modern agricultural capitalism (Gross 1982). These modifications included the construction of a new barn (i.e., the "yellow barn"), the removal of the former David Brown house, the construction of stone walls and fences, and the removal and filling of various areas. Archeological investigations of the Jonas Bateman site, in conjunction with Simon Brown's diary (1848–1872), provide very detailed information about the enormous scale of earth moving—and the efforts and energies that the laborers employed by Simon Brown and George Keyes expended on this activity—in the mid-to-late 19th century. This contrasts with available evidence for the 18th century where there does not appear to have been any large-scale landscape alterations, save the construction of the above-mentioned house.

Pollen data support these conclusions. The mid–18th-century pollen spectra collected from under the cellar floor of the David Brown house differ little from the mid–19th-century spectra collected above the floor. Major changes in the local flora, and in the matrix itself, start to appear immediately thereafter. Soil disturbance during demolition resulted in greatly expanded ragweed and goosefoot populations, and the pollen spectra of the soil used to fill the cellar suggest that the fill was derived some distance from the cellar and transported in. Pollen concentrations and preservation measures indicate that the property was plowed at least once after the cellar was filled, while the tree and ragweed pollen counts register both the 20th-century regional decline of agriculture and the first stages of local reforestation on the David Brown farm as land use shifted from an agricultural to a recreational orientation.

Joseph Mason and Daniel Brown Farmsteads

Interdisciplinary investigations of the Joseph Mason site contributed meaningful information about the 1775 landscape; and at the Daniel Brown site, about the early-to-mid 18th century landscape. Together, these sites allow us to make tentative inferences regarding change—or the lack thereof—in the use of homelot space during the 18th century in this part of eastern Massachusetts. Unlike David Brown, Joseph Mason and Daniel Brown were not part of the emerging elite in the 18th century; instead they were artisan-farmers of modest means who lived, respectively, along Virginia Road and Nelson Road in Lincoln. As such, the information acquired about the Joseph Mason and Daniel Brown sites affords an opportunity to understand some of the uses of, and therefore perhaps the physical appearance of, two artisan-farmer's farmsteads.

As a result of the investigations of the Joseph Mason farmstead, both the house and the possible vicinity where his barn was located, were identified. Although some data exist to tentatively

infer the location of the pre-1775 schoolhouse, no evidence was uncovered of the worsted weaver's shop. In addition to these *places*, some information was acquired about the location of some of the *spaces* of the farmstead and their use. For example, documentary data in conjunction with the archeological evidence provide some information about the location of the pasture, and possibly about the location of the farmstead's tillage acreage. The archeological record provides further data about some of the uses of the homelot area's yard spaces. For example, the spatial analysis revealed that, in general, household refuse appears to have been scattered throughout the homelot, especially near the house, despite the availability of other areas for trash disposal. Furthermore, the south yard, which abuts Virginia Road, appears to have been used as a working yard and may never have served as a formal yard. No evidence of large-scale earth removal or fill was uncovered. This pattern of yard use *may* not have changed significantly throughout the 18th century, as the data from this farmstead and the Daniel Brown site appear to indicate.

David Fiske's "homestall"

In contrast to the Joseph Mason and Daniel Brown sites, interdisciplinary investigations of the 17th-century David Fiske "homestall" revealed that the use of space appears to have differed from the Joseph Mason and Daniel Brown farmsteads. If the use of space on these farmsteads is representative of other, contemporaneous sites, then it is possible that there was a distinct difference in the way in which homelot space was used on 17th- and 18th-century farmsteads, at least in this part of eastern Massachusetts. As mentioned in Chapter 1, this data, in conjunction with data regarding house construction type and plan, and perhaps building materials, may be informative about the processes of 17th-century transplantation and settlement in eastern Massachusetts, about which little archeological data exist to date (cf. Beaudry and George 1987; Deetz 1977; DePaoli 1989; Graffam 1981; Pendery 1987; Spencer-Wood 1980; Starbuck 1980; Travers 1987).

One important issue regarding this process is the organization of work, which includes the use of space. For example, archeological excavations of the yard areas surrounding the David Fiske house uncovered a well and a drain west of the house. With the exception of these water management utilities, no features, including a barn or outbuildings, were uncovered. The presence and spatial distribution of certain artifactual remains, however, revealed that both the north and south yards were used intensively, perhaps as the loci of either domestic and/or agricultural activities. In contrast, the east yard appears to have been used exclusively for domestic activities given the presence of high concentrations of domestic debris. Further evidence of the separation of activities may also exist in the possible differential use of the two cellars. Archeological data suggest that the west cellar of the Fiske house may have been used for dairying activities, and the documentary data suggest that the east cellar was used for the storage of various articles. These data are congruent with St. George's (1982a, 1982b) proposed 17th-century farmstead pattern. He posits that, although the yard areas surrounding the house (especially the area between the house and barn) became more intensively used over time, there continued to be separation or partitioning of activities. Although St. George (1982a, 1982b) posits an "idealist" (*sensu* Paynter 1988:402) explanation for this pattern, an alternative explanation may have more to do with the nature or requirements of the work itself, including available technologies, in addition to larger issues of social display as it relates to notions of class and status (Paynter 1988:409–410).

In addition to the organization of work, the archeological data uncovered at the David Fiske site may also, like the 17th-century component of the David Brown farmstead, provide some information regarding the permanency of initial settlement and the perception of economic prosperity in this area of eastern Massachusetts.

Rural Industries

"site of supposed Blacksmith Shop"

Archeological data, in conjunction with the collection and analyses of the documentary information, contributed important knowledge about the location of the blacksmith shop site that once existed on the 18th-century Whittemore property. They also provided meaningful details about some of the major components of the smithy, its configuration, its possible dates of existence, and some of the activities that were conducted there. For example, evidence of the smithy consisted of the remains of the shop's wooden superstructure and possibly its foundation, its forge and possibly its workbench, a possible cobble work area, a charcoal storage area, and two refuse deposits. The possible remains of another building, perhaps in existence when the smithy was in operation, were also uncovered.

Although no conclusive documentary or archeological evidence was uncovered to suggest when the shop began or ceased to operate as a smithy, these data suggest that it is unlikely that it was in operation before the third quarter of the 18th century. On the other hand, the documentary record indicates that it was in existence in 1779 and 1781. Both the documentary and archeological data suggest that the smithy continued to be in operation well into the first quarter of the 19th century.

Above and beyond simply documenting the existence of the blacksmith shop and its possible activities, the archeological data may speak to broader issues of change and continuity in the late 18th and early 19th centuries in eastern Massachusetts. As indicated in Chapter 1, one important change was the transformation of a number of agrarian communities into industrial ones. While the towns of Lincoln and Lexington remained essentially agrarian during this time, they certainly participated in this transformation and may have played an active role. For example, as MacLean (1987:318) has noted, with increasing commercial traffic from this area to Boston came improved roadways and greater usage of wagons, chaises, and the like. One would assume that with increasing traffic came an increase in the demand for the shoeing of horses and the repair of various kinds of wheeled vehicles. The so-called Bull Tavern, which was in operation across the road during that time, most certainly would have provided such a demand. While the archeological data seem to suggest that the smithy on the Whittemore property may have provided a variety of services—from the repair and/or manufacture of items to the shoeing of livestock and/or repair of wagons and chaises, the latter activities may have increased during the late 18th and early 19th centuries as a result of this demand. The presence of the cobble surface and its associated horseshoe nails, as well as possible evidence of the remodeling of the shop and its forge, may be indicative of this growing demand and perhaps a reorientation of the smithy's activities and hence his economic strategy.

"site old hop house"

Archeological investigations of the John Nelson site contributed meaningful information, lacking in the documentary record, about the function and date of the extant foundation that exists at the intersection of Nelson Road and Route 2A. The archeological investigations revealed that the extant foundation was the remains of a hop house as suggested by George Nelson's 1902 sketch map. On the other hand, the archeological data seemed to indicate that the hop house was not in existence in 1775 as Malcolm (1985:31) had suggested. Instead, the archeological investigations uncovered evidence indicating that the hop house was most likely built ca. 1810–1820. Furthermore, the pollen data strongly suggest that the wooden superstructure that once existed atop the foundation was reused for some other agricultural purpose subsequent to its use as a hop house. As Hubka (1984) notes, the reuse of a building's materials or the movement of intact buildings for use elsewhere was a common occurrence in New England. Indeed, some archeological and documentary information about both of these practices was

uncovered at the some of the sites investigated by this project (see Chapters 4, 6, 14).

Beyond the extant foundation's functional and chronological information, the data associated with the hop house is important to our understanding of the kinds of strategies that individual farmers pursued as part of the transformation to modern agricultural capitalism in the early-to-mid 19th century. For example, as Gross (1982:48) has persuasively argued and demonstrated in some detail, the agricultural "revolution" was not a sudden occurrence; instead it was a gradual process in which the farmers of eastern Massachusetts produced increasingly larger amounts of surplus for sale. At the same time, some farmers experimented with new cash crops (Gross 1976). It is likely that the production of hops on the John Nelson farmstead in the early 19th century is an example of the latter strategy since the documentary record suggests that neither the southern portion of Middlesex County in general, nor the towns of Lincoln, Lexington, or Concord, ever produced large quantities of hops.

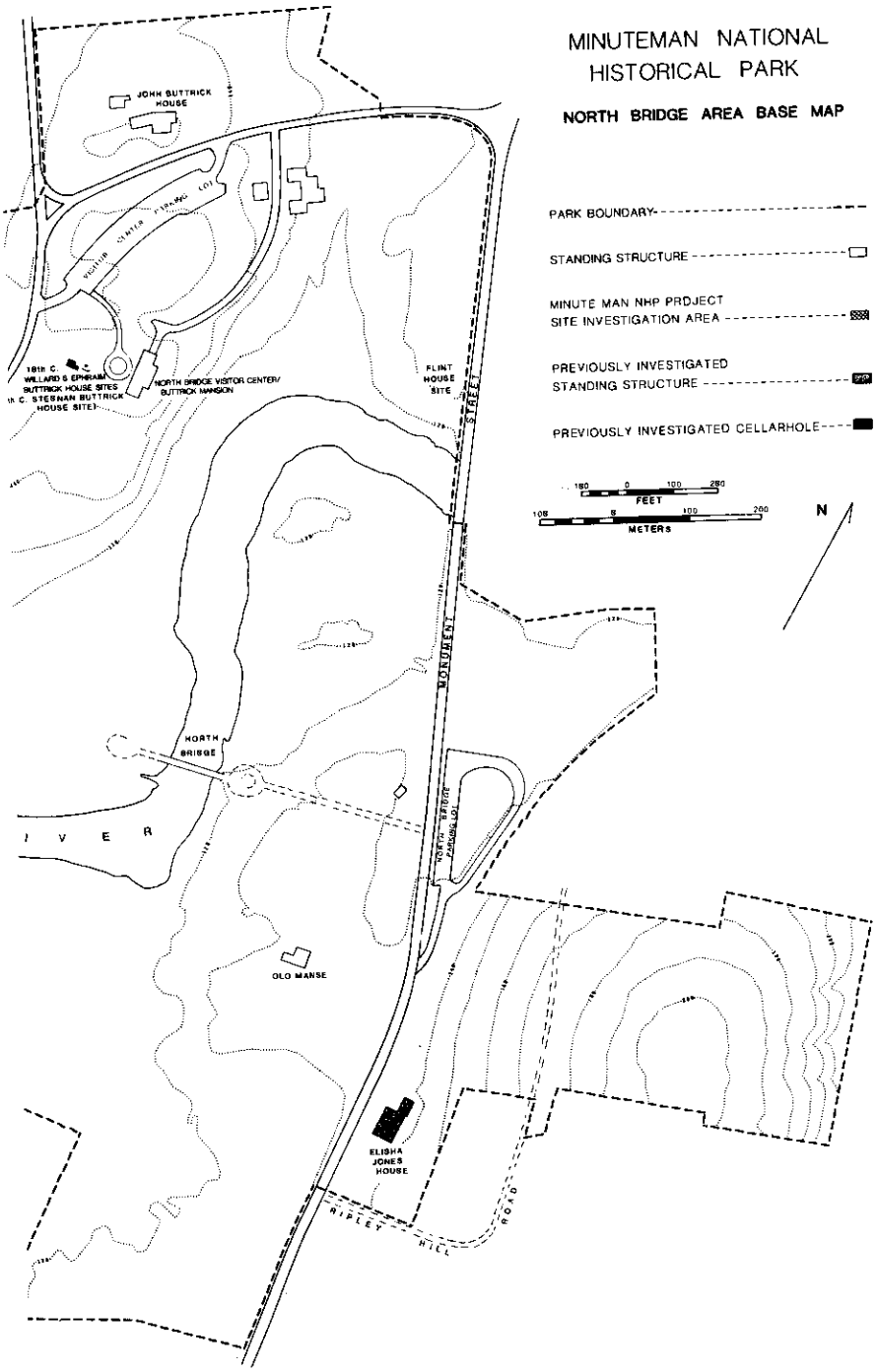
Yet the decision to produce hops during the early-to-mid 19th century, like some other experimental crops during that time, proved to be a poor one by *some* farmers because the costs—time, money, and labor—incurred in their production (cultivation, harvesting, and drying as well as the construction of the hop house itself), their transportation to market, and even their depletion of a farm's future productivity, was never recouped through the sale of the crops themselves. This was because although the price of hops was high, it was known to fluctuate rapidly from year to year, as happened particularly in the 1830s (Bidwell and Falconer 1941: 244–245). Since hops also seemed to rob the soil of nutrients and absorb most of the farm's manure (Russell 1976:381), in some instances this resulted in agricultural land lying fallow, and hence out of production, for some years thereafter. Furthermore, due to intense competition from such states as New York and Vermont, eastern Massachusetts farmers could not compete, and therefore the hops industry was only short-lived. Such appears to have been the case with the hop house on the John Nelson farmstead.

The Brooks Tanyard

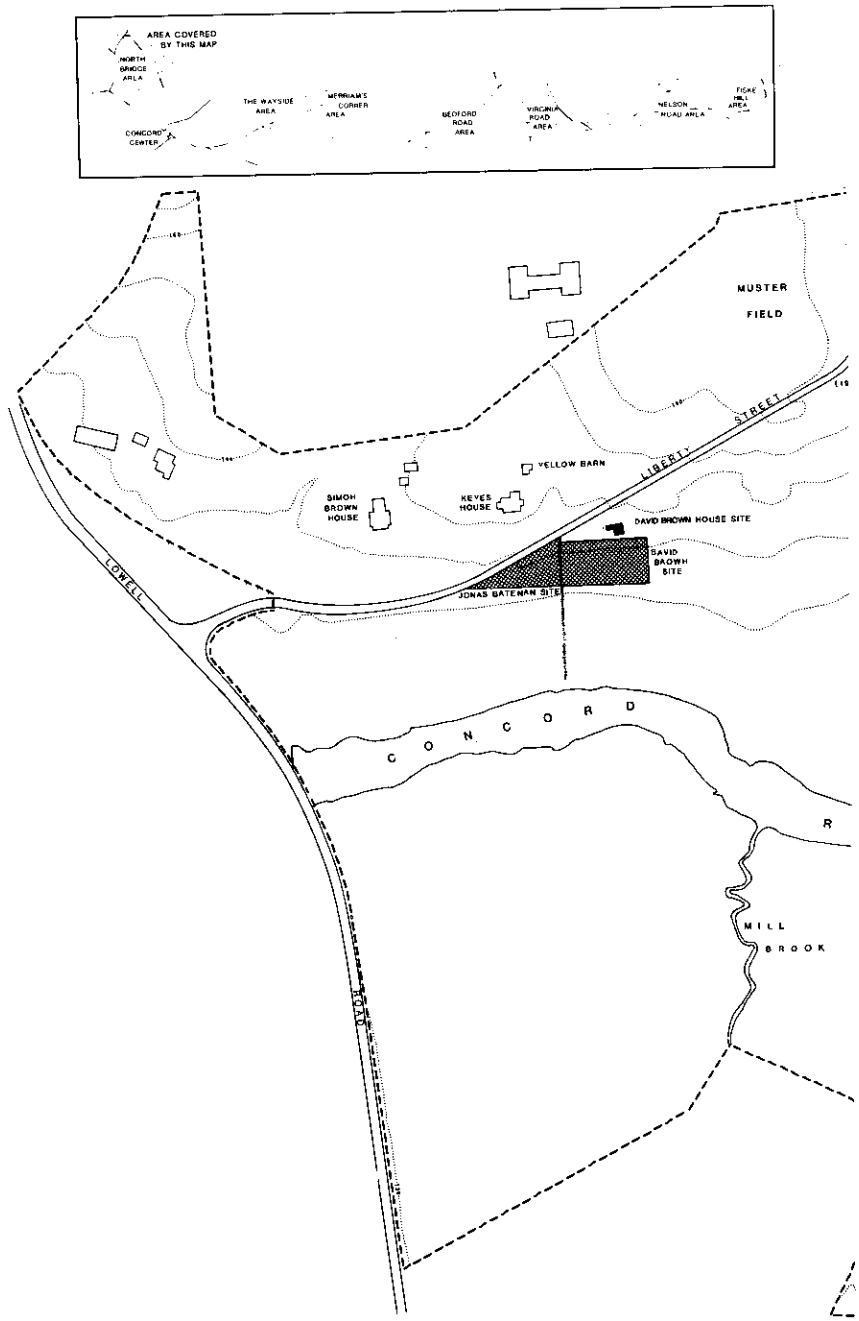
Although the archeological excavations failed to uncover any evidence of the Brooks tanyard in the area that was investigated, its absence in this area may indicate that the tanyard was located further east, within the area that is now considered Elm Brook. The possibility remains, however, that a portion of the tanyard was located on the parcel that was investigated and that its remains have been completely disturbed by later residential activities and/or road construction/maintenance activities. The documentary data seem to indicate that this is unlikely.

Despite the lack of physical evidence of the tanyard, the interdisciplinary investigations revealed several meaningful details about the transformation of the landscape, including the way it was shaped by broader industrial changes in the region.

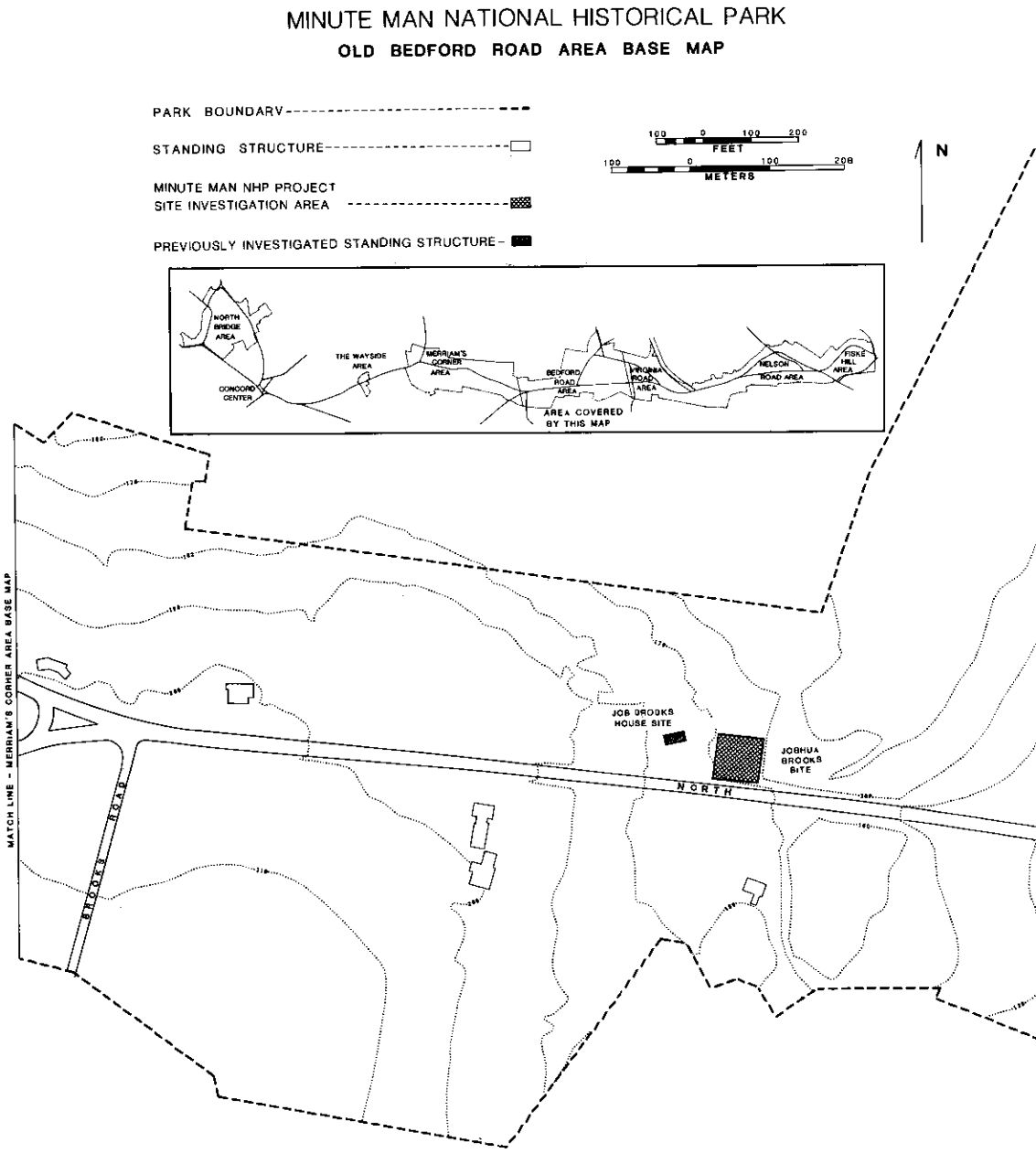
For example, the documentary record indicates that the Brooks tanyard was operated for over 100 years, from approximately 1725 to 1829. Like blacksmiths, tanners were essential artisans of the 17th, 18th, and 19th centuries not only in Lexington, Lincoln, and Concord (Gross 1976:172; MacLean 1987:167) but throughout eastern Massachusetts (Lewis 1984:292–355) and elsewhere in New England. The Brooks family appeared to be no exception. According to the documentary research, the Brooks tanyard consisted of a ¼-acre parcel. By 1745 the tanyard comprised "Tann House and Vatts"; from 1791 until at least 1823, it also included a currier's shop. The Brooks family also owned a slaughterhouse somewhere in Concord in the 18th century. Despite periods of both prosperity and depression, the Brooks family appeared to have prospered throughout the 18th and into the first quarter of the 19th century. This prosperity was no doubt a direct result of local demand for their services and their commodities (MacLean 1987:167–168). Part of this local demand was also fueled by broader demands from the urban areas, in response to both regional and, in some instances, international demands (Lewis 1984). By the



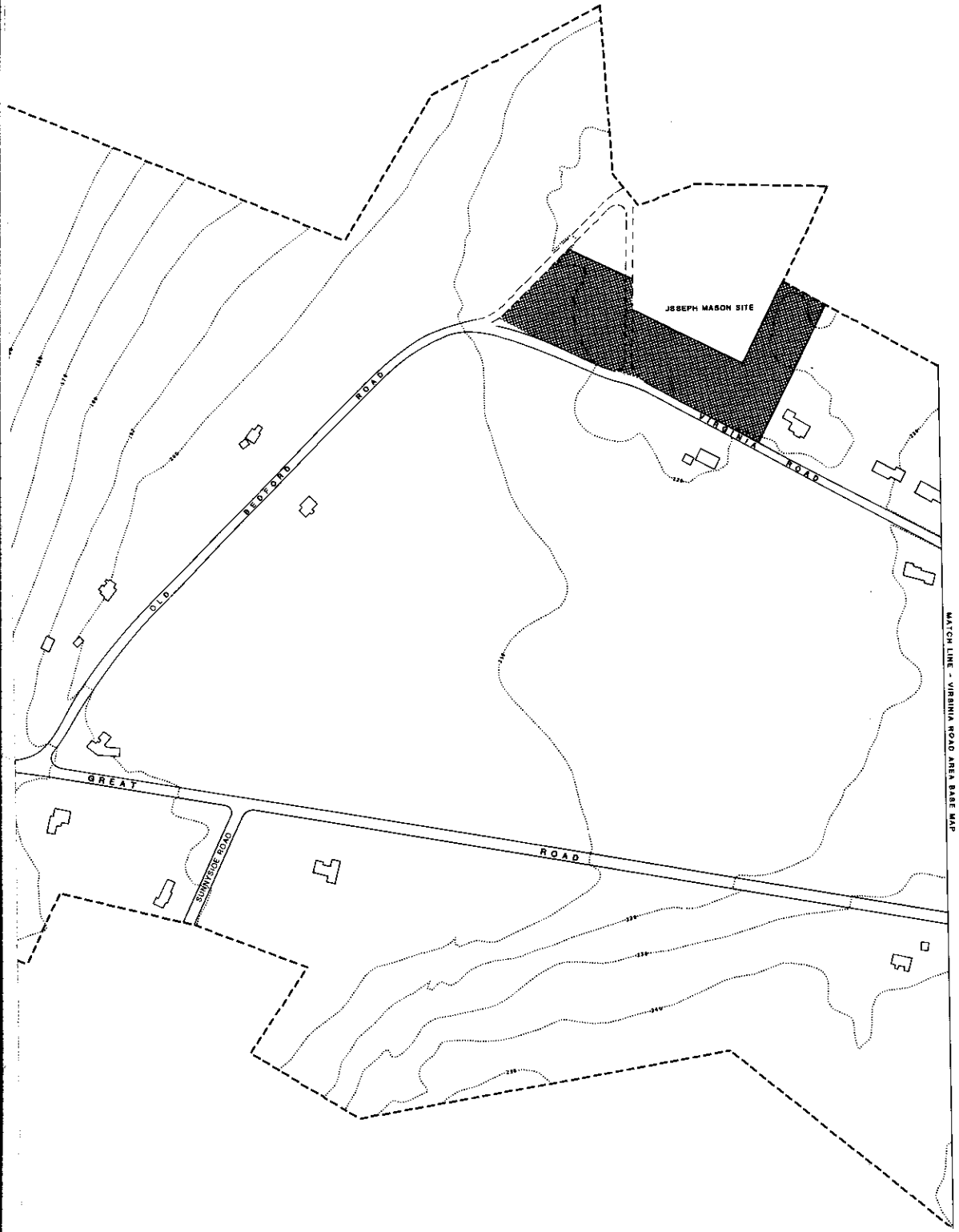
owing the David Brown and Jonas Bateman farmstead sites.

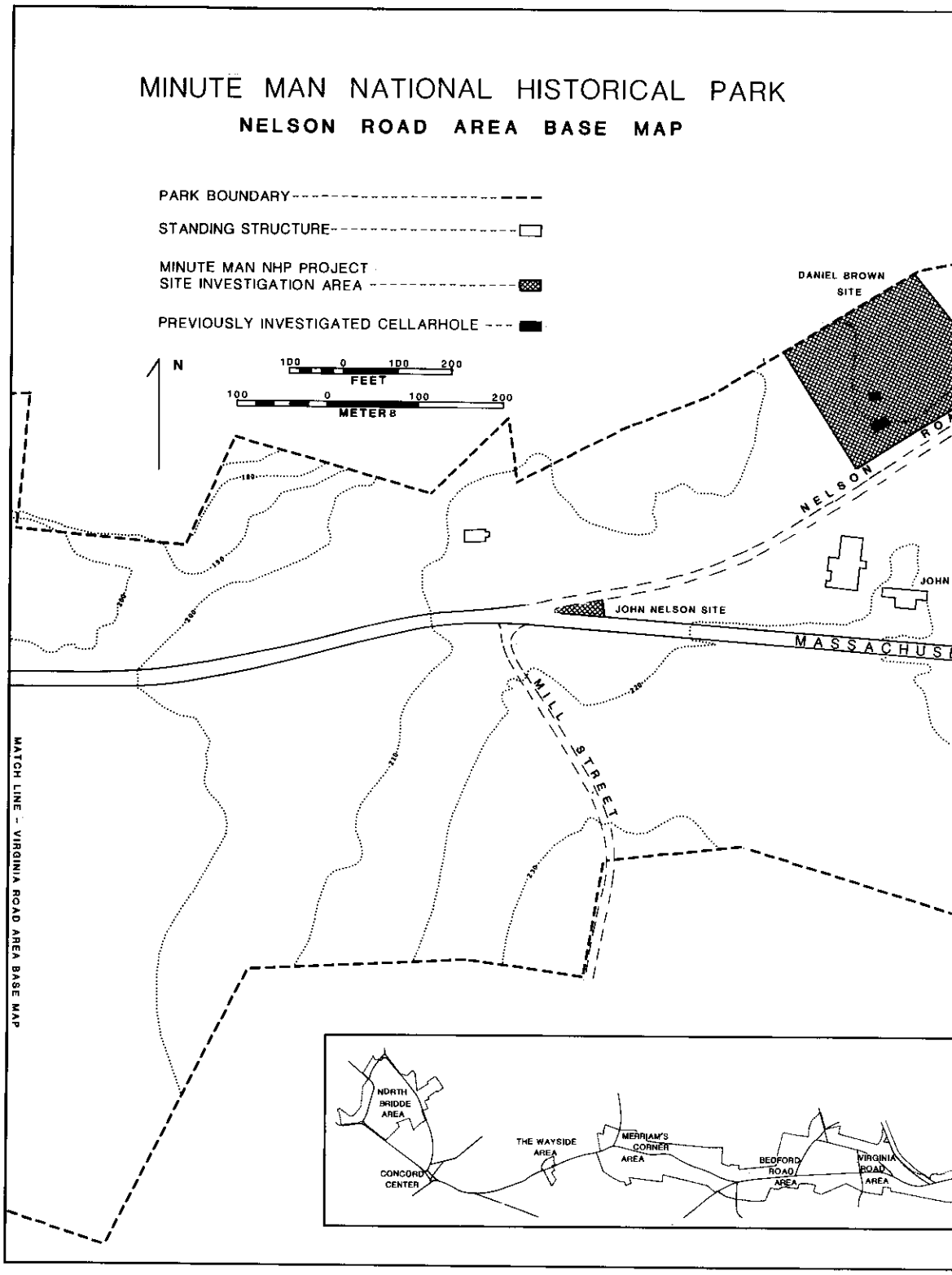


Appendix A-1. Base map of the North Bridge area of MIMA sh



Appendix A-2. Base map of the Old Bedford Road area of MIMA showing the Jose


JOSEPH MASON SITE
OLD BEDFORD ROAD
FAIRFAX ROAD
GREAT ROAD
SUNNYSIDE ROAD
MATCH LINE - VIRGINIA ROAD AREA BASE MAP


MINUTE MAN NATIONAL HISTORICAL PARK
NELSON ROAD AREA BASE MAP
PARK BOUNDARY
STANDING STRUCTURE
MINUTE MAN NHP PROJECT SITE INVESTIGATION AREA
PREVIOUSLY INVESTIGATED CELLARHOLE
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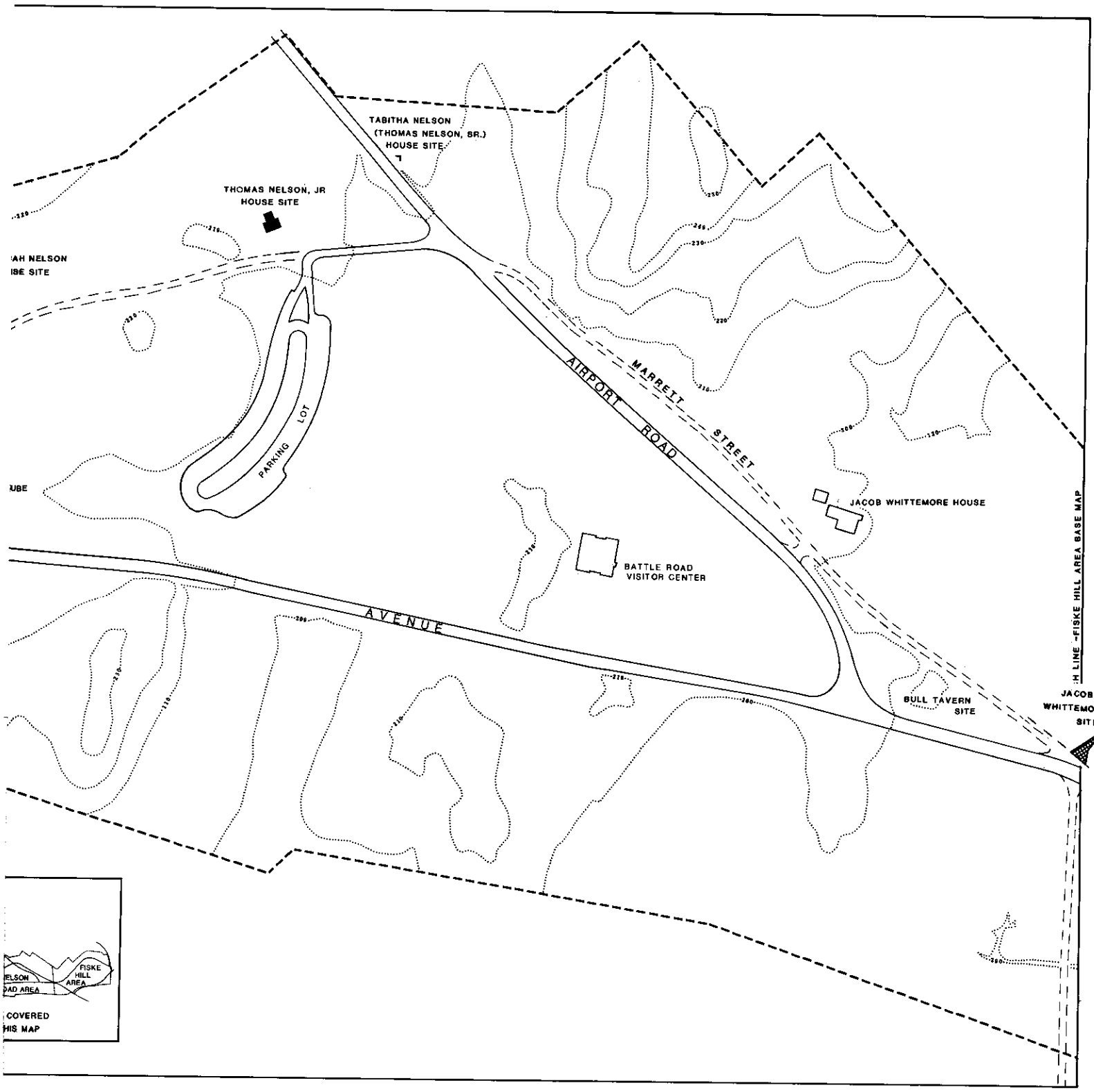
METERS
DANIEL BROWN SITE
NELSON
JOHN NELSON SITE
MASSACHUS
MILL STREET
MATCH LINE - VIRGINIA ROAD AREA BASE MAP
NORTH BRIDGE AREA
CONCORD CENTER
THE WAYSIDE AREA
MERRIAM'S CORNER AREA
BEDFORD ROAD AREA
VIRGINIA ROAD AREA


TABITHA NELSON
(THOMAS NELSON, SR.)
HOUSE SITE
THOMAS NELSON, JR
HOUSE SITE
AH NELSON
ISE SITE
PARKING LOT
AIRPORT ROAD
MARRETT STREET
JACOB WHITTEMORE HOUSE
BATTLE ROAD
VISITOR CENTER
AVENUE
BULL TAVERN
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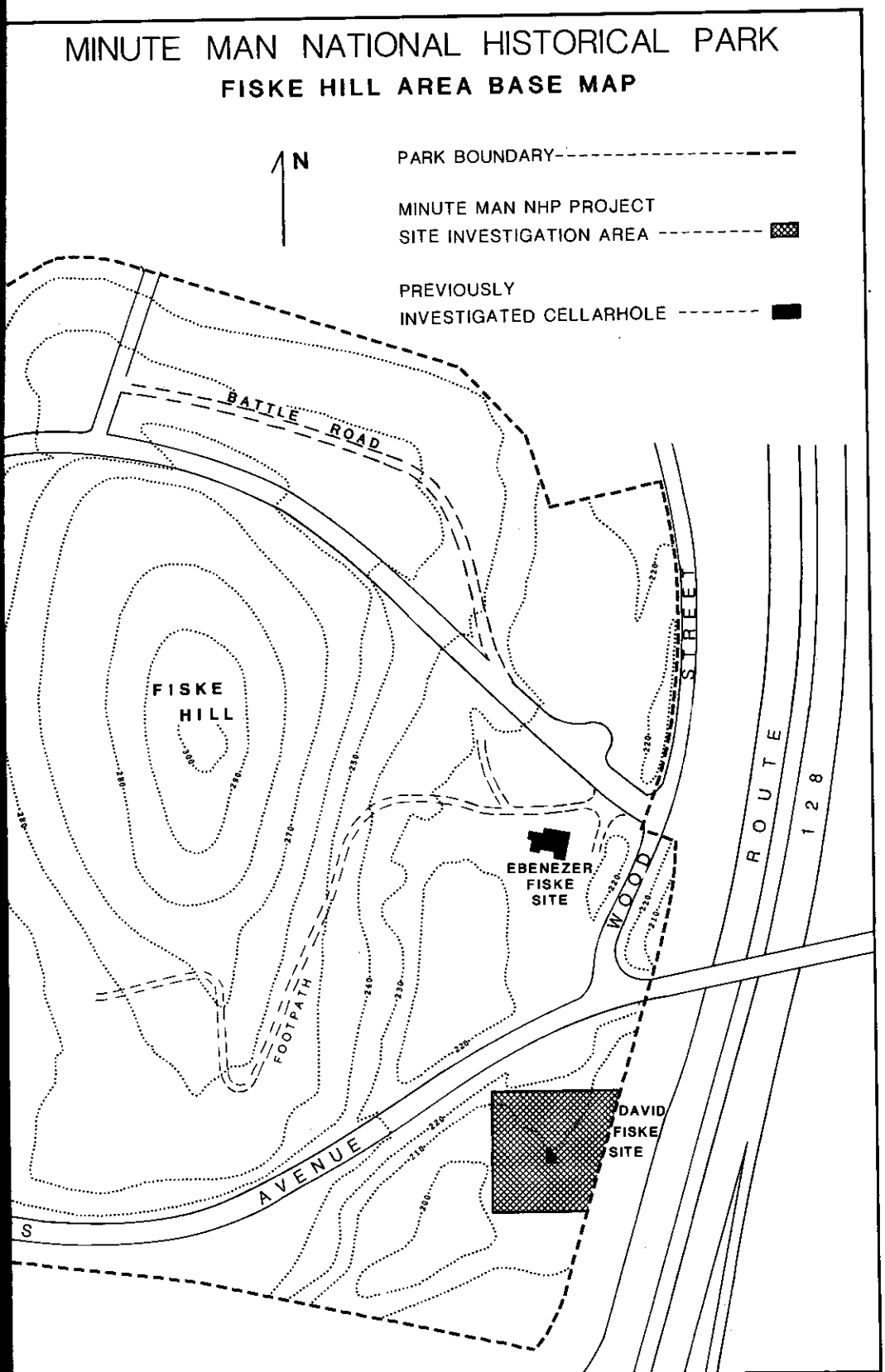

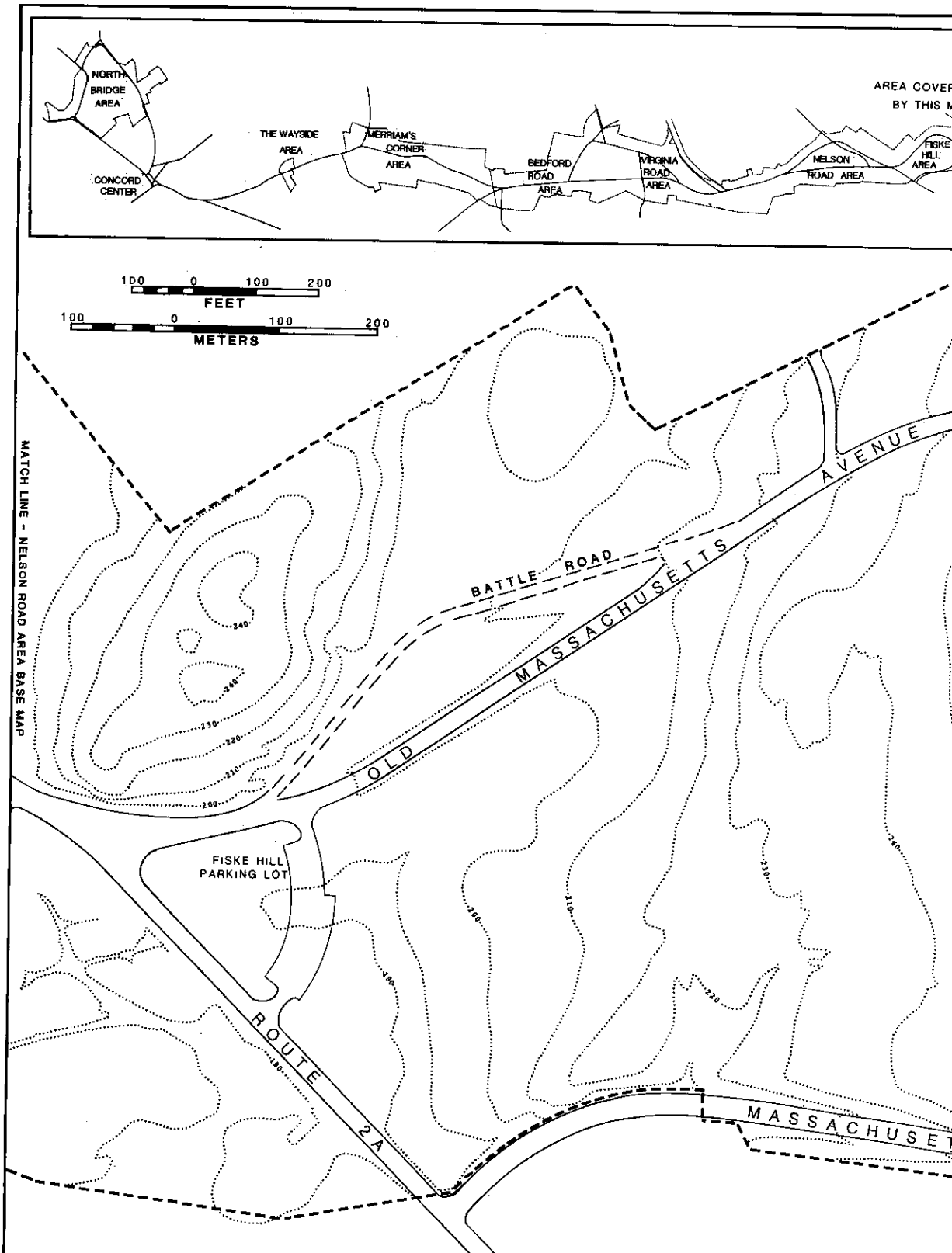
NORTH BRIDGE AREA
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THE WAYSIDE AREA
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BATTLE ROAD
OLD MASSACHUSETTS AVENUE
FISKE HILL PARKING LOT
ROUTE 2A
MASSACHUSET
240
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Appendix B

Artifact Totals by Site

Appendix B-1. Artifact totals from the David Brown site (Accession Number MIMA-00407), the Jonas Bateman site (Accession Number MIMA-00415), and the Joseph Mason site (Accession Number MIMA-00406).

Artifact types	*David Brown site*		*Jonas Bateman site*		*Joseph Mason site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Historic						
Ceramic vessel						
Redware						
Plain	1,465	0.0	213	0.0	1,296	0.0
Lead glazed 1 surface	1,130	0.0	146	0.0	853	0.0
Lead glazed 2 surfaces	306	0.0	26	0.0	285	0.0
Sgraffito	0	0.0	0	0.0	0	0.0
Trailed slipware	21	0.0	5	0.0	72	0.0
Jackfield	13	0.0	0	0.0	2	0.0
Astbury	0	0.0	0	0.0	0	0.0
All other	52	0.0	88	0.0	95	0.0
Total redware	2,987	0.0	478	0.0	2,603	0.0
Tin enamel						
Delft	82	0.0	7	0.0	22	0.0
Rouen/Faience	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	1	0.0
Total tin enamel	82	0.0	7	0.0	23	0.0
Coarse buff-body						
Combed ware	3	0.0	2	0.0	51	0.0
Dotted ware	1	0.0	0	0.0	7	0.0
N. Devon gravel	0	0.0	0	0.0	0	0.0
Mottled	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	1	0.0
Total coarse buff-body	4	0.0	2	0.0	59	0.0
Creamware						
Plain	617	0.0	96	0.0	672	0.0
Shell-edged	0	0.0	0	0.0	0	0.0
Other edge-decorated	1	0.0	0	0.0	0	0.0
Handpainted	7	0.0	0	0.0	15	0.0
Annular	7	0.0	0	0.0	1	0.0
Transfer-printed	1	0.0	0	0.0	0	0.0
Sponge-decorated	0	0.0	0	0.0	0	0.0
All other	7	0.0	0	0.0	5	0.0
Total creamware	640	0.0	96	0.0	693	0.0
Pearlware						
Plain	548	0.0	20	0.0	206	0.0
Shell-edged	44	0.0	2	0.0	77	0.0
Other edge-decorated	14	0.0	2	0.0	0	0.0
Handpainted	160	0.0	6	0.0	180	0.0
Annular	28	0.0	0	0.0	0	0.0
Transfer-printed	110	0.0	2	0.0	16	0.0
Sponge-decorated	0	0.0	0	0.0	0	0.0
All other	21	0.0	0	0.0	4	0.0
Total pearlware	925	0.0	32	0.0	483	0.0

Appendix B-1 (cont.). Artifact totals from the David Brown site (Accession Number MIMA-00407), the Jonas Bateman site (Accession Number MIMA-00415), and the Joseph Mason site (Accession Number MIMA-00406).

	David Brown site		*Jonas Bateman site*		*Joseph Mason site*	
Artifact types	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Whiteware						
Plain	950	0.0	103	0.0	132	0.0
Shell-edged	25	0.0	0	0.0	5	0.0
Other edge-decorated	6	0.0	0	0.0	2	0.0
Handpainted	78	0.0	0	0.0	14	0.0
Annular	16	0.0	0	0.0	0	0.0
Transfer-printed	244	0.0	8	0.0	21	0.0
Sponge-decorated	5	0.0	0	0.0	1	0.0
All other	33	0.0	4	0.0	4	0.0
Total whiteware	1,357	0.0	115	0.0	179	0.0
Other earthenware						
Whieldon ware	26	0.0	0	0.0	1	0.0
Lusterware	0	0.0	0	0.0	0	0.0
Agateware	0	0.0	0	0.0	0	0.0
Rockingham/Bennington	22	0.0	3	0.0	1	0.0
Yelloware	93	0.0	36	0.0	1	0.0
All other	128	0.0	20	0.0	86	0.0
Total other earthenware	269	0.0	59	0.0	89	0.0
Porcelain						
Undecorated	113	0.0	6	0.0	23	0.0
Underglaze hndpntd monochrome	7	0.0	2	0.0	8	0.0
Underglaze hndpntd polychrome	0	0.0	0	0.0	0	0.0
Overglaze hndpntd monochrome	2	0.0	0	0.0	4	0.0
Overglaze hndpntd polychrome	1	0.0	0	0.0	5	0.0
Gilted	5	0.0	0	0.0	1	0.0
Transfer-printed	0	0.0	0	0.0	10	0.0
All other	0	0.0	1	0.0	4	0.0
Total porcelain	128	0.0	9	0.0	55	0.0
White salt-glazed stoneware						
Plain	63	0.0	2	0.0	52	0.0
Molded	0	0.0	0	0.0	0	0.0
Scratch blue	16	0.0	0	0.0	5	0.0
All other	0	0.0	0	0.0	1	0.0
Total white salt-glazed stoneware	79	0.0	2	0.0	58	0.0
Drybody stoneware						
Black basalte	0	0.0	0	0.0	0	0.0
Rosso antico	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	0	0.0
Total drybody	0	0.0	0	0.0	0	0.0
Other stoneware						
Nottingham	5	0.0	0	0.0	3	0.0
Bellarmine/Frechen	0	0.0	0	0.0	0	0.0
Westerwald/Raeren	0	0.0	0	0.0	0	0.0
Domestic	108	0.0	0	0.0	3	0.0
All other	83	0.0	1	0.0	12	0.0
Total other	196	0.0	1	0.0	18	0.0
Total ceramic vessel	6,667	0.0	801	0.0	4,260	0.0

Appendix B-1 (cont.). Artifact totals from the David Brown site (Accession Number MIMA-00407), the Jonas Bateman site (Accession Number MIMA-00415), and the Joseph Mason site (Accession Number MIMA-00406).

Artifact types	*David Brown site*		*Jonas Bateman site*		*Joseph Mason site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Tobacco pipe						
White clay						
Bowls	49	0.0	11	0.0	12	0.0
Stems: 4/64	14	0.0	3	0.0	1	0.0
5/64	34	0.0	8	0.0	11	0.0
6/64	5	0.0	3	0.0	2	0.0
7/64	3	0.0	4	0.0	4	0.0
8/64	0	0.0	0	0.0	0	0.0
9/64	0	0.0	0	0.0	0	0.0
Indeterminate	4	0.0	1	0.0	5	0.0
Total white clay	109	0.0	30	0.0	35	0.0
All other	0	0.0	0	0.0	1	0.0
Total tobacco pipe	109	0.0	30	0.0	36	0.0
Bottle glass						
Freeblown	124	0.0	3	0.0	152	0.0
Contact molded	654	0.0	38	0.0	226	0.0
Pattern molded	0	0.0	0	0.0	0	0.0
Press molded	0	0.0	0	0.0	0	0.0
Optic molded	0	0.0	0	0.0	0	0.0
Machine made	12	0.0	11	0.0	71	0.0
All other	43	0.0	1	0.0	27	0.0
Total bottle glass	833	0.0	53	0.0	476	0.0
Drinking vessel glass						
Freeblown	12	0.0	2	0.0	28	0.0
Contact molded	22	0.0	0	0.0	16	0.0
Pattern molded	2	0.0	0	0.0	0	0.0
Press molded	16	0.0	0	0.0	1	0.0
Optic molded	0	0.0	0	0.0	0	0.0
Machine made	0	0.0	0	0.0	4	0.0
All other	0	0.0	1	0.0	2	0.0
Total drinking vessel glass	52	0.0	3	0.0	51	0.0
Indeterminate vessel						
Freeblown	1	0.0	4	0.0	2	0.0
Molded	153	0.0	24	0.0	75	0.0
Indeterminate	22	0.0	8	0.0	20	0.0
Total indeterminate vessel glass	176	0.0	36	0.0	97	0.0
Bottle closures						
Ceramic	0	0.0	0	0.0	0	0.0
Glass	1	0.0	0	0.0	0	0.0
Metal	4	0.0	0	0.0	90	0.0
Synthetic	1	0.0	0	0.0	4	0.0
Wood/cork	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	0	0.0
Total bottle closures	6	0.0	0	0.0	94	0.0

Appendix B-1 (cont.). Artifact totals from the David Brown site (Accession Number MIMA-00407), the Jonas Bateman site (Accession Number MIMA-00415), and the Joseph Mason site (Accession Number MIMA-00406).

	David Brown site		*Jonas Bateman site*		*Joseph Mason site*	
Artifact types	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Apparel						
Clothing	0	0.0	0	0.0	0	0.0
Footwear	16	0.0	0	0.0	58	0.0
Buttons	72	0.0	1	0.0	14	0.0
Buckles	5	0.0	0	0.0	8	0.0
Other fasteners	4	0.0	0	0.0	5	0.0
Total apparel	97	0.0	1	0.0	85	0.0
Household and personal objects						
Tableware	8	0.0	3	0.0	8	0.0
Kitchenware	952	0.0	0	0.0	99	0.0
Furniture and hardware	21	0.0	0	0.0	0	0.0
Lighting fixtures	265	0.0	34	0.0	20	0.0
Decorative objects	11	0.0	0	0.0	13	0.0
Toiletries	11	0.0	0	0.0	1	0.0
Stationery	8	0.0	0	0.0	4	0.0
Coins/tokens/medals	14	0.0	1	0.0	4	0.0
Personal objects	60	0.0	2	0.0	18	0.0
Toys	15	0.0	0	0.0	5	0.0
Total household and pers. objects	1,365	0.0	40	0.0	172	0.0
Window glass						
Crown/cylinder	2,629	0.0	93	0.0	346	0.0
Plate	1,744	0.0	19	0.0	249	0.0
Indeterminate	49	0.0	24	0.0	49	0.0
Total window glass	4,422	0.0	136	0.0	644	0.0
Nails						
Hand wrought	781	0.0	61	0.0	93	0.0
Machine cut	991	0.0	22	0.0	74	0.0
Machine cut I	5	0.0	0	0.0	0	0.0
Machine cut II	17	0.0	0	0.0	3	0.0
Wire	15	0.0	0	0.0	139	0.0
Indeterminate	2,919	0.0	51	0.0	177	0.0
Total nails	4,728	0.0	134	0.0	486	0.0
Other fastening devices						
Screws	16	0.0	1	0.0	10	0.0
Staples	3	0.0	0	0.0	2	0.0
Bolts	0	0.0	0	0.0	1	0.0
Total other fastening	19	0.0	1	0.0	13	0.0
Structural material						
Brick	0	598,837.3	0	5,558.0	0	453,870.3
Mortar/plaster	0	28,450.2	0	4.9	0	2,334.7
Stone	80	78,476.5	10	0.0	2	0.0
Earthenware/stoneware	5	0.8	0	0.0	1	0.0
Porcelain	0	0.0	0	0.0	0	0.0
Metal	0	0.0	0	0.0	0	0.0
Wood	0	663.9	0	1.2	0	215.1
Synthetic	0	0.0	0	0.0	40	0.0
All other	1	2,133.4	0	0.0	0	2,201.3
Total structural	86	708,562.1	10	5586.1	43	458,621.4

Appendix B-1 (oont.). Artifact totals from the David Brown site (Accession Number MIMA-00407), the Jonas Bateman site (Accession Number MIMA-00415), and the Joseph Mason site (Accession Number MIMA-00406).

Artifact types	*David Brown site*		*Jonas Bateman site*		*Joseph Mason site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Tools and hardware						
Window hardware	16	0.0	0	0.0	5	0.0
Door hardware	1	0.0	0	0.0	2	0.0
Electrical hardware	8	0.0	0	0.0	1	0.0
Plumbing hardware	1	0.0	0	0.0	0	0.0
Lighting/heating	1	0.0	0	0.0	0	0.0
Hand tools	3	0.0	0	0.0	0	0.0
Machine parts	0	0.0	0	0.0	0	0.0
Domestic animal gear	1	0.0	0	0.0	0	0.0
Transportation objects	1	0.0	0	0.0	3	0.0
Weaponry/accoutrements	1	0.0	0	0.0	2	0.0
Gunflints	12	0.0	2	0.0	2	0.0
Worked stone/groundstone	0	0.0	0	0.0	0	0.0
Commercial equipment	0	0.0	0	0.0	0	0.0
Miscellaneous	96	0.0	8	0.0	57	0.0
Total tools and hardware	141	0.0	10	0.0	72	0.0
Fuel and fire byproducts						
Coal	1	12,972.9	0	673.3	0	76.8
Cinders/clinkers	0	885.8	0	14.0	0	59.5
Charcoal	0	84.5	0	21.4	0	91.5
Ash	0	0.0	0	0.0	1	0.0
Bog iron	0	0.0	0	0.0	0	0.0
Slag	0	2337.9	0	13.6	0	392.0
Composite fire byproducts	0	0.0	0	0.0	0	0.0
Total fuel and fire byproducts	1	16,281.1	0	722.3	1	619.8
Shell						
Bivalves	0	103.0	0	11.3	0	505.2
Univalves	0	0.0	0	0.0	0	4.0
Indeterminate shell	0	3.0	0	0.3	0	7.2
Coral	0	0.0	0	0.0	0	0.0
Total shell	0	106.0	0	11.6	0	516.4
Bone						
Fish	5	0.0	0	0.0	0	0.0
Mammal	451	0.0	25	0.0	395	0.0
Bird	18	0.0	0	0.0	5	0.0
Human	1	0.0	0	0.0	0	0.0
All other	31	0.0	30	0.0	18	0.0
Total bone	506	0.0	55	0.0	418	0.0
Vegetal material						
Seeds	2	0.0	0	0.0	14	0.0
Nutshells	8	0.0	0	0.0	0	0.0
Total vegetal material	10	0.0	0	0.0	14	0.0
Samples						
Soil	42	0.0	0	0.0	75	0.0
C-14	0	0.0	0	0.0	0	0.0
Flotation	0	0.0	0	0.0	0	0.0
Pollen	25	0.0	0	0.0	0	0.0
All other	0	0.1	0	0.0	2	0.0
Total samples	67	0.1	0	0.0	77	0.0

Appendix B-1 (cont.). Artifact totals from the David Brown site (Accession Number MIMA-00407), the Jonas Bateman site (Accession Number MIMA-00415), and the Joseph Mason site (Accession Number MIMA-00406).

Artifact types	*David Brown site*		*Jonas Bateman site*		*Joseph Mason site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Miscellaneous						
Indeterminate metal	644	0.0	27	0.0	314	0.0
Other indeterminate	80	0.0	9	0.0	77	0.0
Metal residue	0	0.0	0	0.0	0	0.0
All other	6	256.6	0	8.1	1	6.4
Total miscellaneous	730	256.6	36	8.1	392	6.4
Total historic artifacts	20,015	725,205.9	1,346	6,328.1	7,431	459,764.0
Prehistoric						
Stone						
Chipped stone						
Projectile points	3	0.0	3	0.0	2	0.0
Bifaces	5	0.0	4	0.0	0	0.0
Unifaces	0	0.0	0	0.0	0	0.0
Cores	0	0.0	0	0.0	0	0.0
Shatter/block	4	0.0	1	0.0	0	0.0
Decortication flakes	1	0.0	5	0.0	13	0.0
Flakes	93	0.0	202	0.0	2	0.0
Trim flakes	0	0.0	0	0.0	0	0.0
Total chipped stone	106	0.0	215	0.0	17	0.0
Fire-cracked rock	0	0.0	0	0.0	0	0.0
Groundstone	0	0.0	0	0.0	0	0.0
Total stone	106	0.0	215	0.0	17	0.0
Ceramics	0	0.0	6	0.0	2	0.0
Bone	0	0.0	36	0.0	0	0.0
Shell	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	0	0.0
Total prehistoric	106	0.0	257	0.0	19	0.0
Total artifacts	20,121	725,205.9	1,603	6,328.1	7,450	459,764.0

Appendix B-2. Artifact totals from the David Fiske site (Accession Number MIMA-00424) and the Daniel Brown site (Accession Number MIMA-00427).

Artifact types	*David Fiske site*		*Daniel Brown site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*
Historic				
Ceramic vessel				
Redware				
Plain	982	0.0	730	0.0
Lead glazed 1 surface	743	0.0	665	0.0
Lead glazed 2 surfaces	95	0.0	96	0.0
Sgraffito	0	0.0	0	0.0
Trailed slipware	32	0.0	62	0.0
Jackfield	0	0.0	0	0.0
Astbury	6	0.0	0	0.0
All other	334	0.0	222	0.0
Total redware	2,192	0.0	1,775	0.0
Tin enamel				
Delft	5	0.0	19	0.0
Rouen/Faience	0	0.0	0	0.0
All other	40	0.0	0	0.0
Total tin enamel	45	0.0	19	0.0
Coarse buff-body				
Combed ware	36	0.0	9	0.0
Dotted ware	4	0.0	1	0.0
N. Devon gravel	0	0.0	0	0.0
Mottled	6	0.0	0	0.0
All other	0	0.0	0	0.0
Total coarse buff-body	46	0.0	10	0.0
Creamware				
Plain	92	0.0	20	0.0
Shell-edged	0	0.0	0	0.0
Other edge-decorated	0	0.0	0	0.0
Handpainted	0	0.0	0	0.0
Annular	1	0.0	0	0.0
Transfer-printed	0	0.0	0	0.0
Sponge-decorated	0	0.0	0	0.0
All other	0	0.0	0	0.0
Total creamware	93	0.0	20	0.0
Pearlware				
Plain	38	0.0	10	0.0
Shell-edged	2	0.0	2	0.0
Other edge-decorated	0	0.0	0	0.0
Handpainted	7	0.0	3	0.0
Annular	1	0.0	1	0.0
Transfer-printed	7	0.0	0	0.0
Sponge-decorated	0	0.0	0	0.0
All other	0	0.0	2	0.0
Total pearlware	55	0.0	18	0.0

Appendix B-2 (cont.). Artifact totals from the David Fiske site (Accession Number MIMA-00424) and the Daniel Brown site (Accession Number MIMA-00427).

Artifact types	*David Fiske site*		*Daniel Brown site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*
Whiteware				
Plain	251	0.0	29	0.0
Shell-edged	1	0.0	2	0.0
Other edge-decorated	1	0.0	0	0.0
Handpainted	9	0.0	1	0.0
Annular	0	0.0	0	0.0
Transfer-printed	23	0.0	16	0.0
Sponge-decorated	0	0.0	0	0.0
All other	6	0.0	0	0.0
Total whiteware	291	0.0	48	0.0
Other earthenware				
Whieldon ware	0	0.0	0	0.0
Lusterware	0	0.0	0	0.0
Agateware	0	0.0	0	0.0
Rockingham/Bennington	0	0.0	0	0.0
Yelloware	18	0.0	2	0.0
All other	39	0.0	12	0.0
Total other earthenware	57	0.0	14	0.0
Porcelain				
Undecorated	14	0.0	1	0.0
Underglaze hndpntd monochrome	5	0.0	0	0.0
Underglaze hndpntd polychrome	1	0.0	0	0.0
Overglaze hndpntd monochrome	1	0.0	0	0.0
Overglaze hndpntd polychrome	3	0.0	0	0.0
Gilted	0	0.0	0	0.0
Transfer-printed	6	0.0	0	0.0
All other	5	0.0	0	0.0
Total porcelain	35	0.0	1	0.0
White salt-glazed stoneware				
Plain	1	0.0	5	0.0
Molded	0	0.0	0	0.0
Scratch blue	0	0.0	1	0.0
All other	0	0.0	0	0.0
Total white salt-glazed stoneware	1	0.0	6	0.0
Drybody stoneware				
Black basalte	0	0.0	0	0.0
Rosso antico	0	0.0	0	0.0
All other	0	0.0	0	0.0
Total drybody stoneware	0	0.0	0	0.0
Other stoneware				
Nottingham	1	0.0	0	0.0
Bellarmine/Frechen	1	0.0	0	0.0
Westerwald/Raeren	0	0.0	0	0.0
Domestic	2	0.0	1	0.0
All other	8	0.0	5	0.0
Total other stoneware	12	0.0	6	0.0
Total ceramic vessel	2,827	0.0	1,917	0.0

Appendix B-2 (cont.). Artifact totals from the David Fiske site (Accession Number MIMA-00424) and the Daniel Brown site (Accession Number MIMA-00427).

Artifact types	*David Fiske site*		*Daniel Brown site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*
Tobacco pipe				
White clay				
Bowls	42	0.0	71	0.0
Stems: 4/64	4	0.0	8	0.0
5/64	11	0.0	41	0.0
6/64	7	0.0	18	0.0
7/64	1	0.0	0	0.0
8/64	4	0.0	0	0.0
9/64	0	0.0	0	0.0
Indeterminate	6	0.0	21	0.0
Total white clay	75	0.0	159	0.0
All other	0	0.0	0	0.0
Total tobacco pipe	75	0.0	159	0.0
Bottle glass				
Freeblown	19	0.0	19	0.0
Contact molded	188	0.0	52	0.0
Pattern molded	0	0.0	0	0.0
Press molded	0	0.0	1	0.0
Optic molded	0	0.0	0	0.0
Machine made	39	0.0	253	0.0
All other	13	0.0	22	0.0
Total bottle glass	259	0.0	347	0.0
Drinking vessel glass				
Freeblown	4	0.0	4	0.0
Contact molded	2	0.0	1	0.0
Pattern molded	0	0.0	0	0.0
Press molded	0	0.0	0	0.0
Optic molded	1	0.0	0	0.0
Machine made	0	0.0	0	0.0
All other	0	0.0	1	0.0
Total drinking vessel glass	7	0.0	6	0.0
Indeterminate vessel glass				
Freeblown	5	0.0	3	0.0
Molded	60	0.0	19	0.0
Indeterminate	21	0.0	11	0.0
Total indeterminate vessel glass	86	0.0	33	0.0
Bottle closures				
Ceramic	0	0.0	0	0.0
Glass	0	0.0	0	0.0
Metal	32	0.0	2	0.0
Synthetic	0	0.0	0	0.0
Wood/cork	0	0.0	0	0.0
All other	0	0.0	0	0.0
Total bottle closures	32	0.0	2	0.0

Appendix B-2 (cont.). Artifact totals from the David Fiske site (Accession Number MIMA-00424) and the Daniel Brown site (Accession Number MIMA-00427).

Artifact types	*David Fiske site* Frequency	Weight/g	*Daniel Brown site* Frequency	Weight/g
Apparel				
Clothing	0	0.0	0	0.0
Footwear	0	0.0	0	0.0
Buttons	12	0.0	5	0.0
Buckles	3	0.0	1	0.0
Other fasteners	5	0.0	0	0.0
Total apparel	20	0.0	6	0.0
Household and personal objects				
Tableware	0	0.0	1	0.0
Kitchenware	239	0.0	12	0.0
Furniture and hardware	0	0.0	0	0.0
Lighting fixtures	14	0.0	4	0.0
Decorative objects	0	0.0	0	0.0
Toiletries	0	0.0	0	0.0
Stationery	0	0.0	0	0.0
Coins/tokens/medals	3	0.0	1	0.0
Personal objects	4	0.0	8	0.0
Toys	6	0.0	0	0.0
Total household and pers. objects	266	0.0	26	0.0
Window glass				
Crown/cylinder	105	0.0	82	0.0
Plate	105	0.0	28	0.0
Indeterminate	45	0.0	10	0.0
Total window glass	255	0.0	120	0.0
Nails				
Hand wrought	600	0.0	93	0.0
Machine cut	34	0.0	7	0.0
Machine cut I	0	0.0	0	0.0
Machine cut II	0	0.0	0	0.0
Wire	47	0.0	2	0.0
Indeterminate	318	0.0	19	0.0
Total nails	999	0.0	121	0.0
Other fastening devices				
Screws	6	0.0	0	0.0
Staples	0	0.0	0	0.0
Bolts	2	0.0	0	0.0
Total other fastening devices	8	0.0	0	0.0
Structural material				
Brick	0	78,054.8	0	38,243.4
Mortar/plaster	0	103.4	0	27.7
Stone	0	7.8	0	0.0
Earthenware/stoneware	0	0.0	0	0.0
Porcelain	0	0.0	0	0.0
Metal	0	0.0	0	0.0
Wood	0	152.1	0	0.0
Synthetic	12	0.0	10	0.5
All other	0	805.7	0	23.6
Total structural material	12	79,123.8	10	38,295.2

Appendix B-2 (cont.). Artifact totals from the David Fiske site (Accession Number MIMA-00424) and the Daniel Brown site (Accession Number MIMA-00427).

	David Fiske site		*Daniel Brown site*	
Artifact types	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Tools and hardware				
Window hardware	1	0.0	0	0.0
Door hardware	0	0.0	0	0.0
Electrical hardware	0	0.0	0	0.0
Plumbing hardware	1	0.0	0	0.0
Lighting/heating	0	0.0	0	0.0
Hand tools	0	0.0	0	0.0
Machine parts	0	0.0	0	0.0
Domestic animal gear	2	0.0	0	0.0
Transportation objects	1	0.0	0	0.0
Weaponry/accoutrements	1	0.0	1	0.0
Gunflints	3	0.0	1	0.0
Worked stone/groundstone	0	0.0	0	0.0
Commercial equipment	0	0.0	0	0.0
Miscellaneous	156	0.0	14	0.0
Total tools and hardware	165	0.0	16	0.0
Fuel and fire byproducts				
Coal	0	533.4	0	118.4
Cinders/clinkers	0	220.2	0	2.0
Charcoal	0	112.8	0	54.5
Ash	1	0.0	0	0.0
Bog iron	0	0.0	0	0.0
Slag	0	221.7	0	9.9
Composite fire byproducts	0	17.6	0	0.0
Total fuel and fire byproducts	1	1,105.7	0	184.8
Shell				
Bivalves	0	238.8	0	25.6
Univalves	0	0.2	0	0.0
Indeterminate shell	0	22.5	0	1.0
Coral	0	0.0	0	0.0
Total shell	0	261.5	0	26.6
Bone				
Fish	0	0.0	0	0.0
Mammal	470	0.0	97	0.0
Bird	23	0.0	0	0.0
Human	0	0.0	0	0.0
All other	105	0.0	123	0.0
Total bone	598	0.0	220	0.0
Vegetal material				
Seeds	2	0.0	8	0.0
Nutshells	0	0.0	0	0.1
Total vegetal material	2	0.0	8	0.1
Samples				
Soil	72	0.0	0	0.0
C-14	0	0.0	0	0.0
Flotation	0	0.0	0	0.0
Pollen	0	0.0	0	0.0
All other	0	0.0	0	0.0
Total samples	72	0.0	0	0.0

Appendix B-2 (cont.). Artifact totals from the David Fiske site (Accession Number MIMA-00424) and the Daniel Brown site (Accession Number MIMA-00427).

Artifact types	*David Fiske site*		*Daniel Brown site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*
Miscellaneous				
Indeterminate metal	358	0.0	19	0.0
Other indeterminate	91	13.5	32	0.4
Metal residue	0	0.0	0	0.0
All other	3	1,602.4	0	44.5
Total miscellaneous	452	1,615.9	51	44.9
Total historic artifacts	6,136	82,106.9	3,042	28,461.7
Prehistoric				
Stone				
Chipped stone				
Projectile points	0	0.0	0	0.0
Bifaces	0	0.0	0	0.0
Unifaces	0	0.0	0	0.0
Cores	0	0.0	0	0.0
Shatter/block	0	0.0	0	0.0
Decortication flakes	0	0.0	0	0.0
Flakes	5	0.0	2	0.0
Trim flakes	0	0.0	0	0.0
Total chipped stone	5	0.0	2	0.0
Fire-cracked rock	0	0.0	0	0.0
Groundstone	0	0.0	0	0.0
Total stone	5	0.0	2	0.0
Ceramics	0	0.0	0	0.0
Bone	0	0.0	0	0.0
Shell	0	0.0	0	0.0
All other	0	0.0	0	0.0
Total prehistoric	5	0.0	2	0.0
Total artifacts	6,141	82,106.9	3,044	28,461.7

Appendix B-3. Artifact totals from the Jacob Whittemore site (Accession Number MIMA-00432), the John Nelson site (Accession Number MIMA-00433), and the Joshua Brooks site (Accession Number MIMA-00437).

Artifact types	*Jacob Whittemore site*		*John Nelson site*		*Joshua Brooks site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Historic						
Ceramic vessel						
Redware						
Plain	36	0.0	2	0.0	575	0.0
Lead glazed 1 surface	65	0.0	2	0.0	311	0.0
Lead glazed 2 surfaces	4	0.0	5	0.0	35	0.0
Sgraffito	0	0.0	0	0.0	0	0.0
Trailed slipware	0	0.0	0	0.0	2	0.0
Jackfield	0	0.0	0	0.0	1	0.0
Astbury	0	0.0	0	0.0	0	0.0
All other	25	0.0	0	0.0	73	0.0
Total redware	130	0.0	9	0.0	997	0.0
Tin enamel						
Delft	0	0.0	0	0.0	3	0.0
Rouen/Faience	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	0	0.0
Total tin enamel	0	0.0	0	0.0	3	0.0
Coarse buff-body						
Combed ware	0	0.0	0	0.0	0	0.0
Dotted ware	0	0.0	0	0.0	0	0.0
N. Devon gravel	0	0.0	0	0.0	0	0.0
Mottled	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	0	0.0
Total coarse buff-body	0	0.0	0	0.0	0	0.0
Creamware						
Plain	5	0.0	0	0.0	130	0.0
Shell-edged	0	0.0	0	0.0	0	0.0
Other edge-decorated	0	0.0	0	0.0	5	0.0
Handpainted	0	0.0	0	0.0	0	0.0
Annular	0	0.0	0	0.0	0	0.0
Transfer-printed	0	0.0	0	0.0	0	0.0
Sponge-decorated	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	1	0.0
Total creamware	5	0.0	0	0.0	136	0.0
Pearlware						
Plain	7	0.0	0	0.0	126	0.0
Shell-edged	0	0.0	0	0.0	20	0.0
Other edge-decorated	0	0.0	0	0.0	3	0.0
Handpainted	1	0.0	0	0.0	43	0.0
Annular	3	0.0	0	0.0	5	0.0
Transfer-printed	0	0.0	0	0.0	32	0.0
Sponge-decorated	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	11	0.0
Total pearlware	11	0.0	0	0.0	240	0.0

Appendix B-3 (cont.). Artifact totals from the Jacob Whittemore site (Accession Number MIMA-00432), the John Nelson site (Accession Number MIMA-00433), and the Joshua Brooks site (Accession Number MIMA-00437).

	Jacob Whittemore site		*John Nelson site*		*Joshua Brooks site*	
Artifact types	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Whiteware						
Plain	4	0.0	9	0.0	198	0.0
Shell-edged	0	0.0	0	0.0	10	0.0
Other edge-decorated	0	0.0	0	0.0	4	0.0
Handpainted	0	0.0	0	0.0	17	0.0
Annular	0	0.0	0	0.0	1	0.0
Transfer-printed	0	0.0	0	0.0	71	0.0
Sponge-decorated	0	0.0	0	0.0	0	0.0
All other	0	0.0	1	0.0	8	0.0
Total whiteware	4	0.0	10	0.0	309	0.0
Other earthenware						
Whieldon ware	0	0.0	0	0.0	0	0.0
Lusterware	0	0.0	0	0.0	0	0.0
Agateware	0	0.0	0	0.0	0	0.0
Rockingham/Bennington	0	0.0	0	0.0	0	0.0
Yelloware	0	0.0	0	0.0	35	0.0
All other	21	0.0	27	0.0	53	0.0
Total other earthenware	21	0.0	27	0.0	88	0.0
Porcelain						
Undecorated	0	0.0	0	0.0	8	0.0
Underglaze hndpntd monochrome	0	0.0	0	0.0	0	0.0
Underglaze hndpntd polychrome	0	0.0	0	0.0	0	0.0
Overglaze hndpntd monochrome	0	0.0	0	0.0	0	0.0
Overglaze hndpntd polychrome	0	0.0	0	0.0	0	0.0
Gilted	0	0.0	0	0.0	4	0.0
Transfer-printed	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	1	0.0
Total porcelain	0	0.0	0	0.0	13	0.0
White salt-glazed stoneware						
Plain	0	0.0	0	0.0	1	0.0
Molded	0	0.0	0	0.0	0	0.0
Scratch blue	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	0	0.0
Total white salt-glazed stoneware	0	0.0	0	0.0	1	0.0
Drybody stoneware						
Black basalte	0	0.0	0	0.0	0	0.0
Rosso antico	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	0	0.0
Total drybody	0	0.0	0	0.0	0	0.0
Other stoneware						
Nottingham	0	0.0	0	0.0	0	0.0
Bellarmine/Frechen	0	0.0	0	0.0	0	0.0
Westerwald/Raeren	0	0.0	0	0.0	0	0.0
Domestic	2	0.0	0	0.0	9	0.0
All other	0	0.0	0	0.0	9	0.0
Total other	2	0.0	0	0.0	18	0.0
Total ceramic vessel	173	0.0	46	0.0	1,805	0.0

Appendix B-3 (cont.). Artifact totals from the Jacob Whittemore site (Accession Number MIMA-00432), the John Nelson site (Accession Number MIMA-00433), and the Joshua Brooks site (Accession Number MIMA-00437).

Artifact types	*Jacob Whittemore site*		*John Nelson site*		*Joshua Brooks site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Tobacco pipe						
White clay						
Bowls	0	0.0	0	0.0	11	0.0
Stems: 4/64	0	0.0	0	0.0	0	0.0
5/64	0	0.0	0	0.0	9	0.0
6/64	0	0.0	0	0.0	0	0.0
7/64	0	0.0	0	0.0	0	0.0
8/64	0	0.0	0	0.0	0	0.0
9/64	0	0.0	0	0.0	1	0.0
Indeterminate	0	0.0	0	0.0	0	0.0
Total white clay	0	0.0	0	0.0	21	0.0
All other	0	0.0	0	0.0	2	0.0
Total tobacco pipe	0	0.0	0	0.0	23	0.0
Bottle glass						
Freeblown	0	0.0	0	0.0	28	0.0
Contact molded	34	0.0	244	0.0	120	0.0
Pattern molded	0	0.0	0	0.0	0	0.0
Press molded	0	0.0	0	0.0	0	0.0
Optic molded	0	0.0	0	0.0	0	0.0
Machine made	162	0.0	1,454	0.0	85	0.0
All other	0	0.0	0	0.0	8	0.0
Total bottle glass	196	0.0	1,698	0.0	241	0.0
Drinking vessel glass						
Freeblown	2	0.0	0	0.0	4	0.0
Contact molded	0	0.0	11	0.0	0	0.0
Pattern molded	0	0.0	0	0.0	0	0.0
Press molded	0	0.0	0	0.0	0	0.0
Optic molded	0	0.0	0	0.0	0	0.0
Machine made	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	2	0.0
Total drinking vessel glass	2	0.0	11	0.0	6	0.0
Indeterminate vessel						
Freeblown	0	0.0	0	0.0	0	0.0
Molded	8	0.0	8	0.0	108	0.0
Indeterminate	0	0.0	3	0.0	23	0.0
Total indeterminate vessel glass	8	0.0	11	0.0	131	0.0
Bottle closures						
Ceramic	0	0.0	0	0.0	0	0.0
Glass	0	0.0	0	0.0	0	0.0
Metal	2	0.0	4	0.0	7	0.0
Synthetic	0	0.0	2	0.0	3	0.0
Wood/cork	0	0.0	0	0.0	0	0.0
All other	0	0.0	0	0.0	0	0.0
Total bottle closures	2	0.0	6	0.0	10	0.0

Appendix B-3 (cont.). Artifact totals from the Jacob Whittemore site (Accession Number MIMA-00432), the John Nelson site (Accession Number MIMA-00433), and the Joshua Brooks site (Accession Number MIMA-00437).

Artifact types	*Jacob Whittemore site* Frequency	Weight/g	*John Nelson site* Frequency	Weight/g	*Joshua Brooks site* Frequency	Weight/g
Apparel						
Clothing	0	0.0	0	0.0	0	0.0
Footwear	0	0.0	0	0.0	6	0.0
Buttons	0	0.0	0	0.0	6	0.0
Buckles	1	0.0	0	0.0	0	0.0
Other fasteners	2	0.0	0	0.0	3	0.0
Total apparel	3	0.0	0	0.0	15	0.0
Household and personal objects						
Tableware	0	0.0	0	0.0	0	0.0
Kitchenware	2	0.0	585	0.0	72	0.0
Furniture and hardware	0	0.0	0	0.0	0	0.0
Lighting fixtures	0	0.0	31	0.0	28	0.0
Decorative objects	0	0.0	2	0.0	2	0.0
Toiletries	0	0.0	0	0.0	0	0.0
Stationery	0	0.0	1	0.0	0	0.0
Coins/tokens/medals	0	0.0	0	0.0	0	0.0
Personal objects	0	0.0	2	0.0	7	0.0
Toys	0	0.0	0	0.0	1	0.0
Total household and pers. objects	2	0.0	621	0.0	110	0.0
Window glass						
Crown/cylinder	7	0.0	113	0.0	151	0.0
Plate	85	0.0	1,019	0.0	247	0.0
Indeterminate	0	0.0	1	0.0	56	0.0
Total window glass	92	0.0	1,133	0.0	454	0.0
Nails						
Hand wrought	284	0.0	7	0.0	94	0.0
Machine cut	8	0.0	28	0.0	220	0.0
Machine cut I	0	0.0	0	0.0	0	0.0
Machine cut II	0	0.0	0	0.0	0	0.0
Wire	6	0.0	23	0.0	43	0.0
Indeterminate	23	0.0	23	0.0	238	0.0
Total nails	321	0.0	81	0.0	595	0.0
Other fastening devices						
Screws	1	0.0	0	0.0	9	0.0
Staples	0	0.0	0	0.0	2	0.0
Bolts	0	0.0	0	0.0	1	0.0
Total other fastening	1	0.0	0	0.0	12	0.0
Structural material						
Brick	0	58,541	0	1,226.3	0	60,306.1
Mortar/plaster	0	51.9	0	149,157.0	0	1,798.1
Stone	0	0.0	0	0.0	3	0.0
Earthenware/stoneware	0	0.0	0	0.0	11	0.0
Porcelain	0	0.0	0	0.0	0	0.0
Metal	0	0.0	0	0.0	0	0.0
Wood	0	0.0	2	0.0	0	0.5
Synthetic	0	0.0	0	0.0	4	0.0
All other	0	0.0	0	17,515.0	0	686.4
Total structural	0	58,593	2	167,898.3	18	62,791.1

Appendix B-3 (cont.). Artifact totals from the Jacob Whittemore site (Accession Number MIMA-00432), the John Nelson site (Accession Number MIMA-00433), and the Joshua Brooks site (Accession Number MIMA-00437).

Artifact types	*Jacob Whittemore site*		*John Nelson site*		*Joshua Brooks site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Tools and hardware						
Window hardware	0	0.0	0	0.0	0	0.0
Door hardware	0	0.0	0	0.0	1	0.0
Electrical hardware	1	0.0	1	0.0	0	0.0
Plumbing hardware	0	0.0	84	0.0	0	0.0
Lighting/heating	0	0.0	0	0.0	0	0.0
Hand tools	0	0.0	0	0.0	1	0.0
Machine parts	0	0.0	0	0.0	0	0.0
Domestic animal gear	0	0.0	2	0.0	2	0.0
Transportation objects	0	0.0	0	0.0	0	0.0
Weaponry/accoutrements	0	0.0	0	0.0	0	0.0
Gunflints	1	0.0	0	0.0	4	0.0
Worked stone/groundstone	0	0.0	0	0.0	1	0.0
Commercial equipment	0	0.0	0	0.0	0	0.0
Miscellaneous	146	0.0	97	0.0	62	0.0
Total tools and hardware	148	0.0	184	0.0	71	0.0
Fuel and fire byproducts						
Coal	0	102.8	0	548.4	0	847.3
Cinders/clinkers	0	3,571.1	0	1,140.9	0	3,015.8
Charcoal	0	7,622.8	0	281.9	0	244.3
Ash	0	73.8	0	0.0	0	0.0
Bog iron	0	0.0	0	0.0	0	0.0
Slag	0	48,772.4	0	249.7	0	703.0
Composite fire byproducts	0	0.0	0	0.0	0	0.0
Total fuel and fire byproducts	0	60,142.9	0	2,220.9	0	4,810.4
Shell						
Bivalves	0	3.7	0	45.9	0	34.5
Univalves	0	0.0	0	0.0	0	0.0
Indeterminate shell	0	0.7	0	0.0	0	3.3
Coral	0	0.0	0	0.0	0	0.0
Total shell	0	4.4	0	45.9	0	37.8
Bone						
Fish	0	0.0	0	0.0	0	0.0
Mammal	14	0.0	45	0.0	150	0.0
Bird	0	0.0	0	0.0	1	0.0
Human	0	0.0	0	0.0	0	0.0
All other	2	0.0	0	0.0	25	0.0
Total bone	16	0.0	45	0.0	176	0.0
Vegetal material						
Seeds	0	0.0	1	0.0	98	0.0
Nutshells	0	0.0	3	0.0	0	0.0
Total vegetal material	0	0.0	4	0.0	98	0.0
Samples						
Soil	161	0.0	15	0.0	120	0.0
C-14	0	0.0	0	0.0	0	0.0
Flotation	0	0.0	0	0.0	0	0.0
Pollen	0	0.0	0	0.0	11	0.0
All other	0	24.2	0	0.0	0	0.0
Total samples	161	24.2	15	0.0	131	0.0

Appendix B-3 (cont.). Artifact totals from the Jacob Whittemore site (Accession Number MIMA-00432), the John Nelson site (Accession Number MIMA-00433), and the Joshua Brooks site (Accession Number MIMA-00437).

Artifact types	*Jacob Whittemore site*		*John Nelson site*		*Joshua Brooks site*	
	Frequency	*Weight/g*	*Frequency*	*Weight/g*	*Frequency*	*Weight/g*
Miscellaneous						
Indeterminate metal	426	0.0	25	0.0	483	0.0
Other indeterminate	8	500.6	75	101.0	215	75.8
Metal residue	0	0.0	0	0.0	0	0.0
All other	0	1,774.6	0	1,648.8	0	1,511.3
Total miscellaneous	434	2,275.2	100	1,749.8	698	1,587.1
Total historic artifacts	1,559	121,039.7	3,957	21,531.6	4,594	69,226.4
Prehistoric						
Stone						
Chipped stone						
Projectile points	0	0.0	0	0.0	6	0.0
Bifaces	0	0.0	0	0.0	14	0.0
Unifaces	0	0.0	0	0.0	1	0.0
Cores	0	0.0	0	0.0	10	0.0
Shatter/block	0	0.0	0	0.0	0	0.0
Decortication flakes	0	0.0	0	0.0	0	0.0
Flakes	0	0.0	0	0.0	350	0.0
Trim flakes	0	0.0	0	0.0	0	0.0
Total chipped stone	0	0.0	0	0.0	381	0.0
Fire-cracked rock	0	0.0	0	0.0	0	0.0
Groundstone	0	0.0	0	0.0	0	0.0
Total stone	0	0.0	0	0.0	381	0.0
Ceramics	0	0.0	0	0.0	0	0.0
Bone	0	0.0	0	0.0	0	0.0
Shell	0	0.0	0	0.0	0	0.1
All other	0	0.0	0	0.0	0	0.1
Total prehistoric	0	0.0	0	0.0	381	0.2
Total artifacts	1,559	121,039.7	3,957	21,531.6	4,975	69,226.6

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