

**JOARA AND FORT SAN JUAN: COLONIALISM AND HOUSEHOLD PRACTICE AT
THE BERRY SITE, NORTH CAROLINA**

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PART 1: THE EXPLORING JOARA PROJECT

Robin Beck, David Moore, and Christopher Rodning

Columbus' landfall in the Bahamas in October 1492 initiated what was perhaps the most dramatic century of cultural exchange in human history. Over two continents, the native peoples of the Americas--from Tierra del Fuego to the St. Lawrence River--withstood waves of explorers, settlers, proselytizers, and profiteers from Spain, England, France, Portugal, the Netherlands, and other distant centers of European colonial aspiration. Of these nations, Spain was by far the most ambitious in its early efforts at exploration and conquest (e.g., Bray 1993; Deagan 2003; Thomas 1989, 1990, 1991). Research at the Berry site in western North Carolina (Figure 1) is shedding significant new light on the process and practice of colonialism in the Americas, as its borderland setting was the northern frontier of Spain's long reach (Hoffman 1990; Hudson 1990; Lyon 1976; Paar 1999). Here, in January 1567 at a native village named Joara, Captain Juan Pardo founded a garrison, Fort San Juan, and manned it with thirty soldiers. Occupied for nearly a year and a half, this garrison was the earliest European settlement in the interior of what is now the United States. Berry witnessed one of the longest colonial encounters between Europeans and the inhabitants of North America's interior until the seventeenth century. This project offers provides insight into both the anthropology of colonialism--particularly across these Atlantic borderlands--and into the ethnogenesis of this region's Historic-period, native societies.



Figure 1, map of Catawba River Valley

Theoretical Background

Silliman (2005) has recently proposed disentangling the concepts of 'culture contact' and 'colonialism' in historical archaeology. He suggests that while the term 'contact' may be suitable for initial or first encounters, the term 'colonialism' better suits long-term contexts of interaction between Europeans and the native peoples of North America. Initial European contact, as such, occurred in the upper Catawba Valley during May of 1540, as the Hernando De Soto expedition marched across the Carolina Piedmont. We approach the founding, occupation, and destruction of Fort San Juan--which took place in 1567-1568--as constituting a *colonial encounter*, in which native peoples of the upper Catawba Valley engaged in daily, sustained interaction and exchange with representatives of a colonial power. This encounter, in turn, informs the broader process of colonialism, especially with respect to similar frontier and borderland settings. In approaching this episode as a colonial encounter, we make no presumptions about 'donor' or 'recipient' cultures (e.g., Foster 1960; Spicer 1961). Indeed, in such frontier contexts the conventional roles of donor (i.e., colonial Spanish) and recipient (i.e., native) cultures were often reversed (Deagan 1985:300-304, 2003:8; Ruhl and Hoffman 1997). We suggest that this role reversal is related to what Stein has referred to as *distance parity*, a condition of colonial interaction in which "the core's ability to exercise hegemonic power decays with distance, thereby leading to increasing parity or symmetry in economic and political relations with increasingly distant peripheries" (1998:228-229).

The central goal of this project has been to assess the degree of cultural exchange and interaction at Fort San Juan de Joara, and to expand Stein's distance parity model from its applications to the exchange of bulk and prestige commodities to the daily interactions implicated by the concept of colonial encounter. We have pursued these aims through the study of household practice within the archaeological remains of Fort San Juan. Previous investigations at the Berry site have identified five large buildings, numerous pit features, and a probable palisade associated with the fort; these buildings, which our data indicate housed Spaniards stationed at Joara, display a remarkable state of preservation and provide a unique laboratory for reconstructing domestic practice in the setting of this early Spanish colonial frontier. Practice theory (e.g., Bourdieu 1977, 1984; Giddens 1979) shows how the routine interactions of daily life, and their patterning in material culture, constitute the making and remaking of social identities. Research at the Berry site therefore addresses a key anthropological question: How do people in multi-ethnic, colonial settings construct and maintain identity through household practice, and what is the role of distance parity in such contexts?

Recently there has been a shift away from unidirectional studies of acculturation, focused on how native peoples passively accepted elements of European culture, toward a more balanced and agent-centered approach in which both European and native peoples actively negotiated their identities within colonial settings (Cusick 1998; Deagan 1983, 2003, 2004; Ewen 1991; Lightfoot 1995; Lightfoot, et al. 1998; Scott 1990; Silliman 2005). Deagan notes, for example, with respect to the Spanish Empire, that

The goals of establishing civilized Christian life as dictated by the Church and the Crown were apparently adjusted most strikingly (and perhaps even largely ignored) in rural and frontier areas of the empire....In fact, there is some indication that the Spaniards who lived in these communities made far greater adjustments to the American mode of life than vice versa (2003:8).

While Stein (1998, 1999) focuses his distance parity model of interregional interaction on commodity exchange between 'core' regions and their peripheries, we believe that this model has

broader implications for colonial exchange along frontiers, including those that Deagan discusses in the passage cited above. Distance parity, an alternative to earlier world system approaches that assumed cultural hegemony in core-periphery relations, posits that the ability of a 'core' region to project its power and cultural influence into peripheries diminishes with distance, leading to more symmetrical exchange relations (Stein 1998:229). As Deagan's passage suggests, conventionally expected patterns of exchange--of both material commodities and cultural practices--may actually be less symmetrical than reversed in frontier settlements such as Fort San Juan. That is, the more distant or isolated a colony is from its 'core' (or from fellow colonies), the more dependent it will be on exchange and interaction with peoples native to the region in which it is founded, assuming relative technological and organizational parity between colonists and native hosts. Our aim was to test this modified approach to distance parity in the archaeological remains of Fort San Juan.

Joara and Fort San Juan

During the first half of the sixteenth century, Spanish explorers failed in several efforts to colonize what is now the southeastern United States. Finally, in 1565-1566, Pedro Menéndez de Avilés successfully founded two settlements on the south Atlantic Coast: San Agustín, founded September 1565 in Florida, and Santa Elena, founded April 1566 on present Parris Island, South Carolina. The latter settlement, Santa Elena, was to be the principal town of Menendez' colonial aspirations (Hoffman 1990; Hudson 1990; Lyon 1976, 1984; Paar 1999). When Philip II learned of this success, he ordered reinforcements for the new colony. In July 1566, Captain Juan Pardo arrived at Santa Elena with a company of 250 soldiers and began to fortify the settlement. As the Santa Elena colony was ill-prepared to feed this large contingent of men for very long, however, Menendez ordered Pardo to prepare half of his army for an expedition into the interior lands that lay behind the Atlantic coast. Pardo's task was to explore the region, to claim the land for Spain while pacifying local Indians, and to find an overland route from Santa Elena to the silver mines in Zacatecas, northern Mexico (Figure 2). Pardo left with 125 men on December 1, 1566.

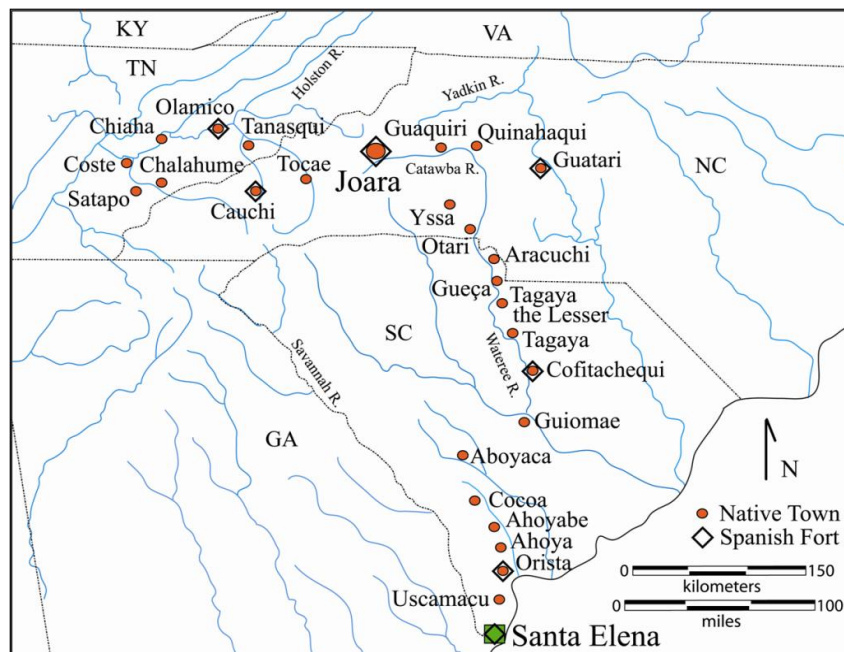


Figure 2, route of the Juan Pardo Expedition

In January 1567, after crossing the Carolina Piedmont along the Wateree and Catawba rivers, Pardo and his men arrived at Joara, a large native town in the upper Catawba Valley near the eastern edge of the Appalachian Mountains (e.g., DePratter, et. al 1983; Hudson 1990). The leader of Joara, referred to in the accounts as Joara Mico [Mico was a native term for regional, multicomunity chief (Anderson 1994; Hudson 1990)], maintained authority over a number of neighboring villages on the upper Catawba River and its tributaries (e.g., Beck and Moore 2002:201). Pardo renamed this town Cuenca, after his native city in Spain. At Joara, he built a fort, San Juan, which he garrisoned with thirty men. While previous expeditions into the interior had made seasonal encampments or had temporarily occupied native towns, Pardo explicitly built Fort San Juan to expand the Santa Elena colony into the northern frontiers of *La Florida*. In so doing, he founded the earliest European settlement in the interior of what is now the United States. During a second expedition into the Carolinas and eastern Tennessee, Pardo built five smaller forts along his proposed route to Mexico, but it is clear from the accounts that Fort San Juan was the most important of his frontier outposts (Bandera I and II 1990, Pardo 1990).

Over most of the eighteen months that Spanish soldiers lived at Joara, amicable relations existed between the people of this town and their European guests--on at least two occasions, for example, the Spaniards accompanied native warriors in attacks on hostile native chiefs across the Appalachians in Tennessee and Virginia (Beck 1997a). Also, when Pardo was preparing to leave the fort during his second expedition, he commanded its ensign, Alberto Escudero de Villamar, to “judge and have a care of the conservation of the friendship of the caciques and Indians of all the land” (Bandera I 1990:278). In the months after Pardo’s departure in November 1567, however, relations between Fort San Juan and the people of Joara took a calamitous turn for the worse. By May 1568, news reached Santa Elena that Indians had attacked all of Pardo's forts, including Fort San Juan, and that all were destroyed (Hudson 1990:176). Several factors may have played a role in this aggressive action, but two stand out: the soldiers' demands for food and their improprieties with native women. At Fort Santiago, for example, Pardo ordered “that no one should dare bring any woman into the fort at night...under pain of being severely punished” (Bandera I 1990:285). In the end, 130 soldiers and all of Pardo's garrisons were lost, and with them Spain's only attempt to colonize these northern frontiers of *La Florida*; indeed, it was more than a century before other Europeans are known to have penetrated this far into southern Appalachians.

Archaeological Investigations at the Berry Site

Archaeological and documentary evidence (e.g., Beck 1997b; Moore 2002; Worth 1994) indicate that the Berry site (31BK22) is the location of Joara and Fort San Juan. Berry is located along Upper Creek, a tributary of the upper Catawba River, in what is now Burke County, North Carolina (Figure 3). The site covers about 5 ha and is located along the eastern margin of a 75 ha alluvial bottomland at the junction of Upper and Irish creeks. Archaeological evidence indicates that Berry was one of the largest late prehistoric sites in the upper Catawba Valley (Beck 1997a; Beck and Moore 2002; Moore 2002). The site was first described in Cyrus Thomas’ monumental 1894 report on mound explorations by the Smithsonian Institution’s Bureau of Ethnology, where it is described as a “Mound on the west Bank of Upper Creek 8 miles north of Morganton (about 15 feet high and unexplored)” (1894:151). Both the earthen mound and its surrounding site were regularly plowed, and in 1964 the mound itself was bulldozed to provide fill for a low-lying area to the west of the mound that was subject to flooding. Today, the mound measures about 70 m in diameter and rises to a height of 1.5 m. Our work at the Berry site includes 13 seasons (1986, 1996-97, 2001-10: a total of 70 weeks of excavation and survey.

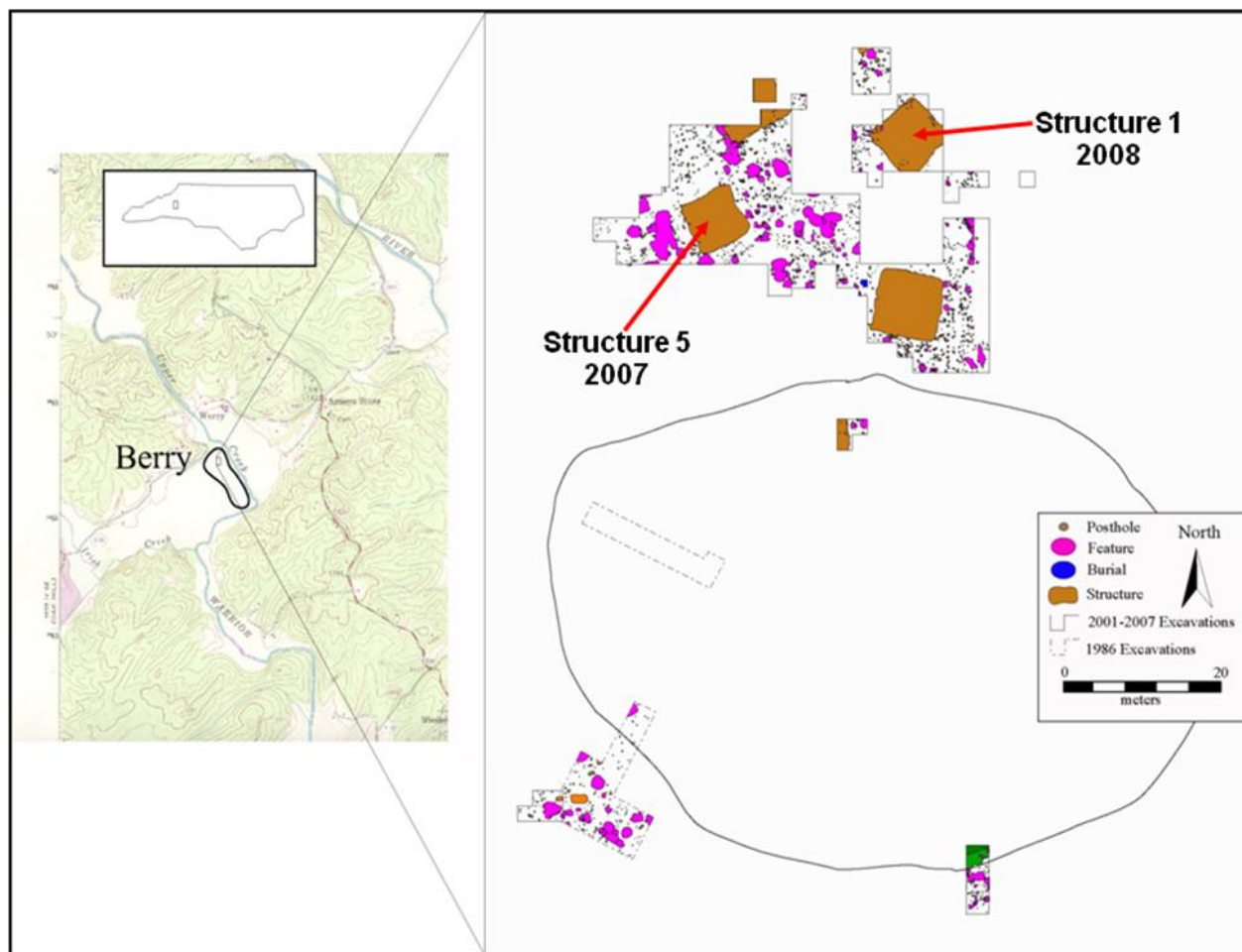


Figure 3, northern portion of Berry site

During the sixteenth century, the Berry site (i.e., Joara) sat at the northeastern edge of the Mississippian cultural world and at the northwestern edge of the Spanish colonial frontier. Berry was the political and ritual center of a Mississippian chiefdom, one of many similar polities in the Midcontinent and Southeast from A.D. 1000-1600 (Anderson 1994; Beck 2003; Blitz 1999; Cobb 2003; Hally 1996; Knight 1990; Muller 1997; Smith 1978). Systematic surveys north and south of Berry have located 26 sites with Mississippian ceramics (Beck 1997a), and analysis suggests that many were contemporaneous with Berry. We suggest that these nearby archaeological sites are the core of Berry's polity (Beck and Moore 2002), and Moore (2002) has defined this period of occupation along the upper Catawba and Yadkin rivers as the Burke phase (A.D. 1400-1600). The broader, long-term aims of our research program are to understand the process of social change during Burke phase times; to learn of the role that Spanish colonial strategies had in this process--and in the process of polity formation; and to learn of the role Joara had in Catawba Indian ethnogenesis during the seventeenth and eighteenth centuries. The excavation of Fort San Juan addresses one of these key long-term aims--evaluating the nature of intercultural interaction at Joara--while also offering a temporal benchmark for the study of post-contact transformations and ethnogenesis across the Carolina Piedmont.

Research at the Berry site, under the auspices of the Upper Catawba Archaeology Project, has included systematic surface collection and gradiometer survey over the entire 5 ha site (Beck

1997a; Hargrove and Beck 2001; Schroedl and Moore 2002). Excavations, which total over 1000 m² to date, have focused on the 0.3 ha area (Figure 2) immediately north and south of the mound, where we have recovered a relatively large assemblage of Spanish ceramics and hardware. What is more, our excavations in this northern part of the site have revealed a compound of five burned buildings. In the following sections, we review the archaeological evidence that we have thus far recovered from this compound, which constitutes the material remains of Fort San Juan. None of Pardo's five other forts has yet been identified by archaeologists.

Sixteenth-Century Spanish Ceramics and Hardware

Not surprisingly, the vast majority of cultural materials recovered in this compound area are of native manufacture, including a predominance of Burke ceramics. As Deagan has recently stated, "easily identifiable European objects [and] artifacts may not be abundant or even present in Native American sites occupied early in the contact period" (2004:603). In the particular case of Fort San Juan, Pardo's expedition had no horses--and there is no mention of porters--such that expedition members likely carried most of their provisions on their own backs. Nonetheless, we have recovered a relatively large assemblage of sixteenth-century Spanish artifacts from the area of the compound, both from feature and plowzone contexts (Figure 4). Spanish ceramics include 14 sherds from four different Olive Jars. Olive Jars are the most ubiquitous ceramics recovered on Spanish colonial sites in the New World, and their use spanned a period from the 1490's to the nineteenth century (Deagan 1987:28-34; Goggin 1960). Pardo was provisioned with 72 liters of wine for the expeditions (Hudson 1990:126), which was almost certainly carried in Olive Jars.

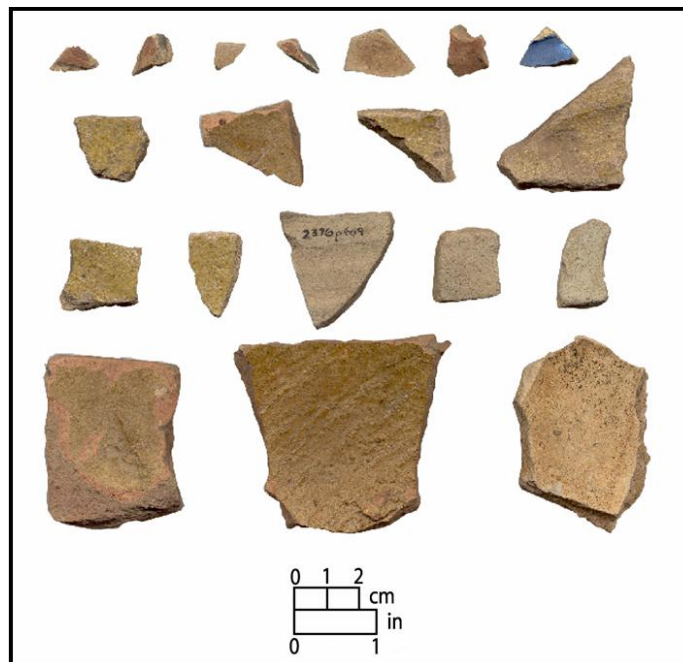


Figure 4, Spanish ceramics from the Berry site

Several sherds from the Berry assemblage are diagnostic, including one sherd of Caparra Blue majolica and six small fragments from a single Mexican Red Painted vessel. Caparra Blue is a common-grade, tin-enamelled earthenware (Lister and Lister 1982:61-62) that has a temporal range of ca. 1492 to 1600 in the Americas (Deagan 1987:63). It is known to occur in but a single

form: the albarello, or drug jar (Lister and Lister 1982:61). Although never common, it has been found in the southeastern United States at Santa Elena and sixteenth-century St. Augustine (e.g., Deagan 1987:63; Goggin 1968:135), as well as at the Governor Martin site, location of Hernando De Soto's 1539 winter encampment near Tallahassee, Florida (Ewen and Hann 1998). Mexican Red Painted, a coarse earthenware manufactured in Mexico and at other production centers in the Americas, has a temporal range of 1550-1750 (Deagan 1987:43-44). The temporal distributions of Mexican Red Painted and Caparra Blue overlap during the period from 1550-1600, suggesting that the Berry site assemblage of Spanish artifacts dates to a narrow, fifty-year interval consistent with Juan Pardo's founding of Fort San Juan in January 1567.

The assemblage of Spanish ceramics recovered from the Berry site is distinct from other collections of Spanish material recorded from sites in the interior Southeast, as most collections consist primarily of glass beads and other non-utilitarian trade goods (Smith 1987). Sites in this region have yielded but three sixteenth-century Spanish sherds: one Green Bacin sherd from the Ruth Smith Mound in Florida (Mitchem 1989:56), one Columbia Plain sherd from the Pine Log Creek site in Alabama (Little and Curren 1989:183), and an unidentified majolica fragment from the McMahan site in eastern Tennessee (Smith 1987:50). Significantly, each of these sherds had been altered by native people into non-utilitarian forms such as ear spools or gaming disks. That none of the Spanish ceramics recovered from the Berry site exhibit such alterations suggests that these were simply disposed of as utilitarian debris. Also, as Worth (1994) notes, the presence of multiple sherds from several different Olive Jars strongly suggests that these vessels were broken at the site, having arrived at Berry intact as part of a Spanish occupation. The only known site in the interior with a similar assemblage is the aforementioned Governor Martin site.

In addition to the Spanish ceramics, this section of the Berry site has yielded examples of other artifact classes that we would expect to find at the location of Fort San Juan, including lead shot, quartered lead shot, and lead sprue--all in the same caliber range as lead shot and quartered shot from Santa Elena (South, et al. 1988:81-87); wrought iron nails that can be characterized as the *Barrote* type based on measurements of length and weight, and which were usually employed in finishing work such as flooring, matting, and similar projects needing little strength (South, et al. 1988:39-40); brass aglets or lacing tips similar to aglets recovered at Santa Elena (South, et al. 1988:135); and numerous brass scrap fragments. We have found several small glass beads in the compound area, but none is temporally diagnostic. In 1986, Moore (2002:237-239) recovered an iron knife from the burial of a fully extended adult male just south of the platform mound. Pardo gave eight knives to Joara Mico as gifts for his subjects (Bandera I 1990:265), and the knife from this burial may have been one of those gifts.

Architectural Remains

Gradiometer and auger testing in 1997 revealed the presence of burned buildings, as well as multiple large pit features, in the 0.3 ha area north of the remnant mound (Beck and Hargrove 2002); subsequent gradiometer surveys over the remaining 4.5 ha of the site yielded no evidence of burned buildings (Schroedl and Moore 2002), suggesting that burned architecture is restricted to that part of the site where most of the Spanish materials have been recovered. Since 2001, we have exposed more than 1000 m² in this area, defining a compound of five burned buildings that form an oval pattern around what was probably a courtyard area. Large pit features--from which we have recovered brass lacing tips, glass beads, Mexican Red Painted ware, small fragments of iron, and scrap brass, as well as faunal remains and native-made Burke ceramics--occupy spaces between structures (Best and Rodning 2003). The buildings are all approximately square, cover ca. 64 m² each, and while unusually large, were built in a style typical of local, Native American

houses (Figure 3); this is not surprising, as the Pardo accounts state that native craftspeople built at least one of the buildings that housed Pardo's men (Hudson 1990:143).

Prior to NSF-funded work in 2007-2008, we had only sampled the undisturbed portions of one of these burned buildings, Structure 1 (Figure 5). Test excavations inside Structure 1 during the 2003 and 2004 seasons exposed ca. 12 m² of its remarkably well-preserved organic remains and yielded abundant data on its construction and use-history, including carbonized wooden posts and timbers from the walls and roof, cane matting from the walls and floor, and architectural furniture such as split-oak benches along the wall. What is more, artifacts remained *in situ* on the floor and the benches, apparently in the same places as when the burning structure collapsed. Preliminary analyses suggested that some of Pardo's soldiers may have spent time inside the building, and may actually have assisted in its construction. First, while the general style of Structure 1 was consistent with native techniques and technologies, some of its timbers were apparently cut with metal tools, one having been prepared with a square-cut notch. Although this building's overall form was therefore consistent with native practices of house construction, metal cut timbers would suggest that Europeans worked together with the native craftspeople to complete this structure (Beck and Ketron 2003; Moore, Beck, and Rodning 2004a, 2004b).

While most of the artifacts from the Structure 1 excavations were of native manufacture, excavations in the southwestern corner of Structure 1, just above the floor surface and next to the wall bench, yielded two small pieces of twisted iron wire that Stan South and Chester DePratter have identified as links of chain mail (2003, personal communication). Individual links routinely separated from sections of armor--archaeologists found many such fragments, for example, at the at the aforementioned Governor Martin site in Florida (Ewen and Hann 1998)--and the fragments recovered in Structure 1 were apparently either lost on the seat of the wall bench or else ended up under the bench on the floor of this structure.

Research Questions

Documentary and archaeological data indicate that Fort San Juan was not an entirely self-sustaining enterprise, and if our modified version of Stein's distance parity model is applicable to this colonial context, then the soldiers' dependence on native Joara, and their inability to exercise hegemonic authority over the colonial encounter, should be manifested in the material remains of households within the compound. However, while the fort seems unlikely to have had an entirely independent status relative to Joara, distance parity may have had a weaker influence than current data lead us to expect. A strong or weak role for distance parity will be indicated in the nature of exchange and interaction between Joara and Fort San Juan: how dependent was the fort on Joara's largesse, and what was Joara's cost for hosting the Spaniards?

A strong role for distance parity--suggesting relative *dependence* of colony to host--would be indicated by the significant incorporation of native practices, foodways, and material culture in household contexts inside the fort, accompanied by a loss of Spanish domestic practices. It is our expectation that Spanish soldiers at Fort San Juan retained what Deagan refers to as "traditionally 'male' categories and socially visible categories of the material world" (2003:7). These categories would include clothing, military, and religious items and practices. It is in domestic, traditionally female contexts that we expect native practices to have supplanted elements of European material culture. These categories would include food, cooking and ceramic technology, and the form and organization of domestic architecture (while Deagan [2003:7] considers architecture to have been a "socially visible" category that retained its European features in most Spanish colonies, some of the lower status, Spanish houses at Santa Elena were built in a manner derived from that of native structures (South 1991:21-24)]. Alternatively, a weak role for distance parity--suggesting relative



Figure 5, preliminary excavations in Structure 1, 2003

independence of colony from host--would be indicated by a significant conservatism with respect to Spanish practices, foodways, and material culture in household contexts.

Along frontiers, households are particularly well-suited to provide archaeological data on colonial encounters (e.g., Deagan 1983, 1995, 2004; Ewen 1991; Hoffman 1997; Lightfoot, et al. 1998; McEwen 1993, 1995). Lightfoot, et al. note that, "From an archaeological perspective, we believe the study of change and persistence in multi-ethnic contexts pertaining to the construction of social identities may be best addressed by considerations of daily practices involving domestic life and the organization of space" (1998:202). This phase of our archaeological research at the Berry site has focused on the excavation and analysis of household contexts in Fort San Juan. We designed the project--its fieldwork and its laboratory analyses--in reference to three domains of household practice: 1) house construction; 2) household organization; and 3) food preparation and consumption (Lightfoot, et al. 1998:209-215). Our research questions inform these three domains, and together address our key problem: How did Spaniards and their native hosts at Fort San Juan construct and maintain social identities through household practice?

Domain 1: House Construction

- 1) How was the labor of house construction organized?
- 2) What kinds of material culture were used to build and maintain houses?
- 3) What kinds of techniques and practices were used to build and maintain houses?
- 4) In what season(s) of year were houses built?

Due to their extraordinary preservation, Structures 1-5 at the Berry site provide a unique opportunity to study the materials and techniques of house construction along a Spanish colonial frontier during the mid-sixteenth century. Detailed analysis of timbers and architectural furniture such as wall benches and mats will permit us to determine the season of year that structures were built, the types of wood used for different structural elements, the kinds of tools used to dress and shape materials (e.g., metal or stone tools), and the materials used to join different elements (e.g., nails). The Pardo documents suggest that Spaniards built the fort itself, while native Joarans built at least one of its associated houses. However, our previous archaeological research suggests that both Spanish and native construction practices were incorporated in Structure 1. Detailed data on house construction will shed light on whether Spaniards and Joarans worked together on the same buildings, or whether their work parties were culturally segregated. Seasonality data will suggest whether Joarans helped to build and repair structures throughout the 18-month period that the fort was occupied, or whether their cooperation coincided with Pardo's visits--both of which occurred during the late fall/winter months of October-November and January.

Domain 2: Household Organization

- 5) What kinds of activities took place within and around houses?
- 6) How were household activity areas spatially organized?
- 7) What kinds of material culture were incorporated into household contexts?
- 8) How did gender mediate the organization of household activity areas?

Spanish soldiers lived at Fort San Juan for 18 months, until its destruction, and it is likely that each of the burned Structures 1-5 housed several soldiers throughout this period. Excavation and analysis of undisturbed house floors and outdoor features will offer unparalleled data on how early colonial Spaniards incorporated native lifeways into their daily practices, while maintaining their European cultural identities. These house floors and features should also provide data about gender relations at Fort San Juan, especially regarding the extent to which native women engaged in household activities within the garrison. Across the Spanish Americas, native women were, as

Deagan observes, “a potent force” in the integration of Spanish and native communities (2003:8); indeed, Spaniards made some of their most significant adjustments to American life in household contexts, guided by the social practices of native women (Deagan 1983, 1995, 2003; Ewen 1991; McEwen 1991; Reitz and McEwen 1995). The Pardo documents hint at relations between native women and Spanish soldiers stationed at some of the interior forts, and several of Pardo's soldiers later married Indian women who were brought back to Santa Elena during the second expedition. One of these, Teresa Martín, gave official testimony in 1600 that when Pardo did not return to the interior within “three of four moons” of the first expedition, some of his soldiers began to commit indiscretions with local women, angering their men (Hudson 1990:176). Martín was identified as a native of “Juacan” (presumably Joara), and was married to one of the thirty soldiers stationed at Fort San Juan after Pardo's first expedition, Juan Martín de Badajoz; Hudson (1990:176) suggests that they may have married at Joara, and so perhaps lived together in Fort San Juan.

Domain 3: Food Preparation and Consumption

- 9) Where did food preparation activities take place?
- 10) What kinds of food were prepared and consumed in household contexts?
- 11) What kinds of material culture were used in food preparation and consumption?
- 12) How were the wastes associated with food preparation and consumption discarded?

Food is one of the primary avenues through which people maintain their social identities. Our specialist studies, together with detailed contextual data, will allow us to examine how Pardo's soldiers provisioned themselves while occupying the fort, and the degree to which they received provisioning from the town of Joara. We seek to understand what kinds of food were consumed in the fort, and to learn what kinds of tools were used in food preparation and serving. Foods may have been prepared in these houses by Joaran women or by Spaniards themselves, or in the village by Joarans and taken to the fort for soldiers' consumption. For example, when Pardo arrived at Joara during his second expedition, he saw that Joara Mico had built a new house for the fort, “with a large elevated room full of maize...for the service of His Majesty” (Bandera I 1990:265).

PART II: RESEARCH DESIGN AND FIELD METHODS

Robin Beck, Chris Rodning, David Moore, and Merrit Sanders

Excavation Strategy

Excavations of household contexts in Fort San Juan recovered archaeological evidence about the construction of these buildings, the range of activities that took place within them, and the nature of activities that took place in outdoor zones between buildings. Our recent fieldwork had exposed Structure 5 in its entirety (Figure 6)--to the level of intact architectural deposits--and our first season (2007) focused on the complete excavation of this building. We have followed procedures similar to those used during preliminary excavations of Structure 1 (e.g., Beck and Ketron 2003; Moore, Beck, and Rodning 2004a, 2004b). The aims of these excavations were to acquire an understanding of this structure's internal stratigraphy and its degree of preservation, and to thereby develop a strategy for excavating this and the other buildings of the fort. Having completely exposed the top of Structure 5's intact deposits, we had already screened the plowzone over this building (all plowzone soil was screened, as we have found that it contains Spanish artifacts), and we simply stripped away this backfilled plowzone to more efficiently pursue this structure's complete excavation. In season two (2008), we excavated sixty percent of Structure 1. Together, the complete excavation of Structure 5 and the partial excavation of Structure 1 offers highly detailed and anthropologically significant understanding of daily household practice in the context of this early colonial encounter.

Excavations have also uncovered extensive activity areas between and around the structures themselves, revealing the presence of postholes and pits, the contents of which offer insight into the use of space outside the buildings (Moore and Rodning 2001; Moore, Beck, and Rodning 2004a, 2004b; Rodning, Beck, and Moore 2002). Excavations in the areas between and around Structures 1-5 continued through both field seasons and were conducted as a part of the Warren Wilson College field school. Additional data from the outdoor activity zones and the presumed plaza at the center of the compound permit us to reconstruct the broader layout of architectural space at Fort San Juan--complementing data from the structures themselves--and have enabled us to better understand the spatial context of exchange and interaction between native people from Joara and members of the Pardo expedition. Continuing excavations by the Warren Wilson College field school have also focused on native areas of Joara, south of the mound and Fort San Juan; data from such contemporaneous village contexts provide comparanda for both the artifacts and the patterning of artifacts within the zone of Spanish occupation.

Excavation Procedures

Our excavation techniques are a modified and modernized form of archaeological practice that has proven successful in research by the NSF-sponsored Cherokee and Siouan Projects, based respectively in western North Carolina and the central North Carolina and Virginia Piedmonts (Dickens, Ward, and Davis 1991; Dickens 1976, 1978; Keel 1976; Ward and Davis 1993, 1999). One critical component of our approach to excavations at Berry is broad horizontal exposure of large areas to reveal site layout--excavations to date have exposed 1000 m² at the Berry site--by stripping plowzone with shovels and dry-screening the soil through 1/4 in hardware mesh. Another key aspect of our general excavation strategy is hand-tool excavation of intact architectural debris and floor deposits, as well as hand-tool excavation of pit features inside and outside of structures, and water-screening of all soil deposits from such contexts. Four teams of archaeologists, working simultaneously, conducted excavations inside structures. We have collected at least one standard-sized, 10 l bulk flotation soil sample for every excavation locus

inside the structures and pit features, along with a 5 g "soft" soil microanalysis sample, for processing and analysis by specialists. Intact wood and plant fiber specimens have also been collected for analysis.

We excavated within natural stratigraphic zones in all structures and pit features, using 1x1 m units inside the structures to control for provenience and mapping. In those sections of the site between structures, we created broad horizontal exposures in contiguous 3x3 m units, dry-screening plowzone in these squares and mapping the locations of all pits and postholes. We have made detailed plans, profiles, and photos of all structures and features, and standardized field forms were completed for all contexts. Data relating to soil characteristics, elevation from datum at top and bottom of context, plan maps, artifact density and types, and related variables have been recorded on these forms. One of our key recording techniques has been to create photomosaics of the architectural remains as structure excavation proceeds; these photomosaics were compiled by 1x1 m units in each stratigraphic zone. Given the extraordinary preservation of organic remains in the burned buildings, we conducted on-site microexcavation of particular architectural contexts. At the close of fieldwork, we backfilled and stabilized all exposed areas. Artifacts were bagged by context in the field, then washed, sorted, and catalogued by type in the laboratory, then permanently curated in the Warren Wilson College Archaeology Laboratory, where they are available for all subsequent research and analysis. All organic samples have been curated in a similar manner prior to processing.

Excavation Description

From 2007-2008, we conducted two seasons of fieldwork in Structures 1 and 5 to address the issues outlined in the first section of this report. Previous excavations of burned structures in the Southeast have often focused on removing architectural debris down to the level of living floors and associated material culture. We, too, have been interested in artifact assemblages from structure floors, and in the activities that took place inside and beside these structures, but we are also interested in the design, construction, and destruction of these buildings.

Plow zone deposits were removed with shovels and dry-sifted through quarter-inch mesh hardware cloth. Beneath plow zone were the undisturbed remnants of Structures 1 and 5. Plow scars made it difficult in some cases to differentiate plow-disturbed dirt from intact structural debris (Figure 6), but exposing large areas enhanced our ability to follow plow scars while troweling off the top of undisturbed remnants of these buildings. Before excavations of intact structural material, we divided Structures 1 and 5 into one-by-one-meter units. We covered structure excavation areas with canopy tents, and when necessary, with sheets draped from the sides of these pole-frame tents (Figure 7). This covering protected material from exposure to sunlight, and also created favorable lighting conditions, both for differentiating color and texture during excavations, and for consistency in our photographs. We began excavations at the edges of the structures, moving inward from there. Typically, groups of two people worked together to excavate each one-by-one-meter square, removing each zone from each unit with trowels and other small hand tools, recording notes, taking total station readings, drawing stratigraphic profiles, and preparing each unit for photos at the top and bottom of each zone (Figures 8, 10). Exposing contiguous units has enhanced our ability to detect and to interpret spatial patterns and stratigraphic profiles.

Before beginning excavation of intact structural debris, we took photographs at the top of each unit, from an angle as close to directly overhead as we could achieve. We then removed each zone identified in each square in turn. Many wooden timbers spanned multiple units, which required decisions about which timbers to leave intact until excavations of adjacent squares were

completed. All deposits were removed with trowels and other small hand tools. From each zone in each unit we removed a 10-liter flotation sample, a 5-liter soil sample for microartifact analysis, and an additional 1-liter soil sample. All other material from each zone in each unit was waterscreened. We recorded the volume of material removed for waterscreening from each unit, then conducted the screening on site; most flotation samples were also processed on site.



Figure 6, exposing Structure 5

On a judgmental basis, Elizabeth Horton of Washington University, St. Louis removed some units by microexcavation techniques, with the goal of collecting information about cane, grass, and textiles. The material in these squares was floated, rather than water-screened. This microexcavation enabled her to identify weaving patterns seen in concentrations of split cane, for example, as in elements thought to represent part of a bench (Figure 9).

Many artifacts and architectural elements have been piece-plotted, but our one-by-one-meter grid gives us spatial control even for artifacts that were found during waterscreening or flotation (Figure 10). On a judgmental basis, large sherds, stone tools, and other artifacts have been mapped and photographed in place. All organic material present on the floors of structures 1 and 5 has been mapped with a total station, as have all postholes and all concentrations of daub. Often, we have used a four-inch tall stadia rod for the laser prism, which makes it relatively easy to ensure precision with our readings, and which minimizes impact of placing the stadia rod itself on burned timbers while mapping them. Organic samples deemed worthy of further analysis have been mapped in place, then removed and wrapped in foam padding for transport.



Figure 7, tent over Structure 1

In addition to total station mapping, we have also taken flash photos at the top and bottom of each zone within each unit, which enables us to create photomosaic images of entire structures at different levels of our excavations. These photos are taken by standing on the same rung of a stepladder, which is always placed in the same position relative to each excavation square, and by taking photos with our camera placed above the middle of each unit, and pointed straight down. Individual unit photos are then stitched together in Adobe Photoshop.

Our structure excavation unit photos have been critical for creating photomosaic images, and we have also begun using them as the basis for hand-drawn field maps. In 2008, we began printing unit photos and then tracing the edges of timbers, other organic material, artifacts, postholes, and any other features of interest while actually looking at the relevant material in the ground. The scanned versions of these hand-drawn field maps--stitched together and traced in



Figure 8, working in Structure 1



Figure 9, possible cane bench section in Structure 5



Figure 10, units in Structure 1

Adobe Illustrator--form the basis of line art drawings of each structure. The advantage of this approach to mapping is that our hand-traced maps are both accurate and precise.

While we think our photographic protocol has been good, we have faced several challenges, primarily related to lighting and depth of field. While canopy tents create even and consistent lighting, it can be complicated to take photos of squares close to the edges of the tents; sometimes the tent poles are in the way of our camera setup, and, sometimes, light comes in from the open sides of the tent. More important are considerations regarding depth of field, and our ability to record three-dimensional relationships in two-dimensional images. In Structure 5, where deposits are only 10 centimeters thick at most, photographic depth of field has not been problematic. In Structure 1, where there has been up to 40 centimeters of fill and architectural material lying on the floor, and where there are examples of timbers overlying other timbers, it is more difficult to capture in photos the three-dimensional relationships among different deposits and architectural elements. Solutions to this problem may include changing aperture settings and using ground-level, remote-controlled flashes, synchronized with the camera shutter release, to enhance lighting. Meanwhile, our hand-traced maps also do record vertical and horizontal relationships between wood and other materials.

Another challenge is that our field photos are guided by the nails at the corners of excavation units. As zones are removed, the nails inevitably move slightly—this effect is compounded by the very soft and sandy deposits at the Berry site. The nails themselves mark the corners of excavation units and are important reference points for stitching together excavation

unit photos to create photomosaic images. The movement of these corner nails, therefore, necessitates careful editing when images from adjacent units are stitched together, or when images from successive levels within each unit are compared.

On a judgmental basis, large timbers and other organic materials have been assigned their own specimen numbers, for which we use the designation OG. These selected organic samples have then been removed from the ground as carefully as possible and wrapped in archival quality bubble wrap. After wrapping, they have been packed carefully in cardboard boxes for transport to the laboratory. We have been successful in removing many timbers and other organic samples intact, but in some cases, we have had to remove them in sections.

Many of the challenges we have encountered during excavations of burned structures at Berry are related to their remarkable preservation, but our excavations have provided us a unique opportunity to document timbers, concentrations of cane and thatch, and other architectural debris in photos and maps. It is time-consuming to cover burned timbers from the end of one day to the beginning of the following day, and it can be difficult to maintain a reasonable pace while also documenting our finds adequately. On the other hand, the well-preserved concentrations of cane, daub, thatch, and wattle elements, as well as roof beams, wall posts, and roof support posts, will tell us a great deal about the construction, use, and abandonment of these buildings. At this point, we have excavated all of Structure 5 and more than half of Structure 1, we know the dimensions of Structure 3, and we know the locations of Structures 2 and 4. Continuing analyses of our finds, as well as further excavation of these structures, will shed significant light on the encounters and interactions among Spanish colonists at Fort San Juan and the Native American town of Joara, at the beginning--and the end--of Spanish colonialism in western North Carolina.

PART III: EXCAVATIONS IN STRUCTURES 1 AND 5, 2007-2008

Robin Beck, Christopher Rodning, and David Moore

Excavations in Berry Site Structure 5, 2007

With our limited excavations of Structure 1 as our guide, our plan for 2007 was to excavate Structure 5 in its entirety. Structure 5 was a good candidate for excavation in 2007 for several reasons. First, we already had done some excavation in Structure 1, Structure 4 may be partially overlain by mound deposits, and part of Structure 2 is underneath a farm road (Figure 11). Second, we knew that at roughly 50 square meters, Structure 5 (Figure 12) was relatively smaller than Structure 1, which is close to 80 square meters. Third, we thought (and can now confirm) that the deposits of undisturbed architectural debris in Structure 5 are shallower than those of Structure 1. Structure 5, therefore, was a good candidate with which to begin, and we completed excavations of this structure during the 2008 field season.

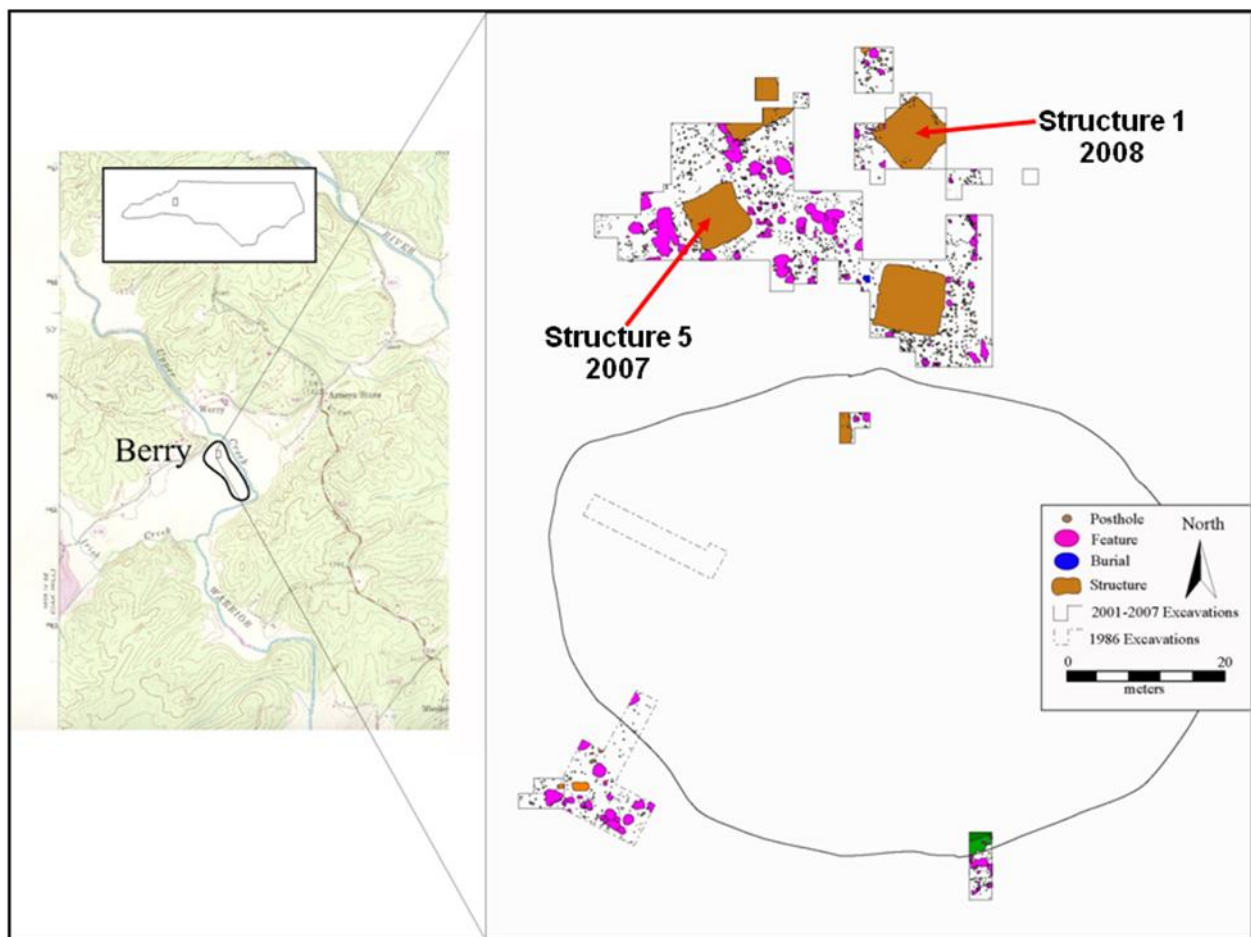


Figure 11, Structures 1 and 5

We began by exposing Structure 5 in its entirety, and then establishing a structure excavation grid measuring eight by eight meters, aligned with the edges of Structure 5 itself. We began excavations into intact deposits along the south side of the structure and proceeded to excavate each zone of deposition down to the floor in each 1x1-meter unit, moving south to north

in rows of 1x1-meter units along the structure. We have excavated all deposits with hand tools, tabulating volume within discrete zones as we go. All deposits have been waterscreened, except for soil samples, flotation samples, and soil saved for microartifact analyses.



Figure 12, Structure 5 exposed

To expedite fieldwork and recording, we have taken extensive field notes, more than 3000 total station readings, and photo mosaics that we prepared by taking overhead digital photos of each square at the top and bottom of each stratigraphic zone. With these datasets, we can analyze spatial patterns and identify activity areas within this (and other) structures.

Stitching together individual overhead photos of the 1x1-meter excavation squares gives us a complete photo mosaic at the top of excavations (top Zone 2) in Structure 5 (Figure 13). The next illustration, Figure 14 shows the wood and other organics in Structure 5 *in situ* at the base of Zone 2. Figure 15 is a plan map of these organics drawn in Adobe Illustrator from field maps and photos. Removal of this zone in the field was complicated by the presence, in many cases, of timbers that extended into adjacent units and the presence of concentrations of wood and cane on the floor of the structure itself. In some cases, in excavation squares where it seemed warranted, concentrations of cane and wood were painstakingly exposed, mapped, and photographed (Figure 9). Given the preservation, and the interweaving of elements seen in the ground, it is possible the weaving patterns of baskets and mats, including the active and passive elements of the interior wall benches can be reconstructed. All of the wood elements from this structure are now being analyzed by Lee Newsom at Penn State University, while Elizabeth Horton of Washington University, St. Louis is analyzing the cane.



Figure 13, Structure 5, top of excavations (top Zone 2)

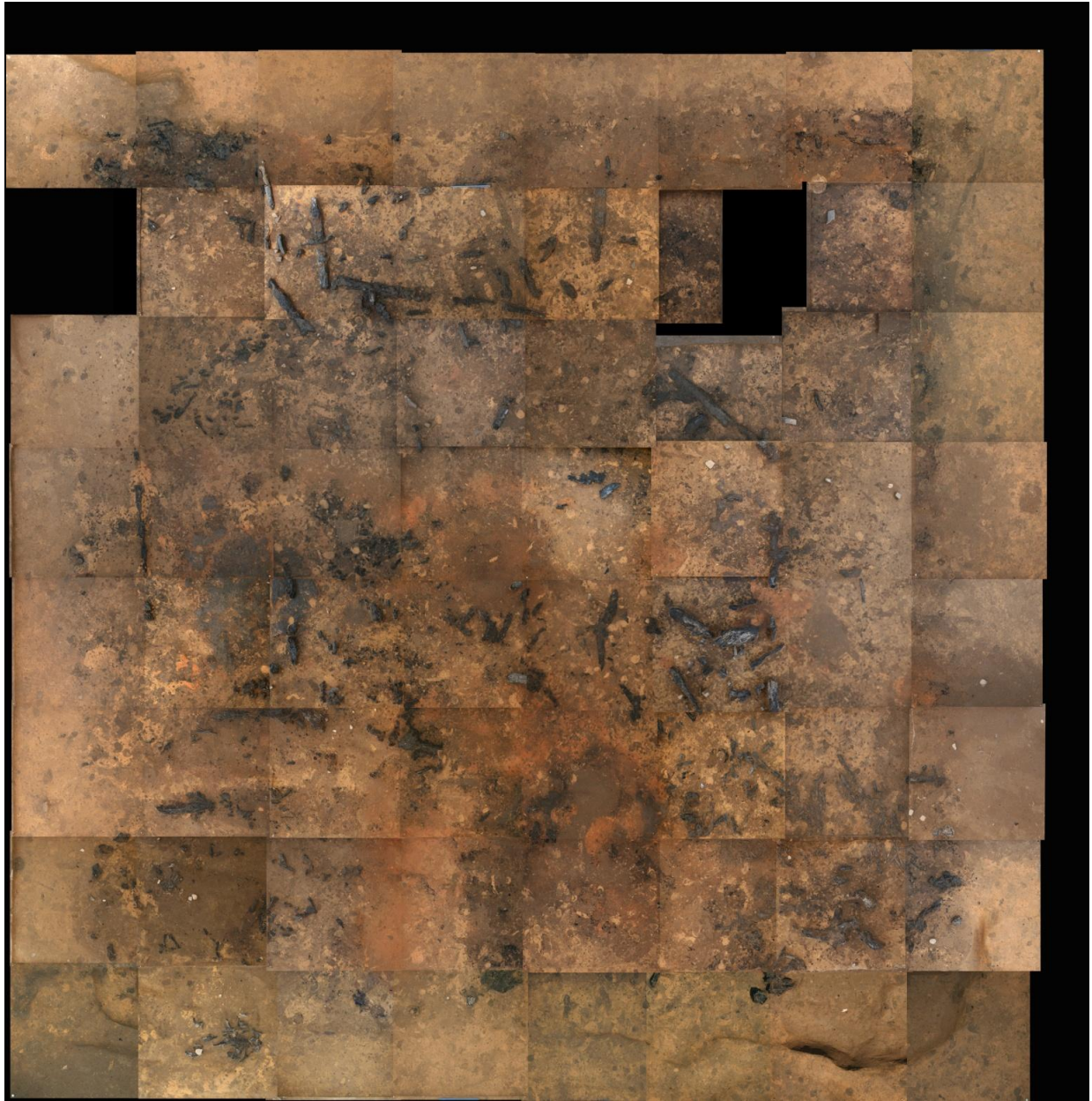


Figure 14, Structure 5 wood and organics exposed (base Zone 2)



Figure 15, Structure 5 wood and organics removed (base Zone 3)

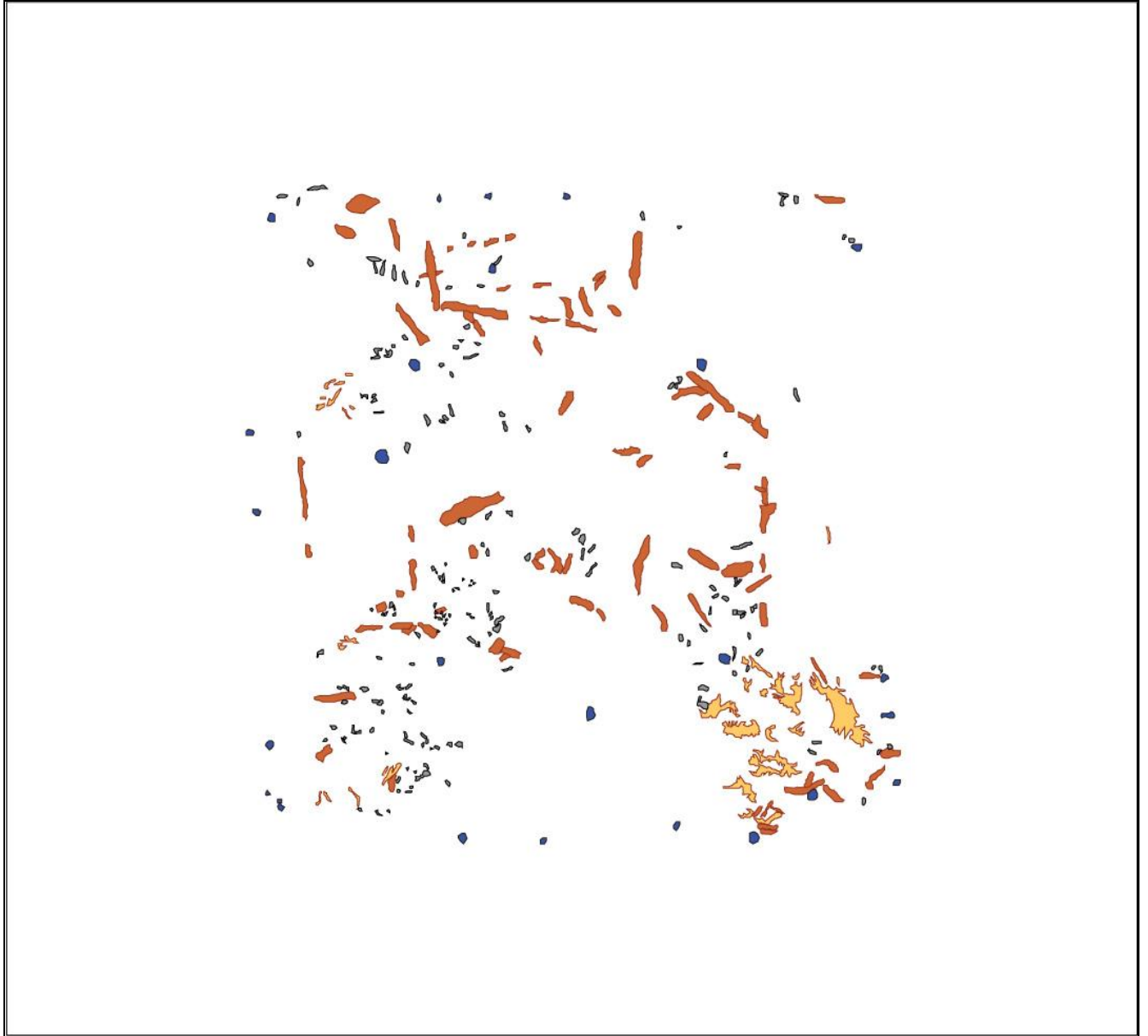


Figure 16, Structure 5 organics mapped in Adobe Illustrator

Color Key:

blue: upright posts

brown: timbers

black: small diameter wood

orange: river cane

We recovered a number of Spanish artifacts from this structure, including five glass beads and an unidentified piece of heavy gauge wrought iron. The largest and most significant artifacts found in the structural debris above the floor of Structure 5 are the pieces of an iron scale near the northern edge of the building (Figure 17). Our preliminary interpretation is that this iron item is the part of the steelyard scale in which a balance beam was inserted, and from which a pan was suspended off a hook. Found just inches away from this part of the scale is a roughly circular and partially crushed stain of badly corroded iron that may be part of the pan. We know from the records of the Pardo expedition--and other sixteenth-century Spanish expeditions--that Spanish colonists were, by necessity and because of the scarcity of provisions, careful about measuring amounts of food, the numbers of pounds of nails, and the weight and volume of other supplies.



Figure 17, section of steelyard scale from Structure 5

It would make sense that the major Spanish fort at the northern border of La Florida would have a scale, and perhaps this scale was used in provisioning soldiers and outfitting expeditions that departed from Fort San Juan. Meanwhile, we also know from documentary records that members of the Pardo expedition were interested in finding gems and precious metals--and that they sought out those sources and brought stones back to Fort San Juan--and this kind of scale may also have been helpful in prospecting activities. Both of these objects were removed on pedestal blocks to the Queen Anne's Revenge Shipwreck Conservation Laboratory at East Carolina University, where they are currently be examined by metal conservator Sarah Watkins-Kinney.

It is worth noting here that, only inches away from this possible scale inside Structure 5, we found a piece of quartz crystal. Quartz crystals were known to sixteenth-century Spanish colonists in the Southeast as “los diamantes,” or “little diamonds,” and there are known sources of quartz crystals and other gems in the Catawba Valley. One of Pardo’s soldiers actually testified that soldiers collected these little diamonds and gambled for them at the fort.

The photomosaic in Figure 14 shows the bottom of Zone 3 in Structure 5, after we had removed most of the timbers and wood fragments; this image, then, captures the floor of the building. At the center of this photomosaic is a hearth that measures roughly one meter in diameter (Figure 15, center). During excavations of the hearth itself, it became apparent that this was not a formally prepared hearth--like those usually found in structures at South Appalachian Mississippian sites--but instead is a simple pit in the ground. Visible in this slide are pieces of burned firewood and oxidized deposits resulting from fires built in this simple hearth.



Figure 18, central hearth in Structure 5

One piece of wood from the central hearth is uncarbonized with flat surfaces that appear to have been planed or otherwise modified with metal tools. Of course, tooled wood is not a form of material culture associated with native peoples of the region, and its presence in the hearth of Structure 5 is evidence of the building’s use by Spanish soldiers.

In the southwest corner of Structure 5 were two pit features, one of which we excavated during the 2007 season. Feature 92 (Figure 19) was only visible underneath the level of the floor, and it was intruded by postholes associated with the structure. For these reasons, we know that Feature 92 predates the building, just as the other large pit features seen in this photo predate Structure 5. One of the artifacts found in Feature 92 is a chain mail link (Figure 20). The presence of chain mail in this pit is evidence that it was filled after the arrival of Spanish soldiers at the Berry site, and that Structure 5 may have been built after the initial Spanish occupation of the site. The chain mail link from Feature 92 is similar in size, shape, and gauge of wire to two other chain mail fragments recovered from plow zone contexts in 2007.



Figure 19, Structure 5 after excavations, Feature 92 in southwest corner



Figure 20, chain mail from Feature 92, under Structure 5

Additional evidence for the presence of Spanish soldiers in Structure 5, and, in fact, evidence for their participation in the building's construction, is seen in this photograph of a posthole along the south wall (Figure 14). The large posthole--some 30 centimeters in diameter--contains yellow sandy clay. In aboriginal structures in the southern Appalachians, posts were rammed into the ground in postholes that were typically the same size as the posts themselves. As seen in this photograph, the posthole is actually much larger than the post itself, indicating that the posthole may have been dug by a Spanish soldier rather than by a native person. Meanwhile, given the size of the posthole, it may have been dug with a shovel. Most of the posts on the south and west walls of Structure 5 look like this one. Evidence for Spanish soldiers' use of Structure 5 is the presence, in this same posthole, of a piece of wrought iron next to the post itself. As seen in this slide, this piece of wrought iron was wedged in the posthole as a shim, much like potsherds were sometimes used as shims in aboriginal structures in the southern Appalachians. While it is plausible that a Spanish soldier would have used a piece of scrap iron in this way, it is very unlikely that native people would have done so given the symbolic value of metal to native people in the sixteenth-century Southeast. Like the presence of cut and notched timbers in Structure 1, the placement of this piece of wrought iron in a posthole in Structure 5 is evidence of a blend of aboriginal and Spanish architectural materials and techniques in the construction of buildings at Fort San Juan.



Figure 21, post with iron fragment in posthole fill

To summarize the Structure 5 excavations, the fact that this building intrudes upon several large pit features--at least two of which contained Spanish artifacts--suggests that there may have

been multiple construction episodes associated with Fort San Juan. That is, we believe that these features may have been a part of the initial construction of the Spanish settlement. Several Spanish colonial sites, including Santa Elena and San Luis, display a pattern of large daub processing pits located very near structures. This pattern is unknown for native sites in the southern Appalachians. The features in the vicinity of Structures 2 and 5 may be associated with daub processing for Structures 1, 3 and 4, where there seems to be less evidence of such intrusive construction. Later, these large pits were filled in, and Structures 2 and 5 were built atop them.

Structure 5 appears to have been built rapidly. Its wall and internal support posts are all quite shallow--witness the use of an iron shim to support one of them; the structure basin is very shallow compared with that of Structure 1; and the hearth is a simple, unprepared pit. Moreover, analysis of the cane wall bench bundles suggests that these, too, were quickly made. Elizabeth Horton informs us that cane leaves were typically shaved from the stalks, since simply pulling off the leaves left very sharp barbs. The bundles from Structure 5 exhibit such barbs, indicating that the leaves were quickly pulled from the cane rather than being carefully prepared. Documentary records suggest that Fort San Juan was founded in January 1567, and Pardo made his second visit to the fort in November of that year. If structures were built at these times, winter conditions may have affected the resources available to the people who built them.

Structure 5 appears to have been cleaned out before it was burned down, and we found some but not many artifacts on the floor. The presence of large iron items in a corner of the Structure 5 suggests they were left by accident, and perhaps were missed, while hanging in a dark corner of the building. Everything we have seen in the ground is consistent with the idea that Structure 5--and the four others in the area north of the mound at the Berry site--were burned down during the destruction of Fort San Juan in the spring of 1568.

There is very little stratigraphy in Structure 5, only burned architectural debris from a single building stage lying atop the floor, with subsoil underneath as the floor itself. There is only one hearth stage in this building, and there is no evidence for post replacements or other major renovations. Structure 5 may have been built later than some of the others in the Spanish compound at the Berry site, but while these structures may have been built in a sequence rather than all at once, they all seem to have been burned down and abandoned at the same time.

Excavations in Berry Site Structure 1, 2008

We began 2008 excavations in Structure 1 by stripping all of the plowzone from the building (Figure 22), revealing its form and the two entrance trenches on its northwest corner. Both the overall form of the building and the trenches are particularly evident in Figure 23, taken from a 55-foot cherry-picker that the City of Morganton sent to the site for a day. Evident too are the excavations from 2003 and 2004 that exposed burned timbers in the western and northern portions of the building. Otherwise, Structure 1 was remarkably well-preserved. We removed all plow zone deposits with shovels and dry-sifted these soils through quarter-inch mesh hardware cloth. Beneath plow zone are undisturbed remnants of the burned buildings. Plow scars often make it difficult in some cases to differentiate plow-disturbed dirt from intact structural debris, but exposing large areas has enhanced our ability to follow plow scars while troweling off the top of undisturbed remnants of these buildings.

Before excavations of intact structural material, we divided Structure 1 into one-by-one-meter units. Our Structure 5 excavation grid was oriented along the sides of the structure itself, with "structure grid north" slightly west of "site grid north." Preliminary excavations in Structure 1 followed the site grid itself, and, therefore, in 2008, we maintained this orientation. Before beginning excavation of intact structural debris, we took digital photographs at the top of

each unit from an angle as close to directly vertical as we could achieve. We then removed each zone identified within each square in turn. Many of the timbers span across multiple units, which necessitates decisions about which timbers to leave intact until excavations of adjacent squares have been completed. All deposits were removed with trowels and other small hand tools. From each zone in each unit we took a 10-liter flotation sample, a 5-liter soil sample for microartifact analysis by Sarah Sherwood, and an additional 1-liter soil sample--all other material from each zone in each unit was waterscreened. The volume of soil removed for waterscreening was recorded, and the waterscreening was conducted on site, as was most flotation. Analyses of the organic materials recovered through these methods (by Gayle Fritz, our paleoethnobotanical specialist, and Heather Lapham, our faunal analyst) are ongoing.



Figure 22, exposing Structure 1

Many artifacts and architectural elements were piece-plotted, but our one-by-one-meter grid gives us valuable spatial control even for artifacts that were found during waterscreening or flotation. On a judgmental basis, large sherds and other artifacts were mapped and photographed in place. All organic material present on the structure floors were mapped with a total station, as were all postholes and all concentrations of daub. Often, we used a four-inch tall stadia rod for the laser prism, which makes it relatively easy to ensure precision with our readings and which minimizes impact of placing a large stadia rod on burned timbers while mapping them. Organic samples deemed appropriate for further analysis, particularly wood architectural elements, were

mapped and photographed in place, then removed and wrapped in foam padding for transport to the laboratory. These elements are currently being analyzed by Lee Newsom, who will make species identifications and look for any evidence of modifications to timbers during construction and use of the building.



Figure 23, Structure 1 exposed

In addition to total station mapping, we have also taken photos at the top and bottom of each zone within each unit, enabling us to create photomosaic images of entire structures at different levels of our excavations (Figures 14, 24). These photos are taken by standing on the same rung of a stepladder, which is always placed in the same position relative to each excavation square, and by taking photos with our camera placed above the middle of each unit, and pointed straight down. Individual unit photos are then stitched together in Adobe Illustrator.

Our structure excavation unit photos have been critical for creating photomosaic images, and we have also begun using them as the basis for hand-drawn field maps. In 2008, we began printing relevant photos at our field house every evening; bringing them to the site the following day; and then tracing the edges of timbers, other organic material, artifacts, postholes, and any other features of interest while actually looking at the relevant material in the ground. The scanned versions of these hand-drawn field maps--stitched together and traced in Adobe Illustrator--form the basis of line art drawings of the structure (Figure 25).

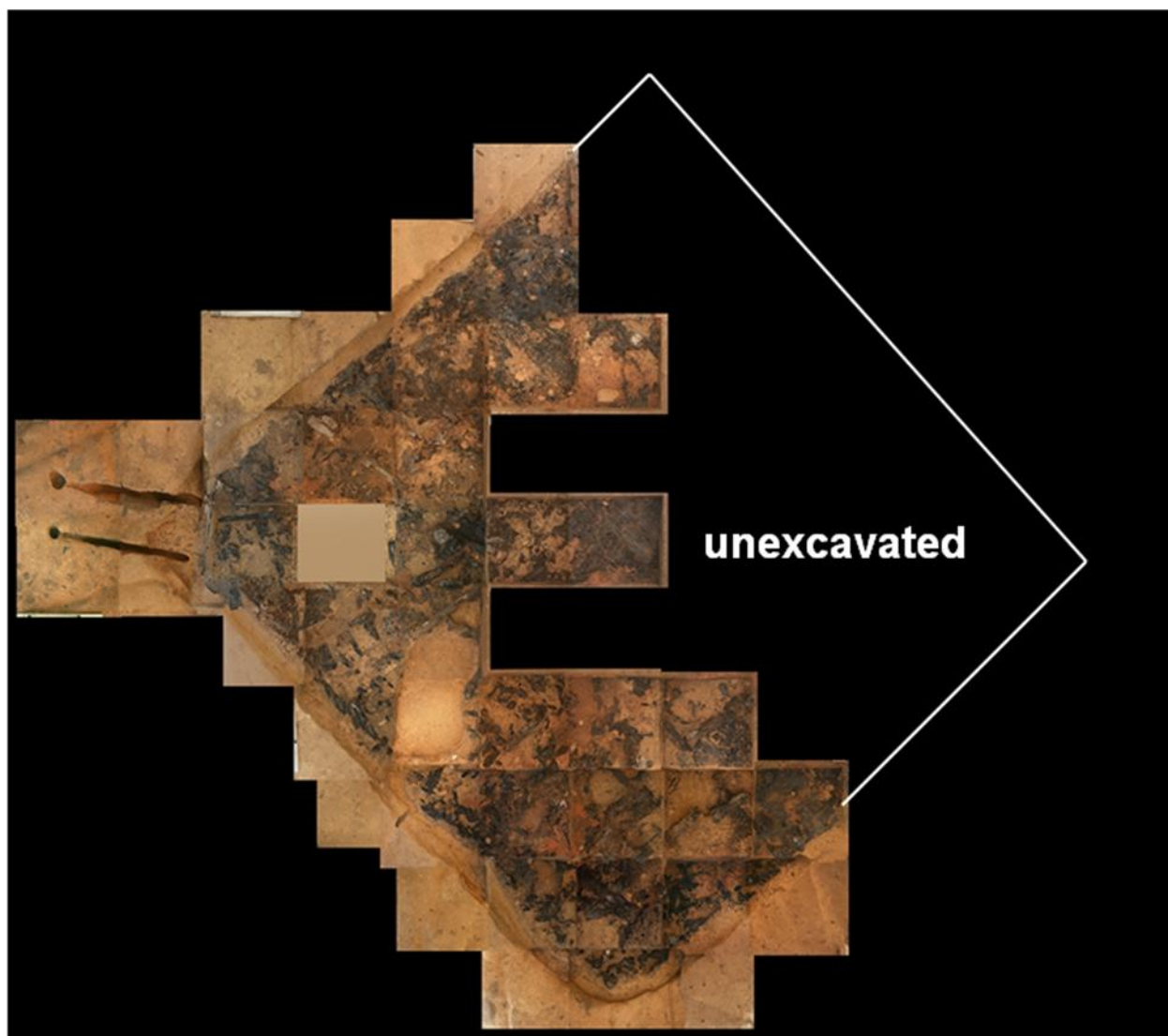


Figure 24, Structure 1 with wood and organics exposed (top Zone 2)

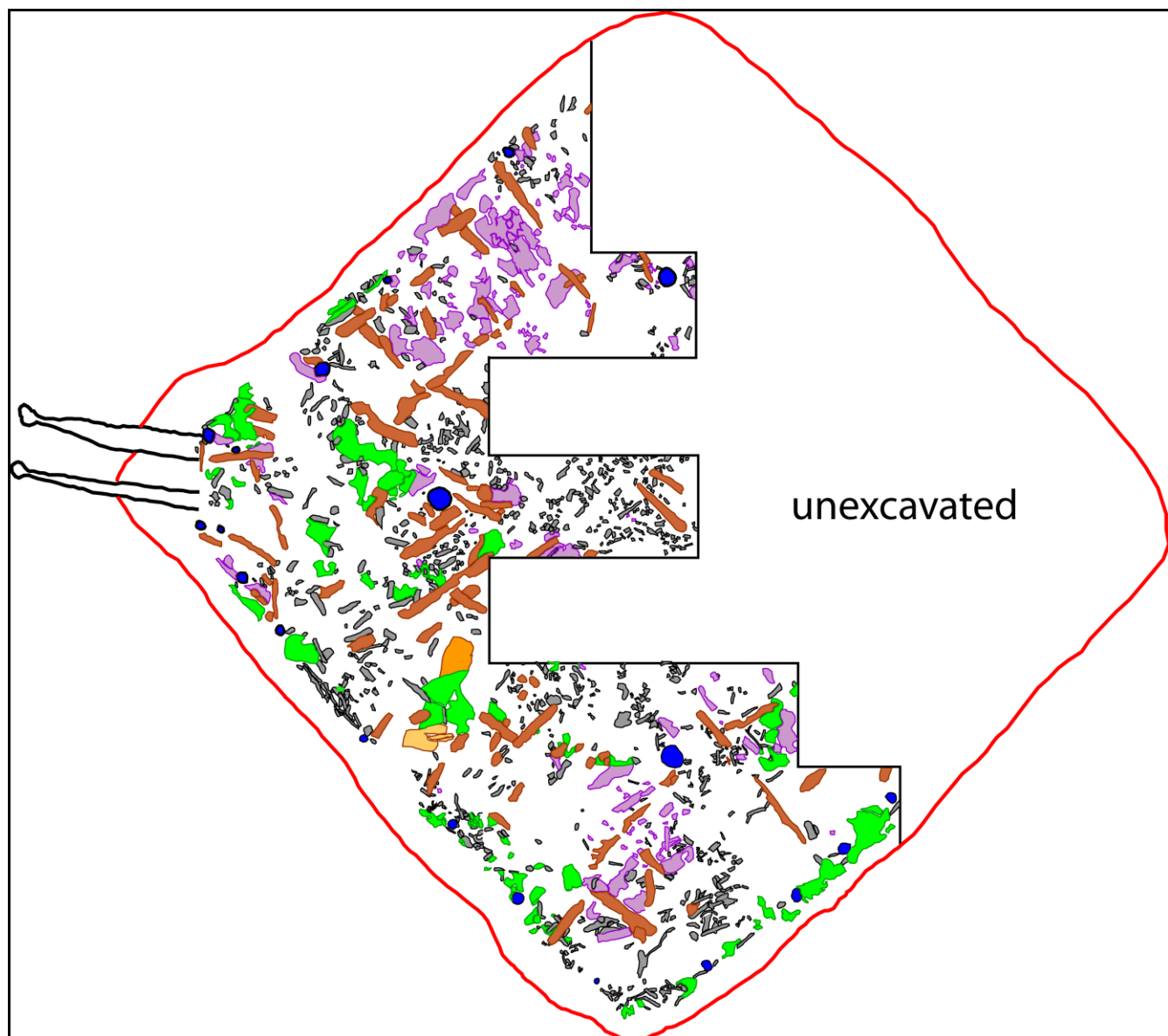


Figure 25, Structure 1 organics mapped in Adobe Illustrator

Color Key:

red line: outline of basin trench
 gray: small wood
 blue: upright posts
 brown: timbers
 purple: bark
 green: thatch
 orange: wooden plank

As we found with Structure 5 last year, Structure 1 appears to have been cleaned out before it was burned, and indeed there were very few artifacts within this building. We did, however, recover additional large sections of Burke phase pottery--and it is possible that the large sections from this and previous seasons were used as ceramic 'chimneys' in the roof of the structure. This is especially compelling given that none of the large sections were found on the floor, but rather in structural collapse and debris above the floor of the building.

While Structure 1 had few artifacts in association with its floors, the amount of organic remains preserved within the building was both remarkable and daunting. In all, we excavated about sixty percent of the building. The most obvious architectural features are the entrance trenches on the structure's northwest corner--with excavated postholes at the ends of trenches--and the edge of the semi-subterranean basin. While the mosaic slide (Figure 24) clearly shows these features and the density and distribution of organic remains, it is difficult to get an appreciation of the diversity of remains from this image alone. We can better view these data with line drawings produced directly from the mosaic photos and field observations.

Figure 27 illustrates the distribution of upright posts--including wall and center posts--and large wood timbers. The spacing of wall posts is quite clear, especially in the southern part of the building, as is the spacing of the much larger center posts. Note too the paired upright posts in the doorway area, just inside the deep wall trenches. All of the timbers are either parallel or perpendicular to the structure walls, such that these likely constitute the framework of the structure's roof. The lighter-colored section here is the wooden plank recovered in 2003 and illustrated in this report in Figure x. Many of these timbers and timber fragments were removed intact are undergoing analysis by Lee Newsom at Penn State University.

Figure 28 adds strips of bark and sections of grass thatch. Bark was much more prevalent in the north part of the building, with thatch more prevalent in the west. The bark strips may have been used as wall dividers inside the building or perhaps as covering for the roof and walls, while the thatch was probably used as roofing material and wall covering. Our ongoing GIS analysis of the different organic materials--as mapped by total station--should help us resolve the spatial relationships between the bark and timber architectural elements. Finally, Figure 29 is the plan map of Structure 1 with small wood fragments added. This includes obvious sections of wattle along the southwest wall of the building, and perhaps in the southeast as well. Some of these fragments may also have been associated with internal furniture such as wall benches. Again, many of these fragments are being analyzed by Lee Newsom, but we should be able to reconstruct the season of Structure 1's construction and the different types of wood and plants used for different parts of the building.

From this array of architectural data, we would like to single out a few remains that are especially significant. First is the western central post, located near the center of Figure 30. This post--more than 20 cm in diameter--was first observed, though not removed, in 2003. This first image show the post in its surrounding matrix of burned structural debris, while the second image, Figure 31, shows the post with these collapsed debris removed, as it sat in the floor of the house. After we removed the carbonized, upright portion of this post, we began to excavate its associated post hole. We were surprised to quickly find that much of the below-ground portion of the post remained intact--neither rotted nor burned (Figure 32). The intact portion of the post measured 68 cm in length. Notice too how closely the diameter of the post hole matches the size of the post, suggesting that it was rammed into place.

The doorway area of Structure 1, was one of the most complex parts of the excavation. Figure 33 illustrates the entry trenches as viewed from inside the west corner of the structure, a possible step from the trenches down to the house floor, and a section of wood that we believe

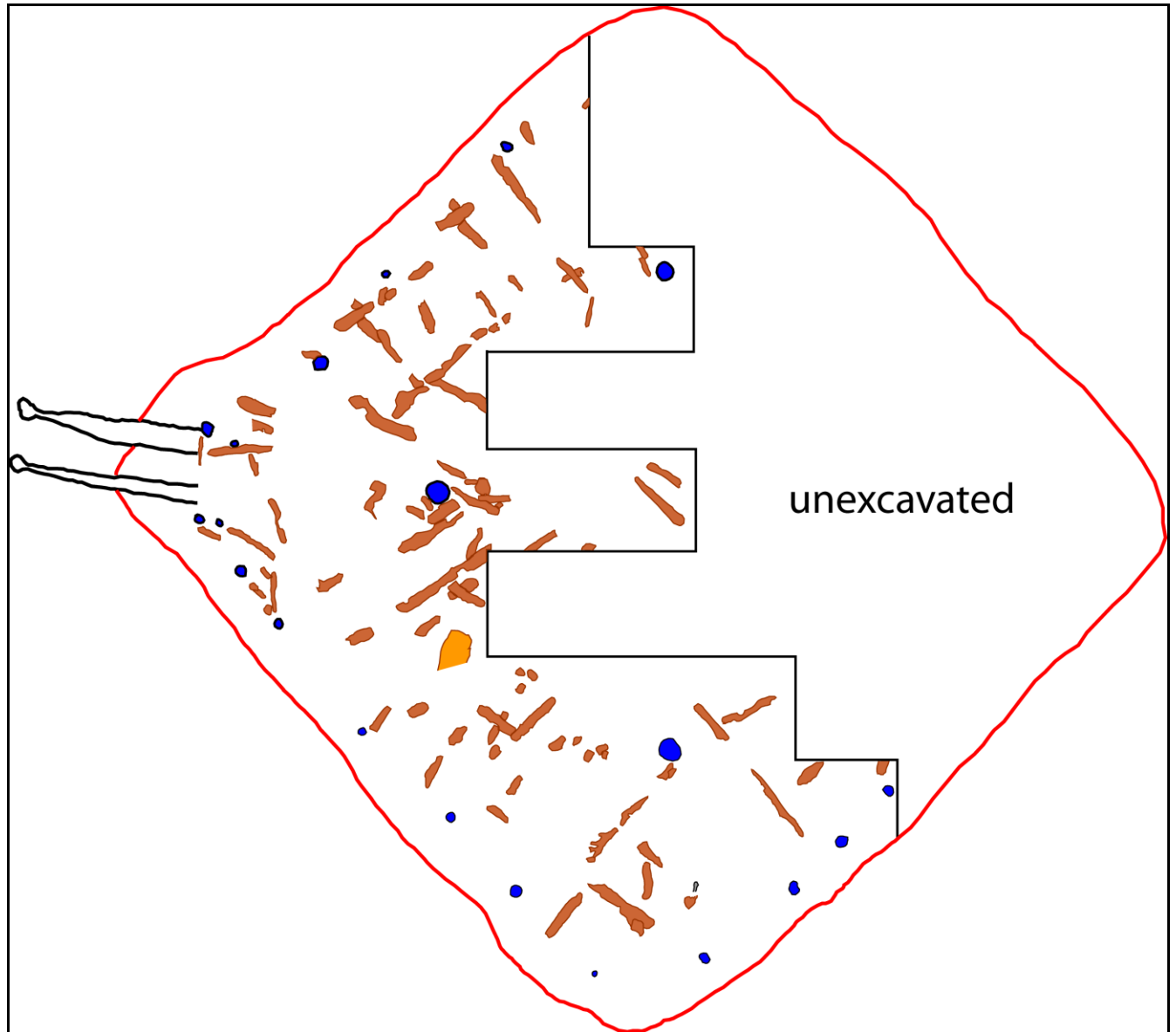


Figure 27, Structure 1 burned timbers and upright posts

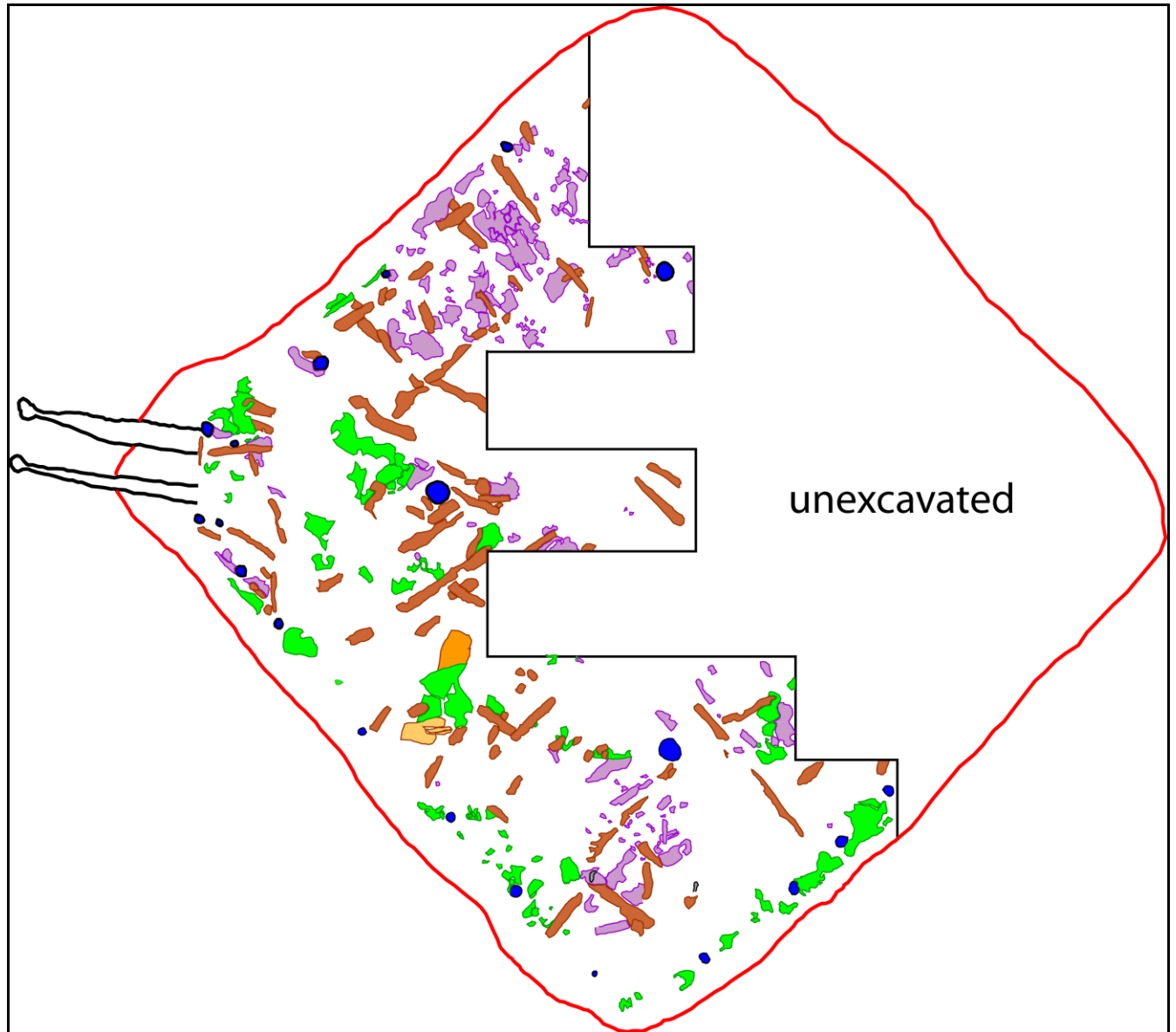


Figure 28, Structure 1 carbonized grass thatch (green) and bark (purple) added

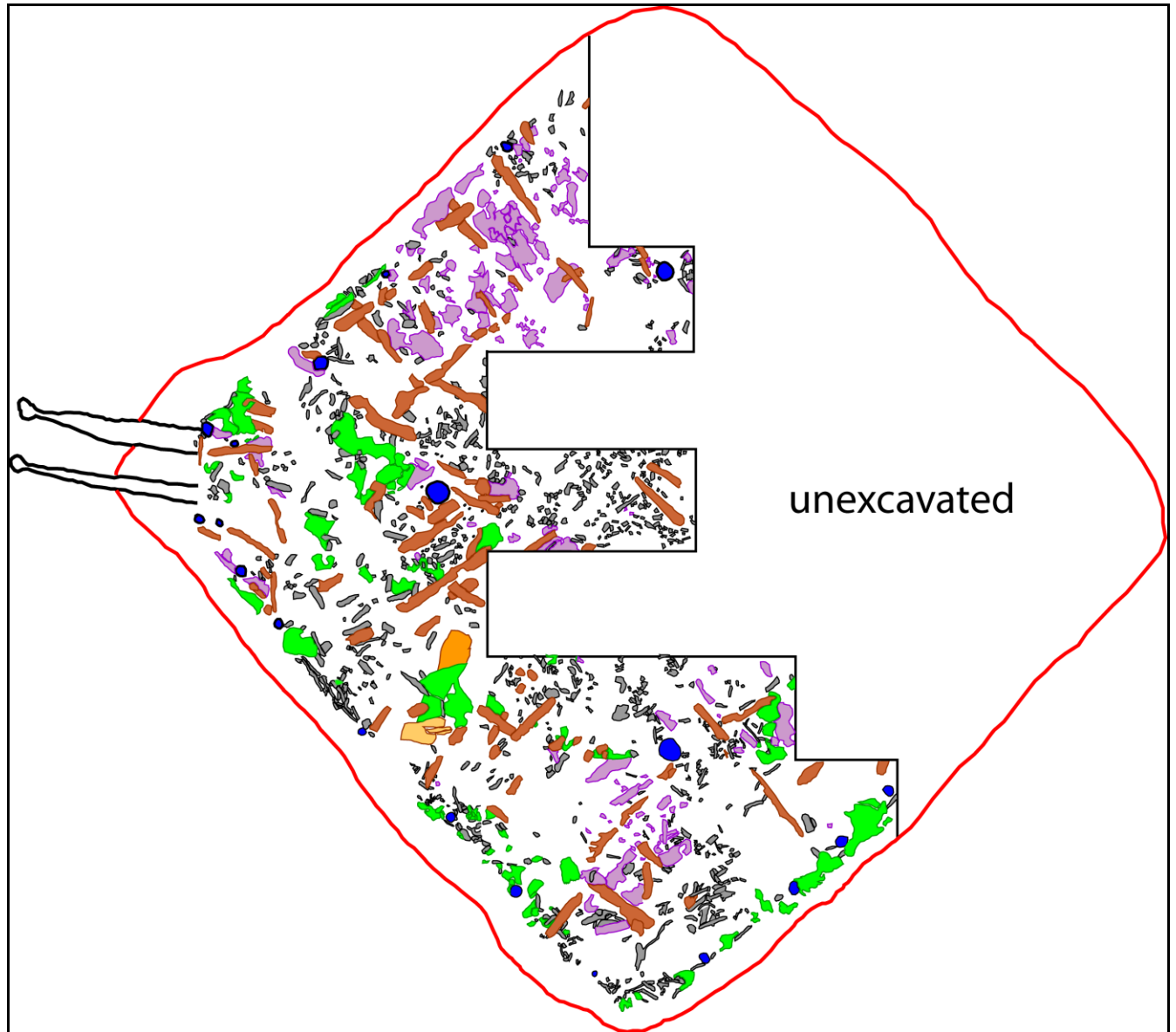


Figure 29, Structure 1 small diameter wood (grey) added



Figure 30, Structure 1 center post with surrounding debris



Figure 31, Structure 1 center post, surrounding debris removed



Figure 32, Structure 1 center post in profile



Figure 33, Structure 1 entranceway



Figure 34, Structure 1, possible door fragment

was part of the original wooden door or threshold, shown here with its surrounding matrix of soil and fill debris unexcavated. Looking more closely at this element (Figure 34), viewed in this image from outside the doorway, the wooden door or threshold seems to have been made of joined slats, and it is quite clearly a distinct architectural feature of the building and is not simply part of the collapsed debris--notice for example its vertical position relative to the upright posts and its apparent slat construction. We removed this fragment in its entirety in a pedestal block to facilitate its analysis.

Figure 35 illustrates the original floor surface in Structure 1, with all of the organic material removed. The building's footprint is very apparent here, especially the entrance trenches and the edge of the basin. Also clear is the distribution of postholes along the southeast and southwest walls. Less obvious (Figure 36) is the baffled entranceway, one wall running north to south and the other running southwest to northeast. Near the center is a pair of superimposed hearths, also shown in Figures 37 and 38. Prior to excavating these hearths, stratigraphic data suggested that Structure 1 had two distinct, superimposed floor surfaces, one associated with the excavation of the original basin cut (Zone 5) and the other in use when the building burned and collapsed (Zone 4). The excavation of these hearths confirmed our stratigraphic observations. The lower hearth, stage 1, was associated with the earliest floor. The hearth fill consisted of a very heavy, greasy soil, and given the ring of shallow postholes around it, it seems likely that a movable rack was used here to smoke a very fatty substance, perhaps bear meat. The upper hearth, stage 2, was marked by a similar greasy fill and was in use when the building burned.

Comparison of Structure 1 and Structure 5

We will spend the rest of this section making some comparisons between Structure 1 and Structure 5, seen in Figure 39 from the same vantage in 2008, after the excavation of Structure 5. First, as is evident in this image and in Figure 11, Structure 5 was built atop a mass of large pit features. There are at least six such features in the area immediately under or around this building, and most of these that we've excavated do contain Spanish artifacts. In contrast, there are no such features in the area under or immediately around Structure 1. Looking at the site plan, it is clear just how dense the concentration of features is in the western part of the Spanish compound with Structures 2 and 5, and how such features are absent from the eastern part of the compound with Structures 1 and 3. We believe that Structures 1 and 3 were probably built first, and that the mass of pits in the western part of the compound were dug in association with the construction and use of these first two buildings. Structures 2 and 5 were built later, and are thus intrusive into the pits that so define this area. Since we believe that all of these buildings were burned at the same time, during the spring of 1568 when the people of Joara destroyed Fort San Juan, this interpretation of a construction sequence implies that Structure 1 was occupied for longer than Structure 5, an implication borne out by excavations.

Recall that Structure 1 had two superimposed hearths at the center of the building, one associated with the original floor surface and the other associated with the surface in use when the building burned. Structure 5, in contrast, had but a single hearth stage, and no evidence of multiple floor surfaces. We feel confident suggesting, then, that Structure 1 saw longer use and occupation than Structure 5. We should point out, though, that neither building seems to have been in use for an extended period of time--neither structure shows any evidence of rebuilding, for example, and neither was rebuilt after the fire that consumed them both.

A more obvious difference between the buildings is the amount of time exhibited in the preparation of the structural surfaces and entryways. Comparing the base of excavation mosaics

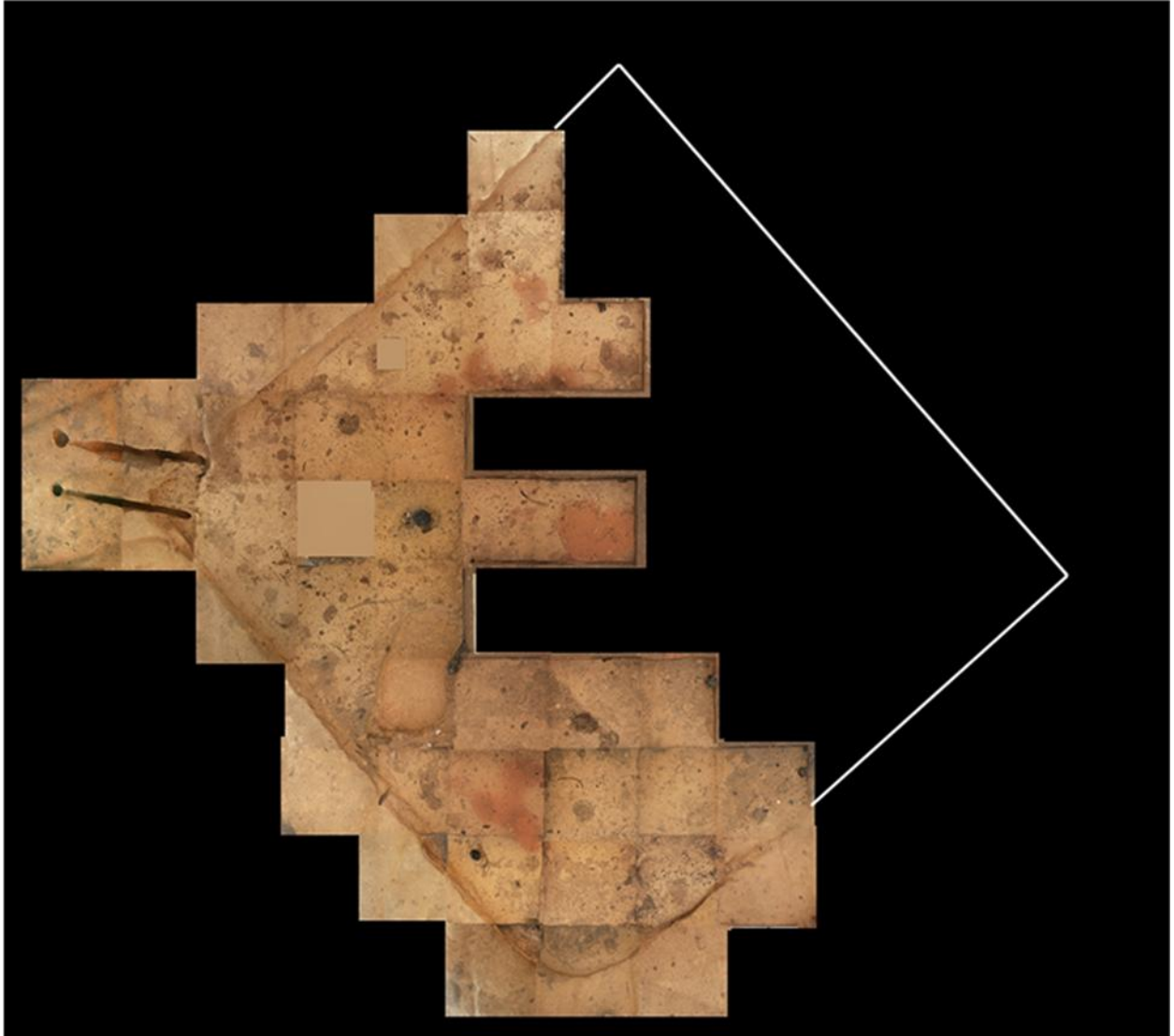


Figure 35, Structure 1 original floor surface (top Zone 5)

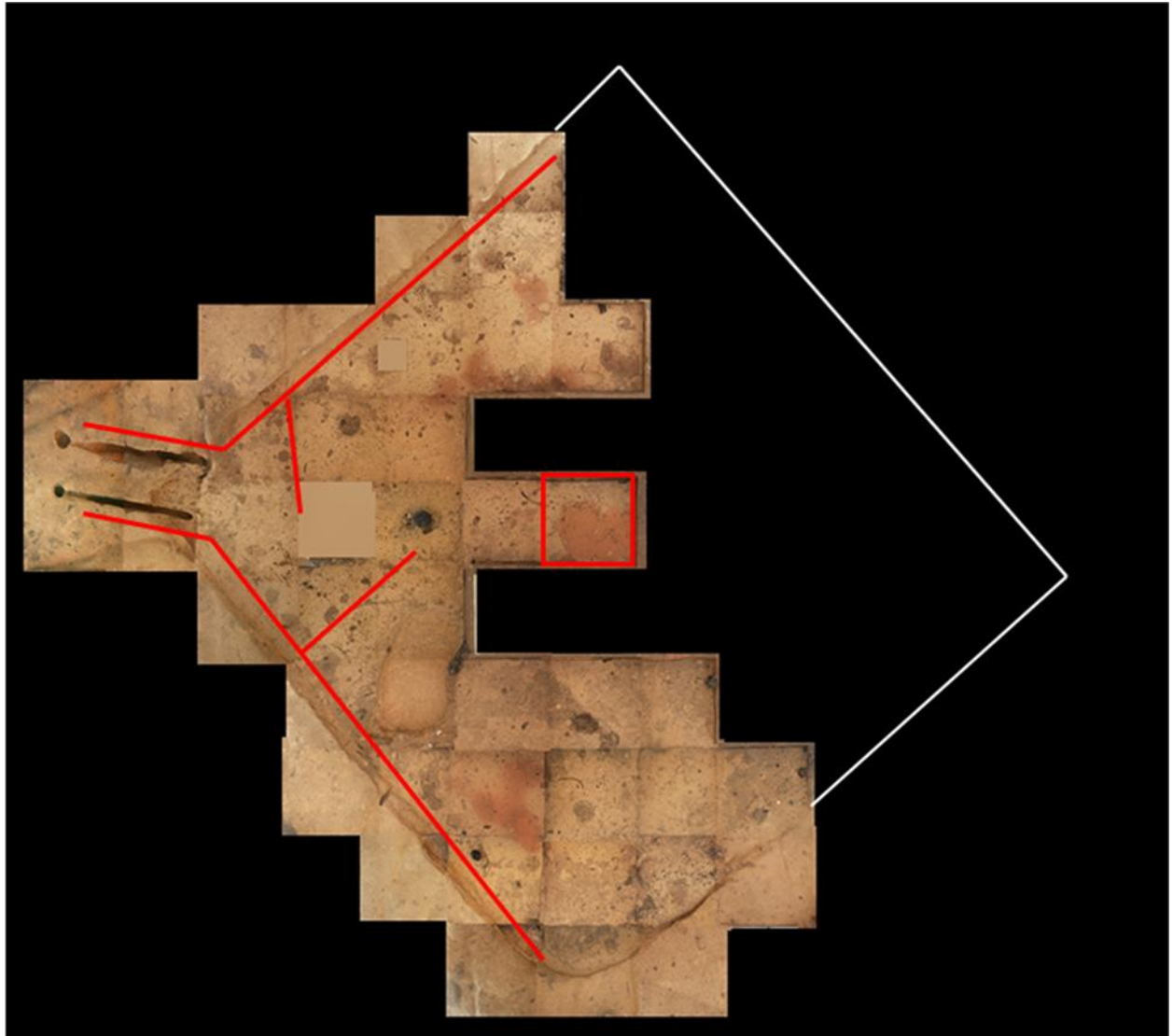


Figure 36, Structure 1 original floor with baffled entranceway and central hearth indicated



Figure 37, Structure 1 superimposed hearths (plan)



Figure 38, Structure 1 superimposed hearths (profile)



Figure 39, View of Structures 1 and 5, 2008

from Structures 1 and 5 (Figures 15 and 35), it is clear that Structure 1 exhibits a well-defined basin, deep wall trenches, and four central support posts. Structure 5 seems more ephemeral in comparison. In fact, the posts themselves bring us to another point. As we discussed, many of the wall posts in Structure 5 display an interesting stratigraphy, in that the postholes are quite large in relation to their posts. In Structure 1, however, the wall and center posts seem to have been rammed into place, with the diameters of the post holes very similar to the size of the posts themselves. In short, we believe that the posts in Structure 5 may have been dug with metal tools, perhaps the shovels we know that Pardo left for his soldiers at Fort San Juan. Structure 5, in sum, seems less a durable version of Structure 1.

What can we conclude, then, about these buildings? Here we will offer some preliminary observations. Structure 1 is built in a style that is typical of Mississippian structures in the South Appalachians--particularly those at sites such as Toqua in eastern Tennessee and Mulberry in South Carolina. This in no way contradicts our interpretation of this building as one of the houses for Pardo's soldiers--Spanish documents make it quite clear Late Mississippian people built such houses for the Pardo expedition at many towns in the Carolina Piedmont, including Joara. Structure 5 is an interesting comparison, in that it seems to be much more of an expedient construction. If our interpretation of this compound as the habitational component of Fort San Juan is accurate, then we are beginning to see temporal variation with the architecture of Spanish contact. Two houses, Structures 1 and 3, would have been built at the beginning of the soldiers' occupation of the fort. Sometime later, perhaps during the second winter, two more buildings may have been added, Structures 2 and 5. The flimsy--or expedient--aspects of Structure 5

suggest that these were put up quickly, and perhaps by people with less skill or knowledge of such house construction, such as the Spanish soldiers in Pardo's company. As we and our colleagues proceed with analysis of these buildings and their associated features, we expect to achieve a richer understanding of this compound and its relation both to Fort San Juan and to the native town of Joara.

These excavations and the ongoing analyses focus on the nature of sixteenth-century colonial encounters between the native people of Joara and Spanish soldiers, a situation in which the colonizers never dominated their host community. On the contrary, Pardo's soldiers were in many ways dependent upon and vulnerable to native people in the region. Fort San Juan itself was short-lived, but native responses to the Spanish presence in the upper Catawba Valley, and the destruction of Spanish colonial outposts at the northern border of La Florida, probably had major impacts on the geopolitics of native societies in this part of the Southeast. Our broader interests--and the mission of our newly formed nonprofit organization, the Exploring Joara Foundation--focus more broadly on the native cultural landscape of the upper Catawba Valley before and after early European contact in western North Carolina.

PART IV: THE ARCHAEOBOTANY OF FORT SAN JUAN

Gayle Fritz

Introduction

Archaeobotanical remains from the Berry site are central to several key issues being investigated by members of the Exploring Joara project. One concerns negotiations between Joaran and Spanish leaders, and another deals with relationships between native women and Iberian soldiers. Plant food remains collected by flotation have the potential to inform us about the types of crops, nuts, fruits, and other edible resources deposited within the confines of Fort San Juan. Proportions and types of food plants indicate what was consumed, whether or not Old World plants were included, and if food was processed in or near the compound.

I am especially interested in what Pardo's men ate, where the plant foods came from, where they were processed and prepared, whether or not preferences or avoidances are manifested, and what social dynamics came into play as actors on both sides—indigenous and European—endeavored to meet their basic daily needs while furthering their larger political agendas. Native *Micos* and Spanish military officers were surely dominant figures in this drama, but the fort's isolation from European supplies, its proximity to the native dwellings, and the small size of the Spanish contingent—as few as 10 or 11 men during much of the occupation—make this an early colonial situation in which personal relationships between individuals representing both sexes and various social statuses took place. At least one marriage (that of Teresa and Juan Martín) resulted from Pardo's foray into the interior, and we can imagine exchanges of perishable gifts including food and various services going far beyond what is securely documented in the written and archaeological records.

Excellent archaeobotanical research at late prehistoric and early post-contact sites in the Southeast U.S. provides a solid base for comparing foodways from structure and feature deposits at Fort San Juan with Spanish colonial sites such as Santa Elena and St. Augustine and sites where Cherokee, Piedmont Siouan, and other indigenous groups were undergoing changes resulting from direct or indirect interactions with Europeans (refs: Gremillion; Gardner; E. Martin 2009; Reitz and Scarry 1985, Scarry and Reitz 1990; VanDerwarker and Detwiler 2002; others). The Berry site is unique, however, in several important ways. First, Spanish presence here is *very* early, too early for peaches introduced on the Atlantic coast or brought inland by Pardo's men to have grown to maturity. Second, Pardo was poorly provisioned with consumable items on both of his trips to Joara, documented as bringing only hardtack biscuit and wine, although munitions and gifts for the natives were more plentiful than food (Hudson 1990). Third, the soldiers spent only one growing season at Joara, a short window of opportunity for planting and harvesting crops of any type, even if that had been their intention, which is unlikely. Fourth, the low numbers of soldiers compared with native Joarans and their allies put the Spanish in a precarious bargaining position. Pardo secured considerable quantities of maize at Joara and other villages along his route, but his negotiations were successful for less than a year and a half, and one cause for the eventual revolt was too many unreciprocated demands for food.

Soldiers and colonists at St. Augustine and Santa Elena initially also depended on indigenous populations for maize, and Europeans across North America learned how to grow it in the local environments. At those sites, however, Europeans were in a stronger position to trade for food or commandeer it, provisions arrived by ship (even if sporadically), and the longer occupation spans resulted in households where native women grew and/or cooked for Spanish husbands or employers (Reitz and Scarry 1985).

Methods

The materials my students and I have analyzed were recovered by flotation using a modified SMAP-type of system, with water pumped from Upper Creek at the edge of the Berry site. //Standard 10-liter flotation samples were taken from each zone of Structures 1 and 5, and from each level of each feature inside and outside of the structures. Light fractions were floated through a 0.425 mm geological sieve, while heavy fractions were caught in window screen fabric (ca. 1.6 mm mesh) lining the inside of the flotation barrel. I summarize preliminary results from 26 ten-liter samples: 14 from Structure 5, and 12 from pit features immediately to the west.

Results

No Old World cultigens have been found so far, and we will be surprised if any turn up given the meager supplies and lack of archival information to document their presence in the interior this early. Neither the “biscuit” nor “wine” listed as carried in by Pardo on both expeditions (Hudson 1990) would leave macrobotanical evidence.

Excavations at Santa Elena have yielded figs, European hazelnuts, watermelon and melon seeds, peach pits, peas, domesticated (*vinifera*) grapes, olives, and wheat (Gardner 1980, 1982; Reitz and Scarry 1985: Table 2), but most of these remains were fortuitously preserved in barrel wells, none of which have been found at the Berry site. Santa Elena, of course, was occupied far longer than Fort San Juan, and Spaniards there received shipments from abroad.

So what did the men at Fort San Juan eat? Samples from Structure 5 and from the nearby pits show a dominance of maize, which occurs with 100% Ubiquity and is represented by both cob and kernel fragments. Joara was one of many places where Pardo instructed native leaders to provision his men with maize, and when he returned to Fort San Juan in the fall of 1567, Pardo found “a new house of wood with a large elevated room full of maize which the cacique of the village, who is called Joara Mico, had built by command of the captain” (Bandera account transl. by Hoffman in Hudson 1990:265).

Although maize may have been the primary plant food, the diet at Fort San Juan included additional New World crops, nuts, and fruits. Squash rind (*Cucurbita* sp.) is present but rare, and fragments of beans in two samples are likely to represent *Phaseolus vulgaris*, although their incomplete condition makes this uncertain. Low counts and ubiquities of beans and squash are typical of late prehistoric and historic period Southeastern archaeobotanical assemblages, usually explained by the low likelihood of preservation of these two crops in spite of their known prominent economic roles (Gremillion refs; VanDerwarker and Detwiler 2002).

Hickory nutshell (*Carya* sp.) occurred in 100% of the samples from the Spanish compound, and acorn shell (*Quercus* spp.) came from 88%, with a few samples also including acorn nutmeat fragments. Hazelnut (*Corylus* sp.) was also present, but only in small counts in a few (15 %) of the samples.

Two types of fruit—grapes (*Vitis* sp.) and maypops (*Passiflora incarnata*)—are especially well represented in the compound area. Both were recovered from more than half the analyzed samples, with maypops found in 81% of the assemblage. Other types of fleshy fruits are less common, however, with persimmon (*Diospyros virginiana*) occurring in five samples (19 %), and *Rubus* (blackberry, raspberry, etc.) in one. Small seeds from herbaceous plants such as chenopod, knotweed, and purslane are notably rare. This might indicate a lack of taste on the part of the soldiers for these native foods, or it may simply reflect the shorter-term nature of the fort occupation, which included only one full summer, wherein opportunities for seed rain from weedy colonizing species was limited.

Other than the fact that small seeds are rare, the variety of edible plants from the compound indicates that Pardo's men had access to a diverse suite of crops, nuts, and fruits.

Comparison of Structure 5 and Exterior Pit Features

Structure 5 appears to have been carefully cleared of interior contents before it was burned, and densities of plant remains are low. Relatively high concentrations of grass seeds in a few samples probably represent thatching or other structural features.

Densities of charred food remains in the pits are higher on average than those from the Structure, but few differences exist in composition of plant foods. Maize, hickory nutshell, acorn shell, grapes, and maypops seeds are by far the most ubiquitous and most frequent categories.

Comparison of Spanish and Native Settlement Zones at the Berry Site

In her analysis of plants from David Moore's previous excavations in the native village area of the Berry site, Gremillion (2002) reported a considerably higher frequency of acorn shell by weight than we have found in the European compound. Walnut shell, which has not turned up yet in samples from either Structure 5 or the nearby pit features, came from 55% of Gremillion's samples, and small seeds including chenopod, knotweed, plantain, lespedeza, and ragweed were far more prevalent in the native village area than in the compound itself.

Another difference between the Spanish and native occupation areas is reflected by maize kernel-to-cupule ratios, widely used as an indicator of consumption or storage of shelled grain as opposed to processing or discard of inedible cob parts, or use of cobs as fuel. The average kernel-to-cob ratio in Structure 5 is .72, as compared to .39 for exterior pits near Structure 5 and only .10 for village-area features to the south. This might reflect more consumption-related activities in Structure 5 than elsewhere, but the presence of more cupules than kernels *even in Str. 5* does not support a scenario wherein soldiers were consistently provided with pre-processed meal or already-cooked maize dishes, or that maize stored in the fort took the form of shelled kernels.

Inter-Site Comparisons

Kernel-to-Cupule Ratios

Elizabeth Martin (2009) has recently compared kernel-to-cupule ratios from large, public-looking structures at Burke phase and contemporaneous components including Ensley, Berry, Toqua, Coweeta Creek, and Little Egypt. Only the townhouse floor samples from Coweeta Creek had more kernel than cob fragments. Pits in the village area of Coweeta Creek, however, yielded approximately the same average kernel-to-cob ratio as did Structure 5 at the Berry site.

Table: Kernel-to-Cob Ratios

Berry Site Fort Area, Structure 5	0.72
Berry Site Fort Area, Pits	0.39
Berry Site Village Area	0.10
Ensley Site, Str. 1	0.09
Toqua, Str. 3	0.00 (no kernels)
Toqua, Str. 14	0.58
Little Egypt, Str. 1	0.10
Coweeta Creek, Townhouse Floor	1.07
Coweeta Creek, Pits near Townhouse	0.12
Coweeta Creek, Village-area Pits	0.74

I am reluctant to rely heavily on kernel-to-cob ratios for distinguishing consumption from processing, because I've seen too many unusual contexts that can't be explained easily by using this rule of thumb. A working hypothesis might be that the relatively high kernel-to-cob ratio in Structure 5 at the Berry Site reflects some consumption activities but that processing also took place in the vicinity. Debris in the pits west of Structure 5 might reflect both food processing and post-meal refuse.

Nutshell Frequencies

I mentioned earlier that the Spanish settlement at Berry differs from the Native occupation area in terms of nutshell frequencies. Might this reflect food preferences or avoidances?

Gremillion (2002) quantified by weight, reporting 68% hickory nutshell, 27% acorn, and 5% walnut. Our new data show far more dominance of hickory (92% by weight) and no walnut shell so far. When quantified by count, however, the percentage of acorn from the compound is higher: 18% by count vs. 7% by weight. A quick look at nutshell frequencies from nearby Burke phase and contemporaneous or slightly later occupations in the region reveals absence or scarcity of walnuts in other contexts (Ensley and Coweeta Creek Townhouse floor, e.g.), and similar high proportions of hickory nutshell (Coweeta Creek, Mitchum, and Jenrette). Therefore, I'm reluctant to ascribe cultural significance to the Berry site nutshell assemblages at this point in time.

Although the Structure 5 and nearby pit samples are not rich in seeds overall, they both stand out in terms of high ubiquities of maypops (81%) and grape seeds (57 %) (SLIDE). Gremillion reported only 17 grape seed fragments (36% ubiquity) and 13 maypops (45% ubiquity), although her total seed count was far higher than ours. Our present counts of grape (21) and especially maypops (82) seed fragments are considerably higher than those in other reports I use for comparison in this paper, where the next highest count is 14 for maypops and 9 for grapes (both from Ensley), and the Berry site counts will go up with further analysis.

Thinking back to the olive jar sherds found at the Berry Site and the less-than-adequate quantity of wine carried into Joara, a few of us have independently wondered whether Pardo's men might have experimented with fermenting local fruit concoctions, but this requires further thought.

Discussion

In most ways, the types and quantities of food remains from the Spanish compound do not diverge dramatically from those reported from the native settlement area or from other early colonial-era sites in the region. The absence of walnuts and low visibility of small seeds may indicate food avoidances on the part of the soldiers, or conversely, preferences for other foods that were available in sufficient quantities to make less desirable foods unnecessary. High frequencies of grapes and maypops spark thoughts of cravings in the wilderness for sweet foods or fermented beverages.

The relatively high kernel-to-cupule ratio at Structure 5 might indicate less processing and more consumption-related activities than elsewhere, but the occurrence of more cob than kernel fragments both in the Structure and nearby pits makes it necessary to entertain the likelihood that maize dishes were prepared within the confines of the outpost itself. Hungry men would have been capable of cooking their own maize, but it seems probable that the help of native women was obtained whenever possible. The mix of maize, hickory nuts, acorns, and native fruits looks typical of meals eaten elsewhere: meals that were prepared by native women for their families.

We'll never know how voluntarily the women of Joara contributed to the feeding of Pardo and his men, or if they viewed them as invaders, unwelcome guests, or potential sources of

desirable goods, powers, or status enhancement. I think it's a mistake to assume that the food providers were only obeying the instructions of indigenous leaders or were always unwilling servants of the soldiers. In other early North American Contact situations, native women displayed skills as shrewd negotiators who willingly exchanged produce for trade goods and various other forms of compensation. Sometimes, too, they committed basic acts of human kindness by feeding lost souls in need. If sincere generosity and perceived reciprocity ever prevailed at Fort San Juan, however, that didn't last long. The two known causes for the revolt concerned women and food, and it is likely that the voices of the women who produced and supplied that food resounded clearly.

PART V: THE ARCHAEOFAUNA OF FORT SAN JUAN

Heather Lapham

Juan Pardo arrived at Joara, a prominent native town located along a tributary of the Catawba River in western North Carolina, in January 1567, several weeks after departing Santa Elena, the capital of the Spanish colony. Pardo had been tasked with finding an interior route to central Mexico from which the Spanish could safely transport silver back to the capital (Hudson 1990:23; Moore 2002:22). He and his soldiers remained at Joara for a short time, during which they began to build an outpost, christened Fort San Juan. Pardo left thirty soldiers under the command of Sergeant Moyano to occupy the garrison and began his trek back to Santa Elena, returning to the fort on two other occasions over the next year (Beck et al. 2006; Hudson 1990:25; Moore 2002:22). In the spring of 1568, just 18 months after its founding, Fort San Juan was attacked by the town's native inhabitants and, as archaeological evidence has since revealed, burned to the ground (Beck et al. 2006).

In the context of Fort San Juan the very basic question--What did they eat?--takes on new meaning because while we can make some reasonable guesses based on indigenous cuisine, which relied on locally available resources, we really do not know what the soldier's diet looked like, and how or if it differed from the native peoples they resided alongside. During these 18 months, the soldiers relied upon their native neighbors to meet their basic nutritional needs, even though they may have contributed to the procurement of some foods, perhaps participating in deer hunting, for example. Retaining traditional Iberian or Spanish colonial foodways would not have been an option for these men; food was not supplied to interior outposts, and even the more accessible colonies on the coast reported difficulties receiving regular deliveries of food more than two centuries later (Reitz and Cumbaa 1983). Likewise, preferences for and aversions to certain foods the soldiers had been accustomed to eating would have seemed insignificant when weighed against the alternative option--starvation. It is certainly possible, quite likely actually, that the soldiers found some new foods to be to their liking, acquired a taste for other dishes, and even identified similarities between with foods they had eaten in their Iberian homeland.

Animal Remains from the Berry Site

To explore Spanish subsistence at Fort San Juan, I compare animal remains from two different areas at the Berry site (Figure 3)--one associated with the Spanish fort and the other with the mound that lies at the northeastern edge of the native town of Joara. The mound context materials include a sample of animal remains recovered during the 1986 field season from the eastern end of a series of excavation units placed in the western section of the mound. The plow zone in this area contains an extraordinarily heavy concentration of animal bone, ceramics, lithics, and other artifacts (Moore 2002:216), not unlike the middens that flank Mississippian mounds elsewhere in the Southeast (Rob Beck, personal communication; see Smith and Williams 1994). Whether or not the high density of artifacts in this area are indicative of mound flank middens can be debated, nevertheless it is believed these materials represent deposits from either original features or middens associated with mound-related activities (David Moore, personal communication).

Mississippian mounds are well known sacred spaces where ceremonies and rituals took place so it is not inconceivable that the animal remains from this area represent special-use refuse from elite meals, communal feasts, or both--all activities that can leave a very different zooarchaeological signature than refuse from everyday meals eaten in a domestic village setting. I compared the mound sample of animal remains to materials recovered from features within the

Spanish fort. Archaeological investigations at the Berry site from 2001 to present have identified five large, burned structures which form a compound around a small plaza. The majority of the animal remains recovered (95% NISP and 93% of bone weight) come from 10 features (23, 25, 38, 68, 69, 71, 83, 92, 106, and 112) located in the central plaza area and then west of Structure 5.

I will begin by briefly summarizing the animal remains from the two assemblages, following which I discuss certain aspects of the fort sample in more detail. The mound assemblage contains just over 1,200 fragments of animal bones. Mammals comprise the majority (88%) of the assemblage, followed by birds (specifically turkey), and reptiles (mostly box turtle). These figures are based on the number of identified specimens (NISP), or more simply, bone count. The fort sample contains almost 1,600 bones. Mammals comprise more than three-quarters (77%) of the assemblage, followed by turtles, and birds. Compared to the fauna from the mound, the fort sample shows a lower frequency of mammals, many more turtles, and a similar frequency of bird. Fewer than half a dozen fish bones were recovered from both contexts combined. The virtual absence of fish at the Berry site, despite fine-mesh water-screening recovery techniques, is not unexpected considering the size of adjacent and nearby streams.

It is interesting to note the relatively high proportion of turtle remains in the fort sample. Two species of turtles are present, eastern box turtle (*Terrapene carolina*) and snapping turtle (*Chelydra serpentina*), as well as pond turtles identified only to the Emydidae family. Turtles are found in 40% of the fort features with identifiable fauna (i.e., features with specimens identified to the taxonomic level of order and lower)--a proportional distribution similar to that of black bear, the second most common taxa preceded only by white-tailed deer. Turtle remains are common on prehistoric Native American sites in the region so their presence here is not unexpected. Box turtles could have been easily picked up while hunting or foraging for other foods, and children could collect them too. The reasons behind their prevalence at Fort San Juan, however, may have more to do with the fort's Spanish occupants than one might initially assume.

One way the soldiers may have been consuming turtles is in soup. Recipes for turtle soup are common in the culinary record of Medieval and Renaissance Western Europe into early Modern times, along with other culinary pleasures such as turtle pie and turtle pâté (Anonymous 1987; Nutt 1809). An Andalusian cookbook dated to the thirteenth century from the southern Iberian peninsula in Spain calls for tortoises to be simmered in salted water, then removed when tender and arranged in a pastry pie topped with a mixture of eggs, cinnamon, cilantro, saffron, pepper, and onions.

Lean turtle meat encrusted in herbed breadcrumbs and turtle livers sauteed with truffles and wine are just two recipes from an early nineteenth century Georgian cookbook instructing cooks in the preparation of gourmet meals intended to delight even the most lavish guests (Nutt 1809). To make turtle soup one boiled the meat, entrails, and shell, a dozen onions, a pound of butter, a bottle of Maderia wine, and "turtle" herbs (Nutt 1809), which implies the cook had a knowledge of what herbs went well with turtle. I might also add that adding a pound of butter and bottle of wine to any recipe almost guarantees a tasty meal. Preparing turtle for consumption at Fort San Juan was probably a less elaborate process, and one that followed local indigenous cuisine, however it seems fairly likely that eating turtle would not have been a completely foreign concept to the soldiers, and may have been embraced as a favored food.

It is also possible that religious practices played a role in the soldier's consumption of turtle, either stewed or roasted. Considering that Spain is a predominately Catholic country, it is possible that the soldiers ate turtles instead of fish following Catholic tradition that prohibited the consumption of meat from warm-blooded animals on certain days throughout the year. Which days the faithful were required to refrain from eating meat varied by custom over time and place,

but during the Medieval period often included abstinence on Fridays and Saturdays throughout the year (Friday being the day Christ died), the twelve Ember days, on all days of Lent except Sunday, and the eves of various holy days (Broderick 1957:12-13; Clancy 1967:847-850). Fish and seafood were acceptable substitutes for meat and poultry, as was turtle (O'Neill 1907). Few fish remains were recovered from the Berry site so if the soldiers were faithful Catholics then turtle would have been the only allowable, readily available, fleshy food that could have been eaten during days of abstinence.

Returning briefly to the basic composition of the faunal assemblages from the fort and mound contexts, the basic patterns apparent in these bone count data are also seen when the assemblages are compared by bone weight, although because bone weight privileges large mammals the proportions shift even more in their favor. In addition, there are several other factors that likely influence these patterns. First, the materials from the mound come from a restricted area of plow zone where bone preservation was excellent and soils were dry-screened using standard ¼-inch mesh hardware. The fort materials, in contrast, are not as well preserved: the bone was softer, resulting in more modern breaks, and the soil which came from feature contexts was water-screened using both standard- and fine-mesh hardware.

In an attempt to minimize differences in bone preservation and recovery techniques between the fort and mound contexts, in the remainder of this paper I focus on the mammal remains, specifically large mammals, which would have been impacted less by recovery method and preservation factors than smaller or more delicate bones from, say, bird. In addition, I use bone weight as a comparative measure rather than bone count to help reconcile differences in recovery method and degree of fragmentation between the two samples.

Mammals in Fort and Mound Contexts

Both the fort and mound assemblages contain the remains of white-tailed deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), eastern cottontail (*Sylvilagus floridanus*), and gray squirrel (*Sciurus carolinensis*). In addition, the fort sample yields elk (*Cervus elaphus*), bobcat (*Lynx rufus*), and raccoon (*Procyon lotor*).

Deer dominates the mound assemblage, at about 95% of the bone weight of the identified mammal remains. Bear is also present, but minimally so. In contrast, deer comprise a substantially lower proportion of the fort assemblage, just slightly more than half (56%) of identified mammals, and bear (shown in orange) make up significantly higher proportion, about 40% of bone weight. Even when I include mammal remains from non-feature contexts such as structure and unit proveniences, the high proportion of bear remains the same. The abundance of bear recovered from the fort is intriguing, and a topic that I explore in more depth in the remainder of this paper. Specifically, I examine if and how skeletal element distributions, or rather meat portions, of bear differ between the fort and mound assemblages and then if these distributions differ within the fort itself.

Black Bear in Fort Contexts

One question that arises at Fort San Juan, is to what degree did the Spanish soldiers supply themselves with meat versus accept or rely upon provisions from their native Joaran hosts? Previous zooarchaeological studies of animal use among Mississippian chiefdoms have identified patterns of large mammal remains that are consistent with meat redistribution, whereby certain locations were provisioned with meat from outside sources. The provisioned locales exhibited an over representation of meat-bearing elements and an under representation of butchery waste (Jackson and Scott 1995, 2003; Kelly 1997, 2001; Pauketat et al. 2002). Drawing upon these

studies I assess meat portion at the Fort San Juan and Joara by comparing the utility of various body parts for black bear using bone weight as the measure. High utility elements include the forelimb (scapula, humerus, radius, ulna) and hindlimb (pelvis, femur, tibia, fibula) long bones plus vertebra and ribs; low utility elements include the cranium (head, mandibles, teeth), carpals and tarsals, metacarpals and metatarsals, and phalanges. A mid utility category was not used because bear is a very meaty and fatty animal.

In mound contexts, slightly more than half (55%) of bear body parts are high utility elements, which contain most of the meat (shown in pink in this slide). Slightly less than half (45%) are low utility elements (in blue), such as the head and feet that can be considered more or less butchery waste. The fort features, in comparison, contain a much greater proportion of high utility elements than does the mound assemblage. High utility elements comprise about 80% of the fort sample and about 20% are low utility parts--a distribution that suggests the townspeople supplied bear meat to the soldiers. Even when I include bear remains from non-feature contexts, the predominance of meaty elements does not decline. To delve deeper into the consumption of bear within the fort I shift my focus to the fort features themselves.

Tentative chronological assignments of the fort features place them into two categories, early and late. Eleven features with fauna can tentatively be assigned to the early fort period (23, 25, 38, 44, 64, 65, 68, 69, 83, 92, and 112) and seven features tentatively to the late fort period (66, 71, 103, 106, 107, 108, and 111). Bear comprises slightly less than half (45%) of the bone weight of the identified mammal remains in the early fort features. The late fort features, in contrast, contain a substantially lower proportion of bear, about 12% of bone weight. Interestingly, the early and late features show an identical distribution, both with a high proportion of meaty elements.

Spanish Subsistence at Fort San Juan

The differences in black bear remains between the fort and mound contexts is striking, as is the predominance of bear in the early features at Fort San Juan compared to the later features. Ethnohistoric accounts from the Southeast inform us that native peoples frequently served bear meat and bear fat to special guests and dined upon these foodstuffs during celebratory meals and feasts (Lefler 1967:31, 44, 59, 61, 121; Waselkov and Braund 1995:62, 63, 147). When the Spanish first arrived at Joara in January 1567 they were welcomed as guests, and subsequently allowed to construct a fort adjacent to the town mound. It seems likely that the soldiers would have been treated as guests for a period of time after their arrival, being provisioned with bear and other foods often reserved for important visitors. The first nine months the Spaniards occupied Fort San Juan also offered several opportunities to hold celebratory feasts—the construction of the first fort building, being one of them, Pardo's first departure from Joara in March 1567, Sergeant Moyano's successful attack of two hostile native towns located over the mountains from Joara during that summer, followed by Pardo's first return visit to Joara in September of that year (Beck et al. 2006:66-67).

We can explain the prevalence of black bear at Fort San Juan as a consequence of the fact that Spaniards were looked upon as important guests by the local indigenous population and the fact that there were multiple occasions to hold celebratory meals. Moreover, changes in the distribution of bear over time suggests that the nature of the relationship between the Spaniards and native townspeople can also be gauged in part on the quantity of bear meat being consumed by the soldiers. Earlier in time, when interactions were more or less amiable, the garrison was provisioned with larger amounts of prime bear meat. Later in time, when interactions had become strained, the soldiers subsisted largely on venison with bear meat as a supplement to their diet.

Based on information that has been gleaned from historic accounts, we know that relationships between the soldiers and native Joarans deteriorated in part due to the Spaniard's "demands for food" (Beck et al. 2006:67). One can contemplate whether or not the townspeople felt obliged to provision the soldiers with certain foodstuffs, such as bear, because of the status they held within Joaran world view. Were the Spaniards "demands for food" complicated by what the townspeople felt expected to provide to the soldiers, not just turtles and venison steaks but also meat from animals that were more difficult, risky, and time consuming to procure such as bear and elk. Provisioning the soldiers with food placed a burden on the local townspeople, without doubt; but it also left the soldiers reliant upon native assistance for survival and thus rendered them vulnerable to the changing political whims of local leaders. The Spaniards arrived at Joara without long-term provisions, expecting to be provided with sustenance, thus this strategy was not designed by native leaders, but they may have actively fostered it to gain the upper hand in their dealings with the soldiers stationed at Fort San Juan.

PART VI: NATIVE CERAMICS FROM THE BERRY SITE SPANISH COMPOUND

Trevor Martin

The soldiers stationed at Fort San Juan were completely reliant on what food and materials the people of Joara were willing to provide them. One material recovered in abundance from the Spanish compound area is Burke phase pottery. Since European pottery is very rare at the Berry site, it is clear that the Spanish soldiers would have heavily relied on native manufactured vessels. An analysis of this pottery reveals insights into what sorts of activities were carried out within Fort San Juan during the 18 months of its existence.

Based on an analysis on the pottery recovered from the Spanish compound, I argue that occasional, large scale feasting events took place during the Spanish occupation, perhaps when Pardo was present at Joara with his full force. However, for most of its existence Fort San Juan was occupied by only a small number of men, who would have cooked and eaten smaller, daily meals. The majority of the refuse pits associated with the Fort contained refuse that reflects the daily lives of Spanish soldiers stationed at this outpost.

If feasts were held during the Spanish occupation, then we should ask the question why? The leadership of Joara may have seen potential benefits of an alliance with the Spaniards. Such an alliance would give them access to exotic European goods, such as the iron tools that Pardo distributed to the leaders of Joara. The Spaniards would have been a powerful ally against the enemies of Joara, and indeed in the spring of 1567, a force comprised of native warriors and Spanish soldiers stationed at Fort San Juan carried out a successful attack on two Chisca villages that were presumably rivals of Joara. Clearly, the Joara leadership did benefit from such an alliance with the Spaniards, at least for a time. Along with constructing the buildings that comprised the Spanish compound and providing the soldiers with food for their daily meals, hosting a feast would have been another way for the people of Joara to impress the Spaniards with the intention of gaining an advantageous alliance.

Since Pardo would have been recognized as the most important of the Spaniards, it is likely that some feasts would have been held while he was present at Joara with his full force. The historic documents record that non-local native leaders traveled to Joara to meet the Spaniards during the times that Pardo was at Fort San Juan. Joara's leaders may have held feasts while these leaders were present, events that should be reflected in the archaeological record. Another possible time for feasting would be after the successful assault on the Chiscas. However, since Fort San Juan was occupied by only a small number of Spaniards for most of the time of its existence, and as relations between the two groups deteriorated, it is less likely that feasting events would have continued throughout the occupation of the Spanish compound. Thus, feasting would have been most likely during the early period of the fort.

Analysis

The ceramic assemblage that I analyzed consisted of around 3,000 sherds from 38 features associated with Fort San Juan. 10 of these 38 features contained nearly 87% of the pottery, and these 10 features are the ones I'll focus on here. I took rim measurements using standard diameter charts on any sherd that represented 5% or more of the rim, and examined each sherd for evidence of use-wear. For the analysis, I broke the assemblage into two broad functional categories of bowls and jars. For the purposes of this study, bowls are interpreted as serving vessels, while jars were used for cooking and storage.

The features included in this study are all located in the western and central portions of the Spanish compound, particularly around Structures 2 and 5. These buildings, believed to be

late additions to the comound, were intrusive into several of features, indicating that these intruded pits date to an earlier phase in the life of the compound.

Burke Phase Pottery

The vast majority of the assemblage consisted of Burke phase pottery, most likely manufactured by the people of Joara or nearby towns. Burke phase ceramics are typical of Middle Lamar wares across the southern Appalachian region and are characterized by the near exclusive use of soapstone temper. The most common surface treatments include complicated curvilinear stamped, burnished, and plain. Rims are typically decorated with some form of notching or Lamar style incising.

Complicated stamping

Complicated curvilinear (Figure 40) is the most common stamping, while rectilinear stamping (Figure 41) occurs less frequently. Complicated stamping is generally restricted to jars and is rarely observed on bowl forms.



Figure 40, curvilinear-complicated stamped jar shoulder from the Berry site



Figure 41, rectilinear-complicated stamped jar rim and shoulder from the Berry site

Incising

Lamar style Incising is another distinctive attribute of Burke pottery. Incising typically seen on bowls, and consists of 3-5 lines broken by loops and scrolls. Incised vessels are often burnished, and are typical of bowl forms.



Figure 42, incised bowl rims from the Berry site

Overall surface treatment frequency

Overall, the ceramic assemblage from the compound is composed of approximately 37% complicated stamped sherds, 29% plain, and 7% burnished. Minority surface treatments, such as cord-marked, check stamping, and cob impressed, appear on less than 3% of the assemblage. The remaining sherds in the assemblage had an indeterminate surface treatment.

Use wear

The only use-wear I observed on the ceramics from the compound was exterior sooting. This soot was deposited on the vessels by exposure to soil, or resulted from boiled over vessel content, over as seen here (Figure 43). I only observed sooting on complicated stamped jars, which supports the assumption that these vessels were used for cooking.



Figure 43, sooted sherd

Non-soapstone tempered pottery

Non-soapstone tempered pottery is very rare at the Berry site. Certain minority surface treatments such as check and cord marking (Figure 44) or unusual incised designs (Figure 45) are rare on soapstone-tempered pottery, but are more common on pottery tempered with materials such as grit or shell. This non-Burke pottery may have been imported into Joara, perhaps by the non-local native leaders who came to meet with Pardo at Fort San Juan.



Figure 44, cord-marked sherd



Figure 45, non-local incised sherd

Overall temper occurrence

Approximately 90% of the compound's ceramic assemblage consists of soapstone tempered pottery, with much smaller frequencies of non-local wares. High concentrations of non-local pottery in a single deposit are thus worthy of special attention.

Common attributes of Jars

Jars rims are typically characterized by rim folds or appliqué strips, and are usually decorated with some sort of notching or punctation (Figure 46). As I mentioned, I did observe

sooting on jars, indicating that there were used over fire. Jars in the Fort San Juan assemblage, based on the size of rim diameters, ranged from 18-45cm.



Figure 46, Burke phase jar

Common attributes of Burke Bowls

Bowls, assumed to have been used as serving dishes, are often decorated with incised rims (Figure 47), although non-decorated bowls appear as well. Bowl rims are typically unmodified, and usually lack a folded or appliqué rim, although rare exceptions do occur. Flaring rim bowls are also in the assemblage, but are much less frequent. Bowls typically lack stamping and have a smooth or burnished surface. Unlike jars, I did not observed sooting on any bowl rims from the Fort San Juan assemblage. Bowl rim diameters ranged from 10-22cm.



Figure 47, Burke phase bowl

Overall vessel form

Based on rim sherds, the analyzed ceramic assemblage consisted of approximately 54% bowls and 34% jars. While these results are interesting in themselves, it is when individual features within the compound are compared to one other that more specific patterns of feasting and daily life emerge.

Ceramic Correlates of Feasting and Daily Life

A key factor for differentiating feasting refuse from the refuse of daily life is the depositional pattern observed in features. A feast should produce large quantities of refuse discarded in single deposits, while the refuse of daily life should be deposited on multiple occasions over an extended period of time. Feasting requires that quantities of food be prepared and served to a large group of people, and larger than average cooking vessels were often needed to prepare these meals. A higher ratio of serving to cooking vessels has also been interpreted at other Missippian sites as evidence of feasting events. In terms of Fort San Juan, features associated with feasting would most likely have occurred during the earlier life of the fort, while refuse pits associated with daily life would have been in use throughout the occupation. Also, it is possible that feasts took place in the presence of non-local native leaders, which might be indicated by higher quantities of non-Burke phase pottery. These expected patterns are all present in the features associated with Fort San Juan. There is evidence of both feasting and the refuse of normal day to day life. What follows are a few selected examples.

Feature 25 (Figure 48) contained multiple deposition zones, but the majority of the pottery was recovered from a single deposit, Zone B. Zone B contained 767 sherds, with at least 21 bowls and 10 jars concentrated in this deposit alone--no other feature contained so many vessels in a single deposit. Jars recovered from this zone were large, with rim diameters ranging in size from 30-45cm. These were among the largest vessels in the entire Fort San Juan assemblage. Bowls ranged in size from small to large, but there was only one bowl with a rim diameter less than 18cm. Approximately 9% percent of the sherds in this deposit had non-Burke attributes. These large vessels and the heavy sherd concentration from this single deposit are more likely associated with a feasting event.

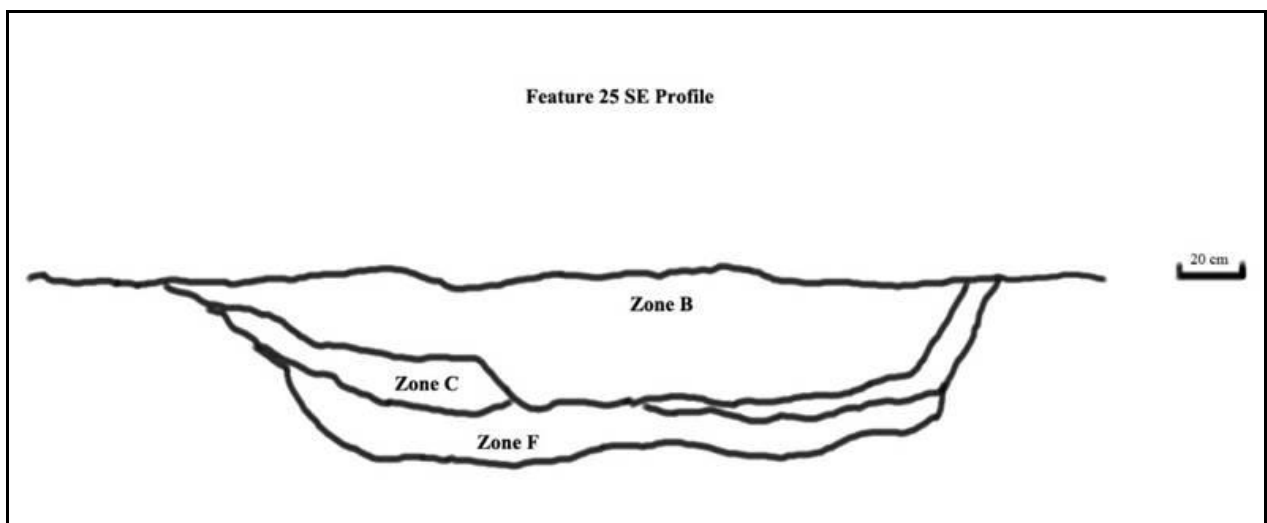


Figure 48, Feature 25 profile

Feature 92 (Figure 49) is also associated with feasting. Like Feature 25, this feature contained large quantities of pottery in a single deposit. There were at least 12 bowls and 8 jars in Zone 2, although none of the rim sherds were large enough to obtain an accurate measurement of diameter. Interestingly, Structure 5 intruded into this feature. Since Structure 5 is believed to be a relatively late addition to the compound, we can safely conclude that this feature was in use earlier in the compound's existence, matching our expectations regarding the timing of feasting events. Almost 18% of the pottery from this feature was of non-local origin (Figure 50), with no other feature containing so much non-Burke pottery in a single deposit.

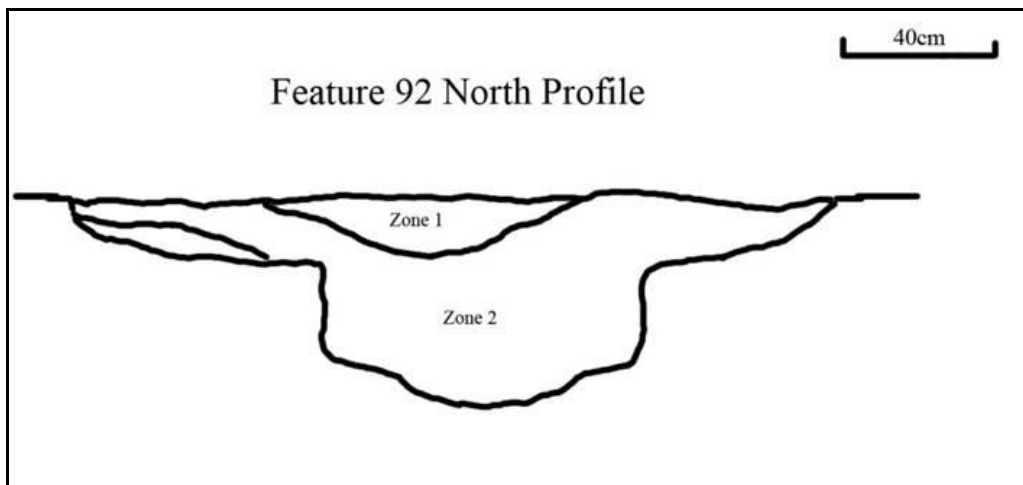


Figure 49, Feature 92 profile



Figure 50, non-local incised sherd, Feature 92

Feature 69 (Figure 51), on the other hand, contained the refuse of daily life in the Spanish compound. Here there were multiple zones deposited over an extended period of time. This feature held at least 23 bowls and 16 jars, but when considered on a zone by zone basis, deposits contained only about 3-4 bowls and 2-3 jars, much lower numbers than seen in feasting pits. The

jars in this feature were medium sized with rim diameters ranging from 18-22 cm and bowls ranging from 9-20cm. The vast majority of the pottery consisted of locally Burke phase wares, while non-Burke wares were only 1-2% of the sherds in each zone. The multiple deposits over time--with fewer sherds in each deposit and the prevalence of mid-sized jars--are more typical of the refuse of daily life.

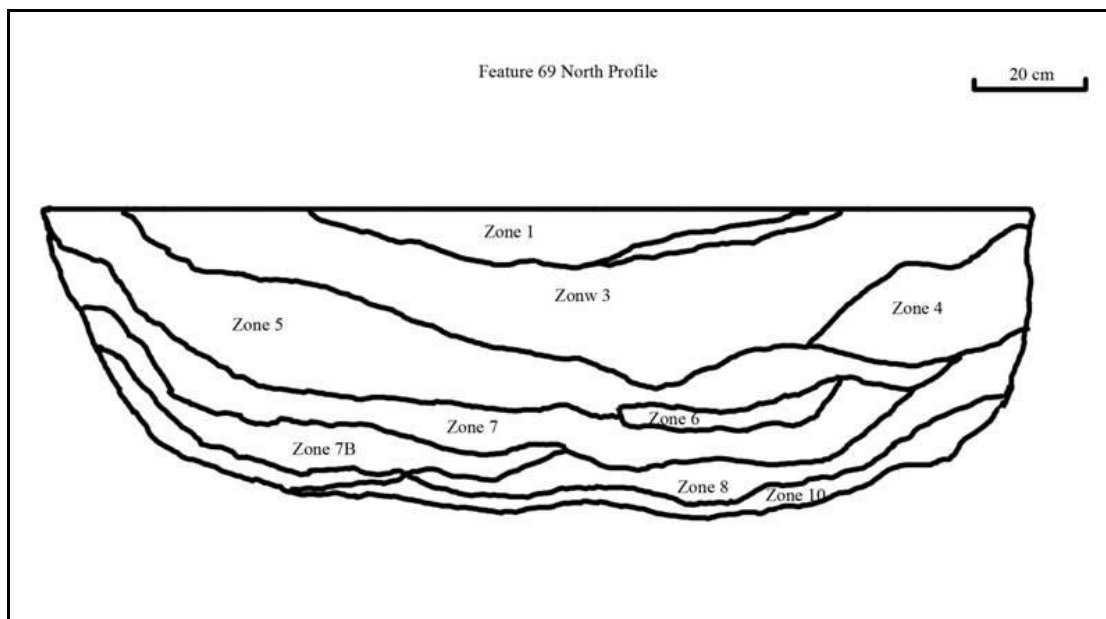


Figure 51, Feature 69 profile

Feature 83, has only partially excavated to date, contained multiple zones as well. A minimum of 6 bowls and 8 jars were recovered from multiple deposits, and all were of medium size. Of all the features included in this study, Feature 83 contained the most non-Burke pottery, but these sherds were not concentrated in any single deposit. In fact, only 2-3% of the pottery in each zone was of non-local manufacture.

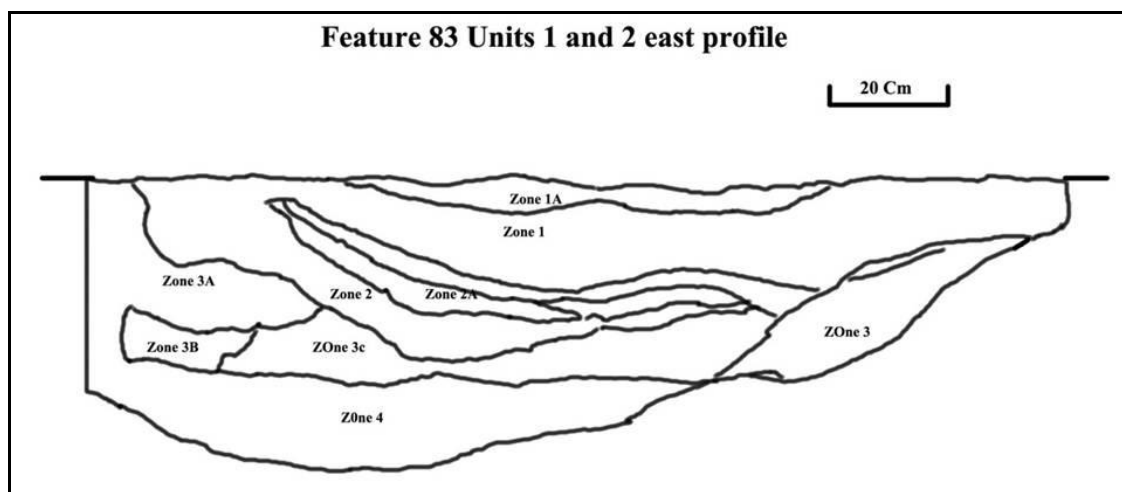


Figure 52, Feature 83 profile

To review, feasting features tended to have a higher number of sherds, medium to large jars all, a much higher ratio of serving to cooking vessels, and relatively more vessels of each type all within a single deposit. This stands in stark comparison with those features associated with daily life. Using the same lines of evidence discussed in the previous examples, I associated the remaining features with either activity. Of the ten major features that contained the majority of the Fort San Juan ceramic assemblage, I associated 7 with daily refuse and 3 with feasting.

Conclusions

In summary, the Spaniards relied on the people of Joara to meet their material needs, which included the pottery vessels used for cooking and serving food to the soldiers stationed at Fort San Juan. Feasting activities took place on rare occasions, most likely earlier in the lifetime of the fort when alliance with the Spanish soldiers seemed promising. However, as relations between the two peoples deteriorated over time, so did the contexts of feasting. Eventually, the people of Joara may have decided that the cost of the housing and feeding these soldiers was too high, leading to the ultimate demise of the Fort San Juan.

PART VII: THE SPANISH MATERIAL CULTURE OF FORT SAN JUAN

Christopher Rodning, Robin Beck, David Moore, Sarah Watkins-Kinney, and James Legg

The Juan Pardo expeditions differed from preceding Spanish entradas in the Southeast led by Hernando de Soto, Tristan de Luna, and others in the emphasis Pardo placed on diplomacy and gifting, and in efforts by the Pardo expeditions in building colonial outposts on the northern borderlands of the Spanish colonial province of La Florida. The first of Pardo's expeditions set out from the Spanish colonial capital of Santa Elena, in coastal South Carolina, in December 1566 (Figure 53). The members of the first Pardo expedition built Fort San Juan beside the Native American town of Joara, located at the Berry site, in the upper Catawba Valley, in western North Carolina. Pardo left his sergeant, Hernando Moyano, in charge of Fort San Juan, and he installed a chaplain, Sebastian Montero, at a mission at or near the town of Guatari, along the Yadkin River in North Carolina.

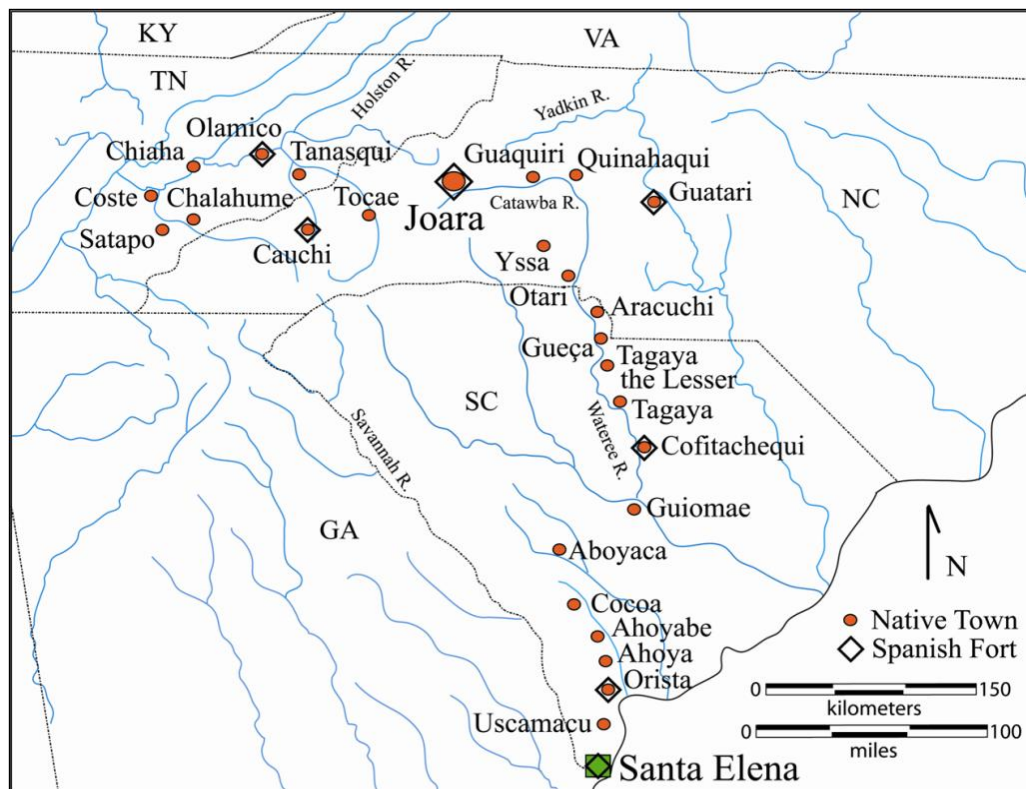


Figure 53, route of the Juan Pardo Expedition

While Pardo was back at Santa Elena in the spring and summer of 1567, Moyano and others participated with warriors from Joara in attacks on Chisca villages in southwestern Virginia, after which Moyano did some prospecting, in search of gold and silver in the province of Chiaha, in northeastern Tennessee. The second of Pardo's expeditions set out from Santa Elena in September 1567. When Pardo reached Fort San Juan, Moyano was encamped in a makeshift fort at Olamico, the main town in the province of Chiaha. Pardo traveled to Olamico, relieved Moyano, and they set out from there towards the province of Coosa, after which point they planned to travel the rest of the way to the Spanish silver mines near Zacatecas, Mexico.

They turned back after learning of plans by warriors from Coosa to attack the Pardo contingent in eastern Tennessee, and on the way back to Fort San Juan, they built forts at the towns of Olamico and Cauchi. Upon returning to Fort San Juan, Pardo sent Moyano and Andres Suarez in search of alleged sources of crystal nearby. He spent two weeks meeting with many different native community leaders who came to Joara to meet him. He then traveled to Guatari, visiting sources of gemstones en route, and he completed the construction of another fort—with stout log stockades and earthen ramparts—at the main town of Guatari, in early 1568. On his way back to Santa Elena, Pardo built a fort at the Native American towns of Cofitachequi, in central South Carolina, and a strong house (or *casa fuerte*) made of sawn lumber at Orista, near the coast. Despite the favorable relations that apparently developed between Pardo's outposts and many native community leaders, news reached Santa Elena in the spring of 1568 that Fort San Juan and Pardo's five other forts had been attacked and destroyed by Native American warriors.

Throughout his expeditions in the northern borderlands of La Florida from late 1566 through early 1568, Pardo emphasized diplomacy with Native American groups. At many settlements, including Joara, Pardo gave speeches to Native American community leaders, including people who traveled from points near and far to meet him, and to receive gifts from him. During his talks, Pardo asked native groups to build houses and storehouses for his men, and to set aside stores of food for them. At these events, Pardo gave out gifts such as metal knives, iron axes, iron chisels, cloth, buttons, and glass beads. As evident from documentary sources, several Native American groups—including the town of Joara—did build houses for Pardo, and they did set aside food for him, all as means by which they allied themselves with Pardo, and in some cases, as the means by which they shifted alliances from Native American chiefs to Juan Pardo himself.

Given the scarcity of provisions in sixteenth-century Santa Elena, and the Spanish colonial bureaucracy of sixteenth-century La Florida, careful records were kept of the supplies issued to Pardo's expeditions, and the supplies issued to Pardo's forts. At Santa Elena the Pardo expeditions were outfitted with supplies for soldiers such as communion wine (presumably transported in olive jars), cheese, biscuit, linen sacks, matchlock guns, matchcord, lead shot, crossbows, crossbow bolts, wrought iron nails, shoes, sandals, mattocks, shovels, picks, and at least one saw; and gifts and trade goods to give to native people such as iron knives, iron axes, iron wedges, iron chisels, metal buttons, glass beads, and cloth. Pardo's outposts were provisioned with lead shot, matchlock guns and matchcord, matchlock gun powder, crossbows, crossbow bolts, wrought iron nails, and trade goods for the Indians. Unlike the Soto and Luna expeditions, members of the Pardo expeditions did not travel with horses—all the supplies they had, they carried on their own backs, and unlike the Soto expedition, Pardo apparently never asked for native porters. With these points in mind, it is worth noting the recorded amounts of material transported inland by the Pardo expeditions: hundreds of iron tools that were given away as gifts, hundreds of pounds of lead and lead shot, hundreds of pounds of gunpowder, and dozens of pounds of wrought iron nails. The actual amounts and the actual range of supplies were probably greater than those itemized in written accounts.

One of the scribes of the Pardo expeditions, Juan de la Bandera, recorded the provisions issued to all six of Pardo's forts, and records were also made of the supplies issued to both of Pardo's expeditions. Any or all of these materials, of course, could have been brought to Joara and Fort San Juan. Meanwhile, in at least one instance—and probably many more—men were sent inland from Santa Elena with loads of gifts and trade goods that Pardo planned to give to native community leaders. Pardo placed groups of 10 to 30 men at each of his forts, but, periodically, larger numbers of his men gathered at Fort San Juan and other stops along his route.

There are written records of movements from one fort to another, and letters sent back and forth, all suggesting that it was relatively common for people to travel back and forth among Pardo's forts, and between Pardo's outposts and the colonial capital of Santa Elena. For these reasons, it is possible that any of the provisions issued to any of Pardo's forts were transported to any other of Pardo's forts. And while records were kept of supplies issued to Pardo's expeditions and Pardo's forts, there are no records of the personal possessions that may have been carried by individual soldiers.

From another perspective, consider the kinds of activities in which Pardo and his men were involved. They were soldiers, of course, and they carried weapons and related materials with them. Pardo was interested in establishing permanent settlements, developing favorable relations with native groups by giving talks and giving away gifts, and evangelizing. These goals would have necessitated hardware, domestic material culture, and gifts and trade goods. Pardo and his men were also interested in and involved in prospecting activities. They may have been interested in determining the amounts of different materials—food, lead, and nails, for example—that would have been issued to each fort, or to individuals. Artifacts related to these activities, then, may potentially be identified in archaeological assemblages from Fort San Juan, along with architectural remnants of houses and, perhaps, storehouses.

Of course, most or all of the material culture transported by the Pardo expeditions would have come from stores and stockpiles at Santa Elena, and we would expect sixteenth-century Spanish artifacts from any of Pardo's forts to resemble those from Santa Elena. Artifacts recovered through archaeological excavations at Santa Elena include:arquebuses; matchcord; crossbow parts; crossbow bolts; lead shot; lead sprue; bullet casting molds; wrought iron nails; iron knives; iron chisels; iron wedges; iron cotter pins; iron scissors; olive jars; small jars and dinner wares made of majolica; gilded ball buttons; copper bells; copper or brass aglets; copper or brass discs; copper or brass scrap; and glass beads—although not very many beads. These and many other items are known from written sources to have been imported to La Florida during the sixteenth century. There is no written record of the Pardo expedition transporting copper kettles or copper scrap, but Pardo and many of his men may have worn clothing fastened with copper aglets. Meanwhile, it seems likely that by the time of the Pardo expeditions, Spanish colonists in La Florida would have learned about the value that native people placed on copper—as did English colonists at Jamestown, in the early seventeenth century. English colonists came to consider copper scrap as a valuable commodity because it could be traded or given to native people—given the presence of brass and copper scrap at Santa Elena, it would not be surprising if the Pardo expeditions did indeed carry some of that material inland to Fort San Juan.

Not surprisingly, we would expect the material culture of Fort San Juan to resemble the material culture of Santa Elena, but we also would expect archaeological assemblages from frontier outposts like Fort San Juan to reflect the impoverishment that was characteristic of Spanish settlements in the northern borderlands of La Florida. On the one hand, Pardo did give away a great many gifts, and he did supply his forts with several hundred pounds of provisions. On the other hand, one reason why Menéndez sent Pardo inland is that Menéndez and Santa Elena needed support and resources from native towns. Menéndez had ambitious plans for Spanish settlement in La Florida, but it was difficult for him to mobilize the people and resources necessary to sustain his efforts and to accomplish his plans. Meanwhile, whatever Pardo and his men transported inland, they carried themselves, on their backs. The material culture of Fort San Juan, then, should probably reflect an emphasis on recycling and curation, as well as the impoverishment associated with Spanish colonial settlement at the edge of the known world.

Our identification of the Berry site as the location of Joara and Fort San Juan rests on the following points. First, descriptions of the routes of both the Soto and Pardo expeditions indicate that Soto's "Xuala" and Pardo's "Joara" were located in the upper Catawba Valley, in the Western North Carolina Piedmont. Second, the Berry site represents one of the largest Native American settlements in the Western Piedmont, and the chronicles of the Pardo expedition describe Joara as the largest town in its province. Third, the presence of a large earthen mound at the Berry site is consistent with the status of Joara as the most powerful town in the upper Catawba Valley during the period of the Pardo expeditions—the status of Joara as a powerful town is also noted in documentary sources from 1584 and 1605. Fourth, accounts of the Pardo expedition indicate that the town of Joara was situated on land "between two rivers," that there was abundant arable farmland in the vicinity of the town, and that snowcapped mountains were visible from a point in or near the town itself—these descriptions of the setting of Joara match the landscape surrounding the Berry site. Lastly, there are structures and artifacts from Berry that reflect the presence of a mid-to-late sixteenth-century Spanish settlement, in addition to the Native American settlement present at the site.

To date we have recovered several dozen artifacts from Berry that can be identified as definite or probable sixteenth-century Spanish material culture. These artifacts have been found on the ground surface, in plow zone deposits, in probable mound deposits, in pit features, and in burned structures. They reflect the range of activities in which members of the Pardo expedition, including those at Fort San Juan, are known to have been involved—settlement, daily life, military activity, trade, and prospecting, for example.

Although we have not found any pieces of crossbows or harquebuses, there are several artifacts from the Berry site related to military activity. Pieces of lead shot and lead sprue (Figure 54) very closely resemble those from Santa Elena. At least seven pieces of iron wire have been found at the Berry site, perhaps representing chain mail (Figure 55, 56) like that recovered from the Governor Martin site, or the iron wire associated with Spanish clothing at Santa Elena.



Figure 54, Lead shot and sprue from the Berry site



Figure 55, chain mail from Feature 92, Berry site

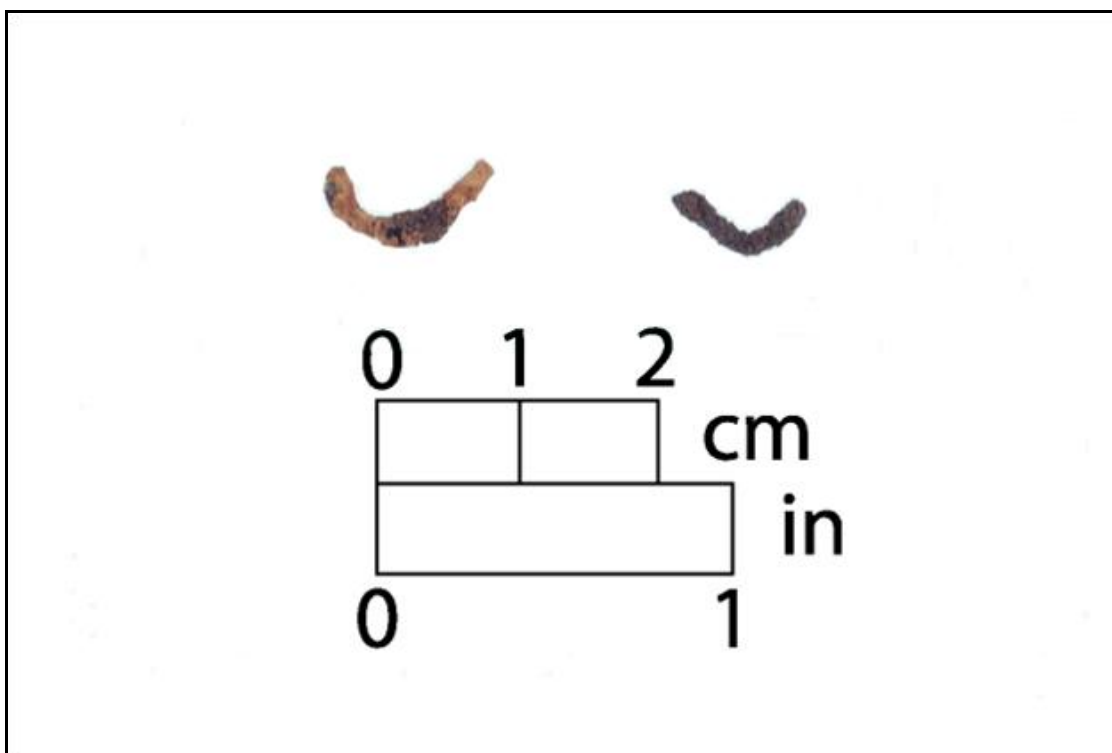


Figure 56, chain mail from Structure 1, Berry site

Artifacts associated with sixteenth-century Spanish settlement and domestic life from the Berry site include wrought iron, copper aglets, one brass clasp knife plate, and pottery. The artifact assemblage from the Berry site includes 12 wrought iron nails (Figures 57, 58), two additional pieces of wrought iron hardware, and eight indeterminate pieces of wrought iron, one of which was found wedged within a posthole in a burned structure (Figure 21). At least five copper aglets—lacing tips for clothing—have been found at the Berry site (Figure 59), as has one brass clasp knife plate. Although the vast majority of the pottery from the Berry site is attributable to the Burke series, and some to the Pisgah series, there are also several pieces of Spanish pottery from the site, including 15 olive jar fragments, nine pieces of Mexican red ware, one piece of caparra blue majolica, and two pieces of probable Spanish earthenware (Figure 60). All of these wrought iron nails, copper aglets, and pieces of Spanish pottery resemble those found at Santa Elena. With the exception of the Governor Martin site in Tallahassee—representing the Apalachee town of Anhaica and the first winter encampment of the Soto expedition—there is no other known site in the interior Southeast with as many sixteenth-century Spanish artifacts as the Berry site. Furthermore, the pottery, wrought iron, and copper aglets from the Berry site are related to settlement and domestic activity by Spanish soldiers, rather than brief visits by Spanish expeditions, or the circulation of Spanish goods through Native American exchange networks.

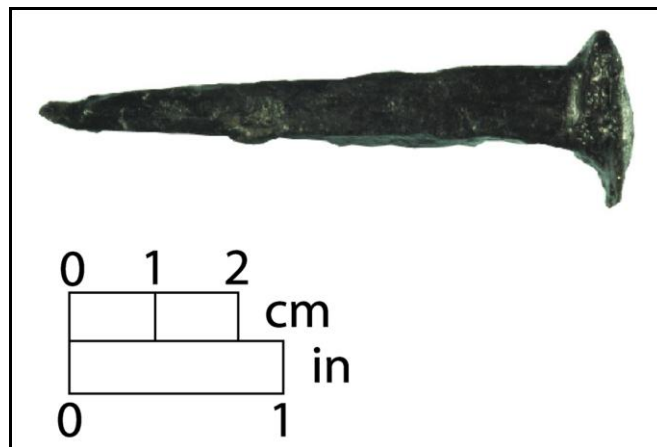


Figure 57, Barrote-type nail from the Berry site



Figure 58, possible caret-headed nail from the Berry site

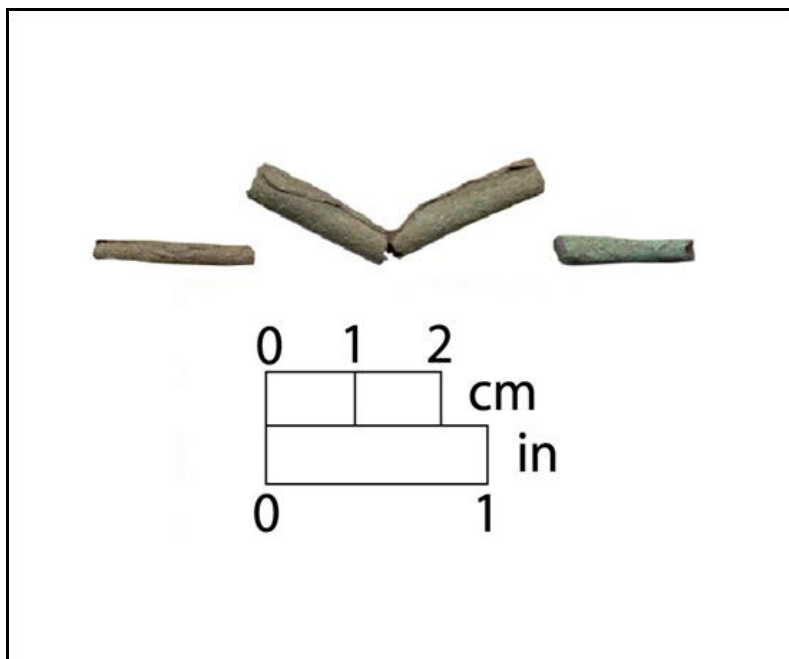


Figure 59, copper aglets from the Berry site

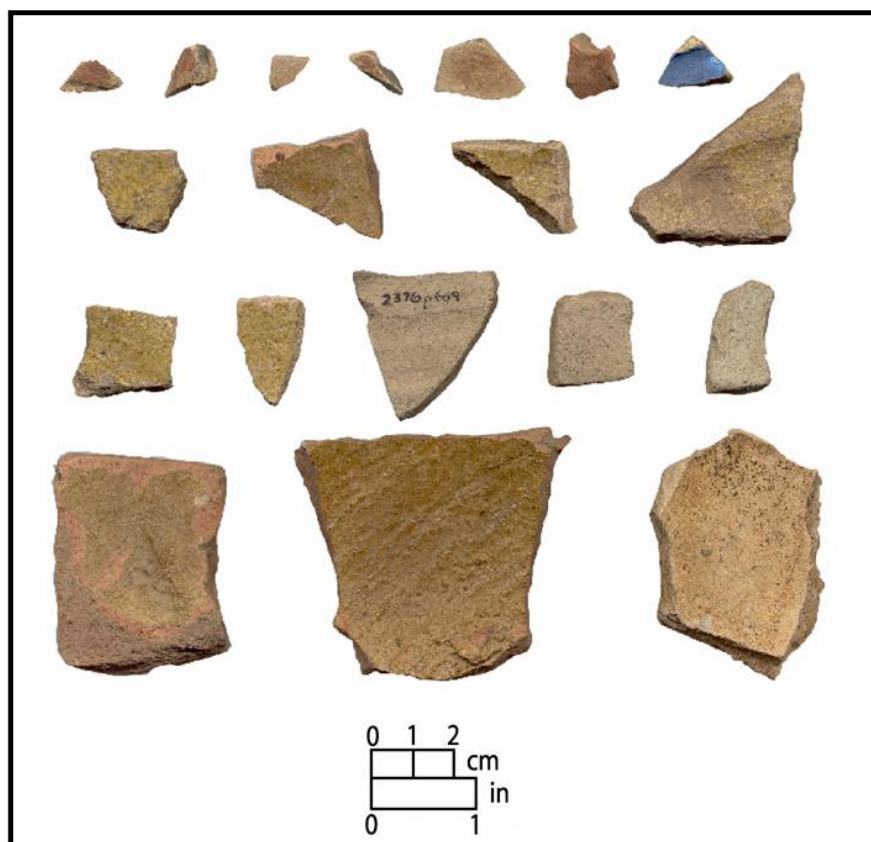


Figure 60, sixteenth-century Spanish ceramics from the Berry site

Other sixteenth-century Spanish artifacts from the Berry site probably do represent gifts and trade goods, including glass beads (Figure 61), rolled copper beads (Figure 62), and pieces of copper scrap (Figure 63). As noted already, there is no written record that Pardo had copper transported to Fort San Juan, but copper scrap has been found at Santa Elena, and it is likely that Pardo and others would have known about the value placed on copper by native people in La Florida. Compositional analyses would be beneficial here, especially if analyses could determine whether copper artifacts from the Berry site were made of the same raw material—or different raw material—than the copper artifacts found at Santa Elena.

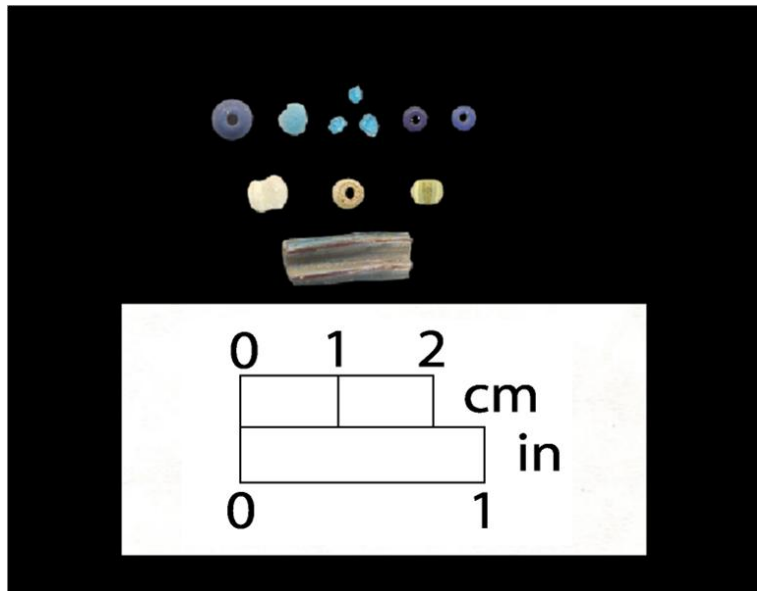


Figure 61, glass trade beads from the Berry site

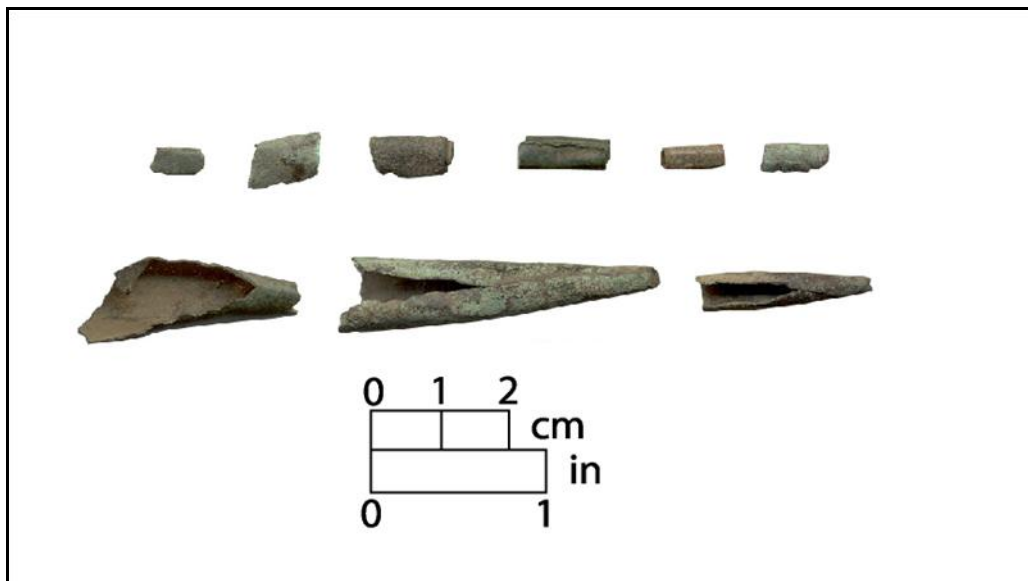


Figure 62, rolled copper beads or aglets from the Berry site



Figure 63, copper scrap from the Berry site

One of the glass beads from the Berry site (Figure 61, bottom) is an elongated, twisted Nueva Cadiz bead. The other 23 beads and bead fragments found at Berry are mostly small, single-colored beads. There are no examples of chevron beads from the Berry site, like those associated with the Soto and Luna expeditions in other areas of the Southeast. If the Nueva Cadiz bead from the Berry site is indeed associated with the Pardo expedition, then it falls at the late end of the temporal range normally associated with this bead type in the Southeast.

One of the more remarkable finds during excavations of Structure 5 at the Berry site is the large piece of wrought iron found in a posthole near the southwestern corner of the structure (Figure 21). Given the symbolic value placed on wrought iron by Native American groups in the Southeast during the sixteenth century, it seems unlikely that it would have been placed here by native people. Notably, this piece of wrought iron was found in one of several postholes, filled with yellowish clay, that were much larger than posts themselves. It is tempting to interpret these postholes as having been dug with metal shovels or metal tools, and, then, filled in after one or more log posts were placed in them—such techniques seem very different than those associated with typical Native American architecture, in which posts were rammed into the ground, and resulting posthole diameters were equivalent to the diameters of the posts themselves.

Another remarkable find from our recent excavations of Structure 5 at the Berry site is the pair of iron artifacts near the northern edge of the structure. Upon uncovering it in the field, we identified them as the rusted remnants of a steelyard balance (Figure 64) and an associated pan. The weights for steelyard scales have been found at sixteenth-century Spanish colonial settlements in the New World, but scales themselves are rare. The presence of a steelyard at a colonial outpost on the northern borderlands of La Florida makes some sense, given the nature of



Figure 64, steelyard scale element from Structure 5

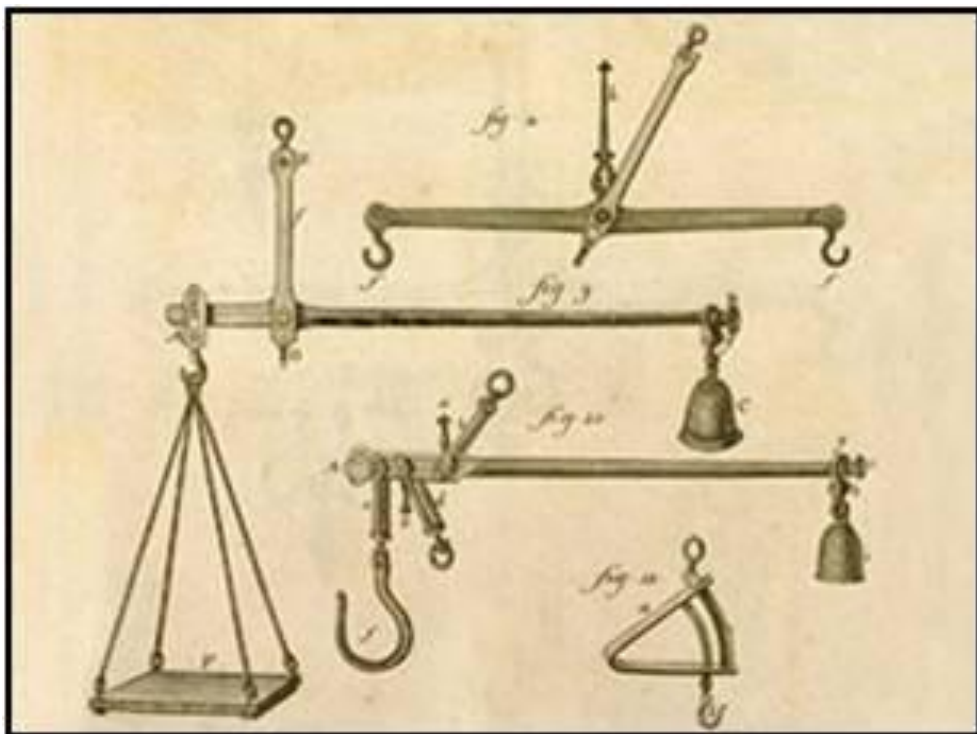


Figure 65, seventeenth-century illustration of steelyard scales

bureaucracy in Spanish colonial provinces in the Americas, and given the precise records in the chronicles of the Pardo expeditions of the amounts of provisions issued to Pardo's expeditions and to Pardo's forts. A steelyard would have been valuable for determining amounts of food, powder, lead shot, nails, and other provisions at Fort San Juan, and it also would have been valuable for measuring and evaluating rock samples. Documentary sources clearly indicate that Pardo and his men did some prospecting, and that Moyano and Andres Suarez brought samples of quartz crystal back to Fort San Juan in 1567. Interestingly, very close to these iron artifacts in Structure 5, we found a faceted quartz crystal, the kind found at Native American settlements such as Toqua, in Tennessee, and the kind that probably contributed to Spanish legends about "Los Diamantes," the mountain of crystal allegedly located close to Joara.

We photographed these artifacts *in situ*, then removed two large blocks of dirt so they could be excavated in laboratory conditions. We transported the blocks to the archaeological conservation laboratory of the North Carolina Department of Cultural Resources, located at East Carolina University, in Greenville, North Carolina. Since then, it has been in the care of and under study by Sarah Watkins-Kenney, the Chief Conservator at the lab. Her microexcavations of these blocks are ongoing, and the following are some comments about her finds thus far. Microexcavations have been undertaken with controlled lighting, with magnification, and with small tools such as a metal spatula, an ivory blade, and a soft brush.

First, there is very little metal left. As was apparent in the field, much of what is visible as the remnants of metal is rust. Having dried out now, the discolorations in the ground that we saw in the field are not as apparent, and the remnants of rust crumble easily. Nevertheless, the presence of rust, and the difference between the rust and surrounding dirt matrix, is still apparent to the touch. Second, with respect to the rectangular element with an apparent hook attachment, it closely resembles illustrations of steelyard balances from the sixteenth century and later (Figure 65). The hook element—if that is what it is—could have been a hook by which the balance was suspended from the rafters or roof beams of Structure 5, or it could have been a hook from which a metal pan or some other container was suspended, to hold material for weighing. If this artifact does indeed represent an element of a steelyard balance, the counterweights would have been added to the far end of the balance beam itself. One of the holes in the iron square was visible during excavations of Structure 5, and microexcavations of this dirt matrix in the lab since its removal from the ground have indicated the possible presence of a second hole just above it, as the possible presence of one hole on each side, as well (Figure 66).

Meanwhile, the possible pan is similarly intriguing yet puzzling (Figure 67). The lens of rust apparent during excavations of Structure 5 ranges from two to three millimeters in thickness, and microexcavations have detected no continuous surface that can be followed in removing the dirt matrix surrounding pieces of rust. There is an apparent indentation in this metal fragment, although it is unclear whether the indentation is an outcome of the metal having been bent for specific intentional purposes or bent during use or the collapse of the structure. The current focus of microexcavation efforts is to try to determine whether there is a clear bottom to the apparent pan, or not. After the removal of dirt "outside" the pan, this area of the block can be backfilled, creating support for any intact rust deposits, while the "inside" is then excavated. If there are no clearly discernible edges or a bottom consistent with the identification of this artifact as a pan, an alternative to consider is that it is a metal band, perhaps a barrel band.

At present, it is reasonable to favor the steelyard balance identification for these heavily corroded iron artifacts in Structure 5 at the Berry site, although further analyses may change our interpretations. Unfortunately, there is very little actual metal, if any, in the rusty outlines found in the ground. Whatever these artifacts are, we can say they were made of ir



Figure 66, laboratory excavation of scale element in process

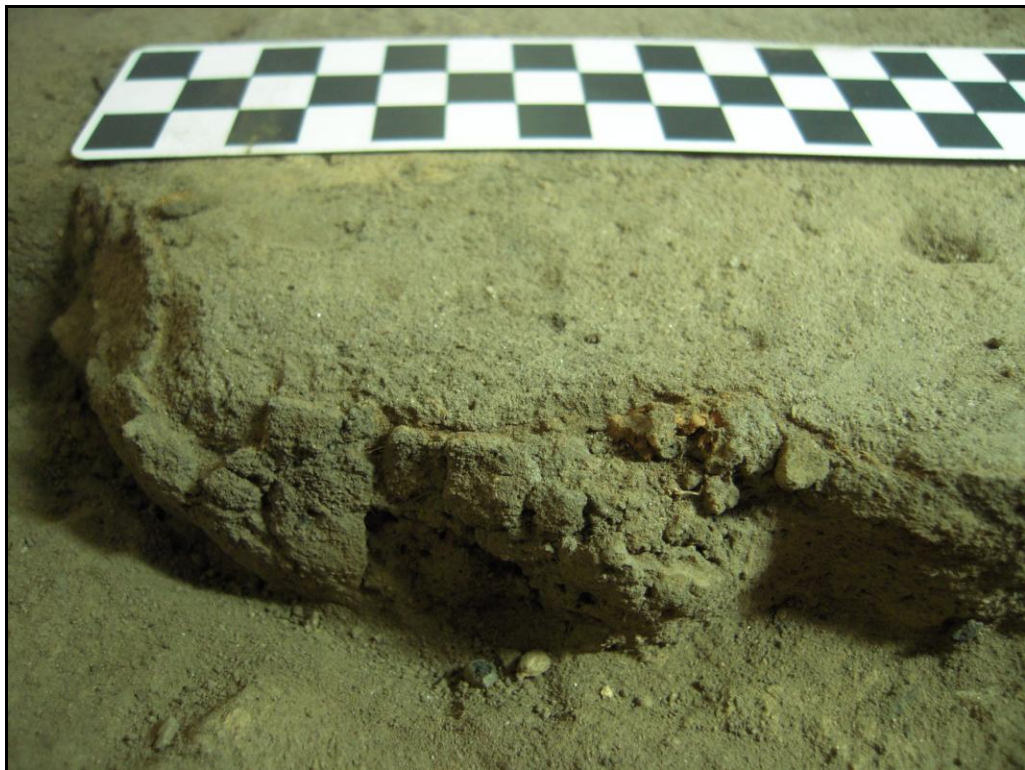


Figure 67, laboratory excavation of possible metal pan in process

As Spanish material culture related to permanent settlement in the northern borderlands of La Florida and diplomatic outreach to Native American groups by the Juan Pardo expeditions, historic artifacts from the Berry site constitute a unique assemblage compared to other sixteenth-century archaeological sites in the southeastern United States. They are related to a colonial settlement that was dependent upon the native host community, an outpost that was vulnerable, and a fort that was sacked by Native American warriors in 1568. Given the dependency of Fort San Juan on the people of Joara, it is not surprising that the majority of artifacts from the Berry site are, in fact, typical Native American material culture from this period. Given the plans for permanent settlement at Fort San Juan, and the status of Fort San Juan as Pardo's principal outpost on the Spanish colonial frontier, it is also not surprising that we have found a relatively large number of sixteenth-century Spanish artifacts at the Berry site.

Given the range of and the amounts of materials issued to the Pardo expeditions and to Fort San Juan in particular, it is worth considering where it all is, and why we have not found more sixteenth-century Spanish artifacts at the Berry site. After all, the provisions that Pardo issued to Fort San Juan include 34 pounds of wrought iron nails; more than 235 pounds of matchlock powder; more than 201 pounds of matchcord; more than 235 pounds of lead and lead shot; four crossbows and 240 crossbow bolts; 42 iron chisels; and several iron shovels, axes, wedges, mattocks, and picks. While at Fort San Juan, Pardo gave the chief of Joara eight iron knives, and he gave away many other iron implements to other native community leaders who visited him at Joara. Where is all of this material?

Some of it, of course, has been found at the Berry site, including an iron knife in the burial of an adult male excavated in 1986 (Figure 68), and some of it, such as matchcord and matchlock powder, probably would not preserve well. Many materials may have been carried by Moyano and others on explorations and expeditions in areas surrounding Fort San Juan. Other Spanish goods at Fort San Juan may have been taken away by native people, they may have circulated through Native American exchange networks, and in some cases, they may have been buried with the dead, as at burial mounds in the upper Yadkin Valley (Figure 69), about twenty



Figure 68, iron knife from Burial 1 at the Berry site (1986)

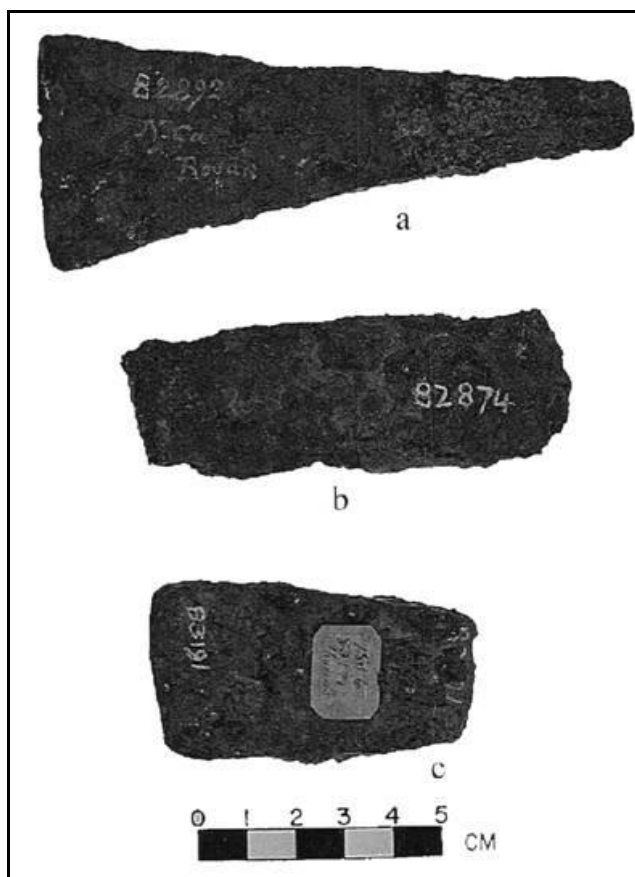


Figure 69, iron celts from sites in the Yadkin Valley

miles northeast of the Berry site. Cyrus Thomas reported several iron and copper artifacts from burial mounds here in the late nineteenth century. Metal objects and glass beads were highly desirable to native people, and as the stream of Pardo's gifts stopped, his forts, and the provisions stored at them, may have become seen as possessions worth taking, or even as potential war trophies. Some sixteenth-century Spanish artifacts found in burials at the King site in Georgia may have been acquired through theft or taken in battle with the Soto or Luna expeditions, and supplies stored at Fort San Juan may have been salvaged by native people during or after the attack that led to its abandonment. With this in mind, it is worth noting that we have not found many artifacts lying directly on the floors of structures 1 and 5, indicating that those structures were probably cleaned out before they were burned down. Meanwhile, given the difficulty of supplying frontier outposts like Fort San Juan, those supplies that Pardo's men brought with them probably were kept for as long as possible, and recycled for as long as possible. In sum, very little of the Spanish material culture at Fort San Juan would have been discarded, without some attempt by native people or colonists to make use of it.

Artifacts from the Berry site also offer some evidence of Spanish material culture that is not specifically noted in documentary sources about the Pardo expeditions, including copper, and a steelyard scale. The number of copper artifacts from the Berry site is consistent with the emphasis Pardo placed on diplomacy, and gifting. Given the interests of Pardo and other Spanish colonists in finding metals and gemstones, it is likely that the steelyard scale from the Berry site is related to prospecting activity, even if it was also used for measuring provisions.

Although the assemblage of sixteenth-century Spanish material culture from the Berry site is substantial, and although there are a variety of artifact types represented, there is a great deal more Native American material culture from the structures and pit features associated with Fort San Juan. Native American material culture and foods were prevalent in daily life at Fort San Juan. Within the northern borderlands of La Florida, and at the edge of the known world, the daily lives of Spanish colonists at Fort San Juan were interwoven with those of native people in the host community, and, indeed, the fortunes of the Pardo expeditions were tied closely to willingness or unwillingness of the people of Joara to support them.

PART VII: LITHIC ARTIFACTS FROM STRUCTURES 1 AND 5

C. Adam Moody

The Berry site (31BK22) is located in Burke County, North Carolina in the foothills of the Appalachian Mountains. The site is located on a floodplain where the Warrior Fork and Irish Creeks unite to form Upper Creek, which drains into the Catawba River 6.3 kilometers below this confluence. Evidence indicates that the Berry Site is the site of Joara and Fort San Juan. Investigations here have revealed the presence of five burned structures isolated near the single mound, and these are believed to be the remains of Fort San Juan. This section will focus only on lithic remains from two of these structures, Structures 1 and 5. To date, Structure 5 has been completely excavated, as has more than half of Structure 1. The lithic assemblages from these two structures are discussed here and compared with the assemblage from a contemporaneous structure located near Berry, Structure 1 at the Ensley site (31BK468). What do the lithic assemblages tell us about activities that took place in these structures, how do these data compare with the Ensley data, and how well does the Berry evidence fit what we know from the historical accounts and have learned archaeologically?

Methods

In total, 1035 lithic reduction tools and debris (including hammer and anvil stones, tools, cores, and debitage) were analyzed from the two structures and surrounding features. Because it is yet unknown how the surrounding features relate to the structures, this report focuses only on artifacts from contexts inside the structures. Predictably, the largest portion of the assemblages was debitage, so that is a logical place to begin.

Each artifact was first identified by material type: the three dominant materials are quartz, Knox Chert, and quartzite. Quartz and quartzite are abundant in the streams surrounding the Berry site and are assumed to be local. Knox chert, however, is not a local resource. The nearest known sources are roughly 72 kilometers from the site (Figure 70), and secondary deposits are not found in the local river and stream systems. Several other material types were identified, but since their numbers were few, these materials were combined in the analysis into a group labeled 'other'. Once the material type was identified, each artifact was weighed, and the artifacts completeness indicated. That is, I asked whether the flake represents a complete flake, a broken flake or a flake fragment? I then assigned an attribute of primary, secondary, or tertiary, as these indicate the reduction stage of the flake.

Analysis and Results

Structure 5

Structure 5, at roughly 50 square meters is the smallest of the burned buildings. It was of single set post design. Either these posts surround a very shallow basin or the structure floor was placed directly on the surface in an area dense with features. In total, 166 debitage artifacts with combined weight of 145.4 grams were recovered from the collapse zone above the floor of Structure 5 (Zone 2) and the floor itself (Zone 4). For reference, the only hammerstone recovered from either structure was a small quartzite hammerstone from Structure 1 that weighed 169.5 grams, or 24 grams more than the entire debitage assemblage from zone two of Structure 5. Prima facie, these figures indicate that stone tool production was either not practiced intensively inside the structure or the structure was thoroughly cleaned of lithic debris. A closer look at the details will better characterize the nature of the Structure 5 lithic assemblage.

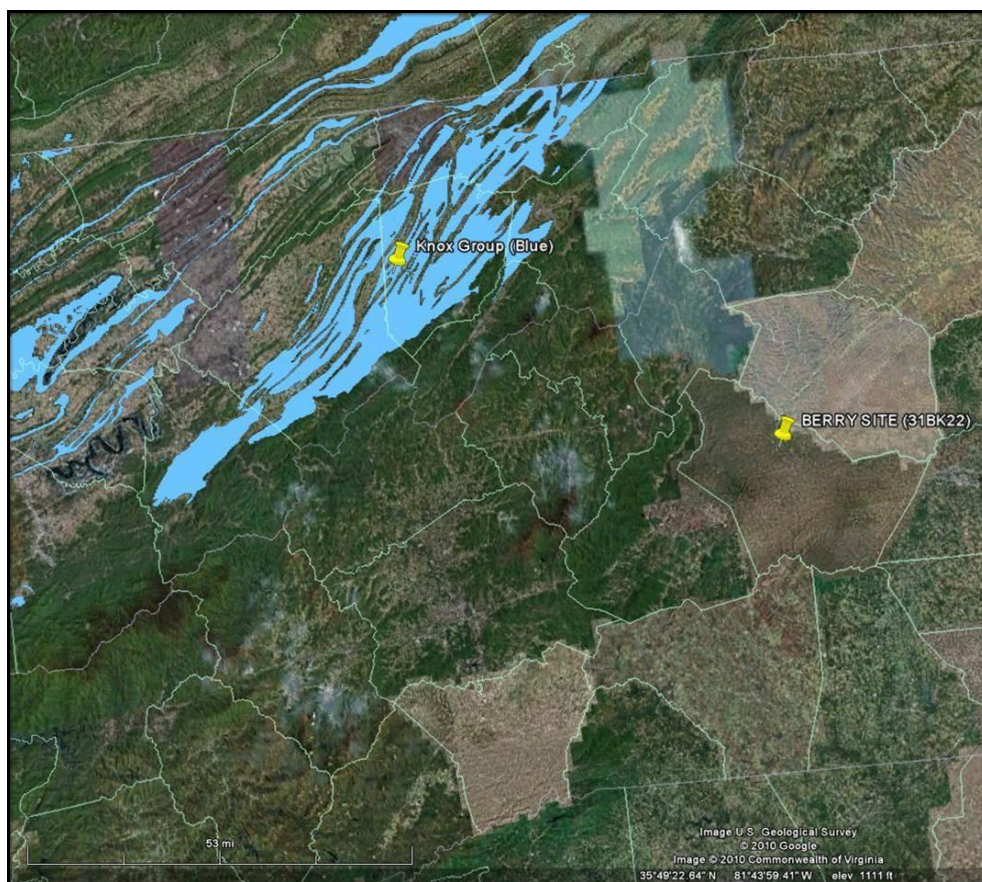


Figure 70, Knox chert deposits west of the Berry site

When we consider a total number of flakes, we must delineate whether the artifacts represent one flake or many fragmented sections of flakes. Therefore, complete flakes are the best indicator of the number of flakes present. In Structure 5, 93 of 166 flakes are complete. However, it is also important that we understand the materials of which these flakes were made, since different materials may have been used differently. Of the 93 complete flakes, 50 were quartz, 30 were Knox chert, 8 were quartzite, and 'other' were 5. Therefore, 86 percent of the assemblage is either quartz or Knox chert. The total weight of these complete flakes is 124.3 g and is distributed across material type in a pattern similar to their counts. That is, complete quartz flakes weighed 79.8 g, Knox chert flakes weighed 29.5 g, quartzite flakes weighed 12.8 g, and 'other' flakes weighed 2.2 g.

Another indicator of what behaviors these flakes represent is indicated by their stage in the reduction process. There are only four primary flakes in the analyzed assemblage; all are quartz and have a combined weight of 24.1 g. Note that this is slightly misleading given that one of the primary quartz flakes weighed 19.9 g, a factor that has interpretive implications to which I will return. There were also 21 secondary flakes. Of these, 13 (29.6 g) were quartz; 6 (2.9 g) were Knox chert; and 3 (1.1 g) were quartzite and 'other'. There were 67 tertiary flakes in the Structure 5 assemblage, representing 72% of the all complete flakes. Of these, 32 (25.9 g) were quartz, 24 (5.1 g) were Knox chert, 7 (1.2 g) were quartzite, and 4 (2.1 g) were 'other'. There were also two quartz cores recovered from Zone 2 with a combined weight of 10.2 grams. The

only lithic tools found in Zone 2 were three projectile point fragments with a combined weight of less than 4 g.

Though we are dealing with small numbers, I would like to point out the discrepancy between the tertiary flake counts and weights when we consider material type. While complete quartz tertiary flakes number only 12 more than complete Knox chert flakes, their weights are quite different at 25.9 g for quartz versus 5.1 g for Knox chert. This indicates that Knox chert flakes are much smaller than quartz flakes. A similar pattern for the two material types in the entire assemblage likely indicates not material preference so much as transportation cost. That is, the Knox chert raw material was significantly reduced, perhaps already in blank or tool form, prior to the reduction activities indicated by the assemblage. Not only do tertiary flakes dominate the Knox assemblage in number, but their size indicates that these were created in the latest stages of reduction. This is further indicated by the maximum thickness of each flake, which for tertiary quartz flakes is 3.56 mm and for tertiary Knox flakes is 1.78 mm; the average thickness for quartz tertiary flakes is thus twice that of Knox chert tertiary flakes.

Placing these patterns inside the structure by relating unit totals further refines our picture. Of the 64 excavated units, only 42 had any lithic debris. Of these 42, only four had more than 10 flakes (Units 19, 45, 53, and 55). More telling is that only one unit had more than 10 g of debris, Unit 19 at 47.8 g. However, the majority of this weight is represented by two quartz flakes that have a combined weight of 29.8 g, or 62% of the combined weight of all flakes and 87% of the combined weight of quartz flakes. A second interesting fact is that the weight of quartzite in the unit is 12 g. Three of these flakes, totaling 11.4 g, had significant reddening. While these flakes did not have telltale signs that they were crenated fire-cracked rock fragments, they were the only flakes in the entire 942-flake assemblage with indications of heat transference. Therefore, if we remove the two large quartz flakes as outliers and the reddened quartzite as fire-cracked rock, we are left with 17 flakes and a combined weight of 6.6 g, which is similar to other unit averages. It is possible that Unit 17 represents a chipped stone activity area, but, given that together the eight adjacent units contain only 19 flakes (12.6 g), this seems unlikely.

Another interesting aspect of the Zone 2 flake distribution across units is that units devoid of flakes cluster to the outside of the structure, while those units with flakes are nearer the interior of the building. This may indicate that the flakes--while few in number--were created inside the structure. Two other possible explanations could account for this pattern. Since there is little evidence that the structure was erected with a basin or otherwise prepared floor, these flakes may have predated the structure. On the other hand, they may also have been carried into the building inadvertently on the feet of its occupants.

These patterns indicate a clear interpretation of lithic debris in Structure 5. First, and most obvious, there is not much there, indicating that the building was not used for a significant amount of lithic reduction. The distribution of materials by unit or interior feature similarly fails to indicate any lithic-related activity areas. Essentially, there is little to suggest that lithic debris or tools were produced in Structure 5.

Structure 1

Structure 1 is located about 20 meters east and north of Structure 5. It measures roughly 70 square meters. Sixty percent of the structure has been excavated and the amount of lithic materials recovered is quite meager. There were only 35 lithic artifacts recovered from the floor contexts in Structure 1, totaling 11.2 g. By material, there are 10 quartz flakes, 10 Knox flakes, 13 quartzite flakes, and 2 flakes of unknown materials. Of these, 22 are complete flakes, four are broken flakes, and 9 are flake fragments. The complete flakes have a combined weight of 6.4 g,

not a single flake weighed more than a gram, and all but one were tertiary flakes. The quantity and weight of flakes from Structure 1 might be attributable to secondary deposits picked up on muddy footwear. Only 11 of the 42 excavated units had any flakes; Unit 38 had the most flakes by count (7) and weight (2.3 g).

No projectile points or point fragments, utilized flakes, or other tools were recovered from the floors of Structure 1. Only one lithic tool recovered from a floor of Structure 1, a lightly pitted discoidal quartzite cobble that was possibly used as a hammerstone (Figure 71). Other than that, there is essentially no evidence that stone tool production or other processing activities took place inside this structure. These results support the hypothesis Structure 1 did not host the production activities typically observed in native-occupied structures. If floors were swept, some evidence of lithic production would be removed. However, the fact 78 ceramic sherds, weighing a total of 207 g, were recovered from the floors suggests that they were not very well swept.

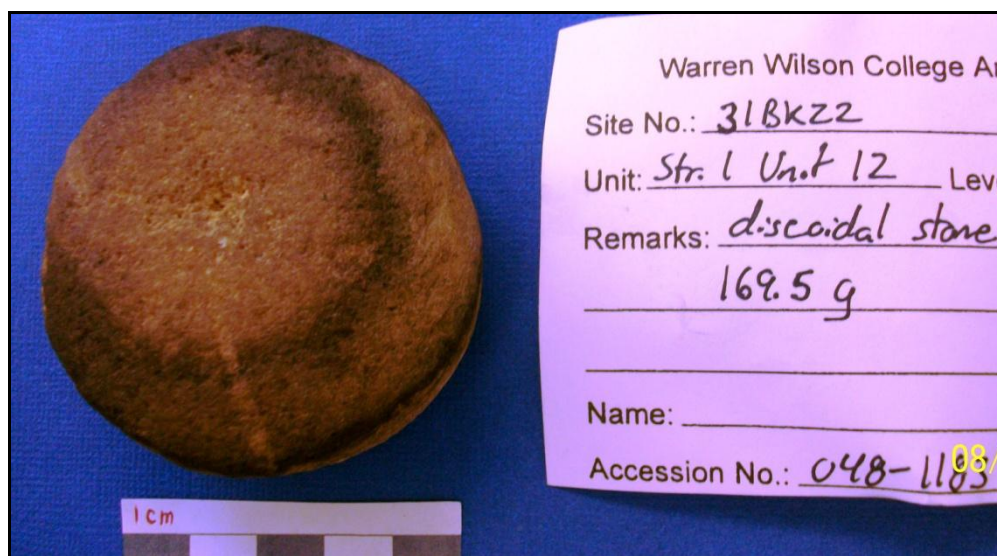


Figure 71, pitted discoidal from Structure 1

Comparisons with Ensley

The Ensley site is located roughly 2 km from Berry but is located on a floodplain of the adjacent John's River. Sixteenth-century Spanish artifacts discovered at Ensley demonstrate its contemporaneity with Berry. At nearly 120 m², Structure 1 at Ensley is significantly larger than either Structures 1 or 5 at Berry. The size of the Ensley structure suggests that it was a public building. Lithic evidence from Structure 1 at Ensley also indicates that it was a lithic workshop, or was used as one for a period. The more than 5000 debitage artifacts recovered from inside Structure 1 at Ensley suggest flake tool production was a primary activity. Both quartz and Knox chert were the dominant materials and there is evidence that both materials saw all stages of reduction. This is expected for the local and abundant quartz but a bit of surprise for the Knox chert, given the distance of its nearest sources. The percentage of Knox chert flakes with cortex was 36%, and given that cortex represents only the outer portion of a cobble and that most flakes created during lithic reduction should not contain cortex, this percentage is rather high.

Twenty hammerstones were also found in the Ensley structure. These and the numerous abraders and anvilstones indicate that many individuals were likely producing stone tools inside Structure 1 at Ensley. The recovery of 67 projectile points, in all stages of production, and the

fact that very few other stone tools were recovered from inside the building, suggests that their production was a specific focus of lithic activity in Structure 1. Activity areas became apparent by plotting the distribution of flakes across the structure, and the positions of these activity areas were similar to those recognized in a large and contemporaneous public building at the Toqua site in Tennessee. The Toqua structure has also been interpreted as a lithic workshop.

Comparing the characteristics of the lithic assemblage from Structure 1 at Ensley and the assemblages from the two Berry structures is dramatic. Comparing evidence of lithic production and use, Structure 1 at Berry could not be more different from Structure 1 at Ensley, since there is a near complete lack of evidence for lithic reduction in Structure 1 at the Berry site. Comparing Structure 1 at Ensley and Structure 5 at Berry, there are some vague similarities between material selection and use in the assemblages. In both structures, quartz and Knox chert were the most utilized materials. But while the Knox debitage from the Structure 5 was indicative mainly of late stage reduction, the assemblage from Structure 1 at Ensley was consistent with Knox chert materials being worked through the complete, or nearly complete, reduction cycle. Of course, the sheer volume of materials in Ensley's Structure 1 overwhelms the amount of material recovered from Berry's Structure 5.

Conclusions

The results of this analysis indicate that indigenous practices associated with the creation and use of stone tools are absent in Structure 1 at Berry and negligible in Structure 5. If lithic tools were created or used in Structure 5, they were not done so in any significant way. Structure 1 at Ensley has abundant evidence of stone tool manufacture, with a particular focus on projectile points. To put these archaeological data into historical context, the lack of lithics from Structure 1 at Berry supports the interpretation of this building as a Spanish fort structure built for Pardo by the inhabitants of Joara. In such a structure, we would not expect much--if any--evidence of lithic reduction practices. The Structure 5 data suggest that some lithic reduction, while very limited, might have occurred. Its uncharacteristic design suggests it may have been built by Spaniards. It is not surprising that some stone tool manufacture and use would have taken place the Spanish structures. We know the the people of Joara provisioned the fort, and that native women were guests inside some of the Spanish structures. It is conceivable that native men or women visited this structure and may have helped with subsistence tasks that included the use of stone tools.

PART VIII: WOOD REMAINS FROM STRUCTURES 1 AND 5 AT THE BERRY SITE

Lee Ann Newsom

My part in this project concerns the wood and other non-food plant remains, especially the burned remnants of a series of buildings associated with the Spanish tenure at the site. For the present purposes my focus is on questions that relate to the nature of individual buildings, including how they were constructed, any suggestion of the time of year when built, and by whom. As to the last, one possibility is that the structures were built exclusively by the Native American inhabitants at the behest of Pardo to provide dwellings and storehouses for his expedition members (Moore, et al. 2010). Alternatively the Spanish themselves may have constructed the buildings; certainly among the supplies they brought along to Joara were carpentry tools such as saws and axes. Or perhaps construction was a cooperative effort with both groups working together. These separate scenarios suggest vastly different opening social relationships and initial approaches to what would be an evolving dialogue, which is of central importance to understanding the entire set of interactions and negotiations of power relations.

My analysis derives insights from wood anatomy and wood technology, including consideration of traditional European and Native American construction practices, as well as comparison with well documented Mississippian structures from around the region. At this juncture, I am focusing on a pair of burned buildings designated Structures 1 and 5, respectively. This work began and was made possible with field crews who intensively mapped and expertly sampled the floors of the structures, including in situ collection of macroscopic items believed to represent original wall timbers, rafters, and various other structural elements.

About 60% of Structure 1 had been excavated by August 2008. This structure is believed to have been built from the first winter into the spring of 1567, along with at least two of the other buildings (probably Structures 3 and 4). These original structures are likely to have been built expressly for the use of single comrade groups among the expedition members, amounting to something on the order of 10 men per building. This building was square in outline, with three large central support posts (presumably three out of four total, the fourth as yet uncovered), and a clear entry way, all of which are consistent with Native American building traditions in the region, specifically the “large individually set post design” (e.g. Lacquement 2007a:4)

Structure 5 has been completely excavated. It is the smallest of the burned buildings, at roughly 50 square meters, and is further distinguished by the lack of, or a weakly defined, house basin. Likewise, large central support posts are lacking and as Beck et al. (2010) have noted, at least two, perhaps three, of the central support posts were evidently deemed insubstantial enough to have required a second support post. This structure may have been built expediently (and not especially well) during a later phase of the fort’s Spanish occupation.

Wood Taxonomic Assignments

It is important to understand that there are particular levels of distinction and some inherent limitations to taxonomic assignments based exclusively on wood anatomy, i.e. lacking also flowers and other reproductive organs for clarification. Wood taxonomic assignments typically rest at the genus level, although the flora of the Northern Hemisphere temperate zone allows for finer resolution in a few instances. For example, among the oaks, wood may be classified to three subgeneric groups, each of which encompasses several species. Other taxa assigned below this to the species level are generally monotypic, and the analyst makes an explicit assumption that there are no differences in biogeographic range between present and recent past, or overlooked species radiation, including the chance of extinct taxa being

represented in the assemblage (i.e. species rank identifications are questionable for a number of reasons, including others not mentioned). With regard to both the generic and subgeneric classifications, given that several taxa may be represented in each genus or anatomical group, then it follows, and is indeed true, that there also exists inherent variation in wood technological properties where durable construction and other uses are concerned.

Berry site wood taxa

Pine (*Pinus* sp., subgenus *Pinus*, section *Pinus* [*Taeda* wood anatomical group]) is present in both structures (Figure 73) and appears in the form of burned and unburned timbers as well as fine carbon particulate microdebris in the floor deposits. All of the southern “hard” or “yellow” pines, e.g. longleaf pine (*P. palustris*) are included in this section of the pine genus. The use of pine in Native American durable construction has been widely documented in previous research in other locations around the region, especially Alabama, Georgia and Florida, where pine has been verified repeatedly as a key support element in several Mississippian or similarly late structures (Lacquement 2004, 2007c). Heavy use of pine in the lower Southeast was probably in large part a reflection of the subregion as prime pine savanna habitat. Based on Lacquement’s (2004, 2007b) work, pine seems to have been preferred for larger standing or set pole/post construction. This is consistent with at least with Structure 1 at Berry, pine being the wood used for all three of the central support posts, as well as several other smaller ones forming the outer wall structure. Conversely, pine seems to have been avoided for bent pole forms of construction; this is possibly explained by adverse wood technological properties, as Lacquement (2004, 2005) has demonstrated experimentally (and see Reed 2007). To briefly consider use of other types of coniferous wood, structures recorded at the Kincaid site in southern Illinois included both cedar (*Juniperus*) and cypress (*Taxodium*) posts (Brennan 2007), and the Mitchell site, also in southern

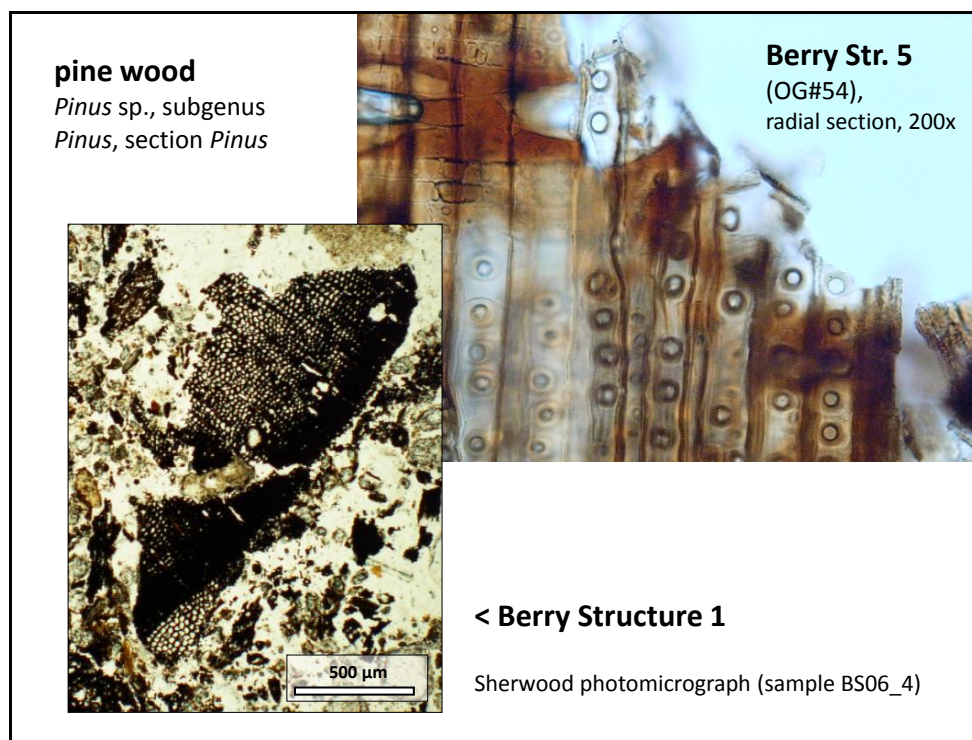


Figure 72, Pine identified in timber (right) and microstratigraphy (left)

Illinois, had a large cypress posts (Newsom, personal observations). Otherwise archaeological mention of the use of at least these two additional softwoods, i.e. conifers, being used in construction for Illinois and elsewhere are lacking. Neither one has been identified in the Berry assemblage thus far; however I note one record of Souians in eastern North Carolina making use of “very long poles” of both pine and cedar in house construction (Swanton 1946:410-411; and see Reed 2007). Structures excavated at the Hovey Lake site in southwestern Indiana (Munson et al. 2009), like many others north of the primary southern pine belt (Reed 2007) were built exclusively of hardwoods (dicotyledonous, e.g. oak posts), no conifers whatsoever.

American chestnut (*Castanea dentata*)--another key construction wood in the Berry Site assemblage--was a true giant attaining 100 meters or so in height (Frienkel 2007). It was for millennia the dominant tree species in the Appalachian Mountain forest system, before having been largely eliminated by chestnut blight introduced early in the last century (Frienkel 2007). Thus it is unsurprising to find it in the Berry wood assemblage, situated as the site is in the Appalachian system, including a large plank and several other timbers. Chestnut wood is excellent as a building material; it shares a lot of characteristics with oak, both anatomically and in terms of wood technological properties (USDA Forest Service 1974). Growing densely, and if one had the tools and technology available to harvest and reduce the boles of large individuals down into various classes of lumber, then clearly this was a highly economical wood, resulting in large quantities of lumber yield per tree and over vast acreage. While it lasted, chestnut was a huge boon to the American timber industry (Frienkel 2007).

Figure 74 shows the historic range of American chestnut, which is native to eastern North America, stretching from Mississippi to Maine, mostly along the spine of mountainous uplands. Only a ghostly presence of this once expansive range exists today, making it difficult to visualize that this now virtually extinct tree was so dominant. In many forests it was, as I have indicated,

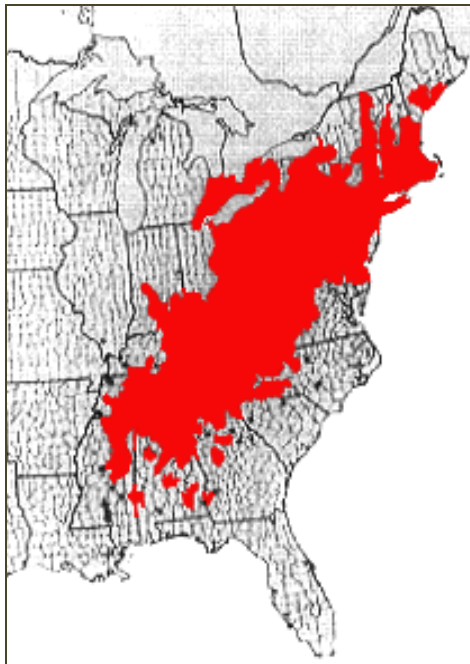


Figure 73, Chestnut range
(<http://www.ppws.vt.edu/griffin/accfhab.html>)

the most numerous and often the largest tree. Aside from our work at Berry, the only other record of chestnut wood use in aboriginal construction in the region is the recently reported Hovey Lake site in Indiana (Munson et al. 2009). Thus given the former widespread availability and as a superior wood for durable construction and other uses, the lack of documentation for chestnut timber in Mississippian construction, aside from these two cases, seems odd. Nevertheless for the prehistoric sites in the general range with structures that have been excavated and the wood types documented--mainly western Tennessee, northern Alabama, and Georgia--there is no record of chestnut use (other states with documented Mississippian structures--e.g. Missouri, Illinois--are largely or wholly beyond the tree's geographic range). Perhaps chestnut went unused as a wood resource due to technological constraints or some cultural proscriptions. Another possibility is that chestnut has been overlooked by individuals working to identify archaeological wood taxa since it has strong similarities in anatomical structure and thus is readily misidentified for the white oak anatomical group.

Table 1. Berry Site wood taxa	
<u>Structure 1</u>	<u>Structure 5</u>
<ul style="list-style-type: none"> • <i>Quercus</i> sp., oak <ul style="list-style-type: none"> – White group – Red group (25%) • <i>Pinus</i> sp., pine (45%) <ul style="list-style-type: none"> – Subgenus <i>Pinus</i>, section <i>Pinus</i> (“hard” or “yellow” pines) • <i>Robinia pseudoacacia</i>, black locust • <i>Castanea dentata</i>, American chestnut 	<ul style="list-style-type: none"> • <i>Quercus</i> sp., oak <ul style="list-style-type: none"> – White group – Red group (74%) • <i>Pinus</i> sp., pine (13%) <ul style="list-style-type: none"> – Subgenus <i>Pinus</i>, section <i>Pinus</i> (“hard” or “yellow” pines) • <i>Robinia pseudoacacia</i>, black locust • <i>Carya</i> sp., hickory <ul style="list-style-type: none"> – true group

Table 1, Wood taxa identified in Structures 1 and 2 at the Berry site

The complete list of woods identified thus far from remains associated with the two structures is provided as Table 1. This includes five taxa per structure, with the red- and white-type oaks, as well as the pine indicated earlier, and black locust present in both. Thus far American chestnut is unique to Structure 1 and hickory to Structure 5. Pine is the dominant taxon for Structure 1 and red oak, thus far, for Structure 5. The red oak dominance in Structure 5 is consistent with a set of relatively late structures at the Hovey Lake site mentioned above; likewise the wood assemblage from the Powers phase structures at the Turner and Snodgrass sites in Missouri (O'Brien 2001:151-157). Otherwise, previous research on Mississippian structures excavated variously around the region (Lacquement 2007b; Reed 2007) suggests a preponderance in use of hickory and the white oak anatomical group; ash and a few other woods are noted also,

but in much lesser proportions. Black locust seems to have been especially, i.e. preferentially, used for specifically for posts, including at the Hovey Lake site.¹

Wood Technology: Timber Preparation

The Berry samples are predominantly roundwood (a category established in European archaeobotany), i.e. cylindrical segments of stem or branch. All generally lack the outer bark, however portions of the inner bark are commonly present. This suggests partial or complete preparation of construction material, bark removal making for a more durable timber. Stripping and cutting away the bark is a practice that has a long history at least in European wood technology (to leave it intact invites insect problems). Evidence suggesting bark slabs were used as roofing material (Lacquement 2007c) indicates Native Americans also removed bark, at least for that purpose, as a supply of additional construction material. Some of the Berry specimens have cut marks along the outer, i.e. tangential, surface presumably the result of this operation. When both pith and bark are present, i.e. the complete transverse profile, as with the example specimen shown in Figure 75, it is possible to determine or at least closely estimate the age at harvest, taking care to discriminate missing and false growth increments which tend to correlate with age and/or particular taxa.

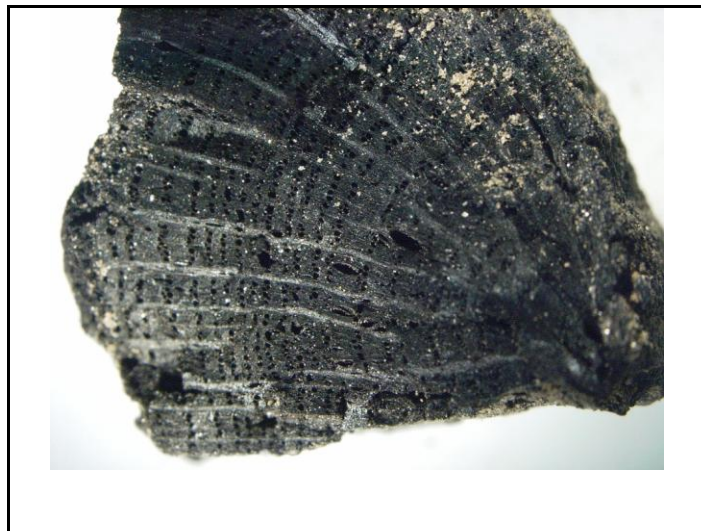


Figure 74, Roundwood segment (OG#21) from Structure 5, (red oak anatomical group (cross section, 7x); length ~17 cm, radius ~2 cm; includes pith and outermost rings with bark partially intact, allowing for a ring count of 24 years)

¹ **Woods assoc. with Str. 1:** thus far 5 taxa, with pine at 45% of the total identified, red oak group (ROG) at 25% & the other 3 taxa at 15% or less (WOG 10%; BL 5%). Major structural elements made from pine (center posts, outer wall posts, large timber with faceted and beveled ends); chestnut (upright post [~9cm diam.], smaller wall posts, massive plank [~50" long, 25 cm wide, 3-4 cm thick]); black locust (upright post), and red oak (large radial, posts, large lintel-like timber [possible door per Beck (SEAC 2010) – given the tough, hard nature of BL wood, I expect this was the lintel rather than a door]; the white oak group (WOG) equates so far just with “small wood”, i.e. radials/roundwood ~4 cm diameter or less, and likely represents minor structural elements, e.g. rafters and other roofing elements. **Woods assoc. with Str. 5:** thus far 5 taxa, red-type oak is predominant (74%) and seems to have been the primary construction wood, although black locust (2.5%) was used as an upright post (ca. 9.5 cm diameter). The rest of the taxa occur as 13% (pine), 8% (WOG), and hickory (2.5%) or less of the total identified. Timber ages (ring counts) for ROG in this sample range from 7-25 yrs, commonly 7 to 9 yrs, with diameters ranging 4.5-1.5 cm.

Age at harvest

All roundwood thus far for which age could be determined by either absolute count or by close approximation judging by missing sapwood and any ring distortion, including posts, is plotted in Figure 75. To the extent the current sample is representative, the Structure 5 timbers represent younger material --all <25 years-- with an age range of about 20 years. In contrast, the Structure 1 timber assemblage is generally older and larger (see below), with a potential age range of about 96 years. The two timbers indicated as 30+ years (Figure 4 bottom right) are estimated at 56 and 104 yrs old, respectively. Note also the predominance of material less than 10 years of age for Structure 5, which is correlated with smaller overall roundwood diameters for that structure, as indicated below.

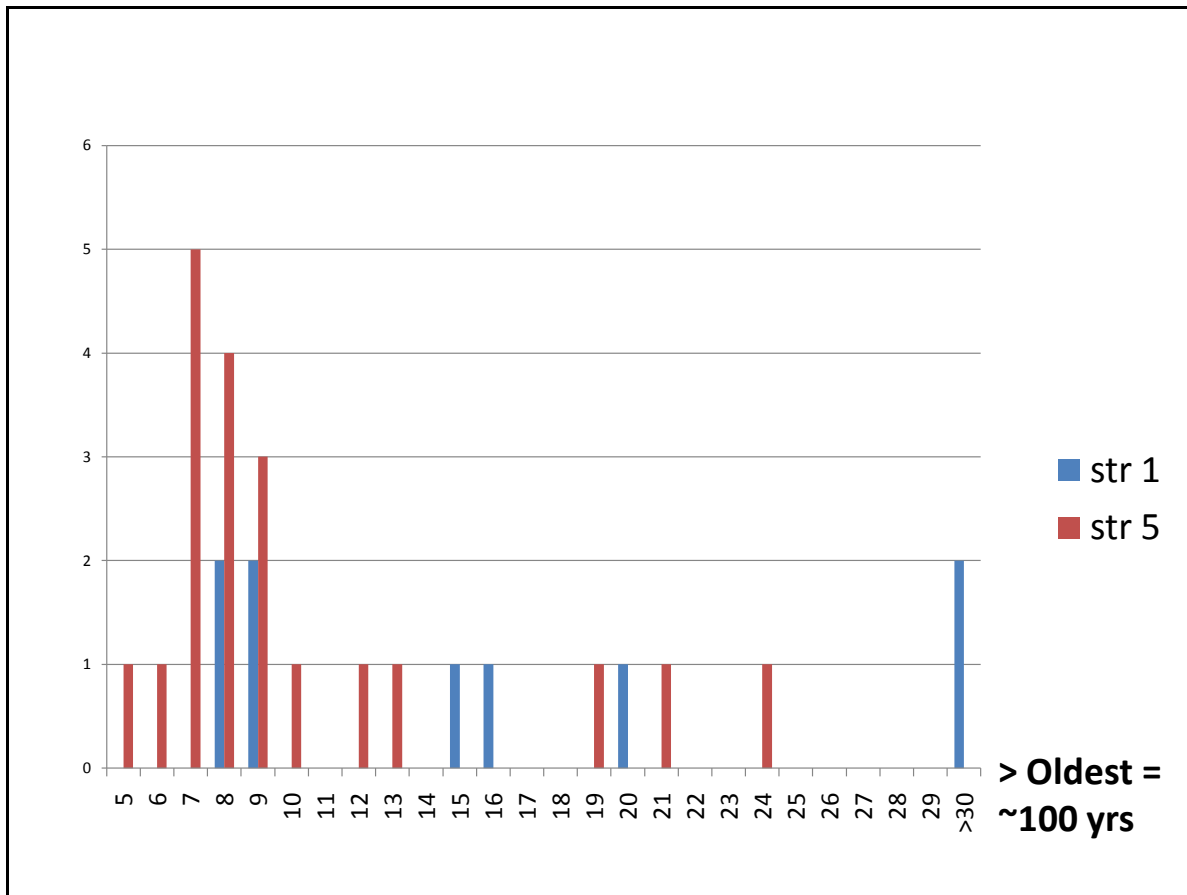


Figure 75, Age at harvest for roundwood from Berry site Structures 1 and 5.

Summary statistics for the two structures demonstrate comparatively small-diameter (<10 cm) material overall for Structure 5; thus far in the analysis the greatest diameter recorded is the post indicated OG-52 (Figure 76). Structure 1 construction elements, with more upright posts ascertained (field records) and shown separately in the histogram from other roundwood elements in the structure, are more in keeping with regional data on post diameter classes for aboriginal structures, especially the set post form (Figure 5 inset data from Lacquement 2007c). Note also in further comparison that the hardwood posts from the Hovey Lake site (Munson et al. 2009) range in diameter from 8 to 30 cm, and the pine posts associated with the aboriginal structure at Fig Springs, north-central Florida (Weisman 1992:80-83), averaged 20 cm.

Ecological & functional wood anatomy

The diameters and ages, as well as the anatomy of the Berry samples indicate they are primarily juvenile wood, essentially material less than 25 years of age. This is potentially important as juvenile wood has distinct wood technological characteristics (e.g. bending and

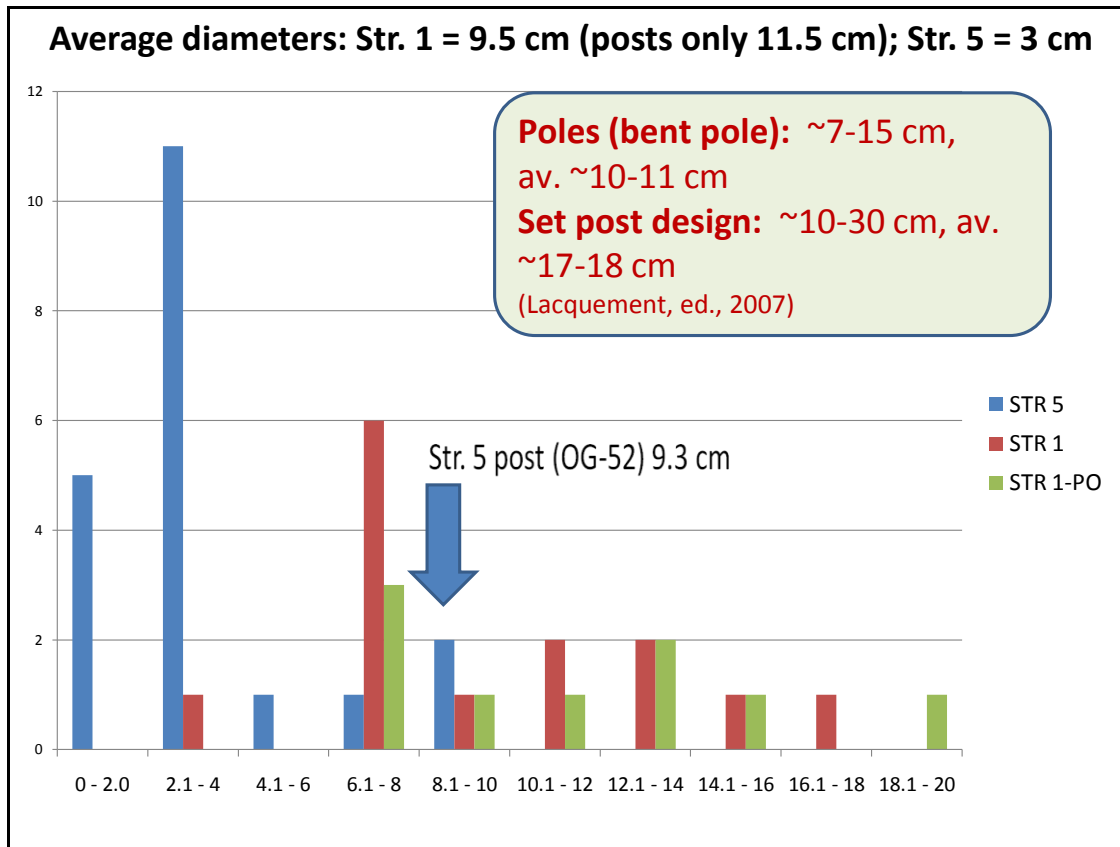


Figure 77, Roundwood diameters for Berry site Structures 1 and 5.

rupture strength) compared with mature wood (e.g. Haygreen and Bowyer 1996). This may at least partly explain the doubled support posts for Structure 5 mentioned above. Four posts or timbers analyzed thus far from Structure 1 surpass this age and anatomical expression, having derived from more mature or fully mature stems. This includes two of the center posts for which it was possible to accurately estimate age (the two >30 yr-old specimens indicated in the age histogram [Figure 75] above; they are the largest, i.e. the 16 and 20 cm diameter, posts indicated in the second histogram [Figure 76]), plus the third center post excavated thus far (in this case the heartwood is missing, but the growth increment widths and degree of ring curvature, along with the estimated diameter of ~14 cm, making it the third largest post in Figure 76, indicate an age and size highly consistent with the other two center posts just mentioned). This also includes a plank that preserves a minimum of 28 yrs growth, which is described below.

Another observation gleaned from the post/roundwood assemblage is that the Berry samples represent stem wood from straight, i.e. upright saplings, with a single exception. This is distinguished by the absence of “reaction wood” which forms in branches, roots, and leaning stems (e.g. Haygreen and Bowyer 1996). Use of such long straight boles in construction is

consistent with what has been documented or assumed for structures at various Mississippian sites across the region (Lacquement 2007c). The single exception encountered thus far in the analysis is timber OG-93, which is actually one of the upright pine center posts from Structure 1 (unit 65; see below); the highly eccentric growth rings exhibited in this specimen² provide a clear indication that this tree leaned considerably during at least a portion of its life history. The Berry assemblage also includes a number of radials from both structures that appear to have been cut/split right down the middle, i.e. in half. Perhaps this represents something such as mentioned ethnohistorically (Lacquement 2004) in 18th-century Chickasaw house construction: "...Above those [rafters], they fix either split samplings, or three larger winter canes together... Well tied." The split roundwood thus may be evidence for the superstructure/roofing material, something that has been elusive in terms of the descriptions and analysis of other structures documented for the general region (see Lacquement 2007c).

Focus on specific observations

The center posts for Structure 1 presumably were key supports, and this seems clear from their positions, larger sizes, and greater ages relative to other posts from either structure (Figures 75 and 76); also by virtue of the fact that all three thus far excavated were pine, a very strong, rigid, durable wood. One of these posts (OG #21, Unit 40) was excessively burned. I originally assumed that this was an indication that the southeast corner of the structure was the hottest zone in the conflagration that destroyed the building, however another post in the same excavation unit (OG #61) is essentially uncarbonized and the heartwood zone rotted away. I think alternatively then, the highly resinous heart of the timber/post #21 actually caught fire and lit up like a torch (e.g. pine "lighter knot"). Another of these center posts (OG #72 "post 18", Unit 20) apparently also was not fully burned to the interior, i.e. to the core, such that any lightly charred or perhaps uncharred heartwood rotted away over time. The third center post is thoroughly carbonized and presents interesting anatomical variation, "normal anomaly" indicative of a leaning stem elaborated above. Pine as the central support members is very consistent with previously recorded information (Lacquement 2007b).

Chestnut and black locust also were utilized as part of the primary support system for Structure 1, specifically as outer wall posts. Structure 5 also included a black locust "upright post" (OG-52; the same largest timber for that particular structure, indicated in the diameter class histogram [Figure 76]). Regarding black locust, as well as pine, Lacquement (2004) relates an ethnohistoric account of Chickasaw (NE Missouri) house construction (referred to earlier) indicating that pine, locust, and sassafras were considered preferable for durable post construction. The oak of both anatomical groups for both structures, likewise hickory in Structure 5, is consistently (thus far) the smaller diameter, younger elements and very likely represents the original rafters and/or other super-structural elements.

Non-wood construction materials

Abundantly present on and in the floor deposits of both structures are carbonized fragments of monocot stem. This material appears to be predominantly native cane, *Arundinaria*, consistent with many reports around the region (e.g. Reed 2007). Cattail (*Typha* sp.) and possibly another type of monocot have also been detected in the Berry floor deposits (via Sherwood's microstratigraphic work). Cattail was used as thatch or matting in a structure at the Kincaid site

² Ring width variation on opposite sides of the stem ranges from 1.3 rings per mm to about 2.6 per, i.e. at least twice the width.

in southern Illinois (Newsom, lab data 2009), and bulrush (*Scirpus* sp.) was identified as thatching material at the Rench site, also in Illinois (McConaughy 2007). At least one example from ethnographic records indicates that cattail has long been an important thatching and floor-covering material for Anishinaabek³ summer and winter houses (Herron 2002). The presence of these plant materials among the Berry structure deposits thus may signify some of the thatching or matting included in the dwellings, if not used in some other way.

Evidence of Non-Native Construction Techniques

All that I have overviewed up to this point seems partly if not fully consistent with aboriginal construction in the region. I now turn to other evidence from the structures that may suggest the direct or indirect input of Europeans at the site, beginning with a large chestnut plank from Structure 1 (Figure 77), the dimensions for which are at least 76.2 cm long (about 30", specifically the longest segment; the second segment may add another 10-20" but I have not removed the overlying cane mass as yet to measure), 24 cm wide, and 3-4 cm thick.



Figure 77, Chestnut plank from Structure 1 at the Berry site

The method used to create the large chestnut plank from Structure 1 at the Berry site is known as plane sawing (Figure 78), versus quarter sawn timber (Figure 79) (after European and colonial American practices). This tangentially oriented cut or split was less readily made than quarter cuts, which follow natural planes of weakness (the ray system) in the tree. Depending

³ American Indian peoples of the Northern Great Lakes region, specifically Ojibway, Odawa, and Potawatomi.

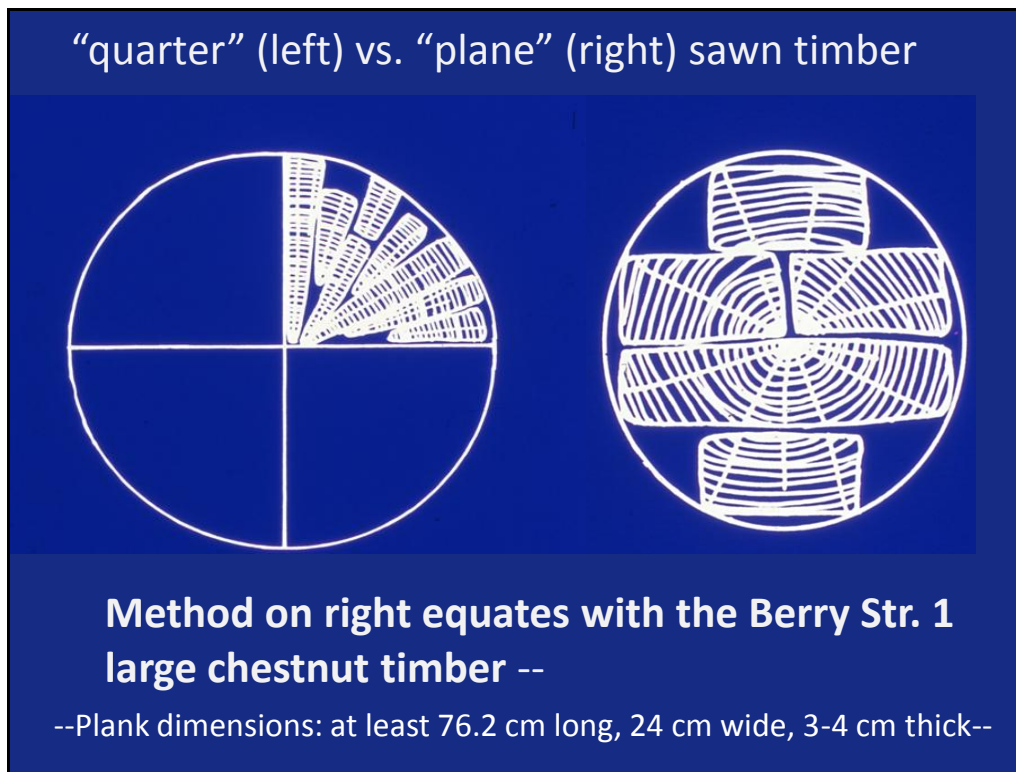


Figure 78. Preparation of lumber by common methods of splitting large timbers.



Figure 79, Quarter-sawn timber from Blackbeard’s Queen Anne’s Revenge, 1718

on the technology, the size of the trunk, and details of the growth increments, plane sawing or splitting may take some advantage of weaker zones within individual growth increments, if oriented correctly, but it is otherwise necessarily a more difficult maneuver. In addition to having been plane sawn or split, the Berry plank represents mature wood, with relatively narrow growth increments that have little or no arc, i.e. very minor curvature, indicating the timber was harvested from a large tree, and/or reflects growth nearer the base of the bole (if higher up the stem, then this was indeed a really large tree). I am skeptical that such a large bole could be effectively managed to create large planks such as the Berry example lacking metal carpentry tools, including perhaps a saw. Indeed saws, axes, wedges, and chisels were among the tools accompanying Pardo's expedition, and so I am suggesting this plank may indicate the presence and use of these tools, by extension European wood-working knowledge.

Also noteworthy in the Berry wood assemblage is a notched timber found lying on the floor of Structure 1. This timber actually has quite conspicuous notching at both ends and with the notches facing in opposite directions. Tooling such as this may be more in keeping with European practices, although notched timbers are mentioned by Swanton (cited in Hudson 1976) for aboriginal production of roof timbers, and there is at least discussion of notched timbers with regard to the Kincaid site, Illinois, although the form of notching appears to differ and it occurs only on the downward end of adjacent roof timbers (Brennan 2007).

The presence of tool marks variously on the Berry timber samples is also illuminating. No debitage per se has thus far been encountered in Berry assemblage, suggesting any timber preparation occurred elsewhere, however some of the wood debris and timbers exhibit to varying extents incisions, deeper cuts, beveling and facet marks. The morphology of the tool marks potentially can indicate the use of metal vs. stone or shell tools, and the former--metal--is in my opinion strongly suggested for Berry. For example, the cut marks on prehistoric debitage and artifacts-- both abundant from Florida wet sites at least, where I have had several opportunities to observe and study them-- tend to be shallow, short, narrow, and curved (e.g. Newsom et al. n.d.). In contrast, those displayed on the Berry material are relatively long, wide, and severe (sharp, angular), actually very much like tooling marks I have observed on debitage from colonial deposits at Spanish St. Augustine (Fort Matanzas [Newsom 1989]) and Old San Juan, Puerto Rico (Newsom 1996). There also exists several examples in the assemblage of completely lopped off sections of roundwood, with clean separation perpendicular to the grain, and others where the wood appears to have been split in two right down the center or near center (this does not necessarily indicate metal tools, but is generally inconsistent with my experience with aboriginal materials, e.g. from the Powers Phase sites (Turner and Snodgrass) in Missouri.⁴

Concerning the Timing of Construction

Shown in Figure 80 is the tangential (outer) surface of Structure 5 "timber" OG-39, which is pine. The presence of bark beetle channels--which are quite abundant here, crisscrossing variously over the entire surface--is very useful for interpretative purposes. These represent an organism that disrupts and kills the vascular cambium, which is the primary generative tissue in wood, thus their presence signals the final year of growth and potentially in this case also the particular season of harvest, based on how far the growth increment as developed or advanced that particular year. The same timber is shown in Figure 81, oriented to view the transverse

⁴ Everything about the Berry wood assemblage strikes me as very different from my work with those prehistoric structures.

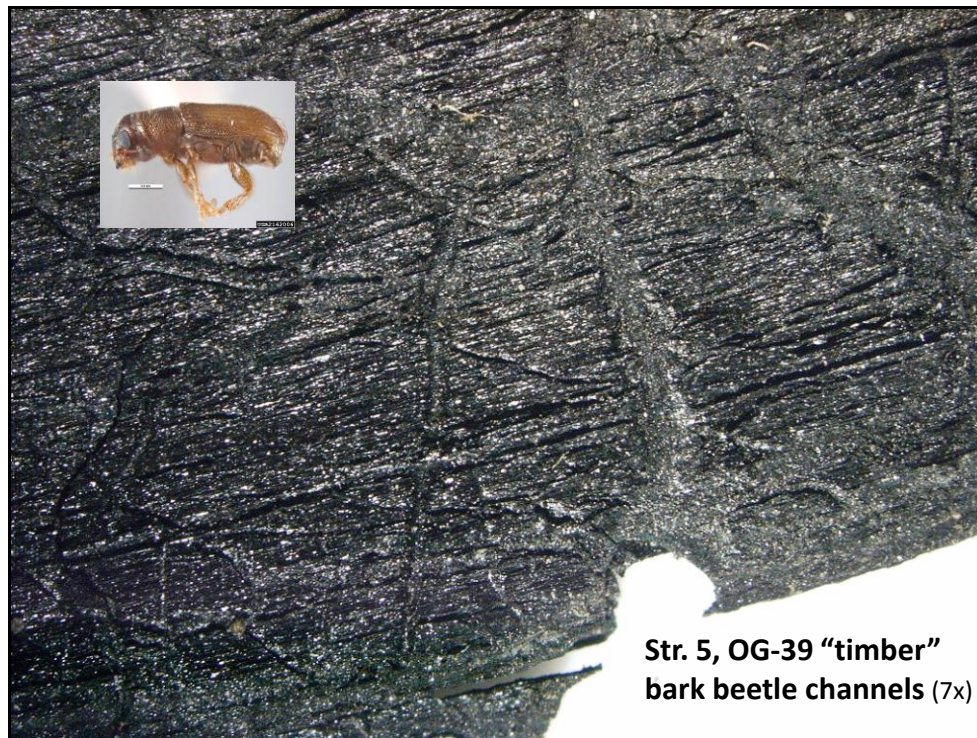


Figure 80, Bark beetle channels on outer (tangential) surface of Structure 5 timber OG #39

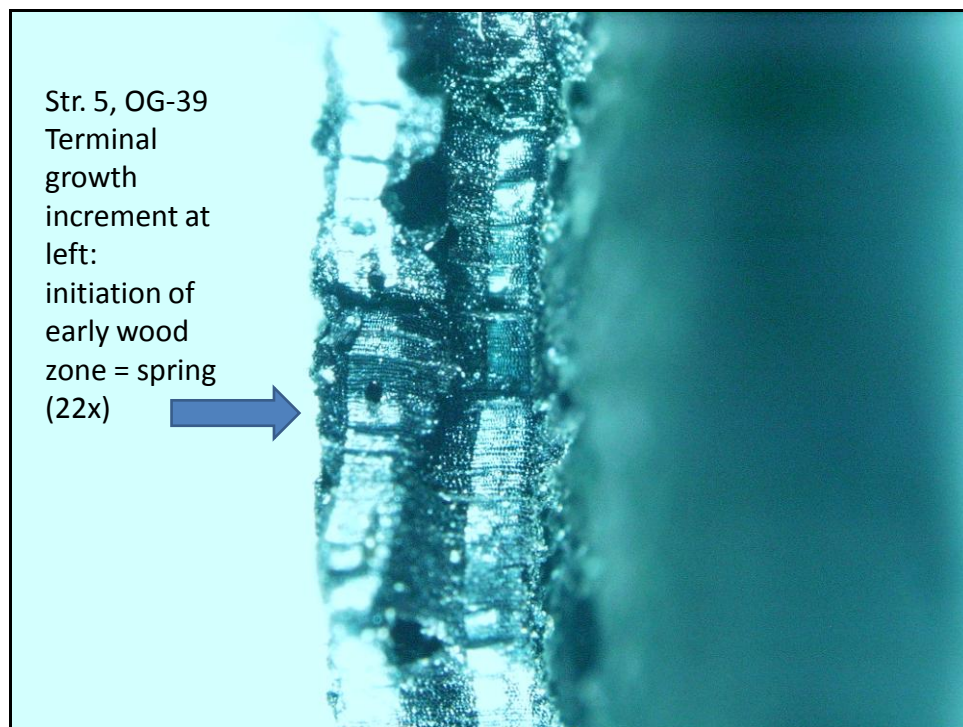


Figure 81, Transverse view of terminal growth increments for Structure 5 timber OG #39, showing initiation of early wood portion of final year.

section directly and showing the final three growth increments, with the terminal increment at the left. Each increment consists of two parts or sub-increments: the early wood and the late wood zones, i.e., the “spring” and “summer” wood increments. In this case the early wood had begun to form in that final season of growth, but had not much advanced (compare the same zone in the previous, penultimate growth increment [Figure 780]), indicating harvest in the early-mid spring (give or take different seasonal conditions and rates of growth). While this could mean that Structure 5 was actually one of those constructed at the outset of the Spanish presence at the site, during the spring of 1567, data presented in Part III of this report strongly suggest otherwise. Thus, this timber from Structure 5 might represent a repair, perhaps made the following spring, or else the entire structure was built in 1568 during the final months of the occupation. According to the PIs (personal communication) features in the floor of the structure contain Spanish artifacts, which may well suggest the following spring as the time for construction.

Summary Points

The wood types discerned from the preserved timbers and other remains of the two structures analyzed are highly consistent with traditional Native American construction practices in the region, i.e. wood selection, as is the form of construction, particularly Structure 1, and perhaps even including bark removal and timber notching. The large chestnut plank and the tool marks, if not also the opposite-notched timber described above, would seem to indicate the presence and participation of the European expedition members. On the balance then, with construction seemingly more or less consistent with traditional Native American practices, but evidently also combining the use of European carpentry tools and perhaps technological knowledge, cooperation in construction seems most parsimonious, even if only a situation of the exotic metal tools being provided (loaned or gifted?) to Native American builders. Structure 5 is odd, though, perhaps not altogether inconsistent with Native American construction, especially considering the “composite” forms described by Lacequement (2007a, b). Its distinctiveness may be explained more by it having been quickly and perhaps less carefully constructed, maybe less attention to or need for detail. Perhaps it was intended as one of the storehouses, rather than a dwelling per se, though the presence of a central hearth may suggest otherwise.

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