Pequot Cultural Entanglement in 17th-Century Connecticut

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The primary goal of this dissertation is to explore the nature of cultural change and continuity during the earliest years of colonial interaction in southern New England. It will focus primarily on the Pequot, a Native American polity who in the early 17th-century controlled territories in present-day Connecticut and Rhode Island. The dissertation utilizes a combination of artifactual, ecofactual, spatial, and historical data to elucidate the ways that the Pequot mitigated the harsh realities of early colonial life including during times of war. This dissertation adds substantively to the scholarship of indigenous architecture, household archaeology, cultural entanglement, and native colonial history. This is achieved by way of four distinct chapters, written in an article format for the purposes of individual publication. I begin with an exploration of prehistoric cultural change and continuity in the northeastern region of North America, dating back to around 3,000 years before present. This chapter contextualizes the rest of the dissertation within the 17th-century, where I do various site-specific analyses to specifically interrogate the colonial experience of pre-reservation Pequot society. I explore a new and substantive methodological approach to the study of 17th-century native domestic sites, a theoretical analysis of early colonial encounter, and a diachronic comparative study that reveals the level of cultural transformation experienced by the Pequots between the 1630s and 1670s. These chapters are bookended by a series of research questions designed to assess thematic elements of the dissertation. These questions relate to issues of indigenous architecture, foodways, and the complex adoption of European-made objects into indigenous society.
Pequot Cultural Entanglement in 17th-Century Connecticut

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B.A., University of Connecticut, 2008
M.A., University of Massachusetts, Boston, 2012

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Doctor of Philosophy Dissertation

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* * *

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CHAPTER 1: INTRODUCTION - PEQUOT CULTURAL ENTANGLEMENT IN 17TH-CENTURY CONNECTICUT

William A. Farley

INTRODUCTION

This dissertation includes a collection of studies that explore the nature of indigenous cultural change and continuity in 17th-century Connecticut. The focus here is on the Pequot, a Native American group who today comprise two tribes, the Mashantucket Pequot and Eastern Pequot, located in southeastern Connecticut near the border with Rhode Island. Native people have deep roots in this part of southern New England, dating back at least 10,000 years (Dincauze 1974; Lavin 2013; McBride 1984a). During the period immediately predating the arrival of European explorers to the region the Pequot were an indigenous polity who practiced a combination of horticulture and hunting and gathering. When Dutch and English settlers arrived in the 1620s the Pequot gained regional political prominence due to their success in the burgeoning wampum trade (Cave 1996; Ceci 1990; McBride 2013). The Pequot continued to play an important role in regional colonial history for the next four centuries.

Historical interest in the Pequot dates back decades, largely because of the pivotal Pequot War (AD 1636–1637), which was one of the earliest large-scale conflicts between English and Native combatants (Cave 1996; Grandjean 2011; Hauptman 1990; Mason, et al. 1736; McBride and Bissonnette 2016; Orr 1897). Indeed, that conflict plays an important role in several of this dissertation’s chapters. Archaeological research focused on Pequot history has also been robust since at least the 1980s. This research has increased significantly since the founding of the Mashantucket Pequot Museum and Research Center in Mashantucket, Connecticut, which directs work on the Mashantucket Pequot reservation and is closely associated with the University of Connecticut (i.e., Benard 2005; Farley 2014; Lammi 2005; Mancini 2009; McBride 1990). At
the Eastern Pequot reservation located in North Stonington, Connecticut, an ongoing
collaboration has emerged since the early 2000s between the tribe and archaeologists at the
University of Massachusetts Boston (e.g., Hayden 2012; Hunter, et al. 2014; Silliman 2009).
These two archaeological programs have revealed and assessed hundreds of archaeological sites.
I hope to add to this body of scholarship with the papers included in this dissertation.

Before setting on that task, it is important to lay out a framework. I begin by presenting a
series of overarching research questions that will help identify unifying themes throughout the
dissertation. Second, I outline the dissertation by briefly describing each of the proceeding
chapters. Lastly, I address the theoretical approaches that guided both my data collection and
interpretations.

RESEARCH QUESTIONS

The cohesion of this dissertation depends upon each chapter’s use of cultural
entanglement theory to discern the nature of indigenous cultural change and continuity at a
variety of scales of analysis. The chapters are diverse in their focus. Chapter 2 addresses
questions of deep time and change over the long duration of indigenous occupation in the
northeast. Chapter 3 focuses on questions of methodology while chapter 4 provides a synchronic
site-specific analysis. Chapter 5 is also site-specific but utilizes a diachronic comparative
approach. Despite this diversity, a series of unifying research questions helped define the goals
of each chapter. They are as follows:

1. What do indigenous use of space and conceptions of architecture tell us about the nature
   of economic and social change?
2. What can subsistence and food culture tell us about indigenous environmental and social interactions?

3. How do indigenous people adopt novel ideas and materials into their culture and to what degree do these novel objects force cultural change?

I will return to these research questions in chapter 6, using them to draw connections and conclusions across the entirety of the dissertation.

DISSECTORATION OUTLINE

This dissertation includes four original articles which are tied together by a unifying theoretical approach (discussed below) and the series of thematic research questions just mentioned. The articles are ordered both chronologically and by scale. The dissertation begins with a large, regional analysis of New England prehistory and then moves to increasingly tighter levels of scale, ending on site-specific analyses of 17th century Connecticut (Figure 1.1).

Chapter 2, co-authored with M. Gabriel Hrynick of the University of New Brunswick, contextualizes the rest of the chapters by situating us in the dissertation’s region of study. This chapter explores the change and continuity of indigenous architecture throughout the Woodland and early Contact periods (3400 –300BP) in the Northeast. We compiled a database of 115 domestic structures previously reported by archaeologists and assessed them using statistical methods to discern whether there was regional or sub-regional variation through time and space and whether we could track changes in social and economic developments using architecture as a proxy.

The dissertation’s scale becomes significantly tighter in chapter 3 where the focus is exclusively on the archaeology of southeastern Connecticut in the 17th century. Chapter 3, co-
authored with Kevin A. McBride of the University of Connecticut, has a methodological focus. It discusses the ongoing Battlefields of the Pequot War project conducted by the Mashantucket Pequot Museum and Research Center in collaboration with the University of Connecticut. Specifically, this chapter lays out the field methodology of that project while contrasting it with previous work in the field of conflict archaeology. Further, it discusses how our method has proven effective for locating and discerning previously elusive 17th-century indigenous domestic sites. In this chapter, I introduce the site of Calluna Hill (CT 59-73) as a case study.

Chapter 4 is a site-level analysis of Calluna Hill, which was a small Pequot village burned by the English during the Pequot War. I utilize the theory of cultural entanglement to address the nature of indigenous cultural change and continuity during the earliest years of European settlement in Connecticut. This is achieved through an analysis of food, architectural, and tool-making remains found at the site. This chapter reveals that Pequots showed a great deal of agency in how and when they adopted different types of European-made objects, foodstuffs, and ideas relating to the ordering and maintaining of space.

Finally, chapter 5 situates Calluna Hill in a broader 17th-century context through a site-level comparison with another Pequot domestic site, Monhantic Fort (CT 72-91). Monhantic Fort was occupied by a dozen or more households in the 1670s during King Philip’s War and thus offers a series of interesting analogues to Calluna Hill. I assessed similar factors (foodways, use of space, architecture, material choice) to interrogate whether the 40 years of continual contact and conflict between these two occupations caused the abrupt cultural changes previous scholars have assumed.
THEORETICAL FRAMEWORK

*Cultural Entanglement, Cultural Change, and Cultural Continuity*

The last two decades have seen an increase in debate among archaeologists who study the ongoing effects of colonialism on native people. Some of that debate has focused on finding an appropriate working definition for colonialism. Broadly, I define colonialism as *the process of cultural change as a result of ongoing culture contact*. While this definition is inclusive of the many approaches to colonialism I will discuss here, it lacks the specificity to be really useful.
The earliest archaeological theorists interested in the relationship between colonizers and indigenes determined that the latter were inevitably subsumed by the former, a process called acculturation. The power dynamics between native people and colonizers was so obviously unbalanced, they argued, that no native identity could last long (Trigger 1989:27–28). Archaeological evidence seemed to bear this out, with obvious examples, many from the Northeastern region of the United States including the states of Connecticut, Massachusetts, and Rhode Island, of indigenous adoption of Euroamerican practices and materials (McBride 1990). However, indigenous people still exist. Their continued presence on the landscape countered notions of acculturation.

Later theorists offered the alternative model of hybridity, a recognition that colonialism is recursive in its effect on both colonizers and the colonized. Settlers and explorers changed too, adopting many native practices and goods along the way. However, these models have been criticized for effectively leading to the same result as models of acculturation. Hybridity models argue that, over time, cultures merge and transform into something new. This still causes erasure for native people, as the end result is the continued existence of the majority group and the disappearance of the minority (Silliman 2001).

I prefer a different type of approach to colonialism. I will call it here, for lack of a better term, culture contact studies. That phrase has some baggage that should be unpacked. First, there has been extensive critique of the word contact. Silliman (2001, 2009, 2014) has argued that this term is too passive and does not fully engage with the challenges that the colonial era bore out for native people. While I agree with the basic premise of this critique, it does not account for a duality that exists in the historical trajectories of New England’s native people. It is important to separate out these experiences into modes of cultural entanglement (sensu Dietler 2010; Jordan
2009) and what Silliman (2001) defines simply as “colonialism” and I am relabeling oppressive colonialism.

I believe that these are both completely appropriate theoretical frameworks for approaching Contact- (ca. 1600AD –1675AD) and Reservation-Period (ca. 1675AD–present) sites in southern New England, but they are only applicable to individual sites and circumstances when considered in temporal and political context. Power dynamics are central. Oppressive colonialism occurs when colonizers have significant control over the practices and bodies of indigenous people. The reservation, controlled by colonial overseers and designed to encourage and cajole Native people into Christianizing and anglicizing, perfectly encapsulates this power relationship. The mass majority of the last half-century’s colonial studies have focused on settings of colonial domination like reservations, internment camps, or ranchos (i.e., Cipolla, et al. 2007; Den Ouden 2005; Farley 2014; Hayden 2012; Lightfoot 1995; Mancini 2009; McBride 1993; Ng and Camp 2015; Silliman 2009; Voss 2002; Witt 2007).

The theoretical approach which frames this dissertation is defined by several scholars as cultural entanglement (sensu Beaudoin 2013; Cusick 1998; Dietler 2010; Dirks 1992; Jordan 2009; Lawrence and Shepherd 2006). Building on the works of Bourdieu (2003) and Giddens (1979), as well as Sahlins’ (1999) concept of indigenization, cultural entanglement is an alternative to oppressive colonial contact studies that is more appropriate for certain scenarios and time periods. Cultural entanglement can be defined as a non-directed form of cultural change and continuity in the phase of intercultural contact and exchange. The change is non-directed because the power dynamics not assumed, and colonizers do not yet have dominating control over native bodies or their daily practices.
Jordan (2008; 2009) offers an example of how early culture contact led to significant culture change for native people that was not a result of oppressive colonialism. In his work on Seneca Iroquois sites, Jordan found that after two centuries of involvement in the fur trade, the Seneca shifted many of their practices to advantage themselves of local opportunities. They adopted dispersed villages, abandoned stockaded villages, transitioned from hunting beaver pelts to hunting for deer skins, while also continuing their traditional foodway practices by adopting almost no European domesticated plants or animals. All of these changes were agentive, and all of them involved complex calculations about novel and traditional practices and materials. The following chapters will reveal similar patterning in a setting in southern New England. As with Jordan’s 18th-century example, the early 17th century was not a period of oppressive colonialism for the Pequots. Years of contact with Dutch and English traders and colonists initially increased the regional power and influence of the Pequot (Cave 1996; Ceci 1990; McBride 2013). This led to a tenuous but relatively equal power dynamic between the Pequots and the English preceding the Pequot War in the 1630s. Understanding that relationship and Pequot material and ideological reactions to it are central to this dissertation’s goals and scope.

*Household Archaeology*

This dissertation explores native change and continuity diachronically and, with a few exceptions, at the household scale. In chapter two I explore the development of the household itself over the course of several thousand years of indigenous history in New England. In chapters three, four, and five, I utilize the archaeological house feature (which is not necessarily the same thing as an actual house) as an analogy for cultural experiences and colonial
relationships at the extreme local scale. For this reason, it is important to lay out a set of theories relating to the study of archaeological houses and households.

In the 1970s the house emerged as a central focus of archaeological studies. Deetz (J. Deetz 1977; P. S. Deetz and Deetz 1998) pointed out that the house is a useful reflection of the broader society and, because of this it offers the archaeologist an insight into individual and family worldviews during any period of antiquity. This idea, that the household somehow encapsulates the culture in which it appears thereby making it an incredibly useful tool to archaeologists, has persisted throughout the 20th and 21st centuries. The household is a complex and multifaceted archaeological subject. Mrozowski (1984) draws a distinction between the units of analysis called the “house” and groups of people or observed behaviors called the “household.” While this distinction is common throughout the history of household archaeology, there is widespread disagreement about how it is actualized. The house is usually depicted as representing the physical structure or architecture itself while the household can be defined as a primarily economic unit (McBride 1984b), social unit (Kasper and Mcbride 2012), site of internal politics and ethnogensis (Appadurai 1986), or a place reflective of intense cosmological relationships (Hrynick and Betts 2014; Hrynick, et al. 2012).

Prior to the 1960s, the majority of archaeologists were focused on much wider scales of analysis than the household. Culture-history studies dominated and were primarily focused on the building of cultural chronologies and the understanding of the diffusion of cultural traditions (Trigger 1989:211–247). As a part of this latter endeavor, houses were analyzed purely as works of vernacular architecture. The antiquarians were interested not so much in what the house forms meant, but rather who they represented. They focused on architectural style and description, furnishings, and technology.
The emergence of the so-called “new archaeologists” led by Lewis Binford in the 1960s and 1970s forced a paradigm shift in archaeological focus. More broadly, archaeology became increasingly positivist, objective, and scientific, and archaeologists began searching for universal systems of culture. Archaeological approaches to the household shifted as well. Several archaeologists who would later be prevalent post-processualists including Mary Beaudry, Stephen Mroczkowski, and Kevin McBride, conducted household analyses in the 1970s and 1980s that heavily utilized processualist approaches.

These approaches tended to be highly functional and sought to understand the role that the house and household played in society. Wilk and Rathje (1982) described their views of the household’s role in the hopes of defining a universal method for the interpretation of these archaeological units. First, they searched for evidence of behaviors that occurred cross-culturally within the household. These included production, distribution, reproduction, and transmission of goods and ideas. Broadly, they meant the economic activities of the house, the exchange of resources between and within houses, the rearing and teaching of children, and the intergenerational passing on of cultural knowledge and physical property. They determined that these were (at least in their interpretation) cultural universals through what Binford (1962) defined as middle-range theory. They used the work of ethnographers as analogies for past societies and, further, used the material remains of the house to theorize about what existed in the past. These are both examples of mid-level theory, the correlates and proxies that connect material remains to human behavior. The inferences necessary to accomplish ethnographic analogy would later be critiqued by post-structural and post-processual archaeologists.

Another important development during the processual era was a transition in focus from the house structure and architecture itself to the location of trash and midden deposits. A new
interest in material culture was prevalent in the processual era (e.g., South 1977) and this transition reflected that. By the mid-1980s this new technique was being practiced in the Northeast, notably by Mary Beaudry. Beaudry (1984) was primarily interested in modes of production and discovering economic behaviors within the household. She did this not by analyzing the remains of the house structure itself but rather the trash deposits and the ceramics they contained to reconstruct consumption habits.

Archaeologists interested in Native American households were also active during the post-processualist era. For instance, McBride (1984b) used native houses from the Late Woodland in Connecticut as an example of the premise that households could stand in for broader patterns of culture. McBride used indices of lithic reduction flake types as proxies for household activities. Broadening out from there, McBride argued that similarities in household- and village-makeup provided evidence that houses can be reflective of community behaviors. The processual nature of the study is also evident in its positivist and mathematical approach and its being another example of Binford’s notion of middle-range theory in which material culture is used as a correlate for human behavior.

In the early 1980s, following the work of Ian Hodder (1982), a paradigm of critical theorists emerged who challenged the then widely accepted notions of the new archaeology. It was during this period that the household became the central focus of many archaeological projects. Many post-processualists drew inspiration from the work of prominent post-structuralist theorists like Bourdieu (2003), whose analysis of the Berber House became a seminal theoretical work on the subject of the household. In it, Bourdieu demonstrates that the house is a semiotic tool that both reflects and expresses cultural ideas to insiders living within the house and outsiders who are meant to view it. In addition to the structure itself, the placement of objects
within and outside of the house not only reflect activities and behaviors (as the processualists realized) but also can speak loudly about the identity of individuals who controlled or performed within those spaces.

It was during this period that Appadurai (1986) rose to prominence due in large part to his theory of gastro-politics. Building upon the notion that space within the house can represent aspects of identity, gastro-politics theory argues that individual members of the household utilize the production and consumption of food as a means of negotiating power. This usually happens along and between lines of gender and age. Gastro-politics are also important to household cohesion, which is vital to the mitigation of colonial challenges like those discussed in this dissertation. The household’s foodways and, I would argue the activities and material culture associated with households are central in the continuity of tradition and cohesion within the community of the household as well as the othering of outsiders. Feasts, for instance, bring individuals from other groups into the house where unfamiliar foods and preparations can create distance while familiar foods can create inclusion.

It is clear from the works of Appadurai and Bourdieu that spatial analysis became a central aspect of household analysis during the post-processualist era. This was certainly true in colonial New England settings. Beaudry’s (1984, 2013) transition to the post-processual approach is evident here with her explicit use of spatial analysis to study not only sheet middens but also evidences of landscaping and agricultural fields at the Spencer-Pierce-Little Farm in Massachusetts and elsewhere.

Another important change that occurred with the emergence of the post-processualist shift was a new focus on history. Processualists largely abandoned history, preferring synchronic analyses that spoke to what they saw as evidence of broadly generalizable cultural patterns and
systems. With the rejection of that notion, post-processualists again returned to the importance of historical trajectory in the understanding of cultural tradition. Household studies began to be increasingly diachronic during this period and increasingly interested in notions of continuity and change (e.g., Benard 2005; Harper 2012; Lammi 2005; Silliman 2001).

**Foodways**

The production and consumption of food is obviously important to the survival of any culture. Perhaps because of this, food tends to be at the center of many social exchanges in any society. For this reason, tracking changes and continuities in practices involving food forms a central focus of each chapter of this dissertation. The comprehensive study of food and food practices is called *foodways*. Foodways studies require a holistic and interdisciplinary approach to the study of food and food culture. Anderson (1971) describes foodways as a system that involves not only the ways the food is procured, preserved, prepared, and consumed but also the ways in which it is conceptualized. I would add that while subsistence studies tend to focus on the *material* aspects of food’s role in society, foodways studies attempt to elucidate the *social* aspects of food. Most archaeologists agree that understanding foodways requires many sources of data. The most obvious are archaeobotanical and zooarchaeological remains. These are food, certainly, but they do not constitute foodways. Ceramics are important as well as architecture for understanding the ways in which food was cooked, served, and consumed. Spatial analysis lends us information about patterns of refuse and where and by whom food may have been attained and prepared. Ethnohistoric and historic data can be hugely helpful in revealing the ways that people actually thought about food and how they planned for its attainment and preparation. Combining these lines of evidence can begin to reveal the complex ways that people thought
about and communicated about food as well as the ways in which food played an important role in household, regional, and even global politics.

Foodways research has already revealed important aspects of Pequot cultural entanglements during the latter centuries of the reservation period. McBride (1993, 2007) revealed that changes in the procurement and production of food could be analyzed to track agentive shifts in ideology. He used the adoption of European land tenure practices and English domesticated animals and crops as a proxy for Christianity on the Mashatucket reservation in the 18th century. Legal disputes and unfair treatment by colonial governments led to the Mashantuckets being recalcitrant towards colonial authorities. One powerful tactic of resistance available to Native Americans during this period was a refusal to Christianize. This tactic was widespread on the reservation until the Great Awakening of the 1740s. At that time, archaeological evidence of a split on the reservation becomes visible. By tracking shifts in foodways, McBride (2007) revealed that the Mashantucket community split in two. The Christianized natives in Indiantown began practicing Euroamerican land tenure practices and used increased levels of domesticated pigs and grains. A different community on the reservation retained “traditional” forms of Pequot foodways, with shellfish, hunted foods, and maize continuing to dominate domestic site features. I hope to combine archaeobotanical, faunal, spatial, historical, and artifactual data to similarly reveal patterns of social change and continuity during the 17th century.
Works Cited

Anderson, Jay Allen


Appadurai, Arjun


Beaudoin, Matthew A


Beaudry, Mary C


Benard, Akeia Angelique Florence


Binford, Lewis R


Bourdieu, Pierre


Cave, Alfred A

Ceci, Lynn


Cipolla, Craig, Stephen W Silliman and David Landon


Cusick, James G


Deetz, James


Deetz, Patricia Scott and James Deetz


Den Ouden, Amy E


Dietler, Michael


Dincauze, Dena F


Dirks, Nicholas B

Farley, William A


Giddens, Anthony


Grandjean, Katherine A


Harper, Ross K

2012 "Their Houses are Ancient and Ordinary": Archaeology and Connecticut's Eighteenth-Century Domestic Architecture. Historical Archaeology 46(4):8–47.

Hauptman, Laurence M


Hayden, Anna K


Hodder, Ian


Hrynick, M Gabriel and Matthew W Betts

Hrynick, M Gabriel, Matthew W Betts and David W Black


Hunter, Ryan H, Stephen W Silliman and David B Landon


Jordan, Kurt A


Kasper, Kimberly and Kevin A Mcbride


Lammi, Kristina P.


Lavin, Lucianne


Lawrence, Susan and Nick Shepherd


Lightfoot, Kent G
1995  Culture contact studies: Redefining the relationship between prehistoric and

Mancini, Jason Richard

2009 Beyond Reservation: Indian Survivance in Southern New England and Eastern

Mason, John, Samuel Kneeland and Timothy Green

1736  *A Brief History of the Pequot War: Especially of the Memorable Taking of Their
Fort at Mistick in Connecticut in 1637: Written by Major John Mason, a Principal Actor
Therein, as Then Chief Captain and Commander of Connecticut Forces. With an
Introduction and Some Explanatory Notes by the Reverend Mr. Thomas Prince.*[Nine
Lines from Psalms]. S. Kneeland & T. Green in Queen-Street, London, United Kingdom.

McBride, Kevin A

1984a Prehistory of the Lower Connecticut River Valley. Dissertation, Anthropology,
University of Connecticut Storrs, Connecticut.

1984b The Development of the Houshold as an Economic Unit in the Lower Connecticut

1990 The Historical Archaeology of the Mashantucket Pequots, 1637–1900: A
Preliminary Analysis. In *The Pequots in southern New England: the Fall and Rise of an
University of Oklahoma Press, Norman, Oklahoma.

1993 'Ancient and Crazie': Pequot Lifeways during the Historic Period. In *Algonkians
of New England: Past and Present*, pp. 63–75. Boston University, Boston,
Massachusetts.

2007 Transformation by Degree: Seventeenth and Eighteenth-Century Native American
Land Use. In *Eighteenth Century Native Communities of Southern New England in the
Colonial Context*, edited by J. Campisi. Mashantucket Pequot Museum and Research
Center, Mashantucket, Connecticut.

2013 War and Trade in Eastern New Netherland. In *A Beautiful and Fruitful Place*,
edited by M. Lacy, pp. 271–284. Selected Rensselaerswijck Papers, New Netherland
Institute, Albany, New York.

McBride, Kevin A and Ashley Bissonnette

Mrozowski, Stephen A


Ng, Laura and Stacey Lynn Camp


Orr, Charles


Sahlins, Marshall


Silliman, Stephen W


South, Stanley A


Trigger, Bruce G

Voss, Barbara Lois  
2002 The Archaeology of El Presidio de San Francisco: Culture Contact, Gender, and Ethnicity in a Spanish-colonial Military Community. Dissertation, Department of Anthropology, University of California, Berkeley, Berkeley, California.

Wilk, Richard R and William L Rathje  

Witt, Thomas A  
CHAPTER 2: WOODLAND PERIOD DOMESTIC ARCHITECTURE IN THE
NORTHEAST: SOCIAL IMPLICATIONS

William A. Farley
M. Gabriel Hrynick

INTRODUCTION

This paper seeks to explore the nature of social change and continuity in the North American Northeast’s (Figure 2.1) Woodland Period (Table 2.1). Traditionally, this period has been seen as one of relative cultural stability and has, we argue, been undertheorized, especially in regard to its architectural expressions. The notion of Woodland culture periods (sensu Griffin 1952; Griffin 1967) has tremendous potency in the archaeology of Eastern North America. In this formulation, Woodland is marked by ceramics, elaborated mounded burials, economic intensification leading to horticulture, population growth, and increased sedentism. Roughly, this corresponds to an evolutionary notion of culture change equivalent to the Old World’s Neolithic. Accumulated archaeological research is eroding the interrelationship of these changes, encouraging new analyses of this period that implicate social factors in Woodland and subsequent culture change (e.g., Taché and Craig 2015). Accordingly, the development of villages in the Woodland period has been the subject of considerable archaeological attention. In this paper, we consider this problem at a smaller settlement scale, the structure of individual houses.

Although the relationship between the form of domestic architecture and village formation have received attention globally (notably Flannery 2002), it has less explicitly been

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1 This paper is co-authored with M. Gabriel Hrynick, Assistant Professor, Department of Anthropology at the University of New Brunswick. We will submit this manuscript to the Journal of Anthropological Archaeology.
directed at the Woodland question in the Far Northeast, comprised of New England and the Maritime Provinces (Figure 2.2). Yet this region offers a unique case to consider the broader implications of the Woodland model, and how architecture may help us explore the notion of social change.

Figure 2.1. Map of study region discussed in this paper. The Southern sub-region is in pink, the Northern sub-region is in green. The dividing line between the regions is the Kennebec River region of Maine, which approximately corresponds with the Northern expanse of maize horticulture in the Late Woodland. Map by authors and Noah Fellman (Mashantucket Pequot Museum and Research Center).

The Kennebec River system in Maine is generally accepted as the Northeasterly limit at which corn-bean-squash horticulture was practiced in a substantive economic way until after European contact (Leonard 1996). As a result, the Maritime Peninsula (most of Maine, the Maritime Provinces of Canada, and the Gaspe Peninsula; see Figure 2.1) has been considered as
distinct from the rest of the Northeast, and on the Maritime Peninsula the period ca. 3000 B.P. to contact is frequently described as the Ceramic, signaling an absence of many typical Woodland culture traits (see Leonard 1996). Four purposes, the “Ceramic” and “Woodland” are the same and we will use the term “Woodland” throughout. The region at the center of this study offers a closely affiliated horticultural case adjacent to a hunter-gatherer case which will allow us to compare them, holding steady that they are environmentally similar but economically distinct.

Although archaeologists have tended to be pessimistic about identifying and interpreting the domestic architecture of highly mobile peoples (see Steadman 2015), we provide a dataset from Southern New England (eastern New York, Connecticut, Rhode Island, Massachusetts, Vermont, and New Hampshire), Maine, and the Maritime Provinces (New Brunswick, Nova Scotia, and Prince Edward Island) to suggest that domestic architecture of both hunter-gatherers and horticulturalists provides social clues into divergent developments of the Woodland Period in parts of the Northeast illustrating social continuity rather than profound change. Each area exhibits Archaic-Woodland period continuity in architectural form amid other evidence for increasing sedentism.

Dwellings are particularly powerful records of social continuity. This is described adequately by Loewen and Chapdelaine (2016:1):

…the social unit of the household is a powerful vector of continuity over time. Not only is the household deeply embedded in the local environment, but it is also at the heart of often overlooked mechanisms for cultural diffusion and exchange. This is because household practices are exported, in a refined form, by secondary social units that temporarily detach themselves from households.

However, the dwelling is also an important unit of analysis in settlement archaeology as codified by Trigger (1968) who argued that architecture is arranged to form communities who are themselves distributed across landscapes, and that decisions about where to build a dwelling
are important for understanding culture. Focus on the structures themselves in cultural change has received attention in Iroquoia (regions to the West of those covered in this paper) and the Subarctic, for instance, but in the Far Northeast most settlement attention has been directed at landscape (e.g., Dewar and McBride 1992) and what may be glossed as the “village question” (e.g., Ceci 1982; Chilton 2004, 2008; Leveillee et al. 2006; McBride and Dewar 1987; Waller 2000): To what degree did prehistoric peoples in the Northeast live in nucleated, year-round, sedentary villages?

RESEARCH QUESTIONS

By building and analyzing a database of indigenous domestic architecture in the Northeast we seek to address the socio-settlement questions surrounding Woodland period culture change at the dwelling and correlated household scale: first, are there substantial differences in Indigenous architecture through time or between dwellings on either side of the Kennebec? We structured our database using absolute dates and geographical locations to assess patterning within the dataset. Second, was the Late Woodland period introduction of maize horticulture to the south associated with changes or continuities in architectural traditions? Finally, we explore the role of kinship, gender, and cosmology in architectural behavior.

The date ranges of cultural periods in the Northeast vary by sub-region and researcher. For the purposes of this paper we used the periods provided by Black (2002) (Table 2.1) which are roughly consistent with others reported in Hart and Rieth (2002).
Table 2.1. Cultural Periods and their Associated Date Ranges (following Black 2002)

<table>
<thead>
<tr>
<th>Period Name</th>
<th>Period Duration (Uncalibrated Radiocarbon Years Before Present)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Woodland</td>
<td>3400 - 2200</td>
</tr>
<tr>
<td>Middle Woodland</td>
<td>2200 - 1300</td>
</tr>
<tr>
<td>Late Woodland</td>
<td>1300 - 500</td>
</tr>
<tr>
<td>Protohistoric/Contact</td>
<td>500 - 300</td>
</tr>
</tbody>
</table>

BACKGROUND

*Past Architectural Research*

Although archaeologists have long been interested in aboriginal architecture in the Northeast (e.g., Matthew 1884), there are several reasons the landscape and “village” levels of settlement have received more attention. In general, archaeologists have argued that these levels of scale provide more information about social and economic behaviors. Notable exceptions are included in a 1984 issue of *Man in the Northeast* which focused on New England households, both historic and prehistoric. Recently, Hrynick and colleagues have conducted a series of studies on domestic architecture on the coast of the Maritime Peninsula, (Hrynick et al. 2012; Hrynick and Black 2016) producing a high-resolution dataset at the scale of the single dwelling.

In broad terms we attribute the tendency not to consider individual dwellings extensively to disciplinary and local trends. Simply put, dwelling features do not lend themselves to broad scale culture-history building in the way that regional surveys (e.g., McBride 1984), often mandated for cultural resource management, or the excavation of deeply stratified Woodland middens are able to (e.g., Bourque 1995). Dwelling features are time consuming to excavate in full and may have internal stratigraphy that is difficult to discern (see Hrynick et al. 2012). They may also have reused dwelling surfaces denoting a series of occupations reproducing landscape-level scale problems (Dewar and McBride 1992). Survey bias and other issues of archaeological
visibility have resulted in a Woodland period architectural dataset that is primarily coastal (see Sanger 2012).

**Maine and the Maritimes**

The bulk of research into Woodland period settlement in most of New England has focused on the village or landscape scale, with particular attention being paid to the relationship between maize horticulture and the development of nucleated villages and the persistence of smaller task-specific sites. On the Maritime Peninsula, where nucleated villages have rarely been proposed in the archaeological record, individual dwellings are more frequently analyzed, but are notable for their structural similarities throughout the Woodland period (see Hrynick and Black 2016).

This regional divergence reflects over a half century of accumulated thought about settlement and subsistence on the Maritime Peninsula from ca. 3000 BP to present and encapsulates an ongoing taxonomic debate. In brief, many archaeologists working in Maine and the Maritimes have set the region apart from the rest of the Northeast because it lacks classically Woodland characteristics including prehistoric horticulture, extensive burial ceremonialism, and sedentism (Bourque 1971; Leonard 1995; Sanger 1976; 1987:139). In recent decades, the Woodland on the Maritime Peninsula has increasingly resembled that elsewhere in the Northeast with the emergence of evidence for village aggregation and an increasing diversity in subsistence strategy. It remains true that there is no archaeological evidence for maize horticulture on the Maritime Peninsula past the Saco River, despite an environment that would likely have supported it (Leonard 1995) and a suite of tantalizing historic information (e.g., Gyles 1981), including the development of successful maize cultivation techniques by the Wolastoqiyik during the post-contact Little Ice Age in the Maine Maritimes (Hall 2015).
There is some evidence in Maine and the Canadian Maritimes for ancestral Wabanaki storage of foraged foods (Betts, et al. 2017; David W Black and Whitehead 1988), and Leonard (1996) has suggested the potential intensification or “gardening” of groundnut (*Apios americana*) during and at the end of the Woodland period in New Brunswick. Some evidence for exchange of plant-based foods has also emerged (Deal et al 2010).

Recent research has also revealed regional examples of Early Woodland mortuary elaboration with Adena and Meadowood affiliations including mounded burials, copper inclusions, and diagnostics such as blocked-end tubular pipes (Taché 2011; Turnbull 1976). Other signs of integration in the region can be found in more mundane technologies (e.g., Betts and Blair 2012; Hrynick and Betts 2014). For instance, similarities in ceramic (e.g., Peterson and Sanger 1993) technologies such as Vinette-I and various rocker-dentate motifs are apparent and roughly concomitant throughout the Woodland in the Northeast.

Refinements in our understanding of settlement and subsistence on the Maritime Peninsula have similarities with neighbors to the south. Perhaps most starkly, the Middle to Late Maritime Woodland transition throughout the region is marked in broad terms by stark structural changes in coastal shell middens, especially a reduction in shellfish utilization and an increased exploitation of mammals (both sea and terrestrial) (see chapters in Hart and Rieth 2002). In southern New England, increasing late Woodland sedentism—often attributed to maize intensification except in coastal areas, where the process occurred independent of maize—is likely mirrored by increasing sedentism in Late Woodland and Protohistoric components on the Maritime Peninsula, including a growing body of evidence for year-round occupation at some late sites (Betts et al. 2017; Hrynick et al. in press). Similarly, Late Woodland “villages” have been suggested for Nova Scotia (Nash and Stewart 1990) and Maine (Bourque and Cox 1981).
Southern New England

While there is significant overlap in the architectural traditions of Maine and the Maritimes and southern New England, there are also a number of intriguing distinctions. For the large majority of prehistory (ca. 12,000BP-3,000BP), inferred and direct evidence for Southern New England architecture is suggestive of an extremely mobile model of subsistence and settlement. Archaeologists working at some of the earliest Paleoindian sites in the region such as Templeton and Hidden Creek in Connecticut and Bull Brook in Massachusetts have used lithic scatters to infer probable house structures and spatial divisions. Lithic material types suggest that these early foragers may have traveled hundreds of miles during yearly rounds of the Northeast and their southerly encampments likely represent very short-term occupations. Further spatial patterning has been interpreted to suggest gendered or other labor divisions and small kin-groups of nucleated families (Lavin 2013:43–49).

The Archaic Period evidences a continuation of high mobility and hunter-gatherer subsistence patterns. The Sandy Hill site in southeastern Connecticut is a rare instance of preserved house-structures prior to the Woodland Period. This site included a number of semi-subterranean pit houses with artifacts associated with the Gulf of Maine Archaic tradition. These houses are the earliest known in Connecticut (Lavin 2013:61–62). The Bliss Howard Site (three houses included in Appendix 2.1) provides an early example of Native architecture which yielded preserved post-molds. Bliss Howard dates from the Late Archaic Laurentian tradition and archaeologists working at the site uncovered three large pole-framed structures (50m²) (Lavin 2013:98–99). Such structures would become typical in the Woodland Period. This type of house, often referred to as a “wigwam,” was described by Sturtevant (1975:441) as “a set of arches, made by erecting a series of 20 to 30 poles in an oval, set into the ground with their upper
ends slanting outwards, then bending inward the upper ends of pairs of opposite poles until they overlapped and were tied together” and then covered with a material such as furs, bark, or reeds.

Wigwams are evident in Southern New England sites for at least 2,000 years before the emergence of horticulture in the region. There is little doubt that the introduction of horticulture influenced social and economic change, however the intensity of this change is a matter still very much up for debate (Chilton 2004). As such, the nature and chronology of horticulture adoption in the region is not settled science. It is generally accepted that maize horticulture diffused into the region from the southwest sometime in the Late Woodland Period (1300–500 BP), however there is some evidence to suggest that local native people may have been actively cultivating wild or, more controversially, semi-domesticated varieties of goosefoot (*Chenopodium* spp.) (George and Dewar 1999; Gremillion 1993). The oldest example of charred *Chenopodium* was also found at the Bliss Howard Site. After the Late Archaic, *Chenopodium* is absent from the Connecticut record until the Late Woodland period where it is found alongside maize (*Zea mays*) at several sites including the Burnham-Shepard site (also included in this study) (George and Dewar 1999:125–131). Whether *Chenopodium* was actively cultivated or simply gathered in southern New England, it seems clear that it played a role in a broad-spectrum subsistence strategy practiced by the region’s indigenous inhabitants.

Sometime around 1000 B.P. a series of tropical domesticates emerged in the region, at least within the Connecticut River valley (Bendremer 1999; Chilton 2004; McBride and Dewar 1987). Late Woodland sites included in this study with signs of maize horticulture include the Morgan and Burnham-Shephard Sites in Connecticut and the Skitchewaug Site in Vermont (Bendremer 1999:134; Cowie and Peterson 1990; Hasenstab 1999:148–149; Heckenberger, et al.
These sites and others contain large storage features and in some cases, architectural structures that may have supported long-term and year-round occupations.

Native people in southern New England relied on a broad-spectrum diet throughout all of prehistory, even after the emergence of horticulture. Some of the most common food types found on sites in southern New England are soft-shell clam (*Mya arenaria*), white-tailed deer (*Odocoileus virginianus*), nutshell including chestnut (*Castanea dentata*) and hickory (*Carya ovata*), and weedy berries like raspberry (*Rubus* spp.). Scholars have noted the continued relevance of such “wild” plant and animal species at archaeological sites both before and after the appearance of *Chenopodium*, maize, beans, and squash and surmised that horticulture did not have the massive impact on subsistence that it did in regions to the West and South (Bendremer 1999; Chilton 1999, 2008; McBride and Dewar 1987; McBride 1984). There is a general consensus that maize agriculture became a true staple crop after the arrival of Europeans beginning around 1600AD.

Relating to subsistence but also driven by social factors is the nature of village aggregation and levels of regional sedentism. Bendremer (1999:143) argues that “large, essentially non-horticultural, sedentary villages of logistically organized foragers were established in the lower Connecticut River valley and coastal region by the late Middle Woodland period” (see also McBride 1984). He goes on to argue that this may represent regional variation, in which inland peoples were more likely to aggregate while coastal peoples remained largely mobile to take advantage of shellfish resources. Bragdon (1996) viewed similar regional variation in the Late Woodland not as indicative of separate populations but of the same groups of people practicing seasonal relocation to maintain the use of long-standing traditions of hunting and gathering alongside newly available horticultural resources.
Locating extant Late Woodland horticultural villages has been challenging in southern New England. Scholars have suggested several reasons why this might be, including sampling bias, low visibility, or when they were covered by Euro-American towns and cities (Hasenstab 1999:140–142). Others, most notably Lynn Ceci (1982, 1990), have argued that there simply are no Late Woodland villages. This argument is predicated on environmental factors that would have made sustained agricultural settlements difficult. Leveillee et al. (2006:85–86) suggest a “dispersed” village model, which was “characterized by domestic dwellings where nuclear and extended families lived and concentrated their daily activities within and surrounding their dwelling spaces, for the most part maintaining family autonomy.”

There is substantial ethnohistoric and archaeological evidence to show that aggregated settlements existed during the Early Colonial period (ca. 1600-1675). Early European settlers described finding occupied and unoccupied indigenous villages that included burials, corn fields, and numerous houses. Wartime narratives and archaeological excavations reveal that native-made fortified villages were built seemingly as a military and protective reaction to European aggressions, especially during the Pequot War (1636–1637) and King Philip’s War (1675–1678) (Benard 2005; Bradford 1952; McBride et al. 2014; Williams 1972; Williams 1973; Wood, et al. 1764).

THE ARCHITECTURAL DATASET

We constructed a database of known domestic architecture in the northeast based on published reports to address the nature of cultural continuity and change in the Woodland Period, including structures we excavated (Farley this volume; Hrynick and Betts 2014, 2017; Hrynick, et al. 2012; Hrynick and Black 2016; Hrynick, et al. 2015; McBride et al. 2014). In addition to
published papers, we consulted cultural resource management (CRM) reports, theses, and dissertations. To make the data as comparable as possible we relied exclusively on archaeological data, making a conscious decision to exclude a robust set of ethnohistorical sources that describe aboriginal houses in the contact period (but see Glick 2013). The addition of these sources would have skewed our analysis towards the latter periods and would likely introduce a series of potential biases.

Despite these restrictions, the database includes an extremely diverse set of observations. In all cases, we attempted to record the following information about the archaeological dwelling features: size, shape, internal and external features, associated absolute dates, associated artifacts, entrance orientation, surface treatment of the floor, whether the floor was excavated or not, whether the structure had single- or double-row posts or not, and the author’s interpretation of season(s) of occupation. To be included in the database the described feature needed only to have been reasonably interpreted as an indigenous domestic structure. This definition was left purposefully broad and obviously includes houses of a variety of shapes, sizes, and seasonality and likely also representing different levels of sedentism. Indeed, these are the very factors we hoped to track through time and space.

After compiling the data in a spreadsheet, we sorted the structures by date of occupation and region. In most cases, researchers provided associated radiocarbon dates however some did not or could not do so and others pre-date the widespread use of radiocarbon dating in archaeology. In examples without radiocarbon dates we relied on interpretations of the date of occupation drawn from diagnostic projectile points or ceramic vessels. When a date range was offered, either for a tool type’s known period of use or for an entire period (i.e. “late woodland”), we used the centroid date of the range for our calculations.
For this paper, we focus primarily on three aspects of the database: structure size, shape, and entrance orientation. Size, shape, and time are easily quantifiable and can be analyzed by simple bivariate statistical methods. They can also be used as a proxy for a number of social factors which we hope to explore including population density, kinship structure, gender and age dynamics, seasonality, subsistence, and rates of sedentism. Entrance orientation is an important factor in ritual and cosmological considerations and may reveal patterns of social behavior throughout the Woodland period. We began by isolating those features for which we had well-defined dates and described dimensions, calculated the total area of each structure, and then ranked them from oldest to youngest.

We then further divided the data into northern and southern regions, with a break being drawn at the Kennebec River, which represents roughly the northeastern known extent of the expansion of maize horticulture during the Late Woodland (1300–500 B.P.) (Chilton 1999:158). We hypothesized that the introduction of horticulture to the cultures represented in the southern half of our study area may have affected architectural form, either directly through expansions of population and sedentism or indirectly through changes in social organization (Bendremer 1999; Bragdon 1996; Ceci 1990; Chilton 2004, 2008; Hasenstab 1999; Heckenberger et al. 1992; Lavin 1988, 2013; McBride 1994; McBride and Dewar 1987; Ritchie and Funk 1973; Wiseman 2005). After compiling our three datasets, we plotted them on scatterplots and calculated a linear trendline and $R^2$ value for each.

DATASET

In all we collected data on 115 structures from eastern New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, Maine, New Brunswick, Nova Scotia, and Prince Edward Island. Of these, 73 were fully excavated (Appendix 2.1) and 42 were partially
excavated (Appendix 2.2). Following earlier work (e.g., Hrynick and Black 2016) we include partially excavated architecture in our database because it may speak to some of the trends suggested by the fully excavated features. A total of 42 fully excavated structures had known dates and dimensions and were ultimately included in our statistical analyses (Table 2.2). References for the original reports on every structure can be found in Appendix 2.1.

Table 2.2: Fully Excavated Structures Included in Quantitative Analyses

<table>
<thead>
<tr>
<th>Site Name &amp; Feature Designator</th>
<th>Province/State</th>
<th>Reported Feature Dimensions (m)</th>
<th>Uncalibrated Absolute Date (Years Before Present)</th>
<th>Area (m²)</th>
<th>Roundness Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern Region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moshier Island Structure 1</td>
<td>ME</td>
<td>2 × 2</td>
<td>2210</td>
<td>4</td>
<td>1.00</td>
</tr>
<tr>
<td>Moshier Island Structure 2</td>
<td>ME</td>
<td>2 × 2</td>
<td>2210</td>
<td>4</td>
<td>1.00</td>
</tr>
<tr>
<td>AIDF-30 Feature 2</td>
<td>NS</td>
<td>3.0 × 2.8</td>
<td>1410</td>
<td>8.4</td>
<td>0.93</td>
</tr>
<tr>
<td>Teacher's Cove Feature 2</td>
<td>NB</td>
<td>2.7 × 2.6</td>
<td>1190</td>
<td>7.0</td>
<td>0.96</td>
</tr>
<tr>
<td>Teacher's Cove Feature 3</td>
<td>NB</td>
<td>2.8 × 2.7</td>
<td>1190</td>
<td>7.6</td>
<td>0.96</td>
</tr>
<tr>
<td>Teacher's Cove Feature 4</td>
<td>NB</td>
<td>3.1 × 1.7</td>
<td>1190</td>
<td>5.3</td>
<td>0.55</td>
</tr>
<tr>
<td>Teacher's Cove Feature 5</td>
<td>NB</td>
<td>2.3 × 1.9</td>
<td>1190</td>
<td>4.4</td>
<td>0.83</td>
</tr>
<tr>
<td>Teacher's Cove Feature 1</td>
<td>NB</td>
<td>3.0 × 2.5</td>
<td>1170</td>
<td>7.5</td>
<td>0.83</td>
</tr>
<tr>
<td>AIDF-30 Feature 1</td>
<td>NS</td>
<td>3.0 × 2.5</td>
<td>1380</td>
<td>7.5</td>
<td>0.83</td>
</tr>
<tr>
<td>Sandy Point Feature 2</td>
<td>NB</td>
<td>3.3 × 2.5</td>
<td>1320</td>
<td>8.3</td>
<td>0.76</td>
</tr>
<tr>
<td>Minister's Island Feature 1</td>
<td>NB</td>
<td>4.0 × 2.2</td>
<td>1060</td>
<td>8.8</td>
<td>0.55</td>
</tr>
<tr>
<td>Minister's Island Feature 3</td>
<td>NB</td>
<td>2.8 × 2.0</td>
<td>910</td>
<td>5.6</td>
<td>0.71</td>
</tr>
<tr>
<td>AIDF-24</td>
<td>NS</td>
<td>3.5 × 3.0</td>
<td>900</td>
<td>10.5</td>
<td>0.86</td>
</tr>
<tr>
<td>Early Fall Site</td>
<td>ME</td>
<td>4.25 × 4.25</td>
<td>570</td>
<td>18.1</td>
<td>1.00</td>
</tr>
<tr>
<td>Flye Point-2</td>
<td>ME</td>
<td>3.8 × 3.2</td>
<td>455</td>
<td>12.2</td>
<td>0.84</td>
</tr>
<tr>
<td><strong>Southern Region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kirby Brook Site Structure 1</td>
<td>CT</td>
<td>3 × 3</td>
<td>3400</td>
<td>9.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 2</td>
<td>CT</td>
<td>3 × 3</td>
<td>3400</td>
<td>9.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 3</td>
<td>CT</td>
<td>3 × 3</td>
<td>3400</td>
<td>9.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 4</td>
<td>CT</td>
<td>3 × 3</td>
<td>3400</td>
<td>9.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 5</td>
<td>CT</td>
<td>3 × 3</td>
<td>3400</td>
<td>9.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 6</td>
<td>CT</td>
<td>3 × 3</td>
<td>3400</td>
<td>9.0</td>
<td>1.00</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 7</td>
<td>CT</td>
<td>4 × 2.5</td>
<td>3400</td>
<td>10.0</td>
<td>0.63</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 8</td>
<td>CT</td>
<td>4 × 2.5</td>
<td>3400</td>
<td>10.0</td>
<td>0.63</td>
</tr>
<tr>
<td>Site Name &amp; Feature Designator</td>
<td>Province/State</td>
<td>Reported Feature Dimensions (m)</td>
<td>Uncalibrated Absolute Date (Years Before Present)</td>
<td>Area (m²)</td>
<td>Roundness Ratio</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------------</td>
<td>--------------------------------</td>
<td>---------------------------------------------------</td>
<td>-----------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 9</td>
<td>CT</td>
<td>4 × 2.5</td>
<td>3400</td>
<td>10.0</td>
<td>0.63</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 10</td>
<td>CT</td>
<td>4 × 2.5</td>
<td>3400</td>
<td>10.0</td>
<td>0.63</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 11</td>
<td>CT</td>
<td>5 × 3</td>
<td>3400</td>
<td>15.0</td>
<td>0.60</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 12</td>
<td>CT</td>
<td>5 × 3</td>
<td>3400</td>
<td>15.0</td>
<td>0.60</td>
</tr>
<tr>
<td>Oak Knoll Site</td>
<td>MA</td>
<td>1 × 0.75</td>
<td>2975</td>
<td>0.8</td>
<td>0.75</td>
</tr>
<tr>
<td>Morris Estate Club Site</td>
<td>NY</td>
<td>2.7 × 2.7</td>
<td>2800</td>
<td>7.3</td>
<td>1.00</td>
</tr>
<tr>
<td>Timothy Stevens Site</td>
<td>CT</td>
<td>5 × 5</td>
<td>2600</td>
<td>25.0</td>
<td>1.00</td>
</tr>
<tr>
<td>RI 1428</td>
<td>RI</td>
<td>9 × 3</td>
<td>2500</td>
<td>27</td>
<td>0.33</td>
</tr>
<tr>
<td>Wills Hill Site</td>
<td>MA</td>
<td>2.47 × 4.63</td>
<td>1300</td>
<td>11.4</td>
<td>0.53</td>
</tr>
<tr>
<td>Military Academy Site</td>
<td>CT</td>
<td>7 × 11.5</td>
<td>845</td>
<td>80.5</td>
<td>0.61</td>
</tr>
<tr>
<td>Cunningham Site</td>
<td>MA</td>
<td>5.3 × 5.3</td>
<td>800</td>
<td>28.1</td>
<td>1.00</td>
</tr>
<tr>
<td>Skitchewaug Site Housepit 1</td>
<td>VT</td>
<td>5 × 4.5</td>
<td>725</td>
<td>22.5</td>
<td>0.90</td>
</tr>
<tr>
<td>Skitchewaug Site Housepit 2</td>
<td>VT</td>
<td>5 × 4.5</td>
<td>725</td>
<td>22.5</td>
<td>0.90</td>
</tr>
<tr>
<td>Orange County Longhouse</td>
<td>VT</td>
<td>25 × 5</td>
<td>650</td>
<td>125.0</td>
<td>0.20</td>
</tr>
<tr>
<td>Griswold Point Site Structure 1</td>
<td>CT</td>
<td>6.7 × 5.0</td>
<td>510</td>
<td>33.5</td>
<td>0.75</td>
</tr>
<tr>
<td>Griswold Point Site Structure 2</td>
<td>CT</td>
<td>4 × 5.25</td>
<td>510</td>
<td>21.0</td>
<td>0.76</td>
</tr>
<tr>
<td>Norridgewock Site</td>
<td>ME</td>
<td>25 × 5</td>
<td>300</td>
<td>125.0</td>
<td>0.20</td>
</tr>
<tr>
<td>The Coffin Farm Complex 1 Site</td>
<td>MA</td>
<td>15 × 10</td>
<td>291</td>
<td>150.0</td>
<td>0.67</td>
</tr>
<tr>
<td>Mohanttic Fort</td>
<td>CT</td>
<td>8.0 × 4.0</td>
<td>280</td>
<td>32.0</td>
<td>0.50</td>
</tr>
</tbody>
</table>

We analyzed the size of 42 Woodland- and Contact-Period houses using a bivariate scatterplot. The linear regression $R^2$ of the entire dataset is 0.1884, which is quite low and suggests that the linear trend poorly defines the dataset. However, by increasing the specificity of our analysis and plotting the data by the two sub-regions we described earlier, patterns become clearer and $R^2$ figures rise (Figure 2.2).
Figure 2.2. A bivariate scatterplot of houses (N=42) from the whole of the northeast region. “House Floor Area” was calculated by multiplying the known dimensions of structures. “Years Before Present” represents the number of years before 1950 of the feature or site’s centroid date. Each point represents a single house. Triangles represent houses from the region South of the Kennebec River region in Maine (N=27) while circles represent those North of this region (N=15). The vertical line represents the approximate emergence of horticulture in the Southern Region. Note the dotted circle, which frames a series of unusually large structures in the Southern Region.

The northern region of our study has a patterned trajectory of house growth (with an $R^2$ value of 0.436) although house sizes in general are far smaller than those in the southern region. Table 2.4 reveals that growth over time is regular and that deviations from the mean are relatively small in all the studied periods. The southern region has a similar pattern of slow growth through the Early and Middle woodland periods. However, at the start of the Late Woodland and, perhaps, with the arrival of maize horticulture to the region, house size bifurcates. Some of the houses after this period (n =5) remain similar in size to those before the arrival of horticulture. Others (n =4) experience an explosive growth, doubling or tripling the
size of those houses in earlier periods. By removing these large houses from the Southern region’s dataset (see the circled points in Figure 2.2), the $R^2$ increases dramatically, suggesting that there is a true data bifurcation (Table 2.3). This pattern can also be seen in Table 2.4, in which both average house size and the standard deviation from the mean (highlighted) increase dramatically in the Late Woodland and the Proto-Historic/Contact periods. A box-and-whisker plots (Figure 2.3) also illustrate this same pattern. They show that while the northern region exhibits little variation and only one small outlier, the southern region’s variation is more wide and includes several, very large outliers.

Table 2.3. $R^2$ Values of Sub-Regions and the Southern Region Excluding Large Outliers

<table>
<thead>
<tr>
<th>Region</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>0.436</td>
</tr>
<tr>
<td>Southern</td>
<td>0.419</td>
</tr>
<tr>
<td>Southern Excluding Late Woodland Outliers</td>
<td>0.600</td>
</tr>
</tbody>
</table>

Table 2.4. Average Size and Standard Deviation of Houses by Sub-Region and Time Period

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Date Range (Uncalibrated Years Before Present)</th>
<th>Average Size (m$^2$)</th>
<th>St. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Woodland</td>
<td>3400–2200</td>
<td>4.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Middle Woodland</td>
<td>2200–1300</td>
<td>7.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Late Woodland</td>
<td>1300–500</td>
<td>10.7</td>
<td>5.3</td>
</tr>
<tr>
<td>Proto-Historical/Contact</td>
<td>500–300</td>
<td>12.2</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Southern Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Woodland</td>
<td>3400–2200</td>
<td>11.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Middle Woodland</td>
<td>2200–1300</td>
<td>11.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Late Woodland</td>
<td>1300–500</td>
<td>47.6</td>
<td>40.0</td>
</tr>
<tr>
<td>Proto-Historical/Contact</td>
<td>500–300</td>
<td>102.3</td>
<td>62.2</td>
</tr>
</tbody>
</table>
Figure 2.3: Box-and-whisker plot broken into the northern (N=15) and southern (N=27) regions. The central black bar on each plot represents the median. The boxes and whiskers represent the quartiles above and below the median. The asterisks and circles are outliers. Note in the Southern region, the outliers which represent the very large Late Woodland structures discussed in the text. Plot by Megan Willison (University of Connecticut) and authors.

The database also permits us to track house shape. By dividing the smaller by the larger dimension, we arrived at a measure of what we have termed the “roundness ratio” (Table 2.2). The closer the ratio is to 1.0, the rounder the house the closer to 0.0, the more elongated. Patterns from this test were less clear but there may be a general trend towards elongation in the latter periods of our study.

Last, we collected data on the cardinal direction and waterward orientation of house doorways. Relatively few researchers reported this information (N=12) but the information is nonetheless suggestive. In Table 2.5 we report whether each house had distinguishable
doorways, the number of doorways, the direction of any noted doorways, and whether the doorway faces towards or away from a major body of water. In general, the doorway positions are highly variable within the entirety of the dataset, but individual sites tend to have consistent internal patterning. This might suggest that groups at individual sites were making informed social and/or economic decisions related to house positioning. The citations for each of the houses reported in Table 2.2 are located in Appendix 2.1.

Table 2.5. List of Study Houses with Reported Entrance Orientation and Size

<table>
<thead>
<tr>
<th>Site Name &amp; Feature Designator</th>
<th>Province/State</th>
<th>Date (Uncalibrated Years Before Present)</th>
<th>Period</th>
<th>Entrance Orientation</th>
<th>Entrance Towards Water</th>
<th>Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern Region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moshier Island Structure 1</td>
<td>ME</td>
<td>2210</td>
<td>Early Woodland</td>
<td>Southeast</td>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>Moshier Island Structure 2</td>
<td>ME</td>
<td>2210</td>
<td>Early Woodland</td>
<td>Southeast</td>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>AlDf-24</td>
<td>NS</td>
<td>1410</td>
<td>Middle Woodland</td>
<td>North by Northeast</td>
<td>Yes</td>
<td>8.4</td>
</tr>
<tr>
<td>Teacher's Cove Feature 3</td>
<td>NB</td>
<td>1190</td>
<td>Late Woodland</td>
<td>North</td>
<td>No</td>
<td>7.6</td>
</tr>
<tr>
<td>Teacher's Cove Feature 4</td>
<td>NB</td>
<td>1190</td>
<td>Late Woodland</td>
<td>North</td>
<td>No</td>
<td>5.3</td>
</tr>
<tr>
<td>Teacher's Cove Feature 5</td>
<td>NB</td>
<td>1190</td>
<td>Late Woodland</td>
<td>North</td>
<td>No</td>
<td>4.4</td>
</tr>
<tr>
<td>Flye Point-2</td>
<td>ME</td>
<td>455</td>
<td>Proto-Historic/Contact</td>
<td>Southwest</td>
<td>No</td>
<td>12.2</td>
</tr>
<tr>
<td><strong>Southern Region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kirby Brook Site Structure 11</td>
<td>CT</td>
<td>3400</td>
<td>Early Woodland</td>
<td>Two entrances, opposite ends, East and West</td>
<td>Unknown</td>
<td>15</td>
</tr>
<tr>
<td>Kirby Brook Site Structure 12</td>
<td>CT</td>
<td>3400</td>
<td>Early Woodland</td>
<td>Two entrances, opposite ends, East and West</td>
<td>Unknown</td>
<td>15</td>
</tr>
<tr>
<td>Morris Estate Club Site</td>
<td>NY</td>
<td>2800</td>
<td>Early Woodland</td>
<td>Southeast</td>
<td>Yes</td>
<td>7.3</td>
</tr>
<tr>
<td>Wills Hill Site</td>
<td>MA</td>
<td>1300</td>
<td>Middle Woodland</td>
<td>Southeast</td>
<td>No</td>
<td>11.4</td>
</tr>
<tr>
<td>Military Academy Site</td>
<td>CT</td>
<td>845</td>
<td>Late Woodland</td>
<td>Two entrances, opposite ends, North and South</td>
<td>Yes</td>
<td>80.5</td>
</tr>
</tbody>
</table>
DISCUSSION

By building a database of Woodland Period house features in the northeast region we can begin to assess whether this scale of analysis is useful for analyzing the nature of social and economic change and continuity. We did this primarily by breaking the study area into two sub-regions, one North and one South of the approximate maximum expansion of maize horticulture, and comparing them. Our first research question asked whether it was possible to discern differences across sub-regions and through time using a database like the one we compiled. We believe that this approach is effective in revealing intriguing variations and parallels.

We should note that the difference in feature size between the North and the South may not entirely reflect true differences in floor area. Ethnohistoric accounts for the South (summarized by Glick 2013) suggest that the walls of structures there rose from the ground at a nearly 90-degree angle before reaching a domed roof. In contrast, northern dwellings were conical, with inward-sloping walls (see Bock 1978). As a result, the edges of Northern features may have been used for sleeping or storing items, but individuals would not have been able to stand in the space to create depressed features.

When looking at the Southern dataset, we observe evidence for social and economic changes occurring at the level of the household, likely relating to the introduction of maize horticulture. However, in the north houses increase in size throughout the Woodland period suggesting changes were occurring there too. Despite the small dataset, dwelling size appears to grow consistently in the North over time although without the exponential growth in the Late Woodland.

This slow but steady growth is consistent with findings over the last several decades which have emphasized settlement-subsistence change during the Woodland period on the Maritime Peninsula (Betts et al. 2017). At the Middle to Late Woodland transition (ca. 1350 BP),
there may have been a shift toward logistical foraging strategies on the Northern coast (Betts et al. 2017; Black 2002). The question of village formation is, of course, definitional, but if we continue to use Waller’s (2000:140, following McBride 1984) operational definition of a village of near-year-round occupation by most of the members of a community, there are candidates in Nova Scotia (Thorbahn 1988). Year-round occupation seems to have emerged during the Late Woodland in at least some parts of the Maritime Peninsula (Betts et al. 2017) along with a case, minimally, for increasing sedentism at some sites in the region (e.g., Bourque and Cox 1981; Hrynick et al. in press).

Leveillee et al. (2006), however, have proposed a “dispersed” model for villages in Southern New England, in which the elements of village life might be dispersed over a larger area than appreciated in previous models and, presumably, retaining many aspects of village social life. Although the case remains to be made explicitly, a dispersed village model proposed by Leveillee et al (2006) is potentially consistent with our understanding of late prehistoric occupations at least in part of the Maritime Peninsula. Their statement that

the social landscape included collective communities, each characterized by a series of cooperative households within dispersed villages…characterized by domestic dwellings where nuclear and extended families lived and carried out activities primarily in support of their own household (Leveillee et al 2006:85)

fits the data presently available, along with an argument for yearly village aggregation.

Economically, households would continue to be important (see also McBride 1984), but with new broad reaching community politics and a more centralized leadership structure than characterizes the classic hunter-gatherer band.

In this case, then, we think the steady increase in the size of domestic structures in both regions is most parsimoniously explained by increasing sedentism, which can be correlated both with larger family units, larger houses, and more investment in housing (Binford 1990). The
abrupt change in the size of Southern dwellings after the development of maize horticulture, however, suggests dramatic social change, even if it was not accompanied by a major economic reliance on maize (Bendremer 1999; Chilton 2004, 2008). While more data is needed to draw strong conclusions, the house-size bifurcation in the Southern region may indicate immense change during the Late Woodland. Possible interpretations include the emergence of increasing social complexity and social or economic stratification, increasing complexity in systems of kinship, or the emergence of true year-round sedentism, at least in some localities.

Despite the continued reliance on a broad-spectrum diet, maize agriculture likely, in part, drove this bifurcation. This may be partially a fact of the scale of our study. Others have argued that this period saw the emergence of task specific sites and an economic seasonal round. Perhaps what this dataset reveals is the presence of houses from different parts of that round whereby archaeologists are discovering pieces of a larger regional pattern. This still implies a higher level of sedentism relative to earlier periods when hunting and gathering necessitated near constant movement on the landscape and small and highly transportable houses were more efficient.

We also note possible trends in both house shape and door orientation, although both would benefit from a more robust dataset. We present them here to form a foundation for future studies. There is a qualitative pattern of shifting house size shape from round to oblong over time, although it is not statistically significant. If this pattern is real, it could represent a functional consideration correlating with the observed increase in size over time or it may have social implications relating to family size or sedentism. Regional variations in door orientation is also intriguing but this dataset is far too small to be considered representative. Nonetheless, the presence of double-entrance houses in Southern New England in both the Early and Late
Woodland is of note. Lavin (2013:132–133) interpreted this as evidence of double-occupied nuclear family households which could suggest a cultural deviation from their single-entrance Northern correlates.

CONCLUSION

In this paper we present a database of indigenous architecture from the Northeastern Woodland Period that we hope will be useful for future researchers as they expand upon and utilize it. The dataset demonstrates that both the Northern and Southern regions of the Northeast experienced increasing levels of sedentism through time, although with different patterns and magnitudes of growth. These patterns suggest that both regions experienced increasing social complexity over time as they reacted to new economic realities. In the North, the adoption of new foraging strategies and the emergence of village aggregation caused a gradual and steady growth in house size. In contrast, the South experienced relatively slow growth in the earlier Woodland periods, but exhibited comparatively explosive growth in some houses after the emergence in the region of maize horticulture. Most importantly, we believe that this dataset shows that houses are dynamic cultural phenomenon that are useful proxies for analyzing both economic and social changes and continuities in the Northeastern Woodland Period.

Further, the dataset reveals that indigenous wigwams were not exclusively pragmatic structures that imply static social simplicity. Rather the wigwam, as a form, emerged in the Late Archaic and Early Woodland and remained a continually recognizable feature of the region’s archaeological sites for over 3,000 years. The form continued to have cultural relevance well into the colonial period, with examples from the 17th and 18th centuries being reported by a number of ethnohistoric sources and on archaeological sites. The wigwam had incredible staying power for the people of the Northeast while also displaying a remarkable level of flexibility, as builders
modified the basic plan’s size, shape, and orientation for their particular economic and social needs.
Appendix 2.1: Database of Full Excavated Domestic Structures in the Northeast

<table>
<thead>
<tr>
<th>Site Name &amp; Feature Designator</th>
<th>Province/State</th>
<th>Approximate Feature Dimensions (m)</th>
<th>Shape</th>
<th>No. of Interior Hearths</th>
<th>Post-Molds (double or single)</th>
<th>Gravel Lined</th>
<th>Excavated Surface</th>
<th>Period</th>
<th>Seasonality Interpretations</th>
<th>Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-NT-50</td>
<td>MA</td>
<td>8 x 6.5</td>
<td>Oval</td>
<td>No</td>
<td>No</td>
<td>EW MW LW Contact</td>
<td></td>
<td></td>
<td></td>
<td>(Rainey 2010:47–50)</td>
</tr>
<tr>
<td>19-NT-68</td>
<td>MA</td>
<td>8 x 6.5</td>
<td>Oval</td>
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<td>No</td>
<td>EW MW LW Contact</td>
<td></td>
<td></td>
<td></td>
<td>(Rainey 2010:47–50)</td>
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<tr>
<td>AlDf-24</td>
<td>NS</td>
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<td>Oval</td>
<td>2</td>
<td>Single</td>
<td>No</td>
<td>No</td>
<td>LW</td>
<td>Spring and likely cold season</td>
<td>Betts and Burchell in press; (Hrynick, et al. 2012)</td>
</tr>
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<td>No</td>
<td>No</td>
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<td>Fall to Spring</td>
<td></td>
<td>Betts and Burchell in press; (Hrynick, et al. 2012)</td>
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<td>No</td>
<td>MW</td>
<td>Fall to Spring</td>
<td></td>
<td>Betts and Burchell in press; (Hrynick and Betts 2014)</td>
</tr>
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<td>Bashan Lake Site</td>
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<td>No</td>
<td></td>
<td></td>
<td></td>
<td>(Juli and Lavin 1996; Pfeiffer 1983)</td>
</tr>
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<td>Yes</td>
<td>No</td>
<td>No</td>
<td>LA</td>
<td></td>
<td></td>
<td>(Juli and Lavin 1996)</td>
</tr>
<tr>
<td>Bliss-Howard Site Structure 2</td>
<td>CT</td>
<td>10 x 5</td>
<td>Oval</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>LA</td>
<td></td>
<td></td>
<td>(Juli and Lavin 1996)</td>
</tr>
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<td>Bliss-Howard Site Structure 3</td>
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<td>Oval</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>LA</td>
<td></td>
<td></td>
<td>(Juli and Lavin 1996)</td>
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<tr>
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<td>No</td>
<td>No</td>
<td>LW</td>
<td>Summer, Fall</td>
<td></td>
<td>(Lavin 2013:222–223)</td>
</tr>
<tr>
<td>Site Name &amp; Feature Designator</td>
<td>Province/State</td>
<td>Approximate Feature Dimensions (m)</td>
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<td>Post-Molds (double or single)</td>
<td>Gravel Lined</td>
<td>Excavated Surface</td>
<td>Period</td>
<td>Seasonality Interpretations</td>
<td>Citation</td>
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<tr>
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<td>Unidentified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fall</td>
<td>(Lavin 2013:222–223)</td>
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<td>Cunningham Site</td>
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<td>Circular</td>
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<td>No</td>
<td>LW</td>
<td>Fall, Winter, Spring</td>
<td>(Juli and Lavin 1996; Ritchie 1969)</td>
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<td>No</td>
<td>No</td>
<td>Contact</td>
<td>Warm or mixed</td>
<td>(Hrynick, et al. 2015)</td>
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<tr>
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<td>Round</td>
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<td>Yes</td>
<td>LW</td>
<td></td>
<td>(Cowie and Peterson 1990:214; Heckenberger, et al. 1992)</td>
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<td>Flye Point-2</td>
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<td>No</td>
<td>No</td>
<td>LW</td>
<td>Cold (Jan. - Mar.)</td>
<td>(Cox 1983)</td>
</tr>
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<td>Fort Shantok</td>
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<td>Square</td>
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<td></td>
<td>No</td>
<td>No</td>
<td>Contact</td>
<td>Year Round</td>
<td>(L. E. Williams 1972:73–74)</td>
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<td></td>
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<td>No</td>
<td>LW</td>
<td></td>
<td>(Juli and Lavin 1996)</td>
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<td>4 x 5.25</td>
<td>Ovoid</td>
<td>1</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>LW</td>
<td></td>
<td>(Lavin 2013:184)</td>
</tr>
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<td>Circular</td>
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<td>No</td>
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<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td></td>
<td></td>
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<td>No</td>
<td>TA/EW</td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td>Post-Molds (double or single)</td>
<td>Gravel Lined</td>
<td>Excavated Surface</td>
<td>Period</td>
<td>Seasonality Interpretations</td>
<td>Citation</td>
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<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td>Oblong</td>
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<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td>Circular</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td>CT</td>
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<td>Circular</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td>CT</td>
<td>3 x 3</td>
<td>Circular</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
</tr>
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<td>Circular</td>
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<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td>Oval</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<td>Kirby Brook Site Structure 8</td>
<td>CT</td>
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<td>Oval</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<tr>
<td>Kirby Brook Site Structure 9</td>
<td>CT</td>
<td>4 x 2.5</td>
<td>Oval</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>TA/EW</td>
<td></td>
<td></td>
<td>(Lavin 2013:132–133; Swigart 1974:28–31)</td>
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<tr>
<td>Site Name &amp; Feature Designator</td>
<td>Province/State</td>
<td>Approximate Feature Dimensions (m)</td>
<td>Shape</td>
<td>No. of Interior Hearths</td>
<td>Post-Molds (double or single)</td>
<td>Gravel Lined</td>
<td>Excavated Surface</td>
<td>Period</td>
<td>Seasonality Interpretations</td>
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<tr>
<td>Military Academy Site</td>
<td>CT</td>
<td>7 x 11.5</td>
<td>Oblong</td>
<td>double</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>MW</td>
<td>Summer, Fall</td>
<td>(Lavin 2013:180–187)</td>
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<td>Minister's Island Feature 1</td>
<td>NB</td>
<td>4.0 x 2.2</td>
<td>Oval</td>
<td>≥1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>M-LW</td>
<td>Year-round or winter-spring</td>
<td>(Sanger 1987)</td>
</tr>
<tr>
<td>Minister's Island Feature 3</td>
<td>NB</td>
<td>2.8 x 2.0</td>
<td>Oval</td>
<td>≥1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>M-LW</td>
<td>Year-round or winter-spring</td>
<td>(Sanger 1987)</td>
</tr>
<tr>
<td>Monhantic Fort</td>
<td>CT</td>
<td>8.0 x 4.0</td>
<td>Oval</td>
<td>1</td>
<td>Single</td>
<td>No</td>
<td>No</td>
<td>Contact</td>
<td>Year Round</td>
<td>(Benard 2005)</td>
</tr>
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<td>Morgan Site</td>
<td>CT</td>
<td>Present</td>
<td>Unidentified</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>LW</td>
<td>Year Round</td>
<td>(Lavin 1988, 2013; Lavin, et al. 2013)</td>
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<tr>
<td>Morris Estate Club Site</td>
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<td>Circular</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>EW</td>
<td>Summer</td>
<td>(Juli and Lavin 1996; Kaser 1978)</td>
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<td>2 x 2</td>
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<td>Yes</td>
<td>No</td>
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<td>Winter, Spring</td>
<td>(Yesner 1984)</td>
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<td>ME</td>
<td>2 x 2</td>
<td>Oval/Circular</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>TA/EW</td>
<td>Winter, Spring</td>
<td>(Yesner 1984)</td>
</tr>
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<td>Norridgewock Site</td>
<td>ME</td>
<td>25 x 5</td>
<td>Longhouse</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Contact</td>
<td>Fall</td>
<td>(Cowie, et al. 1995; Hasenstab 1999:148–149)</td>
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<tr>
<td>Oak Knoll Site</td>
<td>MA</td>
<td>1 x 0.75</td>
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<td>No</td>
<td>No</td>
<td>No</td>
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<td>Unidentified</td>
<td>No</td>
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<td>No</td>
<td>No</td>
<td>LW</td>
<td>Spring, Fall (migratory)</td>
<td>(Lavin 2013:223–231)</td>
</tr>
<tr>
<td>Orange County Longhouse</td>
<td>VT</td>
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<td>Longhouse</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>LW</td>
<td></td>
<td>(Wiseman 2005)</td>
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<td>Site Name &amp; Feature Designator</td>
<td>Province/ State</td>
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<td>Shape</td>
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<td>Gravel Lined</td>
<td>Excavated Surface</td>
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<td>RI 1428</td>
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<td>9 x 3</td>
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<td>EW MW</td>
<td>Year Round</td>
<td>(Tveskov 1992, 1997)</td>
</tr>
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<td>Russell's Inn Site</td>
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<td>No</td>
<td>No</td>
<td>LW</td>
<td>(Wiseman 2005)</td>
</tr>
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<td>3.3 x 2.5</td>
<td>Oval</td>
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<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Year Round</td>
<td>(Lavoie 1972)</td>
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<td>Summer, Fall, Winter</td>
<td>(Hasenstab 1999:148–149; Heckenberger, et al. 1992)</td>
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<td>No</td>
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<td>No</td>
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<td>Summer, Fall</td>
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Appendix 2.2: Database of Full Excavated Domestic Structures in the Northeast

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<td>Contact</td>
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Works Cited

Baird, S F


Belcher, William R


Benard, Akeia Angelique Florence


Bendremer, Jeffrey C


Betts, Matthew W and Susan E Blair


Betts, Matthew W, Meghan Burchell and Bernd R Schone


Binford, Lewis R


Bishop, Jennifer C and David W Black

Black, David W


Black, David W and Ruth Holmes Whitehead


Black, David W.


Blair, Susan


Bock, D. K.


Bourque, Bruce J


Bourque, Bruce J and Steven L Cox


Bradford, William


Bragdon, Kathleen


Ceci, Lynn


Chilton, Elizabeth S


Cowie, Ellen R and James B Peterson


Cowie, Ellen R, James B Peterson and Bruce J Bourque

Cox, Steven L.


Davis, Stephen A

1978 *Teacher’s Cove: A Prehistoric Site on Passamaquoddy Bay*. New Brunswick Archaeology, Historical Resources Administration.

Deal, Michael, Sara Halwas, Candace Loder, and Matthew Betts


Dewar, Robert E and Kevin A McBride


Erskine, John S.


Flannery, Kent V.


George, David R and Robert E Dewar


Glick, Henry


Gremillion, Kristen J


Griffin, James B.


Gyles, John


Hall, Jason


Hart, John P and Christina B Rieth


Hasenstab, Robert J


Heckenberger, Michael J, James B Peterson and Nancy Asch Sidell


Hrynick, M Gabriel and Matthew W Betts


Hrynick, M Gabriel, Matthew W Betts and David W Black

Hrynick, M Gabriel and David W Black


Hrynick, M Gabriel and Brian S Robinson


Hrynick, M. Gabriel, W. Jesse Webb, Christopher E. Shaw, and Taylor E. Testa

In Press  Late Maritime Woodland to Protohistoric Culture Change and Continuity at the Devil’s Head Site, Calais, Maine. *Archaeology of Eastern North America*.

Hrynick, M Gabriel, Jess Webb, David E Leslie, Taylor Testa, John M Fable and William A Farley


Johnson, Eric S

2012  *Roads, Rails, and Trails: Transportation-Related Archaeology in Massachusetts*. Massachusetts Historical Commission.

Juli, Harold D. and Lucianne Lavin


Kaser, E J


Keenlyside, David L

2002  Title., in press.
Keenlyside, David L and Helen Kristmanson


Lavin, Lucianne


Lavin, Lucianne, Fred Gudrian and Laurie Miroff


Lavoie, J

1972 Le Site Sandy Point (BgDs6) et L’origine de la Region fo la Baie de Passamaquoddy, Nouveau-Brunswick. Dissertation, Anthropology, University of Montréal, Montréal, Quebec.

Leonard, Kevin


1996 Mi'kmaq Culture During the Late Woodland and Early Historic Periods. Dissertation, Anthropology, University of Toronto, Toronto, Ontario.

Leveillee, Alan, Joseph Waller Jr and Donna Ingham


Loewen, Brad and Claude Chapdelaine

Mack, K. E.

Matthew, George F.

McBride, Kevin A

McBride, Kevin A and Robert E Dewar

McBride, Kevin A, David Naumec, Ashley Bissonnette, Doug Currie, Noah Fellman and Laurie Lamarre

McBride, Kevin A.

Mitchell III, Harbour

Moorehead, Warren K.
Nash, Ronald J and Frances L Stewart


Nash, Ronald J and Frances L Stewart


Peterson, James B and David Sanger


Pfeiffer, John


Rainey, Mary Lynne


Ritchie, William A


Ritchie, William A and Robert E Funk


Robbins, Maurice

1959 *Wapanucket #6, an archaic village in Middleboro, Massachusetts.* Cohannet Chapter, Massachusetts Archaeological Society, Attleboro, Massachusetts.

Sanger, David


Sanger, David, Barbara Johnson, James McCormick and Marcella H Sorg


Skinas, David


Steadman, Sharon R

2015  *Archaeology of Domestic Architecture and the Human Use of Space*. Left Coast Press, Walnut Creek, California.

Sturtevant, William C


Swigart, Edmund K


Suttie, Brent


Taché, Karine


Taché, Karine and Oliver E. Craig

Thomas, Peter A


Thorbahn, Peter F


Trigger, Bruce G


Turnbull, Christopher J


Tveskov, Mark


Waller Jr, Joseph


Williams, Lorraine E


Williams, Roger

Wiseman, Frederick Matthew

2005  *Reclaiming the Ancestors: Decolonizing a Taken Prehistory of the Far Northeast.*

Wood, William, Nathaniel Rogers and James Otis

1764  *New-England's Prospect: Being a True, Lively, and Experimental Description of that Part of America, Commonly Called New-England: Discovering the State of that Country, Both as it Stands to Our New-come English Planters; and to the Old Native Inhabitants. And Laying Down that which May Both Enrich the Knowledge of the Mind-travelling Reader, Or Benefit the Future Voyager.* London, printed 1639. Boston, New-England, re-printed by Thomas and John Fleet, in Cornhill.

Yesner, David R

CHAPTER 3: HYBRID METHODS FOR LOCATING AND EXCAVATING EARLY HISTORIC CONFLICT-RELATED DOMESTIC SITES IN SOUTHERN NEW ENGLAND²

William A. Farley
Kevin A. McBride

ABSTRACT

Since 2012 the Mashantucket Pequot Museum and Research Center in Mashantucket, Connecticut in collaboration with the University of Connecticut has carried out an ambitious research program to survey and excavate the battlefields of the Pequot War (1636–1637). This project is an unusual one in several ways and it has required the development of novel field methods. These techniques were developed expressly to explore traditional battlefield sites but have also proved useful for locating and clarifying elusive 17th-century Native American domestic sites. This paper seeks to describe the overall battlefield archaeology method and the refined version of this technique useful for locating period domestic sites. Further, we describe the nature of collaboration with relevant constituent communities necessary for successful implementation of these techniques. As a means of achieving these goals we present a case study in the indigenous 17th-century site of Calluna Hill (CT 59-73).

INTRODUCTION

Since 2012 the Mashantucket Pequot Museum and Research Center (hereafter MPMRC) has undertaken an ambitious project aimed at better understanding the Pequot War (1636-1637). The main goal of this project has been to locate and analyze several important battlefields from

² This paper is co-authored with Kevin A. McBride, Associate Professor, Department of Anthropology at the University of Connecticut. We will submit this manuscript to the journal Historical Archaeology.
the conflict and it has been carried out using a combination of traditional and novel archaeological techniques. As one of the first full-scale conflicts between English colonists and Native Americans, the war has held the interest of historians for decades. These studies have included thorough historical analyses (Cave 1996), ethical debates about whether the war included aspects of genocide (Freeman 1995; Katz 1995), and the discussions of the primary causes of the war (Grandjean 2011). Few studies have relied primarily on archaeological data, however, owing mostly to a paucity of known sites. Archaeological studies of this period have enormous potential to add to our understanding of the Pequot War as a conflict as well as the lived experience of those who were affected by it. The MPMRC battlefields project has made possible an archaeological approach for the first time.

In this paper, we seek to accomplish two goals. First, we will detail the methodologies of the MPMRC Pequot War battlefields project including a novel approach that has proven successful in locating and delineating 17th-century indigenous domestic sites. Second, we describe the site of Calluna Hill (CT 59-73) in Mystic, Connecticut, a 1637 Pequot village burned during the English retreat following the Battle of Mystic Fort. The village serves both as an example of the method in action as well as an interesting site of conflict in its own right. As both a victim of the battle and a site where wartime materials for Native combatants may have been made, the site offers a rare opportunity to explore multiple facets of the Pequot War in a single location.

CONFLICT ARCHAEOLOGY AND THE PEQUOT WAR BATTLEFIELD PROJECT

Archaeologists at the MPMRC have relied heavily upon the techniques developed by previous conflict archaeologists (e.g. Cimprich and Mainfort 1989; Fox and Scott 1991; Scott 2003; Scott and McFeaters 2011). As discussed by Scott and McFeaters (2011), conflict
archaeology is a relatively young but fast-developing subfield of archaeology dedicated to studying both sites of battle and non-battlefields associated with conflicts. Conflict studies first emerged from within historical archaeology, likely owing to the long-standing interest in the historical and cultural effects of war among historians. The most famous examples of published conflict archaeology have focused on sites from the last few centuries. These include studies of the Battle of Little Big Horn and battles from the American Civil War (Cimprich and Mainfort 1989; Fox Jr and Scott 1991), and Revolutionary War fortifications (Freeman 2001; Hanson Jr and Hsu 1975). More recently archaeologists have studied conflict in the prehistoric period (Allen and Arkush 2008; Rice and LeBlanc 2001). These studies require a different set of methodologies to those from the historic period. The Pequot War Battlefield Project presents new challenges because the conflict occurred at the transition of these two periods, necessitating methodological and theoretical considerations from both prehistoric and historic conflict archaeology. Combatants used a wide variety of weaponry, armor, and personal items from vastly different cultural traditions. As will be discussed later, material choice was vitally important for battlefield considerations, ideological concerns, and perhaps, religious factors. Since we relied heavily on the use of metal detectors, combatants use of metal implements is also of relevance.

HISTORICAL CONTEXT: THE PEQUOT WAR

To understand the conflict site of Calluna Hill and the methods we used to find it, it is important to contextually frame the Pequot War. The arrival of European explorers to Southern New England in the first quarter of the 17th century was an extraordinarily damaging process for most of the region’s indigenous inhabitants. While many native people suffered disease and eventual displacement, the immediate effect was a destabilization of longstanding political
relationships. Upon encountering the region’s new Dutch and English inhabitants in the 1620s, the Pequot experienced an initial gain in influence. This was due largely to their own ingenuity, as the Pequot leadership carefully gained control of desirable resources and showed political and military savvy in their domination of smaller tribal polities.

By the mid-1620s the Pequots controlled a complex sociopolitical network of smaller tribes extending over thousands of square miles that payed them tribute for their support and protection. These tributary polities supported a central tribal group ruled by a grand sachem. This sachem commanded no inherent or essential power, but rather most likely gained authority through reciprocal exchange. In his account of the Pequot War John Mason, the English captain who led the infamous attack on Mystic Fort, portrayed the complexity of this economic and social exchange when describing those Indians held accountable for the murder of John Stone. Stone was an English trader and his death was an important event in the catalyzing years of the Pequot War. Mason wrote that “these Indians were not Pequots, but had frequent recourse unto them, to whom they tendered some of those Goods, which were accepted by the Chief Sachem of the Pequots: Other of the said Goods were tendered to Nynigrett Sachem of Nayanticke, who also received them” (Orr 1897:17). Despite Mason’s apparent comprehensions of some of the complexities inherent to this political system, colonial leadership was often unable to distinguish between Pequots and their tributary subjects.

The arrival of English traders and settlers to the region in the 1620s also accelerated tribal consolidation. By incorporating the sachemdoms into the Atlantic economy, Dutch and English traders endeavored to increase the level of competition among New England Indians, who in turn vied for control of the trade in European commodities (Cave 1996:49; McBride 2013). By the late-1620s, the Narragansett and Pequot had successfully outcompeted their indigenous
neighbors and had become dominant powers, further centralizing their control of regional trade with Europeans. By this time Dutch traders had discovered the economic and social significance of wampum, a shell bead which held significant cultural value to the fur-rich inland Iroquois and Algonquian groups. Due to its high desirability among these groups and its significant socially determined value, wampum played a role in nearly every 17th-century fur trade.

Wampum is a shell bead, formed of sliced, tubular pillars or columellas and is acquired from two shallow marine shellfish species, channeled whelk (*Busycotypus canaliculatus*) and quahog (*Mercenaria mercenaria*) (Cave 1996:56; Ceci 1990:48–49). Pequots controlled the shorelines and waters of eastern Long Island Sound, which are ecological zones rich in quahog and whelks. This made the Pequots a highly desirable trade partner during the 1620s and 30s. By 1622, Dutch traders achieved their goal of monopolizing the wampum trade with Pequot producers and entered an exclusive contract of exchange. Dutch traders and their investors earned large profits relating to their burgeoning control of the wampum trade and by the year 1630 Holland imported 10,000 beaver pelts a year from their New England colonies (Cave 1996:50). One estimate put the 1633 annual worth of furs obtained from inland native groups at £20,000 or roughly 200,000 Dutch guilders. That same year, Dutch settlers exchanged rough fabrics called duffel, metal implements, and other items worth 31,000 guilders for 143,125 guilders worth of beaver pelt (Ceci 1990:58–59). This distinctly Atlantic trade system was important enough that the Dutch chose to portray a beaver encircled by a “strope” of strung wampum on the seal of New Netherlands.

Pequot power grew correspondingly as they absorbed smaller bands and tribes who would, in exchange for protection, pay annual tributes in wampum. These, in turn, could be used to increase Pequot control of Dutch access to the inland fur market. Due to its important
sociocultural value, wampum existed as an exceedingly elastic commodity for the region’s native groups. The demand for wampum was bolstered by its serving as a medium for many social and political exchanges. These included marriage contracts, shamanistic services, the sealing of peace treaties and alliances for war, compensation for crimes, ransoming of captives, and tribute payments to superior sachems. Furthermore, wampum was an insignia of status, and the attainment of wampum and its subsequent use as personal adornment represented individual social mobility (Cave 1996:53). The availability of European market goods also drove the wampum trade. The use of metal tools made large-scale production of wampum a reality for the first time, largely replacing stone drills that made traditional production incredibly labor intensive.

English puritans from the Massachusetts Bay Colony began to colonize Connecticut in the early 1630s. The fur trade was vitally important to the economic survival of the English colonies. Without access to the wampum trade, however, the puritan English had had little success in sustaining trade partnerships with inland groups. In 1627 the English joined the wampum economy by buying 50 fathoms of wampum from Isaak De Rasieres, director of New Netherlands. For the first time, English merchants garnered a profit from their Northern fur trade. Within a few years, wampum would replace the labor-intensive maize as the puritan’s primary trade commodity in their New England colonies. Backed by strong European markets for beaver furs, the durable and easy to transport wampum beads were quickly adopted as a replacement for rare coinage among the Dutch and English. This adaptation, in turn, made the English increasingly reliant upon wampum and linked English puritans with the Pequots as partners in a rapidly expanding Atlantic fur trade (Cave 1996:50–54; Ceci 1990:58–61).
As English settlements and their partnership with the Pequots were strengthened, Dutch regional power waned. Dutch settlements, which were never as well supplied or so designed for permanency as their English counterparts, were slowly forced out of the Southern Connecticut wampum trade by the mid-1630s. Pequot power also showed signs of faltering. By 1633 a Pequot tributary leader named Uncas had split his Mohegan kinship group from the Pequots with support from English allies. A series of events occurring in 1634 including the capture and murder by the English of Pequot grand sachem and father to Sassacus, Tatobem and the killing of two English traders named John Stone and John Oldham incited the Pequot war. The war’s turning point was the burning and slaying of an estimated 400 Pequot men, women, and children by English and English-allied native people at Mystic Fort (located in present-day Mystic, Connecticut) on May 26th, 1636.

The events of May 26th have been explored by the MPMRC since 2007 through the “Battle of Mistick Fort: English Withdrawal and Pequot Counterattacks” project, funded by a series of National Park Service American Battlefield Protection Grants (GA-2255-11-011) and by ongoing collaboration between the museum, UCONN, the Mashantucket Pequot Tribal Nation, and a variety of non-native stakeholders in the Mystic, Connecticut region. This project has explored war-related sites from around the state. This paper will focus on one loci, the English withdrawal from the Battle of Mystic Fort, which encompasses an area of 34.2 ha/84.6 ac. and has produced thousands of battle-related objects along the six-mile route that runs from Pequot Hill in Mystic, CT to Poquonnock in Groton, CT (McBride et al. 2014:6–7).

In 2013, archaeologists using metal detectors located a site containing two distinct domestic middens in context with a number of battlefield objects along the route of Battle of the English Withdrawal. Between 2013 and 2016, archaeologists working for the MPMRC and the
University of Connecticut returned to this site with the intention of delineating any domestic features associated with the middens. Eventually architectural features interpreted to be a native wigwam, aboriginal ceramics typical of the early 17th century, English-made pipes, faunal and floral remains, and intentionally altered brass and iron scrap indicated that this site was likely a small Pequot village burned down during the battle.

In his account of the Pequot War, Captain John Mason, the leader of the English attack on Mystic Fort and the English Withdrawal, described coming upon just such a village, stating “we rested and refreshed ourselves… then marched on towards Pequot Harbor; and falling upon several Wigwams, burnt them” (Mason, et al. 1736:11). Due to the context of the domestic site, researchers at the MPMRC interpreted it to be the village described by Mason and designated it Calluna Hill (CT 59-73). Later in this article we will discuss the relevance of this site to the Pequot War conflict, the Battle of English Withdrawal, and to the emergence of a useful methodology for locating and delineating 17th-century indigenous domestic sites.

The Battles of Mystic Fort and the English Withdrawal resulted in the loss of 500 men, half of their fighting force. The Pequot decided to leave the region and flee and they were systematically pursued by the English, who killed Pequot men and captured women and children. Those who were captured were sold into slavery in the Caribbean or given to the Mohegans and Narragansett as tribute for their wartime alliance. The treaty of Hartford, signed in 1638, assigned the colony as the central authority in the vitally important wampum tributary system (Cave 1996; Ceci 1990:55–63).

METHODS: THE RETREAT

The Pequot War Battlefield Project has required the development of a set of entirely novel methodological practices. The Mashantucket Pequot Tribal Nation (hereafter MPTN) has
employed an active archaeological research team since the 1980s. Relying on the best practices of North American archaeology, the team had developed a useful protocol for the excavation of a variety of traditional archaeological contexts. Conflict archaeology is unique and requires different goals and correspondingly distinct methodological approaches to achieve those goals (Scott and McFeaters 2011). Discerning and delineating conflict sites is extremely difficult using traditional archaeological techniques such as shovel test pits or block excavations. Instead, conflict archaeologists rely heavily on metal detector surveys. The archaeological exploration of conflict sites is generally aimed towards the discernment of human activity across large areas. Further, the target components of conflict sites would have a restricted range of material culture and were often only active for extremely short periods of time. In the case of the Battle of the English Withdrawal that time frame was roughly 10 hours (McBride et al. 2014:7).

The Pequot War is a relatively well covered event in the historic record. There exist several written accounts of the war, four of which were effectively presented together in the late 19th century by Charles Orr (1897). These accounts served as the starting point for locating the conflict-related sites discussed here. Historical researchers at the MPMRC analyzed these and other documents to discern locations of conflict and the warfare tactics of both the English and Native combatants. These documents also included information about weaponry, armor, and the material goods carried and used by the combatants which informed the field team’s metal detector surveys. This information helped refine the narrative of the battle and the profile of the battlefield sites we were searching for (McBride et al. 2014).

The combination of historic resources and battlefield objects recovered by archaeological metal detector surveying allowed researchers at the MPMRC to utilize Fox and Scott’s (1991) method of Dynamic Pattern Analysis, which is distinct in that it “seeks to identify and isolate
discrete battle ‘events’ associated with aggregates of individuals based on their archaeological signatures and integrate them into a spatial and temporal framework to identify movement across the battlefield” (McBride et al. 2014:71). Prior to this technique, battlefields were usually interpreted as single, static events, bounded by the extent of artifact finds. While useful in locating the location of a battle, these approaches revealed little nuance of combatant or unit behaviors. By using this method we attempted to follow individuals and groups of combatants across the miles-long retreat path, revealing and mapping specific engagements and events along the way.

MPMRC archaeologists and historians successfully used a combination of historical and archaeological resources to develop a profile or signature of battle-related objects carried and used by both English-allied and Pequot-allied combatants. Using metal detectors, they systematically surveyed the area of land believed to be the location of the English withdrawal and tracked numerous skirmishes and engagements that evidenced hours of intense fighting. Dynamic Pattern Analysis requires that researchers constantly update their expectations, hypotheses, and methodologies as new information reveals itself. This is similar to other kinds of archaeological excavation and the MPMRC staff did so regularly. Because of that flexibility, we were able to identify domestic signatures when they began to appear in unexpected places.

METHODS: THE VILLAGE

As mentioned earlier, field researchers revealed two domestic middens along the route of the English Withdrawal battlefield in 2013. Very high densities of what appeared to be scrap iron and brass were located within and adjacent to the two discrete features. The limited excavations needed to extract the midden’s metal artifacts revealed that these features were rich in domestic refuse like shell and bone. The features were noted, mapped, and left for later exploration.
After the 2013 field season was completed we began analyzing our data to see if any other domestic sites could be detected. By analyzing the project’s Geographic Information System (GIS) and breaking down metal detector finds by type, patterns began to emerge. Narrowing the map to only certain artifact types revealed groupings of those artifacts most likely associated with a “domestic” signature. The artifact classes included in that signature should be tailored to a specific project, but for an indigenous site from the 1630s in Connecticut, we used artifacts made of iron or brass from a range of categories described in Table 3.1. After four seasons of work on the retreat project five additional possible domestic sites have been isolated from the rest of battlefield. Work on several of these sites is ongoing, but most effort has been directed at the site of Calluna Hill (CT 59-73) (Figures 3.1 and 3.2).

In 2014 the University of Connecticut (hereafter UConn) returned to the site of Calluna Hill working under the hypothesis that there would be native domestic structures associated with the middens. This assumption was based on archaeological and ethnohistorical literature that suggested such associations were to be expected. This same literature also helped researchers theorize about the likely dimensions and archaeological signature of 17th-century indigenous domestic architecture (Farley and Hrynick, this volume; Hrynick and Betts 2014; Hrynick, et al. 2012; Jordan 2008; Leveillee, et al. 2006; Sturtevant 1975).

Table 3.1: “Domestic Signature” Artifact Classes

<table>
<thead>
<tr>
<th>Amulet</th>
<th>Folding Knife</th>
<th>Projectile Point</th>
<th>Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bead</td>
<td>Hinge</td>
<td>Rod</td>
<td>Strap</td>
</tr>
<tr>
<td>Escutcheon</td>
<td>Pin</td>
<td>Scrap</td>
<td></td>
</tr>
</tbody>
</table>
Figure 3.1: Map of Connecticut (present-day political boundaries) with the site of Calluna Hill (CT 59-73) denoted. Map by William A. Farley and Noah Fellman (Mashantucket Pequot Museum and Research Center).

Figure 3.2: Map of retreat route with 17th-century domestic artifacts highlighted. Areas of interest are circled and were used as candidates for ground-truthing. Calluna Hill (CT 59-73) is noted. Map by William A. Farley and Noah Fellman (Mashantucket Pequot Museum and Research Center).
The first field season at Calluna Hill proved that delineating a contact-period domestic site that was likely occupied for only a few weeks is exceptionally difficult, even when the location of the site is known. We approached the site with a traditional archaeological survey and applied a series of 58 shovel test pits at a five-meter interval. Despite some of these pits falling within a few meters of the known midden locations, this survey was inconclusive and no period artifacts were recovered. Because of this, we developed a new, and more appropriate, method using a range of metal detectors.

We repeatedly tightened the systematic detector survey until we felt sure we had covered the entirety of the site area with several different styles of detector (for more information on metal detector physics and the value of integrating different types, see Connor and Scott 1998). We began with 10-meter transects of the site, each as wide as a natural swing of the detector from side-to-side. We covered the entirety of the site area while including wide areas around the known artifact densities. We covered these transects repeatedly on North/South and East/West trajectories with several different types of detectors. After this, we tightened the survey again to a 5-meter interval and repeated the process.

We combined this newly refined understanding of the dispersal of metals across the site with a chemical phosphate analysis. This technique tests the relative phosphate present in soils across an area. High phosphate areas are interpreted to be indicative of high levels of human activity, garbage disposal, and waste (for a detailed description of phosphate analysis in archaeology see Sjöberg 1976). In our study, we excavated small ½ liter soil samples in a 5M interval across the site area from 5-10CM below surface using a clean tool. The samples were analyzed at a laboratory at UConn. This analysis revealed high areas of phosphate that matched our expectations of native architecture near both middens (Figure 3.3). Using the phosphate
maps and the data from metal detecting we targeted two areas for exploration. For future studies, combining these data with magnetometry and ground penetrating radar surveys would likely provide even more direction when attempting to locate a wigwam. Such an integrative approach has proven effective on similarly-scaled projects in New England and elsewhere (Kvamme 2003; Kvamme, et al. 2006; Silliman, et al. 2000). Funding and time constraints prevented the use of these techniques at Calluna Hill.

Figure 3.3: Map revealing high areas of phosphate density at Calluna Hill (CT 59-73). Areas in red have higher phosphate relative to areas in green and were interpreted to be likely locations of native domestic architecture. Map courtesy of MPMRC.
Our only pinpointed and ground-truthed domestic features after completing the phosphate and metal detecting surveys were the two metal-rich middens (Figures 3.4). We employed a trenching technique radiating out to the West and East from the larger and more central midden (feature 1) (Figure 3.5). We used a second trench to explore the area of high phosphate in the Northwest quadrant of the site, adjacent to the North of the second, smaller midden (feature 2) (Figure 3.6). The feature 2 exploration was inconclusive, with no period artifacts being recovered and no discernible domestic features. The trench technique was successful at feature 1, where a concentration of contact-period aboriginal ceramics was located in a very high density and discrete area to the West of the midden.

Figure 3.4: Sample of altered metal objects recovered from Calluna Hill (59-73). The central midden (feature 1) included mostly brass objects (pictured left). The northern midden (feature 2) included mostly iron objects (pictured right). Photos courtesy of MPMRC.

Figure 3.5: Plan map of locus 1 at end of 2014 field season. Aboriginal ceramic concentration is outlined in bold. Map by William A. Farley.
In 2015 and 2016 the UCONN field school and MPMRC archaeologists returned to Calluna Hill in order to expand excavations and delineate a single domestic house, if possible. We interpreted the aboriginal ceramics to be of the Hackney Pond variety (Figure 3.7), which are associated with Final Woodland and early-to-mid-17th-century sites (Lavin 1987; McBride 1984). We converted our successful trench excavation into a block, radiating out from the ceramic concentration. Using a very fine-grained excavation technique we discerned subtle post-mold features (Figure 3.10). The orientation of the post-mold features along with the associated artifacts was strongly suggestive of indigenous domestic architecture described in both ethnohistoric accounts and analogous archaeological sites (Figure 3.9) (Hrynick, et al. 2012; Juli and Lavin 1996; Lavin 2013; Leveillee, et al. 2006; Sturtevant 1975; Williams 1973). We excavated in 25 CM² quadrants and 5 CM arbitrary levels using exclusively hand tools and took archaeobotanical samples from each level. All remaining dirt was screened using 1/8” nested sieves. This excavation yielded many more period ceramics and 17th-century English-made smoking pipes (Figure 3.8).
Figure 3.7: Hackney Pond ceramics recovered from locus 1 at Calluna Hill. Photos courtesy of MPMRC.
Figure 3.8: Early to Mid-17th-century English made smoking pipe fragments recovered from locus 1 at Calluna Hill. Photos courtesy of MPMRC.

Figure 3.9: Map of feature 1 wigwam at Calluna Hill (CT 59-73). The dashed line represents the authors’ interpretation of the Western wall of the wigwam based on post-mold locations.
The discovery of Calluna Hill was an initial surprise. We did not expect to find any domestic sites as part of this phase of the battlefield project because we believed that the methods useful for finding battlefield sites would be incongruous with a search for domestic features. The description of how Calluna Hill was initially detected and eventually delineated became a guide for how we might uncover other 17th-century domestic sites. Since applying this formula, the MPMRC and the UCONN field school have successfully located and begun excavating several other early contact indigenous domestic sites along the route of the retreat. Still more potential site locations have been isolated on the project-wide metal detecting maps. While these still need to be ground-truthed, we are confident that most will uncover domestic assemblages. To
summarize, the methodology we propose for isolating early contact indigenous domestic sites is as follows:

1) Conduct broad but systematic metal detecting surveys
2) Map the finds of the surveys in step 1 using a GIS
3) Isolate only domestic- or native-related artifacts within your GIS
4) Return to those locations and conduct even tighter metal detecting surveys
5) If possible, conduct other non-invasive techniques guided by the metal detecting (i.e. GPR, magnetometry, phosphate analysis)
6) Conduct slow, fine-grained trench excavations across areas of interest
7) Expand block excavations at same level of fine-grained analysis where artifact densities or features are found

COLLABORATIONS

The battlefield project relies on a series of collaborations to properly function. These collaborations are a significant part of what is novel in our method and the steps laid out above would not be possible without them. We describe them here because we expect that anyone hoping to recreate this method will likely also need to foster extra-academic relationships.
The first and foremost of these relationships is the one between archaeologists and local descendant native communities. Archaeologists have worked collaboratively with tribal members from the MPTN for more than a quarter century. The tribe’s museum, the base of operations for all the archaeological and historical research done on the battlefield and dozens of other projects,
was funded and built by the tribe for the purposes of creating an indigenous-focused research and education center. We continue to work towards this ultimate goal: The creation of a native-centric research program that informs both tribal members and members of the non-native public about the region’s indigenous history.

The museum and tribe have also developed a long-standing relationship with the UCONN Department of Anthropology. This type of collaboration is more typical, with similar programs found in universities around the country. The tribe supports research at and around the reservation both financially and logistically, and the university supports the tribe by providing the labor and technical expertise to carry out that research. The university and its students benefit further from field school opportunities, independent studies in laboratory techniques, and opportunities for undergraduate and graduate students to conduct original research. Hundreds of students have completed field schools supported by the MPMRC and MPTN and dozens of masters and doctoral candidates have completed theses and dissertations that have benefited the tribe and its public education program.

The most novel collaboration developed for the battlefield project was recently described in a New York Times article as an “unconventional alliance” (Kelley 2017:2). As previously discussed, metal detecting is an essential component of our methodology. To achieve the results that we have also described, however, requires a technical expertise in metal detecting that few archaeologists have. Following the methodologies of Scott and McFeaters (2011) and Connor and Scott (1998) we invested in a series of metal detectors that, at first, provided underwhelming results. Upon employing them in the field we quickly realized that we lacked the experience to understand either the science or art of the machines. The solution came from an unlikely quarter: Avocational metal detectorists.
Archaeologists and metal detectorists are traditional adversaries with differing goals on how best to investigate and preserve cultural resources. The mistrust between the two groups has grown into a sort of tribalism, with perceptions on both sides becoming far worse than reality. In the first months of our attempts to partner with local metal detector hobbyist groups we found that they mistrusted us quite as much as we feared that they were nothing more than looters. Where we found them disrespectful of the past, they found us conceited and resented our self-appointed status as the exclusive legitimate protectors of cultural heritage. With time and a growing mutual respect, we found the metal detectorists with which we worked willing to learn archaeological techniques, open to accept the importance of provenance, and understanding of the fact that they could not keep what they found. Most of them really wanted to be archaeologists but had been barred from that title by opportunity and class distinctions. Many of these men (and thus far they have been exclusively men) are business owners and tradesmen. More than a few have been driven by their experiences working with archaeologists at the MPMRC to enroll in courses in archaeology at local universities and community colleges. In short, they were excited to be accepted and ready to become archaeologists.

From the detectorists the archaeologists learned how to use our new tools effectively. Although it should be noted that after several years of using metal detectors under the guidance of our experienced partners, the large majority of 17th-century objects are still found by the “amateurs”. It will likely be years more before any of the professional archaeologists gain the skill and sensitivity necessary to do the job by themselves. Collaborating with avocational metal detectorists has been a boon both to the archaeological community and, we believe, for the detectorists themselves. This collaboration has helped us develop a more effective archaeological method and it is an example of good public archaeology. Thanks to this program a whole group
of archaeology-adjacent and interested members of the public now have a new and real appreciation for the science.

**CALLUNA HILL (CT 59-73) AS A SITE OF CONFLICT**

There is not yet perfect academic language to describe the site of Calluna Hill and its role in the study of the Pequot War. In addition to being an opportunity to study Pequot lifeways in the 17th-century at a short-term occupation domestic setting (a rare opportunity), it can also be viewed through the lens of conflict archaeology. Relying on the terminology laid out by Scott and McFeaters, Calluna Hill could be described as an ancillary site, “camp,” or perhaps a “support area” (2011:104), however it is also an active part of the battlefield itself since it lies within the line of retreat and the houses within it were burned as a direct action of the English combatants. Exchanges of fire seem to have happened here as well, since musketballs and brass projectile points were found in close proximity to the domestic features. For these reasons we believe the site to be a valuable archaeological subject. As a site of conflict, it offers an opportunity to study cultural behaviors “that mirror[] the greater society’s cultural ideas, constraints, and orientation”, and thus reveals much about what it meant to be a Pequot in the 1630s (Scott and McFeaters 2011:105)

One way that a site like Calluna Hill can be useful is as a test of the accepted historical record. This is a popular use of conflict sites because battles are often described in great detail by eye witnesses and historians, perhaps owing to their being dramatic sites of violence. (Cimprich and Mainfort 1989; Fox Jr and Scott 1991; Hanson Jr and Hsu 1975; Scott 2003). There are several contemporary historical descriptions of the Pequot War and dozens of histories written about the conflict. Of all these, only one sentence from one account refers to the village at
Calluna Hill. As mentioned earlier, that account is by John Mason and it describes succinctly the finding and burning of some number of wigwams. (Mason, et al. 1736:11)

The interpretation of this passage presents challenges and was important for its use in the planning stages of excavation at Calluna Hill. What would Mason have recognized as a wigwam? Would that include a variety of indigenous architectural structures or one very specific type? How do we interpret the term “several” through Mason’s worldview? It is not clear if the modern definition of “three or more” would be relevant in the latter 17th century when Mason wrote his reflections on the battle. The word seems to have been used idiosyncratically during the period and it is possible Mason was describing a rather large settlement. Thus the archaeology of Calluna Hill gave us the opportunity to test these questions about the accepted history in the same way that the history recursively informed our excavation strategies. Excavations at the site have revealed only one domestic structure but features and artifacts densities suggest at least one and possibly many more have not yet been located. The site itself was also discovered directly along the route of English withdrawal and at the stage of the withdrawal that Mason’s reflection would suggest. So, despite lingering questions about what precisely Mason meant in his short description of Calluna Hill, the archaeology has so far confirmed his account.

We can also view Calluna Hill through a functional lens by asking: What role did the village have in the broader conflict of the Pequot War? There is some evidence that the village may have served as a provisioning site for Pequot combatants. It was also certainly a nexus at which Pequots engaged with the emerging Atlantic colonial economic market. The most dominant artifact classes at Calluna Hill are metals. The site includes hundreds of fragments of brass copper kettles, cuprous scrap, hoes, and other cut and broken pieces of iron.
Along the route of the retreat and at the nearby site of the Mystic Massacre we found abundant evidence that Pequot combatants were carrying with them pieces of metal scrap. More obviously battle-related, all of the indigenous projectiles were tipped with brass or iron “trade points” fashioned from the same types of materials found at Calluna Hill and in similar or the same gages (Figure 3.12). It is possible that the village itself was a production center for the metal objects that made up much of the arsenal of the Pequot combatants fighting along the route of English withdrawal and at Mystic Fort. If this is true then the village, and perhaps others like it, were likely important to the efforts of Pequot warriors.
By returning to Scott and McFeater’s (2011:105) notion that conflict sites are a “mirror” of a society’s norms and values, we can use Calluna Hill as a reflection of changing Pequot cultural norms during the Pequot War. It is well-documented that during the early 17th-century the Pequot underwent significant cultural change in order to mitigate the challenges of their new colonial reality (Bendremer 1999; Ceci 1990; McBride 1990, 1993, 1994, 2007, 2008; Nassaney
2004; Silliman 2010). Even more scholars have approached this subject during slightly later periods or among other native groups during the same period (Beaudoin 2013; Beaudry 2013; Bragdon 1988; Den Ouden 2005; Dietler 2010; Farley 2014; Ferris 2009; Hayden 2012; Hunter, et al. 2014; Jordan 2008, 2009, 2014; Lightfoot 1995; Loren 2008; Mancini 2009; Murray 2004; Silliman 2009; Voss 2002; Witt 2007). None of these studies have had the opportunity to archaeologically test the nature of change and continuity for the Pequot so soon after the arrival of Europeans to the region.

Several artifact classes at Calluna Hill can help us understand the complex ways that Pequots materially mitigated colonial encounters. The site contained an assortment of goods made from materials ranging from extremely local sources to ones made from materials only accessible through newly emerging global capitalist markets. Intriguingly, there is no overlap within artifact class. For instance, English-made pipes were found outside to the northwest of the domestic structure and several similar pipestems were found in the middens. There was no evidence of native-made pipe manufacture at the site, which differs from other local domestic sites from during or immediately pre-dating colonial contact.

Ceramics, however, were almost exclusively of native manufacture. Nearly all the ceramic sherds found within and around the domestic structure were of the Hackney Pond type, which is a relatively coarse aboriginal ceramic with little-to-no visible temper (Lavin 1987, 2013; Lavin, et al. 2013). Later native sites tend to include either a mixture of European-made and indigenous-made ceramics or exclusively European styles. It should be noted that the origin of manufacture of an artifact does not discount its role as an indigenous object (Silliman 2010). It is still an interesting pattern that at this site, occupied and destroyed so soon after the arrival of Europeans to the area, the Pequot were making complicated decisions about what novel materials
to adopt and which to ignore in preference to traditional types. Certainly, this suggests significant agency, but it also raises questions. Why use English-made pipes instead of stone ones? Why choose indigenous ceramics instead of European-made ones? These choices could be driven by economic market conditions such as availability, price, and access. They could also be driven by functional considerations such as the usefulness of certain ceramics for certain types of food preparation. They could also represent more ideological considerations having to do with the connections between material type, color, cosmology, and relationship-building.

The metal artifacts from Calluna Hill provide perhaps the best opportunity to address these questions. The study recently completed by Willison (2016:42–70) addresses the metals at both Calluna Hill and the broader English Withdrawal. She found that many of the brass and iron objects at Calluna Hill were reworked by the site’s inhabitants. For instance, 52% of the metal artifacts at the site were “manipulated in some way to produce new objects out of European trade items and technologies” with modifications including “perforation, scoring, cutting with shears and chisels, beveling edges, bending, and rolling” (Willison 2016:65). This figure was substantially higher than at either the Mystic Fort site (28%) or the route of the withdrawal (40%). Willison argues that these alterations were made to make both utilitarian or combat objects (primarily projectile points) or decorative objects (mostly charms and amulets). The density of altered metal artifacts at Calluna Hill along with their context within discrete midden contexts is suggestive that the village may have served an important combat role as a provisioning site for Pequot warriors.

Both types of refashioned brass and iron objects may have been important parts of the native combatant’s toolkit. The usefulness in battle of brass and iron projectile points is fairly obvious, as these appear to have been the primary weapon wielded by Pequot combatants at
Mystic Fort and along the retreat. There is some question about why native combatants so quickly adopted this new material type for their projectile points. Native people had an at least 10,000-year-old regional lithic tradition, with stone spear- and arrowheads being the norm throughout that entire period. Future functional analyses and a broader regional study of metal-point adoption could reveal an answer to why the Pequots replaced this technology so quickly. Previous studies have suggested that traditional lithic trade routes among indigenous people may have been interrupted by the arrival of Europeans and that event’s deadly consequences. Many early colonial Connecticut sites, for instance, show a sharp decline in “exotic” lithic material types that had previously been imported from regions to the West, North, and South (see McBride 1984).

The other brass and iron objects being fashioned at Calluna Hill have a less obvious explanation as battlefield artifacts (Figure 3.13). There is ethnohistoric evidence, however, that suggests these too may have had important battlefield implications. Historical accounts reveal that Pequots wore a great deal of jewelry of all types, including those made of metal, into battle as a symbol of their material wealth and as a reminder that they fought for their own prosperity and the prosperity of their families (Willison 2016:67; Wood, et al. 1764:67). Bracelets and other adornments had perceived medical benefits and may have been used as a type of first-aid in the field (Morton 1883:154; Willison 2016:67). Willison also asserts that native men may have chosen cuprous adornments to wear into battle to bolster their expressions of masculinity and as a sort of religious reference back to much deeper, traditional understandings of the spiritual powers of the malleable and mutable metal (Willison 2016:68–69). Likely, Pequot men (and perhaps women) chose to bring into battle metal objects fashioned at Calluna Hill for some or all
of these reasons. Each individual combatant may have expressed his or her agency in choosing what to wear and why.

Figure 3.13: Modified brass and iron objects found along the retreat route, at the Mystic Fort site, or at Calluna Hill
CONCLUSION

Over the last half decade, the MPMRC has worked to advance the goals of conflict archaeology and has greatly expanded our understanding of early 17th-century Native and Euro-American culture in southern New England. The site of Calluna Hill has provided us with the opportunity to explore new methods for finding and delineating the extents of traditionally difficult-to-find period domestic sites. It is also an excellent test case for understanding the role of domestic spaces in their broader wartime contexts. Excavations at the site are still in their infancy and we believe there is much more to be learned by exploring the other domestic structures and their interstitial spaces. Further refinement of the method presented here will continue to occur as it has before: Organically and with many surprises. Going forward our primary goals are to deepen our understanding of this understudied period and bring heightened awareness to the usefulness of our methods and of conflict archaeology more broadly.
Works Cited

Allen, Mark W and Elizabeth N Arkush


Beaudoin, Matthew A


Beaudry, Mary C


Bendremer, Jeffrey C


Bragdon, Kathleen


Cave, Alfred A

1996  *The Pequot War.* University of Massachusetts Press, Amherst, Massachusetts.

Ceci, Lynn


Cimprich, John and Robert C Mainfort


Connor, Melissa and Douglas D Scott

Den Ouden, Amy E


Dietler, Michael


Farley, William A


Ferris, Neal


Fox Jr, Richard A and Douglas D Scott


Freeman, Michael


Freeman, P.


Grandjean, Katherine A

Hanson Jr, Lee H and Dick P Hsu


Hayden, Anna K


Hrynick, M Gabriel and Matthew W Betts


Hrynick, M Gabriel, Matthew W Betts and David W Black


Hunter, Ryan H, Stephen W Silliman and David B Landon


Jordan, Kurt A


Juli, Harold D. and Lucianne Lavin

Katz, Steven T


Author.


Kvamme, Kenneth L


Kvamme, Kenneth L, Jay K Johnson and Bryan S Haley


Lavin, Lucianne


Lavin, Lucianne, Fred Gudrian and Laurie Miroff


Leveillee, Alan, Joseph Waller Jr and Donna Ingham


Lightfoot, Kent G

Loren, Diana DiPaolo


Mancini, Jason Richard


Mason, John, Samuel Kneeland and Timothy Green

1736   A Brief History of the Pequot War: Especially of the Memorable Taking of Their Fort at Mistick in Connecticut in 1637: Written by Major John Mason, a Principal Actor Therein, as Then Chief Captain and Commander of Connecticut Forces. With an Introduction and Some Explanatory Notes by the Reverend Mr. Thomas Prince.[Nine Lines from Psalms]. Printed & sold by. S. Kneeland & T. Green in Queen-Street.

McBride, Kevin A


McBride, Kevin A, David Naumec, Ashley Bissonnette, Doug Currie, Noah Fellman and Laurie Lamarre


Morton, Thomas

1883 New English Canaan. Prince Society, Boston, Massachusetts.

Murray, Tim

2004 The Archaeology of Contact in Settler Societies. Cambridge University Press.

Nassaney, Michael S


Orr, Charles


Rice, Glen and Steven A LeBlanc


Scott, Douglas D.


Scott, Douglas D. and Andrew P. McFeaters

Silliman, Stephen W


Silliman, Stephen W, Paul Farnsworth and Kent G Lightfoot


Sjöberg, Alf


Sturtevant, William C


Voss, Barbara Lois

2002  The Archaeology of El Presidio de San Francisco: Culture Contact, Gender, and Ethnicity in a Spanish-colonial Military Community. Dissertation, Department of Anthropology, University of California, Berkeley, Berkeley, California.

Williams, Roger


Willison, Megan K


Witt, Thomas A


Wood, William, Nathaniel Rogers and James Otis
CHAPTER 4: CULTURAL ENTANGLEMENT DURING THE PEQUOT WAR, A CASE STUDY FROM MYSTIC, CONNECTICUT

William A. Farley

ABSTRACT

The goal of this article is to explore the nature of cultural change and continuity during the early colonial period (ca. 1615-1637), an understudied period in southern New England. The earliest years of intercultural exchange between Europeans and Native people in the region is believed to have brought sweeping disturbances to Native American lifeways, however the nature and pace of those changes is little understood. The site of Calluna Hill (CT 59-73) is the location of a small Pequot village burned by the English during the Pequot War in 1637. The excavation of a domestic site from these earliest years after the arrival of Dutch traders and English settlers to Connecticut is exceptionally rare and offers us an opportunity to understand the complex and agentive ways that the Pequots adopted novel materials and ideas into their worldview. I use the theory of cultural entanglement, as laid out by Dietler (2010) and Jordan (2009), to understand the direction and nature of cultural transformation in a period absent the asymmetrical power dynamics of the 18th and 19th centuries. I examine Pequot subsistence practices, the indigenization of materials, and uses of space to assess the ways that Pequots maintained long-standing practices to mitigate a fast-changing colonial environment.

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3 This paper is single-authored and will be included in a special issue of the *International Journal of Historical Archaeology*, based on the organized session “Markets and Capitalisms in Indigenous Societies in the Colonial Americas” at the 2017 meeting of the Society for American Archaeology.
INTRODUCTION

The goal of this paper is to study the complex process of cultural entanglement of the indigenous Pequots during the earliest years of colonial encounter in southern New England. The focus here is on the site of Calluna Hill (CT 59-73), a Pequot occupation that was burned by the English on May 26, 1637 (Figure 4.1). I utilize an archaeological and ethnohistorical approach to analyze changes and continuities during this period using three archaeological proxies: Consumption of entangled goods, changing patterns of food procurement and use, and use of space and architecture. The 1620s and 1630s were pivotal decades of sustained Native and Euro-American interaction in southern New England that laid the groundwork for trade, conflict, and intercultural exchange in the ensuing decades.

Figure 4.1: Map of Connecticut (present-day political boundaries) with Calluna Hill (CT 59-73) denoted. Map by author and Noah Fellman (Mashantucket Pequot Museum and Research Center).
This project will build upon wide-ranging scholarship that explores the nature of colonialism in North America (see Beaudoin 2013; Jordan 2009, 2014; Mancini 2009; McBride 2007, 2008; Nassaney 2004; Pauketat 2001). To date, the majority of this research has focused on systems of overt colonial oppression typical of indigenous/settler interaction in the 18th and 19th centuries (i.e. Lightfoot 1995; Silliman 2001, 2014). Here I examine the nature and processes of cultural exchanges which predate the power imbalances of these latter periods. By combining archaeological survey and excavation and laboratory analysis, this study provides insights into the social dynamics of Native American lifeways during this key but understudied period.

CULTURAL ENTANGLEMENT AND COLONIAL STUDIES

This study relies on the theoretical framework of cultural entanglement, as described by Jordan (2009) and Dietler (2010). The theory of cultural entanglement predicts that in the absence of significant power imbalances, cultural exchange will be fluid, mutual, and non-directed between groups (Alexander 1998:485; Dietler 2010:55–57; Jordan 2009:31–32). The study of cultural entanglement is relevant at every scale and time period in human history (Cusick 1998; Dirks 1992; Harrison 2002; Jordan 2009; Lightfoot 1995; Murray 2004; Stein 2002, 2012; Voss 2002), rendering this study useful to researchers interested in intercultural interaction throughout the globe. Distinguishing between entanglement and colonialism is important because, as Beaudoin (2013:21) argues, framing all cultural interaction as colonialism “embeds the discussion within an assumed, realized, or imminent expression of European domination” that may not reflect reality. Previous research suggests that during the early 17th century, power differentials were relatively equal between European settlers and indigenous people in southern New England (Cave 1996; McBride 2007; 2013). However, analysis of the
nature of cultural entanglement has not yet been conducted in this region owing to a paucity of sites. Using environmental, spatial, artifactual, and historical data I hope to examine the complex ways in which materials and ideas were exchanged by Native and non-Native actors, and the role of individual and group agency in the development of new, colonial identities.


Scholars have further argued that the critical study of cultural change and continuity can be useful in critiquing the arbitrary distinctions made between the “historic” and “prehistoric” periods in North American archaeology (Lightfoot 1995; Silliman 2001). Until recently, most scholars of the early colonial period in New England were ethnohistorians who relied primarily on the written accounts of Europeans writing after the period of initial interaction. Examining the archaeological record of early 17th-century sites has the potential to improve upon these works in several ways. First, it reduces the bias that may be present within historical sources. Native American perspectives are often missing from the written record of this period and archaeological investigations offer insight into their experiences. Second, archaeological data provide a useful baseline for evaluating lifeways prior to and following the arrival of European settlers. Finally, combining archaeological data with existing ethnohistorical accounts provides multiple lines of evidence to evaluate past behavior.
This project uses a household approach to elucidate the nature of relationships within and between families and among individuals. Jordan (2009:32) argues that the study of cultural entanglement and “entangled settings remain undertheorized” due to a lack of attention focused on power relationships at this scale. By placing the 1630s into a broader historical context, this paper offers insight into whether existing native cultural traditions were abandoned, reworked, reified, or reimagined to suit the needs of new colonial realities.

Well preserved sites such as Calluna Hill are exceedingly rare in the archaeological record. Most of our knowledge of this period comes from ethnohistoric and oral accounts or from very limited archaeological investigations. Until now, archaeologists have relied heavily on ethnohistoric descriptions of Native wigwams (Sturtevant 1975) and archaeological evidence of houses of presumed similar construction found at inland Iroquois sites (Jordan 2003, 2004, 2008), Northern maritime sites (Hrynick and Betts 2014; Hrynick, et al. 2012), pre-Columbian settlements (Farley and Hrynick, this volume; Juli and Lavin 1996; Leveillee, et al. 2006; McBride 1994, 2007), or later regional examples (Cipolla, et al. 2007; Farley 2014; Hayden 2012; Mrozowski 1984) in order to theorize about early 17th-century lifeways in southern New England. Calluna Hill offers a rare opportunity to explore these forms archaeologically without the use of analogy.

Scholars have long interpreted the early colonial period to be one of extreme disruption, highlighted by an abrupt disappearance of Native American traditional lifeways. A dearth of archaeological evidence has strengthened the presumed and, I argue, arbitrary divide between the historic and pre-historic periods, thereby obscuring what may have been a continuous historical trajectory for the region’s Native Americans. Evidence from this study may challenge traditional assumptions by revealing the material remains of complex processes of cultural change and continuity.
SITE CONTEXT AND DESCRIPTION

Before describing the site, it is important to situate Calluna Hill within existing archaeological and historical literature. Studies from the Late Woodland period (1,000 B.P.–c. 400 B.P.) describe broad cultural patterns among Native people in southern New England prior to the arrival of European settlers. Well accepted signatures for Late Woodland domestic architecture have been defined by Juli and Lavin (1996). Models of what these structures would look like during the colonial period are often derived from ethnohistoric evidence (Sturtevant 1975). McBride (1994) and Bragdon (1996:55–69) have used ethnohistoric evidence and limited archaeological data to produce diachronic studies of indigenous culture change across the prehistory/history divide. More recently, scholars have analyzed sites from after King Philip’s War (1675–1678) to discuss the role indigenous people played in regional economies and how they creatively adapted European-style subsistence strategies to mitigate the difficulties of reservation life (Bendremer 1999; Cipolla, et al. 2007; Farley 2014; McBride 2007).

Calluna Hill was a Pequot occupation in southeastern Connecticut that was occupied for several weeks before it was burned on May 26, 1637. It was found during systematic survey employing metal detectors in Mystic, Connecticut as part of a National Park Service Battlefield Protection project carried out by the Mashantucket Pequot Museum and Research Center (McBride, et al. 2014). Two concentrations of cut brass and other artifacts were discovered during reconnaissance field testing in 2013. Features included thin, domestic middens associated with a small Native American village.

Excavations and additional metal detector surveys began in 2014 with an attempt to delineate the extent of the site and identify areas of domestic activity. The presence of one domestic space adjacent to one of the two middens was indicated by a concentration of more than
200 fragments of Hackney Pond aboriginal ceramics (usually associated with the very Late Woodland and Contact Periods), recycled and cut brass and iron objects including some with incised patterns, 17th-century English-made pipes, and battle-related objects including musket balls and cut brass trade points. While Hackney Pond ceramics appear in both Late Woodland and early 17th-century sites (McBride 1984; Lavin 2013:270–317), their close association with objects linked with a system of widespread trade with Europeans suggests a 17th-century occupation. A series of post molds suspected to be associated with a 17th-century Native domestic structure were also observed.

In his account of the Pequot War, Captain Mason recounted an English and native allied attack on the fortified Mystic Fort on 26 May, 1637 (McBride, et al. 2014) which resulted in the deaths of 400 Pequot. A few hours after the Mystic battle the English allied force began their 6.5 mile withdrawal to their ships waiting in the Thames River. During his retreat Mason (1736:11) described coming upon a Pequot Village and wrote that “we rested and refreshed ourselves…then marched on towards Pequot Harbor; and falling upon several Wigwams, burnt them.” The presence of early 17th-century artifacts, domestic features, and the location of the site along Mason’s known route of withdrawal from the Mystic Massacre have led us to believe that this passage describes Calluna Hill. For the first time, this project offers the opportunity to explore the food choices, architectural forms, and evidences of cultural exchange of an early 17th-century occupation using both modern methodological technique and a rigorous excavation strategy.
METHODOLOGIES

Field Strategies

Calluna Hill was located in 2013 using systematic metal detecting survey. These surveys were conducted as part of a much larger “Battle of Mistick Fort: English Withdrawal and Pequot Counterattacks” battlefield archaeology project funded by a National Park Service American Battlefield Protection Grant (GA-2255-11-011) carried out by the Mashantucket Pequot Museum and Research Center (hereafter MPMRC) (McBride, et al. 2014). The first indication of the domestic site were two metal-laden shell midden features and a few nearby battle-related artifacts. Since 2014 the MPMRC and the University of Connecticut archaeological field school have returned to the site to investigate the site further.

By tightening the metal detector survey, digging 58 shovel test pits at a five-meter interval, and conducting a site-wide phosphate analysis the sites boundaries were further delineated and several possible domestic features began to emerge (Figure 4.2 and 4.3). We utilized a trench excavation strategy next, radiating out from areas where high concentrations of phosphate coincided with artifact densities and the known-midden locations. The site is exceptionally shallow and lacks a plowzone and almost all of the 17th-century artifacts were found at less than 15CM below the ground surface. For this reason, we used the most fine-grained excavations strategy available to us. This included digging exclusively with hand tools, using 1/8” aperture screens, and digging in 5CM arbitrary levels with soil samples taken from each level. We were successful in locating several discrete artifact densities as well as a series of post-mold features which were slowly explored over the 2014-2016 field seasons.
Figure 4.2: Calluna Hill excavations at the end of the 2014 field season including excavation extents, test pit survey, and highlighting artifact densities. Calcined bone and shell concentrations coincided with high densities of cut brass and iron objects and have been interpreted as belonging to middens. An elevation profile was interpolated using GIS to show the site’s location on a flat hilltop overlooking marsh and wetlands to the East. (Map by author)
Figure 4.3: Map revealing high areas of phosphate density at Calluna Hill (CT 59-73). Areas in red have higher phosphate relative to areas in green and were interpreted to be likely locations of native domestic architecture. Map courtesy of MPMRC.
Laboratory Strategies

All the recovered material from Calluna Hill was analyzed at the MPMRC laboratory facilities. Appropriate artifact classes were washed. All artifacts were identified, weighed, photographed, and catalogued by experienced MPMRC staff and UCONN field school students. Archaeobotanical samples were taken from feature soils throughout the site, and were floated using a combination of bucket-flotation and a float-tech (Pearsall 2015). Heavy and light fractions were scanned and botanical identifications were completed by the author with the aid of comparative collections and identification manuals (Hoadley 1990; Martin and Barkley 1961; Popper 1988; Wagner 1988). Faunal analysis was conducted by David Wilson of the MPMRC. Metals were analyzed by Megan Willison, of the University of Connecticut. All artifacts and ecofacts as well as excavation extents and other spatial data were mapped and analyzed using ArcGIS by Noah Fellman, of the MPMRC. The following results and interpretations are therefore very much made possible by a collaborative effort involving the efforts of many trained archaeologists.

RESULTS

Artifactual Evidence

Calluna Hill produced 432 artifacts interpreted to be likely associated with the 17th-century village occupation (Table 4.1). More than half (256) of the collection are Hackney Pond ceramics, likely from either one or a very small number of vessels, an indigenous-produced type diagnostic of the contact period (McBride 1984; Lavin 1987). These are the only artifacts that are entirely indigenous to the region. The rest of the materials found at the site were produced, at least originally, in Europe. These include English-made white ball clay pipes (10), English-made ceramics (5), cuprous objects (58), and iron objects (71). 52.6% of the relevant metals were
manipulated either by “folding, puncturing” or “rolling”, a higher rate than at the nearby Mystic Fort site or the broader route of the English Withdrawal (Willison 2016:65).

Table 4.1: 17th-Century Artifacts Recovered from Calluna Hill

<table>
<thead>
<tr>
<th>Material</th>
<th>Artifact Type</th>
<th>Count</th>
<th>Material</th>
<th>Artifact Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic</td>
<td>Hackney Pond Aboriginal Ceramic</td>
<td>256</td>
<td>Metal - Iron</td>
<td>Hand-wrought Nail</td>
<td>19</td>
</tr>
<tr>
<td>Ceramic</td>
<td>English-Made Pipe</td>
<td>10</td>
<td>Metal - Iron</td>
<td>Hoe</td>
<td>1</td>
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<tr>
<td>Ceramic</td>
<td>North Devon English Ceramic</td>
<td>5</td>
<td>Metal - Iron</td>
<td>Hook</td>
<td>2</td>
</tr>
<tr>
<td>Glass</td>
<td>Seed Bead</td>
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<td>Metal - Iron</td>
<td>Jaw Harp</td>
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</tr>
<tr>
<td>Glass</td>
<td>Curved Glass</td>
<td>3</td>
<td>Metal - Iron</td>
<td>Knife</td>
<td>6</td>
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<tr>
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</tr>
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<td>Metal - Iron</td>
<td>Pintle</td>
<td>1</td>
</tr>
<tr>
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<td>Bead</td>
<td>1</td>
<td>Metal - Iron</td>
<td>Plane</td>
<td>2</td>
</tr>
<tr>
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<td>Buckle</td>
<td>3</td>
<td>Metal - Iron</td>
<td>Pot Hook</td>
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</tr>
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<td>Button</td>
<td>8</td>
<td>Metal - Iron</td>
<td>Projectile Point</td>
<td>4</td>
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<td>Keyhole Escutcheon</td>
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<td>Metal - Iron</td>
<td>Punch</td>
<td>1</td>
</tr>
<tr>
<td>Metal - Cuprous</td>
<td>Folding Knife Fragment</td>
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<td>Metal - Iron</td>
<td>Ring</td>
<td>2</td>
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<td>Metal - Cuprous</td>
<td>Hinge</td>
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<td>Metal - Iron</td>
<td>Rod</td>
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</tr>
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<td>Pin</td>
<td>1</td>
<td>Metal - Iron</td>
<td>Scissors Fragment</td>
<td>2</td>
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<td>Metal - Cuprous</td>
<td>Projectile Point</td>
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<td>Metal - Iron</td>
<td>Scrap Metal</td>
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<tr>
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<td>Metal - Lead</td>
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<td>Metal - Lead</td>
<td>Slag</td>
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<td>1</td>
<td>Metal - Lead</td>
<td>Decorated Strip</td>
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<td>Button</td>
<td>2</td>
<td>Metal - Silver</td>
<td>Pin</td>
<td>1</td>
</tr>
<tr>
<td>Metal - Iron</td>
<td>Door Hardware</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 4.4. Photographs of artifacts recovered from excavations at Calluna Hill and related sites. Clockwise from upper left: Hackney pond aboriginal ceramics, English-made white ball clay pipe fragments, several of which refit, cuprous “trade points” recovered from the nearby Mystic Fort site, recycled brass objects recovered from middens including incised pieces (#731). (Photo credits: MPMRC)

Table 4.2: Percentages of Manipulated Metals at Calluna Hill and Nearby Sites (Willison 2016:65)

<table>
<thead>
<tr>
<th></th>
<th>Calluna Hill</th>
<th>Retreat</th>
<th>Mystic Fort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipulated Metals</td>
<td>51</td>
<td>81</td>
<td>7</td>
</tr>
<tr>
<td>Total Metals</td>
<td>97</td>
<td>202</td>
<td>25</td>
</tr>
<tr>
<td>Percent Manipulated</td>
<td>52.6%</td>
<td>40.1%</td>
<td>28.0%</td>
</tr>
</tbody>
</table>
Ecofactual Evidence

Calluna Hill has a relatively robust ecofactual dataset. Archaeobotanical and Zooarchaeological analyses were carried out in 2015. Botanical preservation was, in general, quite poor. Recovered botanical samples came from soil samples taken throughout the site. Some came from bisected features, but most came from 1L samples taken at the A/B interface out of each quad in locus 1. These samples were theorized to come from the living or working floors of the domestic structure and its interstices. A total of 185.5 liters of soil were collected in this way and 45.5 liters were floated and analyzed. Only 30 individual charred specimens were recovered including 20 seeds and 10 nutshell fragments. Most of these were forestland weeds and berries, with a minority being wetland species and nuts (Table 4.3).

Faunal preservation was far better, with 9,121 individual specimens recovered from excavation contexts weighing 1,608.3 grams (Table 4.4). These were collected using a 1/8” aperture mesh screen in the field and the majority came from the middens. This collection is dominated by bivalve shellfish, with a full 942.0 grams and 4,873 specimens being soft shell clam (*Mya arenaria*). The rest of the collection included significant numbers of American eel (*Anguilla rostrata*) and other unidentified fish, small, medium, and large mammals, turtles, and birds. Notably, there is no evidence of any domesticated species in either the botanical or faunal remains.
Table 4.3. List of Botanical Taxa Recovered from Calluna Hill

<table>
<thead>
<tr>
<th>Family</th>
<th>Genus/Species</th>
<th>Common Name</th>
<th>Raw Count</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forestland Weeds and Berries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubiaceae</td>
<td><em>Galium</em></td>
<td>Bedstraw</td>
<td>6</td>
<td>Seed</td>
</tr>
<tr>
<td>Anacardiaceae</td>
<td><em>Rhus</em></td>
<td>Sumac</td>
<td>3</td>
<td>Seed</td>
</tr>
<tr>
<td>Hypericaceae</td>
<td><em>Hypericum</em></td>
<td>St. John's Wort</td>
<td>2</td>
<td>Seed</td>
</tr>
<tr>
<td>Ericaceae</td>
<td><em>Vaccinium</em></td>
<td>Blueberry</td>
<td>1</td>
<td>Seed</td>
</tr>
<tr>
<td>Euphorbiaceae</td>
<td><em>Acalypha</em></td>
<td>Copperleaf</td>
<td>1</td>
<td>Seed</td>
</tr>
<tr>
<td>Rosaceae</td>
<td><em>Crataegus</em></td>
<td>Hawthorn</td>
<td>1</td>
<td>Seed</td>
</tr>
<tr>
<td>Phytolaccaceae</td>
<td><em>Phytolacca</em></td>
<td>Pokeweed</td>
<td>1</td>
<td>Seed</td>
</tr>
<tr>
<td>Portulacaceae</td>
<td><em>Portulaca</em></td>
<td>Purslane</td>
<td>1</td>
<td>Seed</td>
</tr>
<tr>
<td><strong>Wetland Weeds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyperaceae</td>
<td><em>Carex</em></td>
<td>Sedge</td>
<td>2</td>
<td>Seed</td>
</tr>
<tr>
<td>Cyperaceae</td>
<td><em>Cyperus</em></td>
<td>Sedge</td>
<td>2</td>
<td>Seed</td>
</tr>
<tr>
<td><strong>Nutshell</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juglandaceae</td>
<td><em>Carya</em></td>
<td>Hickory</td>
<td>6</td>
<td>Nutshell</td>
</tr>
<tr>
<td>Juglandaceae</td>
<td><em>Juglans</em></td>
<td>Walnut/Butternut</td>
<td>2</td>
<td>Nutshell</td>
</tr>
<tr>
<td>Fagaceae</td>
<td><em>Quercus</em></td>
<td>Acorn (Oak)</td>
<td>2</td>
<td>Nutshell</td>
</tr>
</tbody>
</table>

Table 4.4. List of Faunal Taxa Recovered from Calluna Hill

<table>
<thead>
<tr>
<th>Type</th>
<th>Class</th>
<th>Variety</th>
<th>Fragment</th>
<th>Weight (g)</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bivalve</td>
<td>Soft Shell Clam (<em>Mya arenaria</em>)</td>
<td>Hinge fragments, non-hinges</td>
<td>942.0</td>
<td>4873</td>
<td></td>
</tr>
<tr>
<td>Bivalve</td>
<td>Unidentified Shell</td>
<td>Fragment</td>
<td>591.4</td>
<td>3585</td>
<td></td>
</tr>
<tr>
<td>Bivalve</td>
<td>Northern Quahog (<em>Mercenaria mercenaria</em>)</td>
<td>Fragment</td>
<td>1.9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Bivalve</td>
<td>Soft Shell Clam (<em>Mya truncata</em>)</td>
<td>Fragment</td>
<td>1.6</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Bivalve</td>
<td>Ribbed Mussel (<em>Geukensia demissa</em>)</td>
<td>Fragment</td>
<td>0.2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>American Eel (<em>Anguilla rostrata</em>)</td>
<td>Non-Calcined Bone</td>
<td>0.5</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>Unidentified Fish</td>
<td>Teeth, bone</td>
<td>0.2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>Unidentified Small Fish</td>
<td>Non-Calcined Bone</td>
<td>Cortex, Centrum</td>
<td>0.1</td>
<td>4</td>
</tr>
<tr>
<td>Gastropod</td>
<td>Land Snail Shell</td>
<td></td>
<td></td>
<td>0.4</td>
<td>20</td>
</tr>
<tr>
<td>Mammal</td>
<td>Medium to Large Mammal</td>
<td>Calcined Bone</td>
<td>Cortex, Longbone, Endshaft, Cancellous</td>
<td>11.1</td>
<td>64</td>
</tr>
<tr>
<td>Mammal</td>
<td>Unidentified Medium Mammal</td>
<td>Calcined Bone</td>
<td>Fragment</td>
<td>10.0</td>
<td>87</td>
</tr>
<tr>
<td>Type</td>
<td>Class</td>
<td>Variety</td>
<td>Fragment</td>
<td>Weight (g)</td>
<td>Count</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>Mammal</td>
<td>Unidentified Mammal</td>
<td>Burned Bone</td>
<td>Fragment</td>
<td>8.0</td>
<td>47</td>
</tr>
<tr>
<td>Mammal</td>
<td>Large Mammal</td>
<td>Calcined Bone</td>
<td>Cortex and Longbone</td>
<td>2.7</td>
<td>22</td>
</tr>
<tr>
<td>Mammal</td>
<td>Fox/Small Dog</td>
<td>Calcined Bone</td>
<td>Fragment</td>
<td>0.4</td>
<td>1</td>
</tr>
<tr>
<td>Mammal</td>
<td>Medium Mammal</td>
<td>Calcined Bone</td>
<td>Cortex and Cancellous</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td>Mammal</td>
<td>Small to Medium Mammal</td>
<td>Calcined Bone</td>
<td>Midshaft Fragment</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td>Mammal/Avian</td>
<td>Mammal/Avian</td>
<td>Calcined Bone</td>
<td>Cortex and Longbone</td>
<td>0.4</td>
<td>36</td>
</tr>
<tr>
<td>Mammal/Avian</td>
<td>Medium to Large Mammal/Avian</td>
<td>Calcined Bone</td>
<td>Midshaft Longbone/Cortex</td>
<td>0.3</td>
<td>2</td>
</tr>
<tr>
<td>Reptile</td>
<td>Turtle (Testudines family)</td>
<td>Non-Calcined Bone</td>
<td>Cancellous</td>
<td>1.4</td>
<td>6</td>
</tr>
<tr>
<td>Vertebrate</td>
<td>Unidentified Vertebrate</td>
<td>Calcined Bone</td>
<td>Cortex, Fragment, Midshaft Longbone, Cancellous</td>
<td>35.5</td>
<td>330</td>
</tr>
</tbody>
</table>

**Spatial Evidence**

The 2015 and 2016 excavations at Calluna Hill focused on the artifact concentrations located near feature 1, the central midden. The majority of the artifacts and ecofacts were recovered from this portion of the site and it is thus far the only area that has been extensively studied. Careful excavations revealed a series of shallow posts at the A/B interface in an approximate arc-like pattern seemingly fitting our expectations for a 17th-century wigwam (Figure 4.5). The spacing and angle of the posts fit both ethnohistoric and archaeological descriptions of similar structures from different regions and periods (Hrynick, et al. 2012; Juli and Lavin 1996; Leveillee, et al. 2006; Sturtevant 1975). The posts are relatively shallow in profile and end in either a point or are rounded.

Spatially, the post-mold pattern is adjacent to the majority of the artifact concentrations and domestic features found during the 2014-2016 field seasons. We have revealed and mapped...
roughly 1/3 of the structure. The remaining posts are either as-yet unexcavated, destroyed by bioturbation, or were missed during earlier excavations. For the purposes of spatial analyses, I extrapolate out the rest of the structure to the East and South as seen in Figure 4.6. This extrapolation is based on the relative regularity of the posts that have been excavated along with a set of presumptions about wigwam size and shape gleaned from the archaeological and ethnohistorical sources mentioned previously. The site’s central midden, which included concentrations of faunal and cuprous materials, is located outside the structure to the northeast. All the hackney pond ceramics were found within the structure in its western half. With the exception of two pipe fragments, all of the English-made ceramic pipes were found in a concentration outside the structure at the northwest corner. Taken together the wigwam is flanked by concentrations of faunal and metal refuse concentrated in a midden and imported smoking pipes with only indigenous-made ceramics falling within its walls.

Figure 4.5: Profiles of post-molds associated with the feature 1 wigwam at Calluna Hill. Each post was bisected and drawn at the A/B interface.
Figure 4.6: Map of feature 1 at 59-73. Interpreted to be the western half of an indigenous domestic structure. A series of posts separate the interior of the wigwam, in which was found a concentration of aboriginal ceramics from the exterior where European made ceramic pipes were recovered. The dotted line represents an interpretation of the wigwam’s Western wall extrapolated from the post locations. Map by author and Noah Fellman, MPMRC.

CONCLUSIONS

Evidence from Calluna Hill is suggestive that the Pequots living at the site were agentively adapting to their new colonial environment. While material choices and decisions regarding site location were in flux, subsistence strategies, refuse patterns, sedentism, architecture, and spatial patterning remained relatively constant.
Consumption and Entanglement of Material Culture and Food Culture

Scholarly debates over the nature and extent of cultural change and continuity in southern New England in the 1600s hinge on the processes by which individuals adapted novel raw materials gained through colonial interaction (Harrison 2006; Loren 2010:73–88; McBride 2008; Silliman 2009, 2010). Many of these scholars have questioned the utility of overly simplistic concepts of acculturation and hybridity for understanding the complex ways that indigenes and colonizers did this. The concept of colonial entanglement recognizes that cultural change and continuity are active processes without presuming dominance of one group over another. In a similar study of the colonial period in southern New England, Silliman (Silliman 2009:213–214) argued that the presence of a variety of “traditional” and “hybrid” objects on native sites at the Eastern Pequot reservation represent simultaneous continuity and change across the arbitrary history/pre-history divide.

We can also use Calluna Hill to examine the nature of food culture during the early colonial period. Very little archaeological evidence of the effects of early colonial encounters on traditional foodways exists. Beaudry (2013:285–286) has argued that in colonial settings “colonizers, conquerors and travelling merchants often brought with them the essentials of their home diet and experimented with elements of new cuisines reluctantly”, leaving open for interpretation the ways that indigenous people may have reacted in response to the introduction of settler’s foodstuffs. Food culture, as a concept, requires a broader inclusion of evidence by the archaeologist than the study of subsistence since it constitutes more than the sum of diet. Rather it incorporates all aspects of the ways in which food is used to express identity, to include and exclude individuals or groups, and structure household politics. It thus requires a holistic analysis of many types of artifacts related to food production, preparation, and consumption (Anderson
1971; Beaudry 2013:285–298; Caplan 1997:1–31; Leach 1999:129–138; Mintz and Du Bois 2002:100–101, 109–110). For this reason, this study approached food culture as a composite of botanical remains, faunal remains, ceramics and cookware, and the use of space. Previous studies have revealed that subsistence and foodways can emphasize that individual households reacted logically and largely idiosyncratically to colonial interaction (Ferris 2009).

Architecture and Use of Space in an Entangled Setting

Calluna Hill also offers an opportunity to better understand the forms and symbolic meanings of architecture and use of space during the earliest years of colonialism in southern New England. Domestic structures are a nexus by which individuals within the house interact with the outside world at the local, regional, and global scales (Beaudry 1984:27). The house, in whatever form, is also theorized to reflect the symbolic patterns present in the broader society as well as among the individuals who live in it (Blanton 1994:10; Bourdieu 2003). The recursive relationship between the house and the household’s inhabitants is a central catalyst for the creation and recapitulation of identity. The house is the place of residence of the “household,” a unit of analysis that has increasingly become the center of many archaeological investigations. Mrozowski (1984:31) describes the household as “the basic unit of social production, reproduction, consumption, and socialization,” the very “atom’ of society.” The household consists of architecture as well as individuals, their actions, and their material remains. The domestic structure, related features, and the interstices between them were a part of ongoing historical trajectories, both deeply rooted in traditional lifeways, mobility patterns, and symbolic expression (Juli and Lavin 1996). They were also practical structures, designed to support relevant levels of sedentism and subsistence.

Continuity and Change at Calluna Hill

Architecture, artifactual, and ecofactual evidence from Calluna Hill suggests that the families living at the site were continuing a lifestyle of high mobility, seasonal-oriented subsistence and
settlement. The ceramic assemblage includes a mixture of indigenous- and European-made ceramics, despite the availability of European-made ceramics. Perhaps those living at Calluna Hill continued to prefer aboriginal ceramics due to a perception that they were better suited to the preparation of long-standing cuisines. There is also evidence of the adoption of brass and iron kettles, which were sometimes purposefully dismantled but may also have been used for cooking. The recovered faunal and floral remains are exclusively of wild species. Faunal remains were dominated by shellfish and a variety of small and medium mammal bones. Floral remains were exclusively wetland and forestland weeds and a few nutshells. With Calluna Hill we have the incredibly rare benefit of an exact date of site-destruction. We know that the site was occupied until late May when it was abruptly burnt. The seasonal specificity of the ecofactual evidence, thinness of the middens, single set of wigwam posts, and highly discrete and relatively small artifact densities suggests a short-term Spring occupation. Bragdon (1996:55–79) might describe Calluna Hill as fitting her “tripartite settlement model”.

Calluna Hill also fits the “dispersed village” model described by Leveillee et al (2006).

It is not a perfect fit for either model, however. McBride’s (1984) descriptions of settlement patterns in the pre- and proto-historic would suggest a seasonal camp like Calluna Hill should appear almost exclusively in a riverine or estuarine zone (Dincauze 1974; Lavin 1988). It does not. Calluna Hill’s unusual location could be most parsimoniously explained as a wartime phenomenon. The site lies between two major Pequot fortified villages (Mystic Fort and Weinshauk) and may have been situated thus to protect it from attack by English forces or to facilitate it as a provisioning site for Pequot combatants.

The Pequots continuation of both their architectural and spatial traditions may have helped them maintain long-standing and successful subsistence strategies while also allowing the flexibility to integrate novel goods made available by new colonial relationships (Betts, et al. 2017; Steadman 2015:69–101). The feature 1 wigwam at Calluna Hill is oval, and based on evidence from post mold profiles, likely domed and ringed with bent poles. This is reminiscent of the 18th-century dwellings
described by Stiles and modeled by Sturtevant (1975:441) which consisted of a “basic framework.. of a set of arches, made by erecting a series of 20 to 30 poles in an oval, set into the ground with their upper ends slanting outwards, then bending inward the upper ends of pairs of opposite poles until they overlapped and were tied together.”

These types of dwellings continue to appear in southern New England for at least another century after the Pequot War. This is evidenced by the Western Niantic wigwams that Sturtevant described and by Pequot examples from the 1670s (Benard 2005) and well into the 18th century (Lammi 2005). These types of dwellings are well-equipped for a high-mobility lifestyle and likely continued to support the modes of subsistence suggested by the faunal, botanical, and artifactual data at Calluna Hill. In addition to supporting the hypothesis that Pequots at Calluna Hill were continuing a seasonal tripartite model of subsistence, the feature 1 wigwam is suggestive of a continued use of short-term camps as part of a highly mobile settlement pattern.

The feature 1 wigwam evidences strong spatial boundaries at the site, with artifact classes falling clearly within and without of the structure’s walls. Why the divisions occurred the way they did has been discussed at great length by others, who have attributed the division of ceramics from tool-making along gender and cultural lines (Hrynick and Betts 2017; Lightfoot 1995), or divisions in space within structures as denoting the relationship between its inhabitants and cosmological entities (Hrynick, et al. 2012), or as a reaction to colonial pressure (Benard 2005; Lammi 2005; Silliman 2001), as a local adaptation to the new political and economic circumstances of colonialism (Jordan 2008, 2009), or as reflecting broader cultural patterns and values (Bourdieu 2003). Refuse behaviors seem to be continuing as well, with middens being clearly defined spaces in close proximity to but clearly on the exterior of the wigwam. The middens are mixed use as in prehistory, with faunal remains, pipe fragments, and the discarded remnants of tool production present in each midden.

While the spatial arrangement, architecture, subsistence, and mobility patterns appear to be constant across the prehistory/history divide, the historical trajectory of material choice appears to
have been in flux. Most obvious is the absence of lithics in the 1637 contexts at Calluna Hill. Lithic traditions pre-exist this site by at least 10,000 years and are ubiquitous at nearly every Native site prior to the arrival of European settlers to the region. Yet at Calluna Hill, which was occupied less than two decades after the Pequot’s first sustained contact with the Dutch, lithic technology has been replaced by imported metals. Traditionally we would expect to find lithics in mixed middens (i.e. Hrynick, et al. 2012; Juli and Lavin 1996; Leveillee, et al. 2006; McBride 1984; Steadman 2015). At Calluna Hill, the middens are devoid of lithics but are dominated by brass and iron scrap that had been modified by “perforation, scoring, cutting with shears and chisels, beveling edges, bending, and rolling” (Willison 2016:65).

There are several possible interpretations as to why the inhabitants of Calluna Hill were willing to replace a long tradition of lithic manufacture with metal manipulation. It is possible that metals were perceived to be functionally superior for certain types of tool use. The most common finished metal tool found at Calluna Hill, Mystic Fort, and the battle of the English Withdrawal were projectile points. Malleability, strength, and ease of manufacture may have been important factors driving the transition from stone projectile points to brass and iron ones. The production of large quantities of metal points may also have been driven by wartime necessity, with the active conflict of the Pequot War requiring large numbers of points to outfit native combatants. McBride (1984) also noted that the ratio of “exotic” tool-stone types were already diminishing in proto-historic and early colonial sites elsewhere in Connecticut, perhaps due to a disruption in indigenous trade networks due to disease, war, or shifting political alliances.

Willison (2016:67) suggests other possible explanations. Ethnohistoric and evidence gathered from native burials suggest that cuprous and iron jewelry were important to native men and women during this period. In addition to their decorative value, cuprous adornments were especially perceived to have healing properties, were worn as symbols of material wealth, or as physical
performances of masculinity. Cuprous metals also had deep religious and linguistic significance because of their malleability and color properties (Willison 2016:68–69).

Metal artifacts do not represent the only example of changing material choice at Calluna Hill. Of the 432 total artifacts recovered from the site’s 17th-century contexts, a large percentage were parts of objects originally manufactured in Europe and presumably acquired by trade. Certainly, this suggests a certain level of change in daily practice. Judging the level of cultural change that can be denoted by the presence of large numbers of “exotic” goods is a matter of theoretical debate. I would argue that at Calluna Hill there is a considerable level of cultural continuity despite the large numbers of European-made goods. There is a great deal of scholarship that argues that any object, when perceived and used by indigenous people, becomes inherently indigenous (see Harrison 2002, 2006; Sahlins 1999; Silliman 2001).

One specific change in material culture we see at Calluna Hill is in smoking pipes. Smoking pipes do appear in regional prehistoric domestic sites, but they are very rare and usually made of stone (McBride 1984, 1990, 1994). Smoking pipe fragments make up a substantial proportion of the Calluna Hill artifact collection (2.3%) and they are all of English manufacture. This is in line with other historic-period native sites, where English-made pipes become increasingly prevalent (Benard 2005; Hayden 2012; Lammi 2005; Ligman 2016; Mancini 2009; McBride 1990). Part of the reason for the increase of pipes at sites during this period is likely simple availability. As the Atlantic trade market expanded, a variety of materials including smoking pipes became easier to obtain.

This easier access may have driven changes in the social practices of smoking tobacco. For instance, Nassaney (2004) argues that Pequot women may have started to participate in smoking tobacco for the first time during the 1620s and 1630s thanks, in part, to the arrival of English-produced ceramic pipes. Women may have seen an increase in their overall political and economic
power because of their pivotal role in wampum production and this newfound power may have been materially performed through the previously male-dominated practice of smoking.

The smoking pipes at Calluna Hill appear primarily in a discrete area outside and to the northwest of the wigwam. Two pipe fragments were also found in the mixed midden. The location of these pipes on the exterior of the domestic space may be significant, denoting that smoking was an activity meant to be done outside the house itself. It is reductionist to assign gender to this activity based on the simplistic inside/outside dichotomy preferred by earlier generations of archaeologists. If Nassaney is correct and smoking is becoming an increasingly multi-gendered activity in this era, it would run counter to that narrative as women and men at Calluna Hill would both have used their pipes outside the house.

Evidence from the site of Calluna Hill suggests that Pequots in the 1630s were continuing many practices unabated across the prehistory/history divide. These included (but are not necessarily limited to) subsistence practices, settlement and mobility patterns, architectural styles, and the maintenance of a seasonal round. However, the evidence is also suggestive of substantial flexibility in Pequot worldviews, which are malleable enough to allow many novel materials to be integrated fluidly and with significant agency. Before it was destroyed by the English, Calluna Hill was part of a continuous historical trajectory and was truly an entangled setting.
Works Cited

Alexander, Rani T


Anderson, Jay Allen


Beaudoin, Matthew A


Beaudry, Mary C


Benard, Akeia Angelique Florence


Bendremer, Jeffrey C


Betts, Matthew W, Meghan Burchell and Bernd R Schone


Blanton, Richard E

Bourdieu, Pierre


Bragdon, Kathleen


Caplan, Pat


Cave, Alfred A

1996  *The Pequot War*. University of Massachusetts Press, Amherst, Massachusetts.

Cipolla, Craig, Stephen W Silliman and David Landon


Cusick, James G.


Dietler, Michael


Dincauze, Dena F


Dirks, Nicholas B

Farley, William A  

Ferris, Neal  

Harrison, Rodney  


Hayden, Anna K  

Hoadley, R Bruce  

Hrynick, M Gabriel and Matthew W Betts  


Hrynick, M Gabriel, Matthew W Betts and David W Black

Jordan, Kurt A


Juli, Harold D. and Lucianne Lavin


Lammi, Kristina P.


Lavin, Lucianne


Lawrence, Susan and Nick Shepherd


Leach, Helen M


Leveillee, Alan, Joseph Waller Jr and Donna Ingham

2006 Dispersed Villages in Late Woodland period south-coastal Rhode Island. *Archaeology of Eastern North America*:71–89.

Lightfoot, Kent G


Ligman, Michael


Loren, Diana DiPaolo


Mancini, Jason Richard


Martin, Alexander Campbell and William D Barkley


Mason, John, Samuel Kneeland and Timothy Green

1736  *A Brief History of the Pequot War: Especially of the Memorable Taking of Their Fort at Mistick in Connecticut in 1637: Written by Major John Mason, a Principal Actor Therein, as Then Chief Captain and Commander of Connecticut Forces. With an Introduction and Some Explanatory Notes by the Reverend Mr. Thomas Prince.* [Nine Lines from Psalms]. Printed & sold by S. Kneeland & T. Green in Queen-Street.

McBride, Kevin A


McBride, Kevin A, David Naumec, Ashley Bissonnette, Doug Currie, Noah Fellman and Laurie Lamarre

2014  *Battle of Mistick Fort: English Withdrawal and Pequot Counterattacks*  

Mintz, Sidney W. and Christine M. Du Bois


Mrozowski, Stephen A


Murray, Tim


Nassaney, Michael S


Paterson, Alistair

2011  *A Millennium of Cultural Contact*. Left Coast Press, Walnut Creek, Calif.

Pauketat, Timothy R


Pearsall, Deborah M.


Popper, Virginia

Sahlins, Marshall


Silliman, Stephen W


Steadman, Sharon R

2015 Archaeology of Domestic Architecture and the Human Use of Space. Left Coast Press, Walnut Creek, California.

Stein, Gil J


Sturtevant, William C


Voss, Barbara Lois

2002 The Archaeology of El Presidio de San Francisco: Culture Contact, Gender, and Ethnicity in a Spanish-colonial Military Community. Dissertation, Department of Anthropology, University of California, Berkeley, Berkeley, California.
Wagner, Gail E.


Willison, Megan K

CHAPTER 5: CULTURAL CHANGE AND CONTINUITY IN 17TH-CENTURY
INDIGENOUS CONNECTICUT: A COMPARATIVE ANALYSIS OF TWO PEQUOT
DOMESTIC SITES

William A. Farley

INTRODUCTION

Recent excavations at the 17th-century sites of Calluna Hill (CT 59-73) in Mystic, Connecticut and Monhantic Fort (CT 72-91) in Mashantucket, Connecticut make it possible to diachronically explore the processes of cultural change and continuity for Pequots living in the 17th-century (Figure 5.1). While these two sites have several intriguing similarities, they are also distinct in many ways. Calluna Hill was a small village of 3-5 domestic structures (wigwams), occupied for only a few weeks in the late Spring of 1637 and burned by withdrawing English forces following the Mystic Massacre in the Pequot War (1636-1637). Monhantic Fort was a Mashantucket Pequot fortified village containing perhaps 20 wigwams and occupied year round for 18-24 months between 1675 and 1677. In this paper these sites serve as baselines for aspects of Pequot lifeways in the 1630s and 1670s as well as provide an opportunity to observe the nature of Pequot cultural continuity and change over a 40-year period.

In part I hope to bridge the gap between scholarship which has focused on the prehistory and earliest years of colonial contact in southern New England (Bendremer 1999; Bragdon 1996; Cave 1996; Chilton 2004; Farley, this volume; Farley and Hrynick, this volume; Farley and McBride, this volume; Freeman 1995; Grandjean 2011; Juli and Lavin 1996; Lavin 2013; McBride 1994, 2008), studies which focus primarily on the era of King Philip’s War (AD 1675-

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4 This paper is single-authored and will be included in an edited volume on the archaeology of fortified sites planned for the near future.

Figure 5.1: Map of Connecticut (present-day political boundaries) with the locations of Calluna Hill and Monhantic Fort denoted.

Until now the 17th century has been understudied in New England. This is due, mainly, to a paucity of known sites from the period and the generally poor preservation of the sites that were occasionally found. Several factors make Monhantic Fort and Calluna Hill candidates for a diachronic comparative study. Both are tightly dated and reasonably well-preserved. They are close to one another and were both occupied by the same indigenous group. Further, they are
functionally similar as both include a partially excavated domestic structure (referred to here as a house or a wigwam) with related domestic features such as middens and well-documented and spatially patterned artifact assemblages. Both also have reasonably well-preserved faunal and botanical assemblages which have been analyzed. Other factors make direct comparisons of the two sites more challenging. Calluna Hill was occupied for a very brief period, perhaps not more than a few weeks, whereas Monhantic Fort was occupied for two or more years. Calluna Hill was also a late-spring seasonal occupation and Monhantic Fort was occupied year-round. Some of the differences in artifact and ecofact recovery at the two sites are likely due to these important distinctions. While this limits the ways in which the sites can be directly compared, it does make them each useful baselines for the study of different types of 17th-century Pequot sites.

Up until recently, it was broadly accepted that indigenous people in New England were subject to quick and unyielding domination after the arrival of Europeans to the region and that this domination would result in the widespread adoption by indigenes of European-made goods and ideas. This work has largely relied upon ethno- and oral-historical approaches and while these are valuable methods, they can be supplemented by material archaeological studies in important ways. Recent scholarship, however, has challenged the notion that Native Americans passively accepted and assimilated into Euro-American normative culture. A comparison of Calluna Hill and Monhantic Fort will explore the nature of Native interactions with European capitalist markets and probe the ways that Pequots selected or rejected novel ideas and goods. These sites provide two snapshots in time from what could be termed the “early contact” (1620-1670) and “late contact” (1670s and onward) periods. It is worth noting that the term “contact” has been heavily critiqued for its inadequacy in describing the physical, cultural, and economic violence directed towards indigenous people during the earliest years of settler colonialism (e.g.
Silliman 2001). This research works within the spirit of that critique to unpack the nature of that violence and of indigenous mitigations of European aggressions during this currently understudied period.

In order to assess Pequot lifeways throughout the 17th century in southern New England I will track three archaeological markers at Calluna Hill and Monhantic Fort. First, I will use ecofactual data to address modes of subsistence, recognizing that the seasonality differences between the sites make them difficult to compare in this regard. Both sites have intact architectural features which will be analyzed to understand mobility patterns and cultural divisions evident in spatial partitioning. Lastly, I will look at indigenous-made and European-made goods to assess indigenous agency and Pequot participation in Atlantic capitalist markets.

HISTORICAL CONTEXT

*The Arrival of Settlers and The Pequot War (1620–1638)*

The goal of this paper is to use archaeological data from two important 17th-century Native sites to elucidate that complex changes and continuities that occurred during this pivotal period in the region’s history. It is therefore important to contextualize them in known history before beginning to discuss the sites and their material record. While the focus here is on the 17th century and on the southern New England region (defined as present-day Connecticut, Rhode Island, and parts of Massachusetts), it will be appropriate at times to discuss events from a broader perspective.

Before the arrival of European settlers to southern New England there already existed a complex system of relationships among the region’s native groups. This myriad of alliances and conflicts between and among groups were tested during the 1620s when two new players arrived in the region, the Dutch and English. The Pequots initially gained regional influence with the
arrival of the Dutch and English due to their strategic control of wampum-making resources in Long Island Sound, quickly emerging as an important intermediary between European fur traders and inland groups who held sway over the most valued fur-producing regions. These inland groups desired wampum, a tubular shell bead fashioned from quahog and whelk species from Pequot waterways, and most inland traders requested Pequot wampum as a part of their fur transactions. (Cave 1996; Ceci 1990; Hauptman 1990; Starna 1990) The market for wampum was driven by inland groups’ use of the shells in a number of important social and religious ceremonies that predate European settlement of the region and that continued unabated into the 17th century.

In the mid-1630s a series of events led to the first major conflict between the English and the region’s indigenous populations. The Murders of the chief Pequot sachem (Tatobem) in 1634 and two English trader captains (John Oldham and John Stone) and their crews in 1634 and 1636 began a trajectory of increasing tensions that ignited into open conflict in the fall of 1636. The Pequot War began in late August of 1636 with an English punitive attack on Pequot villages along the Thames River and culminated in late July of 1637 with the death of the chief Pequot sachem Sassacus. The most significant event of the war occurred on May 26th, 1637 when a force of Connecticut soldiers and 250 Native allies attacked and burned the Pequot fortified village at Mystic killing 400 Pequot men, women, and children in little more than an hour – half of whom burned to death (Mason, et al. 1736; Orr 1897). The site of Calluna Hill was a small Pequot village located nearby the Mystic Fort and was burned during the English withdrawal following the Mystic attack. It should be noted that this battle was not solely fought between the English and the Pequot as each side included native allies. The Pequots enlisted men from many of their tributary tribes who resided in the Thames and Connecticut river valleys and along the
Connecticut coastline while the English cultivated an active alliance with the Pequots’ traditional native enemies the Mohegan (who lived along the Thames River in Connecticut), Narragansett (who resided in present-day Rhode Island), and Wangunk of the middle Connecticut River Valley (Cave 1996; Lavin 2013:327; McBride and Bissonette 2016). With the conclusion of the war the surviving Pequots were sent to one of several terrible fates. Some were forced into slavery either in local English homes or on plantations in the Caribbean. Others were given as tribute to the native allies of the English (Ceci 1990:55–63) While there is still significant debate about the underlying motivation of the English in the starting and carrying out of the war, there is little doubt that it signaled the end of the productive and peaceful early years of English settlement in the region (Freeman 1995; Grandjean 2011; Katz 1995).

The Interim Years and the Founding of the Reservations (1638–1666)

The Pequot painstakingly worked to reestablish both their political and cultural identities over the course of the next five decades. In 1651 the first reservation in Connecticut was established to house the Pequots led by Robin Cassacinamon. Being only 500 acres, this reservation’s resources were quickly exhausted and were generally deemed inadequate to support the tribe. It would take the tribe nearly two more decades to secure a larger land-base. The tribe was effectively split into two groups when the survivors of the Pequot War were given as tribute to the Narragansett and the Mohegan as tribute. The group who emerged from the Mohegan became known as the Mashantucket or Western Pequot and gained a 2,000-acre reservation at Mashantucket in 1666. The Paucatuck or Eastern Pequot, who had lived for some time with the Narragansett, successfully gained a much smaller reservation in North Stonington in 1683 (Lavin 2013:329; McBride 2006, 2007; Mancini 2009).
These Mashantucket Pequot reservation was reduced in size several times, reaching its nadir in the mid-19th century reduction of Mashantucket to 214 acres. This was achieved by a method of legalized land theft based on a principle described by Cronon (2011:53) as “European perceptions of what constituted a proper use of the environment... reinforce[ing] what became a European ideology of conquest.” Essentially, the English (and later American) authorities argued that since the Pequot were not using their land in a way that evidenced their growing Anglicization, they were not using it properly and therefore did not need it. The reduction in land available to the Pequot reduced their mobility, limited their subsistence strategies, and cut them off from traditional hunting and foraging grounds. This was an insidious and entirely effective mode of colonialism that simultaneously damned the Pequots to a cycle of poverty while forcing them to assimilate by way of desperate necessity.

*King Philip’s War and Monhantic Fort (1666–1678)*

By the 1670s regional tensions between the English and many native groups throughout New England had reached a crisis point. Southern New England was rocked by another war between English colonists and their native allies and a loose confederacy of indigenous combatants. During this war, the Mohegans and Pequots fought as allies of colonists from Connecticut, Rhode Island, Plymouth, and Massachusetts Bay against a group of native people from the Wampanoag, Nipmuc, Narragansett, Sakonnet, and several other tribal polities (Lavin 2013:331–335; McBride 2007).

The conflict, known today as King Philip’s War (1675–1678) and named after the Wampanoag leader Metacom who was known to the English as Philip, would be among the bloodiest affairs ever fought on North American soil. While the cause of the war is still debated,
it is clear that a series of legal and cultural misunderstandings as well as continual colonial pressure on tribal lands and freedoms exacerbated existing tensions.

During the war a large, square framed and bastioned fortified village was built on the Mashantucket Pequot reservation. In addition to being a year-round home for Pequot families, the fort also served as a provisioning and jumping-off point for joint Pequot/English ventures into the battlefields of nearby Rhode Island and southeastern Massachusetts. As Kelly and McBride (2016:117) report “the Pequot participated in at least 24 military expeditions with Connecticut colonial forces during King Philip’s War, as the War Council of Connecticut quickly realized how effective a joint English and native force could be and urged the Pequot to fight whenever possible.”

After the war the Pequots remained allies of the English but their reservation lands and populations simultaneously dwindled. Mashantucket would remain occupied without interruption until the present day but the 18th, 19th, and early 20th centuries were difficult times defined by oppressive colonial oversight, and demographic decline. Scholars have argued that the Pequots continued existence and cultural independence maintained during this tumultuous period represents resistance through survival. The Pequots were forced to show constant ingenuity and resilience to maintain their control of their scant land and resources (Farley 2014; Mancini 2009).

CALLUNA HILL (59-73)

Site Overview

This comparative analysis will focus on two excavated house sites in southeastern Connecticut. The first is Calluna Hill (Connecticut designation 59-73). This site was discovered and excavated as a part of a collaboration between the Mashantucket Pequot Museum and
Research Center (MPMRC) and the University of Connecticut (UCONN) Department of Anthropology and was financially supported by a grant from the National Park Service Battlefield Protection Program to identify and document the 4.5 mile “Battle of the English Withdrawal.” The small, short-term spring occupation was discovered in 2012 by archaeological metal detectorists as part of the battlefield project and was further delineated during the 2013 and 2014 field seasons through additional metal detector surveys (McBride, et al. 2014) (Figure 5.2). In 2015 and 2016, the UCONN archaeological field school returned to the site for a program of excavation that focused on a single household locus (for more on the field methodology employed in this process, see Farley and McBride, this volume).

We believe the site to represent a small Pequot village burned in the aftermath of the Battle of Mystic Fort on May 26th, 1637. After the infamous engagement that killed at least 400 Pequots, the English engaged in a strategic withdrawal through the middle of Pequot country and towards the Thames River and the relative safety of their ships. Captain John Mason, who was the leader of the English forces and wrote about the withdrawal several decades later, stated that along the way they “rested and refreshed ourselves…then marched on towards Pequot Harbor; and falling upon several Wigwams, burnt them” (Mason et al. 1736:11). Excavations revealed a series of post molds and diagnostic artifacts that suggest Calluna Hill is the village Mason described.

150
Figure 5.2. Map of Calluna Hill (CT 59-73). Inset shows extended excavations as of 2016. Map by author.
Ecofactual Evidence

Archaeobotanical and faunal analyses were conducted at Calluna Hill revealing the nature of Pequot springtime subsistence during the 1630s. Tables 5.1 and 5.2 reveal a small botanical dataset and a rather large faunal one. Overall, the assemblage could be described as dominated by exclusively wild taxa with a large amount of bivalve shellfish, especially soft shell clam (*Mya arenaria*). The seasonality of the assemblage is consistent with the hypothesis that the site was occupied in the late Spring. Faunal analysis was carried out by Dave Wilson of the MPMRC, botanical analysis was completed by the author. Most of the faunal remains came from two small middens and were recovered in the field using 1/8” aperture screens. A total of 9,121 individual specimens were identified. Botanical remains were recovered from post-mold features or from 1L soil samples taken from each quad at the A/B interface, where nearly all of the 17th-century artifacts were recovered. A total of 185.5L of soil were sampled and 45.5 of these were floated and analyzed by the author. No hearths or storage pits have yet been found.
Table 5.1. List of Botanical Taxa Recovered from Calluna Hill

<table>
<thead>
<tr>
<th>Family</th>
<th>Genus</th>
<th>Common Name</th>
<th>Raw Count</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forestland Weeds and Berries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubiaceae</td>
<td>Galium</td>
<td>Bedstraw</td>
<td>6</td>
</tr>
<tr>
<td>Anacardiaceae</td>
<td>Rhus</td>
<td>Sumac</td>
<td>3</td>
</tr>
<tr>
<td>Hypericaceae</td>
<td>Hypericum</td>
<td>St. John's Wort</td>
<td>2</td>
</tr>
<tr>
<td>Ericaceae</td>
<td>Vaccinium</td>
<td>Blueberry</td>
<td>1</td>
</tr>
<tr>
<td>Euphorbiaceae</td>
<td>Acalypha</td>
<td>Copperleaf</td>
<td>1</td>
</tr>
<tr>
<td>Rosaceae</td>
<td>Crataegus</td>
<td>Hawthorn</td>
<td>1</td>
</tr>
<tr>
<td>Phytolaccaceae</td>
<td>Phytolacca</td>
<td>Pokeweed</td>
<td>1</td>
</tr>
<tr>
<td>Portulacaceae</td>
<td>Portulaca</td>
<td>Purslane</td>
<td>1</td>
</tr>
<tr>
<td><strong>Wetland Weeds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyperaceae</td>
<td>Carex</td>
<td>Sedge</td>
<td>2</td>
</tr>
<tr>
<td>Cyperaceae</td>
<td>Cyperus</td>
<td>Sedge</td>
<td>2</td>
</tr>
<tr>
<td><strong>Nutshell</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juglandaceae</td>
<td>Carya</td>
<td>Hickory</td>
<td>6</td>
</tr>
<tr>
<td>Juglandaceae</td>
<td>Juglans</td>
<td>Walnut/Butternut</td>
<td>2</td>
</tr>
<tr>
<td>Fagaceae</td>
<td>Quercus</td>
<td>Acorn (Oak)</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 5.2. List of Faunal Taxa Recovered from Calluna Hill

<table>
<thead>
<tr>
<th>Type</th>
<th>Class</th>
<th>Variety</th>
<th>Fragment</th>
<th>Weight (g)</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bivalve</td>
<td>Soft Shell Clam (<em>Mya arenaria</em>)</td>
<td>Hinge fragments, non-hinges</td>
<td>942.0</td>
<td>4873</td>
<td></td>
</tr>
<tr>
<td>Bivalve</td>
<td>Unidentified Shell</td>
<td>Fragment</td>
<td>591.4</td>
<td>3585</td>
<td></td>
</tr>
<tr>
<td>Bivalve</td>
<td>Northern Quahog (<em>Mercenaria mercenaria</em>)</td>
<td>Fragment</td>
<td>1.9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Bivalve</td>
<td>Soft Shell Clam (<em>Mya truncata</em>)</td>
<td>Fragment</td>
<td>1.6</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Bivalve</td>
<td>Ribbed Mussel (<em>Geukensia demissa</em>)</td>
<td>Fragment</td>
<td>0.2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>American Eel (<em>Anguilla rostrata</em>)</td>
<td>Non-Calcined Bone</td>
<td>0.5</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>Unidentified Fish</td>
<td>Teeth, bone</td>
<td>0.2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>Unidentified Small Fish</td>
<td>Non-Calcined Bone</td>
<td>0.1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Gastropod</td>
<td>Land Snail Shell</td>
<td></td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Mammal</td>
<td>Medium to Large Mammal</td>
<td>Calcined Bone</td>
<td></td>
<td>11.1</td>
<td>64</td>
</tr>
<tr>
<td>Mammal</td>
<td>Unidentified Medium Mammal</td>
<td>Calcined Bone</td>
<td></td>
<td>10.0</td>
<td>87</td>
</tr>
<tr>
<td>Type</td>
<td>Class</td>
<td>Variety</td>
<td>Fragment</td>
<td>Weight (g)</td>
<td>Count</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------</td>
<td>-----------------------</td>
<td>-----------------------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>Mammal</td>
<td>Unidentified Mammal</td>
<td>Burned Bone</td>
<td>Fragment</td>
<td>8.0</td>
<td>47</td>
</tr>
<tr>
<td>Mammal</td>
<td>Large Mammal</td>
<td>Calcined Bone</td>
<td>Cortex and Longbone</td>
<td>2.7</td>
<td>22</td>
</tr>
<tr>
<td>Mammal</td>
<td>Fox/Small Dog</td>
<td>Calcined Bone</td>
<td>Fragment</td>
<td>0.4</td>
<td>1</td>
</tr>
<tr>
<td>Mammal</td>
<td>Medium Mammal</td>
<td>Calcined Bone</td>
<td>Cortex and Cancellous</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td>Mammal</td>
<td>Small to Medium Mammal</td>
<td>Calcined Bone</td>
<td>Midshaft Fragment</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td>Mammal/Avian</td>
<td>Mammal/Avian</td>
<td>Calcined Bone</td>
<td>Cortex and Longbone</td>
<td>0.4</td>
<td>36</td>
</tr>
<tr>
<td>Mammal/Avian</td>
<td>Medium to Large Mammal</td>
<td>Calcined Bone</td>
<td>Midshaft Longbone/Cortex</td>
<td>0.3</td>
<td>2</td>
</tr>
<tr>
<td>Reptile</td>
<td>Turtle (Testudines family)</td>
<td>Non-Calcined Bone</td>
<td>Cancellous</td>
<td>1.4</td>
<td>6</td>
</tr>
<tr>
<td>Vertebrate</td>
<td>Unidentified Vertebrate</td>
<td>Calcined Bone</td>
<td>Cortex, Fragment, Midshaft Longbone, Cancellous</td>
<td>35.5</td>
<td>330</td>
</tr>
</tbody>
</table>

**Spatial Evidence**

Most of the excavations at Calluna Hill have focused on an exploration of the site’s central midden and a partially-excavated domestic house feature. The house consists of a series of shallow and pointed post-molds arcing in a circular or circular-ovoid shape (Figure 5.3). They fit expectations of a Woodland period-style wigwam structure and are similar to many extant archaeological examples from the Woodland and early colonial periods (i.e., Bernstein 1993; Cowie, et al. 1995; Glick 2013; Hrynick and Black 2016; Juli and Lavin 1996; Kaser 1978; Leveillee, et al. 2006; Tveskov 1997; Waller Jr 2000; Yesner 1984).
Figure 5.3: Map of locus 1 excavation block at Calluna Hill with artifact concentrations represented by graduate symbols. The dashed line is an interpretation of the Western half of a wigwam feature.

Figure 5.4: Profiles of post-molds associated with the feature 1 wigwam at Calluna Hill. Each post was bisected and drawn at the A/B interface.
The house feature at Calluna Hill is also oriented to several discrete artifact concentrations. Nearly all the aboriginal ceramics were found in the interpreted interior of the structure in what would be its Western half. A concentration of English-made clay pipes was found outside the structures wall to the Northwest. A mixed midden where most of the site’s artifacts were recovered is located East of the ceramic concentrations, possibly near the edge or outside the Eastern wall of the structure.

Artifactual Evidence

A total of 432 artifacts recovered from Calluna Hill are likely associated with the 17th-century component and the central house feature. (For a complete listing of these artifacts, see Farley, this volume) The artifact assemblage at Calluna Hill is relatively small but diverse. It includes English-imported and indigenous-made ceramics, glass beads and other glass objects, cuprous and ferrous metals both altered and unaltered, lead, and silver.

MONHANTIC FORT (72-91)

Site Overview

To assess the nature of Pequot cultural continuity and change across the 17th century it is necessary to compare the 1630s Calluna Hill with a similar domestic site situated later in that century. Luckily, there already exists a plethora of data about one of the most studied Pequot sites from the period of King Philip’s War (1675-1677). Discovered during excavations by the Public Archaeology Survey Team (PAST) and the UCONN field school in 1991, the site was initially recognized for its plethora of 17th-century material culture (with both locally-made objects and English trade-goods) and the presence of a linear and extremely long feature later interpreted to be a palisade wall (McBride 2006:321–322) (Figure 5.5).
The site is only mentioned once in historic documents. The reference is from July of 1677 and catalogs the granting of “ten pownd of powder and bullets or lead proportional be lent to Robbin [Cassacinamon], to be kept in his forte as a magazeen for their necessary defense, not to be improved by them without they be assaulted by an enemy” (Hoadly 1850:500). Robbin Cassacinamon was a Mashantucket Pequot sachem at the time of the war. As mentioned above, Monhantic Fort became an important jumping-off point for joint English/Pequot war efforts and we know of at least 24 instances where provisioned groups of soldiers struck out from the fort into battles in nearby Rhode Island or Massachusetts.

Figure 5.5. Map of Monhantic Fort (CT 72-91) showing complete excavation extents and denoting different interpreted behavioral areas. This study focuses on features and artifacts in area 5. (Map from Kelly and McBride 2016:122)
The fort itself is large, encompassing roughly 3,000 meters of space. It is square with four corner bastions interior lookout towers. While not the focus of this paper, the style and construction of Monhantic Fort itself represents an interesting 17th-century cultural change.

Calluna Hill was located near to Mystic Fort, which was burned on the same day near the end of the Pequot War in 1637. That fort was circular and had no bastions or lookout towers. McBride (McBride 2006:323–325) suggests that this shift in style reflects both an acceptance of ideas (and perhaps help) from English engineers and an increased need to defend against firearms by Pequots starting in the mid-17th century. The military aspects of Monhantic Fort make for a poor comparison to Calluna Hill however. The site produced a significant amount of data about Pequot daily domestic life during the 1670s. To assess the historical trajectory of those practices, the remainder of this section focuses on a single domestic wigwam located in the north-central block of Monhantic Fort (Figure 5.6).

The north-central block house at Monhantic Fort was evidenced by “a concentration of domestic artifacts, post molds indicative of a wigwam and other structures, and associated features, such as a storage pit and hearth” (Benard 2005:27). A single wigwam and associated features and artifact concentrations serves as a useful diachronic comparison to the similar finds at Calluna Hill. Spatially associated with the north-central wigwam at Monhantic Fort was feature 92, a storage and refuse pit extremely rich in botanical and faunal materials as well as material culture (Figure 5.7).
Figure 5.6. Map of the North-Central block at Monhantic Fort, the location of the domestic feature and artifacts analyzed in this study (courtesy of Kevin McBride and the Mashantucket Pequot Museum and Research Center). The dashed line represents the interpreted dimensions of a wigwam based on post mold patterning (from Benard 2005:31).
Figure 5.7. Feature 92 at Monhantic Fort. A refuse/storage pit associated with the north-central wigwam. The majority of the ecofactual and some of the artifactual evidence discussed in this paper was recovered from this feature. Figure courtesy of Mashantucket Pequot Museum and Research Center.
Ecofactual Evidence

The botanical and faunal assemblages at Monhantic Fort are far richer than those from Calluna Hill. Partially, this is because the site is larger and was more exhaustively excavated. Differences in the sites may also have accounted for the differences as many of the faunal and floral remains were recovered from closed features, especially the feature 92 storage/refuse pit that was closely associated with the north-central wigwam (Figures 5.8; Table 5.3). The faunal analysis was completed by Randy Nokes of the Mashantucket Pequot Museum and Research Center. Botanical analysis was completed by a series of archaeobotanists including analysts from the Public Archaeology Laboratory, Dr. Heather Trigg at the University of Massachusetts Boston, and finally by Dr. Kimberly Kasper, currently of Rhodes College (Kasper 2013:82). Further differences between the sites of Calluna Hill and Monhantic Fort make a comparison of their ecofactual data extremely problematic. Accounting for the differences in both the season and length of occupation of the two sites, we would expect deviations in faunal and floral assemblages driven by taphonomy rather than cultural change or continuity. While Calluna Hill was a short-term, Spring occupation, botanical remains at Monhantic Fort support the hypothesis that it was a year-round or nearly year-round settlement (Kasper 2013:169).

The recovered faunal and botanical material at Monhantic Fort represent a remarkably complex diet and “clearly indicate the Pequot exploited a variety of marine, coastal estuarine, terrestrial and inland wetland habitats during the time the fort was occupied” (McBride 2006:327). In addition to evidence of the Monhantic residents’ exploitation of several local and regional environments the ecofactual remains suggest a broad set of subsistence strategies. The assemblage is dominated by wild species of plants, animals, fish, and shellfish but some domesticated animals including cow (Bos sp.) and pig (Sus sp.) are present in small numbers as
well as indigenous domesticated plants such as maize (*Zea mays*) and beans (*Phaseolus vulgaris*).

Figure 5.8: Percentages of plant types from Monhantic Fort (figure reprinted from Kasper 2013:107). Plant types with less than 1% that are not listed include *Rubus* sp., *Juglans* sp., *Carex* sp. *Crateagus* sp., *Gaylussacia* sp., *Rhus* sp., *Vitis* sp., *Prunus persica*, *Zea mays* Cupule, *Curcurbita* sp., *Polygonum hydropiper*, *Ilex* sp., *Juglans cinerea*, Indeterminate nutmeat, *Triticum* sp., *Vaccinium* sp., *Scurpis* sp., *Prunus* sp., *Potamogeton* sp., *Quercus* sp.
Table 5.3. List of Faunal Taxa from Monhantic Fort (Data adapted from McBride 2006:328)

<table>
<thead>
<tr>
<th>Family</th>
<th>Genus</th>
<th>Type</th>
<th>Common Name</th>
<th>Raw Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phasianidae</td>
<td>Meleagris</td>
<td>Bird</td>
<td>Turkey</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bird</td>
<td>Unidentified</td>
<td>58</td>
</tr>
<tr>
<td>Emydidae</td>
<td>Terrapene</td>
<td>Reptile</td>
<td>Box Turtle</td>
<td>8</td>
</tr>
<tr>
<td>Emydidae</td>
<td>Trachemys</td>
<td>Reptile</td>
<td>Slider Turtle</td>
<td>1</td>
</tr>
<tr>
<td>Klinosternidae</td>
<td>Sternotherus</td>
<td>Reptile</td>
<td>Stink Pot</td>
<td>21</td>
</tr>
<tr>
<td>Chelydridae</td>
<td>Chelydra</td>
<td>Reptile</td>
<td>Snapping Turtle</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reptile</td>
<td>Unidentified Turtle</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reptile</td>
<td>Unidentified Frog</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reptile</td>
<td>Unidentified Reptile</td>
<td>2</td>
</tr>
<tr>
<td>Clupeidae</td>
<td>Clupea</td>
<td>Fish</td>
<td>Herring</td>
<td>4</td>
</tr>
<tr>
<td>Gadidae</td>
<td>Gadus</td>
<td>Fish</td>
<td>Cod</td>
<td>1</td>
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<td>Labridae</td>
<td>Tautoga</td>
<td>Fish</td>
<td>Tautog</td>
<td>14</td>
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<td>Anguillidae</td>
<td>Anguilla</td>
<td>Fish</td>
<td>Eel</td>
<td>40</td>
</tr>
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<td></td>
<td></td>
<td>Fish</td>
<td>Unidentified</td>
<td>6291</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shellfish</td>
<td>Crab/Lobster</td>
<td>10</td>
</tr>
<tr>
<td>Myidae</td>
<td>Mya</td>
<td>Shellfish</td>
<td>Soft Shell Clam</td>
<td>8729</td>
</tr>
<tr>
<td>Ostreidae</td>
<td>Ostrea</td>
<td>Shellfish</td>
<td>Oyster</td>
<td>100</td>
</tr>
<tr>
<td>Pectinidae</td>
<td>Argospecten</td>
<td>Shellfish</td>
<td>Bay Scallop</td>
<td>236</td>
</tr>
<tr>
<td>Mytilidae</td>
<td>Geukensia</td>
<td>Shellfish</td>
<td>Ribbed Mussel</td>
<td>1568</td>
</tr>
<tr>
<td>Veneridae</td>
<td>Mercenaria</td>
<td>Shellfish</td>
<td>Quahog</td>
<td>2546</td>
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<td>Buccinidae</td>
<td>Busycon</td>
<td>Shellfish</td>
<td>Whelk</td>
<td>22</td>
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<tr>
<td>Pectinidae</td>
<td>Placopecten</td>
<td>Shellfish</td>
<td>Sea Scallop</td>
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<td>Unionidae</td>
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<td>Shellfish</td>
<td>Fresh Water Mussel</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Shellfish</td>
<td>Unidentified</td>
<td>4148</td>
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<tr>
<td>Leporidae</td>
<td>Sylvilagus</td>
<td>Mammal (Wild)</td>
<td>Cottontail</td>
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</tr>
<tr>
<td>Sciuridae</td>
<td>Sciurus</td>
<td>Mammal (Wild)</td>
<td>Squirrel</td>
<td>7</td>
</tr>
<tr>
<td>Felidae</td>
<td>Lynx</td>
<td>Mammal (Wild)</td>
<td>Bobcat</td>
<td>1</td>
</tr>
<tr>
<td>Canidae</td>
<td>Canis</td>
<td>Mammal (Wild)</td>
<td>Dog</td>
<td>1</td>
</tr>
<tr>
<td>Castoridae</td>
<td>Castor</td>
<td>Mammal (Wild)</td>
<td>Beaver</td>
<td>50</td>
</tr>
<tr>
<td>Sciuridae</td>
<td>Marmota</td>
<td>Mammal (Wild)</td>
<td>Woodchuck</td>
<td>1</td>
</tr>
<tr>
<td>Cervidae</td>
<td>Odocoileus</td>
<td>Mammal (Wild)</td>
<td>Deer</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mammal (Wild)</td>
<td>Small Mammal</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mammal (Wild)</td>
<td>Medium Mammal</td>
<td>173</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mammal (Wild)</td>
<td>Large Mammal</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mammal (Wild)</td>
<td>Unidentified</td>
<td>1299</td>
</tr>
<tr>
<td>Bovidae</td>
<td>Bos</td>
<td>Mammal (Dom)</td>
<td>Cow</td>
<td>4</td>
</tr>
<tr>
<td>Suidae</td>
<td>Sus</td>
<td>Mammal (Dom)</td>
<td>Pig</td>
<td>9</td>
</tr>
</tbody>
</table>
Monhantic Fort is a large and thoroughly excavated site and it includes several features that could yield intriguing spatial evidence of cultural change and continuity for 17th-century Pequots. As this is a comparative analysis, I selected the feature I deemed most analogous to the previously described feature 1 wigwam at Calluna Hill. In this case, that is the north-central block wigwam located roughly five meters South of the fort’s northern palisade wall (Figure 5.5).

The wigwam is roughly 10 x 5 meters in size and ovoid in shape (Benard 2005:31; McBride 2007). Based on the presence of post molds on the interior of the structure, it is likely the wigwam had some semi-permanent furnishings such as sleeping or sitting platforms, or drying racks like those described by Ezra Stiles in his 18th-century account of a Western Niantic wigwam (Sturtevant 1975). Unlike with feature 1 at Calluna Hill, the north-central wigwam at Monhantic Fort was fully excavated. As such we have a much better idea of the size and shape of this house. Some similarities exist in the orientation of this house to its related domestic features, however. The previously described feature 92 storage/refuse pit (Figure 5.7) is outside the wigwam’s walls directly to the northeast. This is precisely the location of the brass- and shell-rich midden in relation to the feature 1 wigwam at Calluna Hill. Monhantic Fort’s wigwam has an internal hearth at its Northern end. Calluna Hill has no known hearth.

Benard (2005:32–36) revealed that the north-central wigwam has strong spatial patterning in regards to several artifact classes and further argues that gendered divisions of space are visible in the domestic block. Most of the glass and ceramics were found within the walls of the wigwam. Gunflints, lithic debitage associated with the maintenance of gunflints, lead, and other gun-related objects were found almost exclusively outside the wigwam.
Monhantic Fort does still have modified brass, likely used for “the production of materials such as beads, rings, and buttons” and they are found “adjacent to household structures” (Benard 2005:35). Benard (2005:35) goes on to argue that the modification of brass scrap may have been a male activity since the materials are so closely situated with gunflints and gun parts.

*Artifactual Evidence*

In total, 2,315 artifacts are likely associated with the 17th century domestic components at Monhantic Fort, most of these coming from the refuse pit (Figure 5.7). The site produced tens of thousands of artifacts and has multiple components, including prehistoric and later historic period occupations. Descriptions of the artifact assemblage at Monhantic Fort can be found elsewhere (see Benard 2005; Kelly and McBride 2016; McBride 2006), but the specifics of the collection are not publicly available at this time. The objects I have interpreted to be a part of the 17th-century assemblage come from several artifact classes including aboriginal ceramics, tin-glazed earthenwares, early stonewares, European flints, metals, glass beads, and English-made pipes with larger bore diameters usually associated with the period (Adams 2003; Fable, et al. 2016; FMNA 2017; Hume 1970; South 1977; Turnbaugh and Turnbaugh 1977).

**DISCUSSION**

We know that several major changes occurred between the mid-1630s when Calluna Hill was inhabited and the mid-1670s when Pequots were living at Monhantic Fort. These changes included the founding and occupation of the reservation at Mashantucket, the widespread adoption of firearms by the Pequot, and a shift in the relationship between Pequots and English settlers from adversary to ally. Monhantic Fort and Calluna Hill are very different archaeological sites. Calluna Hill was a short-term occupation abruptly abandoned after just a few weeks in the
late-spring. Monhantic Fort was a large, year-round settlement of at least several years. The site’s artifactual and ecofactual remains speak to these differences. Calluna Hill and Monhantic Fort may serve as useful and intriguing baselines for the study of 17th-century Pequot lifeways. Direct comparisons are problematic on some because of their significant dissimilarities. However similarities between the sites, especially in their spatial and architectural remains and choices in their material culture may reveal aspects of cultural continuity and change.

*Modes of Subsistence*

Remains from Calluna Hill and Monhantic Fort reveal a great deal about the differences between short-term, seasonal occupations and year-round long-term occupations in 17th-century Pequot sites. Figure 5.9 shows that taxonomic richness for both faunal and botanical taxa is far higher at Monhantic Fort than at Calluna Hill. Multi-seasonal occupations typically have higher taxonomic richness because occupants living at a site year-round will, presumably, harvest from a much wider range of plants and animals as they become prevalent in the landscape throughout the year. It should be noted that Monhantic Fort had a much higher rates of recovery in addition to its higher richness.

![Figure 5.9. Bar chart showing a comparison of taxonomic richness for both faunal and botanical data at Calluna Hill and Monhantic Fort.](image)

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The implication is that the Pequots living at Monhantic Fort in the 1670s were eating a greater variety of foods during different seasons. The truly impressive variety of plants and animals identified by analysts at Monhantic is notable considering the what we expect about reservation life in the 1670s. This does suggest a significant level of Pequot agency and freedom of movement even after the establishment of the reservation at Mashantucket.

On a statistical note, sample size can bias the results of richness analysis because larger sample size (and larger numbers of samples) increase the likelihood of the recovery of rare taxa (Popper 1988). In the case of botanicals this could be skewed by a larger number of soil samples taken, floated, and analyzed. For faunal, which are usually recovered during field excavation, this could be skewed by a larger scope of excavation. Monhantic Fort is a much larger site and has had a longer and more exhaustive field and laboratory analysis to date.

Another notable aspect of Monhantic Fort is the presence of a small number of European domesticates. English colonists strongly encouraged Native Americans to adopt European-style farming practices as early as the first half of the 17th-century and the evidence here is that Monhantic residents were at least experimenting in a limited way with the raising of cows and pigs (Cronon 2011; Den Ouden 2005; McBride 1993, 2007). They do represent a very small proportion of the assemblage as fishing, hunting, shell fish collection, the growing of indigenous domesticated species, and plant foraging apparently continued to be important aspects of Pequot subsistence strategies in the late 17th century.

**Architecture, Mobility, Gender, and Cultural Divisions**

The architecture at Calluna Hill and Monhantic Fort exhibit intriguing similarities. Both include a circular to semi-circular pattern of post molds and associated domestic artifact
concentrations and features. Ethnohistoric and archaeological evidence suggest that this style of house continued well into the 18th century in southern New England including on the Pequot reservation (Lammi 2005; Sturtevant 1975). The strong continuity of this type of architecture and the practices associated with it is surprising because indigenous domestic structures are traditionally interpreted to be created and maintained for exclusively pragmatic purposes and have been compared to houses built tens of thousands of years ago or even by pre-human hominids (Bourque 2001; Wilson 1988).

The evidence from Calluna Hill and Monhantic Fort suggest that this style of architecture is a form of cultural expression that transcends the exclusively pragmatic restrictions of mobility and subsistence considerations (see Farley and Hrynick, this volume; Hrynick and Betts 2017; Hrynick and Black 2016). Monhantic Fort was a year-round settlement in a fortified and aggregated village where domesticated animals and plants were cultivated and consumed. The residents of Monhantic Fort were buffeted on all sides by colonial forces and by the 1670s were restricted to living in a marginalized landscape on an ever-shrinking reservation. Their freedom of movement was limited (despite the surprisingly broad spectrum of plants and animal remains present at the site) and they were coerced into adopting Euro-American styles of agriculture. Supposedly designed for systems of extremely high mobility and hunter-gatherer subsistence strategies, the wigwam would seem out of place in this setting and yet it is undeniably present. To make matters more complex this type of continuity of architectural tradition was not universal. At the coterminous site of Fort Shantok, indigenous Mohegans built at least one square-framed “European-style” house with a stone foundation (Williams 1972). This suggests that the semi-circular wigwam was an important cultural expression to the Pequot living at Monhantic Fort.
Other spatial similarities between Calluna Hill and Monhantic Fort may reveal further Pequot cultural expressions with significant durability. As mentioned above, Benard (2005) argued that spatial patterning at Monhantic Fort is suggestive of strong gendered divisions in space and, by extension, in society. Similarities in spatial patterning at Calluna Hill may imply the presence of similar cultural norms. It is problematic, however, to simply upstream gender norms from the 1670s to the 1630s. Pequot society was certainly undergoing changes during the mid-17th century as a result of colonial pressure. The roles of men and women may very well have been in flux as Pequot society rubbed up against the drastically different gender dynamics of their puritan English neighbors. For example, changing economic relationships may have provided women with more influence because of their role in wampum production and men may have started to play a more important role in agricultural practice in line with English-overseer expectations (Den Ouden 2005; Mancini 2009; McBride 1993; Nassaney 2004; Newcomb 2008). As such, similarities in gendered spatial divisions at Calluna Hill and Monhantic Fort may not imply that gender dynamics were static. Instead we must consider the possibility that that men and women’s roles flipped.

*Local vs. Global Material Production, Agency, and Economics*

Finally, we have the material remains found at these two sites to compare. One would expect that as the 17th century passed and Pequots became more entangled in Atlantic trade economies and more restricted in their economic freedom and mobility that they would become increasingly reliant on English-made capitalist markets for their material goods. The reality is more complicated. Both sites show evidence of substantial adoption of European-made goods.
However, both sites also show a continuity in the use of traditional goods, particularly ceramics, that likely could have been replaced with objects from European traders.

Again, the sites serve as useful baselines for addressing these issues in the early- and late-contact periods. Calluna Hill includes both aboriginal ceramics alongside English-made varieties, despite the presumably widespread availability of European-made ceramic vessels. At the same time, lithics seem to have disappeared entirely in the short years since the arrival of Europeans to the region, replaced by re-worked metal objects such as cuprous folding knives, iron knives, punches, nails, chisels, hoes, and axes. Smoking pipes at Calluna Hill were also exclusively of European manufacture, although other nearby domestic sites have produced stone and clay aboriginal pipes. As of now it is hard to say why ceramics (along with architecture and spatial distributions) seem to be durable cultural expressions while lithics were not but future research into local 1630s domestic Pequot sites may reveal the answer (see Farley and McBride, this volume).

By the 1670s, a wider variety of European-made goods have made their way into Monhantic Fort. The site has a mixture of aboriginal and European ceramics, with at least 5-6 aboriginal vessels represented. This may further speak to the cultural (or functional) significance of aboriginal ceramics to Pequot people. Metals are also present in large numbers at Monhantic Fort and many of them were still being altered, including into brass or iron projectile points. Unlike at the earlier Calluna Hill site, lithics are present in relatively large numbers at Monhantic Fort. This is due to the new reliance on firearms by Pequots during the latter 17th century. Pequots living at Monhantic Fort seem to have reestablished a bifacial lithic technique for the preparation of and maintenance of gunflints (see McBride and Kelly 2016). While the generation of Pequots living in the 1630s may have abandoned long-standing lithic traditions in lieu of
metal-working, those living in the 1670s reintroduced them to mitigate the material necessities of gun-use.

*Change and Continuity as Non-Mutually Exclusive Trajectories in 17th-Century Connecticut*

Cultural change and continuity are not mutually exclusive and cultural entanglements in 17th-century Connecticut were complex. Between the 1637 occupation of Calluna Hill and the late 1670s occupation of Monhantic Fort, Pequots were militarily defeated and hunted down, sold into slavery, given as tribute to other native tribes, reestablished themselves as an autonomous polity, were forced onto a marginalized reservation, and forged an alliance with their former English adversaries. They also adopted the use of firearms and may have been beginning to experiment with domesticated animals like pig and cow. Despite that, the archaeology of these two sites suggests that many cultural practices including architecture, spatial divisions, and material culture choice were remarkably durable. The sites of Calluna Hill and Monhantic Fort provide evidence that runs counter to the common domination narrative that has previously defined the study of 17th-century indigenous life in southern New England. The Pequot showed an extraordinary ability to survive and adapt to their new colonial circumstances while maintaining what they viewed as the most important aspects of their culture.
Works Cited

Adams, William H

2003 Dating Historical Sites: The Importance of Understanding Time Lag in Acquisition, Curation, Use and Disposal of Artifacts. Historical Archaeology 37(2):38–64.

Benard, Akeia Angelique Florence


Bendremer, Jeffrey C


Bernstein, David J


Bourque, Bruce J

2001 Twelve Thousand Years: American Indians in Maine. University of Nebraska Press, Lincoln, Nebraska.

Bragdon, Kathleen


Calloway, Colin Gordon


Cave, Alfred A

Ceci, Lynn


Chilton, Elizabeth S


Cipolla, Craig, Stephen W Silliman and David Landon


Cowie, Ellen R, James B Peterson and Bruce J Bourque


Cronon, William


Den Ouden, Amy E


Fable, John M, William A Farley and M Gabriel Hrynick


Farley, William A


FMNA

2017 The Historical Archaeology Type Collections (HATC) Ceramic Database. Florida Museum of Natural History.

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Freeman, Michael


Glick, Henry


Grandjean, Katherine A


Hauptman, Laurence M


Hayden, Anna K


Hoadly, Charles J


Hrynick, M Gabriel and Matthew W Betts


Hrynick, M Gabriel and David W Black


Hume, Ivor Noel

Hunter, Ryan H, Stephen W Silliman and David B Landon


Juli, Harold D. and Lucianne Lavin


Kaser, E J


Kasper, Kimberly C


Katz, Steven T


Kelly, John M and Kevin McBride


Lammi, Kristina P.


Lavin, Lucianne

Leveillee, Alan, Joseph Waller Jr and Donna Ingham

2006 Dispersed Villages in Late Woodland period south-coastal Rhode Island. *Archaeology of Eastern North America*:71–89.

Mancini, Jason Richard


Mason, John, Samuel Kneeland and Timothy Green


McBride, Kevin A


McBride, Kevin A and Ashley Bissonnette


McBride, Kevin A, David Naumec, Ashley Bissonnette, Doug Currie, Noah Fellman and Laurie Lamarre


Nassaney, Michael S


Newcomb, Steven T


Orr, Charles


Popper, Virginia


Silliman, Stephen W


South, Stanley A


St. Jean, Wendy B


Starna, William A


Sturtevant, William C


Turnbaugh, W and S P Turnbaugh


Tveskov, Mark


Waller Jr, Joseph


Williams, Lorraine E


Willison, Megan K

Wilson, Peter J

Witt, Thomas A

Yesner, David R
CHAPTER 6: CONCLUSION – CULTURAL ENTANGLEMENT IN 17TH-CENTURY CONNECTICUT

William A. Farley

In chapter 1 I presented three research questions that I hoped would allow me to explore a set of themes that link the disparate interim chapters of this dissertation. These questions were written before the field and laboratory research were completed for this project and long before I began writing. They worked as a recursive tool, both guiding the research as I went and as a means of reflecting once the writing was done. In some cases, the results of this research met my expectations. In others, I was surprised by my findings and forced to reevaluate. As a way of concluding, I return to those questions and try to answer them using the preceding pages as a guide.

Research Question 1: What do indigenous use of space and conceptions of architecture tell us about the nature of economic and social change?

Much of the preceding pages have been dedicated to the analysis of indigenous architecture, be it in chapter 2’s portrayal of prehistoric spatial patterning or in chapters 3-5 when we took a closer look specific examples of indigenous houses in the 17th century. The overarching theme that emerged from this dissertation is that indigenous architecture is an incredibly durable form of cultural expression. Chapter 2 revealed that the basic format of a round or oval wigwam made up of covered small posts is a hallmark of indigenous life for close to 3,000 years in the Northeast. In the 17th-century, we see the ultimate test of that durability in colonialism. In chapters 4 and 5 I argue that conflict, genocide – the use of this term is somewhat controversial (see Freeman 1995; Katz 1995), forced relocation, marginal farmlands, and shifting
alliances had little effect on the nature of Pequot domestic architecture. Really, the changes that I do observe in architecture and use of space are relatively minor, limited only to things like floor area, roundness, and the location of storage features on the inside or outside of the structure.

This is not to say that economic and social trajectories cannot be tracked using space as a proxy. Previous scholars have suggested that indigenous architecture represents little more than primitive environmental protection (Bourque 2001; Wilson 1988). They saw wigwams as purely economic, even comparing them to the domestic remains of pre-human hominids. Others have disagreed with this reductionist perspective and I hope that the data presented here provide evidence to refute such theories. We certainly can see evidence that shifting spatial patterning is indicative of societal economic shifts. In chapter 2 we argue that the adoption of horticulture and increasing sedentism are likely related to the steady increase in house size throughout the prehistoric and early colonial periods. However social change is apparent as well. The steadfast reliance on the wigwam as a form, regardless of season, kinship pattern, gender dynamics, or the presence or absence of colonial pressure is evidence, I believe, of its being an incredibly important cultural symbol.

*Research Question 2*: What can subsistence and food culture tell us about indigenous environmental and social interactions?

I expected an in-depth analysis of food culture to be more essential to this study when first setting out. Disappointing preservation at the site of Calluna Hill made it difficult to assess the archaeobotanical record in the robust way that I had hoped. Nonetheless, foodways and subsistence emerged as central themes in ways that surprised me. For instance, the indigenous adoption, whether by choice or by force, of domesticated plants and animals into a pre-existing
subsistence paradigm seems to be correlated (at least qualitatively) with sociocultural change. This appears to be true at at least two scales of analysis.

Hrynick and I argued in chapter 2 that the adoption of maize-based horticultural practices in the Late Woodland may have played an important role in driving cultural change in southern New England, seemingly in contrast with the arguments by previous scholars that maize-agriculture had relatively little effect on social life for the region’s native people (see Bendremer 1999; Chilton 1999, 2004, 2008). I still think that Bendremer and Chilton are essentially correct in their arguments that maize agriculture had far less of an effect on lifeways for the indigenous people of this region than it did for those further to the West or South, but the changes in architecture we analyzed in chapter 2 certainly suggest that something important happened at almost precisely the time that maize begins to appear at regional sites. This is made even more striking by the comparison we draw with similar houses in northern New England, which shows substantially more cultural continuity through the Late Woodland, during a period where we have no evidence for the regional adoption of maize agriculture. We concluded that cultural changes may have been modest compared to the extreme disruptions in social dynamics seen in, say, Cahokia (i.e., Pauketat 1994) but that cultural change did occur, likely in line with the shifts outlined by scholars who describe the emergence of seasonal “tripartite” systems in southern New England’s Late Woodland (see Bragdon 1996; Leveillee, et al. 2006; McBride and Dewar 1987; Waller Jr 2000).

The second observation on the significance of the adoption of domesticated plants and animals comes from chapter 5. Here I compared the botanical and faunal remains from the 1630s occupation of Calluna Hill with the 1670s occupation of Monhantic Fort and found a greater amount of diversity, including European domesticated plants and animals, in the latter site. Any
conclusions drawn from this must be carefully considered and modest, as the preservation at Calluna Hill was poor and the sample sizes between the sites quite different. The sites are also representative of different seasons of occupation. Despite these limitations, a simple presence/absence analysis is suggestive that domesticates seem to have made their way into Pequot diets by the 1670s.

This fit my expectations, since the interim years saw the Pequots forced onto a small and marginalized reservation and pressured by European overseers to accept a radically new subsistence strategy centered on European domesticates like cattle and wheat (Cipolla, et al. 2007; Farley 2014; Mancini 2009; McBride 1993). I was surprised to find that the diversity of wild plants and animals was also much more broad at the later occupied Monhantic Fort. This site included a very broad spectrum of plant and animal remains from a variety of environments and mostly of the “wild” variety, although still with a significant amount of indigenous domesticates like maize and beans. I am forced to conclude, therefore that the adoption of European-style domesticated plants and animals was not so straightforward. When combined with other findings at Calluna Hill and Monhantic Fort, the botanical and faunal remains paint a picture of agentive cultural continuity and change for Pequots living the 17th century.

Research Question 3: How do indigenous people adopt novel ideas and materials into their culture and to what degree do these novel objects force cultural change?

This question was listed last because it constitutes the most important aspect of this dissertation. It is the question that has fascinated me for many years and what drew me to this research project in the first place. It might be worded this way instead: How did the Pequot weather the storm of colonialism? The theory of cultural entanglement, which I laid out in
chapter 1 and revisited throughout the dissertation, argues for an entirely new approach. Where previously we saw native adoption of new goods and ideas as evidence of a disappearing culture we must instead recognize the complex and altogether agentive ways that indigenous people made these novelties a part of their already existing worldview. In its most radical revision, cultural entanglement asks us to imagine how new things were used to strengthen indigenous identities rather than weaken them.

In chapters 3 and 4 I argue that Calluna Hill has evidence of exactly that process. It was here that Pequots chose, manipulated, and reshaped those European objects they saw as most aligned with their needs and their modes of cultural expression. European-made objects did not colonize the Pequot. Rather, they altered the goods to make them Pequot. This process, called “indigenization” by Sahlins (1999), is the key to understanding how indigenous people achieved modernity on their own terms. To be clear, this was not always easy. In latter centuries, the Pequot and other New England native groups fought tirelessly in legal proceedings and in their quotidian lives to maintain their livelihoods and their cultures (see Den Ouden 2005; Mancini 2009; McBride 1990; Newcomb 2008; Silliman 2009; St. Jean 1999). Nonetheless, they persisted. They survived. This dissertation reveals that the process of survival started early. The 17th century was a time in which the Pequot established that they would not transform or perform for their new English colonizers. The evidence I have presented here shows that the Pequot laid the groundwork early for a persistent survival rooted in their agency.
Works Cited

Bendremer, Jeffrey C


Bourque, Bruce J

2001  *Twelve Thousand Years: American Indians in Maine*. University of Nebraska Press, Lincoln, Nebraska.

Bragdon, Kathleen


Chilton, Elizabeth S


Cipolla, Craig, Stephen W Silliman and David Landon


Den Ouden, Amy E


Farley, William A

Freeman, Michael


Katz, Steven T


Leveillee, Alan, Joseph Waller Jr and Donna Ingham

2006 Dispersed Villages in Late Woodland period south-coastal Rhode Island. *Archaeology of Eastern North America*:71–89.

Mancini, Jason Richard


McBride, Kevin A


McBride, Kevin A and Robert E Dewar


Newcomb, Steven T

Pauketat, Timothy R

Sahlins, Marshall

Silliman, Stephen W

St. Jean, Wendy B

Waller Jr, Joseph

Wilson, Peter J