LATE MISSISSIPPIAN CERAMIC PRODUCTION ON ST. CATHERINES ISLAND, GEORGIA

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A dissertation submitted to the faculty at the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Anthropology.

Chapel Hill
2019

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ABSTRACT

Anna M. Semon: Late Mississippian Ceramic Production on St. Catherines Island, Georgia
(Under the direction of Vincas P. Steponaitis)

This dissertation examines Late Mississippian pottery manufacturing on St. Catherines Island, Georgia. Data collected from five ceramic assemblages, three village and two mortuary sites, were used to characterize each ceramic assemblage and examine small-scale ceramic variations associated with learning and making pottery, which reflect pottery communities of practice. In addition, I examined pottery decorations to investigate social interactions at community and household levels.

This dissertation is organized in six chapters. Chapter 1 provides the background, theoretical framework, and objectives of this research. Chapter 2 describes coastal Georgia's culture history, with focus on the Mississippian period. Chapters 3 and 4 present the methods and results of this study. I use both ceramic typology and attribute analyses to explore ceramic variation. Chapter 3 provides details about the ceramic typology for each site. In addition, I examine the Mississippian surface treatments for each assemblage and identified ceramic changes between middle Irene (A.D. 1350–1450), late Irene (A.D. 1450–1580), and early Mission (A.D. 1580–1600) period. The surface treatment trend indicates stamping decreases and incising increases over time. In addition, I compare St. Catherines surface treatment data with Irene and early Mission period sites on the Georgia coast and further discuss temporal trends. Chapter 4 focuses on the technological and stylistic attribute analyses for selected Mississippian ceramics. In this chapter, I discuss details about temper, firing conditions,

surface decorations (specifically, incised, check stamped, and complicated stamped wares), and a variety of rim attributes associated with each assemblage. I use these analyses to examine ceramic variability and identify Late Mississippian ceramic micro-styles and potting communities of practice on St. Catherines Island. The attribute data identified additional ceramic temporal changes between middle Irene phase and early Mission period. These changes include increased use of sand and sand/grit tempers, different firing conditions, increase in wall thicknesses, wider rimstrips and folds, and greater diversity of stamped and incised designs. Although data reflect numerous temporal trends, inter-site grit tempered pottery comparison revealed a long-lived, grit tempered ceramic tradition that changed through time. The pattern implies a large community of practice in which Irene potters on St. Catherines learned similar clay recipes, coil making, vessel building, and firing techniques. In addition, I characterize filfot cross variation among the assemblages. From the five assemblages, I identified 14 diagnostic designs, 21 partial designs, and 97 paddles. The evidence shows a range of filfot designs, some shared among sites and other unique to a site. The shared designs suggest interaction and affiliations among potters from different sites, while the unique designs indicate intentional distinctions.

Chapter 5 provides a detailed discussion of complicated stamped pottery within each village site. In this chapter, I take a closer look at the filfot cross stamped pottery and characterize technological and stylistic variations at the midden level to test three hypotheses, as a way to identify ceramic micro-styles, unique potting communities of practice, and inter- and intra-site social interactions. The St. Catherines data indicate a more nuanced story in which midden filfot sherds consist of a range of tempers, firing conditions, thicknesses and designs. However, the St. Catherines data broadly show similarities at the midden and village levels to indicate a persistent grit-tempered filfot pottery tradition. In addition, the midden filfot attribute research highlights a few other patterns, including temporal trends, a distinct clay tempered filfot community of practice, and shared filfot designs that reflect social interactions. The final chapter summarizes this research by discussing the four major findings, explores Irene potters and pottery manufacturing on St. Catherines Island, and concludes by discussing future research directions.

ACKNOWLEDGEMENTS

There are numerous people I want to thank for their support and guidance during this process. First, I want to thank David Hurst Thomas for introducing me to St. Catherines Island and providing continuous support and guidance. Dave, you have set an example as an archaeologist, a collaborator, and mentor that I aspire to. Without Dave's support I would not be part of the St. Catherines Archaeological Project, finished the dissertation, or have the job I have today. Dave has provided me with endless opportunities and I am truly grateful. You have my deepest thanks. Vin Steponaitis, my sincere thanks for your support, guidance, and patience during my time at Chapel Hill. You are a role model as an archaeologist, Mississippian scholar, mentor, and teacher. I am grateful for all the opportunities you provided me while at UNC. I would also like to thank Lorann Pendleton Thomas for her advice, support, and persistence for hiring me back in 2005. I hope that I have lived up to your expectations. I am grateful for my coworkers over the years Tom Blaber, Elliot Blair, Matt Sanger, Ginessa Mahar, Christina Friberg, Rachel Cajigas, Matt Napolitano, Nick Triozzi, Glen Keeton, and Diana Rosenthal-Roberson. You made the work at the American Museum and St. Catherines Island never dull.

I would like to thank the Edward John Noble and St. Catherines Island Foundations for their continued support of archaeology on St. Catherines Island. Thank you Royce Hayes for your support of scientific research, your knowledge of St. Catherines Island history, and your amazing story telling skills. Thank you Mike Halderson and the St. Catherines Island staff for helping facilitating our work and research on the island. Thank you Christa Hayes for always opening your home to archaeologists and being a gracious hostess.

In addition, this work could not have been done without the numerous field and lab crews from North American Archaeology Lab at the American Museum of Natural History. Thank you for helping with the numerous excavations, artifact cleaning and cataloging, and the ceramic analyses. I owe a wealth of gratitude to Matt Sanger and Elliot Blair for our archaeology conversations, field work opportunities, road trips, and conference adventures. Thank you Elliot and Sarah Bergh for convincing me to study Mississippian pottery. Thank you Matt Napolitano and Elliot Blair for the many stimulating ceramic discussions. Camilla Strum, I truly appreciate our catch-up sessions and your editing assistance.

I would also like to thank my committee Margie Scarry, Steve Davis, Anna Agbe-Davis, and John Scarry for your support and the many ideas, questions, and suggestions related to this research. I am grateful to the UNC Research Labs of Archaeology for the use of lab space and assistance over the years. I would also like to thank my University of North Carolina family for all their support during graduate school. Thank you to my cohort members Sara Juengst, Cassandra Hartblay, Tim Prizer, Edward Bennett, Laura Gutierrez Escobar, Diana Gomez, and Seana Monley for stimulating class and non-class conversations. Thank you Meg Kassabaum and Erin Nelson-Stevens for allowing me to visit and help on your Mississippi field projects. Although Mississippi in the middle of the summer is a little warm, I cherish these experiences because of the conversations, networking, and learning of past cultures and new archaeological methods and techniques. Thank you David Cranford, Caela O’Connell, Mary Beth Fitts, Tomas Gallareta Cervera, Maggie Morgan-Smith, Claire Novotny, Taylor Livingston, Elizabeth Berger, Andrew Ofstehage, Ashley Peles, and many others for helping me balance academics and socializing. Thank you Caela O'Connell and Julianna Parks for opening your home during my visits to Chapel Hill. Lindsay Bloch, thank you for introducing me to the pottery studio in Chapel Hill, which provided an outlet for my limited creativity. I am also grateful for your editing assistance and the time we spent working on our chemical sourcing projects.

Finally, I would like to thank my family, you all provided support and encouragement to make this happen. I would especially like to thank my parents Helen Semon and Joe Semon and my sister Christina Semon for their love and support over the years. Thank you Aunt Elizabeth S. Bonczar for being a role model and providing advice, encouragement, and Snoopy comics. Thank you Larry Bonzcar, Mary Kurucz, Betty Rebeck, John Rebeck, and Will Semon for keeping me in line over the years. A special shout out to my cousins Elizabeth Witco, Larry Bonczar, Michael Bonczar, and Melissa Pereira for your support, visits, bread making, and housing over the years. Thank you.

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LIST OF ABBREVIATIONS

BCV	Back Creek Village
CA	Correspondence analysis
FTMA	Fallen Tree Midden I-A
FTMC	Fallen Tree Cemetery
MHF	Meeting House Field
SEMI	South End Mound I

CHAPTER 1

INTRODUCTION

In this dissertation, I explore Late Mississippian pottery manufacturing and decoration using archaeological data from village and mortuary sites on the Georgia coast. My primary goals are to characterize village and mortuary ceramic assemblages and examine small-scale ceramic variations associated with learning and making pottery, which reflect pottery communities of practice. In addition, I examine pottery decorations to investigate social interactions at community and household levels.

This project focuses on one particular location of the Georgia coast, St. Catherines Island, and uses a multi-scalar perspective to explore Late Mississippian social contexts and pottery. St. Catherines Island, a barrier island with a Pleistocene core surrounded by Holocene dune ridges, is approximately 16 km in length, 5 km in width, and approximately 10 km from the mainland (fig. 1.1). St. Catherines Island landscape is comprised of marine, salt marsh, and terrestrial habitats, which provided diverse food resources to island occupants for more than 5,000 years. This dissertation focuses on the Mississippian period, specifically the Irene phases and culture (A.D. 1300–1580), which is a variant of interior Georgia's Lamar culture.

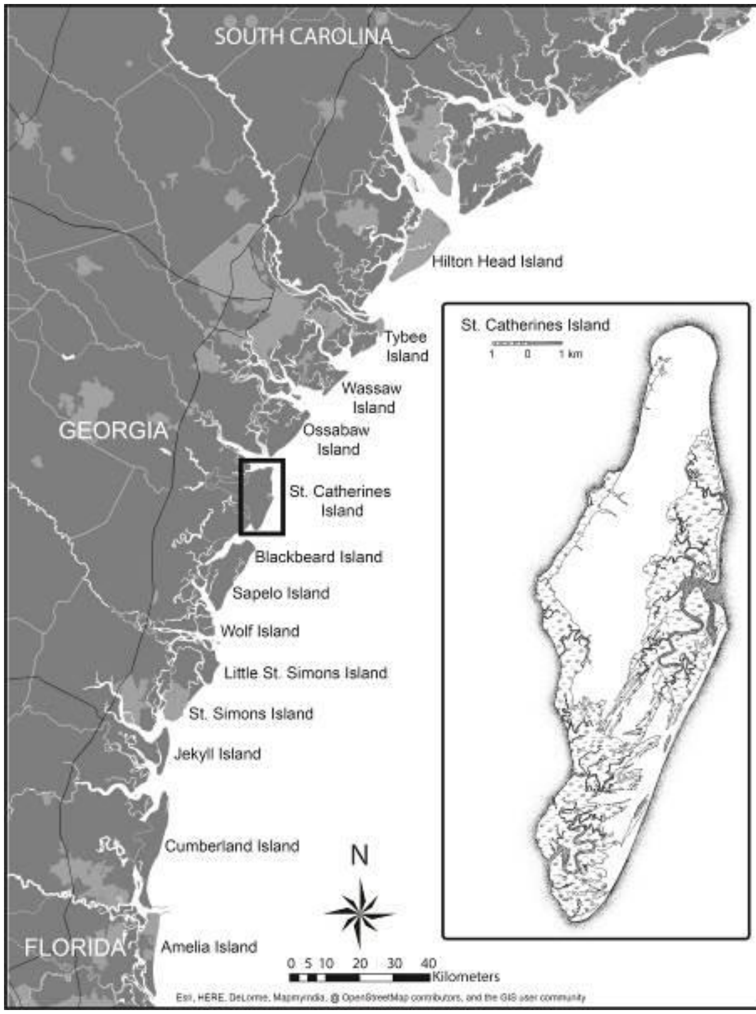

Fig. 1.1. Map of the Georgia coast with an inset of St. Catherines Island. Map courtesy of Division of Anthropology, American Museum of Natural History.

The Mississippian period and culture for interior Georgia began around A.D. 1000 and consisted of matrilineal groups with ranked social hierarchy under the control of a single leader, which researchers have characterized as chiefdoms (Hally and Mainfort 2004; Worth 2004). Mississippian chiefdoms contained communities with one or more earthen platform mounds and localized clusters of farmsteads, smaller hamlets, and villages. This period saw a shift in subsistence from hunting and gathering supplemented by horticulture to intensive maize agriculture. There is considerable regional variability for Mississippian societies, including coastal Georgia where only a handful of Mississippian ideas were adopted relatively late. Although the interior coastal plain had several mounds, villages, and homesteads, the coast only had one temple mound site, the Irene site (Anderson 1994; Caldwell and McCann 1941). However, the coast did see an increase in sites, iconography, and objects related to the southeastern ceremonial complex, likely due to a population increase (Cook and Pearson 1989a; Thomas 2008). The chiefdoms on the Georgia coast lacked platform mounds and had small populations; however, the coastal populations relied on maize agriculture, and mortuary practices indicate social differentiation. Broadly speaking, researchers have documented significant social, environmental, and ecological changes during the Mississippian period in Georgia, especially within the Savannah River Valley. Anderson (1994) identifies the abandonment of the river valley and argues that displaced populations went west towards the interior or east towards the coast. Thomas' (2008) transect survey on St. Catherines Island documents the increase of Late Mississippian period, Irene sites suggesting that these displaced populations settled in the coastal region, like St. Catherines.

The material culture for the Irene period has several diagnostic artifact types, including coarse grit-tempered pottery, effigy pipes, shell pins, shell beads, and several types of shell gorgets. Although mortuary practices vary, there is evidence for social differentiation based on burials with grave goods and those without. In addition, there are distinctions between individuals with grave goods; for example, some individuals only have a few shell beads versus others with dozens of shell beads, while some individuals are buried with pottery vessels, shell gorgets, or small circular discs of mica.

IRENE POTTERY AND PREVIOUS RESEARCH

Irene period pottery is associated with the broader Lamar ceramic tradition on the southern Appalachians (Hally 1994, Hally and Rudolph 1986, Wauchope 1966, Williams and Shapiro 1990). Irene ceramics were first described by Caldwell and Waring in 1939 and refined by Caldwell and McCann in 1941 during their analysis of the Irene Mound site. Originally, Irene pottery was categorized into three types: Irene Plain, Irene Incised, and Irene Filfot Stamped (fig. 1.2). Other researchers have slightly modified the types to include Irene Burnished Plain and broadening the filfot stamped to complicated stamped, in order to include additional designs (DePratter 1991). Irene ceramics are typically tempered with coarse grit, and interior surfaces are burnished or smoothed. Exterior surface decoration includes complicated stamping, incising, plain, and some checked stamping (although never formally defined as a ceramic type by Caldwell and McCann). Ethnohistoric data suggest women produced ceramic vessels for household use. However, we do not know who else was involved in the manufacturing process. It is possible men collected the clay and temper or carved the wooden paddles for the stamped designs. Vessels were manufactured by coiling clay, and vessel forms included globular jars, unrestricted or carinated bowls, and occasionally bottles (Braley et al. 1986; Caldwell and McCann 1941; DePratter 1991; Pearson 1984). Bowls and jars were plain or burnished plain. Incised designs were typically restricted to the top shoulder portion of the bowls and consisted of a series of parallel lines that connected to scrolls, ovals, swirls, and concentric circles and half circles. Furthermore, execution of incising varied among wares. Complicated-stamped motifs were mostly found on globular jars and consisted of concentric circles, figure nines, crosses, line blocks, and others (DePratter 1991). These motifs were intricately carved into wooden paddles, and the paddles were pressed into damp vessel walls prior to firing (Snow 1998). More recently, Saunders (2000, 2009) has argued that the filfot cross was a variant of the circle-and-cross motif and represented a cosmology shared by Southeastern Indians. Saunders (2009: 86) stated the "presence of a central dot (or other element) was used as proxy for the coherence of the native belief system through time."

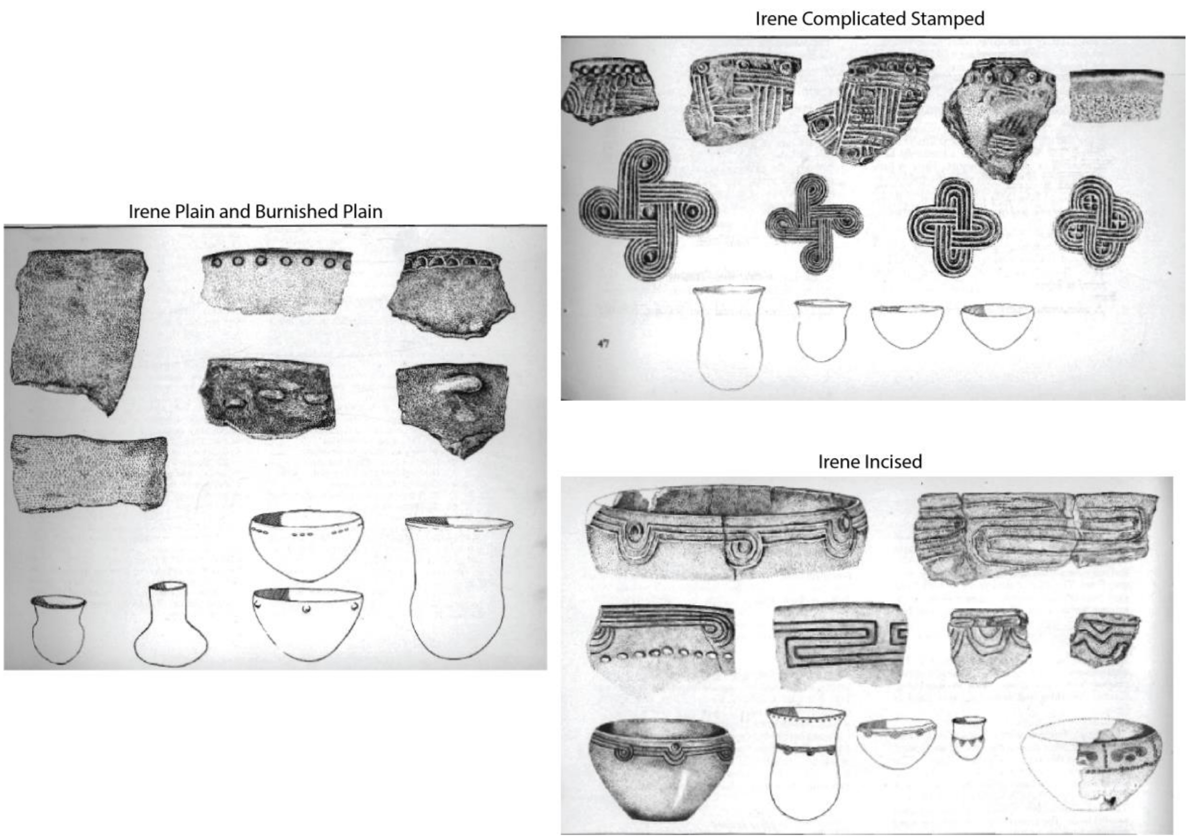

Fig. 1.2. Caldwell and McCann's Irene ceramic illustrations. (Caldwell and McCann 1941).

Researchers have also been able to document change through time in Irene surface decoration and rim treatments (DePratter 1991; Pearson 1984; Saunders 2000). For surface decoration, the trend is stamping decreases relative to plain wares, which has been attributed to the adoption of incising around A.D. 1450. Pearson (1984) and Cook (1986) have also documented that rim treatments changed through time; the pattern shows applique nodes and rosettes occur early, with plain rimstrips appearing later. This is followed by the use of rimstrips punctuated by canes or reeds or segmented rimstrips. Eventually, the use of rimstrips decreased and punctations were placed directly on the vessel.

Some researchers have divided the Irene period into two phases: early Irene (ca. A.D. 1300–1450) and late Irene (A.D. 1450–1550) (Cook 1980a; DePratter 1979 and 1991; Pearson 1977; Saunders 2000). The difference between early and late Irene is the presence of incised pottery. Alternatively, Braley (1990) divided Irene into three phases: Irene (A.D. 1300–1350), Pipemaker's Creek (middle Irene, A.D. 1350–1450), and Pine Harbor (late Irene, A.D. 1450–1580). DePratter stated that the filfot-cross design was the only motif during early Irene, but later in Pine Harbor and Altamaha (A.D. 1580–1700) phases, motifs included concentric circles, "figure nines" crosses, line blocks, and others (1991: 190). Researchers have also identified that lands and grooves tend to be narrow in early Irene and become wider in Pine Harbor and Altamaha phases (Blair 2015; Saunders 2000).

Irene pottery on St. Catherines Island has been examined and reported by David Hurst Thomas (2008, 2009), Rebecca Saunders (1992, 2000, and 2009), and the current author. Thomas used diagnostic Irene pottery and radiocarbon dates to develop a chronology specifically to St. Catherines Island and identify the number of Irene sites on the island. Saunders conducted fine-grain ceramic analyses to compare Irene pottery from Meeting House Field to Altamaha pottery from Mission Santa Catalina de Guale.

Ceramics are the most ubiquitous artifact recovered at Mississippian sites on the Georgia coast. Mississippian ceramic research in this region has primarily focused on ceramic typologies, rim attributes, and incised designs (Caldwell and McCann 1941; Cook 1986; DePratter 1991; Pearson 1984; Cook and Pearson 1989a; Thomas 2008). Although typologies and rim attributes are critical for our understanding of site chronology and culture history, very few studies explore small-scale variations of temper, firing conditions, decoration techniques, or design motifs to identify differences between sites and explore potting communities (Blair 2015; Saunders 1992, 2000). This study provides new information on Late Mississippian small-scale ceramic variation within local micro- and macro-social contexts. In addition, this research provides new data on Late Mississippian social interactions. My research draws on technological style (Dietler and Herbich 1989; Hegmon 1998; Lechtman 1977), practice theory, and communities of practices, and more specifically situated learning theory (Cordell and Habicht-Mauche 2012; Lave and Wenger 1991; Minar and Crown 2001; Roddick and Stahl 2016; and Wenger 1998) to reconstruct learning, manufacturing, and consumption practices and social interactions at public and sacred spaces during the Late Mississippian period. These theories and concepts provide a framework to identify and explore small-scale ceramic variations that reflect manufacturing choices and learning by Late Mississippian potters on St. Catherines Island. In addition, these theories/concepts provide a way to explore social contexts and networks.

THEORETICAL FOUNDATIONS

ANTHROPOLOGY OF TECHNOLOGY AND TECHNOLOGICAL STYLE

Within the past four decades there has been an increase in attention on the anthropology of technology (Dietler and Herbich 1998; Hegmon 1998; Lechtman 1977; Lemonnier 1992; Pfaffenberger 1992; Rice 1996a and b; Stark 1998). This research relates to discussions and debates on style. As Hegmon mentions in her review of style in archaeological research, archaeologists use many approaches to study and define style, but there are two basic themes researchers agree on: "style is a way of doing something" and "style involves choice among various alternatives" (1992: 517-518). Initially, researchers viewed style as an aspect of material culture variation, which could be read as a code, and style distributions could define spatial and temporal trends (Hegmon 1992). In other words, style communicates information (Wobst 1977). However, researchers critiqued the information-exchange approach as passive and argued that style is more complex because it is a component of human activity (Dietler and Herbich 1989; Shanks and Tilley 1987; Wobst 1977). Although past research has focused on style as material variation or an aspect of human activity, more recent research bridges the gap by recognizing both approaches. For example, recent studies have looked at when and how information was exchanged, examined the causes of material variation (production or exchange), determined how style was produced and perpetuated (i.e. learning techniques/practices), and studied the social lives and histories of objects (Appadurai 1986; Hegmon 1992; Hodder 1985; Wallis 2011).

Although many researchers define style in different ways, Sackett (1982, 1986) and Wiessner's (1983) approaches have been used and advanced by other researchers. Sackett argues that style relates to the choices an artist makes, which he calls 'isochrestic variation.' The choices are learned and reflect social interactions and historical context (Sackett 1982). Sackett also uses the term 'iconological variation,' which is a "symbolic expression of social information" (1982: 82). Wiessner (1983) believes that style transmits information on identity and defines style as *emblemic* and *assertive*. An emblem is a distinct symbol and carries information specifically about group identity and boundaries, while assertive is broader and pertains to information relating to identity (Hegmon 1992). In addition to developing multi-definitions of style, researchers explore the relationships between material culture, style, and cultural processes. A variety of the studies focus on symbolic meaning, social differentiation, learning, interactions, power, and social inequality (i.e., Arnold 1983; Braun 1991; DeBoer 1990; Dietler and Herbich 1989; Earle 1990; Hegmon 1992). Meanwhile, other researchers have explored how technology can have style (Lechtman 1977; Lemonnier 1986; Sackett 1982).

Recent research into the anthropology of technology draw on the works of Marcel Mauss and Andre Leroi Gourhan. Researcher's use Gourhan's *chaine operatoire* concept, which focuses on the operational sequences and steps to make a material object, as analytical methodology (Stark 2006). At the same time, a few American archaeologists fused together art, technology, and structuralist theory to examine technological and symbolic systems (Hegmon 1998; Lechtman 1984). Integral to the American archaeological approach to technology is the concept of 'technological style' (Lechtman 1977). Technological style is the "experience and custom [that] combine to establish a body of information and practice governing the manufacture of a pottery vessels … resulting in a characteristic final product with a unique range of properties" (Rice 1987:201). In other words, technological style represents the sum of multiple choices made during the manufacturing process and these choices leave visible characteristics that archaeologists can observe. Scholars argue that technological style is more resistant to change than decorative style because manufacturing actions and choices by the craftsperson are structured by the social group (Gosselain 1992; Lechtman 1977; Lemonnier 1992; Rice 1984; Sackett 1990; Wallis 2007). Scholars who engage with technological style challenge the conventional style-function dichotomy and push others to think beyond the traditional decorative style debates (Deetz 1965; Longacre 1970; Plog 1978, 1983; Costin 1991; Wiessner 1983; Wobst

1977).

Scholars have argued that technology is not just the final product, but also includes embodied material practices (Cordell and Habicht-Mauche 2012; Mauss 1935). For example, ceramic technology contains techniques, gestures, and production sequences which are taught/learned through demonstrations, verbal instruction, and physical guidance of the apprentice to learn the standards that characterize the local group of producers and conform to preference of the user (Gosselain 1992). This technology consists of a set of choices made by the potter, which are socially defined and constrained (Lechtman 1977; Lemonnier 1986). Scholars have argued that the choices made at production, distribution, use, and discard can be used to follow multiple socially developed networks or communities of practice at different scales (Cordell and Habicht-Mauche 2012).

Practice Theory

Archaeologists have increased their attention to practice theory, which originated with the work of Bourdieu (1977) and Giddens (1979). Practice theory focuses on the routinized activities of individuals as they perform daily activities and therefore emphasizes the individual action as a driving force of behavior (Stark 2006). It moreover views society as an aggregate of individuals' practices and asserts that cultural and technological transformations unfold through practice (Dobres 2000: 127). Bourdieu's concept of *habitus* reflects the culturally specific ways of doing things, which structures techniques along with other patterned behaviors by groups (Dietler and Herbich 1998; Lave and Wenger 1991). Habitus shapes daily practice for individuals, and therefore habitus is constructed by practices of others (Stark 2006). Often these decisions are conscious and reflect intention to ally with specific social groups (Eckert 2008). However, some of these decisions are unconscious and reflect the general context of socialization and cultural reproduction, or a “community of practice.” For example, several construction techniques used to manufacture goods, like ceramics, are taught and this information becomes part of the practice and appears unconscious (Dietler and Herbich 1998; Sassaman and Rudolphi 2001). These techniques, motor skills, gestures, and behaviors are social productions that are transmitted within and across generations.

Practice theory lends itself to archaeological data because it stipulates that people reproduce their culture and social positions through daily practice. In essence, daily practice leaves patterned traces in the archaeological record (Shennan 1993). Practice theory can be used as a conceptual framework for studying style and social boundaries (e.g., Sackett 1990; Hegmon 1998), as a methodological approach to look at patterns in the archaeological record (e.g., Lightfoot et al. 1998; Dietler and Herbich 1998; Gosselain 1998), or to focus on learning frameworks (e.g. Crown 2001; Minar and Crown 2001; Lave and Wenger 1991; Sassaman and Rudolphi 2001). Additional scholars argue that the learning process has as much to do with the production as it has to do with the use of an object (Fenn et al. 2006). Therefore, examining the “social history” of material objects provides a better understanding of the relationship between the objects and the social dynamics of the communities who produce and use them (Appadurai 1986).

Ceramics, like other material objects, reflect technical choices that leave material traces for archaeologists to study (Sillar 1997, 2000; Sillar and Tite 2000). Therefore, archaeologists have used practice theory to frame interpretations of technological and decorative ceramic characteristics to emphasize social boundaries between ethnic groups and modes/organization of production (Costin 1991; Dietler and Herbich 1998; Dobres 2000; Eckert 2008; Hegmon 1998; Lightfoot et al. 1998; Stark 2006).

For example, ethnoarchaeologists Dietler and Herbich (1998) have examined pottery production among the Luo and identified distinctive ceramic styles in different potter communities. These styles were the result of women learning the craft from their husband's relatives. Therefore, pottery often preserves the physical attributes that provide information concerning the techniques, allowing archaeologists to interpret conditions in which items were produced, used, and discarded. Dietler and Herbich argue that no style can be identified by a single attribute, but must be identified by a set of attributes. Studies like Dietler and Herbich's show how pottery can provide insights into varying production practices and social processes. In addition, practice theory allows archaeologists to focus on the people who live in diverse social networks (Joyce 2012). Practice theory provides a useful framework to examine Late Mississippian ceramic variability and identify distinct micro-styles, both technological and decorative, which reflect the actions associated with pottery knowledge, raw materials, and social context. In other words, this approach will help me characterize local pottery styles which are the result of potters making different decisions throughout the production process by using a similar set of tools and techniques available to all potters within an area.

Communities of Practice and Situated Learning

Many archaeologists who use the concept of communities of practice draw on Lave and Wenger (1991) work on situated learning, which focuses on the social dynamics within a group, such as a community of potters. Communities of practice consist of co-participants with a shared history of learning. In other words, members of a particular community of practice share a repertoire of resources, have a collective understanding and hold each other accountable, and interact with each other creating norms and relationships (Wenger 1998, 2000). Communities of practice can be small or large depending on the context. In addition, communities of practice do not exist in isolation and often overlap. Wenger (1998) describes the interrelated communities of practice as constellations. Situated learning targets the way a community learns how to do things and how the community members reproduce the knowledge. Situated learning also examines the negotiated relationships between teacher and apprentice in a community of practice. Different modes of apprenticeship contribute to the stability of a tradition or encourages innovation. Rosemary Joyce (2012) summaries the situated learning model by stating that successful learning is promoted when learners engage in tasks that are actively part of the production processes which contribute to a shared goal. Situated learning and communities of practice help archaeologists think about "how crafting is structured as embodied practices transmitted over generations" (Joyce 2012:150). In addition, the framework helps archaeologists focus more on the people and the social interactions that create the material objects.

Situated learning and practice theories have been applied by ceramic ethnoarchaeologists (Bowser 2000; Gosselain 2008), Southwestern archaeologists (Crown 2001; Eckert 2008; Habicht-Mauche et al. 2006), and several Southeastern archaeologists (Blair 2015; Sanger 2015). Southwestern archaeologists, in particular, have illustrated the usefulness of these theories and concepts in studying pottery, by characterizing local and regional pottery technologies, techniques, and style, and by studying how potters and communities of potters learn and transmit information (Cordell and Habicht-Mauche 2012). The southwestern research also highlights the complex and interrelated social networks involved in manufacturing and circulating pottery.

Blair (2015) used the concept of communities of practice grounded in situated learning to examine habitual repetitive actions that produced similarities in behavioral practices and material objects. He targeted locally made ceramics and glass beads recovered from the 16th and 17th century Spanish mission, Santa Catalina de Guale and the surround Indian village. Blair identified micro-styles within ceramic assemblage related to distinct neighborhoods within the Indian village. In addition, he examined glass beads from the mission cemetery to explore social relationships. Blair used bead manufacturing practices and chemical recipes together with the bead distribution among individuals buried with the mission cemetery to identify bead communities of consumption within the Santa Catalina cemetery and broader surrounding Indian village.

Sanger (2015) used communities of practice framework to study Late Archaic pottery from two shell rings on St. Catherines Island. He examined the direction of fiber tempered inclusions from CT-scans to identify unique pottery construction techniques related to distinct groups at each shell ring. In addition, he identified each shell ring had different construction techniques and shaped storage pits which provided additional lines of evidence for distinct community practices. Blair's and Sanger's studies illustrate the effectiveness of a communities of practice framework to examine pottery micro-styles and identify distinct groups using St. Catherines Island during the Late Archaic and distinct neighborhoods in the Indian village surrounding Mission Santa Catalina de Guale during the 16/17th centuries.

Dissertation Objectives and Questions

The previously mentioned studies provide a useful framework to explore small-scale ceramic variation and social interactions at Late Mississippian village and mortuary sites on St. Catherines Island. In particular, I focus on technological and stylistic attributes, such as temper and decoration designs, to identify similarities and differences within the Irene ceramic tradition that relate to the ways that potters learn and make pottery, which reflect potting communities of practice. By focusing on several Late Mississippian sites on St. Catherines, I generate fine-grained understandings of pottery used in everyday cooking and serving contexts and vessels used in mortuary practices. This research looks at data from two scales: the site, which is viewed as the community level, and discrete contexts within each site, such as shell middens and burials, which are viewed as the household (or individual in the case of burials) level. My hope is that focusing on the local scale, will provide future opportunities to understand trends on a more regional scale.

My research focuses on three questions: (1) How do the village and mortuary ceramic assemblages vary (typology, morphology, composition, decoration) within and between sites? (2) Are there unique Late Mississippian pottery production and social practices that reflect pottery communities of practice at each site? (3) Does pottery circulate among and between the sites and if so, what types of interactions/social relationships might these reflect? These questions will be addressed through ceramic typology and detailed technological and stylistic attribute analyses at both the site and midden level. The purpose of the detailed attribute analysis is to study the variation in coastal pottery. I use the village sites as my baseline to determine if each of the villages has a distinct pottery practice. More specifically, by examining similarities and differences of temper, firing conditions, surface decorations, and rim treatments, which reflect shared knowledge and techniques for manufacturing pottery, I attempt to identify pottery communities of practice and examine the associated social relationships. In addition, these questions generated three hypotheses, which I test with the filfot stamped pottery assemblage.

Hypothesis 1. Filfot pottery is technologically and stylistically homogenous among and within village sites. In other words, the evidence would show tempers, firing conditions, vessel constructions, and filfot designs similar across all village sites. The homogeneity would indicate one large manufacturing and stylistic tradition, in which potters shared the same knowledge, learned the same manufacturing practices, and used the same filfot designs.

Hypothesis 2. Filfot pottery is technologically and stylistically heterogeneous among and within St. Catherines Irene villages. In other words, the evidence would show tempers, firing conditions, vessel constructions, and filfot designs are different across all village sites. This would indicate multiple pottery manufacturing and stylistic practices and not just one unified tradition. The different tempers, wall thickness, and firing conditions would suggest smaller-scale learning of filfot pottery, likely on the household level. Alternatively, the filfot diversity could indicate outside groups moving into these villages or possible trade wares.

Hypothesis 3. Village filfot pottery has a combination of similar and unique technological and stylistic traits. In other words, the evidence falls somewhere in between hypotheses 1 and 2. One possibility could be tempers, firing conditions, and vessel constructions are similar across all village sites. But filfot designs would differ. The technological homogeneity would indicate one large potting community of practice. But filfot design heterogeneity could indicate distinctions among potters or households that reflect ideology or affiliations.

DISSERTATION SAMPLES

The above questions and hypotheses are explored through five Late Mississippian ceramic assemblages from St. Catherines Island. The ceramic assemblages relate to three village sites (Meeting House, Back Creek Village, and Fallen Tree Midden I-A) and two mortuary sites (Fallen Tree Mortuary Cemetery and South End Mound I). Site excavations, except for one, were conducted between 2005 and 2013 by the American Museum of Natural History (AMNH) under the direction of David Hurst Thomas. The South End Mound I ceramic assemblage was excavated by AMNH in 1979 and 1981 (Larsen and Thomas 1986), and the collection is now curated at the Fernbank Museum of Natural History. Table 1.1 provides details on excavation contexts.

Table 1.1. Dissertation excavation contexts.

Site	**Unit**	**Area**	**Excavation Date**	**Context**
Fallen Tree Midden I-A (9Li8)	A	1 m^2	2005	Fallen Tree Midden 1-A
	B	1 m^2	2005	Fallen Tree Midden 1-A
	D	1 m^2	2005	Fallen Tree Midden 1-A
	E	1 m^2	2005	Fallen Tree Midden 1-A
	F	1 m^2	2005	Fallen Tree Midden 1-A
	G	1 m^2	2005	Fallen Tree Midden 1-A
	H	1 m^2	2005	Fallen Tree Midden 1-A
	Operation 9	4x3 m	2013	Fallen Tree Midden 1-A
Meeting House Field (9Li21)	N501 E080	1 m^2	2008	Meeting House Field Midden E
	Delta	1 m^2	2009/2015	Meeting House Field Midden 12
	Gamma	1 m^2	2009	Meeting House Field Midden 12
	Alpha	1 m^2	2009	Meeting House Field Midden 21
	Beta	1 m^2	2009	Meeting House Field Midden B
	Epsilon	1 m^2	2009	Meet House Field Midden D
	Zeta	1 m^2	2009	Meeting House Field Midden H
	Eta	1 m^2	2009	Meeting House Field Midden J
	Theta	1 m^2	2009	Meeting House Field Midden M
	Iota	1 m^2	2009	Meeting House Field Midden N
Back Creek Village (9Li207)	N585 E441	1 m^2	2008	Back Creek Village Midden A
	N586 E441	1 m^2	2008	Back Creek Village Midden A
	N587 E437	1 m^2	2008	Back Creek Village Midden A
	N575 E453	1 m^2	2008	Back Creek Village Midden B

Site	Unit	Area	Excavation Date	Context
	N576 E453	1 m^2	2008	Back Creek Village Midden B
	N569 E458	1 m^2	2008	Back Creek Village Midden C
	TP IV	clean-up	2008	Back Creek Village Midden C
	TP VII	1 m^2	2008	Back Creek Village Midden C
	N584 E466	1 m^2	2008	Back Creek Village Midden D
	TP III	clean-up	2008	Back Creek Village Midden D
	TP VI	1 m^2	2008	Back Creek Village Midden D
	N557 E482	1 m^2	2008	Back Creek Village Midden F
	TP II	clean-up	2008	Back Creek Village Midden F
	TP VIII	1 m^2	2008	Back Creek Village Midden F
	N513 E507	1 m^2	2008	Back Creek Village Midden G
	TP I	clean-up	2008	Back Creek Village Midden G
	TP IX	1 m^2	2008	Back Creek Village Midden G
	N488 E495	1 m^2	2008	Back Creek Village Midden H
	N493 E499	1 m^2	2008	Back Creek Village Midden H
South End Mound I (9Li3)	6 vessels recovered by C.B. Moore	C.B. Moore excavations	1897	Mississippian burial mound
	I	1 m^2	1979	Mississippian burial mound
	II	1 m^2	1979	Mississippian burial mound
	III	1 m^2	1979	Mississippian burial mound
	IV	1 m^2	1979	Mississippian burial mound
	V	1 m^2	1979	Mississippian burial mound
	VI	1 m^2	1979	Mississippian burial mound
	1981-I	1 m^2	1981	Mississippian burial mound

Site	Unit	Area	Excavation Date	Context
	1981-II	1x2 m	1981	Mississippian burial mound
Fallen Tree Cemetery (9Li8)	Operation 8 excavations	Approx. 17x23 m	2013–2015	Mississippian cemetery

For this dissertation project, I looked at 41,365 sherds from the five assemblages (Table 1.2). To characterize the assemblages and study variation related to pottery manufacturing, I analyzed sherds in two stages. The first stage of analysis consisted of a ceramic typological investigation, which allowed me to distinguish between Mississippian and non-Mississippian ceramics. The second stage focused on detailed attribute analysis of the Mississippian sherds to see if I could identify pottery micro-styles within the Irene ceramic assemblages and distinct potting communities of practice on St. Catherines Island. The St. Catherines Island Archaeological Project has established ceramic attributes for identifying ceramic types; these include identifying temper, decoration, surface treatment, form, and ceramic type. Pottery analysis was conducted by various AMNH researchers between 2007 and 2010 for Meeting House Field, Back Creek Village, and Fallen Tree Midden I-A ceramic assemblages. In 2011, I double checked approximately 90 percent of previous analyses and updated any incorrect information. Between 2014 and 2016, I analyzed the Fallen Tree Cemetery ceramic assemblage. In addition to collections at the American Museum of Natural History, I was granted access to the South End Mound I ceramic assemblage which is housed at the Fernbank Museum of Natural History, Georgia. South End Mound I, a Mississippian period burial mound, was excavated between 1985 and 1986 by AMNH (Larsen and Thomas 1986). Data presented in Larsen and Thomas (1986) listed 113 sherds recovered from AMNH excavations. However, when I borrowed the collection from Fernbank in 2014, I received more than 1,300 sherds. Due to time constraints, a reanalysis was not conducted on the South End Mound I ceramic assemblage. I only studied the complicated stamped and incised wares and all rim sherds.

Table 1.2. Ceramic counts and weights by site.

State Number	Site Name	Site Type	Sherd counts	Weight (g)
9Li8	Fallen Tree Midden I-A	Village	6,666	20,061.80
9Li21	Meeting House Field	Village	4,567	12,295.99
9Li207	Back Creek Village	Village	3,006	13,866.14
9Li3	South End Mound I	Mortuary	1,399	–
9Li8	Fallen Tree Cemetery	Mortuary	25,798	67,618.53
Totals			**41,365**	**112,639.43**

DISSERTATION ORGANIZATION

The dissertation is organized in six chapters. In Chapter 2, I describe the ecological setting for Georgia, especially the coast. This is followed by a summary of the pre-Mississippian culture history and details about Mississippian radiocarbon chronology, ceramic typology, and culture history. Next, I discuss the Mississippian site types, village and mortuary, for the Georgia coast.

Chapters 3 and 4 present the methods and results of this study. I use both ceramic typology and a variety of attribute analysis to explore ceramic variation. Chapter 3 provides details about the ceramic typology for each site. I start by discussing all identified ceramic types in each assemblage and then organize the types into two categories, non-Mississippian and Mississippian. Although the ceramic typology indicates older prehistoric occupations for each site, the Mississippian component is the largest. Next in Chapter 3, I target the Mississippian sherds and present sherd sizes and surface treatment data. Using the surface treatment data and comparing to previous surface data (Saunders 2000), I identify shell midden clusters within Meeting House Field and Back Creek Village with different percentages of plain, stamped, and incised wares, indicating not all middens are contemporaneous. In other words, the Irene period occupation at Meeting House Field and Back Creek Village can be divided into at least two components. In addition, I compare the cluster data from Meeting House Field and Back Creek Village to the remaining sites in this study and identify ceramic surface treatments trends for the Irene and early Mission period sites.

Chapter 4 focuses on the technological and stylistic attribute analyses for selected Mississippian ceramics. In this chapter, I discuss details about temper, firing conditions, surface decorations (specifically, incised, check stamped, and complicated stamped wares), and a variety of rim attributes associated with each site. I use these analyses to examine ceramic variability and identify Late Mississippian ceramic micro-styles and potting communities of practice on St. Catherines Island. Chapter 4 concludes with a discussion about the broader patterns identified between sites from the attribute analyses.

Chapter 5 provides a detailed discussion of complicated stamped pottery within each village site. In this chapter, I take a closer look at the filfot-cross stamped pottery and characterize technological and stylistic variations at the midden level to test the three hypotheses outlined earlier in this chapter, as a way to identify ceramic micro-styles, unique potting communities of practice, and inter- and intra-site social interactions. The filfot case study provides community and midden-level results that indicates a persistent grit tempered filfot community of practice among Late Mississippian villages on St. Catherines. Yet, Back Creek Village has evidence of a distinct clay tempered filfot community of practice existing at the same time as the grit tempered practice, likely relating to intermarriages. Filfot design analysis shows similarities between sites with a few shared designs, but overall many designs are currently unique to a village and midden. Patterns also show greater filfot design diversity at the Fallen Tree Cemetery.

The final chapter presents the conclusions for the dissertation. The chapter begins with a summary of the research, which is followed by a discussion of the broader significance of this research, including the study of pottery variation and the use of multiple scales, within the wider context of Mississippian studies in the Southeast. The chapter concludes by discussing future research directions.

Until recently, very little attention has been given to characterizing Irene pottery variation, especially the complicated stamped wares and what this variation means. My research fills this gap by examining subtle technological and stylistic variations and establishing a baseline for Late Mississippian village ceramic variation, which is then compared to the mortuary assemblages. In addition, my research explores the social relationships within each site based on the similarities and differences observed in the filfot-stamped ceramic assemblage. This dissertation research demonstrates the value of exploring small-scale ceramic variation through multiple lines of evidence and contexts to provide a better understanding of the Late Mississippian landscape and social history on St. Catherines Island. More broadly, my research adds to the anthropological/archaeological conversations about craft learning, production, and consumption.

CHAPTER 2

BACKGROUND

This chapter provides several overviews of environmental and cultural history for the southeastern United States in general and the Georgia coast in particular. I start by describing the ecological setting and then review the pre-Mississippian culture history. This is followed by a detailed discussion of Mississippian culture history and chronology, focusing on the Georgia coast.

ECOLOGICAL SETTING

Georgia consists of six broad physiographic provinces: Cumberland Plateau, Ridge and Valley, Blue Ridge, Piedmont, Coastal Plain, and Coastal zone (fig. 2.1) (Hally and Langford 1988; Schnell and Wright 1993). These provinces consist of different environments and food resources; however, for the purpose of this review, I focus on the coastal zone.

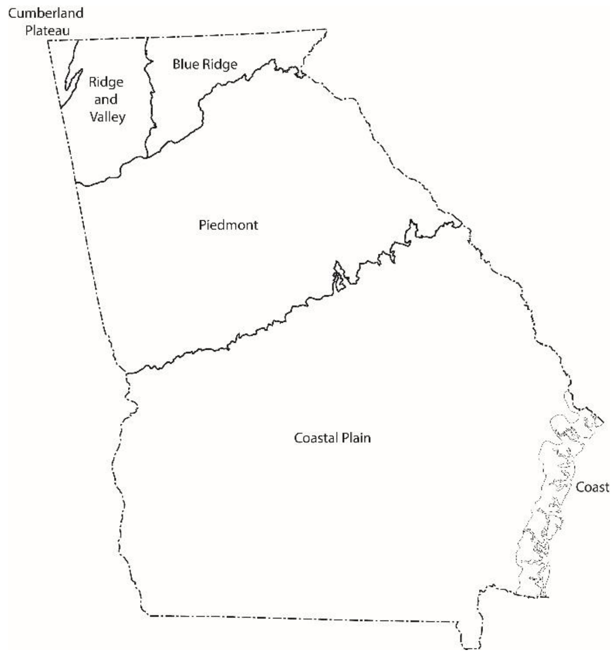

Fig. 2.1. Physiographic Provinces of Georgia. Modified map based on by Griffith et al. 2001.

The Georgia coast is within an area known as the Georgia Bight. The Georgia Bight extends from Cape Hatteras, North Carolina to Cape Canaveral, Florida and consists of a mainland area and a series of barrier islands separated by deep tidal inlets. The mainland contains a low, flat region of well-drained, gently rolling hills and poorly drained flatlands (Thomas 2008: 48). The barrier islands are typically comprised of Pleistocene and Holocene sediments with low, sand beaches on the ocean side and back-barrier marshes on the landward side. The islands range from 5 to 15 km in length and 1 to 5 km in width (Hubbard et al. 1979). Island elevations normally do not exceed 7 meters, although some dunes can be higher (Thomas 2008: 48; Johnson et al. 1974: 11). Between the mainland and the barrier islands are salt marshes.

The barrier islands have forests of oak, pine, and palmetto, with a variety of grasses and shrubs along the margins. These islands contain salt marsh estuaries and riverine estuaries. Salt marshes are characterized by mud flats, oyster bars, and a maze of meandering tidal creeks. The salt marsh estuaries provide a diverse habitat for a variety of invertebrates, including fiddler crabs, periwinkles, ribbed mussels, oysters, and clams. On the other hand, riverine estuaries provide habitat for a diversity of fauna.

Clays common in the southeastern United States include kaolinite, smectite, illite, and chlorite (Steponaitis et al. 1996). The geographic distribution of clays is linked to geology and drainage. Specifically for Georgia, kaolinite clays are predominantly found in the Piedmont, montmorillonite — a member of the smectite clay family — are predominately in the Coastal Plain, and illite clays are found as part of the continental shelf sediments off the coast (Neiheisel and Weaver 1967). Clay mixing occurs along the Atlantic coast, due to flood tides and the erosion of coastal sediments (Windom et al. 1971). According to geologists, illite clays dominate the Georgia coast (Meyer 2010; Windom et al. 1971), yet, researchers have identified unique signatures of mixed clays and heavy minerals from Sapelo Sound and several river basins, including Savannah, Ogeechee, Altamaha, and Satilla rivers. Researchers have reported a suite of clay mineral deposits in estuary and delta environs along the Atlantic coast and have argued that clay minerals can be used to provide insight into provenience of depositional materials, fluvial process, and condition of drainage basins (Meyer 2010; Neiheisel and Weaver 1967; Steponaitis et al. 1996). Coastal clays are deposited by fluvial processes, local erosion of materials, longshore transport, and inland transport of sediments from the continental shelf (Meyer 2010). Similar to Sapelo Sound, St. Catherines Sound lacks the influence of a major freshwater drainage, and clays likely originated from coastal shoreline erosion (Pinet and Morgan 1979). Geologists on St. Catherines Island have primarily focused on island formation, heavy minerals, and current erosion.

In 2014, Clara Rucker, Georgia Southern University undergraduate, completed a thesis that identified specific clay minerals from mud strata and examined mineralogical variations based on depositional environments on St. Catherines Island. She conducted X-ray diffraction (XRD) on 22 mud samples, which were collected by three techniques: grab sample, vibracore, and punch core. Samples were selected from young salt marsh deposits, relic salt marshes deposits, and a probable older freshwater clay deposit, in order to examine variations in clay minerals from contrasting depositional environments. Many of the grab sample deposits were collected from exposed relic marsh on North and South Beach. Rucker identified five minerals: montmorillonite, illite, kaolinite, gibbsite, and quartz. She noted the clay minerals were homogenous and found little variation among samples when comparing depositional environment, relative age, and general location. This clay homogeneity implied that clay sourcing studies would not be able to distinguish between current or past clay sources on St. Catherines Island.

In 2016, Ann S. Cordell conducted physical properties and petrographic studies of 15 clay samples collected from beach, creek, deeply buried deposit (approx. 3.7 m deep) in South Pasture, and marsh contexts on St. Catherines Island (Cordell 2016). In addition, four samples were collected from archaeological contexts at Fallen Tree (9Li8). These studies characterized the local St. Catherines Island clays and assessed their suitability for pottery manufacture. In addition, the archaeological clay samples were compared to the local island clays to identify similarities, differences, and potential sources. The physical properties showed that St. Catherines Island clays exhibited variable workability and firing properties. Cordell noted that Fallen Tree samples could be used “as is” while most of the local clays required processing either by adding or removing aplastic materials. High iron content in most local clay samples, eliminated a connection with the Fallen Tree clays. Cordell acknowledged that Fallen Tree clay samples closely resembled the deeply buried clay from South Pasture, but could not rule out another source. The petrographic analysis showed that the archaeological samples from Fallen Tree were homogenous and lacked gypsum and diatoms. Cordell ruled out marsh, beach, and creek samples as possible sources of the Fallen Tree clays because the marsh, beach, creek samples contained both gypsum and diatoms. The South Pasture sample, yet again, resembled the Fallen Tree samples because it lacked gypsum and diatoms. Cordell provisional concluded that the archaeological samples from Fallen Tree are unique due to low iron content, high workability, and lack of gypsum and diatoms when compared to the other St. Catherines clay samples. The South Pasture clay seemed like a viable source for the Fallen Tree clays, however, the South Pasture clay would not have be accessible in the past unless it was closer to the ground surface and exposed along the island perimeter or in a marsh creek. In addition, other clay sources cannot be ruled out. The St. Catherines Island clay studies identified differences among local clay sources, which will be useful for future sourcing studies.

PRE-MISSISSIPPIAN CULTURE HISTORY

The Georgia coast has evidence of Native American occupation for 5,000 years, which spans the Late Archaic to the Mission periods (Table 2.1). Regionally these broad periods were subdivided into further periods and phases. The oldest occupation is the Late Archaic, which is known as St. Simons (2200 to 1100 B.C.) on the Georgia coast. Late Archaic groups consisted of highly mobile hunters and gatherers who constructed large circular or u-shaped shell rings. Large pits in the center of each ring likely were used to store acorns or hickory nuts (Russo 2006; Sanger 2015; Sassaman 1993; Saunders 2004a; Thompson 2006). Scholars of the Late Archaic have identified over 50 shell-ring sites and debates continue over their function, especially whether these sites were used for domestic or ceremonial purposes, or both. Coastal Late Archaic peoples relied on local riverine, estuarine, and terrestrial food resources such as oysters, clams, mussels, crabs, acorns, hickory nuts, turtle, deer, and a variety of fishes (Cannarozzi 2012, 2014; Colaninno 2010; Reitz 2008). In addition, Late Archaic people developed ceramic technology, specifically ceramic vessels, which allowed for changes in cooking technology (Sassaman 1993). St. Simons pottery was made with fiber temper and surface treatments ranged from plain, punctated, incised, and stab and drag. Late Archaic sites include Stallings Island on the Savannah River and several locations along the Georgia coast, including two on St. Catherines Island: the St. Catherines Shell Ring and McQueen Shell Ring.

Table 2.1. Chronology on the North Georgia Coast.

Eastern Woodlands Periods	**North Georgia Coast**		
	Periods	**Phases**	**Dates**
Mission	Altamaha	Altamaha	A.D. 1580–1700
Mississippian	Irene	Irene II/Pine Harbor	A.D. 1450–1580
		Pipemaker's Creek	A.D. 1350–1450
		Irene I	A.D. 1300–1450
	Savannah	Savannah II Savannah I	A.D. 1200–1300
Late Woodland/ Mississippian	St. Catherines	St. Catherines	A.D. 1000–1200
Woodland	Wilmington	Wilmington Walthour	A.D. 500–1000
	Swift Creek	Late Swift Creek	A.D. 550–850
		Early Swift Creek	A.D. 200–550
	Deptford	Deptford II Deptford I	400 B.C.–A.D. 500
	Refuge	Refuge III Refuge II Refuge I	1100–400 B.C.
Late Archaic	St. Simons	St. Simons II St. Simons I	3000–1100 B.C.

The Late Archaic is followed by the Woodland period (1100 B.C. to A.D. 1000), which is divided into several periods and phases on the Georgia coast. Early Woodland consists of the Refuge period (1100 to 400 B.C.) and contains three ceramic phases: Refuge I, II, and III. Next is the Deptford period (400 B.C. to A.D. 500), which includes two phases Deptford I and II. Refuge and Deptford pottery consists of sand and/or grit tempers; yet, differences in surface decorations distinguish the two types. Refuge surface treatments consists of plain, punctated, incised, and simple, check, and dentate stamps. Deptford pottery has similar surface treatments with Refuge, but is distinguished by cord marked and complicated stamps. Surprisingly, very little is known about Refuge settlements and subsistence. On the other hand, Deptford sites and pottery have been studied in more detail. Deptford people were more sedentary than Late Archaic people and used a variety of maritime and estuarine resources (Milanich 1973). Thomas and Larsen believed Deptford people on St Catherines Island were fully sedentary egalitarians who built low sand burial mounds (Thomas 2008; Thomas and Larsen 1979). In addition, Deptford burials consisted of primary-extended and secondary-bundled burials with very few grave goods. The lack of grave goods is significantly different from the burial practices of groups to the south in Florida (St. Johns I and Weeden Island) or further west (Hopewell and Adena) in which burials contained large quantities of grave goods (Wallis 2011). Several Deptford sites have been excavated on the Georgia coast, including the Deptford site and six burial mounds — Cunningham Mounds A and C, South New Ground Mound, and Seaside Mounds I and II — from St. Catherines Island (DePratter 1979, 1991; Thomas 2008; Thomas and Larsen 1979). The late Woodland is comprised of the Wilmington period (A.D. 500 to A.D. 1000), which was divided into the Walthour and Wilmington phases. The St. Catherines period (A.D. 1000 to

A.D. 1200) followed Wilmington, although some view the St. Catherines phase as a transition period between Late Woodland and Early Mississippian (Sipe 2013a). Wilmington and St. Catherines pottery consists of fired clay (or grog/sherd) temper. Wilmington pottery is characterized by larger clay inclusions, than St. Catherines. Wilmington surface decorations include plain, cord marked, fabric marked, brushed, and check and complicated stamps. The St. Catherines surface treatments include plain, burnished plain, cord marked, and net marked. Wilmington sites consists of shell middens and low sand burial mounds. Coastal Wilmington village sites with stratified shell midden deposits include Walthour site, Oemler site, Meldrim site, and 47 Wilmington occupation sites from St. Catherines Island (DePratter 1991; Thomas 2008). Wilmington burial mounds (McLeod Mound, Cunningham Mounds D and E, and one burial within Cunningham C and Seaside I Mounds) were recorded on St. Catherines Island by Thomas and Larsen (1979, 1982). They report mounds with central pits and several interment types (primary extended, secondary bundles, and evidence of cremation practices). Unfortunately, no broad-scale, regional, comparison has been conducted for Wilmington sites.

The Swift Creek period overlaps the Wilmington period. Swift Creek dates to ca. A.D. 200–850 with sites identified in northern Florida and southern Georgia spanning the area between the Atlantic and the Gulf coasts. Swift Creek people are known for their complicated stamped pottery, which researchers have split into two phases: early Swift Creek (ca. A.D. 200–550) and late Swift Creek (ca. A.D. 550–850) (Wallis 2011). Wallis and others have shown that Swift Creek people used pottery in various social interactions including marriages, trade, and mortuary practices (Ashley et al. 2007; Broyles 1968; Snow 1998, 2007; Saunders 1998; Smith and Knight 2012, 2014, 2017; Snow and Stephenson 1998; Stephenson et al. 2002; Stoltman and Snow 1998; Wallis 2007, 2011). These analyses helped provide a better understanding of

Woodland period chronology, pottery production and use, social interactions, design construction, symbolic representation, and woodcarving technology.

St. Catherines period groups also constructed low sand burial mounds with center pits; however, these central pits were often lined with wooden logs and the pit was covered with a large shell cap (Larsen and Thomas 1982; Thomas 2008). Burials consisted of primary extended, secondary bundles, and a few cremations. Mortuary demographics changed in the St. Catherines period to include more subadults buried in mortuary contexts (Thomas 2008). Mortuary evidence reflects an egalitarian social network during Deptford and Wilmington periods; afterwards, starting in the St. Catherines period, leadership and social status were ranked based on birth (Thomas 2008). St. Catherines period sites include Dotson Mound and Deptford Mound on the mainland and South End Mound II, Johns, and Marys Mounds on St. Catherines Island (DePratter 1991; Larsen and Thomas 1982, 1986; Thomas 2008). This brief overview of the pre-Mississippian periods provides a better understand of the past groups, social organization, subsistence, and mortuary practices along the Georgia coast.

MISSISSIPPIAN RADIOCARBON CHRONOLOGY, TYPOLOGY, AND CULTURE HISTORY

In the Southeast, the Mississippian period starts around A.D. 1000 and ends A.D. 1600. This period marks significant changes in subsistence strategies, sociopolitical organization and economy, settlement patterns, site architecture, and mortuary treatment (Anderson 1994, 2012; Cobb 2003; Hally 1999; Muller 1986; Steponaitis 1986). The Mississippian period is characterized by a variety of traits including platform mounds arranged around plazas, wall-trenched buildings, elite goods and burials, shell-tempered pottery, tribute, and the adoption of intensive horticulture, especially maize (Anderson 1994, 2012; Smith 1986; Steponaitis 1986).

Mississippian subsistence strategies relied on a mixture of resources including a variety of animals, shellfish, maize, beans, squash, nuts, berries, and native cultigens (Keene 2004; Steponaitis 1986). In general, Mississippian settlements in the Southeast consisted of year-round residences located on river floodplains (Muller 1986; Smith 1978). Large nucleated villages were comprised of several platform and burial mounds surrounding a plaza (Anderson 1994; Hally 1996, 1999). Platform mound summits were often the home to elite residences, mortuary temples, or other public buildings (Hally 1999; Lindauer and Blitz 1997; Milner and Schroeder 1999). Additional site types include nucleated villages without mounds, civic-ceremonial centers with few residents, and dispersed farmsteads or hamlets (Hally 1999; Smith 1978; Steponaitis 1986). On St. Catherines, Mississippian sites consisted of year-round villages and low earthen burial mounds. Platform mounds are rare on the Georgia coast. St. Catherines Mississippian people subsisted on mixture of local resources, including shellfish, fishes, deer, turtles, nuts, berries, and native cultigens including maize.

Mississippian society was hierarchically organized into two groups: elites and commoners (Steponaitis 1986). Elites inherited their social positions, had coercive political power, and ideological authority (Hally 2008). In addition, they had better diets than commoners, lived in segregated residences, received tribute, and had access to exotic materials (Steponaitis 1986). Some archaeologists viewed Mississippian political centralization, social hierarchy, and hierarchical arrangement of settlements as sociopolitical traits related to chiefdoms (Anderson 1994; Cobb 2003; Earle 1977, 1987; Hally 2008; Peebles and Kus 1977; Service 1962). This view was critiqued in recent literature by researchers who advocated to move away from classifying sites into neoevolutionary categories (e.g., hierarchical/egalitarian, chiefdom/state) (Feinman 1995; Pauketat 2007; Paynter 1989). Pauketat (2007:3) argued that such categories “stand as obstacles to understanding what really happened in the ancient world.” While I am not opposed to terms like “chiefdom” and “chief,” I believe these terms have intellectual baggage to consider. In addition, these terms imply group similarities; however, scholars continually acknowledge the considerable spatial and temporal variability. Regional studies have highlighted the degrees of variation among Mississippian societies, along many dimensions: political structure and economy (Cobb 2000; Muller 1997; Scarry 1996), settlement patterns (Hally 1993, 1999, 2006; Pluckhahn and McKivergan 2002; Smith 1978; Steponaitis 1978), the instability of chiefly polities (Anderson 1994, 1996; Blitz 1999), interpolity relationships (Livingood 2011), prestige goods economies (Brown et al. 1990; Welch 1991), elite provisioning (Scarry and Steponaitis 1997; Welch and Scarry 1995), and internal ranking and organization (Blitz 1993; King 2003; Welch and Scarry 1995; Worth 1998). Scholars describe Mississippian chiefdoms administrative hierarchy that consists of “simple chiefdoms,” “complex chiefdoms,” and “paramount chiefdoms” (Anderson 1994; Steponaitis 1986). Simple chiefdoms should have one administrative center and several associated communities, complex chiefdoms have two or more administrative centers with one distinctly larger, and the paramount chiefdom is a loosely-organized group of several separate chiefdoms led by one leader (Anderson 1994; Hally 1993, 1999; Steponaitis 1986).

The South Appalachian province (consisting of Georgia, and parts of South Carolina, North Carolina, Alabama, Florida, and Tennessee) has been recognized as a variant within the Mississippian southeast, based on the presence of complicated stamped and a non-shell tempered ceramic tradition (Boudreaux 2007a: 6; Caldwell 1971; Ferguson 1971; Griffin 1967; Hally 1994). Broadly, South Appalachia had three time periods: Etowah (A.D. 1000–1200), Savannah (A.D. 1200–1350), and Lamar (A.D. 1300–1550) (Anderson 1994; Anderson et al. 1986;

Boudreaux 2007b; Fairbanks 1950; Ferguson 1971; Hally 1994; Hally and Langford 1988; Hally and Rudolph 1986; King 2003; Rudolph and Hally 1985; Wauchope 1966). Etowah pottery is characterized by rectilinear stamped pottery, Savannah is identified by curvilinear stamped pottery that is well executed, and Lamar pottery is predominantly curvilinear stamped and boldly incised (Fairbanks 1950).

The remainder of this chapter will focus on the Lamar period and more specifically its coastal variant, the Irene period. Lamar is divided into three phases, Early Lamar (A.D. 1350–1450), Middle Lamar (A.D. 1450–1550), and Late Lamar (A.D. 1550–1800). Lamar pottery types include Lamar Incised, Lamar Complicated Stamped, and Lamar Plain. Plain vessels existed throughout the Lamar period; in contrast, use of complicated and incised wares changed over time. Incising appears to be a unique surface treatment developed during the Lamar period, which appeared around A.D. 1400 (Hally 1994). Therefore, early Lamar sites are distinguished by the lack or rarity of incised sherds recovered. Early Lamar incised vessels consist of simple designs with two or three broad lines and complicated stamping is well executed and consist of filfot cross, figure-9, and figure-8 designs (Hally 1994). Middle Lamar incised sherds have complex designs comprised of several narrow lines, and complicated stamping consists of large motifs that are poorly executed (Hally 1994). Late Lamar incised designs have numerous narrow lines and complicated stamping continues to be overstamped. During the Late Lamar, check stamping becomes common in portions of North Carolina, South Carolina, and North Georgia.

Lamar sites consist of earth mounds (platform and burial), plazas, non-mound buildings (council house), domestic structures, and village sites. Lamar polities (Hally 1994) focused around platform mound sites. Hally argued that these sites were the focus of political and ceremonial activities. Settlements are characterized by “rectangular floor plans measuring approximately 6–7 m across, depressed floors, individual-post exterior wall construction, wall-trench entrances passage, four interior roof support posts, interior wattle-and-daub partitioned walls, and a central hearth” (Hally 1994: 154). Circular structures have also been identified.

Regional variations of Lamar pottery have been identified since 1938 (Caldwell and McCann 1941; Ferguson 1971; Griffin 1967; Hally 1994; Kelly 1938; Williams and Shapiro 1990). Over the decades researchers identified 12 contemporary Lamar variations or phases, which includes the Irene period from coastal Georgia. A.R. Kelly in 1938 referred to coastal Irene pottery as “Lamar-like” because it resembled Lamar Complicated Stamped and Lamar Bold Incised. Caldwell and McCann (1941) promoted Kelly’s idea that Irene pottery is a variant of Lamar, especially the complicated and incised wares. In 1971, Ferguson stated that Irene ceramics from the Georgia coast fell within the South Appalachian Mississippian tradition.

MISSISSIPPIAN SITES ON THE GEORGIA COAST

The Mississippian period on the Georgia coast started around A.D. 1200 and consisted of two periods: Savannah (A.D. 1200–1300) and Irene (A.D. 1300–1580) (DePratter 1979; Guerrero and Thomas 2008). Savannah period pottery contains fine sand temper with occasional grit, but some clay/grog tempering is also present (DePratter 1991). Savannah pottery has several surface treatments: complicated stamped, cord marked, check stamped, and burnished plain. DePratter’s reanalysis of the WPA Chatham County collections helped identify two phases within the Savannah period: Savannah I and II (1976, 1979, 1991). Savannah I (A.D. 1200–1300) surface treatments included plain, burnished plain, and cord marked. Savannah II (A.D. 1300–1325) pottery consisted of the Savannah I ceramic types, with the addition of check stamped and complicated stamped surface decorations. Savannah check stamped pottery was comprised of diamonds or squares with a distance of 3–6 mm between the intersection of lines (DePratter 1991). Savannah Complicated Stamped vessels were decorated by a carved wooden paddle and designs included “figure eights,” “figure nines,” concentric circles, concentric diamonds (Caldwell and McCann 1941; DePratter 1991). The Savannah period was associated with platform mound construction, plazas, and burial mounds. Anderson (1994) argued that the Savannah River Basin was abandoned around A.D. 1450 which created a vacant corridor. Coastal Savannah sites include the Irene site, Seven-Mile Bend, Deptford Mound, Goodyear Mound, Taylor Mound, Oatland Mound, Lewis Creek Midden E, and Middle Place site on Ossabaw Island (Caldwell and McCann 194; Cook 1966, 1971; Cook and Pearson 1973; DePratter 1991; Pearson 1977, 2001). No Savannah sites have been recorded on St. Catherines Island.

Irene pottery was made with grit temper and surface treatments include plain, burnished plain, incising, and complicated stamping. A detailed discussion of Irene pottery is provided in the following chapter. As stated in Chapter 1, DePratter (1991) and others used the presence of incising to divide the Irene period into two phases: Irene I (early Irene, A.D. 1300–1450) and Irene II (late Irene, A.D. 1450–1550). Braley (1990) argued that incising was used in in the middle Irene and divided Irene into three phases: Irene (early Irene, A.D. 1300–1350), Pipemaker’s Creek (middle Irene, A.D. 1350–1450), and Pine Harbor (late Irene, A.D. 1450–1580).

Archaeological evidence indicates Irene sites are confined to a narrow coastal strip of Georgia, stretching approximately from the Savannah River to the Altamaha River (fig. 2.2) (Braley et al. 1986; Caldwell and McCann 1941; DePratter 1991; Pearson 1979, 1984; Saunders 2000; Thomas 2008). This region of back-barrier islands and the adjacent mainland contains a diverse set of terrestrial and maritime resources that prehistoric populations exploited for thousands of years.

Fig. 2.2. Location of St. Catherines Island and the region for Irene period sites.

Earliest Irene period investigations along the Georgia coast generally focused on survey and excavation of burial mounds (Moore 1897), while later Works Progress Administration (WPA) projects conducted large-scale excavations of large village and mound sites (Caldwell and McCann 1941; Caldwell and Waring 1939a, b). Although the coastal region has been intensively studied archaeologically, scholars continue to debate the degree of political organization, settlement structure, and subsistence strategies used during the Irene period

(Bushnell 1994; Crook 1986; DePratter and Howard 1980; Jones 1978; Larson 1978, 1980a; Pearson 1979, 1980; Pluckhahn and McKivergan 2002; Saunders 2000; Thomas 1978, 1987, 1993, 2008; Worth 1995, 1998).

Scholars used ethnohistoric and archaeological data to suggest Late Mississippian people were organized into chiefdoms (Jones 1978; Saunders 2000; Thomas 2008). Jones (1978, 1980) believes the Late Mississippian people "were largely sedentary foraging farmers, who lived in optimally positioned marshside dispersed towns, grew significant quantities of maize and other domesticated crops, and maintained a complex chiefdom level of social organization with centralized, inherited leadership and long distance trade networks with the interior" (Thomas 2008).

Alternatively, Larson (1969) and Crook (1978) believed that Irene groups had a semi-sedentary lifestyle. This interpretation was based on Jesuit ethnohistoric accounts complaining how the Guale frequently relocated within the forest and did not spend much time in one place (Larson 1969; Jones 1978). Larson argued that coastal soils were poor quality; therefore, coastal groups relied less on maize agriculture. Meanwhile, Jones (1978) argued that the Jesuit accounts were problematic and instead focused on other historic accounts, including Franciscan missionary records. Jones' ethnohistoric research identified the Guale as a chiefdom society with communities that lived in "dispersed towns." The towns consisted of permanent villages associated with chiefly lineage, community buildings, and surrounded by smaller hamlets horticultural fields, forest and marsh resources. The debate over pre- and post-contact Guale mobility and subsistence was defined as the "Guale Problem" by Thomas (2008). Numerous researchers have contributed to this discussion with multiple lines of evidence, including bioarchaeological data, revisiting ethnohistoric accounts, seasonality studies, evaluating remote habitats, and using geophysics techniques to explore settlement organization (Andrus and Crow 2008; Bergh 2012; Blair et al. 2014; Hutchinson et al. 1998, Keene 2002, 2004; Larsen 1990, 2001; Larsen et al. 2001; O'Brien and Thomas 2008; Russo 1991; Saunders 2002; Schoeninger et al. 1990; Thompson and Andrus 2013; Worth 1999). These studies confirmed that the Guale peoples were organized in a chiefdom society, lived in permanent villages while exploiting a variety of resources, including both wild resources and intensive maize agriculture.

Although the coastal region may be considered on the geographical periphery of mainstream Mississippian cultures located in the interior southeast, scholars have noted Southern Ceremonial Complex (SECC) imagery and objects recovered from several sites along the coast including Seven Mile Bend, Redbird Creek, Ossabaw Island, Pine Harbor, Walker Mound, Creighton Island, two mounds on Sapelo Island, and Kent Mound (Cook and Snow 1983; Larson 1958). Cook and Snow believed that SECC imagery was used only during the Late Mississippian and Early Contact periods on the coast. In addition, SECC imagery and objects were recovered from several Mississippian sites on St. Catherines Island including Meeting House Field, Back Creek Village, Fallen Tree, South End Mound I, and Mission Santa Catalina de Guale which implies St. Catherines was connected to the broader Mississippian world (Blair et al. 2009; Moore 1897; Thomas 2008; Saunders 2000).

IRENE MORTUARY SITES ON THE GEORGIA COAST

C.B. Moore was the first to investigate Irene burial mounds on the Georgia coast, during the late 1890s. He excavated at least 53 mounds of which 17 were associated with the Mississippian period. Table 2.2 lists 27 known Irene mortuary contexts on the Georgia coast.

Table 2.2. List of reported Irene burial mounds on the Georgia coast.

Site	County	Reference
Redbird Creek	Bryan	Pearson 1984; Sipe 2013a
Seven-mile Bend	Bryan	Cook 1971
Middle Settlement, Mound A	Bryan	Moore 1897
Bluff Field, Mound B	Bryan	Moore 1897
Bluff Field, Mound C	Bryan	Moore 1897
Mound at Fairview	Camden	Moore 1897
Mound near Woodbine	Camden	Moore 1897
Irene Site (Burial Mound and Mortuary)	Chatham	Caldwell and McCann 1941
Kent Mound	Glynn	Cook 1978a
Taylor Mound	Glynn	Cook and Pearson 1973; Wallace 1975; Smith 1982
Couper Field	Glynn	Wallace 1975; Smith 1982
Indian Field	Glynn	Wallace 1975; Smith 1982
Mound near South-end Settlement	Liberty	Moore 1897; Larsen and Thomas 1986
Fallen Tree	Liberty	Blair et al. 2014; Napolitano et al. 2014; Semon et al. 2016; Thomas 2014, 2016
Mound A	McIntosh	Moore 1897
Mound B	McIntosh	Moore 1897
Townsend Mound	McIntosh	Moore 1897
Mound at Shell Bluff	McIntosh	Moore 1897
Creighton Island - North End	McIntosh	Moore 1897
Creighton Island - Mound near Landing	McIntosh	Moore 1897
Mound near Crescent	McIntosh	Moore 1897
Walker Mound	McIntosh	Moore 1897
Mound near Contentment	McIntosh	Moore 1897
Large Mound at Bourbon	McIntosh	Moore 1897
Mound in Dumoussay's Field	McIntosh	Moore 1897
Norman Mound	McIntosh	Larson 1957
Pine Harbor	McIntosh	Cook 1979, 1980; Larson 1984

The Irene mounds tend to be low sand mounds with occasional layers of shell (Moore 1897). Diameters ranged from 36 to 100 feet. Irene burials typically were primary flexed individuals, but secondary bundles, urns, cremations, and ossuaries were also reported (Caldwell and McCann 1941; Cook 1986; Moore 1897). A variety of objects were buried with individuals, including pipes, shell gorgets, shell beads, mica, copper, a variety of stone objects, shell cups, and ceramic vessels. However, not every burial contained grave goods.

In addition to smaller mound sites, C.B. Moore excavated several large mortuary sites including a cemetery at Creighton Island, the Bourbon field mound on Sapelo Island, and the Irene site on Savannah River. The Creighton Island cemetery contained more than 200 individuals. Interments consisted of 220 primary burials, six infant urn burials, three bundles, and 10 contexts of cremated bone. Grave goods included ceramic vessels, pipes, stone celts, stone chisels, stone discoidals, projectile points, a fragment of soapstone, a copper chisel, thousands of shell beads (likely part of necklaces and bracelets), shell cups, incised shell gorgets, whelk chisels, shell pins, pearls, bone tools, small sheets of mica, and fragments of hematite. Bourbon Field Mound on Sapelo Island contained more than 190 individuals. Similar to Creighton, interments consisted of primary flexed, urns, and cremations. Large numbers of grave goods were recovered and include ceramic vessels, pipes, stone hatchets, fragments of soapstone, projectile points, stone celts, hammerstones, discoidals, shell cups, shell chisel, shell pins, carved shell gorget, numerous shell beads, bone hair pins, and hematite.

The Pine Harbor site was excavated by Fred Cook (1980b) and Lewis Larson (1984). More than thirty individuals were interred within the mound. Mortuary practices consisted of primary flexed, secondary bundles, urns, cremations, and a box burial. Grave goods were similar to other sites; however, several European objects (glass beads, metal lamp, nails holding wooden box together, and metal ring) were recovered from a few pits indicating early contact period burials.

The Irene site is a large Mississippian mound site located on western side of the Savannah River and is arguably the largest Mississippian mortuary site on the Georgia coast. The site consisted of two mounds and several borrow pits. The large mound was over 15 feet high with a diameter of 160 feet (Caldwell and McCann 1941). The smaller mound, located west of the large mound, was roughly 55 feet in diameter and over 2 feet high (Caldwell and McCann 1941). The Irene site was first excavated by C.B. Moore in 1897. Moore excavated portions of both mounds, but focused mostly on the smaller one because of the human remains. The Chatham County Engineering Department removed part of the larger mound in 1907 to use the soil as fill for the building of flood gates on Pipemaker's Creek (Caldwell and McCann 1941). Under the direction of Preston Holder, intensive excavations started at the Irene site in 1937 and continued until the end of 1939. The 1937 excavations were designed to understand site use and ceramic chronology on the northern Georgia Coast.

Savannah period components at the Irene site include a platform mound, burial mound, several houses, and several post enclosures (Caldwell and McCann 1941; DePratter 1984). During the Irene period the platform mound was converted to a rounded mound, the burial mound continued to be used, in addition a mortuary structure and large rotunda was constructed. The large mound at Irene consisted of eight construction stages, which started in the Savannah period. Initial construction of the mound consisted of a platform with a ramp and structure on top. The six subsequent mound constructions followed the same plan. The eighth construction stage, and last, was during the Irene period and the platform mound was converted to a circular mound with a rounded summit. The smaller mound at the Irene site was identified as a burial mound. The mound was constructed first by a circular layer of shell 18 feet in diameter and 28 inches thick (Caldwell and McCann 1941). This initial deposit was flanked by four shell layers on the east and two shell layers on the north and west sides. The burial mound contained 106 interments. Seven cremated burials were identified as part of the initial stage of mound construction and likely date to the Savannah period. This area also contained the only cremated burial within the mound. The remaining burials were primary flexed. In summary, the burial mound contained 62 flexed single burials, two flexed double burials, two extended prone, one bundle, one urn, nine burials with no single skeletal elements, and 15 disturbed burials. The Irene period mortuary at the Irene site was a semi-subterranean wattle and daub structure. After the destruction of the structure, the area was covered by sand and used as a cemetery. Two circular and concentric patterns of post-molds were interpreted as enclosures. Both enclosures contained burial pits with clay, instead of sand or shell, used to fill the burial pit (seven within inner and 10 in outer enclosure). The inner enclosure contained 41 burials: 26 flexed single, three double burials of adult and child, two double burials of children, one flexed double with adults, two flexed burials with additional skeletal remains, two burials of parts, one double urn burial, and four urn burials. The outer enclosure contained 23 burials: 17 flexed single, two flexed double, two burials with parts, and two urn burials. The Rotunda, or council house, was constructed during the Irene period and consisted of six concentric circles of wall trenches and post molds (Caldwell and McCann 1941). The diameter of the outer wall was 120 feet. The five inner concentric walls could be earlier buildings or inner walls and supports of the outer wall structure. Caldwell and McCann argued that the structure was ceremonial because of several burials near the center of the structure, lack of midden materials, and the pottery dump located adjacent to the outermost wall. Burials included four flexed, one flexed with missing skull, one cremation, one unknown, and 15 possible urn burials (although one only contained human remains). Pottery recovered from the Irene site consisted of several hundred thousand sherds and 170 vessels

(Caldwell and McCann 1941).

IRENE VILLAGE SITES ON THE GEORGIA COAST

Several Irene villages have been the focus of intensive investigations. These include the Irene site (Caldwell and McCann 1941), Seven-Mile Bend (Cook 1971, 1986), Pine Harbor (Cook 1979, 1980b; Larson 1984), Harris Neck (Braley et al. 1986), Redbird Creek (Pearson 1984; Sipe 2013a,b), 9Ch112 (Goad 1975), and the Grove's Creek site (Keene 2002, 2004; Keene and Garrison 2013). Many of these sites also include a mortuary component.

Habitation sites were identified based on evidence of raised shell middens and structural features, such as posts and/or wall trenches. Very few excavations identified Irene structures, partially due to poor preservation in sandy soils. Keene and Garrison (2013) surveyed the literature and identified nine structures and constructed an architectural grammar for the Irene period. In general Mississippian structures were round, square, or rectangular in shape, vary in size, were constructed from wattle and daub, and were semi-subterranean with a central hearth, storage pits and sometimes a burial (Keene and Garrison 2013).

The Grove's Creek site (9Ch71) was a farming hamlet with a large shell midden and at least five structures (Keene and Garrison 2013). All structures were rectangular, single-set post, and wattle and daub construction with a palm thatch roof and likely organized around a plaza (Keene and Garrison 2013). Keene and Garrison (2013) observed that Irene structures were square or rectangular and wattle-and-daub or wattle-and-thatch construction. They argued that variation in structure sizes, partitions, and interior features likely related to the different structural uses.

Additional Irene sites include Redbird Creek, a large dispersed town with a residential center and a mortuary complex (Pearson 1984; Sipe 2013a, b). The Redbird Creek site has 25 shell middens arranged around two low, earthen burial mounds and possibly a platform mound (Sipe 2013a,b). In addition, the remnants of several structures were identified (Sipe 2013a,b). The Redbird Creek investigations recorded and excavated numerous shell middens, which have been interpreted as discrete shell heaps (2-8 m in diameter and 1 m high), reflecting household refuse from nearby house structures (Pearson 1984; Sipe 2013a,b).

Seven Mile Bend was excavated by Cook in 1971 and between 1981 and 1985 (Cook 1971 and 1986). The site consisted of a burial mound, an Irene phase structure, and several thick shell midden deposits. Cook (1986) argued that the site was occupied continuously from early Savannah to late Irene. Much of Cook's analysis focused on ceramic variability, specifically rim attributes, which he used to refine Irene ceramic chronology. Cook identified twenty-four decorative rim types within the Seven Mile Bend ceramic assemblage. He compared these rim types and exterior surface decorations to patterns identified at Kent Mound and argued rim decorations changed over time from the Savannah to Irene periods.

Pearson (1977, 1979, 1980) analyzed several Irene settlements on Ossabaw Island and established a settlement hierarchy. He conducted an island-wide survey and identified 165 sites, of which 47 were Irene. Irene sites consisted of a cluster of shell middens 2 to 10 m in diameter and up to a meter in height (Pearson 1977: 68). Pearson's hypothetical settlement model contained four site classes. Class I sites contained multiple burial mounds and reflected intense site occupations that indicated permanent year-round settlements. Class II sites were the second largest in size and may contain one burial mound. Class III sites consisted of small communities of families, likely occupied seasonally to exploit resources, but could be more permanent settlements. Class III sites may or may not had an associated burial mound. Class IV sites were single-function occupations and not permanent settlements.

IRENE PERIOD RESEARCH ON ST. CATHERINES ISLAND

Clarence B. Moore (1897) was the first to report information from Late Mississippian sites on St. Catherines Island. Moore's work primarily focused on identifying and excavating burial mounds on the coast. On St. Catherines, he located and excavated five burial mounds. The "Mound near South-End Settlement" contained over 50 burials and had a large quantity of grave goods (six grit tempered vessels, soapstone pendant, ceramic pipes, and decomposing rattle) which were attributed to the late prehistoric period (Moore 1897). In 1971, Joseph Caldwell and archaeologists from University of Georgia excavated several sites on the island, including two large Irene sites, Meeting House Field and King New Ground (Caldwell 1971). These early excavations only recovered a handful of ceramic vessels and limited number of sherds.

In the late 1970s, the St. Catherines Island Archaeology Project (SCIAP) under the direction of David Hurst Thomas was established by the Edward John Noble Foundation and the American Museum of Natural History. In a systematic survey of St. Catherines Island, a total of 67 Irene phase occupations were identified and 44 radiocarbon dates were associated with Irene ceramics (fig. 2.3; Thomas 2008, 2009). The data from the systematic survey showed that Irene assemblages tend to be larger and more frequent than those of any other period. These Irene sites consisted of discrete shell middens assumed to reflect the refuse of adjacent dwellings (Saunders 2000; Thomas 2008). To date, no Irene platform mounds or structures have been found on St. Catherines Island. The systematic transect survey was not geared to identify the types of settlements on St. Catherines. However, Jones (1978, 1980) and Thomas (2008) argue that the

Late Mississippian people were sedentary foraging farmers, who had centralized, inherited leadership, tribute, long distance trade relationships, and relied on maize and other domesticated crops.

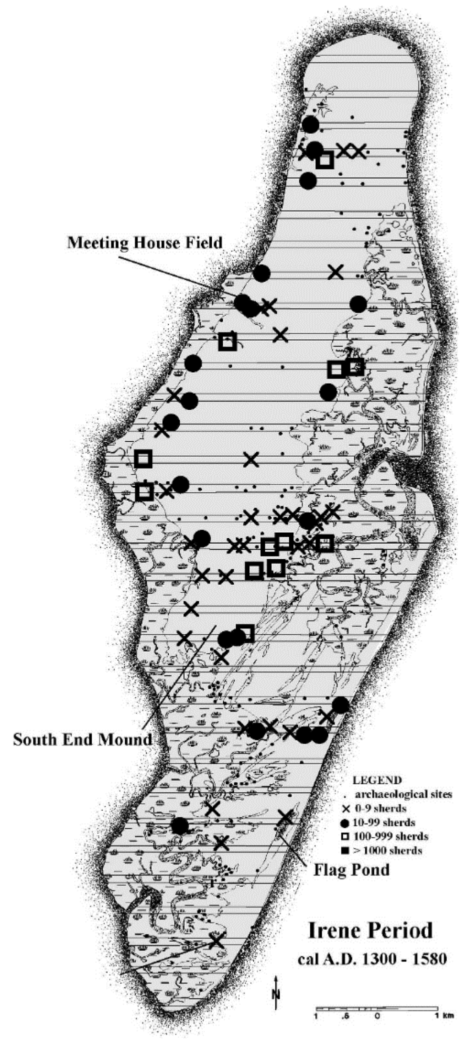

Fig. 2.3. Distribution of Irene period sites on St. Catherines Island, as published in Thomas 2008, Fig 32.13. Map courtesy of the Division of Anthropology, American Museum of Natural History.

In the late 1980s, Rebecca Saunders analyzed ceramics from 9Li21 (Meeting House Field), so far the largest Irene site on St. Catherines, in order to establish a baseline for her study of pottery change among the Guale from A.D. 1300–1720 (Saunders 2000, 2009). She used

Pearson's settlement model for Ossabaw Island (Pearson 1977, 1980), which is just north of St. Catherines, to argue that 9Li21 was a second level, year-round settlement without a burial mound. More recently, AMNH under the direction of Thomas (2008, 2009) conducted several large-scale excavations at larger Late Mississippian sites, including 9Li21 (Meeting House Field), 9Li207 (Back Creek Village), and 9Li1637, and late Mississippian/Early Mission period site, Fallen Tree (9Li8) (fig. 2.4).

Fig. 2.4. Site locations of recent Irene investigations.

Irene mortuary sites on St. Catherines Island

South End Mound I

Irene mortuary sites on St. Catherines include South End Mound I and the Fallen Tree Cemetery (fig. 2.4). South End Mound I (9Li3) is a Late Mississippian burial mound located on the southwestern side of St. Catherines Island and was first excavated by C.B. Moore in 1896 and later tested by Thomas and Larsen in 1979 and 1981 (Larsen and Thomas 1986) (fig. 2.5). Moore reported that the mound was 3 feet high and 68 feet in diameter (Moore, 1897: 161). The center of the mound consisted of oyster shell 2 feet thick and 10–20 feet across. Moore recorded 50 individuals. Most of the burials were flexed with heads to the south, which was a significant change from the extended burials during the St. Catherines period. In addition, Moore identified cremated remains and excavated five urn burials. Additional artifacts recovered by Moore include soapstone fragments, mica, numerous shell beads, ceramic smoking pipes, and over 1,000 sherds. Thomas and Larsen discovered that Moore left most of the human remains in the disturbed mound fill and recovered 26 of the 50 individuals Moore identified (Thomas 2008: 698). Larsen's (2002) analysis of these remains and isotopic data indicated Irene people were more sedentary and had an increased number of dental caries, which was likely a result of eating more maize. Ceramics recovered by Thomas and Larsen are curated at the Fernbank Museum of Natural History, and approximately 1,400 sherds were analyzed for this dissertation. In addition, I include CB Moore's burial urns and bowls excavated from the mound in 1896. Six radiocarbon dates were run on human bone from South End Mound I (Table 2.3); however, three samples had insufficient collagen for results. The remaining three samples are associated with Burials 20, 25, and 28. Calibrated dates from these burials followed Thomas's (2009) protocols and used a mixed Northern calibration curve because the individuals likely consumed marine and terrestrial resources. In addition, 50% marine carbon proportion was used together with the updated St. Catherines Island reservoir correction factor (-119 ±16) (Thomas 2009; Thomas et al. 2013). The three burials are statistically different and the sum probabilities for South End Mound I are cal A.D. 1408–1512 (1-sigma) and cal A.D. 1401–1633 (2-sigma). These dates indicate a middle to late Irene mortuary site.

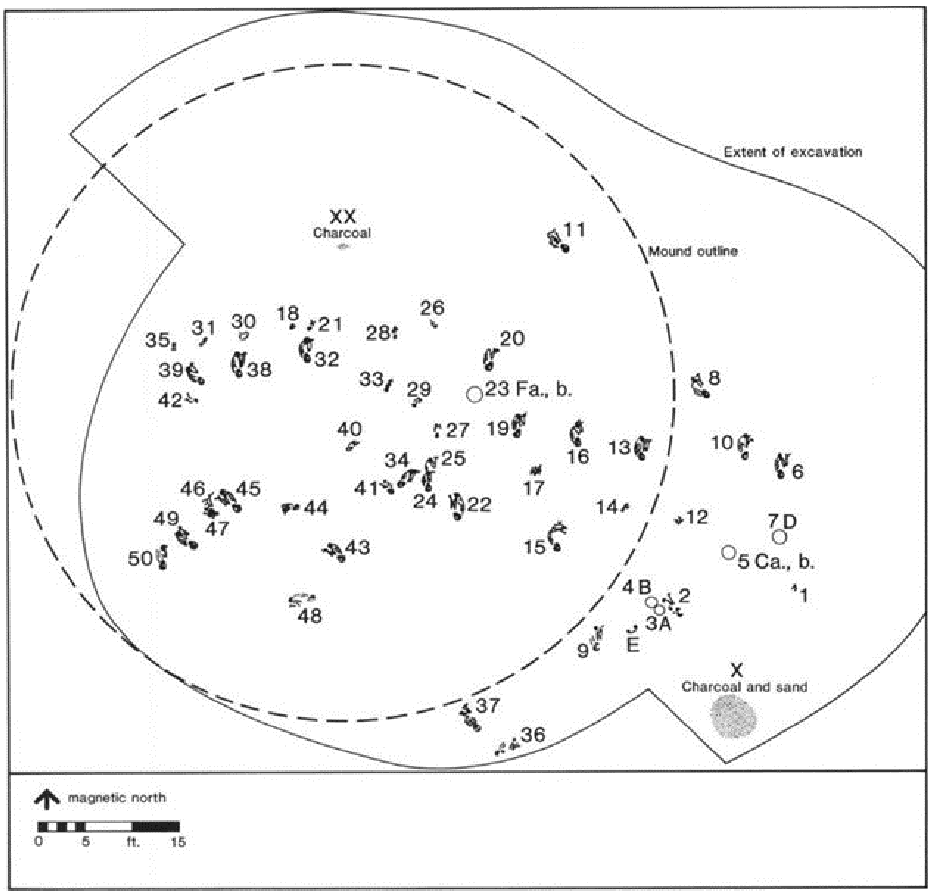

Fig. 2.5. Illustration of Moore's excavations of South End Mound I copied from Larsen and Thomas 1986, fig. 2. Map courtesy of the Division of Anthropology, American Museum of Natural History.

Table 2.3. South End Mound I radiocarbon dates.

Lab no.	Material	Contexts	$^{13}C/^{12}C$	Date (B.P)	Calibration (± 2σ) rounded[a]	Reference
Beta-225472	Human bone	Burial 6	—	—	—	Thomas 2008
Beta-225477	Human bone	Burial 16	—	—	—	Thomas 2008
Beta-225478	Human bone	Burial 20	–13.4	630 ± 40	A.D. 1330–1490	Thomas 2008
Beta-225479	Human bone	Burial 24	—	—	—	Thomas 2008
Beta-225480	Human bone	Burial 25	–13.1	600 ± 40	A.D. 1410–1520	Thomas 2008
Beta-225481	Human bone	Burial 28	–13.7	490 ± 40	A.D. 1470–1640	Thomas 2008

[a] Calibration dates based on updated St. Catherines Island reservoir correction (Thomas et al. 2013) and estimated 50% marine influence (Thomas 2009).

Fallen Tree Cemetery

The Fallen Tree Cemetery is a Late Mississippian/Early Historic period cemetery. The site was first discovered in fall 2013, during an American Museum of Natural History's (AMNH) Wamassee Creek Shoreline survey to monitor erosion impacting the Mission area (Napolitano et al. 2014). The western part of the cemetery is eroding, and although we do not know how much of the site was lost, we believe a good portion of the cemetery is intact. The site was excavated by AMNH between fall 2013 and fall 2015 (Blair et al. 2014; Thomas 2016). We excavated more than 60 discrete burial pits. Burial pits were either capped by shell, clay, or sand (fig. 2.6). There is almost no overlap among the burial pits, which suggests some type of planned use of space. Although bioarchaeological analyses are ongoing by Clark Spencer Larsen at the Ohio State University, over 80 individuals were recovered (Larsen et al. 2016; fig. 2.7). Burial types consist of primary flexed, flexed cremation, bundle, exhumation, ossuary, urns, and a box with nails. A variety of artifacts were recovered from the cemetery excavations including gorgets, whelk dipper, shell beads, shell and bone pins, mica, smoking pipes, steatite fragments, and more than 25,000 sherds (Blaber and Semon 2015; Blaber et al. 2017; Napolitano 2014; Semon 2014, 2015, 2016, 2017a,b; Semon et al. 2016; Triozzi and Semon 2014; Triozzi et al. 2016). Prior to use as a cemetery, there is evidence of a Refuge/Deptford and St. Catherines period occupations at the site. Nine radiocarbon dates on shell and carbonized botanicals are associated with Fallen Tree (five related to burials, two related to Midden I-A, and two from additional Fallen Tree contexts (Table 2.4; fig. 2.8). Unfortunately, the date from Burial 15 is from an old shell that was mixed with sand that filled the urn and the date is considered an outlier. Excluding the Burial 15 date, the cemetery dates are all statistically the same with a sum probability of cal A.D. 1468–1640 (2-sigma). These dates suggest late Irene/early Mission period (late fifteenth and sixteenth-century) mortuary events. However, more radiocarbon work is needed to help fine tune the cemetery chronology.

Fig. 2.6. Fallen Tree Cemetery plan view of burial caps. Photograph by Nicholas Triozzi. Photograph courtesy of the Division of Anthropology, American Museum of Natural History.

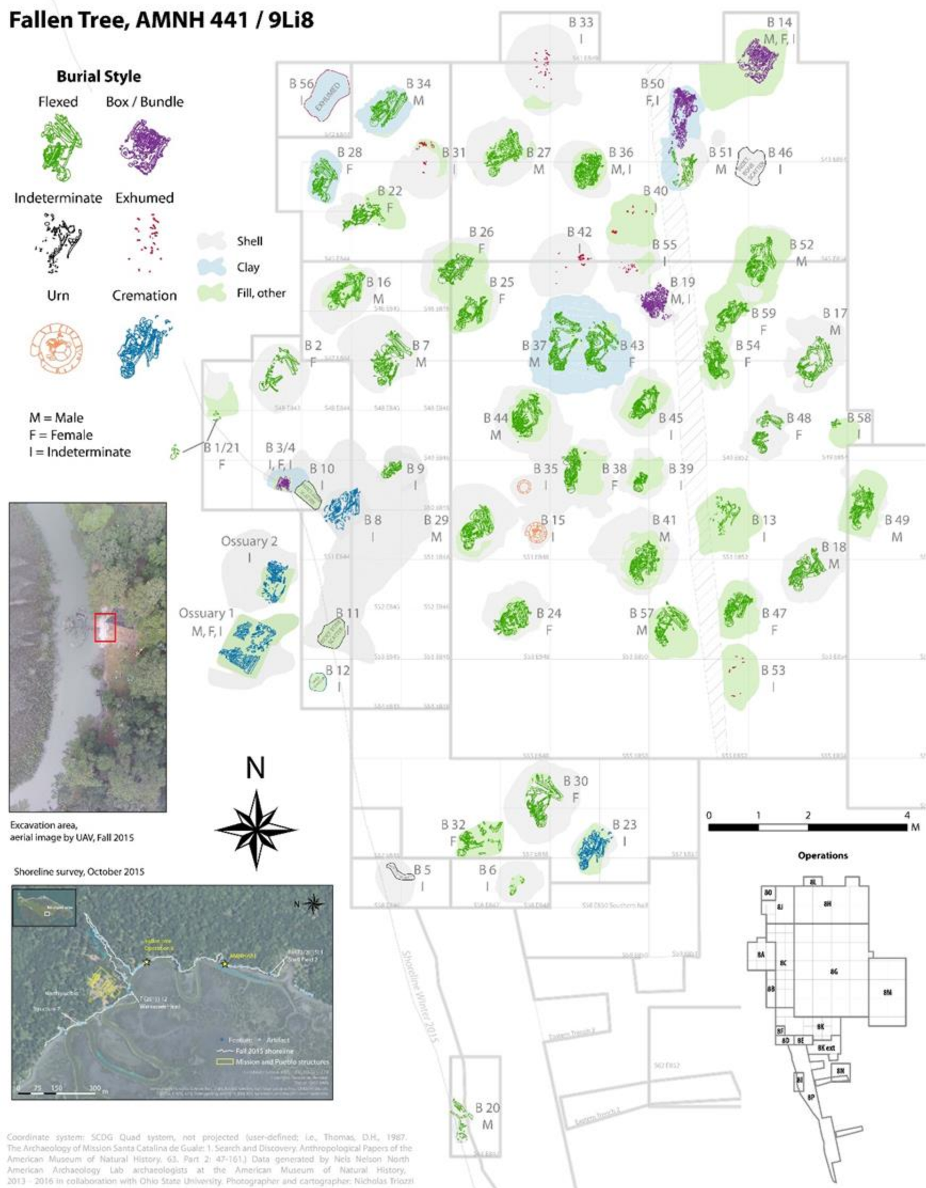

Fig. 2.7. Fallen Tree Cemetery burial map. Created by Nicholas Triozzi. Map courtesy of the Division of Anthropology, American Museum of Natural History.

Table 2.4. Fallen Tree Cemetery radiocarbon dates.

Lab no.	Material	Contexts	$^{13}C/^{12}C$	Date (B.P)	Calibration (± 2σ) rounded[a]	Reference
UGA-20641	*Mercenaria*	Burial 15; shell within vessel fill at 69.5 cmbd		1970 ± 20	A.D. 190–380	Stevenson 2015
UGA-20642	charcoal	Burial 35; charcoal within vessel fill at 68 cmbd		310 ± 20	A.D. 1500–1650	Stevenson 2015
UGA-28448	pine bark	Burial 8	-26.4	350 ± 20	A.D. 1460–1634	
UGA-28449	pine bark	Burial 23	-25.9	330 ± 20	A.D. 1490–1640	
UGA-28450	pine bark	Burial 34	-25.7	370 ± 20	A.D. 1450–1630	

[a] Calibration dates based on updated St. Catherines Island reservoir correction (Thomas et al. 2013).

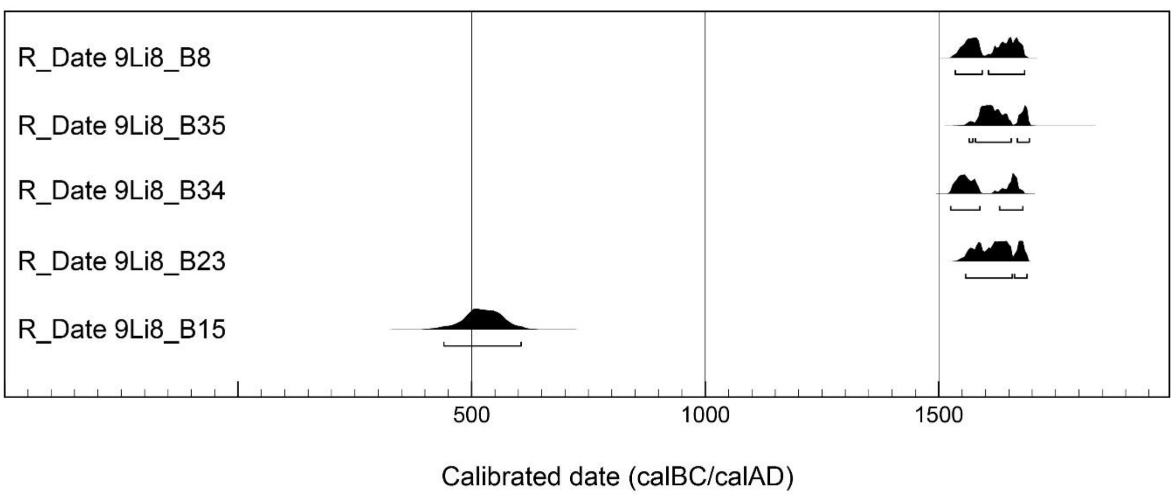

Fig. 2.8. Fallen Tree radiocarbon dates.

More than 14,000 cataloged artifacts were recovered from the cemetery excavations, including a variety of beads, bone tools, lithics, fired clay, daub, mica, ochre, prehistoric and historic pipes, shell gorgets, a variety of shell artifacts, glass, brick, various metal objects, historic ceramics, and 25,798 prehistoric ceramics. The Fallen Tree Cemetery has more historic artifacts than any other site in this study, which is mostly due to the extensive excavations at the site. Most of the historic objects were recovered from the unit soil or eighteenth and nineteenth-century features adjacent to the cemetery. No glass beads were associated with any burials. A handful of historic artifacts (mostly wrought iron nails) were recovered from Burials 3/4, 20, 28, and 56. Burial 3/4 was a bundle burial that was contained within a wooden box held together by iron nails. The iron nails are all that remain of the box. Burial 28 contained a nail within the clay cap of the burial pit. Burial 56, an exhumed burial with a clay-cap, had a wrought iron nail adjacent to clay cap. An iron nail, historic pottery, and few pieces of glass were found with Burial 20; however, this burial was likely disturbed by later historic activities. A publication detailing the cemetery excavations and artifact assemblage is in development, this dissertation research only discusses the Mississippian pottery.

Irene Village sites on St. Catherines Island

On St. Catherines Island, recent investigations by AMNH have focused on the two large Irene villages, Meeting House Field and Back Creek Village. In addition, AMNH investigated shell middens at Fallen Tree, a very late Irene/early Mission period site, to assess impacts of erosion on the site.

Meeting House Field

Meeting House Field (9Li21) is a large Irene village located on the western edge of the island (fig. 2.4). The site measures approximately 600 by 700 meters and consists of more than 100 discrete shell middens (fig. 2.9). Meeting House Field is bound by salt marsh to the west and two fresh water creeks to the north and south. The majority of the site lies within the boundaries of an antebellum field (hence the name) which has been subjected to multiple plowing episodes. The site has an outer edge of old maritime forest, containing oak and magnolia trees, and an inner field containing a pine and oak forest.

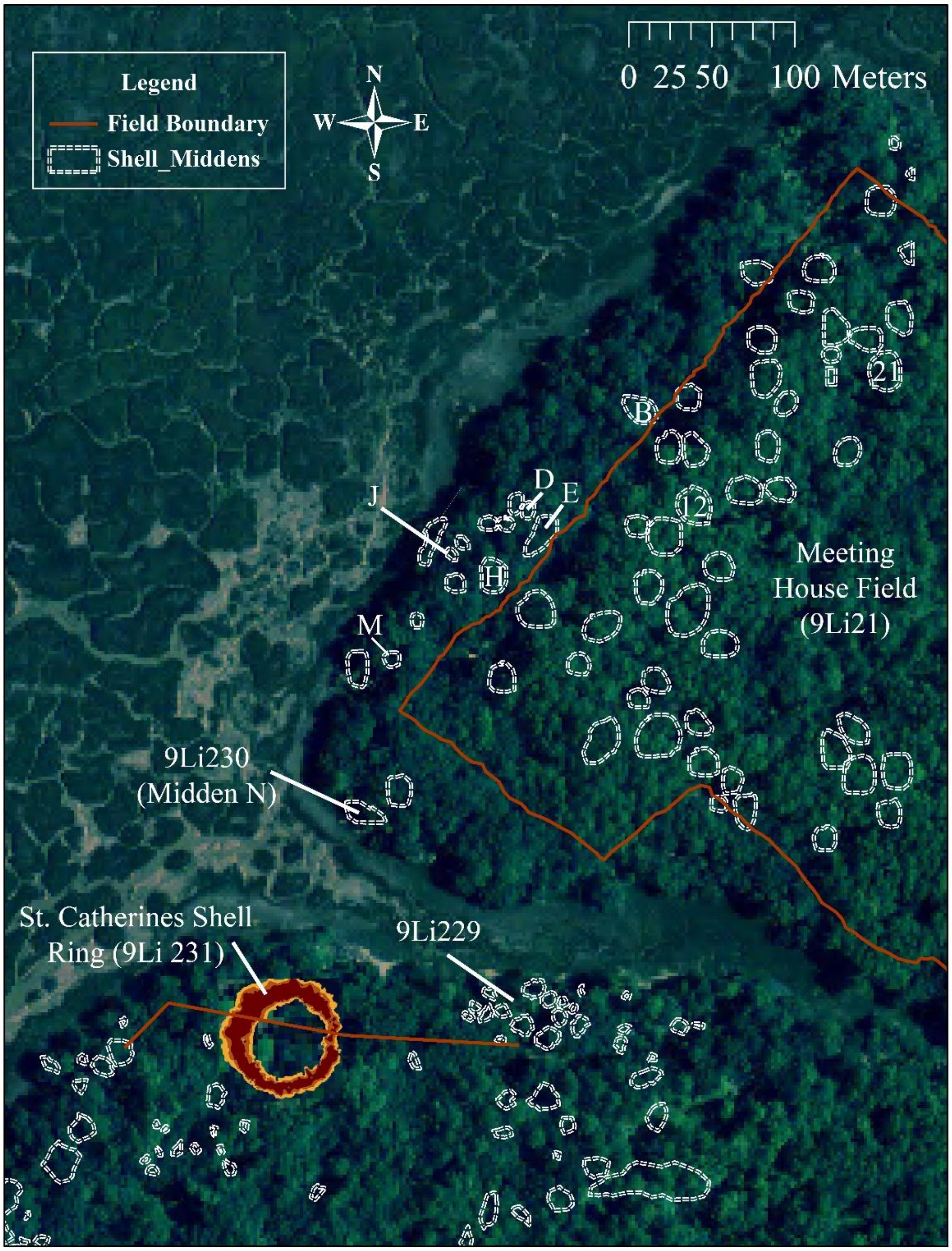

Fig. 2.9. Meeting House Field map. Map courtesy of Elliot Blair.

Over the decades, several archaeological investigations were conducted at Meeting House Field. Lewis Larson in 1959 recorded a Wilmington period occupation on the eastern side of the field near an old saw dust pile (designated 9Li5) and a Lamar period component along the marsh edge (designated 9Li6), and according to Thomas (2008) these two sites were collapsed into one site, 9Li30, in the Georgia Archaeological Site File records. Joseph Caldwell with a University of Georgia crew in 1969 designated the site the Sawmill site (9Li21) and conducted three surface collections (Thomas 2008: 707). In 1975, David Hurst Thomas and an AMNH crew designated the site Meeting House Field and conducted limited excavations to recover late prehistoric pottery, carbon samples to date, and clam samples to include in a long-term seasonality study (Thomas 2008). Rebecca Saunders in 1988 excavated at Meeting House Field as part of her dissertation research. She used Meeting House Field ceramics to establish a baseline for late prehistoric pottery attributes in order to compare and document changes in Mission period pottery recovered from Mission Santa Catalina de Guale (Saunders 2000). More recently, Thomas and AMNH crews returned to Meeting House Field between 2008 and 2015 to excavate several shell middens and conduct a large shallow geophysics survey in order to explore community layout (Thomas 1979; Saunders 2000, 2009; Blair et al. 2014; Semon et al. 2008, 2009).

Thomas and Saunders' research at Meeting House Field focused on the shell middens and created baseline information for Irene period village sites on St. Catherines Island. They argued that the discrete middens were likely associated with adjacent buried houses within the shell-free areas; however, testing in the shell-free area was limited and no structures were found. Although no Irene period structures have been identified on St. Catherines Island, excavations at mainland and adjacent islands, Ossabaw and Sapelo, sites have reported structures adjacent to discrete shell middens (Keene and Garrison 2013; Pearson 1979, 1984; Sipe 2013a,b). Thomas and Saunders identified more than 40 discrete shell middens within and outside of the antebellum field at Meeting House Field. Invertebrate and vertebrate studies indicated an intensively occupied, year-round habitation site (Bergh 2012; Saunders 2000, Thomas 2008). Sadly, our knowledge about Irene plant use is limited.

Meeting House Field has 19 radiocarbon dates (Table 2.5; fig.2.10). Thomas and Saunders reported 18 dates in various publications that provide a date one-sigma date of cal A.D. 1300–1520 for the site (Thomas 2008, 2009; Saunders 1992, 2000, 2009). In addition, Donna Ruhl ran one radiocarbon date on a carbonized botanical sample (Beta-249872). In this section, I present all the radiocarbon dates together and apply the updated reservoir correction (-119+-16) for St. Catherines Island (Thomas et al. 2013). Six middens have associated dates. Figure 3.9 presents all the dates organized by midden. Midden N is the oldest midden at the site based on the radiocarbon dates and the ceramics. If we remove the Midden N date, the sum probability 1-sigma data range is cal A.D. 1306–1528 and a 2-sigma range of cal. A.D. 1252–1654, which suggests site use starts in the Savannah period and continued through Irene into the Mission period. A closer look at the midden sum probabilities (Table 2.6) suggests Meeting House midden use likely overlapped (excluding Midden N) from the mid-1300s until the 1500s, with some use perhaps extending into the Mission period. Saunders (2000) argued that the middens could be separated into an early Irene (A.D. 1350–1450) and late Irene (A.D. 1450–1580) cluster based on ceramic surface treatments and rim attributes. In Chapter 3, I compare my Meeting House Field dataset to Saunders to expand the discussion of midden clusters and site occupation.

Table 2.5. Meeting House Field radiocarbon dates.

Lab no.	Sample Label	Material	Contexts	^{13}C /^{12}C	Date (B.P.)	Calibration (± 2σ) rounded[a]	Reference
Beta-20806	*9Li21_E_L2*	*Crassostrea*	TP I (30–40)	–2	760 ± 60	A.D. 1330–1560	Thomas 2008
Beta-20807	*9Li21_E_L5*	*Crassostrea*	TP I (60–70)	–1.8	690 ± 60	A.D. 1420–1650	Thomas 2008
Beta-20808	*9Li21_E_L7*	*Crassostrea*	TP I (80–90)	–2.9	680 ± 60	A.D. 1430–1650	Thomas 2008
Beta-21972	*9Li21_E_L2*	Charcoal	MD E (30–40)	—	—	A.D. 1410–1630	Thomas 2008
Beta-21973	*9Li21_E_L3*	Charcoal	MD E (40–50)	—	—	A.D. 1450–1790	Thomas 2008
Beta-21974	*9Li21_E_L7*	Charcoal	MD E (80–90)	—	—	A.D. 1290–1420	Thomas 2008
Beta-249872	*9Li21_E_L10*	Maize	MD E (90-100)	–9.7	330 ± 40	A.D. 1470–1650	Ruhl 2008
Beta-30262	*9Li21_12_L3*	*Mercenaria*	MD 12 (level 3)	13C /12C ratio is unavailable for this radiocarbon date	840 **beta**–± 60	A.D. 1300–1480	Thomas 2008, Larsen and Thomas (1982)
Beta-30263	9Li21_21_L3	*Mercenaria*	MD 21 (level 3)	13C /12C ratio is unavailable for this radiocarbon date	950 ± 60	A.D. 1220–1430	Thomas 2008, Larsen and Thomas (1982)
Beta-30264	9Li21_21_L3	Charcoal	MD 21 (level 3)	13C /12C ratio is unavailable for this radiocarbon date	—	A.D. 1300–1450	Thomas 2008, Larsen and Thomas (1982)
Beta-30265	9Li21_21_L3	*Crassostrea*	MD 21 (level 3)	13C /12C ratio is unavailable for this radiocarbon date	730 ± 50	A.D. 1400–1620	Thomas 2008, Larsen and Thomas (1982)
Beta-30266	9Li21_H_L2	*Mercenaria*	MD H (level 2)	13C /12C ratio is unavailable for this radiocarbon date	780 ± 60	A.D. 1320–1530	Thomas 2008, Larsen and Thomas (1982)
Beta-30267	9Li21_H_L8	*Mercenaria*	MD H (level 8)	13C /12C ratio is unavailable for this radiocarbon date	990 ± 80	A.D. 1120–1430	Thomas 2008, Larsen and Thomas (1982)
Beta-30268	9Li21_M_L3	*Mercenaria*	MD M (level 3)	13C /12C ratio is unavailable for this radiocarbon date	710 ± 80	A.D. 1350–1660	Thomas 2008, Larsen and Thomas (1982)
Beta-30269	9Li21_M_L3	Charcoal	MD M (level 3)	13C /12C ratio is unavailable for this radiocarbon date	—	A.D. 1450–1950	Thomas 2008, Larsen and Thomas (1982)
Beta-30270	9Li21_M_L3	*Crassostrea*	MD M (level 3)	13C /12C ratio is unavailable for this radiocarbon date	790 ± 80	A.D. 1290–1580	Thomas 2008, Larsen and Thomas (1982)
Beta-30271	9Li21_N_L3	*Mercenaria*	MD N (level 3)	13C /12C ratio is unavailable for this radiocarbon date	1450 ± 70	A.D. 680–990	Thomas 2008, Larsen and Thomas (1982)
UGA-1009	9Li21_E_L3	Charcoal	TP I (40–50)	—	—	A.D. 1290–1430	Thomas and Larsen (1979: Table 4)
UGA-1010	9Li21_E_L8	Charcoal	TP I (90–100)	—	—	A.D. 1220–1400	Thomas and Larsen (1979: Table 4)

[a] Calibration dates based on updated St. Catherines Island reservoir correction (Thomas et al. 2013).

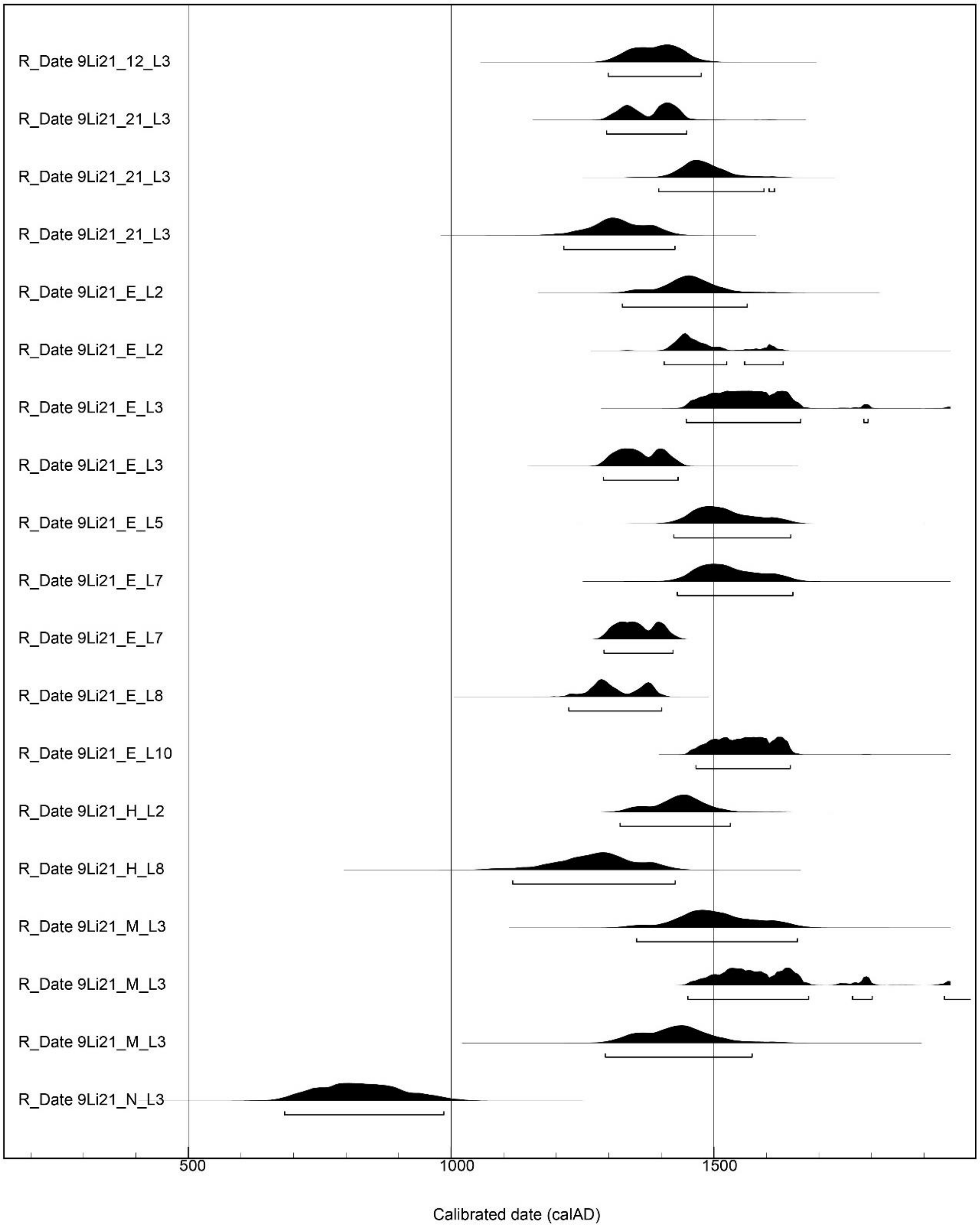

Fig. 2.10. Graph of Meeting House Field radiocarbon dates.

Table 2.6. Radiocarbon sum probabilities for middens at Meeting House Field.

Meeting House Field Middens	**Sum probability 1-sigma in cal. A.D.**	**Sum probability 2-sigma in cal. A.D.**
Midden 12	1341–1438	1299–1476
Midden 21	1296–1360 (41%), 1387–1485 (59%)	1229–1545
Midden E	1419–1549 (62%), 1308–1372 (23%), 1378–1413 (13%), 1557–1562 (2%)	1278–1643
Midden H	1334–1478 (74%), 1265–1326 (26%)	1148–1531
Midden M	1409–1592 (94%), 1630–1645 (6%)	1316–1670 (99%), 1782–1797 (1%)
Midden N	734–899	684–986

In 2008/2009, Thomas and his AMNH crew returned to Meeting House Field and excavated nine shell middens to study Irene subsistence and land-use practices (fig. 2.9). Between 2009 and 2011, the AMNH crew conducted large-scale shallow geophysics survey and two block excavations to explore Irene community layout (Blair et al. 2014; Blair et al. in press). The shell middens tested in 2008/2009 are the same middens that Thomas and Saunders tested in 1975 and 1988, respectively. The 2008/2009 rationale was threefold: 1) use middens that already had radiocarbon dates, and 2) employ previously unused fine-grained recovery techniques, and 3) increase archaeofaunal and artifact sample sizes to test existing theories about Irene subsistence and land-use patterns.

The nine middens ranged from 2 to 5 m in diameter and from 20 to 90 cm in thickness (fig. 2.11). The shell middens were comprised primarily of oyster shells with some clam and mussel shells. Midden profiles showed very little soil accumulation and few identified strata.

Most profiles looked like one deposit of shell and suggested that midden formation was relatively quick. Sarah Bergh (2012) used fine-grained recovery techniques to collect vertebrate and invertebrate remains from the 2008/2009 middens excavations for her dissertation. She determined that estuarine resources comprised the bulk of the Mississippian diet, but that the early and late occupations at Meeting House Field were characterized by subtle yet different subsistence practices. Bergh identified that the latter group exploited a broader range of taxa locations and different waste management practices. Sadly, very little is known about plant use during the Irene period. [1]

Fig. 2.11. Midden B western wall profile. Photograph courtesy of the Division of Anthropology, American Museum of Natural History.

[1] Several archaeobotanical samples are currently being analyzed under the supervision of C. Margaret Scarry at University of North Carolina at Chapel Hill.

A variety of artifacts were recovered from the middens and Table 2.7 provides a summary by midden. The top three levels of each midden (0–30 cmbs) contained 59% of the artifacts (Appendix A.1 provides details of artifacts by level). More than 4,500 sherds were recovered from the 2008/2009 shell midden excavations and comprised 81 to 98% of each midden assemblage. Although this dissertation focuses on the ceramics, I would like to briefly discuss a few observations related to the overall site assemblage and other artifact types. First, Midden 12 artifacts comprised 23% of the overall Meeting House Field assemblage, followed by Midden E (21%), Midden 21 (19%), Midden N (9%), Midden H (8%), Midden B (7%), Midden M (7%), Midden J (4%), and Midden D (2%). In addition to ceramics, all middens had lithics and daub/fired clay which reflect common items swept from Irene house floors during cleaning activities. The Meeting House assemblage included a handful of unique artifacts, such as ochre, a ceramic gaming disc, pipe fragments, and mica. The ochre and ceramic gaming disc were recovered from Midden 12 and likely related to the flexed burial which was located underneath the midden. The prehistoric pipe fragments recovered from Middens 12 and E suggest some type of ceremonial activity at the site. In addition, Saunders recovered an effigy pipe fragment, which she believed had a southeastern ceremonial complex design, from Midden H (Saunders 2000). Excavators recovered two pieces of mica from Midden 21. Mica tends to be associated with coastal burial contexts. On St. Catherines, mica was recovered from South End Mound I and the Fallen Tree Cemetery, and it is currently unclear why Midden 21 contains mica. Thirteen historic artifacts (glass, lead shot, a few iron objects, and historic pipe fragment) were recovered from Middens 12, 21, E, H, J and N. The majority of these objects were within the top three levels of each midden or unit wall scrapes. Researchers assumed many of these items were associated with antebellum or later historic activities at the site. Yet, one artifact — piece of an iron kettle or pot — was recovered from Midden E (sidewall of 1975/1988 excavation units) could reflect early historic use of the site.

Table 2.7. Artifact counts at Meeting House Field middens.

Artifact type	**12**	**21**	**B**	**D**	**E**	**H**	**J**	**M**	**N**	**Grand Total**
Baked Clay Item	–	3	–	–	–	–	–	–	–	3
Bead, Pearl	–	–	–	–	–	–	–	–	1	1
Bead, Shell	2	3	2	–	4	–	–	1	1	13
Bone, Worked	–	–	–	–	1	–	–	–	–	1
Daub	–	3	2	14	2	10	1	–	–	32
Ceramic, ABO	1,068	862	300	88	958	371	197	310	413	4,567
Ceramic, Other	1	–	–	–	–	–	–	–	–	1
Fired Clay	7	6	16	5	3	9	2	6	4	58
Glass	–	1	–	–	–	–	–	–	–	1
Lithic, Core	–	–	–	–	–	–	–	1	–	1
Lithic, Flake	2	6	3	1	1	6	1	2	1	23
Lithic, Other	1	–	–	–	4	1	3	2	–	11
Lithic, Shatter	–	–	–	–	1	–	–	–	–	1
Lead Shot	1	–	–	–	–	–	6	–	1	8
Metal, Iron pot	–	–	–	–	1	–	–	–	–	1
Metal, Modern	–	–	–	–	–	1	–	–	–	1
Metal, Scale	1	–	–	–	–	–	–	–	–	1
Mica	–	2	–	–	–	–	–	–	–	2
Ochre	3	–	–	–	–	–	–	–	–	3
Pearl	–	–	–	–	1	–	–	–	–	1
Prehistoric Pipe Frag.	1	–	–	–	1	–	–	–	–	2
Historic Pipe Frag.	1	–	–	–	–	–	–	–	–	1
Pipe, ABO	–	–	–	–	2	–	–	–	–	2
Whelk	4	7	–	1	–	2	–	2	–	16
Grand Total	**1,092**	**893**	**323**	**109**	**979**	**400**	**210**	**324**	**421**	**4,751**

Back Creek Village

Back Creek Village (9Li207) is a Late Mississippian site located on the southeastern two-thirds of the island's Pleistocene core and is situated less than one hundred meters from the marsh (fig. 2.4). The site measures approximately one hundred and eighty meters (north-south) by two hundred meters (east-west) and consists of several discrete shell middens surrounding a large depression. The site also contains a sand mound adjacent to the marsh.

The site was investigated several times by David Hurst Thomas and his AMNH crew. The first investigation occurred during the 1977–1979 transect survey, the second during the1991 field season, and the third in 2008 (Semon et al. 2008, 2009; Thomas 2008). During the 1970s and 1991 excavations, shell middens were targeted. Thomas (2008: 584) described Back Creek as a large site with numerous middens that “surround the depressed area, which may have been dug out to create a small lake.”

In 2008, seven discrete shell middens and one sand mound were investigated with 15 1x1 m units (fig. 2.12). Midden diameters ranged from 4 to 10 m and shell thickness ranged from 20 to 46 cm. Middens D and H profiles showed two layers of shell, which indicated two depositional episodes for these middens. Eight radiocarbon dates collected from four middens (A, D, F, and H) suggest an age of cal A.D. 1300–1640 (Table 2.8). Thomas (2009) attributed eight radiocarbon dates with the Irene period, although a few Savannah and Altamaha sherds were recovered from the excavations. Two additional radiocarbon dates were run by Donna Ruhl (Beta-249873 and 249874). She selected carbonized maize fragments. Figure 2.13 shows the ten radiocarbon dates from Back Creek Village. These dates suggest that Midden D is the earliest occupation and Midden H is the latest. The sum probability for 1-sigma dates at Back Creek Village are cal A.D. 1418–1569 (93%), A.D. 1597–1617 (6%), and A.D. 1574–1576 (1%). Two-sigma dates at Back Creek Village are cal A.D. 1311–1653 (93%) and A.D. 1180–1273 (7%), which suggests an occupation that starts during the St. Catherines period and continues through Irene into the Mission period, similar to Meeting House Field dates. A closer look at the midden sum probabilities (Table 2.9) suggests Back Creek midden use likely overlapped between early to mid-1400s and 1500s. In Chapter 3, I use surface decorations and rim attributes to identify midden clusters at Back Village to fine tune site chronology.

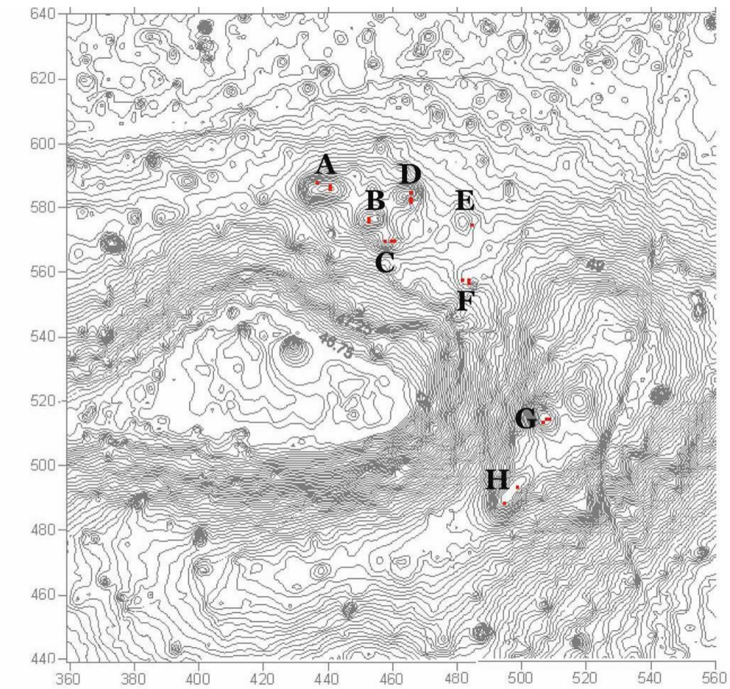

Fig. 2.12. Middens tested at Back Creek Village in 2008. Map courtesy of the Division of Anthropology, American Museum of Natural History.

Table. 2.8. Back Creek Village radiocarbon dates.

Lab no.	**Sample label**	**Material**	**Contexts**	**$^{13}C/^{12}C$**	**Date (B.P)**	**Calibration (± 2σ) rounded**[a]	**Reference**
Beta-242420	9Li207_A_T	*Mercenaria*	N586 E441@ 48.985 cmbs	-1.6	890 ± 40	A.D. 1300–1430	Thomas 2009
Beta-242421	9Li207_D_T	*Mercenaria*	TP VI @ 48.88 cmbs	-1.4	760 ± 40	A.D. 1390–1530	Thomas 2009
Beta-242422	9Li207_D_B	*Mercenaria*	TP VI @ 48.65 cmbs	-2.1	1070 ± 40	A.D. 1110–1300	Thomas 2009
Beta-242423	9Li207_A_B	*Mercenaria*	N586 E441 @ 48.78 cmbs	-2.0	660 ± 40	A.D. 1460–1640	Thomas 2009
Beta-242424	9Li207_F_B	*Mercenaria*	TP VIII @ 48.23 cmbs	-2.2	680 ± 40	A.D. 1450–1630	Thomas 2009
Beta-242425	9Li207_F_T	*Mercenaria*	TP VIII @ 48.435 cmbs	-1.3	680 ± 40	A.D. 1450–1630	Thomas 2009
Beta-242426	9Li207_H_T	*Mercenaria*	N493 E499 @ 49.9 cmbs	-0.6	600 ± 40	A.D. 1500–1670	Thomas 2009
Beta-242427	9Li207_H_M	*Mercenaria*	N488 E495 @ 49.79 cmbs	-1.3	740 ± 40	A.D. 1400–1540	Thomas 2009
Beta-249873	9Li207_H_B	Maize	N493 E499 @ 49.75-49.65 cmbs	-9.8	450 ± 40	A.D. 1410–1620	Ruhl 2008
Beta-249874	9Li207_D_M	Maize	TP VI @ 48.78-48.68 cmbs	-9	410 ± 40	A.D. 1430–1630	Ruhl 2008

[a] Calibration dates based on updated St. Catherines Island reservoir correction (Thomas et al. 2013).

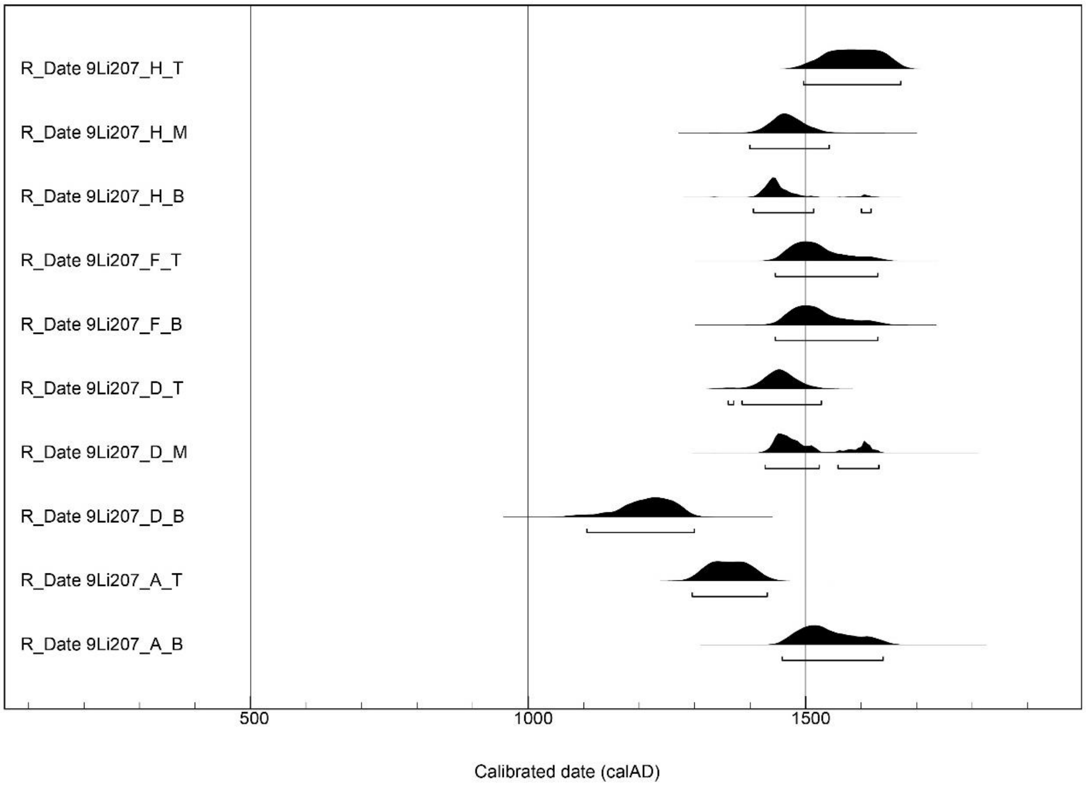

Fig. 2.13. Graph of Back Creek Village radiocarbon dates.

Table 2.9. Radiocarbon sum probabilities for middens at Meeting House Field.

Back Creek Village Middens	Sum probability 1-sigma in cal. A.D.	Sum probability 2-sigma in cal. A.D.
Midden A	1312–1411 (60%), 1480–1553 (40%)	1295–1432 (50%), 1458–1637 (50%)
Midden D	1198–1260 (25%), 1421–1511 (74%), 1604–1608 (2%)	1122–1297 (33%), 1392–1530 (59%), 1556–1632 (9%)
Midden F	1460–1545	1446–1627
Midden H	1416–1516 (90%), 1595–1618 (9%)	1412–1650

A variety of artifacts were recovered during the 2008 excavations, and Table 2.10 provides a breakdown of artifacts by midden. The top three levels of each midden (0-30 cmbs) contained 78% of the entire assemblage (Appendix A.2 provides details of artifacts by level). More than 3,000 prehistoric sherds were recovered, which comprises 68 to 90% of each midden assemblage. No historic artifacts were recovered from the Back Creek middens. Midden F artifacts comprise 26% of the overall site assemblage, followed by Midden A (21%), Midden D (13%), Midden G (12%), Midden H (11%), Midden C (10%), Midden B (7%), and the sand mound (1%). Ochre was only recovered from the sand mound, which is a potential burial mound based on the recovery of several fragments of calcined human bone. Midden H has more beads than the other midden. All middens have lithics and shell artifacts (excluding shell beads); however, Midden F has a higher percentage of lithics and Midden D has a higher percentage of shell artifacts. Although the samples sizes are small, the Back Creek Village data suggest an inverse relationship between lithics and shell artifacts. Carbonized maize was identified from Midden D and H fine fraction sorting.[2]

[2] Several archaeobotanical samples are currently being analyzed under the supervision of C. Margaret Scarry at University of North Carolina at Chapel Hill.

Table. 2.10. Artifacts counts from Back Creek Village.

Artifact types	Midden A	Midden B	Midden C	Midden D	Midden F	Midden G	Midden H	Sand Mound	Grand Total
Baked Clay Item	–	–	2	–	–	–	–	–	2
Bead Blank, Shell	–	–	–	2	–	–	–	–	2
Bead, Shell	4	–	–	2	14	8	22	–	50
Bead, Stone	2	–	–	–	–	–	–	–	2
Bone, Other	–	–	–	–	–	–	6	–	6
Bone, Pin	–	–	–	–	2	–	–	–	2
Bone, Worked	–	–	–	–	–	4	–	–	4
Daub	182	26	14	2	90	4	6	–	324
Ceramic, ABO	533	220	322	441	714	409	351	16	3,006
Ceramic, Other	6	–	–	–	2	–	–	–	8
Fired Clay	24	4	2	6	68	6	–	–	110
Lithic, Biface	–	–	–	–	4	–	–	–	4
Lithic, Flake	8	2	6	6	18	2	4	–	46
Lithic, Other	16	4	4	12	30	6	10	2	84
Ochre	–	–	–	–	–	–	–	2	2
Prehistoric Pipe Frag.	–	–	2	2	–	–	–	–	4
Shell, Other	–	–	–	–	–	–	2	–	2
Whelk	12	6	4	22	18	14	10	–	86
Shell, Worked	–	–	2	–	–	2		–	4
Grand Total	**789**	**262**	**358**	**497**	**962**	**455**	**413**	**20**	**3,756**

Fallen Tree Midden I-A

Finally, we return to the Fallen Tree site, which was discussed earlier in the mortuary sites section. Fallen Tree (9Li8) is located on the western side of St. Catherines Island, east of tidal Wamassee Creek and south of an unnamed freshwater creek (fig. 2.4). The freshwater creek separates the Fallen Tree site from the location of the sixteenth and seventeenth-century Spanish mission, Santa Catalina de Guale. Early archaeological investigations of the area were conducted by Joseph Caldwell (1972) and Lewis Larson (Brewer 1985). Santa Catalina de Guale was discovered in the late 1970s by David Hurst Thomas and his team during a systematic transect survey of the island. Thomas and his team conducted pioneering geophysical surveys, auger survey, and small-scale excavations to identify the highest concentration of mission period artifacts. In 1983 limited GPR and magnetometer surveys were conducted by J. Alan May (May 1985, 2008) to determine the extent of the middens in the area. In addition, May also conducted small-scale excavations (May 1983, 2008). Further geophysical surveys were conducted in 1990s and 2009 by AMNH (Blair 2015). Fallen Tree is a multi-occupation site, spanning from Refuge/Deptford to the Mission period. However, the largest occupation relates to Mission period and is defined as a sector of the mission neighborhood south of the freshwater creek (Blair 2015). More than 25 dense shell middens have been identified from geophysical surveys or limited test excavations (Blair 2015). These middens are all north of the Fallen Tree Cemetery location.

This dissertation focuses specifically on Midden I-A, which is located approximately 70 m north of the Fallen Tree Cemetery. The large shell midden was tested numerous times, with the most recent excavations conducted by AMNH in 2005 (7, 1x1 m units) and 2013 (designated Operation 9A, approximately 9, 1x1 m units; Napolitano et al. 2014) (fig. 2.14). Erosion is rapidly destroying Midden I-A. Midden I-A is a semi-stratified midden with multiple occupations, spanning Deptford to Mission periods. As mentioned above, two radiocarbon dates are associated with Midden I-A (Table 2.11) and both samples are statistically the same. The sum probability for 1-sigma date for Midden I-A is cal A.D. 1482–1579 and 2-sigma date is cal A.D. 1469–1638, these dates overlap with the Fallen Tree Cemetery and indicate a very late Irene/early Mission period occupation (fig. 2.15). Interestingly, Midden I-A and the Fallen Tree Cemetery dates are statistically different.

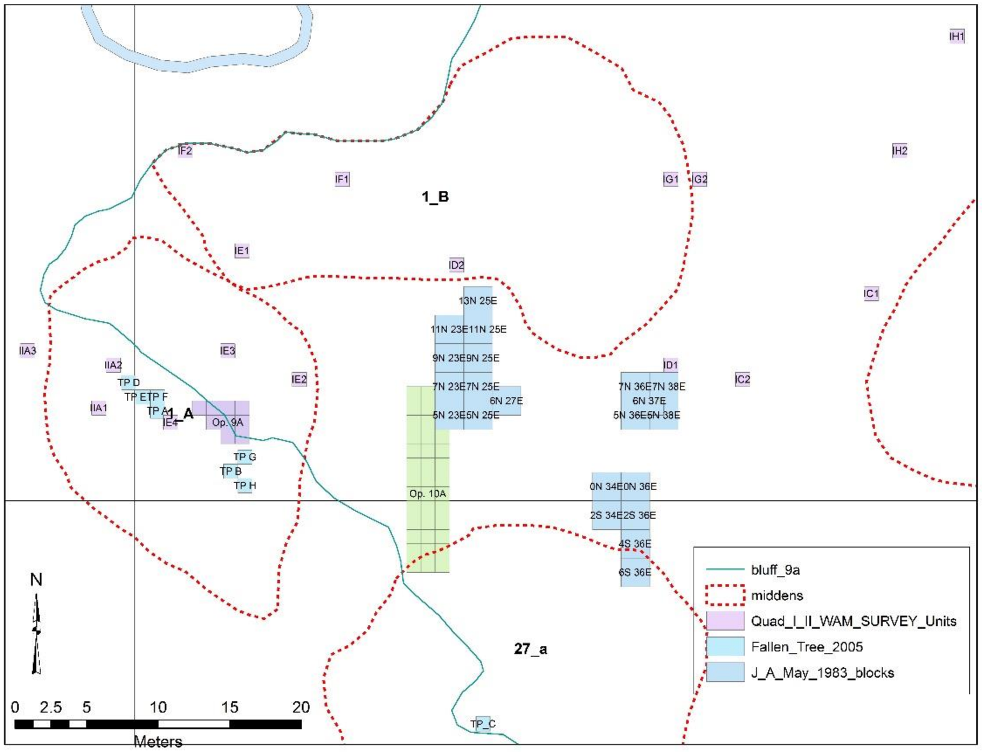

Fig. 2.14. Fallen Tree midden outlines and various excavation locations. Map courtesy of Elliot Blair.

Table. 2.11. Fallen Tree Midden I-A radiocarbon dates.

Lab no.	Material	Contexts	Date (B.P)	Calibration (± 2σ) rounded[a]	Reference
UGA-20639	*Mercenaria*	Feature (FT 2013) 9; 8 cmbd	670 ± 20	A.D. 1460–1610	Stevenson 2015
UGA-20640	*Mercenaria*	Feature (FT 2013) 11; 19 cmbd	620 ± 20	A.D. 1500–1650	Stevenson 2015

[a] Calibration dates based on updated St. Catherines Island reservoir correction (Thomas et al. 2013).

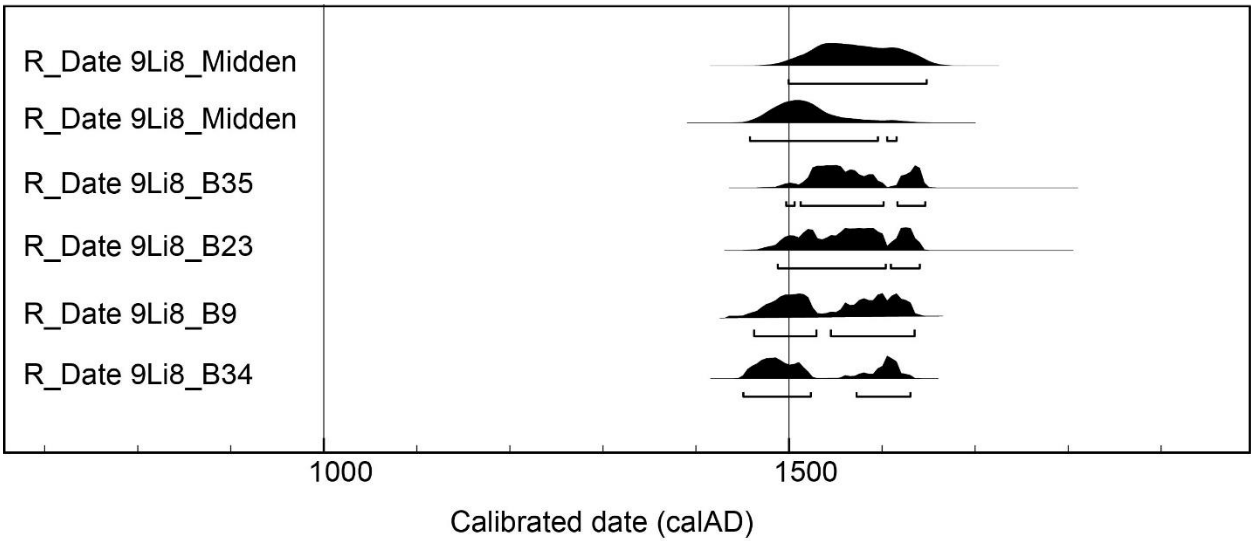

Fig. 2.15. Comparison of Fallen Tree mortuary and village radiocarbon dates.

A variety of prehistoric and historic artifacts were recovered from this midden during the 2005 and 2013 excavations, including bone and lithic tools, glass and shell beads, historic ceramics, glass, a variety of metal objects, historic and prehistoric pipe fragments, and more than 6,600 prehistoric sherds (Table 2.12; Appendix A.3 for artifact breakdown by unit/feature). The prehistoric sherds are 93.5% of the midden assemblage. Midden I-A has greater diversity of bead types, bone tool/objects, and metal items than the other village sites in this study. The metal artifacts consist of slag, lead shot, and several iron objects. Fallen Tree Midden I-A has approximately three times more historic artifacts than Meeting House Field. Interestingly, numerous ochre fragments have been recovered from this midden, with no evidence of a burial context.

Table. 2.12. Artifacts recovered from Fallen Tree 2005 and 2013 midden excavations.

Artifact types	N	Weight (g)
Bead Blank, Shell	2	13.212
Bead, Bone	1	0.199
Bead, Ceramic	1	0.2
Bead, Glass	6	0.636
Bead, Shell	43	4.544
Bead, Stone	4	0.56
Bone tools /objects	9	24.28
Daub	23	118.125
Ceramic, ABO	6,693	20,435.88
Ceramic, Historic	17	188.16
Ceramic, Other	1	0.52
Fired Clay	185	18.948
Glass	8	10.28
Lithics	22	8.553
Metal objects	18	54.436
Ochre	108	41.036
Pipe Fragment, ABO	1	4.35
Pipe Fragment, Historic	1	0.37
Whelk	13	397.48
Grand Total	**7,156**	**21,321.76**

The five St. Catherines Island sites discussed in this dissertation have radiocarbon dates that span the entire Irene period and go into the Mission period (Table 2.13). Although the sites have overlapping dates, the 2-sigma dates rank Meeting House Field as the oldest, followed by Back Creek Village, South End Mound I, Fallen Tree Cemetery, and Fallen Tree Midden I-A as the youngest site, which also contained numerous historic artifacts. As mentioned above, numerous artifacts recovered from these sites and provide a variety of information about daily village life, artifact production, use, and discard practices. This dissertation takes a closer look at the ceramics, which are the most abundant artifact type in each site assemblage. The following chapters provide details about ceramic types recovered and explore the variations within the

Irene pottery to identify pottery micro-styles and unique Late Mississippian potting communities on St. Catherines Island.

Table. 2.13. Summed probability dates at each site.

Context	**Site**	**Summed probability 1-sigma in cal. A.D.**	**Summed probability 2-sigma in cal. A.D.**
Village	Meeting House Field	1306–1528	1252–1654
	Back Creek Village	1418–1569 (93%), 1597–1617 (6%), 1574–1576 (1%)	1311–1653 (93%), 1180–1273 (7%)
	Fallen Tree Midden I-A	1482–1579	1469–1638
Mortuary	South End Mound I	1408–1512	1401–1633
	Fallen Tree Cemetery	1556–1605 (43%); 1487–1525 (35%)	1468–1640

CHAPTER 3

CERAMIC TYPOLOGY

Typologies are developed as tools for standardizing the classification of artifacts within regions. The ceramic typology for the Georgia coast was established during the late 1930s and early 1940s W.P.A. archaeological investigations in Glynn and Chatham counties (Caldwell and Waring 1939a,b; Caldwell and McCann 1941; DePratter 1991; Holder 1938; Williams 1968). In 1939, Caldwell and Waring compiled the first ceramic type descriptions, which were based on temper, decoration, surface finish, and form. Over the decades researchers have refined and expanded the ceramic types (e.g., Braley 1990; Caldwell and McCann 1941; Caldwell and Waring 1939a and b; Cook 1980a; DePratter 1979, 1991; Guerrero and Thomas 2008; Pearson 1984; Saunders 2000; Williams 1968; Williams and Thompson 1999). The coastal chronology now spans 5,000 years of history. Appendix B provides a breakdown and summary of all ceramic types found on the Georgia coast. Unlike in other parts of the southeastern United States, no variety classification system, based on finer-scale variation of ceramic types, has been employed for the Georgia coast. In this study, I generally follow established types, but have sub-divided types when necessary based on attributes such as temper type.

For this research, the Meeting House Field, Back Creek Village, and Fallen Tree Midden I-A type analysis was conducted by several people at AMNH from 2005–2009. Ceramic assemblages from more recent excavations at Fallen Tree Midden I-A and Cemetery were analyzed by the author between 2013 and 2016.

METHODS OF ANALYSIS

To be able to compare previous ceramic type datasets to current analysis, I identified temper, decoration, surface treatment, form, and general ceramic type. Major temper types included fiber, sand and grit, clay, sand, and grit. Sherds with more than one temper were recorded with major temper type listed first. Surface decorations were first categorized by technique (stamped, incised, punctated, plain, etc.) and then descriptor (check, complicated, cordmarked, unidentified, etc.). Finishing characteristics were recorded for all sherd interiors and exteriors for plain sherds. Finishing categories consisted of scraping, smoothing, burnishing, etc, techniques. Sherd forms included categories: rim, body, base, etc. General ceramic type categories included St. Simons, Refuge, Deptford, Walthour, Wilmington, St. Catherines, Savannah, Irene, Altamaha, and Unidentified. Figure 3.1 is a diagram of the ceramic analysis steps and categories.

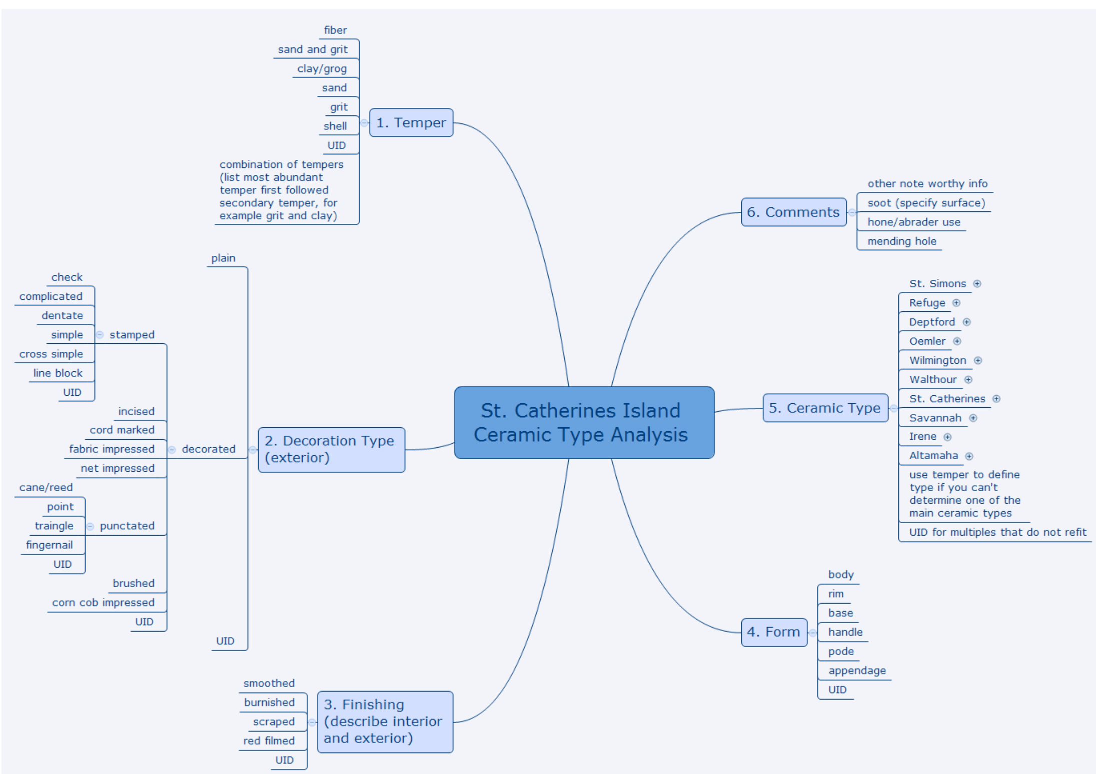

Fig. 3.1. St. Catherines Island ceramic type analysis diagram.

I assigned sherds to several additional categories to help filter and standardize the dataset. First, I separated the ceramic types into three temporal categories: Mississippian, Non-Mississippian, and Unidentified. The Mississippian category is comprised of three diagnostic ceramic types Savannah, Irene, and Altamaha. In addition, I included a few general temper types (grit, grit and clay, sand and grit, shell, etc.) that had characteristics of Mississippian diagnostic types. The non-Mississippian sherds consisted of Woodland and Late Archaic ceramic types, including St. Catherines, Wilmington, Walthour, Refuge, Deptford, Thom's Creek, and St. Simons. The unidentified category consisted of sherds that I was not able to fit in a category. Second, I created a column within the database to help distinguish decorated versus plain wares. Third, sherds were separated into three size categories (large, small, and residue sherds too small to type) based on weight. The weight threshold I selected to separate small from large sherds was 10 g, which consisted of a maximum length of 3 cm or larger. In other words, any sherd 10 g or above was considered large and diagnostic, while anything under 10 g was considered small and non-diagnostic. Large sherds consistently provide representative and diagnostic attribute data, while small sherds are often difficult to consistently identity all attributes. Similarly, Boudreaux (2007b) showed that sherds with a 4 cm maximum length were large enough to separate diagnostic from non-diagnostic sherds. The weight threshold allowed me to target diagnostic sherds for the detailed attribute study. The second stage of analysis consisted of a detailed attribute study to look for micro-styles and micro-techniques. The methods and results of the attribute analyses are presented in Chapter 4.

Statistics

Several statistical approaches were applied to this dissertation dataset. Exploratory data analysis (EDA) was used to explore quantitative and qualitative datasets (Tukey 1977; Hartwig and Dearing 1979). EDA emphasizes visual displays to highlight patterns in the data. Techniques used for examining data include boxplots, histograms, and biplots. The statistical software used in this dissertation was Paleontological Statistics, also known as PAST, version 3.12 designed by researchers at the University of Oslo, University of Copenhagen, and the National University of Ireland (Hammer 2016; Hammer et al. 2001). PAST is free and simple to use statistical software designed for paleontological data analysis, but the program provides the same statistical analyses useful for archaeologists including EDA and multivariate techniques.

In addition to EDA techniques, I used correspondence and cluster analyses on diagnostic Mississippian sherds to visualize the multivariate relationships within the dataset. Correspondence analysis is a multivariate statistical method that calculates chi-square distances between observed and expected values associated with two variables (Nelson 2016; Shennan 1997). Analysis starts with a contingency table consisting of excavated contexts in rows and ceramic types in columns. Calculated chi-square distances are converted to Euclidean distances and are plotted in two-dimensional space, resulting in a biplot. The plot shows the relationship between the two sets of variables: variables that are more similar will plot closer together and variables dissimilar will be further apart. The statistical output tables and scatter-plots were reviewed to determine which variables were exerting the most force on the first two dimensions. In short, correspondence analysis takes contingency tables and shows relationships in a biplot graph to help visualize data within the table.

Cluster analysis links or groups together data (i.e. units, middens, etc.) with similar qualities (i.e. artifact types, ceramic vessels, etc.) (Rice and Saffer 1982; Shennan 1997). In other words, cluster analysis divides a collection of known categories into smaller groups based on their similarities. A similarity or distance matrix is used to create links between similar categories and a dendrogram is generated to help visualize the clusters. Categories with shorter distances are more similar than categories with large distances. In this study I follow the protocols Saunders (2000) developed for her cluster analysis at Meeting House Field, so I could compare our results. Saunders' dataset was the percentage of total body sherds in each surface decoration (plain, stamped, and incised) and percentages of rim attributes. She used average linkage clustering method based on Euclidean distance matrix. Saunders identified two midden clusters at Meeting House Field based on her surface decorations. In the following results section of this chapter, I provide a comparison of cluster analysis results.

CERAMIC TYPOLOGY RESULTS

Ceramic typological analysis was conducted on more than 41,000 sherds. Table 3.1 summarizes the typology data for each site. A combination of diagnostic and non-diagnostic types were identified in each assemblage. The assemblages have large quantities of unidentified ceramics, which are mostly comprised of sherds too small to reliably identify temper and surface decoration. These data are removed from all further discussions. In order to streamline the data, all diagnostic sherds were lumped together by ceramic type. Any sherds not categorized by a ceramic series were identified by temper.

Table 3.1. All ceramic identified by site.

	Village sites						Mortuary sites			
	Meeting House Field		Back Creek Village		Fallen Tree Midden I-A		South End Mound I		Fallen Tree Cemetery	
Ceramic Series	**N**	**Weight (g)**	**N**	**Weight (g)**	**N**	**Weight (g)**	**N**	**Weight (g)**	**N**	**Weight (g)**
Altamaha	4	33.61	8	177.48	430	4,247.97	–	–	82	993.03
Clay and grit tempered	19	122.81	9	67.97	3	8.40	2	–	23	144.18
Clay and sand tempered	–	–	–	–	1	3.30	–	–	–	–
Clay tempered	71	268.81	74	871.02	39	110.41	7	–	255	1,036.53
Deptford	–	–	–	–	5	69.05	17	–	75	1,165.67
Fiber and clay tempered	–	–	–	–	–	–	–	–	1	2.13
Grit and clay tempered	1	1.62	11	138.05	13	66.90	20	–	162	790.05
Grit and sand tempered	1	0.86	3	43.57	23	91.77	11	–	137	688.45
Grit and shell tempered	–	–	–	–	–	–	–	–	4	41.41
Grit tempered	644	3,451.66	1,010	4,998.46	1,627	6,655.69	304	–	2,447	8,646.13
Grit/clay/sand tempered	–	–	–	–	–	–	–	–	1	44.86
Grit/sand/clay tempered	–	–	1	11.73	–	–	1	–	1	9.05
Irene	561	5,346.48	447	4,863.93	789	6,693.50	387	–	2,782	31,699.42
Irene/Altamaha series	–	–	–	–	10	50.52	–	–	3	51.57
Possibly Irene	–	–	–	–	–	–	2	–	1	25.28
Possibly Savannah	–	–	–	–	–	–	4	–	2	26.13
Refuge	–	–	6	69.73	21	264.28	16	–	438	4,163.30
Refuge/Deptford series	–	–	1	4.32	2	9.30	4	–	273	1,561.73
Sand and clay tempered	5	22.49	–	–	1	5.44	1	–	105	516.80
Sand and grit tempered	43	225.46	71	449.13	43	167.84	5	–	827	3,143.78
Sand tempered	93	325.36	146	740.57	74	145.56	9	–	479	1,338.91
Sand/clay/grit tempered	–	–	–	–	–	–	–	–	4	17.79
Sand/grit/clay tempered	–	–	1	3.67	3	44.61	–	–	63	457.57
Savannah/Irene series	–	–	–	–	–	–	–	–	1	3.39
Savannah	37	95.34	23	400.49	32	217.03	7	–	347	3,300.05
Shell tempered	–	–	–	–	–	–	–	–	7	5.66
St. Catherines	79	546.61	8	340.75	3	33.93	13	–	228	2,221.19
St. Simons	–	–	–	–	3	68.50	2	–	–	–
Thom's Creek	–	–	–	–	2	9.20	–	–	–	–
Unidentified	2,940	695.36	1,183	590.69	3,542	1,098.59	546	–	17,028	5,054.63
Walthour	–	–	–	–	–	–	5	–	1	82.68
Wilmington	1	5.40	1	45.68	–	–	36	–	21	387.15
Total	**4,499**	**11,141.87**	**3,003**	**13,817.24**	**6,666**	**20,061.80**	**1,399**	**–**	**25,798**	**67,618.53**

Each site contains a variety of ceramic types. Table 3.2 presents the count percentages of ceramic types by site after the unidentified sherds were removed. I focus on count data because the legacy data from the South End Mound I assemblage did not include weights. Most of the sites have high percentages of Irene (25-45%) and grit tempered (28-55%) sherds. Fallen Tree Midden I-A has the highest percentage of Altamaha sherds (13.76%), which indicates a Mission period occupation. The Fallen Tree Cemetery assemblage has the highest diversity of ceramic types (29 out of 31), whereas Meeting House has 13, Back Creek has 16, Fallen Tree Midden I-A has 20, and South End Mound I has 19. The range of ceramic types within each village assemblage reflects multiple occupations and provide a baseline of Mississippian ceramic types at each site. The diversity of ceramic types at the mortuary sites reflect both landscape use prior to mortuary events and mortuary activities, such as burial chronology, vessel use, and likely non-local vessel exchanges and use .

Table. 3.2. Ceramic percentages by site.

	Village sites			Mortuary sites	
Ceramic Series	**Meeting House Field**	**Back Creek Village**	**Fallen Tree Midden I-A**	**South End Mound I**	**Fallen Tree Cemetery**
Altamaha	0.26%	0.44%	13.76%	–	0.94%
Clay and grit tempered	1.22%	0.49%	0.10%	0.23%	0.26%
Clay and sand tempered	–	–	0.03%	–	–
Clay tempered	4.55%	4.07%	1.25%	0.82%	2.91%
Deptford	–	–	0.16%	1.99%	0.86%
Fiber and clay tempered	–	–	–	–	0.01%
Grit and clay tempered	0.06%	0.60%	0.42%	2.34%	1.85%
Grit and sand tempered	0.06%	0.16%	0.74%	1.29%	1.56%
Grit and shell tempered	–	–	–	–	0.05%
Grit tempered	41.31%	55.49%	52.08%	35.64%	27.90%
Grit/clay/sand tempered	–	–	–	–	0.01%
Grit/sand/clay tempered	–	0.05%	–	0.12%	0.01%
Irene	35.98%	24.56%	25.26%	45.37%	31.72%
Irene/Altamaha series	–	–	0.32%	–	0.03%
Possibly Irene	–	–	–	0.23%	0.01%
Possibly Savannah	–	–	–	0.47%	0.02%
Refuge	–	0.33%	0.67%	1.88%	4.99%
Refuge/Deptford series	–	0.05%	0.06%	0.47%	3.11%
Sand and clay tempered	0.32%	–	0.03%	0.12%	1.20%

Ceramic Series	Village sites			Mortuary sites	
	Meeting House Field	Back Creek Village	Fallen Tree Midden I-A	South End Mound I	Fallen Tree Cemetery
Sand and grit tempered	2.76%	3.90%	1.38%	0.59%	9.43%
Sand tempered	5.97%	8.02%	2.37%	1.06%	5.46%
Sand/clay/grit tempered	–	–	–	–	0.05%
Sand/grit/clay tempered	–	0.05%	0.10%	–	0.72%
Savannah/Irene series	–	–	–	–	0.01%
Savannah	2.37%	1.26%	1.02%	0.82%	3.96%
Shell tempered	–	–	–	–	0.08%
St. Catherines	5.07%	0.44%	0.10%	1.52%	2.60%
St. Simons	–	–	0.10%	0.23%	–
Thom's Creek	–	–	0.06%	–	–
Walthour	–	–	–	0.59%	0.01%
Wilmington	0.06%	0.05%	–	4.22%	0.24%
Total Percent	**100%**	**100%**	**100%**	**100%**	**100%**

After the residue sherds are removed from the dataset, the ceramic type data indicates each ceramic assemblage is primarily comprised of Mississippian ceramic types including Savannah, Irene, Altamaha, and several general tempers that had characteristics of Mississippian diagnostic types (Table 3.3; fig. 3.2). The non-Mississippian sherds consist of Woodland and Late Archaic ceramic types, including St. Catherines, Wilmington, Walthour, Refuge, Deptford, Thom’s Creek, and St. Simons. The village assemblages have 81-90% Mississippian sherds, 2–9% non-Mississippian sherds, and 7–10% unidentified. The mortuary sites have 79 and 87% Mississippian, 13 and 14% non-Mississippian, and 7% unidentified. A similar pattern is seen with percentages of sherds based on weight. Village sites had 90 to 95% Mississippian, 3–9% non-Mississippian, and 1–2% unidentified. Unfortunately, I did not have weights for the South End Mound I sherds. The Fallen Tree Cemetery shows 82% Mississippian, 17% non-

Mississippian, and 1% unidentified based on weights. The typology data indicate each site had previous occupations; however, the main occupation appears to be during the Mississippian period. The early site occupations are not the focus of this dissertation and will no longer be discussed. The remainder of the ceramics discussion will focus on the Mississippian ceramics.

Table 3.3. Mississippian versus/non-Mississippian sherds.

		Total sherds		**Mississippian**		**Non-Mississippian**		**Unidentified**	
Site Name	**Site Type**	**N**	**Weight (g)**	**N**	**Weight (g)**	**N**	**Weight (g)**	**N**	**Weight (g)**
Meeting House Field	Village	1,779	11,790.14	1,450	10,779.26	149	795.69	180	215.2
Back Creek Village	Village	1,985	13,414.21	1,740	12,088.46	71	1,172.91	174	152.84
Fallen Tree Midden I-A	Village	3,362	19,433.41	3,037	18,379.61	78	570.37	247	483.43
South End Mound I	Mortuary	687	–	600	–	87	–	–	–
Fallen Tree Cemetery	Mortuary	9,223	62,799.92	7,246	51,229.819	1,329	10,870.79	648	699.31
Totals		**17,036**	**107,437.67**	**14,073**	**92,477.15**	**1,714**	**13,409.76**	**1,249**	**1,550.78**

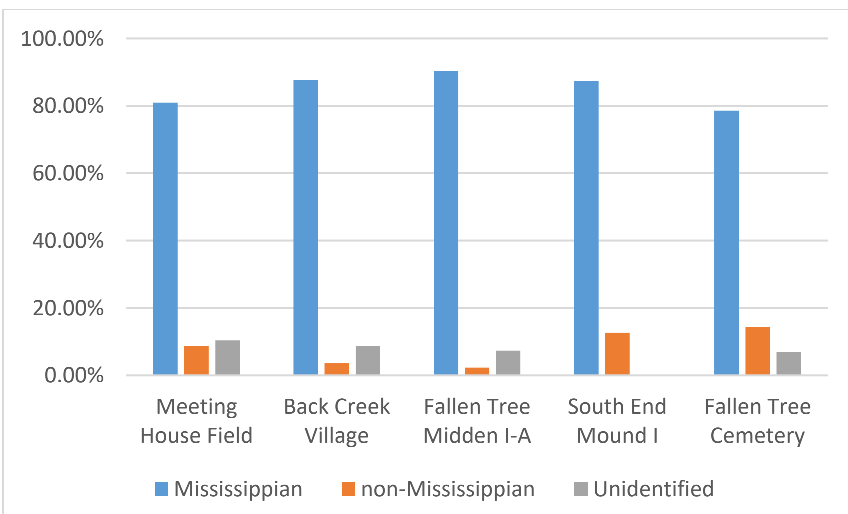

Fig. 3.2. Bar chart of Mississippian, non-Mississippian, and unidentified categories percentages for each assemblage.

Table 3.4 presents the counts and percentages of the Mississippian ceramics by site. Eighteen ceramic types are listed as part of the Mississippian category. Village sites have 10 to 12 ceramic types, whereas the mortuary sites have 10 to 18 ceramic types. Again, Fallen Tree Cemetery has the greatest richness of ceramic types, all 18 types. The dominant Mississippian ceramic types within each assemblage are Irene (26–86%) and Grit tempered (11–58%), sherds that could be Irene or Altamaha but lack diagnostic characteristics. This table also shows that Fallen Tree Midden I-A has the highest percentage (14.15%) of Altamaha ceramics from any site, which highlights temporal differences among site occupations. The minor ceramic types, identified by temper, are not abundant in any assemblage; yet, they do show variability within each site, which will be discussed in more detail in Chapter 4.

Table 3.4. Mississippian sherds by site.

	Village Sites						Mortuary Sites			
	Meeting House Field		**Back Creek Village**		**Fallen Tree Midden I-A**		**South End Mound I**		**Fallen Tree Cemetery**	
Ceramic Series	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Altamaha	4	0.29%	8	0.46%	430	14.15%	–	–	82	1.13%
Clay and Grit Tempered	17	1.22%	9	0.52%	3	0.10%	–	–	22	0.30%
Clay Tempered	1	0.07%	19	1.09%	–	–	1	0.17%	1	0.01%
Grit and Clay tempered	1	0.07%	11	0.63%	13	0.43%	1	0.17%	148	2.03%
Grit and Sand Tempered	–	–	3	0.17%	22	0.72%	3	0.50%	112	1.54%
Grit and Shell Tempered	–	–	–	–	–	–	–	–	4	0.05%
Grit tempered	643	46.29%	1,001	57.63%	1,627	53.54%	66	11.00%	2,391	32.87%
Grit/sand/clay Tempered	–	–	1	0.06%	–	–	1	0.17%	1	0.01%
Irene	561	40.39%	447	25.73%	789	25.96%	514	85.67%	2,782	38.25%
Irene/Altamaha series	–	–	–	–	10	0.33%	–	–	4	0.05%
Sand and Clay Tempered	5	0.36%	–	–	1	0.03%	1	0.17%	97	1.33%
Sand and Grit Tempered	37	2.66%	68	3.91%	42	1.38%	3	0.50%	772	10.61%
Sand Tempered	84	6.05%	146	8.41%	67	2.20%	3	0.50%	442	6.08%
Sand/clay/grit Tempered	–	–	–	–	–	–	–	–	4	0.05%

	Village Sites						Mortuary Sites			
	Meeting House Field		**Back Creek Village**		**Fallen Tree Midden I-A**		**South End Mound I**		**Fallen Tree Cemetery**	
Ceramic Series	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Sand/grit/clay Tempered	–	–	1	0.06%	3	0.10%	–	–	55	0.76%
Savannah/Irene series	–	–	–	–	–	–	–	–	3	0.04%
Savannah	36	2.59%	23	1.32%	32	1.05%	7	1.17%	347	4.77%
Shell tempered	–	–	–	–	–	–	–	–	7	0.10%
Total	**1,389**	**100%**	**1,737**	**100%**	**3,039**	**100%**	**600**	100%	**7,274**	**100%**

During analysis, Mississippian exterior surface treatments were grouped into three categories: decorated, plain, and unidentified. Table 3.5 presents the frequencies and percentages for the categories. Unidentified surface treatments are the second largest category and were dropped from further discussion.

Table 3.5. Mississippian surface treatment summary.

Mississippian Sherds	**Meeting House Field**		**Back Creek Village**		**Fallen Tree Midden I-A**		**South End Mound I**		**Fallen Tree Cemetery**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
decorated	1,073	77.2	1,193	68.7	2,028	66.7	495	82.5	4,926	67.7
plain	141	10.2	302	17.4	490	16.1	92	15.3	736	10.1
unidentified	175	12.6	242	13.9	521	17.1	13	2.2	1,612	22.2
Totals	**1,389**	**100**	**1,737**	**100**	**3,039**	**100**	**600**	**100**	**7,274**	**100**

Figure 3.3 is a bar chart showing the percentages of decorated and plain wares at each site. All assemblages have higher percentages of decorated sherds (range from 79.8 to 88.4%) and lower percentages of plain sherds (11.6 to 20.2%) indicating a preference for decorated vessels. Meeting House Field and the Fallen Tree Cemetery have higher ratios of decorated to plain wares (7.6 to 1 and 6.7 to 1, respectively), than Back Creek, Fallen Tree Midden I-A, and South End Mound I (4, 4.1, and 5.4 to 1, respectively). The reason for these different ratios is not clear and needs further study.

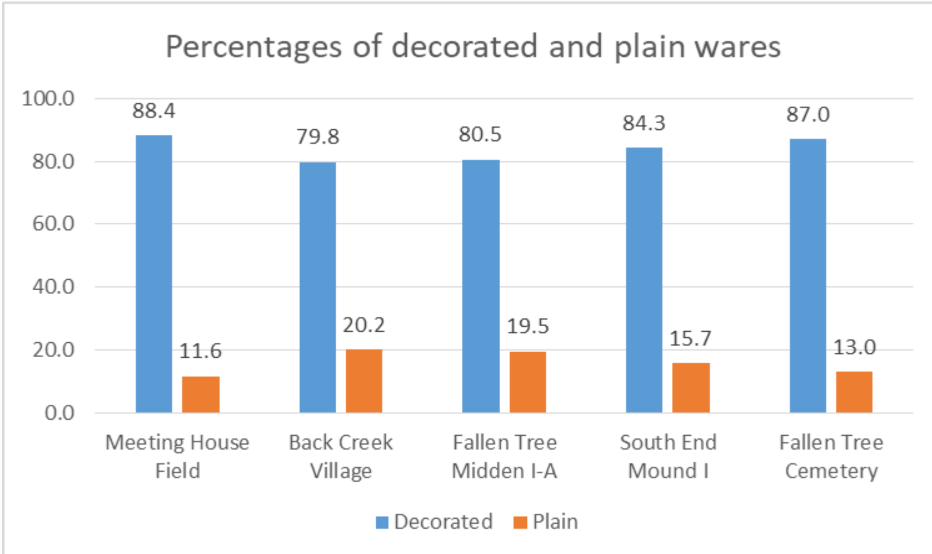

Fig. 3.3. Percentages of decorated and plain wares.

Saunders' (2000) analysis of exterior surface decorations at Meeting House Field indicated two midden clusters based on the higher percentage of plain to decorated wares. She stated Cluster 1 (Middens 12, 21, and J) had 72% decorated and 28% plain and Cluster 2 (Middens B, E, D, H, and M) had 59% decorated and 41% plain (fig. 3.4; Saunders 2000:81, Table 5.3). In addition, research at Pine Harbor and Harris Neck sites showed Late Mississippian contexts with higher percentages of plain wares (Braley et al. 1986; Saunders 2000). On the other hand, Saunders did not see the same trend with the sherds she analyzed from Mission Santa Catalina de Guale and Santa Maria. These missions had similar ratios as Cluster 1 at Meeting House.

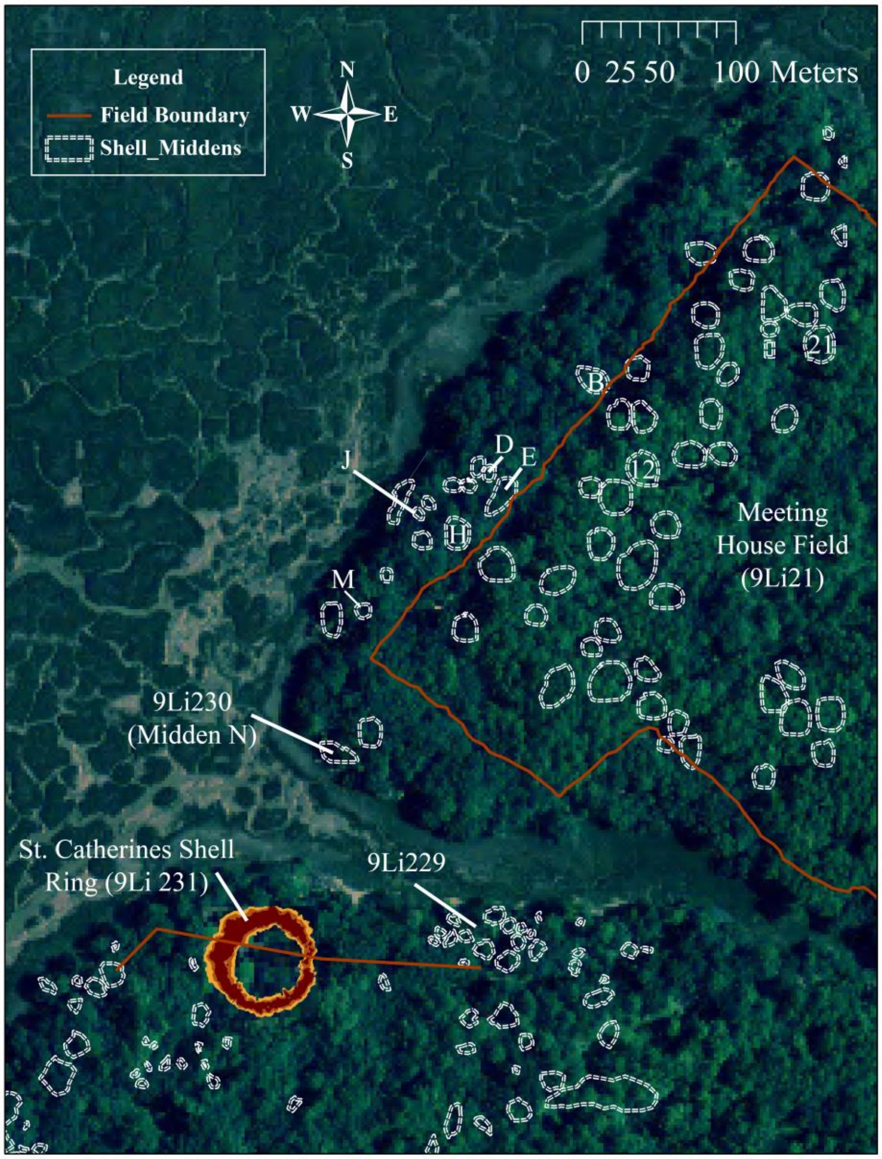

Fig. 3.4. Meeting House Field map with tested middens. Map courtesy of Elliot Blair.

In contrast to Saunders' findings, my Meeting House Field dataset, which consisted of ceramics recovered from 2009 unit excavations, contained fewer plain and more incised sherds within the same Meeting House Field middens tested by Saunders. I followed Saunders' methodology for hierarchical cluster analysis. I used percentage total of body sherds for each surface treatment and applied an average linkage based on the Euclidean distance matrix. Two clusters were identified: Cluster 1 (Middens 12, 21, B, E, and J) and Cluster 2 (Middens D, H, and M) (fig. 3.5). In my Cluster 1, plain (plain and burnished plain) wares constitute 1.2 to 18.4% and stamped sherds comprise 73.1 and 98.8%. Cluster 2 has higher percentages of plain (31.3 to 52.9%) and lower percentages of stamped sherds (43.8 to 56%). In other words, Cluster 2 has more plain wares than Cluster 1. Although I identified more incised sherds than Saunders, incised sherd percentages were not a significant factor in cluster analysis.

To recap, Saunders and I analyzed different ceramic assemblages from the same middens middens at Meeting House and identified similar surface treatment patterns. Cluster 1 middens have higher percentages of stamped and lower percentages of plain/burnished plain sherds, while Cluster 2 middens have higher percentages of plain/burnished plain and lower percentages of stamped wares. However; Saunders and I identified different middens within the two clusters because the recent excavations recovered the more stamped and fewer plain sherd, especially in Middens B and E. Combining Saunders and my Meeting House Field datasets also recreated two clusters and grouped the same middens together as the current research (fig. 3.6). In addition, a temper comparison between clusters shows Cluster 1 with double the temper categories (N=8) of Cluster 2. Cluster 1 has higher percentages of grit (86.42%) and combined clay categories (2.09%), and lower percentage of grit/sand (2.09%), sand (5.32%), and sand/grit (4.08%). Cluster 2 has a lower percentage of grit (75.18%), no clay tempered sherds, and higher percentages of grit/sand (3.65%), sand (16.79%), and sand/grit (4.38%). The temper data for these clusters indicates a trend of higher percentages of grit and clay tempers for Cluster 1, while Cluster 2 has a decrease in grit and an increase in sand tempers. Saunders reported a similar pattern in her Meeting House Field analysis (2000, 2004b).

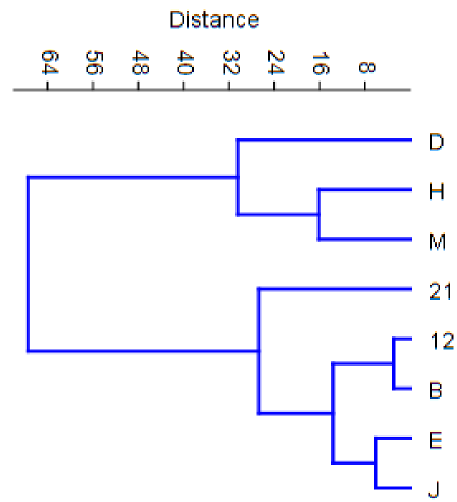

Fig. 3.5. Cluster analysis of Meeting House Field middens.

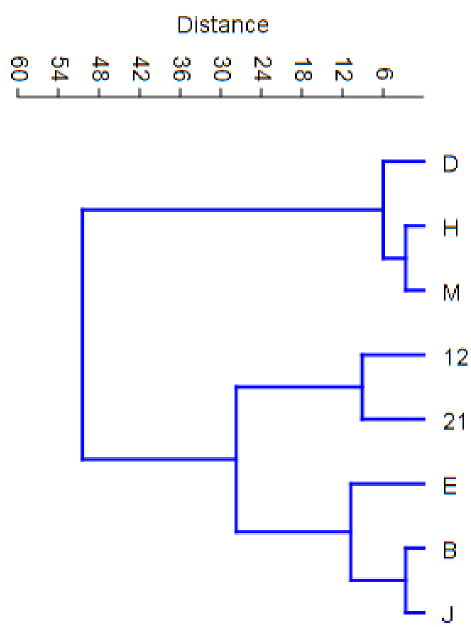

Fig. 3.6. Meeting House Field midden cluster based on combined datasets.

Saunders (2000) argued that Cluster 1 middens were an earlier component (Pipemaker's Creek phase, A.D. 1350–1450) of Meeting House than the Cluster 2 middens (Pine Harbor phase, A.D. 1450–1580). Although Saunders and I have different midden clusters, I believe the trend is still the same, Cluster 1 middens are an earlier component, likely early to middle Irene phases, and Cluster 2 is a Pine Harbor phase component. I find it intriguing that Middens E and J within Cluster 1 have significantly higher percentages of incised sherds than the other middens in Cluster 1 because incising is more typical of late Irene. Perhaps the incising relates to a reuse of these middens during the latter occupation. Alternatively, the households associated with Middens E and J had a different role within the early/middle Irene community that required the use of incised vessels. More work is required to test these ideas.

Cluster analysis for Back Creek Village assemblage identified three midden clusters (fig. 3.7 and 3.8). Cluster 1 consists of four middens: Middens A, C, D, and F. Cluster 2 consists of two middens: Middens B and H, and Cluster 3 contains one midden: Midden G. Back Creek Village Clusters 1 and 2 are similar to Meeting House clusters, in which Cluster 1 middens have more stamped (71.7 to 80.6%) and fewer plain (16.3 to 28.3%) sherds and Cluster 2 middens have more plain (33.1 to 46.2%) and fewer stamped (53.8 to 63.7%) sherds. Back Creek Cluster 3 midden is unique because it has lower percentages of stamped (57.3%) and plain (16.2%) sherds, and a high percentage of incised sherds (26.5%). In addition, a temper comparison between clusters shows similar results to Meeting House Field in which Cluster 1 has a higher percentage of grit and a lower percentage of sand, while Cluster 2 has a decrease in grit and an increase in sand temper. Cluster 3 at Back Creek is comprised predominately of grit tempered sherds (93%) and has low percentages of clay (2%) and sand (3%). Interestingly, clay tempered sherds are found within all midden clusters.

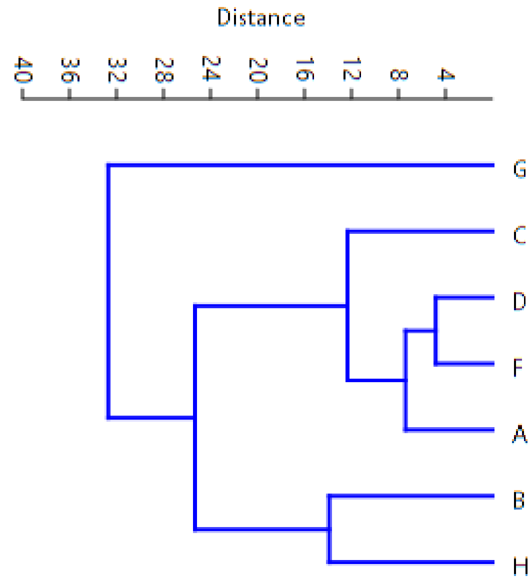

Fig. 3.7. Back Creek Village midden cluster analysis.

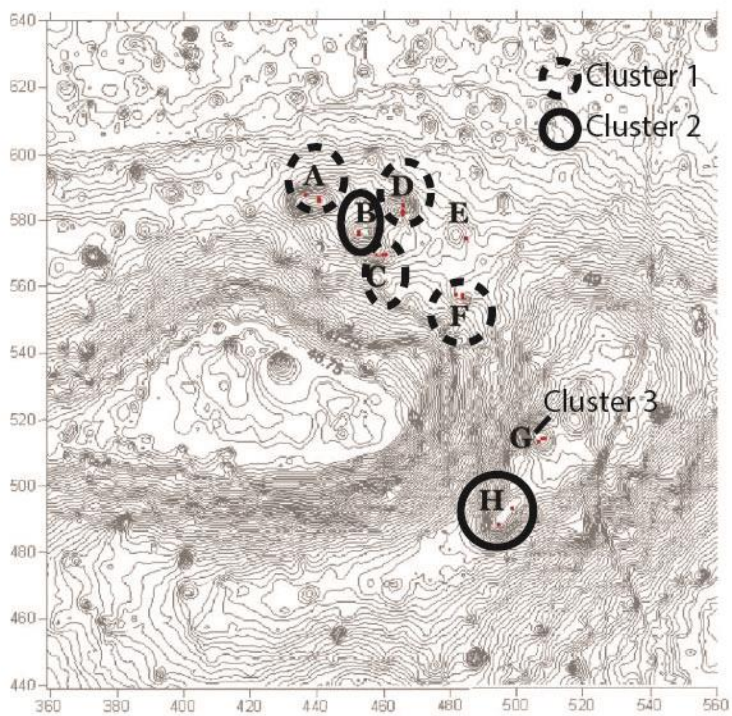

Fig. 3.8. Back Creek Village map with clusters identified.

Back Creek Village Clusters 1 and 2 show similar percentages to Meeting House Field, indicating that they represent earlier and later site components. Can the Back Creek radiocarbon dates help us refine these two components? In general, the dates from Back Creek (Chapter 2) indicate contemporaneous midden use spanning the entirety of the Irene period and extending into the Mission period. I believe primary site use was between 1400 and 1580. Dates organized by Clusters 1 and 2 have considerable overlap, although most top midden dates from Middens A, D, and F (Cluster 1) have slightly earlier dates (middle to late Irene), than Midden H (Cluster 2), which has a later date (late Irene). Sadly, we have no radiocarbon dates for Middens B, C, and G to help position these middens in Back Creek Village chronology.

The Fallen Tree Midden I-A ceramic assemblage consists of 46.8% stamped, 17.3% plain, and 19.3% incised. Comparing Midden I-A, early Mission period, surface treatment data to Meeting House and Back Creek does follow the temporal trend of more plain and incised wares and fewer stamped wares. The mortuary sites have different percentages of surface decorations, South End Mound I has more stamped (81.3%) than plain (17.4%), and few incised sherds (1.3%), which are similar to Clusters 1 at Meeting House and Back Creek. In contrast, the Fallen Tree Cemetery has more incised (21.9%) and fewer stamped (60.8%) and plain (17.3%) sherds, which is similar to Back Creek Village Cluster 3. I believe these differences reflect change over time for exterior decorations during the middle to late Irene/early Mission periods.

Mississippian decorated sherds are typically incised or stamped. Table 3.6 shows the breakdown of body sherd decoration types. The Mississippian ceramic assemblage at each site is dominated by stamped vessels (82–99%). Fallen Midden I-A and the Cemetery have higher percentage of incised wares (16.74% and 13.39% respectively) when compared to South End Mound I, Meeting House Field, and Back Creek (0.83%, 5.14% and 6.28% respectively) and suggests an increase use of incised vessels from late Irene into the early Mission period. In addition, I believe the higher percentage of incised sherds at the Fallen Tree Cemetery indicates significant use of incised vessels as mortuary wares. Sherds with both incising and stamping and other decoration techniques are rare at all sites, consisting of less than 1% of the decoration styles.

Table 3.6. Breakdown of Mississippian decoration styles by site.

	Meeting House Field		**Back Creek Village**		**Fallen Tree Midden I-A**		**South End Mound I**		**Fallen Tree Cemetery**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
incised	37	5.14	58	6.28	268	16.74	4	0.83	575	13.39
incised and stamped	–	–	3	0.33	11	0.69	3	0.62	7	0.16
stamped	682	94.72	856	92.74	1,313	82.01	477	98.55	3,712	86.43
other	1	0.14	6	0.65	9	0.56	–	–	1	0.02
Totals	**720**	**100%**	**923**	**100%**	**1,601**	**100%**	**484**	**100%**	**4295**	**100%**

Taking a closer look at the different stamped sherds, ceramics can be separated into six categories: complicated, check, line block, cord marked, cross simple, and simple (Table 3.7). Complicated stamped sherds dominate each Mississippian ceramic assemblage (54 to 99%), while the remaining stamp categories vary at each site. These varying quantities of check, line block, cross simple, and simple stamped sherds indicate a few patterns. First, the high percentage of check stamped sherds within the Fallen Tree Cemetery assemblage is more than double the other sites combined. Although this difference will be discussed further below, it does suggest a significant use of check stamped vessels during mortuary events at the site. Second, the higher percentages of line block, cross simple, and simple stamped sherds within the Fallen Tree Midden I-A assemblage corresponds to the increased use of these stamps during the Mission period and when compared to the other assemblages highlights temporal trends of stamped pottery use between the late Irene phase and early Mission period.

Table 3.7. Diagnostic stamping for Mississippian sherds.

	Meeting House Field		Back Creek Village		Fallen Tree Midden I-A		South End Mound I		Fallen Tree Cemetery	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
stamped, complicated	384	86.49	407	73.33	363	53.62	429	99.54	1,304	63.73
stamped, check	–	–	31	5.59	40	5.91	2	0.46	596	29.13
stamped, line block	41	9.23	109	19.64	171	25.26	–	–	60	2.93
stamped, cord marked	10	2.25	1	0.18	5	0.74	–	–	45	2.20
stamped, cross simple	8	1.80	6	1.08	57	8.42	–	–	37	1.81
stamped, simple	1	0.23	1	0.18	41	6.06	–	–	4	0.20
Totals	**444**	**100%**	**555**	**100%**	**677**	**100%**	**431**	**100%**	**2,046**	**100%**

A CA plot (fig. 3.9) shows the site differences among stamped, incised, and plain pottery from each site. The two axes account for 91.38% of the variance. The total inertia accounted by the CA dimension is 0.3072 and the square root of the total inertia is 0.5543. This indicates a moderate association between decorations and sites (Alberti 2013). Although the sites have similar types of ceramic decorations and are clustered near the center of the CA plot, Fallen Tree Midden I-A, located in the upper right quadrant has more line block, cross simple, simple, stamped and incised, and plain wares than the other assemblages. The Fallen Tree Cemetery is associated with incised, cord marked, check stamped wares, and reflects the higher percentages of these decorations within the cemetery assemblage. Although radiocarbon dates suggest occupational overlap between the cemetery and midden at Fallen Tree, there is currently no direct evidence to suggest these locations are related. In addition, the cemetery and midden have different frequencies of incised and stamped decorations. Overall, this decorated sherds comparison also highlights temporal decoration changes among the St. Catherines sites, with South End Mound I and Meeting House Field on one end of the spectrum (middle Irene phase) and both Fallen Tree assemblages at the other end (Late Irene/Early Mission phase).

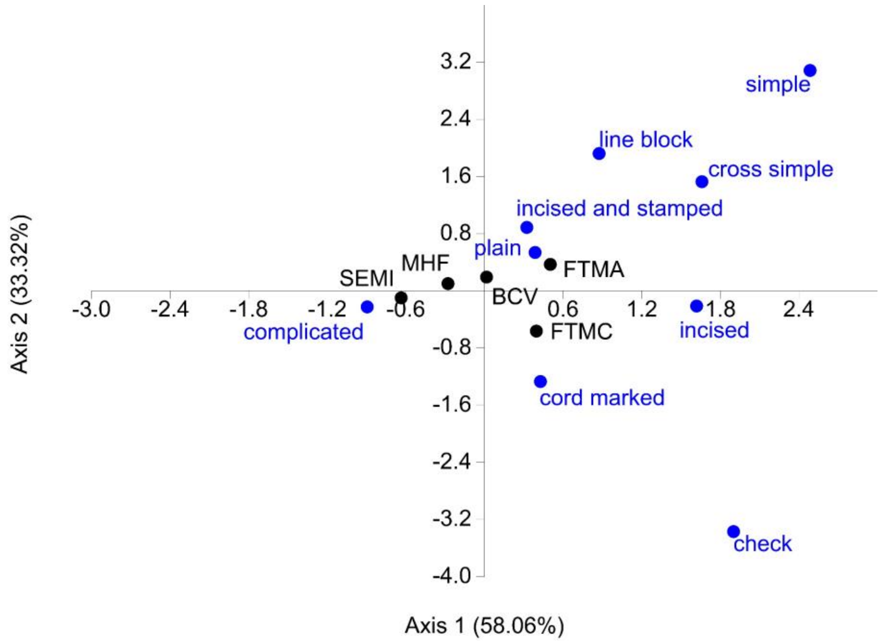

Fig. 3.9. CA plot of decorated sherds and sites. Axes 1 and 2 captures 91.38% of the variation. Site abbreviations: MHF = Meeting House Field, BCV = Back Creek Village, FTMA = Fallen Tree Midden I-A, SEMI = South End Mound I, and FTMC = Fallen Tree Cemetery.

To target diagnostic sherds for detailed attribute analyses, I used a weight threshold that helped separate small, large, and residue sherds. As discussed in the methods section, 10 grams was the threshold to distinguish large and small sherds. Tables 3.8 and 3.9 shows the breakdown of large and small sherds within each ceramic assemblage. The small sherds dominate by count, and not surprisingly the large sherds dominate by weight. The large sherds became the focus for the attribute analyses, although any small diagnostic rims, incised, and check sherds also made it to the next round of analysis. Interestingly, the percentages of small and larger sherds (Table 3.9) do not indicate any different or unique ceramic disposal patterns among sites.

Table 3.8. Mississippian size breakdown.

Mississippian sherds	Meeting House Field		Back Creek Village		Fallen Tree Midden I-A		South End Mound I		Fallen Tree Cemetery	
	N	Weight (g)	N	Weight (g)	N	Weight (g)	N	Weight (g)	N	Weight (g)
large	250	5,497.10	339	6,954.18	517	9,828.16	–	–	1,285	32,130.14
small	1,139	4,129.96	1,398	5,085.38	2,520	8,551.45	–	–	5,961	19,099.68
Total	**1,389**	**9,627.06**	**1,737**	**12,039.56**	**3,037**	**18,379.61**	**–**	**–**	**7,246**	**51,229.82**

Table 3.9. Mississippian sherd size percentages.

Mississippian sherds	Meeting House Field		Back Creek Village		Fallen Tree Midden I-A		South End Mound I		Fallen Tree Cemetery	
	% N	% weight	% N	% weight	% N	% weight	% N	% weight	% N	% weight
large	18.0	57.1	19.5	57.8	17.0	53.5	–	–	17.73	62.72
small	82.0	42.9	80.5	42.2	83.0	46.5	–	–	82.27	37.28

Ceramic Typology Discussion

In summary, the typology results provide a breakdown for ceramic types at each of the sites. Types were separated in to two categories, Mississippian and non-Mississippian, to help narrow down the sherds for attribute analysis. The data suggest older occupations at each site based on the non-Mississippian pottery present, while the large quantities of Mississippian ceramics (village assemblages = 81–90% Mississippian and the mortuary assemblages = 79–87%) indicate the primary occupation as Irene. The one exception is Fallen Tree Midden I-A, which has a high percentage of Altamaha pottery placing Midden I-A's main occupation during the very Late Irene/early Mission period and making it the youngest of the current study's sites. Appendix C provides frequencies and weights for Mississippian ceramic types by site.

In addition, the ceramic type data helped identify and explore patterns associated with ceramic surface decorations. A broad comparison of decorated versus plain data does not indicate any significant difference between village and mortuary assemblages. On the other hand, a closer look at the breakdown of diagnostic surface decorations (plain, incised, and all stamping types) by site, shows differences among the village assemblages that likely relate to change through time from middle Irene phase to the early Mission period (fig. 3.10). First looking at the village sites, Meeting House Field has a higher percentage of complicated stamped pottery, than Back Creek and Fallen Tree Midden I-A. Inversely, Meeting House has a lower percentage of plain sherds, than Back Creek Village and Fallen Tree Midden I-A. These patterns indicate broad changes of surface decorations through time from early/middle Irene to early Mission period, placing Meeting House Field on the early/middle Irene end and Fallen Tree Midden I-A on the early Mission period side. In addition, pottery decorations for the mortuary assemblages likely indicate chronological differences between middle Irene and late Irene (fig. 3.11).

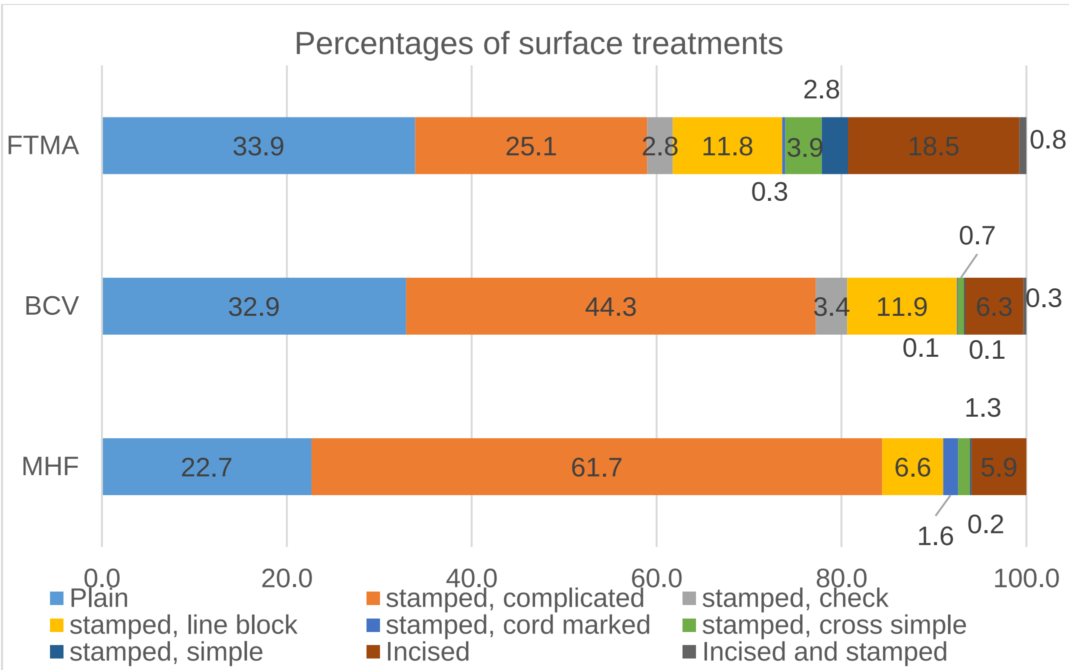

Fig. 3.10. Bar graph of Mississippian surface decorations for village sites.

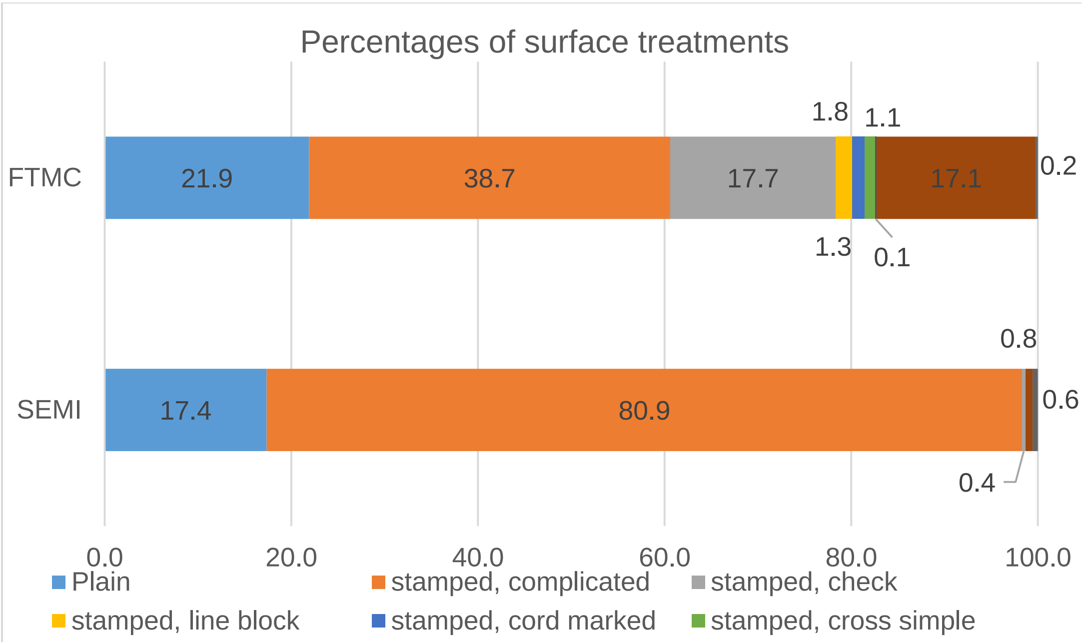

Fig. 3.11. Bar graph of Mississippian surface decorations for mortuary sites.

Researchers have documented similar trends at Irene and early Mission period sites (Blair 2015; Braley et al. 1986; Saunders 2000, 2004b). As previously discussed in this chapter, Saunders and I both used cluster analysis to explore surface treatment patterns among middens at Meeting House Field and Back Creek Village. Two clusters were identified at Meeting House and although Saunders's and my midden clustering differ, the primary clusters do identify the same pattern: Cluster 1 has more stamped and fewer plain sherds and Cluster 2 has more plain and fewer stamped sherds. As for Back Creek Village, three midden clusters were identified. Like Meeting House, Cluster 1 had more stamped and less plain sherds. Cluster 2 had more plain and fewer stamped sherds and Cluster 3 was distinguished by the high percentage of incised sherds and lower percentages of plain and stamped.

To put these St. Catherines assemblages in broader context, Table 3.10 and Figure 3.12 summarize the surface treatment percentages for several Late Mississippian and Mission period coastal sites. The trends confirmed the pottery surface treatment patterns that Saunders and others have reported: early/middle Irene sites have more stamped and less plain sherds and late Irene/early Mission period sites have fewer stamped and more plain sherds. In addition, the number of incised sherds increase over time. Cluster 1 for Meeting House and Back Creek are similar to Seven Mile Bend, Mound 8 at the Irene site, early Irene components at Pine Harbor, South End Mound I, Bead Maker's Midden, Kent Mound, Red Bird Creek, and Harris Neck Prehistoric percentages and support a middle Irene occupation. In general, Cluster 2 at Meeting House and Back Creek, Fallen Tree Cemetery, and late Irene components at Pine Harbor are similar based on the high percentage of plain sherds; yet, they have different percentages of stamped and incised sherds. Saunders considered Pine Harbor Cluster 2 likely Protohistoric based on the high percentage of incised sherds. The Mission period sites consist of Fallen Tree Midden I-A, Pine Harbor Cluster 1, and Harris Neck. In Saunders' (2004b) analysis of the Pine Harbor ceramics, she considered Pine Harbor Cluster 1 to be Mission period due to the presence of colonowares, heterogeneous sherd pastes, and visibility of filfot cross stamps. She also noted the low percentage of incising.

Table 3.10. Pottery surface decorations from selected Mississippian and Mission period coastal sites. Ordered by stamped percentage with estimated phase.

Site	Estimated Phase	Stamped %	Plain %	Incised %	Reference
Seven Mile Bend	Pipemaker's Creek (middle Irene, A.D. 1350-1450)	85.2	7.0	7.8	Cook 1971
Pine Harbor (early Irene)		84.8	15.1	0.1	Cook 1979, 1980
Harris Neck Prehistoric [a]		84.5	11.1	3.6	Braley et al. 1986; Saunders 2000
Meeting House Field Cluster 1 - Semon		83.2	13.1	3.7	Current study
South End Mound I		81.3	17.4	1.3	Current study
Bead Maker's Midden		80.8	16.9	2.2	Pearson and Cook 2010
Kent Mound		79.6	18.0	2.3	Cook 1978a
Red Bird Creek [a]		78.5	20.9	0.6	Pearson 1984; Saunders 2000
Back Creek Village Cluster 1		78.3	20.1	1.6	Current study
Irene Site, Mound 8		74.4	25.6	0.01	Caldwell and McCann 1941
Meeting House Field Cluster 1 – Saunders		71.7	28.2	0.1	Saunders 2000
Pine Harbor (late Irene)	Pine Harbor (late Irene, A.D. 1450-1580)	68.3	11.1	20.6	Cook 1979, 1980
Back Creek Village Cluster 2		61.3	36.2	2.5	Current study
Fallen Tree Cemetery		60.8	17.3	21.9	Current study
Back Creek Village Cluster 3		57.3	16.2	26.5	Current study
Meeting House Field Cluster 2 - Saunders		52.4	41.0	6.6	Saunders 2000
Meeting House Field Cluster 2 - Semon		45.8	43.9	10.3	Current study
Pine Harbor Cluster 2[b]		33.3	37.5	29.2	Saunders 2004b
Fallen Tree Midden I-A	Altamaha (post A.D. 1580)	46.8	33.9	19.3	Current study
Pine Harbor Cluster 1		53.9	42.5	3.6	Saunders 2004b
Harris Neck Mission Period [a]		65.1	19.9	15.0	Braley et al. 1986; Saunders 2000

[a] Percentages reported by Saunders (2000: 84, table 5.5).
[b] Saunders (2004b) dated this Pine Harbor cluster as "Protohistoric?"

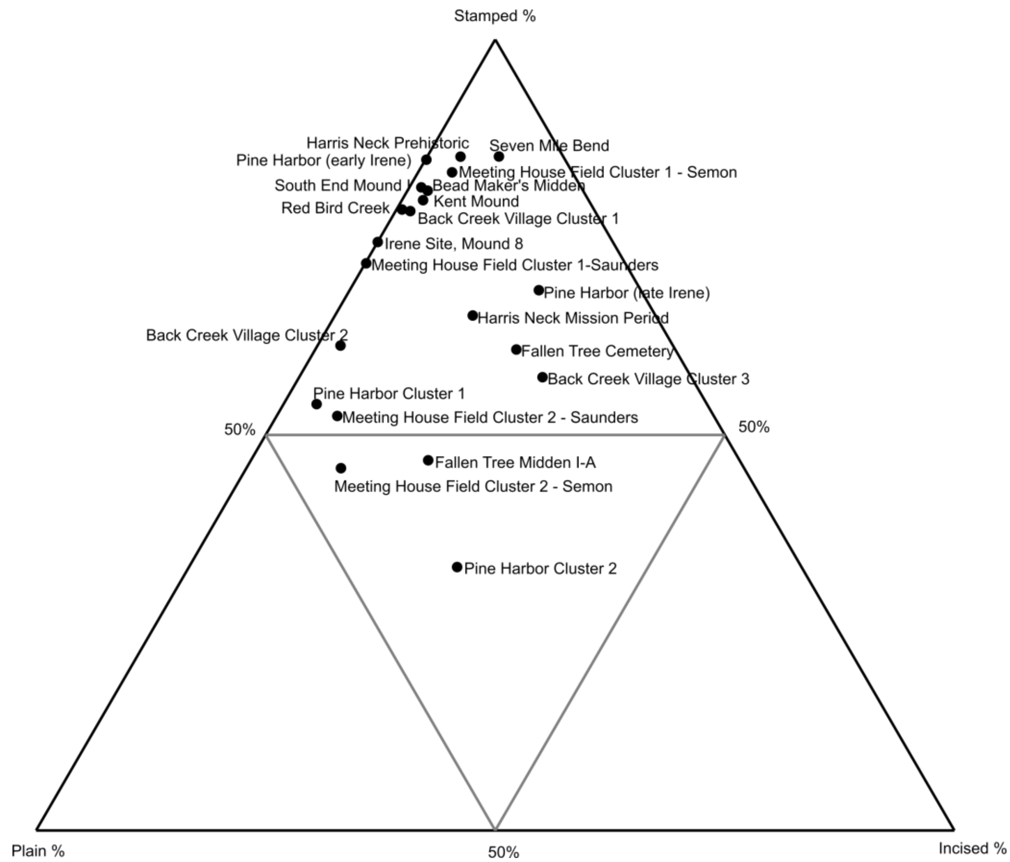

Fig. 3.12. Ternary plot of pottery surface decorations from selected Mississippian and Mission period coastal sites.

Figure 3.12 helps to visualize the surface decoration percentages. The Pipemaker's Creek (middle Irene) sites cluster towards the top of the triangle, with higher percentages of stamped sherds and lower percentages of plain and incised sherds. The Pine Harbor sites separate into three groups. The first group consists of Pine Harbor (Late Irene), Fallen Tree Cemetery, and Back Creek Village located to the right of the plot. The second group consists of Pine Harbor Cluster 2 which is distant from all the other sites due to relatively similar percentages of stamped, incised, and plain sherds. In addition, the site has a high percentage of incised sherds. Similar high percentages of incised sherds were recorded at the Fallen Tree Cemetery, Back Creek Village Cluster 3, and Cook's late Irene component at Pine Harbor, and also should be considered Protohistoric occupations. The Pine Harbor Cluster 2 data suggests a prominent decrease in stamped wares and significant increase in plain and incised wares, during early contact with Europeans. The third group consists of Cluster 2 middens from both Back Creek Village and Meeting House Field located to the left of the plot. Interestingly, these sites plot near Mission period sites, Pine Harbor Cluster 1 and Fallen Tree Midden I-A, and suggest likely Mission period components at Meeting House Field and Back Creek Village. Harris Neck Mission Period contexts have similar percentages to Late Irene sites. Overall, the surface decoration percentages suggests a continuous decrease in stamped wares and steady increase in plain wares from Middle Irene to Late Irene. During the Late Irene, likely Protohistoric period, there is a significant increase of incised wares, which culminates with relatively equal portions of wares at Pine Harbor Cluster 2. Then there is a steady increase of stamped and plain wares and decrease of incised wares during the early Mission period.

The ceramic typology data also identified several differences between mortuary and village assemblages. First, the Fallen Tree Cemetery assemblage had higher percentages of check stamped sherds than Back Creek and Fallen Tree Midden I-A combined (Meeting House Field assemblage did not contain any checked stamped sherds). Why does the cemetery have so many checked stamped sherds? Checked stamped sherds and vessels have been recovered from other mortuary contexts on the Georgia coast (Moore 1897), but I do not believe researchers have compared the mortuary ceramics to local village ceramics to determine the ratio of check stamped pottery. At the Fallen Tree Cemetery, I believe the check stamped pottery reflects non-St. Catherines people bringing vessels to the island to participate in the Late Mississippian mortuary events at the cemetery. A future chemical sourcing study, combining petrographic and neutron activation analyses will help to test this idea.

In addition to higher amounts of check stamped sherds, the Fallen Tree Cemetery had six times more incised sherds than Meeting House Field and Back Creek Village combined and two times more than Fallen Tree Midden I-A. The production and use of incised pottery appear to increase over time and in Chapter 4, I explore the variation of incised designs among assemblages. At the Fallen Tree Cemetery, many of the incised sherds were recovered from the shell deposits capping the burial pits, which may represent secondary refuse. However, several small incised vessels were buried with individuals as mortuary vessels.

Irene vessel shapes typical consist of jars and bowls but cups, bottles, and "boat shaped" vessels have been reported (Caldwell and McCann 1941; DePratter 1991; Moore 1897; Pearson 1984; Saunders 2000). Detailed research of Irene vessel function is limited on the coast, but researchers acknowledge that stamping typically occurred on cooking jars. St. Catherines assemblages do not contain many sherds with soot (MHF = 34, BCV = 26, FTMA = 2, and FTMC = 23). At this stage of research it is unclear why so few vessels on St. Catherines are sooted. But the few sherds with soot are mostly stamped indicating cooking vessels. In contrast, soot is less often found on plain or incised wares, which suggest a serving or storage function for plain and incised wares. If we consider the temporal changes in percentages of stamped, plain, and incised sherds, the evidence tentatively suggests Irene people were using more cooking vessels than storage and serving vessels. In contrast, during the early Mission period people were using fewer stamped cooking jars, and more plain and incised serving and storage vessels. Chapter 4 contains a detailed discussion of the rim sherds and vessels from the St. Catherines assemblages. More use-wear analysis is necessary to better understand Irene vessel function.

In conclusion, the ceramic typology results helped characterize the ceramic assemblage of each site, identified differences and trends in decorations among assemblages, and helped provide new site chronologies. Although the ceramic typology produced a significant dataset, relying upon types masked more fine-grained variability of each assemblage. I argue this variability reflects learned pottery practices and stylistic choices by Irene pottery groups living or participating in events on St. Catherines Island. In order to examine Late Mississippian ceramic micro–styles and distinct pottery practices, I conducted attribute analyses on selected sherds to explore variations within tempers and firing conditions, decorations, and rim styles and treatments. Chapter 4 discusses the attribute analysis results.

CHAPTER 4

ATTRIBUTE ANALYSES

Attribute analyses are important because they provide details that often get overlooked in ceramic typology studies and can help provide fine-grained temporal distinctions. This type of analysis is significant for this study because it helps identify variation related to group pottery practices and assists in refining our chronology of Irene sites on St. Catherines Island. Pearson (1984) studied minor variations in Late Mississippian rim treatments and identified rim treatments changed through time. Saunders (2000) studied several technological and stylistic attributes (temper, burnishing, slip, firing, form, surface decoration, rim style, and land and groove widths) to identify ceramic changes between the Late Mississippian and Mission periods. Blair (2015) also collected data on technological and stylistic attributes to identify differences among ceramic assemblages in different neighborhoods within Pueblo Santa Catalina de Guale. To see if similar results could be made at Mississippian sites on St. Catherines, I studied fabric and surface decorations on selected diagnostic Mississippian sherds. In addition, all rims underwent detailed analysis. Figure 4.1 helps visualize the different attribute analyses and categories.

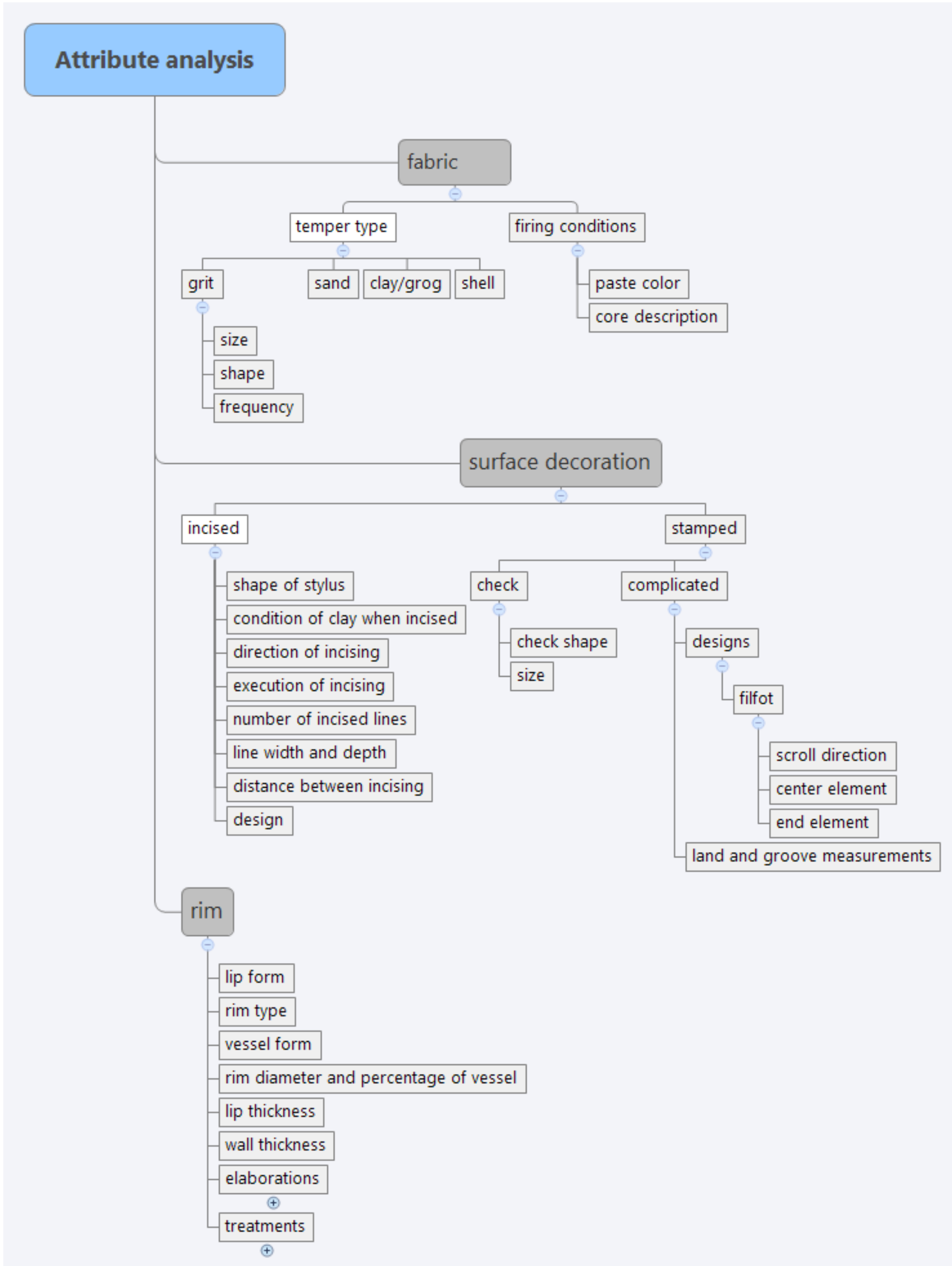

Fig. 4.1. Diagram of attribute analyses.

The remaining portion of this section provides the methodology for these analyses of small-scale variation. A 10x magnification hand lens with embedded millimeter scale and digital calipers were used to conduct the analysis. Approximately 5,700 sherds were selected for attribute analyses. These sherds included all rims, incised, check stamped, and complicated stamped sherds. Selected sherds had maximum and minimum sherd lengths and thicknesses recorded. The main questions guiding these analyses are, does the ceramic variability reflect micro-styles and do distinct potting communities of practice exist among these different Late Mississippian sites on St. Catherines Island?

METHODS OF ANALYSIS

FABRIC ANALYSES

During fabric analyses, I recorded data on temper and firing, which reflect learned procurement and manufacturing techniques by different groups of Irene potters on St. Catherines Island. The temper analysis explored similarities and differences in paste recipes and identified the use of different grit resources. Firing condition analysis examined firing atmospheres and identified different firing practices among assemblages (Rye 1981). In short, these fabric analyses were modelled after other researchers' (Blair 2015; Rye 1981; Saunders 2000; Wallis 2011) technological analyses to identify pottery communities of practice based on similarities or differences of temper and firing conditions. St. Catherines fabric similarities would indicate shared learning, knowledge, and techniques in the early stages of pottery manufacture, while differences would suggest multiple communities of practice.

Temper: Temper consists of aplastic inclusions that are added to clay during the manufacturing process, although some temper could be natural. Saunders (2000) noted that grit tempering was likely collected from sand bars in the salt marsh and likely indicated source availability, accessibility, or preference by potter communities. Blair (2015) showed with mission ceramics that temper size, angularity, and abundance indicated difference in procurement and production practices of communities of potters. These studies illustrate that temper analyses can identify similarities and differences in paste recipes and variation due to exploitation of different grit resources. Temper similarities reflect a community of potters that learned and practiced similar techniques in preparing clay and making pottery. On the other hand, temper differences reflect potters who learned different procurement strategies and production practices for making pottery.

Temper categories in the present study include grit, sand, clay, and shell. Figure 4.2 illustrates examples of grit, clay, and sand tempers. The temper attributes were recorded from broken sherd edges, in order to track micro-style variation in ceramic recipes. First, dominant and minority tempers were identified to distinguish the relative abundance of temper. For the Mississippian sherds, grit and sand were the dominant tempers. Second, grit temper size measurements were taken based on the Wentworth Scale, which was used to classify sediment particle size (Rice 1987: 38; Wentworth 1922). In this study, size categories include fine (<0.25 mm), medium (0.25-0.5 mm), coarse (0.5-1 mm), very coarse (1-2 mm), and granule (> 2 mm). Size categories spanned the range of temper sizes. Only grit tempered sherds were used in the remainder of the analyses. Third, grit temper shape was also examined to determine if Irene potters exploited similar or different grit temper for pottery manufacturing. Grit shapes were based on roundness and consisted of angular, subangular, subround, and round categories (Orton et al. 1993: 139). If a sherd had a range of temper shapes, the data collected included the range of temper shapes (ie., subangular and subround or subangular to round). Lastly, I recorded the temper abundance within the sherd paste. Abundance estimations were based on a percentage inclusion estimation chart (Orton et al. 1993: 238), but instead of recording percentages (5-30) I used four nominal categories — rare, occasional, frequent, or common — to capture grit abundance. Temper is primarily used as a temporal indicator of site occupation on the Georgia coast (Caldwell and Warring 1939a and b; DePratter 1979, 1991; Thomas 2008). In this study I explore temper variations as it relates to Late Mississippian pottery manufacturing and practice.

Fig. 4.2. Sherd profiles showing various tempers. Grit temper is illustrated by the two left profiles, clay is illustrated in middle right, and sand temper is located on the far right.

Firing conditions: Firing attributes recorded include exterior paste color and core descriptions. A Munsell Color Chart was used to record the exterior colors. Core descriptions were recorded to assess differences between firing techniques, which relate to the atmosphere and temperature of firing pottery (Rye 1981). Oxidizing and reducing atmospheres were recorded based on color, such as orange and red for oxidizing atmospheres and black and gray for reducing atmospheres (Orton et al. 1993: 134; Rye 1981: 116). Firing attributes were examined to determine the different firing techniques practiced by the community of potters at each site. Figure 4.3 illustrates oxidizing and reducing atmospheres based on exterior surface color.

Fig. 4.3. Firing condition examples. Oxidized exterior on the left and reduced exterior on the right.

SURFACE DECORATIONS

Decorative attributes reflect intentional design choices and unconscious habitual practices, which are taught and reproduced during pottery manufacturing. By studying decoration, we can assess pottery style, social boundaries, modes of production, and learning frameworks (Costin 1991; Dietler and Herbich 1998; Dobres 2000; Eckert 2008; Hegmon 1998; Lightfoot et al. 1998; Stark 2006) within the Late Mississippian assemblages on St. Catherines Island. In this study, surface treatment analyses focused on three types of decorated sherds, check stamped, incised, and complicated stamped. Detailed measurements and descriptions were taken for each decoration type to identify temporal and social patterns within and among sites.

Check stamped pottery was analyzed for the type of check — rectangular, diamond, or unidentified (fig. 4.4). Then maximum and minimum check lengths were measured to distinguish check sizes. Based on the maximum check length, large or small ordinal categories were assigned. Finally, check types and temper datasets were combine to examine patterns among sites.

Fig. 4.4. Check stamped examples. Diamond check on the left and rectangle check on the right.

Data collected on incised sherds include the shape of the stylus (round, pointed, unidentified, and flat), conditions of clay when incised (wet, leather hard, or dry), direction of incising, execution of incising, number of lines, line width and depth, distance between incisions, and design (fig. 4.5). If a sherd was too small to determine a category or measurement, N/A (not applicable) was used.

Fig. 4.5. Incised sherd examples.

Complicated stamped pottery analysis combine filfot, line block, and other curved stamped pottery (fig. 4.6). First, the stamp type was identified (filfot, line block, concentric circle, or unidentified). Land and groove measurements were recorded in millimeters. Sherds with the filfot design had additional data collected on scroll direction (clockwise or counter-clockwise), center element design (circle in square, square in square, etc.), and the end element design (raised circle or depressed circle).

Fig. 4.6. Complicated stamped sherd examples.

Rim attributes

Rim sherds contain a wealth of information about rim treatments and decorations, and vessel forms and sizes. Scholars documented that Irene rim treatments and elaborations changes through time (Braley 1990; Cook 1986; Pearson 1984; Saunders 2000) which started with nodes and rosettes, transitioned to segmented or punctated rimstrips, and followed by folded rims. However, less attention has been paid to other rim attributes that relate to vessel function, but also reflect different learned Irene pottery manufacturing practices. In this study I examine rim shape (flared, incurved, straight), lip form (beveled, pointed, flat, round, unidentified), rim diameter (cm), percentage of vessel represented, lip thickness (mm), wall thickness at 1 cm below lip and wall thickness at 3 cm below lip, rim elaborations and treatments (node, rosette, rimstrip, folded, stamped, punctated, or plain), and vessel form (bowl, jar, cup, or unidentified). I also look at the direction of punctation (right to left versus left to right) when possible, in order to see if there was a pattern that might reflect a process of craft learning. I believe these rim attributes reflect conscious design and learned manufacturing practice related to different Irene communities.

Fig. 4.7. Rim treatment examples.

These detailed attribute analyses help provide information on pottery knowledge, practices, techniques, and styles that often are overlooked in ceramic type analysis. In addition, the attribute analyses can identify ceramic micro-styles and show patterns that represent distinct potting communities of practice.

STATISTICS

Similarly, to the ceramic type analysis discussed in Chapter 3, EDA and multivariate statistical techniques are used to highlight patterns in attributes dataset. Box plots and histograms explore sherd thicknesses, incised line widths and depths, and rim diameters. In addition, correspondence and cluster analyses are applied to temper and surface decoration data.

ATTRIBUTE RESULTS

Ceramic typologies tend to lump ceramics together in preexisting categories and exclude variability within ceramic type. I decided to do a detailed attribute analysis on the most diagnostic sherds within each assemblage to examine variation and look for patterns. The village sites I used as my baseline and then compared the patterns to the mortuary sites. I analyzed more than 5,700 Mississippian sherds for the detailed attribute analyses (Table 4.1). The following sections focus on the results of the fabric, decoration, and rim analyses.

Table 4.1. Mississippian sherd counts for detailed attribute analyses.

Sites	**N**
Meeting House Field	861
Back Creek Village	1,166
Fallen Tree Midden I-A	806
South End Mound I	410
Fallen Tree Cemetery	2,501
Total	**5,744**

FABRIC

Fabric analyses focused on temper and firing attributes of Mississippian sherds to help identify techniques learned early in pottery manufacturing, which reflect distinct potting communities of practice. The following sections present the results.

TEMPER ANALYSIS RESULTS

The fabric analysis consisted of two phases. First, I identified the dominant and minority tempers for the targeted sherds. Next, I focused exclusively on the grit tempered sherds and examined grit size, shape, and frequency to examine similarities and differences among the abundant Irene grit tempered ceramics.

Four dominant tempers were identified during analysis, clay, grit, sand, and shell. Table 4.2 provides the percentages for the dominant tempers and shows grit temper with the highest percentages. The village sites range from 87% to 92%, while the mortuary sites range from 67% to virtually 100%. Sand temper is second with percentages ranging from 0.2% to 33%. Four of the five assemblages (Meeting House Field, Back Creek Village, Fallen Tree Midden I-A, and Fallen Tree Cemetery) have low percentages (0.1 to 4%) of clay tempered Mississippian sherds. The Fallen Tree Cemetery is the only assemblage with a few shell tempered sherds and a higher percentage (32.8%) of sand tempered sherds. Shell tempered pottery common among Mississippian groups in interior Georgia, Tennessee, Alabama, and Mississippi Valley, is not common along the Georgia coast. These few sherds at the Fallen Tree Cemetery indicate non-local pottery, either traded or exchanged and used during the cemetery mortuary events. In addition, sand temper is limited at the Irene village sites on St. Catherines and high percentages of sand tempered sherds at The Fallen Tree Cemetery may also reflect non-local wares used during mortuary actives.

Table 4.2. Dominant tempers for Mississippian sherds.

Dominant	**MHF**	**BCV**	**FTMA**	**SEMI**	**FTMC**
clay	0.1%	3.0%	0.2%	–	0.3%
grit	92.1%	90.7%	86.7%	99.8%	66.6%
sand	7.8%	6.3%	13.0%	0.2%	32.8%
shell	–	–	–	–	0.3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Minority tempers were identified for 972 of the 5,744 Mississippian sherds (MHF = 30, BCV = 89, FTMA = 92, SEMI = 6, FTMC = 755). Minority temper types include clay, grit, grit and clay, and sand (Table 4.3). Again, grit has the highest percentage for the minority temper. Clay has the second highest percentage followed by sand and grit/clay tempers. These minority tempers are often over looked in the general ceramic typology analysis, but when combine with the dominant temper data can help distinguish different pottery communities of practice.

Table 4.3. Minority tempers for Mississippian sherds.

Minority	**MHF**	**BCV**	**FTMA**	**SEMI**	**FTMC**
clay	23.33%	25.84%	32.61%	100.00%	10.73%
grit	66.67%	61.80%	52.17%	–	78.15%
grit/clay	–	1.12%	10.87%	–	10.33%
sand	10.00%	11.24%	4.35%	–	0.79%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Dominant and minority temper data combine to create 11 temper categories (Table 4.4). Meeting House Field sherds consist of six temper categories, with 91% grit temper and 9% for the remaining five temper categories. Back Creek Village has eight temper categories with 88% grit and 12% for the remaining seven tempers. Fallen Tree Midden I-A has seven temper categories with 83% grit and 17% for the remaining tempers. A temper comparison among village assemblages show similar temper categories. However, the data also highlights a few patterns. First, the Back Creek Village assemblage contains higher percentage of clay tempered sherds. Second, Fallen Tree Midden I-A has higher percentages of sand and sand/grit tempered sherds. I believe these data show both temporal changes and different pottery manufacturing practices within each village site. Midden cluster analysis (discussed in Chapter 3) of the temper data shows that Cluster 2 middens and Fallen Tree Midden I-A have higher percentages (Meeting House 6%, Back Creek 11%, Fallen Tree Midden I-A 12%) of sand and sand/grit tempers than Cluster 1 (Meeting House 0.3% and Back Creek 6%). In addition, Cluster 2 at Back Creek has a higher percentage of clay/grit and grit/clay tempered sherds (13%) than Cluster 1 (3%). These data suggest that between the middle Irene and early Mission phases there was an increase in the use of sand, sand/grit, and clay/grit tempers. The temper data also shows persistent use of grit temper; however, the higher percentages of clay, clay/grit, and grit/clay, especially at Back Creek Village, reflects differ pottery manufacturing knowledge and practice. As for the mortuary assemblages, South End Mound I has three temper categories with 98% grit and 2% for the remaining tempers. On the other hand, Fallen Tree Cemetery has the greatest diversity of temper types with all 11 temper categories with 65% grit temper, 23% sand and grit, and 12% for the remaining nine temper categories.

Table 4.4. Combined tempers for Mississippian sherds.

	MHF		**BCV**		**FTMA**		**SEMI**		**FTMC**	
Temper (dominant/minority)	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
clay	1	0.12	25	2.14	–	–	–	–	2	0.08
clay/grit	–	–	10	0.86	2	0.25	–	–	6	0.24
grit	783	90.94	1,025	87.91	665	82.51	403	98.29	1,621	64.81
grit/clay	7	0.81	23	1.97	30	3.72	6	1.46	38	1.52
grit/sand	3	0.35	10	0.86	4	0.50	–	–	6	0.24
sand	47	5.46	27	2.32	49	6.08	1	0.24	117	4.68
sand/clay	–	–	–	–	–	–	–	–	42	1.68
sand/grit	20	2.32	45	3.86	46	5.71	–	–	583	23.31
sand/grit/clay	–	–	1	0.09	10	1.24	–	–	79	3.16
shell	–	–	–	–	–	–	–	–	6	0.24
shell/grit	–	–	–	–	–	–	–	–	1	0.04
Total	**861**	**100%**	**1,161**	**100%**	**806**	**100%**	**410**	**100%**	**2,501**	**100%**

A CA plot of all the sites and temper types shows several patterns (fig. 4.8). Axes 1 and 2 capture 90.28% of the variation in the sample. All assemblages are dominated by grit tempered ceramics; however, the minority tempers indicate some variation among assemblages. This plot shows Meeting House Field, Fallen Tree Midden I-A and South End Mound I in the lower left quadrant with similarities in grit, grit and clay, and sand tempered sherds, while Back Creek Village and the Fallen Tree Cemetery are separate. Back Creek Village is in the upper left quadrant with higher percentages of clay, clay and grit, and grit and sand tempered sherds. Fallen Tree Cemetery is located on the Axis 2 line to the right, associated with a cluster of unique temper types. These temper differences among the villages assemblages likely relate to temporal changes; however, I believe that some of the tempers indicate distinct pottery communities of practices. These ideas will be discussed at the end of the temper section. Alternatively, when comparing the Fallen Tree Cemetery tempers to the village contexts, the CA plot shows that the cemetery has greater diversity of tempers than the villages on St. Catherines. Although the diversity of tempers could relate to temporal cemetery use, burial pits and caps contained sherds with a range of tempers (one to six temper types). Therefore, I would argue that the greater temper diversity reflects different Irene groups, some non-local, with different pottery practices coming together for the mortuary events at the cemetery.

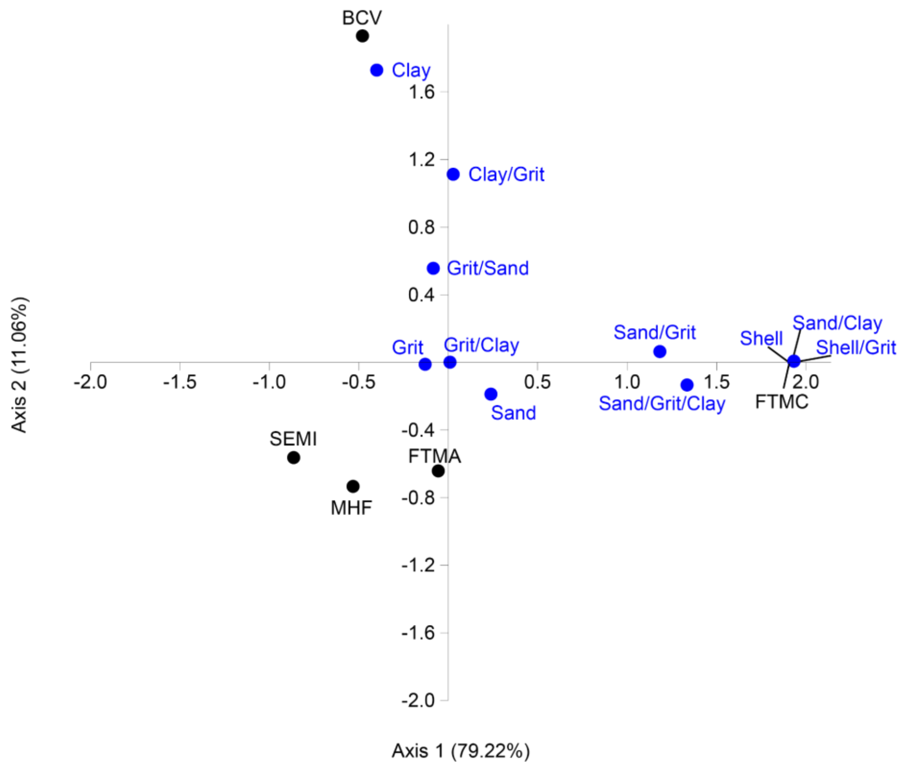

Fig. 4.8. CA plot of Mississippian tempers.

Grit temper results

Of the 5,744 Mississippian sherds studied, only 5,391 contained grit. The Wentworth Scale was used to create a nominal dataset for grit temper size. The nominal dataset was easier to use to compare assemblages and look for patterns. As mentioned in the methods section, five categories were used: fine (< 0.25 mm), medium (0.25-0.5 mm), coarse (0.5-1 mm), very coarse (1-2 mm), and granule (2 mm and above). Table 4.5 and Figure 4.9 provides the counts and percentages for grit size. Coarse and very coarse grit sizes dominate each assemblage. Meeting House Field and Back Creek Village have higher percentages of very coarse grit compared to Fallen Tree Midden I-A which has a higher percentage of coarse grit. South End Mound I and the Fallen Tree Cemetery have higher percentages of very coarse grit than coarse grit. Fine grit temper was identified at Meeting House Field, Back Creek Village and South End Mound I. Medium grit was observed in all assemblages; however, smaller quantities were found at

Meeting House Field. Granular grit was also found at each site, but Fallen Tree Midden I-A and South End Mound I had smaller percentages than the other sites. These differences are likely related to the types of grit resources available to the potters at each site. The bar chart shows the percentages for grit size at each site.

Table 4.5. Grit temper sizes.

	MHF		BCV		FTMA		SEMI		FTMC	
Temper size	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
fine	2	0.25	31	2.78	–	–	37	9.02	–	–
medium	5	0.62	27	2.43	34	4.49	13	3.17	72	3.09
coarse	202	24.85	432	38.78	379	50.07	130	31.71	997	42.73
very coarse	568	69.86	575	50.07	336	44.39	220	53.66	1,144	49.04
granular	36	4.43	49	4.40	8	1.06	10	2.44	120	5.14
Total	**813**	**100%**	**1,114**	**100%**	**757**	**100%**	**410**	**100%**	**2,333**	**100%**

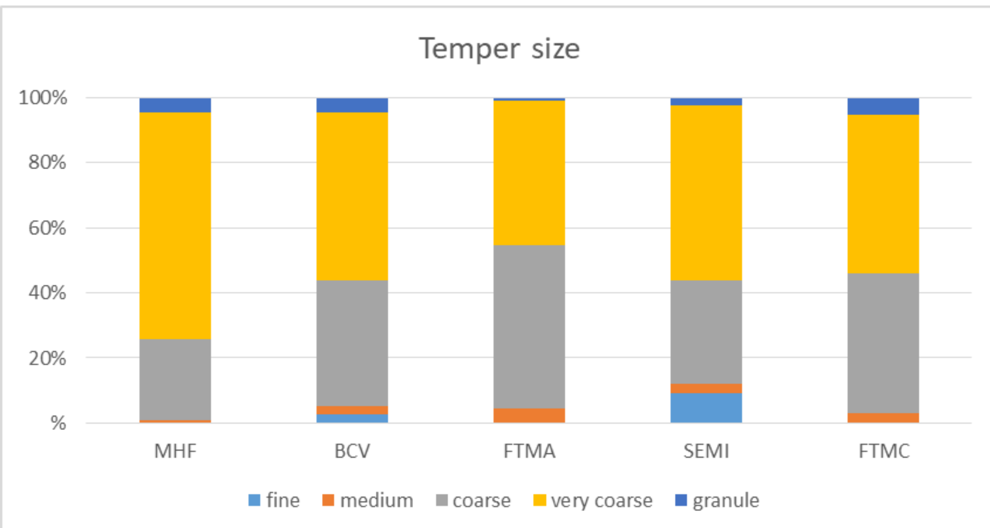

Fig. 4.9. Bar chart of percentages of grit temper size by assemblage.

Temper shape can tell us about whether the potters are processing tempers as part of the micro-techniques of learning and making pottery. Temper shape was defined as angular, subangular, subround, and round. If a sherd had a range of shapes, data captured the broad range, for example subangular and subround or subangular to round. Eleven temper shape categories were identified during this study (Table 4.6). Subangular and subround grit shape dominant for

Meeting House, Fallen Tree Midden I-A, South End Mound I, and Fallen Tree Cemetery. Whereas, Back Creek Village has a higher percentage subangular shaped grit (48.47%), followed by subangular and subround (43.17%). Fallen Tree Midden I-A has smaller percentage of subangular shaped grit, when compared to Meeting House and Back Creek. Fallen Tree Midden I-A has a higher percentage of subangular to round grit (11.49%) than any other site. This grit shape data will need to be tested by petrographic analysis.

Table 4.6. Grit temper shapes.

Temper shape	**MHF**	**BCV**	**FTMA**	**SEMI**	**FTMC**
angular	–	0.27%	–	–	–
angular to subround	–	0.09%	0.40%	–	0.04%
angular to round	0.12%	–	–	–	–
subangular	40.34%	48.47%	6.61%	35.12%	16.42%
subangular and angular	0.37%	0.81%	–	–	0.21%
subangular and subround	54.24%	43.17%	79.66%	62.20%	74.28%
subangular to round	1.97%	0.90%	11.49%	–	7.46%
subround	2.95%	3.78%	1.72%	2.68%	1.41%
subrounded and round	–	0.45%	0.13%	–	0.09%
rounded and subangular	–	1.62%	–	–	0.09%
round	–	0.45%	–	–	–
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Saunders' (2000) and Blair's (2015) research on Irene and Altamaha grit tempered pottery noted patterned variation of grit abundance within assemblages. They believed the patterns reflected differences in procurement and production practices of potters. Building on these studies, I examined grit abundance (common, frequent, occasional and rare) to patterns among Irene assemblages. Table 4.7 and Figure 4.10 provides the percentages for each grit abundance category. All the sites contain various percentages of abundance. For the village sites, Meeting House and Back Creek have similar percentages of each grit abundance. Whereas, Fallen Tree Midden I-A has a higher percentage of common grit (63.94%) followed by frequent

(25.23%) and low percentages of occasional and rare grit (7.53% and 3.30% respectively). South End Mound I and Fallen Tree Cemetery differ on percentages of grit abundancies. Fallen Tree Cemetery has a higher percentage of common and rare grit abundancies, whereas the frequent and occasional abundancies are lower than South End Mound. The grit tempered bar graph shows the abundance percentages for each site. Meeting House and Back Creek have similar percentages of common, frequent, and occasional grit. Once again Fallen Tree Midden I-A is different from Back Creek and Meeting House Field with a higher percentage of common and lower percentage of occasional grit. The differences among Fallen Tree Midden I-A and Back Creek Village/Meeting House Field likely relate to temporal differences, which indicates common grit abundance increase over time. As for the mortuary assemblages, South End Mound I has similar percentages to the villages, while the Fallen Tree Cemetery has lower percentage of sherds in which the abundance of grit is frequent and a higher percentage of sherds in which grit is rare. The Fallen Tree Cemetery is once again distinct from other assemblages, perhaps this difference could relate to vessel function, which needs to be looked at in a future study. Alternatively, the different percentages of grit frequencies at the cemetery could reflect different Irene pottery manufacturing practices of non-local groups gathering for the mortuary events.

Table 4.7. Grit temper abundance.

	MHF		**BCV**		**FTMA**		**SEMI**		**FTMC**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
common	285	35.06	367	32.94	484	63.94	150	36.59	1,116	47.84
frequent	289	35.55	421	37.79	191	25.23	126	30.73	451	19.33
occasional	225	27.68	279	25.04	57	7.53	125	30.49	514	22.03
rare	14	1.72	47	4.22	25	3.30	9	2.20	252	10.80
Total	**813**	**100%**	**1,114**	**100%**	**757**	**100%**	**410**	**100%**	**2,333**	**100%**

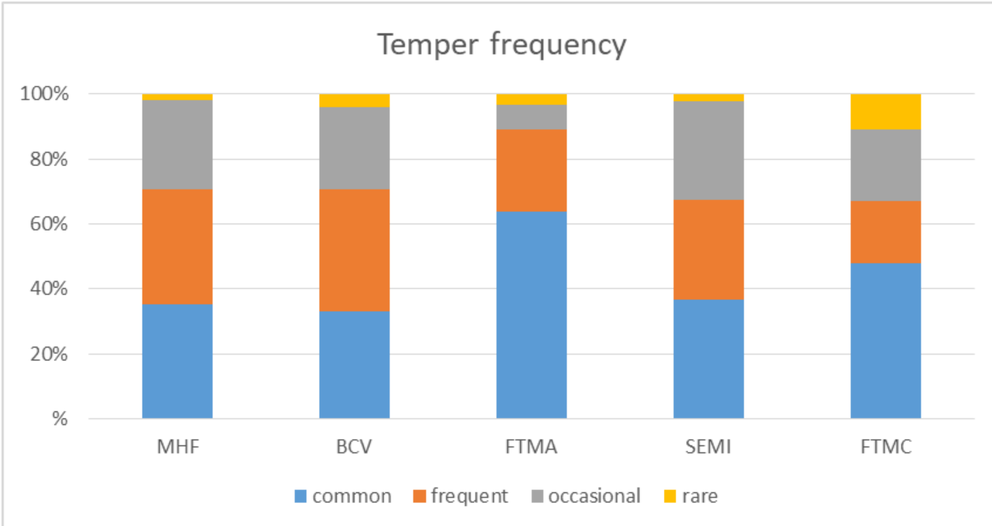

Fig. 4.10. Percentages of grit temper abundance within each assemblage.

Firing conditions

As part of the paste analysis, firing condition was recorded based on the surface color. Browns, oranges, and reds were identified as oxidizing atmospheres, while blacks and grays were identified as evidence of reducing atmospheres. 5,706 Mississippian sherds were analyzed for the paste conditions.

Thirteen diagnostic categories were identified during analysis (Table 4.8; unidentified are not included in this table). Meeting House and Back Creek have high percentages of uniform oxidized, oxidized exterior and reduced interior, uniform reduced sherds. Fallen Tree Midden I-A has higher percentages of oxidized exterior, reduced core, oxidized interior sherds (39.87%), followed by oxidized exterior and reduced interior (21.19%), and uniform reduced (19.74%) sherds. The mortuary sites are not consistent with one another. South End Mound I has 47.07% oxidized exterior and reduced interior sherds, 21.46% uniform reduced sherds, and 18.05% oxidized exterior, reduced core, and oxidized interior sherds. Fallen Tree Cemetery on the other hand has higher percentages of oxidized-reduced-oxidized (34.23%), oxidized exterior and reduced interior (30.58%), and uniform oxidized (19.67%). Although more work is required on the firing conditions, the data indicated a variety of firing techniques were used by Irene potters on St. Catherines. In general, potters used oxidizing and reducing techniques. The village data indicate Back Creek and Meeting House have higher percentages of uniform oxidized and oxidized exteriors and reduced interiors sherds, while Fallen Tree Midden I-A has higher percentages of uniform reduced and oxidized exterior and interiors with a reduced cores. The mortuary assemblages differ from the village with higher percentages of oxidized exteriors and reduced interiors complex profile of oxidized exteriors and interiors and reduced cores. Also there are fewer reduced wares at the Fallen Tree Cemetery. Overall, the fire condition analysis showed a range of firing conditions with each assemblage. The majority of the sherds showed reddish colors on the exterior to indicate oxidized atmospheres, such as a bonfire .However, some sherds were uniformly reduced or had interiors reduced, which suggests pit firing or vessel fired upside down. Fewer reduced sherds were recovered from both Fallen Tree assemblages to tentatively suggest a decrease in reduced firing atmospheres from the middle Irene to the early Mission period.

Table. 4.8. Counts and percentages of firing conditions.

Firing condition[a]	Total count	MHF		BCV		FTMA		SEMI		FTMC	
		N	%	N	%	N	%	N	%	N	%
o–na–r	1,703	263	28.31	358	33.93	160	21.19	193	47.07	729	30.58
o–o–r	4	–	–	–	–	3	0.40	–	–	1	0.04
o–r–na	1	–	–	1	0.09	–	–	–	–	–	–
o–r–o	1,403	82	8.83	130	12.32	301	39.87	74	18.05	816	34.23
o–r–r	3	3	0.32	–	–	–	–	–	–	–	–
r–na–o	88	6	0.65	4	0.38	25	3.31	3	0.73	50	2.10
r–o–o	3	1	0.11	–	–	–	–	–	–	2	0.08
r–o–r	45	19	2.05	1	0.09	4	0.53	1	0.24	20	0.84
r–r–o	10	–	–	3	0.28	7	0.93	–	–	–	–
r–so–o	1	–	–	–	–	1	0.13	–	–	–	–
uniform oxidized	1,229	319	34.34	306	29.00	95	12.58	40	9.76	469	19.67
uniform reduced	879	196	21.10	206	19.53	149	19.74	88	21.46	240	10.07
uniform slightly oxidized	164	40	4.31	46	4.36	10	1.32	11	2.68	57	2.39
Total	**5,533**	**929**	**100%**	**1,055**	**100%**	**755**	**100%**	**410**	**100%**	**2,384**	**100%**

[a] Firing conditions recorded exterior to interior (o = oxidized; r = reduced; na = not available).

RIM ATTRIBUTE RESULTS

All rim sherds (n=1,407), regardless of ceramic type, were studied in greater detail to determine decoration styles and vessel form and size. Although I analyzed all rims regardless of ceramic type, I only present the Mississippian sherd data in this section. The objectives of this section are 1) characterize the Mississippian rim assemblage and 2) determine minimum number of vessels and range of vessel sizes.

Of the 1,407 rim sherds, 1,301 were classified as Mississippian (MHF = 99, BCV = 132, FTMA = 301, SEMI = 67, and FTMC = 702). Detailed rim analysis consists of identifying rim shape, vessel form, lip form, rim diameter, lip thickness, rim thickness 1 cm from lip and 3 cm from lip (when possible), rim elaboration and associated measurements, and calculation of minimum number of vessels.

RIM SHAPE

Rim shape consist of four categories, which include flared, incurved, straight, and unknown (Table 4.9). The unknown category typically relates to small rim sherds that cannot be properly oriented. Excluding the unknown rim shapes, the assemblages typically have high percentages of flared rims, followed by straight and incurved. Coastal researchers believe that rim shape can be used to determine vessel morphology (Braley et al. 1986; Caldwell and McCann 1941; Cook 1980a; DePratter 1979, 1991; Pearson 1984; Pearson and Cook 2010). In general, flared rims are part of jars/urns, incurved rims are bowls, and straight rims can be either jars or bowls. There are exceptions, such as bowls with flared rims, but these are rare.

Table 4.9. Frequencies and percentages of rim shape.

	MHF		**BCV**		**FTMA**		**SEMI**		**FTMC**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
flared	55	55.56	59	44.70	107	35.55	33	44.00	264	37.61	513	39.43
incurved	4	4.04	15	11.36	38	12.62	11	14.67	47	6.70	113	8.69
straight	18	18.18	35	26.52	30	9.97	15	20.00	173	24.64	270	20.75
unknown	22	22.22	23	17.42	126	41.86	16	21.33	218	31.05	405	31.13
Total	**99**	**100%**	**132**	**100%**	**301**	**100%**	**75**	**100%**	**702**	**100%**	**1,301**	**100%**

VESSEL FORMS

Vessel forms were assigned based on rim shape and classified into four general categories: bowl, cup, jar, and unknown (Table 4.10). The unknown category consisted of rims that were small and difficult to classify. If we focus on the diagnostic categories, jars in general out number bowls approximately 2 to 1. There are two exceptions. First, the ratio of jars to bowls at Meeting House is 3 to 1 and the ratio at Back Creek Village is 1.5 to 1. The small sample size is likely influencing these results. However, I cannot rule out significant differences of vessel use or population size among sites and more work is necessary. The general vessel form data do not show any difference between village and mortuary assemblages. Interestingly, one cup and one "boat shaped" vessel were identified from the mortuary assemblages. The cup was small in diameter and decorated with incised lines and dashes. C.B. Moore (1897) recovered the "boat-shaped" plain vessel from South End Mound I. The Mississippian vessel forms on St. Catherines are like vessels reported at other coastal Irene sites. However, previous studies typically combined vessel form with surface treatments to describe Irene vessel types (Braley et al. 1986; Caldwell and McCann 1941; Cook 1980a; DePratter 1979, 1991; Pearson 1984; Pearson and Cook 2010; Saunders 2000; Sipe 2013a).

Table 4.10. Frequencies and percentages of vessel forms based on rim sherds.

		MHF		**BCV**		**FTMA**		**SEMI**		**FTMC**	
	Total count	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
bowl	262	17	17.17	42	31.82	54	17.94	14	20.59	135	19.23
cup	1	–	–	–	–	–	–	–	–	1	0.14
jar	560	55	55.56	63	47.73	124	41.20	34	50.00	284	40.46
boat shaped	–	–	–	–	–	–	–	1	1.47	–	–
unknown	478	27	27.27	27	20.45	123	40.86	19	27.94	282	40.17
Total	**1,301**	**99**	**100%**	**132**	**100%**	**301**	**100%**	**68**	**100%**	**702**	**100%**

In general, previous studies typically identified two primary vessel forms 1) globular, flared-rim, constricted -neck complicated-stamped jar/urn and 2) incurved/carinated, restricted-rim, incised or burnished plain bowl. These studies acknowledge variation in size and surface treatments for jars and bowls, with some bowls having incising and stamping, and some jars identified as burnished plain or a combination of incised and plain. Braley et al. (1986) and Pearson (1984) both characterized 11 different vessel shape categories at Harris Neck and Red Bird Creek sites, respectively. Both studies identified three vessel types that comprised over 70% of the vessels identified, 1) flared-rim, complicated-stamped jars, 2) carinated plain, burnished plain, or incised bowls and 3) small, flared-rim plain, burnished plain, or incised jars. In addition, Pearson and Cook (2010) identified four vessel types from the Bead Maker's Midden, an early/middle Irene site on Ossabaw Island. The vessel types identified were based on rim sherds and consist of a slightly flared and incised shallow bowl, plain or burnished plain carinated bowl, flared complicated stamped jar, and straight sided plain bowl. In addition to the common Irene vessel shapes, Sipe (2013a) identified a re-purposed complicated stamped jar/urn at Red Bird Creek, that had the rim and neck of the vessel removed and turned the base of the vessel into a bowl.

Table 4.11 presents the breakdown of diagnostic vessel shapes and rim forms for the St. Catherines assemblages. Incurved/carinated bowls have higher percentages at Fallen Tree Midden I-A and South End Mound I. Straight bowls have higher percentages at Meeting House Field, Back Creek Village, and the Fallen Tree Cemetery. Flared bowl rims are rare and only identified in both Fallen Tree contexts. Jars are typically flared (more than 56%), with straight jar accounting for less than 9% of each rim assemblage. The cup has a slightly incurving rim. Seven vessel forms are captured by the data presented in Table 4.11. Vessel Shape 1 consists of flared-rim bowls, which are decorated by incising and punctuation. Vessel Shape 2 consists of incurved/carinated bowls that are incised, punctated, plain, and complicated stamped. Vessel Shape 3 consists of straight bowls with a variety of surface treatments including incising, punctuation, plain, check stamped, complicated stamped, and textile impressed. Vessel Shape 4 consists of flared jars, which are incised, punctated, red filmed, check stamped, and complicated stamped. Vessel Shape 5 consists of straight jars that are plain, check stamped, complicated stamped, and cross simple stamped. Currently, straight walled jars (Shape 5) differ from straight walled bowls (Shape 3) based on rim profile, which shows jars with a taller vessel height than bowls. Vessel Shape 6 is the incised cup. Vessel Shape 7 is the boat shaped vessel that C.B. Moore recovered from South End Mound I. Appendix D contains drawings of selected rim profiles related to the seven vessel forms. Although the St. Catherines Mississippian vessels types are similar to types reported by studies on other Irene sites, the current dataset identifies more straight walled bowls and jars than previously discussed. A future refitting project may help identify sherds in the unknown rim and vessel categories.

Table 4.11. Frequencies and percentages of vessel form and rim shape with unknown vessel category removed.

	MHF		**BCV**		**FTMA**		**SEMI**		**FTMC**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
bowl	**17**	**23.61**	**42**	**40.00**	**54**	**30.34**	**16**	**28.57**	**135**	**32.14**	**262**	**31.83**
flared	–	–	–	–	5	2.81	–	–	2	0.48	7	0.85
incurved	4	5.56	15	14.29	38	21.35	11	19.64	46	10.95	112	13.61
straight	12	16.67	27	25.71	8	4.49	5	8.93	82	19.52	134	16.28
unknown	1	1.39	–	–	3	1.69	–	–	5	1.19	9	1.09
jar	**55**	**76.39**	**63**	**60.00**	**124**	**69.66**	**39**	**69.64**	**284**	**67.62**	**560**	**68.04**
flared	52	72.22	59	56.19	102	57.30	33	58.93	259	61.67	500	60.75
straight	2	2.78	1	0.95	3	1.69	4	7.14	17	4.05	27	3.28
unknown	1	1.39	3	2.86	19	10.67	2	3.57	8	1.90	33	4.01
cup	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**1**	**0.24**	**1**	**0.12**
incurved	–	–	–	–	–	–	–	–	1	0.24	1	0.12
boat shaped	**–**	**–**	**–**	**–**	**–**	**–**	**1**	**1.79**	**–**	**–**	**–**	**–**
straight	–	–	–	–	–	–	1	1.79	–	–	–	–
Total	**72**	**100%**	**105**	**100%**	**178**	**100%**	**56**	**100%**	**420**	**100%**	**823**	**100%**

Lip forms

Lip forms consist of six categories, which include beveled exterior, beveled interior, flat, pointed, round, and unknown (Tables 4.12 and 4.13). Although previous studies described vessel lip forms as flat or round (DePratter 1991; Pearson 1984; Pearson and Cook 2010; Sipe 2013a), the published datasets are limited. For the St. Catherines assemblages, round and flat lips had the highest counts among bowls. Bowls have round lips for most assemblages, except the Fallen Tree Midden I-A, which has higher percentage of flat lips and perhaps indicating a preference for flat rims during the Mission period. Jars also have round or flat lips, with smaller percentages of beveled and pointed lips. Interestingly, jars have higher percentages of flat lips, which is different than the bowl data. Although the sample size is small, beveled exterior lips appear mostly on jars, while beveled interior lips occur mostly on bowls. The current research shows that there is more lip form variability than previously reported. The different rim forms could relate to the function of the vessel; alternatively, lip form could be a stylistic choice by the potter or a habitual manufacturing practice. More research and a larger dataset are required to explore these ideas.

Table 4.12. Frequencies and percentages of bowl lip forms.

		MHF		**BCV**		**FTMA**		**SEMI**		**FTMC**	
	Total count	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
beveled exterior	1	–	–	–	–	1	1.85	–	–	–	–
beveled interior	6	–	–	–	–	5	9.26	–	–	1	0.74
flat	81	5	29.41	18	42.86	28	51.85	7	43.75	25	18.52
pointed	4	1	5.88	2	4.76	–	–	–	–	1	0.74
round	168	11	64.71	20	47.62	20	37.04	9	56.25	108	80.00
unknown	2	–	–	2	4.76	–	–	–	–	–	–
Total	**262**	**17**	**100%**	**42**	**100%**	**54**	**100%**	**16**	**100%**	**135**	**100%**

Table 4.13. Frequencies and percentages of jar lip forms.

		MHF		BCV		FTMA		SEMI		FTMC	
	Total count	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
beveled exterior	8	–	–	–	–	3	2.42	1	2.7	4	1.41
flat	321	41	74.55	39	61.90	77	62.10	26	70.27	141	49.65
pointed	1	–	–	–	–	–	–	–	–	1	0.35
round	214	14	25.45	22	34.92	36	29.03	9	24.32	133	46.83
unknown	16	–	–	2	3.17	8	6.45	1	2.7	5	1.76
Total	**560**	**55**	**100%**	**63**	**100%**	**124**	**100%**	**37**	**100%**	**284**	**100%**

RIM ELABORATIONS

Rim elaborations consist of seven categories: nodes, rosettes, rimstrips, rolled, folded, none[1], and unknown (Table 4.14). Mississippian rim elaborations and treatments (following section) are widely studied by coastal researchers (Braley et al. 1986; Caldwell and McCann 1941; Cook 1978b, 1980a, 1986; DePratter 1979, 1991; Pearson 1984; Pearson and Cook 2010; Saunders 2000; Sipe 2013a). Coastal researchers argue that variation in rim elaborations can be used as chronological indicators. However, Pearson argued that variability in rim elaborations may relate to factors other than time (Pearson 1984; Pearson and Cook 2010). In general, nodes and rosettes are early Irene elaborations, while rimstrips and short folded rims are middle to late Irene and wider folds are characteristic of Altamaha ceramics.

[1] The none category consists of plain, stamped, incised, and other types of surface decorations.

Table 4.14. Frequencies and percentages of rim elaborations.

		MHF		BCV		FTMA		SEMI		FTMC	
	Totals	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
node	26	2	2.02	11	8.33	–	–	5	6.76	8	1.14
rosette	21	–	–	4	3.03	–	–	16	21.62	1	0.14
rimstrip	120	40	40.40	30	22.73	4	1.33	18	24.32	28	3.99
rolled	75	2	2.02	1	0.76	2	0.66	9	12.16	61	8.69
rolled or thickened	1	–	–	–	–	–	–	–	–	1	0.14
folded	142	7	7.07	7	5.30	63	20.93	–	–	65	9.26
folded/rimstrip	8	4	4.04	1	0.76	–	–	–	–	3	0.43
none	784	39	39.39	72	54.55	199	66.11	23	31.08	451	64.25
unknown	131	5	5.05	6	4.55	33	10.96	3	4.05	84	11.97
Total	**1,308**	**99**	**100%**	**132**	**100%**	**301**	**100%**	**74**	**100%**	**702**	**100%**

The majority of the rim sherds in the St. Catherines assemblages do not have any rim elaboration, either being plain, stamped, or incised. Similar results were reported at Irene Mound, Red Bird Creek, Kent Mound, and Bead Maker's Midden. As mentioned above, nodes and rosettes are typically indicators of early Irene sites, although Saunders (2000) and Cook (1986) reported rare occurrences in late Irene phase and Mission period contexts. Nodes and rosettes were recovered from Meeting House and Back Creek. Interestingly, Back Creek has more sherds with nodes/rosettes than Meeting House, possibly indicating an early Irene occupation at Back Creek. However, the node and rosette rim sherds were found in the top three midden levels mixed with rimstrips and folded rims. I suspect that these sherds reflect either vessel curation or potters reintroducing nodes and rosettes on vessels. As for the mortuary sites, South End Mound I has more nodes and rosettes rims than Fallen Tree Cemetery and suggest a relative early Irene date for South End Mound I. However, the radiocarbon dates from South End Mound I indicate a post-1400 date for the site. The rim data from St. Catherines suggests that nodes and rosettes should be used with caution for relatively dating sites.

Both Meeting House and Back Creek have high percentages of rimstrips (rimstrip decoration discussion in the following section), whereas Fallen Tree Midden I-A has higher percentage of folded rims. One rim elaboration identified within the St. Catherines dataset, but not discussed by other coastal researchers, is the rolled rim, which consists of the lip slightly overhanging the exterior surface. Rolled rims were reported by Wood (2009) during his study of Mississippian chiefdoms from the Savannah River Valley. Rolled rims are found within each St. Catherines assemblage, but the highest percentages are at South End Mound I and Fallen Tree Cemetery. Could this be a non-local (non-St. Catherines Island) rim type? Further research is necessary to explore this idea.

Tables 4.15 and 4.16 summarize the rimstrip and folded rim width measurements. Each site has a wide range of rimstrip and folded widths, but one pattern stands out, Fallen Tree Midden I-A has the largest widths than any other site, indicating a trend from shorter rimstrips and folds during the middle and late Irene phases to wider folds and rimstrips during the Mission period.

Table 4.15. Rimstrip width measurements.

Site	**N**	**Average Rimstrip width (mm)**	**Min of Rimstrip width (mm)**	**Max of Rimstrip width (mm)**	**StdDev**
MHF	40	7.31	3.00	10.06	1.63
BCV	30	6.67	3.00	11.00	1.57
FTMA	4	10.40	7.87	12.04	1.81
SEMI	16	7.42	3.87	11.93	2.61
FTMC	28	7.94	4.12	11.69	1.92
Total	**118**	**7.36**	**3.00**	**12.04**	**1.96**

Table 4.16. Folded rim width measurements.

Site	N	Average Folded width (mm)	Min of Folded width (mm)	Max of Folded width (mm)	StdDev
MHF	7	13.61	8.74	23.90	4.95
BCV	7	10.11	8.20	12.44	2.15
FTMA	63	19.95	14.25	30.71	4.58
SEMI	–	–	–	–	–
FTMC	65	14.15	9.00	21.81	4.08
Total	**142**	**11.57**	**8.20**	**30.71**	**3.15**

RIM TREATMENTS

Rim treatments include finger pinched/indented,[2] segmented, punctated (cane/reed, point, crescent, triangle, unidentified), incised, stamped, scraped, and plain/burnished plain (Table 4.17). Appendix E provides a breakdown of rim elaborations and treatments for each assemblage. In general, the rim data from St. Catherines show a diversity of rim treatments and differences between village and mortuary assemblages. Meeting House Field has higher percentages of indented/pinched rimstrips, punctated rimstrips, and plain/burnished plain rims, while Back Creek Village has higher percentages of plain/burnished rims, stamped, and indented rimstrips. Fallen Tree Midden I-A stands out with higher percentages of punctated, folded and punctated, and incised rim sherds. As for the mortuary assemblages, South End Mound I has higher percentages of nodes, rosettes, indented/pinched rimstrips, rolled, and plain rims, while Fallen Tree Cemetery has greater diversity of rim treatments (n = 15 versus SEMI = 9) and higher percentages of folded, punctated, and incised rim treatments. The differences between the mortuary sites likely reflect temporal pottery trends and indicate South End Mound I is slightly older than the Fallen Tree Cemetery. A comparison of village and mortuary rim decorations

[2] I use pinched/indented to describe the rimstrips because previous researchers noted fingerprints, but during my analysis fingerprints were not always noted, so I called the technique indented.

indicates two patterns. First, rimstrip use is lower within the Fallen Tree Cemetery assemblage, which is in contrast to the popularity of pinched and punctated rimstrips at Meeting House, Back Creek, and South End Mound I. Although further studies are needed, this pattern tentatively suggests fewer local vessels (at least fewer local vessels with rimstrips) were used at the Fallen Tree Cemetery. Second, mortuary sites have higher percentages of rolled and stamped rim treatments than St. Catherines village contexts. These differences could reflect several social factors, such as exchange and trade non-local wares. A petrographic study could help identify different potting communities and non-local wares.

The St. Catherines rim treatments and elaborations are like rims from other Irene sites. However, the St. Catherines datasets stand out with higher frequencies of finger-pinched/indented rimstrips than any other site. Sites with pinched rimstrip sherds include the Irene site (Caldwell and McCann 1941), Seven Mile Bend (Cook 1986), and Meeting House Field (Saunders 2000). In addition, Pearson and Cook (2010) reported that pinched rimstrips (n=10) were the second most common rim type at the Bead Maker's Midden site. No pinched rimstrips were recorded at Red Bird Creek, Kent Mound or Harris Neck. Pearson and Cook (2010) speculated that finger-pinched rimstrips were indicators for early Irene sites because they were identified on Savannah and transitional Savannah/Irene ceramics from Seven Mile Bend and the Irene sites. However, they also stated that spatial or social factors cannot be ruled out. I agree with Pearson and Cook's assessment that some rim treatment variations relate to change through time, but other variations might relate to social factors, such as potting communities of practice or a potter's group affiliation. Further work is necessary on the midden level to explore these ideas.

Table 4.17. Frequencies and percentages of rim decorations.

		MHF		BCV		FTMA		SEMI		FTMC	
	Total	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
node, plain	20	1	1.09	6	4.96	–	–	5	7.04	8	1.22
node, punctated	6	1	1.09	5	4.13	–	–	–	–	–	–
rosette, punctated	21	–	–	4	3.31	–	–	16	22.54	1	0.15
rimstrip, indented/pinched	54	21	22.83	18	14.88	–	–	13	18.31	2	0.30
rimstrip, punctated	60	18	19.57	9	7.44	4	1.61	4	5.63	25	3.81
rimstrip, segmented	1	1	1.09	–	–	–	–	1	1.41	1	0.15
folded, indented/pinched	9	–	–	1	0.83	7	2.81	–	–	1	0.15
folded, punctated	195	7	7.61	5	4.13	54	21.69	–	–	129	19.63
folded/rimstrip	3	1	1.09	1	0.83	–	–	–	–	1	0.15
folded/rimstrip and punctated	4	3	3.26	–	–	–	–	–	–	1	0.15
rolled	74	2	2.17	1	0.83	1	0.40	9	12.68	61	9.28
rolled and punctated, crescent	1	–	–	–	–	1	0.40	–	–	–	–
incised	186	6	6.52	4	3.31	46	18.47	–	–	130	19.79
incised and punctated	14	1	1.09	–	–	10	4.02	–	–	3	0.46
punctated	198	9	9.78	13	10.74	85	34.14	1	1.41	90	13.70
red filmed	1	–	–	–	–	1	0.40	–	–	–	–
scraped	3	–	–	–	–	3	1.20	–	–	–	–
stamped	194	8	8.70	17	14.05	15	6.02	9	12.68	145	22.07
plain/burnished plain	144	13	14.13	37	30.58	22	8.84	13	18.31	59	8.98
Totals	**1,188**	**92**	**100%**	**121**	**100%**	**249**	**100%**	**71**	**100%**	**657**	**100%**

Although the sample size is small, cane punctation direction was studied to see if there were differences among sites that might reflect different communities of learning (Table 4.18). This idea draws on Minar's (1999, 2001) cordmarked pottery research, which identified unique communities of learning based on the directionality of cordage twists, and Blair's research on punctuation directions for pottery recovered from several neighborhoods associated with Mission Santa Catalina de Guale. Although Blair's sample size was small he did identify a neighborhood as distinct based on only one direction of punctuation. Four of the five assemblages have higher percentages of left to right punctation direction, whereas Meeting House Field has higher percentage of right to left. Although punctation direction may be related to handedness, the way a potter holds a pot and uses a stylus is certainly part of the learning process and can be reflected through punctuation direction. The current research on punctation direction is inconclusive. A larger sample and more experimental research are necessary to explore this topic.

Table 4.18. Cane punctation direction.

		MHF		BCV		FTMA		FTMC	
	Total count	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
left to right	137	6	37.50	6	60.00	41	80.39	84	83.17
right to left	31	8	50.00	4	40.00	10	19.61	9	8.91
both	10	2	12.50	–	–	–	–	8	7.92
Total	**178**	**16**	**100%**	**10**	**100%**	**51**	**100%**	**101**	**100%**

RIM THICKNESS MEASUREMENTS

Researchers studying Swift Creek and Mission period pottery used rim thickness to indicate different pottery communities (Blair 2015; Saunders 1986; Wallis 2011). Wallis' (2011) study on Swift Creek pottery noted that rim measurements 3 cm below the lip provided notable differences in midden assemblages that were geographically and temporally different. He argued that rim variation was a cultural factor that corresponded to ingrained bodily practice of vessel forming, which was learned early in the potter's training (Gosselain 2000; Wallis 2011). Wallis identified variations in rim thickness to distinguish Swift Creek social groups and help investigate interactions between groups. Tables 4.19–21 provide the measurements for rim thickness (lip, 1 cm, and 3 cm below rim). Rim thicknesses were analyzed to determine patterns in the way rims were made. Although there is a wide range of lip measurements within each assemblage, the averages are very similar. Fallen Tree Midden I-A rim sherds on average have thicker walls, 1 cm below the lip, than the other assemblages. Fewer rim sherds were available to measure 3 cm below the lip; however, the data shows that Fallen Tree Cemetery has on average thicker vessel walls. The data show subtle differences among the village assemblages, especially at the 1 cm and 3 cm measurements, which likely related to pottery manufacturing practices.

Table 4.19. Rim lip thickness.

Site	N	Average of Lip thickness (mm)	Min of Lip thickness (mm)	Max of Lip thickness (mm)	StdDev
MHF	66	5.03	2.00	8.40	1.21
BCV	108	5.11	2.35	9.52	1.37
FTMA	211	5.49	2.20	10.20	1.40
SEMI	54	5.48	3.05	8.53	1.15
FTMC	328	5.10	1.21	10.00	1.41
Total	**767**	**5.21**	**1.21**	**10.20**	**1.38**

Table 4.20. Wall thickness measurements 1 cm below lip.

Site	N	Average of Wall thickness (mm)	Min of Wall thickness (mm)	Max of Wall thickness (mm)	StdDev
MHF	65	6.57	4.16	9.80	1.38
BCV	86	6.29	3.56	10.40	1.14
FTMA	194	7.22	3.71	11.61	1.48
SEMI	56	6.39	4.48	9.10	0.91
FTMC	284	6.61	3.24	11.29	1.38
Total	**685**	**6.71**	**3.24**	**11.61**	**1.39**

Table 4.21. Wall thickness measurements 3 cm below lip.

Site	N	Average of Wall thickness (mm)	Min of Wall thickness (mm)	Max of Wall thickness (mm)	StdDev
MHF	22	7.14	4.80	9.05	1.04
BCV	42	6.85	3.49	9.53	1.22
FTMA	53	7.36	5.00	10.90	1.08
SEMI	35	6.90	4.72	9.34	1.03
FTMC	94	7.51	4.95	11.19	1.19
Total	**246**	**7.25**	**3.49**	**11.19**	**1.17**

MINIMUM NUMBER OF VESSELS (MNV)

Based on the rims I was able to calculate the minimum number of Mississippian vessels for each site (Table 4.22). Meeting House Field has 69 vessels, Back Creek Village has 81 vessels, and Fallen Tree Midden I-A has 124. As for the mortuary sites, South End Mound I has 69 vessels and Fallen Tree Cemetery has 161. I am surprised by the number of vessels in the Fallen Tree Midden I-A assemblage. Perhaps Midden I-A was a refuse pile for multiple adjacent households or perhaps a larger structure, such as a council house. Analysis of food remains and future excavations adjacent to the midden could help clarify the large number of vessels from this context.

Table 4.22. Minimum number of vessels at each site.

Site	MNV	Bowls	Jars	Cup	Boat shape	Unknown
MHF	69	11	41	–	–	17
BCV	81	27	43	–	–	11
FTMA	124	32	64	–	–	28
SEMI	69	12	37	–	1	19
FTMC	161	29	94	1	–	37
Total	**504**	**111**	**279**	**1**	**1**	**112**

Although diameter measurements were obtained for all large rims sherds, in this section I will only discuss the rim diameters related to diagnostic vessels (n = 141) (fig. 4.11 and 4.12).

Meeting House Field bowls (n = 4) ranged in size from 12 to 20 cm with a mean of 16.75 cm. Meeting House Field jars (n = 11) range from 17 to 40 cm, with a mean of 28.09 cm. Back Creek Village bowls (n = 13) ranged from 5 to 25 cm, with a mean of 13.77 cm. Back Creek jars (n = 25) ranged from 9 to 35 cm, with a mean of 21.04. Fallen Tree Midden I-A bowls (n=8) ranged 4 to 27 cm with a mean of 15.38 cm. Jars (n = 19) ranged from 13 to 35 cm with a mean of 22.68 cm. South End Mound I bowls (n = 9) ranged from 8 to 39 cm with a mean of 26.44 cm. Jars (n = 9) ranged from 16 to 38 cm with a mean of 30.56 cm. The Fallen Tree Cemetery bowls (n =15) ranged from 8 to 24 cm with a mean of 15.8 cm. Jars (n = 27) ranged from 10 to 40 cm in diameter with a mean of 21.11 cm. Two unique forms were recovered from the mortuary contexts. The cup was approximately 6 cm in diameter and "boat shaped" vessel was 23 x 11 cm in diameter with a height of 10 cm. In summary, the rim diameter data show that each village has more jars than bowls and jars tend to have larger diameters. A similar pattern observed at other Irene sites. On average Meeting House Field has larger sized vessels than Fallen Tree Midden I-A and Back Creek Village. Meeting House Field also has the largest jars (40 cm) of any of the village sites. The large jars at Back Creek and Fallen Tree are 30 to 35 cm in diameter. The larger jar sizes at Meeting House could reflect a larger population at the site. In other words larger cooking jars are needed to feed larger households. Alternatively, the larger vessels could relate to potential ceremonial and feasting events at Meeting House, yet to be identified. Further work is required to test these ideas.

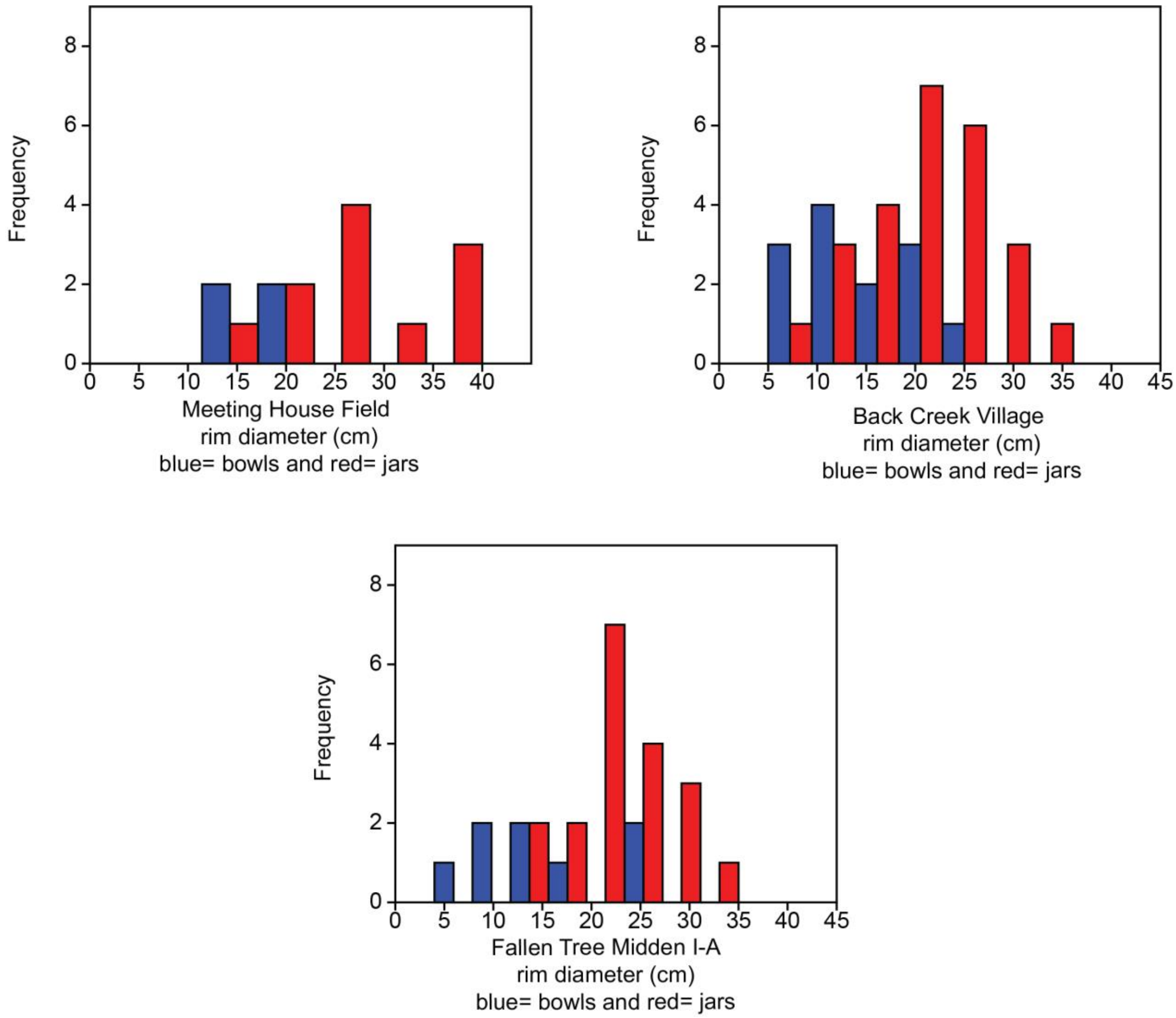

Fig. 4.11. Histogram of rim diameters village assemblages.

As for the mortuary vessels, South End Mound I has equal portions of jars and bowls (fig. 4.12). In addition, South End Mound I has on average larger bowls and jars compared to the Fallen Tree Cemetery. Interestingly, South End Mound has the largest bowls (30 cm) of all the sites. The large bowls and jars are probably related to ceremonial burial events; however, I would expect the same trend at the Fallen Tree Cemetery, which is not the case. Alternatively, South End Mound I is a burial mound and Fallen Tree is a cemetery. Perhaps the large vessels relate to a larger group working to build the burial mound at South End. Further work is needed to explore these ideas.

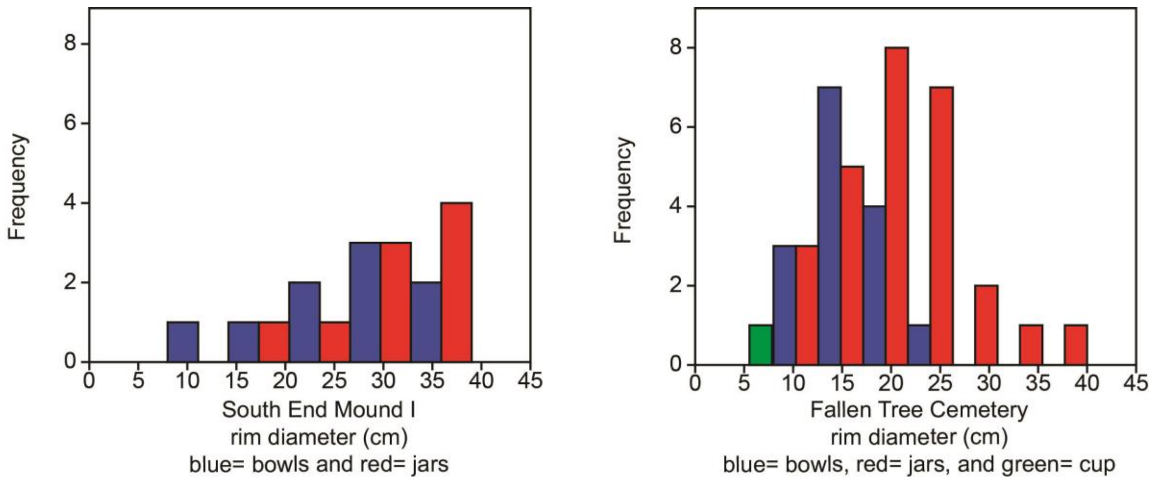

Fig. 4.12. Histograms of rim diameters for the mortuary assemblages.

Research from Harris Neck (Braley et al. 1986) and Bead Maker's Midden (Pearson and Cook 2010) reported flared jar mean diameters as 29.0 cm and 30.4 cm, respectively. St. Catherines flared jars (n = 58) have a mean diameter of 23.25 cm. However, this mean obscures the few large diameter vessels recovered from all sites. Straight-walled jars (n = 7) on St. Catherines have a mean diameter of 15.57 cm). Carinated bowls at Harris Neck were classified in two sizes (28 cm ad 36 cm) and Bead Maker's Midden bowls fell into the latter. Carinated bowls (n = 17) within the St. Catherines assemblage are much smaller (mean 13.52 cm) than the bowls reported at Harris Neck and Bead Maker's Midden. Straight bowl (n = 13) on St. Catherines have a mean diameter of 13.77 cm. Small, flared-rim jars with constricted necks either plain, burnished plain, or incised were reported at the Irene Mound, Red Bird Creek, Harris Neck and a variety of sites on Ossabaw (Pearson and Cook 2010). Braley et al. (1986) reported a range of diameters (12–24 cm) with a mean of 18 cm and interpreted these small vessels as possible "elite status" wares. Due to the fragmentary condition of the St. Catherines Irene rim assemblage and the lack of refits, it is difficult to determine how many of our flared jars are truly plain/burnished plain or incised.

In general, the St. Catherines Island vessel sizes can be consolidated into four categories: small (10 cm or less), medium (11–20 cm), large (21 –30 cm), and extra-large (31+ cm). Table 4.23 provides the vessel frequencies for each size category and shows Back Creek with the highest frequency of small and large vessels, Fallen Tree Cemetery with the highest number of medium vessels, and South End Mound I with the highest number of extra-large vessels. The Harris Neck rim diameter data indicate one small, 20 medium, 32 large, and 24 extra-large vessels. The village assemblages from St. Catherines and Harris Neck show a range in vessel sizes. However, Harris Neck has significantly higher numbers of large and extra-large vessels than village assemblages on St. Catherines, suggesting population differences between Harris Neck and St. Catherines villages. Table 4.24 provides a breakdown of the minimum number of vessels by shape and size category, unknown vessel forms and vessels without diameter measurements were not included in this table. Most assemblages had more jars than bowls, with the exception of South End Mound I, which had a higher number of bowls. In general, villages had a range of shapes and sizes. Meeting House and Back Creek more straight bowls than incurved, and range sizes for flared jars. Fallen Tree Midden I-A had incurved and straight bowls like Meeting House and Back Creek, but Midden I-A was the only village assemblage to have a flared bowl. Flared jars dominate the village assemblages, with high quantities of medium and large jars. The Back Creek assemblage is unique because it is the only village that has small incurved and straight bowls, and flared jars. Straight jars and small bowls and jars are typically rare within the village assemblages, with one exception Back Creek Village which has higher frequencies of small vessels than any other site. In addition, extra-large bowls and unique vessel forms do not exist within the village assemblages. South End Mound I is unique with small and extra-large incurved bowls. In addition, South End Mound I has highest number of extra-large flared jars, which several were used as burial urns. The Fallen Tree Cemetery has the largest diversity of vessel shapes and sizes. This assemblage contains small incurved bowls, flared jars, and a cup that were grave goods. Flared bowls only show up in both Fallen Tree assemblages and indicate a new vessel form developed during the late Irene/early Mission phases. Finally, this table highlights that the mortuary contexts contain similar sized vessel forms as the villages. Although the current study does not fully explore the function of these vessels, researchers have argued that flared jars were used for storage, cooking, or urns, depending on the size, and bowls were used for serving, cooking, or burial offerings (Braley et al. 1986; Braun 1983; Hally 1984; Pearson 1984; Pearson and Cook 2010; Shapiro 1984). Additional research is necessary to study Irene vessel function within the St. Catherines ceramic assemblages.

Table 4.23. Summary of vessel size frequency within each assemblage.

	MHF	**BCV**	**FTMA**	**SEMI**	**FTMC**
small	–	9	2	1	5
medium	7	16	15	2	26
large	5	12	8	8	10
x-large	3	1	1	7	2

Table 4.24. Breakdown of diagnostic vessel forms by size category.

	MHF	BCV	FTMA	SEMI	FTMC	Total
Bowls	**4**	**13**	**8**	**9**	**15**	**49**
flared	**–**	**–**	**1**	**–**	**1**	**2**
medium	–	–	1	–	–	1
large	–	–	–	–	1	1
incurved	**1**	**6**	**5**	**7**	**9**	**28**
small	–	5	–	1	1	7
medium	1	1	3	1	8	14
large	–	–	2	3	–	5
x-large	–	–	–	2	–	2
straight	**3**	**7**	**2**	**2**	**5**	**19**
small	–	2	2	–	1	5
medium	3	4	–	–	4	11
large	–	1	–	2	–	3
Jars	**11**	**25**	**18**	**8**	**27**	**89**
flared	**11**	**24**	**17**	**8**	**23**	**83**
small	–	2	–	–	1	3
medium	3	11	10	1	11	36
large	5	10	6	2	9	32
x-large	3	1	1	5	2	12
straight	**–**	**1**	**1**	**–**	**4**	**6**
small	–	–	–	–	1	1
medium	–	–	1	–	3	4
large	–	1	–	–	–	1
Cup	**–**	**–**	**–**	**–**	**1**	**1**
incurved	**–**	**–**	**–**	**–**	**1**	**1**
small	–	–	–	–	1	1
Boat-shaped vessel	**–**	**–**	**–**	**1**	**–**	**1**
large	–	–	–	1	–	1
Total	**15**	**38**	**26**	**18**	**43**	**140**

In summary, the rim attribute analyses provided a wealth of information and a baseline on rim treatments, lip and body thicknesses, vessel forms and sizes from each assemblage. Although many of the variations among the sites are subtle, several patterns stand out. First, assemblages, in general, have higher percentages of bowls with round lips and jars with flat lips. Fallen Tree Midden I-A is the exception and has high percentages of flat lips for both bowls and jars. In addition, Fallen Tree Midden I-A has a higher frequency of rim sherds with beveled lips. These differences highlight probable temporal changes to bowl lip forms. Second, overall assemblages have higher percentages of straight bowls, except Fallen Tree Midden I-A which has a higher percentage of incurved bowls. Again, these differences likely highlight temporal changes in bowl forms and indicate changes in vessel function. Third, the rim thickness data at 1 cm and 3 cm below the lip indicate differences among village assemblages suggesting vessels becoming thicker over time. Fourth, rim treatments and elaborations on St. Catherines are similar to other Irene sites; however, there are a few differences. For example, Meeting House and Back Creek Village have higher percentages of finger-pinched rimstrips. The only other coastal site with relatively high percentages of pinched rimstrips (although less than St. Catherines village assemblages) is Bead Maker's Midden on Ossabaw Island. In addition, rolled rims are common within the mortuary assemblages on St. Catherines and rarely reported for Irene sites. The St. Catherines assemblages also shows rimstrips and folded rims become wider through time. Finally, I estimate 504 minimum number of vessels within the five assemblages and identified seven vessel shapes that are consistent with other coastal Irene sites. Each assemblage has a range of vessel sizes and shapes which relates to vessel function. Cooking, storage, and serving vessels comprise the village assemblages. Mortuary assemblages contain similar vessels, but also have smaller-sized or uniquely-shaped ceremonial vessels. More research is necessary to identify and characterize local and regional consumption practices.

SURFACE DECORATION ATTRIBUTE RESULTS

In this final section of the attribute analysis chapter, I provide the results for the surface decoration analyses. The first discussion starts with incised pottery, followed by check stamped and complicated stamped.

INCISED DECORATION ATTRIBUTES

All incised pottery was studied from each assemblage. I recorded information on seven elements: stylus shape (round, pointed, flat, and unidentified), condition of the clay when incising occurred (wet, leather hard, and dry), direction of incising, execution of incising, line width, line depth, and design. Data were used to help identify difference in incised pottery within and among sites.

More than 950 Mississippian incised sherds were analyzed (Table 4.25). Fallen Tree Cemetery has the largest component of incised sherds from any site. The few incised sherds recovered from South End Mound I could indicate the mound’s early construction (ie. before A.D. 1450). In addition, the few incised sherds at Meeting House Field and Back Creek Village is intriguing and perhaps relates to the limited testing, or the fact that incised pottery was not used extensively within village sites.

Table 4.25. Incised sherd frequencies.

Sites	**N**
Meeting House Field	39
Back Creek Village	60
Fallen Tree Midden I-A	285
South End Mound I	6
Fallen Tree Cemetery	592
Total	**982**

Five stylus shape categories were identified during analysis (flat, multiple, point, round, and unidentified; Table 4.26). Round styli dominate at all sites. However, Meeting House Field and Back Creek Village have relatively high percentages of flat and point stylus shapes.

Table 4.26. Incised stylus shapes.

	MHF	BCV	FTMA	SEMI	FTMC
flat	36.84%	18.64%	4.21%	–	1.52%
multiple	–	1.69%	–	–	–
point	15.79%	18.64%	5.96%	33.33%	3.55%
round	42.11%	42.37%	88.07%	66.67%	91.72%
unidentified	5.26%	18.64%	1.75%	–	3.21%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Four clay conditions were identified: dry, leather hard, wet, and unidentified (Table 4.27). The majority of the incising was conducted when the vessel was leather hard. However, Meeting House, Back Creek Village, and South End Mound I have high percentages of dry clay conditions (39.47%, 20.34%, and 16.67% respectively). Fallen Tree Midden I-A and the Cemetery have small percentages of wet clay incising.

Table 4.27. Clay conditions during incising.

	MHF	BCV	FTMA	SEM I	FTMC
dry	39.47%	20.34%	1.05%	16.67%	4.22%
leather hard	57.89%	69.49%	89.82%	83.33%	82.77%
wet	–	–	4.91%	–	1.18%
unidentified	2.63%	10.17%	4.21%	–	11.82%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Incising execution was arbitrary and left to the discretion of the analyzer. Many of the sherds were small and execution was difficult to determine, however categories used to describe the execution were fair, moderate, poor, and well. The majority of the incising was executed well, meaning lines were even and designs were well crafted. Each site had a range of incised line widths, with averages around 1.59 mm (Table 4.28; fig. 4.13). Line depths also range but average line depth is around 0.75 mm (Table 4.29; fig. 4.14).

Table 4.28. Incised line width measurements.

Site	N	Average line width (mm)	Min line width (mm)	Max line width (mm)	StdDev
MHF	38	1.53	0.40	3.09	0.70
BCV	59	1.63	0.55	3.06	0.63
FTMA	280	1.46	0.40	3.17	0.50
SEMI	6	1.32	0.41	2.12	0.60
FTMC	478	1.68	0.30	3.59	0.54
Total	**861**	**1.59**	**0.30**	**3.59**	**0.55**

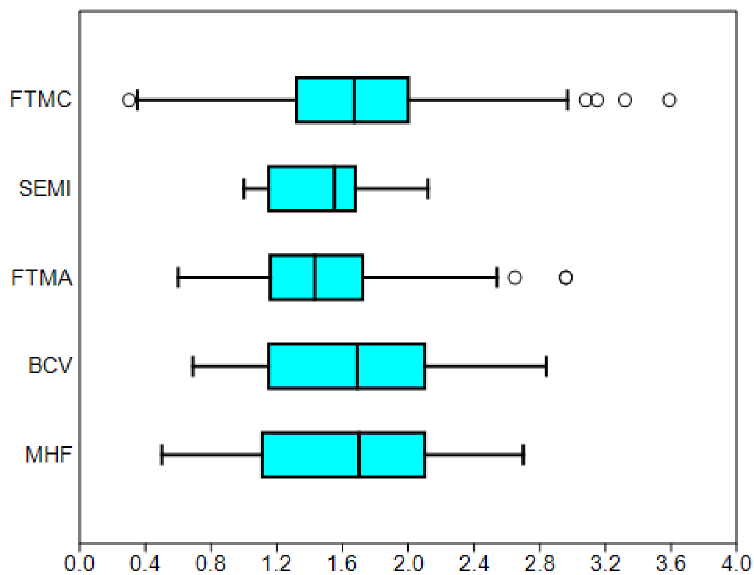

Fig. 4.13. Box plots of incised line widths, measurements in mm.

Table 4.29. Incised line depth data.

Site	N	Average Depth of Line (mm)	Min. Depth of Line (mm)	Max. Depth of Line (mm)	StdDev
MHF	38	0.72	0.20	2.00	0.41
BCV	59	0.80	0.20	2.00	0.38
FTMA	280	0.72	0.10	1.70	0.29
SEMI	6	0.65	0.40	1.00	0.24
FTMC	478	0.76	0.10	2.56	0.32
Total	**861**	**0.75**	**0.10**	**2.56**	**0.32**

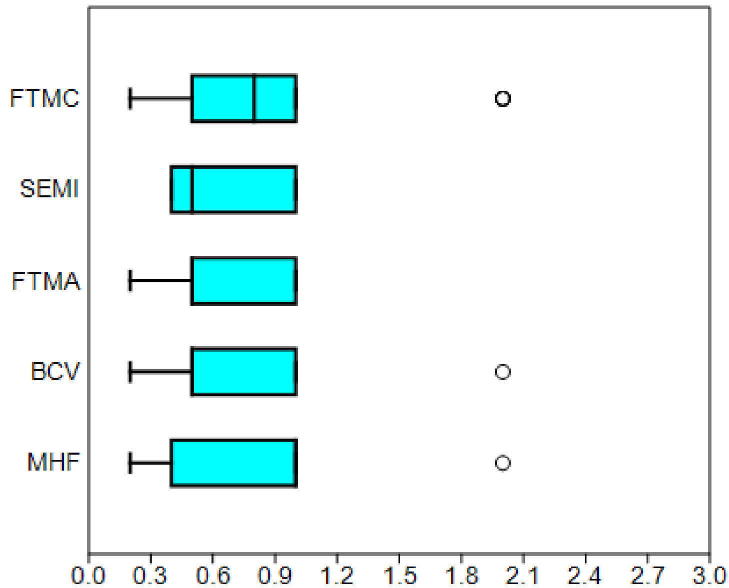

Fig. 4.14. Box plots of incised line depths, measurements in mm.

A variety of incised designs were identified within each assemblage. Many designs have a combination of elements (i.e. scrolls and bars), but to see any patterns elements were grouped by broadest design category. Table 4.30 provides the percentages by design category and figure 4.15 illustrates the types of incised designs. Unidentified designs are removed from this table, because they had the largest percentages and obscured the other data. Bar designs were found in all assemblages, except South End Mound I, and typically have high percentages within each assemblage. Other diagnostic designs include circles, ovals, scrolls, wavy lines, and S shape. Incised design diversity is low at Meeting House Field (n = 5), Back Creek Village (n = 5), and South End Mound I (n = 1). In general, Meeting House Field has more oval designs, while Back Creek Village has more scrolls. Both Fallen Tree contexts have great diversity of incised designs and likely relates to increased use of incised vessels through time. In addition, this analysis highlights differences between middle Irene and late Irene/early Mission incised designs. Similar to previous Irene incised discussion (Braley 1990; Braley et al 1986; Cook 1986; Pearson 1984;

Saunders 2000), Irene incising becomes more elaborate over time. Early incised designs consist of ovals, wavy lines, single bars, and bars combine with scrolls and/or circles. Late Irene/early Mission designs include bands and dashes, S shape, semi-scroll, vertical oval, V shape, chevron, and wavy lines with nested diamonds.

Table 4.30. Types of incised designs.

Designs	**MHF**	**BCV**	**FTMA**	**SEMI**	**FTMC**
bands and dashes	–	–	–	–	0.37%
bars	37.50%	29.03%	29.85%	–	37.36%
bars and circle	12.50%	–	–	–	–
bars and S shape	–	–	0.75%	–	–
bars and scroll	–	16.13%	2.99%	–	3.66%
bars and scroll/circle	6.25%	–	17.16%	–	9.16%
bars and oval/scroll	–	–	1.49%	–	0.37%
bars and semi-scroll	–	–	1.49%	–	–
bars and vertical oval	–	–	4.48%	–	0.37%
bars and unidentified	–	–	0.75%	–	–
chevron/possible chevron	–	–	0.75%	–	1.10%
circle	–	–	0.75%	–	0.73%
oval	37.50%		0.75%	–	1.10%
possible triangle	–	–	0.75%	–	–
S shape	–	–	1.49%	–	2.20%
S shape/oval	–	–	–	–	2.20%
scroll	6.25%	19.35%	0.75%	–	1.83%
scroll/circle	–	32.26%	29.85%	–	28.94%
scroll/oval	–	–	1.49%	–	4.40%
V shape	–	–	0.75%	–	–
vertical oval	–	–	2.24%	–	–
vertical parallel lines	–	–	0.75%	100.00%	0.73%
wavy lines	–	3.23%	0.75%	–	–
wavy lines and nested diamonds	–	–	–	–	5.49%
Total	**100%**	**100 %**	**100%**	**100%**	**100%**

Fig. 4.15. Illustration of incised designs from St. Catherines Island. S Shape (A), chevron (B), bar and scroll (C, D, J, W), bar and vertical oval (E, H, N), bar and circle/semi-circle (F, O, R), vertical oval (G), scroll (I), bars (K), wavy lines (L, S), oval (M, P), bar and semi-scroll (Q), scrolls/circles (T, U), and wavy lines and nested diamonds (V).

The incised sherd analysis shows that St. Catherines Irene potters learned and practiced similar incising techniques. Potters typically incised vessels with a round stylus when the clay was leather hard. Potters at Meeting House Field and Back Creek also used flat and pointed styli. Incised line widths ranged from less to 0.3 mm to 3.59 mm and averaged 1.59 mm. This analysis identifies that diversity of incised designs increases over time with the greatest number of incised design identified in the Fallen Tree Midden I-A assemblage. In addition, this study recognizes that the combination of incising with punctation or stamping increases from middle/late Irene phases to early Mission period (fig. 4.16).

Fig. 4.16. Selective punctated and incised rim sherds from Fallen Tree Midden I-A and Cemetery assemblages.

STAMPED ATTRIBUTE RESULTS

As mentioned in the ceramic typology section, stamped pottery comprises 80 to 90% of the decorated Mississippian sherds. Although there are a variety of stamped designs, in this section I focus only on check and complicated stamps.

Check stamped results

I explored check stamped pottery in finer detail because it was a distinct stamped decoration type and the ceramic typology indicated significant differences among assemblages. Both Mississippian and non-Mississippian check sherds were identified (n = 703); however, the following section only discusses the Mississippian sherds (n = 664). In general, checked stamped decoration is associated with the Savannah (preceding Irene) or Altamaha (post-Irene) ceramic types. Pearson and Cook (2010) argued that check stamping extended into early Irene based on their survey of reports that documented check stamped pottery at the Irene site, Stephens site, Pine Harbor, Red Bird Creek ,and several sites on Ossabaw Island. All but one assemblage, Meeting House Field, contains Mississippian check stamped sherds (BCV = 30, FTMA = 37, SEMI = 2, and FTMC = 595). The cemetery assemblage has a significantly higher quantity of checked stamped sherds than any other assemblage.

Two check shapes were identified during analysis, diamond and rectangular (fig. 4.17). Back Creek and Fallen Tree Midden I-A have approximately 97% and 89% rectangular check and 3% diamond check. The small percentages of diamond check are represented by 1 sherd at each site. Alternatively, the Fallen Tree Cemetery has 66.89% rectangular check and 27.06% diamond, indicating significantly more diamond check at the cemetery than Back Creek and Fallen Tree Midden I-A combine. The Fallen Tree Cemetery has a significantly larger sample of checked stamped pottery, which could relate to large-scale excavation at the cemetery or more likely checked stamped vessels are non-local wares, brought by visitors participating in mortuary events at the cemetery. Further chemical analyses are required to test this theory.

Fig. 4.17. Diamond (top) and rectangular (bottom) check stamped sherds.

In addition to check shape, I measured check lengths to see if there were differences among assemblages. Check measurements were obtained from 620 sherds and maximum and minimum check lengths were measured with calipers. Table 4.31 presents the maximum length measurements for each assemblage. Back Creek Village and Fallen Tree Midden I-A have on average smaller sized checks than the Fallen Tree Cemetery (fig. 4.18).

Table 4.31. Check stamped measurements.

Site	**N**	**Average of max (mm)**	**Min (mm)**	**Max (mm)**	**StdDev**
BCV	30	3.78	2.31	8.47	1.27
FTMA	36	3.75	1.51	5.81	1.05
SEMI	2	–	–	–	–
FTMC	552	4.94	1.39	10.82	1.75
Total	**620**	**4.76**	**1.39**	**10.82**	**1.72**

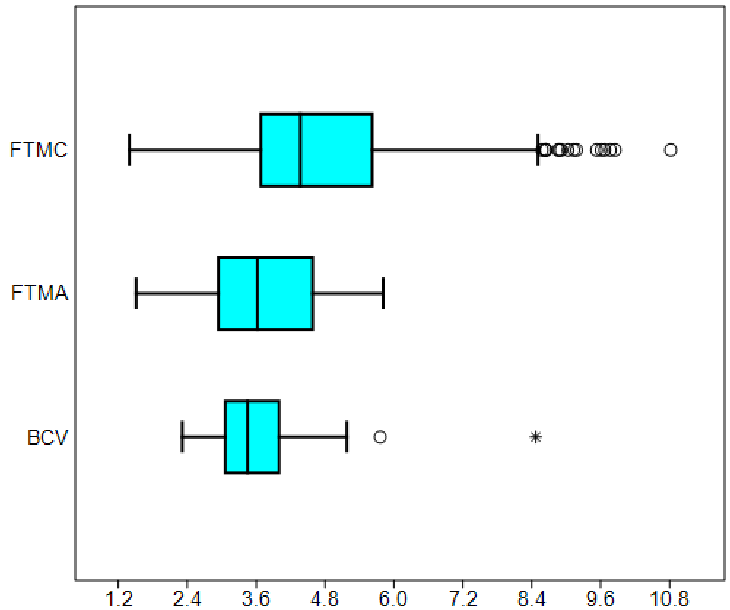

Fig. 4.18. Box plots of check sizes, measurements in mm.

Maximum lengths were used to group check sherds into large and small categories (Table 4.32). Four millimeters was selected as the threshold to separate large from small (Boudreaux 2007b). Back Creek has more small check stamped sherds than Fallen Tree Midden I-A and the Cemetery. Large check stamped sherds dominate both Fallen Tree assemblages. Unfortunately, 200 check sherds from the cemetery were classified as unidentified size. These sherds were overstamped or too small, which made measurements difficult. Although the sample size is small, in general Back Creek Village has small rectangle check sherds, Fallen Tree Midden I-A has large rectangle check stamped sherds, and the Fallen Tree Cemetery has both sizes of diamond checks and large rectangle checks.

Table 4.32. Percentages of check sizes.

Check size	BCV	FTMA	SEMI	FTMC
large	23.33%	75.68%	–	61.34%
small	66.67%	21.62%	–	5.04%
unidentified	10.00%	2.70%	100.00%	33.61%
Total	**100%**	**100%**	**100%**	**100%**

Checked stamped pottery is formally categorized as either Savannah or Altamaha based on the Georgia coast ceramic typology (DePratter 1991; Thomas 2008). However, during this study, I also used Irene to classify check sherds. I differentiated Savannah and Irene check stamped sherds based on the frequency of visible grit temper within the sherd. In other words, Irene check has more grit tempering than Savannah check. I distinguished Irene and Altamaha check based on the check shape and size. For ambiguous check sherds, I combined categories (Savannah/Irene or Irene/Altamaha). These subjective check distinctions should be tested by future petrographic and radiometric analyses.

Table 4.33 presents the percentages of ceramic types. Although the Back Creek Village assemblage contains few check stamped sherds, there is a high percentage of Irene followed by Savannah check stamps. Fallen Tree Midden I-A also has a few check stamped sherds, this assemblage has more Altamaha check indicating Mission period use. As for the mortuary sites, the South End Mound I assemblage has two non-diagnostic check stamped sherds. Whereas, the Fallen Tree Cemetery assemblage contains nearly 600 check sherds with 56% identified as Savannah and only 42% as Irene. I believe caution should be used when interpreting the Savannah check stamped sherds as indicators of early site use at the Fallen Tree Cemetery. Savannah check stamped sherds were recovered from 38 of 61 burial contexts. However, Savannah check stamped sherds were rarely recovered alone from burial contexts. These sherds were typically recovered with Irene incised, complicated stamped, and plain sherds. Perhaps Savannah check stamped pottery was manufactured later than expected on the Georgia coast and for some reason did not become part of the St. Catherines Irene potter's repertoire until late Irene phase. Alternatively, perhaps the check stamped pottery is not local to St. Catherines Island. Examination of the middens at Back Creek with check stamped pottery shows that Savannah and

Irene check sherds were recovered from both middle and late Irene phase clusters. Therefore, I believe that the relative lack of check stamped pottery from the St. Catherines villages and the abundance at the Fallen Tree Cemetery indicates non-local wares brought to the island by visitors participating in Late Mississippian mortuary events at the Fallen Tree Cemetery. This analysis illustrates that more work is required to distinguish check stamped ceramic types on St. Catherines Island and compare the pottery to other Irene sites in the region.

Table 4.33. Percentages of Mississippian check stamped sherds.

Ceramic type	**BCV**	**FTMA**	**SEMI**	**FTMC**
Savannah	36.67%	35.14%	–	55.63%
Savannah/Irene	3.33%	–	–	–
Irene	56.67%	13.51%	–	42.18%
Irene/Altamaha	–	35.14%	–	0.34%
Altamaha	3.33%	16.22%	–	0.50%
Unidentified	–	–	100%	1.34%
Total	**100%**	**100%**	**100%**	**100%**

Complicated stamped results

Mississippian complicated stamped pottery is the most ubiquitous pottery type within the five assemblages. The complicated stamped pottery consists of designs carved into wooden paddles, and those paddles are impressed into the wet clay. Although the designs are unique, they are often difficult to reconstruct because of overstamping. The detailed stamped analysis examined 2,883 Mississippian sherds. From the five assemblages studied, complicated stamped designs include filfot cross, concentric circles, line block, and nested rectangles (Table 4.34; fig. 4.19). All village assemblages have the filfot-cross and line-block designs, while South End Mound I only has filfot and Fallen Tree Cemetery has all four stamped designs. DePratter (1991) noted that the filfot cross was the only motif in early Irene assemblages and Pine Harbor assemblages included a range of stamped motifs. The Irene Complicated Stamped motifs, especially recovered from the Fallen Tree Cemetery fall within the Pine Harbor (late Irene) classification. Interestingly, when comparing midden clusters at Meeting House Field and Back Creek Village, cluster 1 (middle Irene) contains line-blocked stamped sherds, while cluster 2 middens only contain filfot cross sherds. A review of the midden levels with line block sherds indicates a range (MHF Levels 2 and 3; BCV Levels 1 through 4) and suggests potential Pine Harbor (late Irene) use of these middens.

Table 4.34. Frequencies of complicated stamped designs.

Stamped design	**MHF**	**BCV**	**FTMA**	**SEM I**	**FTMC**	**Total**
concentric circles	–	–	–	–	9	9
filfot	446	737	197	368	564	2,312
line block	7	24	76[3]	–	42	149
nested rectangles	–	–	–	–	1	1
Total	**453**	**761**	**273**	**368**	**616**	**2,471**

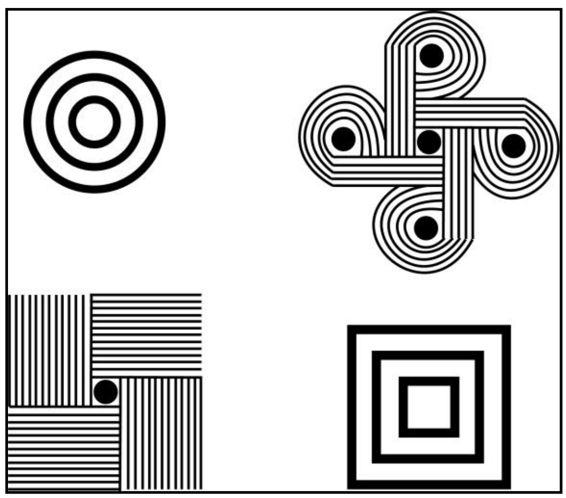

Fig. 4.19. Illustration of complicated stamped designs.

The dominant complicated stamped design is the filfot cross. The filfot cross was first described by Caldwell and McCann in 1941 as they formally defined Irene ceramic types with the Irene Mound assemblage. Caldwell and McCann state

[3] This table does not reflect all the line block from FTMA. Only the sherds analyzed during the attribute analysis.

> “the center of the cross is formed either by the intersection of the four arms or by the projection of these from the sides of a square center element. The arms themselves consist of four to nine parallel lands. The primary land of each arm turns or angles back on itself to form a square or circular terminal element and the other lands follow the first. The central and terminal elements of the design may themselves contain either a raised square or a circle” (1941: 47).

In summary, the filfot cross is a symmetrical design, consisting of 4 elements: the center element, scrolls (arms), the end/terminal element, and number of lands and grooves radiating off the center element. Execution of stamping varies from clearly depicted to overstamped. Caldwell and McCann acknowledge and illustrate four filfot design variations; however, they do not provide information on how many different filfot designs were identified at the Irene Mound. In this results section, I provide the details about filfot attributes for each site, including scroll direction, center element categories, number of lands and grooves, and end element options. At the end of the section, I bring these elements together to identify diagnostic filfot designs and paddles.

Filfot elements: Filfot scroll direction is either clockwise or counterclockwise. Six hundred and sixty-two sherds show evidence of scroll direction (Table 4.35, fig. 4.20). Meeting House, Back Creek, Fallen Tree Midden I-A, and South End Mound I have higher percentages of counterclockwise scrolls. Fallen Tree Cemetery is the only site that has a higher percentage of clockwise scrolls. Although both scroll directions are recovered at each site, perhaps clockwise filfot designs are more connected to mortuary events. I consider this an idea based on Marquardt and Kozuch’s (2016) discussion of lightning whelks and their view that lightning whelk spirals were associated with the sun, fire, and renewal (2016: 21). Their argument is based on ethnographic accounts, which indicate clockwise direction associated with sun’s path, which heads to death each day and counterclockwise direction was usually towards life. I do not believe clockwise scrolls are temporal, since the Fallen Tree Midden I-A, does not have a higher percentage of clockwise sherds.

Table 4.35. Filfot cross scroll directions with counts and percentages.

		MHF		BCV		FTMA		SEM I		FTMC	
Scroll direction	**Total**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
counterclockwise	316	34	51.52	69	60.00	58	61.70	77	55.00	78	31.58
clockwise	346	32	48.48	46	40.00	36	38.30	63	45.00	169	68.42
Total	**662**	**66**	**100%**	**115**	**100%**	**94**	**100%**	**140**	**100%**	**247**	**100%**

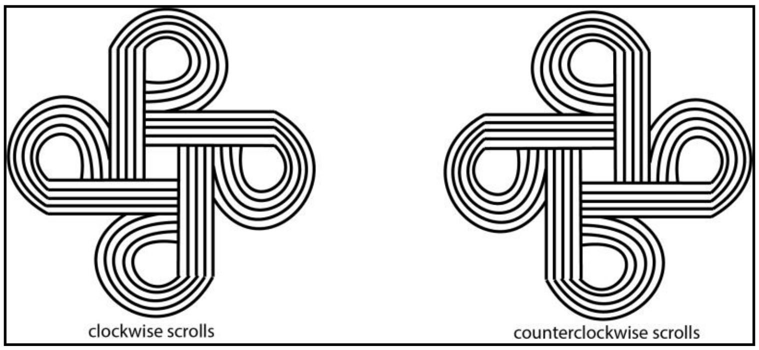

Fig. 4.20. Filfot scroll direction illustration.

Three hundred and eighty-seven sherds displayed the filfot center element (Table 4.36, fig. 4.21). Center elements consist of six categories: circle in circle, circle in square, depressed square, raised circle, raised square, and square in square. Assemblages have predominantly circle in square; however, circle in circle, depressed square, and square in square have relatively higher percentages. Meeting House Field has 33% square in square filfot designs, which is significantly higher than any other village site. These village differences suggests stylistic distinctions among sites, perhaps reflecting potter’s affiliation to village or clan. As for the mortuary sites, South End Mound I has 11% square in square filfot designs, while Fallen Tree Cemetery has less than one percent. Back Creek Village has higher percentages of depressed square filfot designs (13.58%) when compared to the other village sites, while South End Mound I has 29.17% compared to 2.6% at the Fallen Tree Cemetery. Circle in circle filfot designs have higher percentages at Fallen Tree Midden I-A (12.50%) and the Cemetery (14.94%), which could relate to a temporal differences in the motif. One final observation on filfot center elements. Although the sample sizes are small, it is intriguing that raised square filfots have been found only at Back Creek Village and the Fallen Tree Cemetery and raised circles have been recovered from only Meeting House and South End Mound I. These similarities suggest connections between villages and mortuary sites, such as Meeting House Field groups participating in South End Mound I mortuary activities. In addition, the lack of depressed squares, raised circle, raised square, and square in square elements at Fallen Tree Midden I-A tentatively suggests temporal changes to the filfot-cross design from middle Irene phase to early Mission period. The center element of the filfot cross provides the greatest variations within the filfot cross design and indicates differences among the assemblages.

Table 4.36. Filfot cross center element categories with counts and percentages.

		MHF		**BCV**		**FTMA**		**SEM I**		**FTMC**	
Center element	**Total**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
circle in circle	38	4	7.02	6	7.41	3	12.50	3	4.17	23	14.94
circle in square	267	28	49.12	55	67.90	21	87.50	38	52.78	125	81.17
depressed square	41	5	8.77	11	13.58	–	–	21	29.17	4	2.60
raised circle	3	1	1.75	–	–	–	–	2	2.78	–	–
raised square	5	–	–	4	4.94	–	–	–	–	1	0.65
square in square	33	19	33.33	5	6.17	–	–	8	11.11	1	0.65
Total	**387**	**57**	**100%**	**81**	**100%**	**24**	**100%**	**72**	**100%**	**154**	**100%**

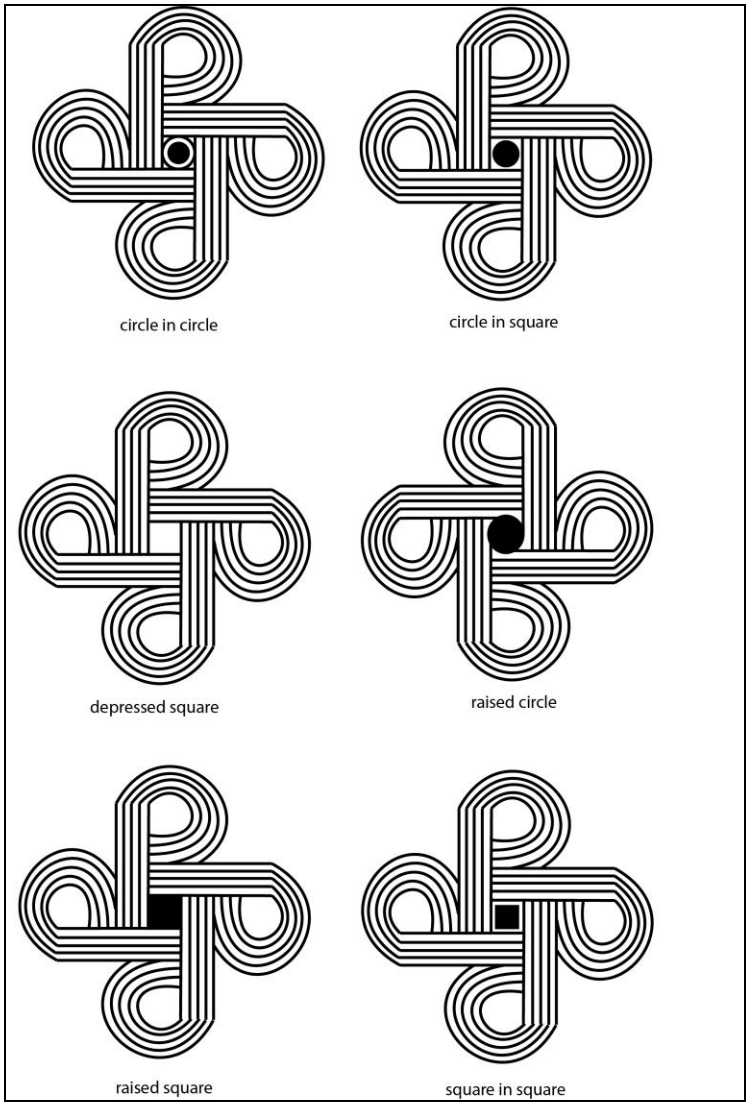

Fig. 4.21. Illustration of filfot center elements.

End element attributes were analyzed on 531 sherds. Two types of end elements were recorded, depressed circle and raised circle (Table 4.37, fig. 4.22). Filfot designs overwhelmingly incorporate raised circles, although depressed circles are at every site. Back Creek Village and South End Mound I have over 10% depressed circles, suggesting a small preference for a different filfot design or possible connection between the two sites.

Table 4.37. Filfot cross end elements with counts and percentages.

		MHF		BCV		FTMA		SEM I		FTMC	
	Total	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
depressed circle	43	3	4	11	11	5	8	15	18	9	4
raised circle	488	67	96	93	89	56	92	70	82	202	96
Total	**531**	**70**	**100%**	**104**	**100%**	**61**	**100%**	**85**	100%	**211**	**100%**

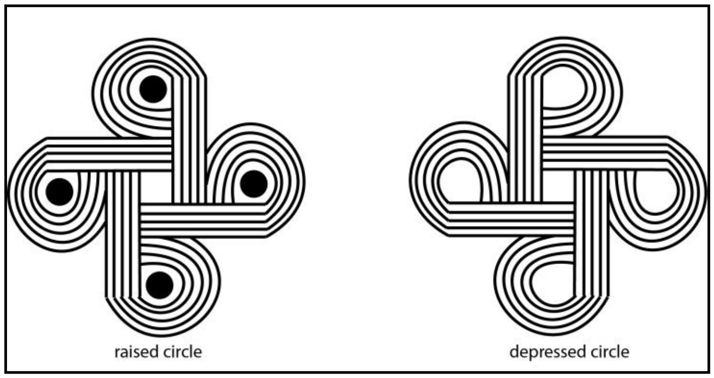

Fig. 4.22. Illustration of filfot end elements.

The number of lands and grooves are also a diagnostic characteristic of the filfot designs; however, without having the whole design, or at least one of the scrolls showing the center element to end element, it is not easy to consistently determine the number of lands and grooves. Fortunately, I had the opportunity to count lands and grooves once I identified the sherds with diagnostic filfot designs, which is discussed in the following section. Land and groove measurements were taken for filfot sherds and Tables 4.38 and 4.39 provide the summaries of these measurements. There are a range of land measurements for each site. Meeting House Field has a larger land average than any other site, while Back Creek Village and South End Mound I have the lowest average. Filfot groove measurements are slightly larger than land measurements and present no significant patterns.

Table 4.38. Filfot land measurement summary by site. Measurements in mm.

	MHF	BCV	FTMA	SEMI	FTMC
N	430	722	190	346	389
Min	0.65	0.40	0.73	0.74	0.62
Max	2.82	2.32	2.46	2.31	2.56
Mean	1.55	1.29	1.37	1.28	1.40
Std. error	0.02	0.01	0.02	0.01	0.02
Variance	0.12	0.09	0.09	0.06	0.11
Stand. dev	0.35	0.29	0.31	0.24	0.33
Median	1.52	1.29	1.33	1.29	1.36
Coeff. var	22.72	22.66	22.33	18.76	23.49

Table 4.39. Filfot groove measurement summary by site. Measurements in mm.

	MHF	BCV	FTMA	SEMI	FTMC
N	429	710	189	343	381
Min	0.30	0.53	0.80	0.73	0.62
Max	3.20	3.52	4.34	2.85	4.36
Mean	1.49	1.36	1.47	1.29	1.40
Std. error	0.02	0.01	0.03	0.01	0.02
Variance	0.20	0.11	0.18	0.06	0.15
Stand. dev	0.45	0.34	0.43	0.24	0.39
Median	1.41	1.30	1.40	1.27	1.35
Coeff. var	29.82	24.79	29.03	18.30	27.99

DIAGNOSTIC FILFOT DESIGNS: Although looking at the individual elements indicates several patterns within and among sites, my ultimate objective is to identify diagnostic filfot designs in order to figure out how many filfot designs variations and paddles were in each Late Mississippian ceramic assemblage. After looking at the individual elements, I combined the elements to create a code (i.e., f-ccw-cis-rc, translated filfot cross with counterclockwise scroll, circle in square center element, and raised circle end element) and then assigned a design number to track the designs within and among sites (Appendix F). Combining these elements allowed me to construct 14 idealized diagnostic filfot designs[4] from the five St. Catherines assemblages (Table 4.40, fig. 4.23). Designs 1-6 consist of counterclockwise scrolls, while Designs 7–14 have clockwise scrolls. Each scroll direction has several different center elements. Meeting House Field and Back Creek Village assemblages have six and seven diagnostic filfot designs, while Fallen Tree Midden I-A only has three. These designs highlight stylistic differences, which provide information about group distinctions. Alternatively, the differences could relate to longer midden use/occupation at Meeting House and Back Creek and temporal design changes. A larger sample sizes is needed to confirm these ideas. As for the mortuary sites, South End Mound I has more diagnostic filfot designs (n = 7) than Fallen Tree Cemetery (n = 5). Similar to the village sites, perhaps the subtle difference between the mortuary sites indicates a temporal trend that indicates fewer filfot stamped vessels.

Table 4.40. Diagnostic filfot designs with counts and percentages.

		MHF		**BCV**		**FTMA**		**SEM I**		**FTMC**	
	Total	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Design 1	3	1	6.25	–	–	–	–	1	5.88	1	0.93
Design 2	30	5	31.25	13	72.22	5	62.50	3	17.65	4	3.74
Design 3	3	–	–	–	–	–	–	3	17.65	–	–
Design 4	1	–	–	–	–	–	–	1	5.88	–	–
Design 5	2	–	–	1	5.56	–	–	–	–	1	0.93
Design 6	3	2	12.50	1	5.56	–	–	–	–	–	–
Design 7	3	–	–	1	5.56	1	12.50	1	5.88	–	–
Design 8	1	1	6.25	–	–	–	–	–	–	–	–
Design 9	109	3	18.75	–	–	2	25.00	4	23.53	100	93.46
Design 10	1	–	–	1	5.56	–	–	–	–	–	–
Design 11	1	–	–	1	5.56	–	–	–	–	–	–
Design 12	6	2	12.50	–	–	–	–	4	23.53	–	–
Design 13	2	2	12.50	–	–	–	–	–	–	–	–
Design 14	1	–	–	–	–	–	–	–	–	1	0.93
Total	**166**	**16**	**100%**	**18**	**100%**	**8**	**100%**	**17**	**100%**	**107**	**100%**

[4] These designs are idealized and do not account for the number of lands and grooves within the filfot design.

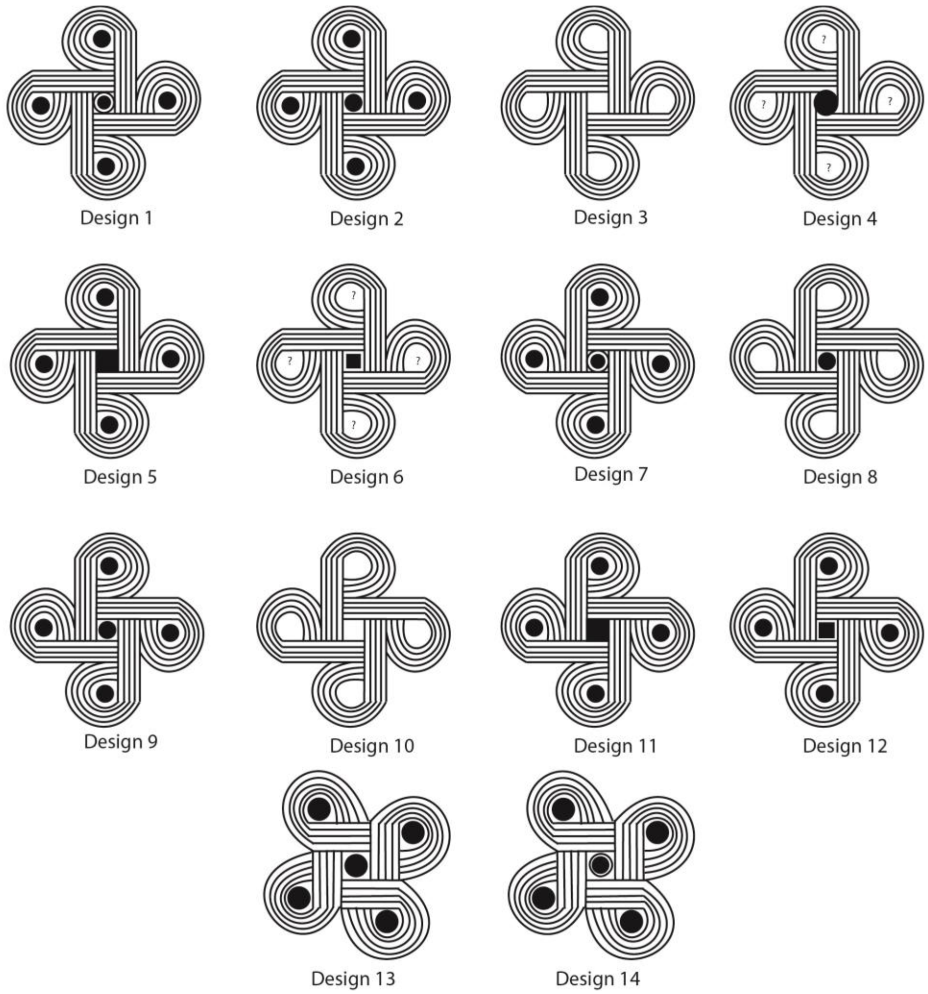

Fig. 4.23. Fourteen diagnostic filfot designs identified in this study. Please note these designs are idealized and do not reflect the true number of lands and grooves of the design.

Although the sample size is small, five designs have only one sherd assigned and are only identified at one site. In addition, six designs have two to three sherds associated with one to three sites. Finally, three designs have larger sherd quantities and were recovered from four or all five sites. These multiple sherds within a site and similar designs among several sites provided an opportunity to track filfot designs and paddles.

I conducted a sherd to sherd comparison to take a closer look at designs with multiple sherds to see if these designs were from the same paddle (Table 4.41). I paid close attention to the different center element sizes, the numbers of lands and grooves, and the different directions the lands radiate off the center element. I would like to note, although the radiating lands from the center element should predict the direction of the scrolls, such as clockwise start on the left and counterclockwise start on the right, my detailed analysis indicates that a few designs (Designs 13 and 14) have lands radiating off the center element in the opposite direction, making these designs easier to track. In addition, the number of lands and grooves ranged from four to 13 for the diagnostic designs. These subtle differences provide another line of evidence to identify and track filfot designs and paddles.

Table 4.41. Diagnostic filfot designs with multiple sherds.

	Sherd Total	**MHF**	**BCV**	**FTMA**	**SEM I**	**FTMC**
Design 1	3	1	–	–	1	1
Design 2	30	5	13	5	3	4
Design 3	3	–	–	–	3	–
Design 5	2	–	1	–	–	1
Design 6	3	2	1	–	–	–
Design 7	4	–	1	1	1	1
Design 9	109	3	–	2	4	100
Design 12	6	2	–	–	4	–
Design 13	2	2	–	–	–	–

In this dissertation research, I identified a minimum of 46 unique paddles, which is based on variations of the 14 diagnostic filfot designs (Table 4.42). Paddle numbers range at the villages sites from six to 12 distinct paddles, while the two mortuary sites have 10 distinct paddles each. Back Creek Village has the highest number of diagnostic paddles of all sites with 12 diagnostic paddles.

Table 4.42. Frequencies of diagnostic filfot paddles.

	Total	MHF	BCV	FTMA	SEM I	FTMC
Design 1	3	1	–	–	3	1
Design 2	17	3	7	3	1	3
Design 3	3	–	–	–	3	–
Design 4	1	–	–	–	1	–
Design 5	2	–	1	–	–	1
Design 6	2	1	1	–	–	–
Design 7	3	–	1	1	1	–
Design 8	1	1	–	–	–	–
Design 9	8	–	–	2	2	4
Design 10	1	–	1	–	–	–
Design 11	1	–	1	–	–	–
Design 12	2	1	–	–	1	–
Design 13	1	1	–	–	–	–
Design 14	1	–	–	–	–	1
Total	**46**	**8**	**12**	**6**	**10**	**10**

Most sites have one, maybe two, paddles of a particular filfot design. However, two filfot designs, Design 2 (total of 17 paddles) and Design 9 (total of eight paddles), are popular designs because they have multiple paddles at multiple sites. Noteworthy is Back Creek Village with seven distinct Design 2 filfot paddles. Design 2 consists of counterclockwise scrolls radiating off a circle in square center element and raised circle end elements. No other site has as many paddles associated with a particular design. Meeting House Field and both Fallen Tree contexts have three paddles with this counterclockwise design, while South End Mound I has only one. Design 9, the second popular filfot design, consists of clockwise scrolls radiating off a circle in square center element and raised circle end elements. The Fallen Tree Cemetery has four unique paddles with this design, while Fallen Tree Midden I-A and South End Mound I have two paddles each. It is important to note that this clockwise filfot design was not identified within the Back Creek Village and Meeting House Field assemblages. Why does Back Creek Village have several paddles of the Design 2 and none of Design 9? I would argue that the counterclockwise filfot design is significant to the Back Creek community, perhaps even where the design was developed. Also, why do a few of the paddle designs identified at Meeting House Field and Back Village not show up at the mortuary sites? Perhaps the difference is related to sample size. Alternatively, people or pots from Meeting House and Back Creek might not have participated in mortuary events at South End Mound I or Fallen Tree. Further research and additional lines of evidence (other pottery types) are required to investigate these potential differences between the village and mortuary assemblages.

In addition, 51 unique partial paddle designs from smaller sherds were identified. These partial designs consist of different sized center elements and different radiating land directions off the center element. In total, 97 unique filfot paddles from the five Mississippian ceramic assemblages on St. Catherines Island (Table 4.43). A way to visualize the data in the table and explore the relationships among sites and filfot designs is through a CA plot (fig. 4.24). Axes 1 and 2 capture 64.16% of the variation in the sample. In general, the sites do not cluster tightly together based on the filfot paddles. Meeting House Field and Back Creek Village are located in the top right quadrant, which indicates several shared filfot paddle designs. Although each site has several unique paddle designs cluster around site point, both Fallen Tree assemblages are located in the lower quadrants, with their respective paddle designs. The close proximity of the points indicate a few shared designs among sites, but there is no direct evidence to indicate both locations were being used simultaneously. South End Mound I, located in the upper left quadrant, is distant from the other sites, indicating fewer shared paddle designs with the other sites.

Table 4.43. Frequencies of unique filfot paddles within each assemblage.

	Total	**MHF**	**BCV**	**FTMA**	**SEM I**	**FTMC**
Design 1	3	1	–	–	1	1
Design 2	17	3	7	3	1	3
Design 3	3	–	–	–	3	–
Design 4	1	–	–	–	1	–
Design 5	2	–	1	–	–	1
Design 6	2	1	1	–	–	–
Design 7	3	–	1	1	1	–
Design 8	1	1	–	–	–	–
Design 9	8	–	–	2	2	4
Design 10	1	–	1	–	–	–
Design 11	1	–	1	–	–	–
Design 12	2	1	–	–	1	–
Design 13	1	1	–	–	–	–
Design 14	1	–	–	–	–	1
Partial 1	1	–	–	1	–	–
Partial 2	4	1	2	1	–	–
Partial 3	1	–	1	–	–	–
Partial 4	3	–	1	–	–	2
Partial 5	2	–	1	–	–	1
Partial 6	2	–	1	–	1	–
Partial 7	1	–	–	–	–	1
Partial 8	6	1	2	1	–	2
Partial 9	1	–	–	–	–	1
Partial 10	7	1	4	–	–	2
Partial 11	2	1	–	–	1	–
Partial 12	6	3	3	–	–	–
Partial 13	3	1	1	–	–	1
Partial 14	2	1	1	–	–	–
Partial 15	3	1	2	–	–	–
Partial 16	2	–	2	–	–	–
Partial 17	1	–	1	–	–	–
Partial 18	1	–	–	1	–	–
Partial 19	1	–	–	–	1	–
Partial 20	1	–	1	–	–	–
Partial 21	1	1	–	–	–	–
Total	**97**	**19**	**35**	**10**	**13**	**20**

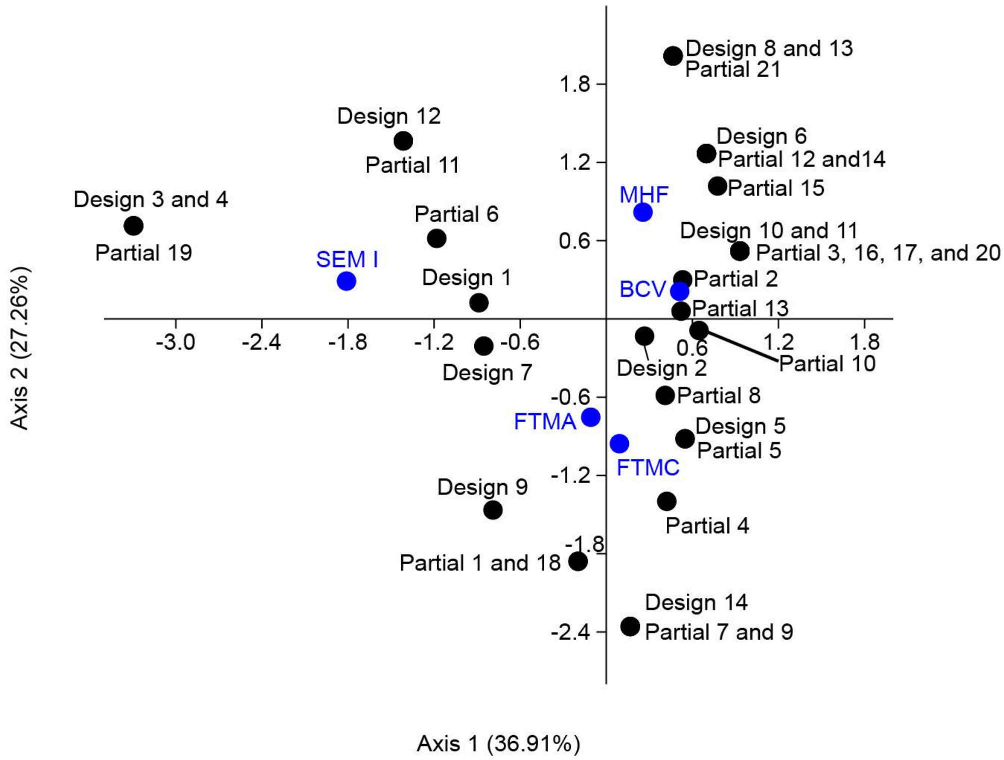

Fig. 4.24. CA plot of filfot paddles and sites.

ATTRIBUTE ANALYSES DISCUSSION

The attribute analyses provided a wealth of information about temper, firing conditions, rim attributes, vessel size and shape, and decoration. The technological attributes, such as temper, firing conditions, and vessel thickness, relate to decisions made during the production process and reflect Irene potter's community of practice. The sherds show decisions and techniques learned early by potters on how to prepare clay, what temper to use, coil construction, vessel building, vessel handling during decoration, and how to fire a vessel. The knowledge of stages, tasks, and techniques becomes ingrained and used throughout the potter's lifetime, regardless of where the potter resides or whom they marry. Technological attributes were used in an effort to identify micro-styles among the St. Catherines assemblages that reflect pottery communities of practice. In addition, I examined decorative attributes that reflect conscious decisions by the potter to provide visible information about ideology, identity, or other affiliations. Decorative attributes are sensitive to changes in potter's affiliations that vary through time.

At the beginning of this project I expected distinct technological attribute differences among assemblages; however, these analyses revealed a grit tempered ceramic tradition that allowed for some variation and changed slowly through time. The pattern implies St. Catherines Irene potters are part of a larger network of grit tempered pottery manufacturing in which potters learned similar clay recipes, coil making, vessel building, and firing. Stylistic attributes, including surface and rim decorations, showed broad similarities among assemblages. But variations among assemblages existed, which likely reflect different group affiliations of the potter/s.

The attribute data also show temporal changes in temper, firing conditions, rim attributes, and decorations, especially among the village assemblages. As discussed in Chapter 3, Meeting House Field and Back Creek Village occupation spans the Irene period and both sites possible have an early Mission period component, while Fallen Tree Midden I-A dates to the very late Irene/early Mission period. Broadly, the Meeting House Field and Back Creek Village assemblages look similar; however, there is one temper distinction between these two assemblages that will be discussed further below. Grit tempered sherds from Meeting House and Back Creek have higher percentages of coarse and very coarse shaped grit. In addition, these assemblages have higher percentages of frequent and common grit abundance. Fallen Tree Midden I-A differs with higher percentages of medium and coarse sized grit and common and frequent grit abundance. I believe these grit temper differences relate to changes over time in available grit resources. Additional temporal differences among Meeting House/Back Creek and Fallen Tree Midden I-A include an increase of sand and sand/grit tempered sherds. Not only is the increase of sand and sand/grit tempered sherds reflected at Fallen Tree Midden I-A, but a comparison of the midden Clusters 1 and 2 at Meeting House and Back Creek shows that Cluster 2 middens (late Irene) contain higher percentages of sand and sand/grit tempered sherds. Other temporal differences include different firing conditions, an increase in wall thicknesses at 1 cm and 3 cm below the rim, changes in rim decorations, wider rimstrips and folds, greater diversity of incised designs, and an increase in incising combine with punctation or stamping. The village assemblages contain a range of four to five vessel forms associated with cooking, storage, and serving activities. Meeting House Field and Back Creek Village have high frequencies of flared jars and straight bowls, whereas Fallen Tree Midden I-A has high frequencies of flared jars and incurved bowls. Flared jars and open bowls allow easy access to vessel contents, while incurved bowls restrict access. In addition, Fallen Tree Midden I-A is the only village assemblage that has flared bowls. These differences highlight temporal changes in bowl forms and indicate changes in vessel function.

Although Meeting House Field and Back Creek Village have very similar ceramic assemblages, a few distinct patterns were highlighted by the temper, decoration, and vessel attribute data. First, Back Creek Village has slightly higher quantities of clay/grog-tempered, complicated stamped pottery. This combination of clay/grog and complicated stamping is not common among Irene potters on St. Catherines. I believe the use clay/grog temper reflects potter/s who learned pottery manufacturing outside of St. Catherines Island. Therefore, I interpret the clay/grog tempered complicated stamped pottery as distinct community of practice that differs from the grit tempered tradition more common at Back Creek. Both sites have high frequencies of indented rimstrips; however, Back Creek has percentages of plain/burnished plain and nodes/rosette rim treatments, indicate differences among the assemblages. In addition, Back

Creek when compared to Meeting House Field, has more incised and checked stamped pottery, and a wider range of vessel sizes and shapes. The higher frequency of incised sherds suggests that Back Creek was occupied slightly later in the middle Irene phase than Meeting House Field. Midden G at Back Creek needs to be explored further to determine why the midden has a high frequency of incised pottery. In addition, the wider range of vessel sizes tentatively suggests a range of vessel functions. The village assemblages contain a range of filfot designs and have several diagnostic designs in common (2, 6, 7, and 9). These shared designs suggest interaction among sites and potters. However, Meeting House and Back Creek have a set of diagnostic filfot designs (MHF = designs 1, 8, 12, and 13; BCV = designs 5, 10, and 11) that do not overlap with other village assemblages. Although Fallen Tree Midden I-A did not have any unique diagnostic designs, it did have two partial designs (1 and 18) that did not overlap with the other village sites. These filfot designs that are not shared among the villages indicate distinctions made by the potters among the sites and likely reflect potter affiliations, such as household, village, or clan.

As mentioned in Chapter 3, stamped pottery decreases, while incised and plain pottery increases from middle Irene phase to the early Mission period. During the early Mission period filfot designs disappear and are replaced by Altamaha line block, cross simple and simple stamps that have less visible variation. Perhaps related to the changes in stamping is the increase in manufacturing incised wares and greater diversity of incised designs, which would have a allowed potters an alternative way to express stylistically their affiliations, during the Altamaha period.

As for the mortuary assemblages, the attribute analyses highlighted the differences in sample sizes between South End Mound I and the Fallen Tree Cemetery. In general, the South End Mound I assemblage had less diversity of tempers, surface decorations, and rim elaborations. Despite the small sample size, South End Mound I had the largest bowls and jars, and highest count of rosettes on rims sherds than any other site. The Fallen Tree Cemetery assemblage is distinct because the assemblage contains great temper diversity, the highest percentages of incised and check stamped pottery, a diversity of incised designs and check stamped varieties, a range of vessel shapes and sizes, and a diverse set of complicated stamped designs, especially filfot. Although village vessel shapes are common at the mortuary sites, two shapes — a cup and a boat shaped vessel — are unique to the mortuary sites and likely had some ceremonial function. I believe the diversity at the Fallen Tree Cemetery reflects multiple Irene people and pottery vessels, St. Catherines and non-St. Catherines, participating and interacting during the mortuary event/s at the site. In addition, the diversity of incised designs, the combination of incised and punctated vessels, presence of folded rims, and diversity of complicated stamped design, suggests the site is post-1500.

This chapter looked at inter-site attribute variation and the evidence highlighted a few differences, but in general St. Catherines Island Irene potters learned and practiced similar grit tempered pottery manufacturing techniques and decorations. However, questions still linger about possible intra-site variation. Chapter 5 presents a case study on filfot stamped pottery, which is used to explore village intra-site patterns.

CHAPTER 5

A CLOSER LOOK AT FILFOT STAMPED POTTERY

Chapter 4, the attribute results section, compared site assemblages and showed some variations among assemblages; however, the analyses showed a grit tempered ceramic tradition that changed slowly over time. In this chapter, I take a closer look at technological variations within each village site to consider the social aspects of learning and pottery production. Additionally, I examine stylistic differences in order to investigate social relationships and networks within village sites and between village and mortuary contexts. Here, I use complicated stamped pottery recovered from each midden context to explore technological attributes, such as temper, firing conditions, and vessel thickness. These attributes are associated with decisions made during the production process and reflect Irene potters' community of practice. In other words, the sherds reflect decisions and techniques learned early by Irene potters about clay recipes, vessel shape and thickness, and firing techniques. These practices and decisions become ingrained and used throughout the potter's lifetime. I specifically look at filfot stamped pottery because it is the most ubiquitous pottery within the assemblages and the designs can be tracked like fingerprints.

There are several questions driving this research. Are filfot stamped pottery manufacturing practices (technological and decorative styles) from all village sites uniform (i.e., similar ratios of tempers and firing conditions, similar coefficient of variation for sherd thickness, and shared filfot designs)? Or, is there heterogeneity? If there is heterogeneity among the villages, can the variation be associated with village middens? Do middens reflect one unique or multiple filfot learning and manufacturing practices? What can this information tell us about pottery community of practice and social relationships within the village sites? These questions generated the three hypotheses, stated below.

Hypothesis 1. Filfot pottery is technologically and stylistically homogenous among and within village sites. In other words, the evidence would show tempers, firing conditions, vessel constructions, and filfot designs similar across all village sites. The homogeneity would indicate one large manufacturing and stylistic tradition, in which potters shared the same knowledge, learned the same manufacturing practices, and used the same filfot designs.

Hypothesis 2. Filfot pottery is technologically and stylistically heterogeneous among and within St. Catherines Irene villages. In other words, the evidence would show tempers, firing conditions, vessel constructions, and filfot designs are different across all village sites. This would indicate multiple pottery manufacturing and stylistic practices and not just one unified tradition. The different tempers, wall thickness, and firing conditions would suggest smaller-scale learning of filfot pottery, likely on the household level. Alternatively, the filfot diversity could indicate outside groups moving into these villages or possible trade wares.

Hypothesis 3. Village filfot pottery has a combination of similar and unique technological and stylistic traits. In other words, the evidence falls somewhere in between hypotheses 1 and 2. One possibility could be tempers, firing conditions, and vessel constructions are similar across all village sites. But filfot designs would differ.

> The technological homogeneity would indicate one large potting community of practice. But filfot design heterogeneity could indicate distinctions among potters or households that reflect ideology or affiliations.

The following sections explore and discuss filfot stamped pottery variability at the village midden level. The village assemblage discussion is organized by temper, firing conditions, vessel thickness, and design. After the village discussion, I compare village and mortuary filfot stamped assemblages on St. Catherines.

Filfot Vessel Tempers within Village Assemblages

The St. Catherines Late Mississippian middens have a range of temper categories associated with filfot stamps, which consist of combinations of temper type (clay, sand, and grit), grit size, and grit frequency data (Table 5.1). The Meeting House Field, Back Creek Village, and Fallen Tree Midden I-A average 7.75, 15.71, and 16 different temper categories per midden, respectively. These numbers indicate each midden contains a variety of tempers associated with filfot sherds, with grit temper having the highest percentages. Interestingly, Back Creek Village has double the number of temper categories than Meeting House Field and Fallen Tree Midden I-A. In general, Cluster 1 middens at Meeting House (Middens 12, 21, B, E, and J) show higher temper frequencies than Cluster 2 middens (D, H, and M) indicating Cluster 1 middens were used longer than Cluster 2 middens. A similar pattern is seen at Back Creek Village.

Table 5.1. Number of temper categories per midden.

Midden	N
MHF_12	12
MHF_21	16
MHF_B	6
MHF_D	4
MHF_E	7
MHF_H	7
MHF_J	6
MHF_M	4
BCV_A	20
BCV_B	8
BCV_C	12
BCV_D	13
BCV_F	27
BCV_G	10
BCV_H	20
FTMA	16

Figure 5.1 is a CA plot that shows filfot sherd temper and middens. Axes 1 and 2 capture 74.29% of the variation. The CA plot shows many of the St. Catherines middens clustering within the upper right quadrant. These middens cluster together because they have similar percentages of grit, grit/clay, grit/sand, sand, and sand/grit tempers. Three middens (B, C, and H) from Back Creek are separated from the midden cluster. Back Creek Village Midden B plots to the upper left quadrant and is distinct from the rest of the middens because it has a lower percentage (65.38%) of grit tempered and higher percentages of clay (11.54%) and sand (23.08%) tempered filfot sherds. Back Creek Village Midden C plots to the lower left quadrant because the midden contains higher percentages of clay tempered and clay/grit tempered (21.05% and 6.58%, respectively) filfot sherds. Back Creek Village Midden H plots to the lower right quadrant of the CA plot because the midden has higher percentages of grit/clay and

clay/grit tempered (11.11% and 5.56%, respectively) filfot sherds. Figure 5.1 further highlights Back Creek Village's high percentage of clay tempered sherds, which was discussed in Chapter 4.

I took a closer look at the distribution of clay tempered filfot sherds at Back Creek to explore whether clay temper related to a temporal trend. Clay tempered filfot sherds were recovered from all Back Creek midden clusters, indicating clay temper was used during both the middle and late Irene occupations. In addition, a few clay tempered filfot sherds were identified at Meeting House Field and these sherds were recovered from the middle Irene midden cluster (Cluster 1). I argue that clay tempered filfot sherds indicate a distinct pottery community of practice at Back Creek Village. Although not highlighted in the CA plot because of small sample size, sand and sand/grit tempered filfot sherds were recovered at both Back Creek and Meeting House midden Clusters 1 and 2, with higher percentages associated with Cluster 2. Perhaps sand and sand/grit filfot sherds indicate an additional community of practice. However, a larger sample size is needed to confirm this idea. Although the filfot sherds from the midden contexts had a range of tempers, line block stamped sherds from Meeting House and Back Creek were only grit tempered, while Fallen Tree Midden I-A had grit, grit/clay, and sand/grit tempers.

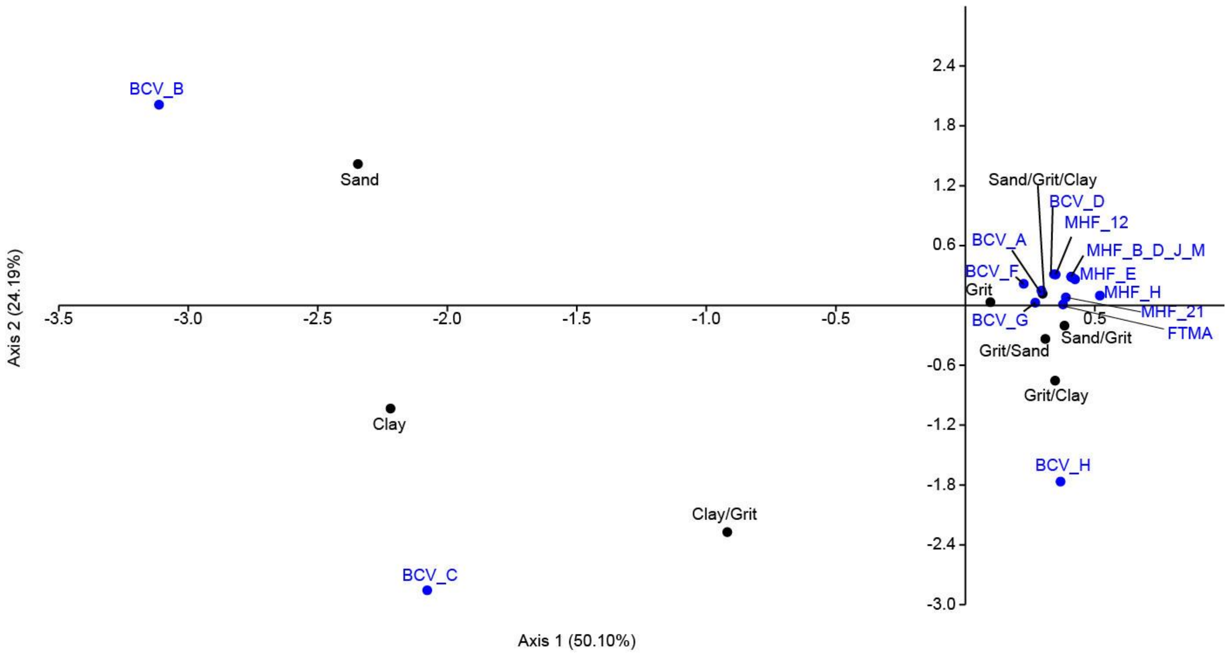

Fig. 5.1. CA plot of all middens and temper categories. Middens are blue dots and temper categories are black dots. Axes 1 and 2 account for 74.29% of the variation.

A closer look at only the grit tempered filfot sherds, specifically grit size and frequency, shows numerous similarities. Figure 5.2 is a CA plot of filfot grit temper sherds. Axes 1 and 2 account for 45.22% of the variation and show the sites clustering together towards the center of the plot, which indicates overall similarities. However, a few middens are distant from the central cluster, indicating differences with other middens. Middens MHF_D, BCV_B, and MHF_J plot further away from the other middens because of higher percentages of common medium, and common and frequent granular grit types. These higher percentages are influenced by small samples sizes (N < 20). Middens MHF_E and FTMA plot to upper left quadrant and have higher percentages (50 and 48%) of common very coarse grit. The increased use of common, very coarse grit suggests a temporal trend. However, Meeting House Field Midden E falls within Midden Cluster 1, which is a middle Irene midden. Overall, this clustering suggests a long and stable tradition of grit tempered filfot pottery. Irene potters were using local grit resources consisting of a variety of sizes, shapes, and abundancies. A larger sample and future petrographic studies should help explore the possible differences among the clustered middens in Figure 5.2 and Meeting House Field Midden E and Fallen Tree Midden I-A.

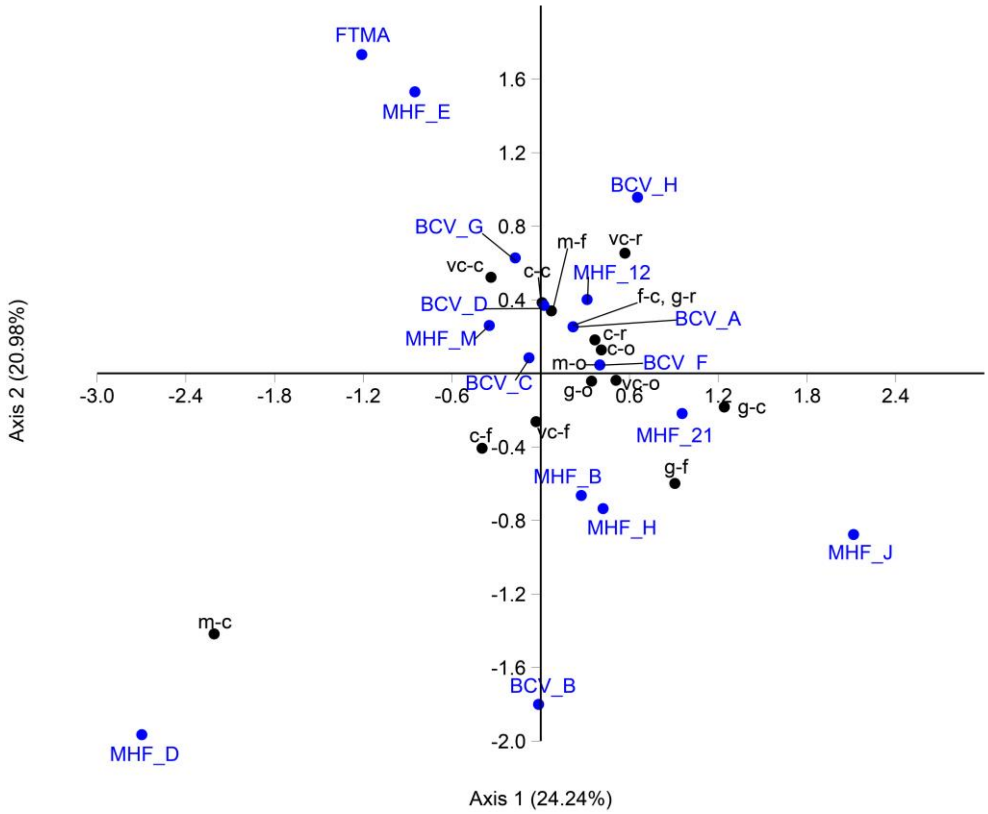

Fig. 5.2. CA plot of all middens and grit temper categories. Middens are blue dots and grit temper categories are black dots. Axes 1 and 2 account for 45.22% of the variation. Grit temper size and abundance key: c-c = coarse-common, c-f = coarse-frequent, c-o = coarse-occasional, c-r = coarse-rare, f-c = fine-common, g-c = granular-common, g-f = granular-frequent, g-o = granular-occasional, g-r = granular-rare, m-c = medium-common, m-f = medium-frequent, m-o = medium-occasional, vc-c = very coarse-common , vc-f = very coarse-frequent, vc-o = very coarse-occasional, and vc-r = very coarse-rare.

FILFOT VESSEL FIRING CONDITIONS WITHIN VILLAGE ASSEMBLAGES

The filfot sherd firing conditions consisted of 11 categories (Table 5.2). Figure 5.3 is a CA plot that helps visualize differences among the middens. The plot captures 61.82% of the variation within the sample. A few patterns are highlighted by the CA plot. First, many middens cluster in the upper right quadrant. This clustering indicates similar firing practices. Second, several middens are in the lower right quadrant. I believe small sample sizes (N < 26) are influencing results of Meeting House Field Middens B, D, M and J. Back Creek Midden G has a sample size of 63 sherds and has a high percentage (47.62%) of uniform oxidized filfot sherds. The final pattern to discuss is the distance of Fallen Tree Midden I-A from the rest of the middens. Located near Axis 1 in the lower left quadrant, Fallen Tree Midden I-A differs from the other middens because it has high percentages of oxidized interior and exterior sherds, and is the only midden with oxidized exterior and cores and reduced interiors. Midden cluster data does not suggest firing temporal differences, which Fallen Tree Midden I-A potters had a unique firing practice. Further work is needed on firing conditions (especially on core descriptions) to help illuminate firing practices for filfot pottery.

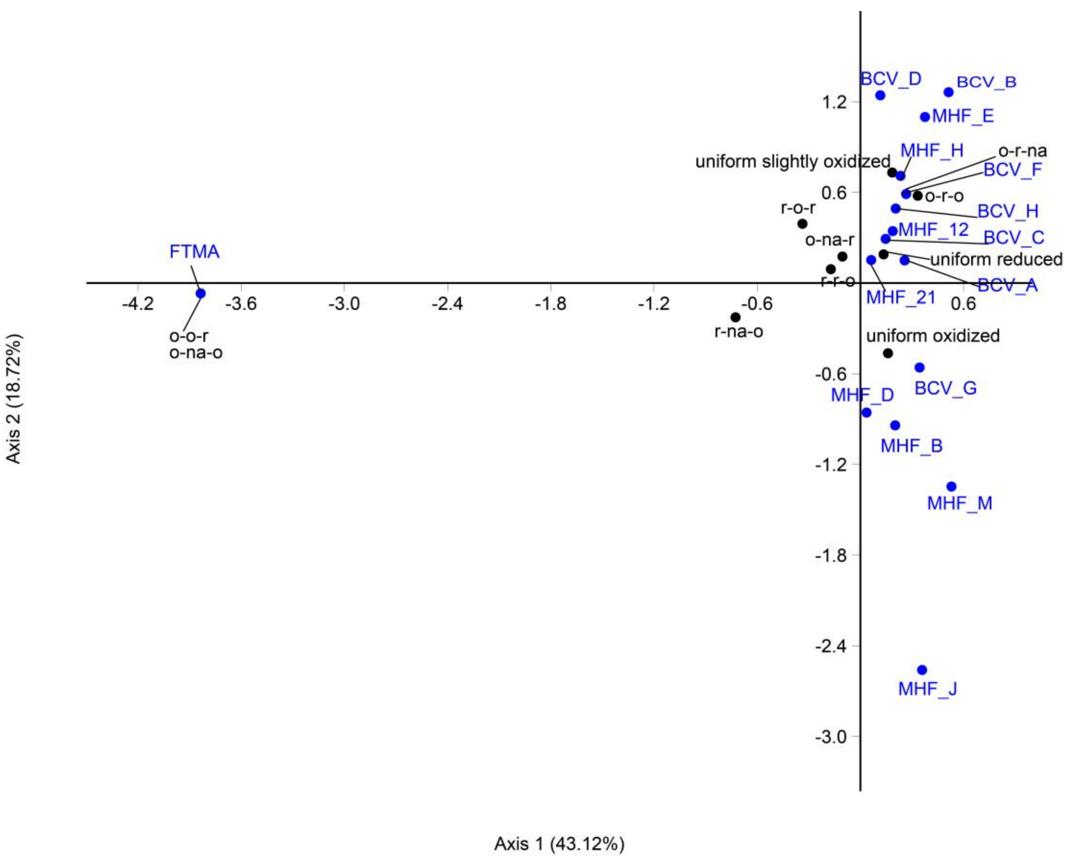

Fig. 5.3 CA plot of middens based on filfot firing conditions. Axes 1 and 2 captures 61.82% of the variation. Key for abbreviations: o = oxidized; r = reduced; na = not available.

Table 5.2. Firing condition for filfot sherds for each midden.

Firing conditions[a]	MHF_12	MHF_21	MHF_B	MHF_D	MHF_E	MHF_H	MHF_J	MHF_M	BCV_A	BCV_B	BCV_C	BCV_D	BCV_F	BCV_G	BCV_H	FTMA
o-na-o	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	29.95
o-na-r	34.51	45.63	38.46	20.00	17.86	27.27	18.18	–	36.43	19.23	45.95	48.06	33.92	20.63	34.72	37.06
o-o-r	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.51
o-r-o	6.19	1.88	3.85	–	23.81	–	–	7.69	12.14	30.77	6.76	6.98	13.22	6.35	12.50	–
o-r-na	–	–	–	–	–	–	–	–	–	–	–	–	0.44	–	–	–
r-na-o	–	–	–	10.00	2.38	–	–	–	–	–	–	0.78	0.44	–	1.39	4.06
r-o-r	3.54	3.75	–	–	2.38	–	–	–	–	–	–	–	0.44	–	–	1.52
r-r-o	–	–	–	–	–	–	–	–	–	–	–	–	–	1.59	2.78	0.51
uniform oxidized	30.97	28.13	50.00	40.00	25.00	13.64	81.82	61.54	32.86	26.92	27.03	14.73	26.87	47.62	26.39	16.24
uniform reduced	18.58	19.38	7.69	30.00	21.43	59.09	–	30.77	17.86	15.38	18.92	18.60	21.15	19.05	19.44	9.14
uniform slightly oxidized	6.19	1.25	–	–	7.14	–	–	–	0.71	7.69	1.35	10.85	3.52	4.76	2.78	1.02
Grand Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

[a] Firing conditions were recorded from exterior to interior. Abreviations: o=oxidized, r=reduced, and na=not avaliable.

FILFOT VESSEL BODY SHERD THICKNESSES WITHIN VILLAGE ASSEMBLAGES

Body sherd thickness is not typically used to identify manufacturing techniques because the data do not represent the complete vessel since the thickness of the original coil was altered during finishing techniques such as scraping, burnishing, smoothing, and stamping. However, these sherds reflect the finished form of the vessel and vessel thicknesses likely correspond to habitual techniques learned early during the potter's training (Wallis 2011). Although rim sherds are preferred for measuring vessel thickness, in order to be consistent and comparable, the Catherines assemblages contained few filfot rims for which thickness measurements 3 cm below the rim could be taken. Therefore, I used body sherd thickness to identify and examine thickness differences among middens (Table 5.3). Each midden has a range of thicknesses (Figure 5.4). Two Meeting House Field middens (E and M) have a mean sherd thickness over 8 mm, whereas the rest of the middens have means less than 7.5 mm. In addition, two middens at Back Creek Village (G and H) have mean sherd thicknesses over 7.5 mm, whereas the rest of the middens have means less than 7 mm. Fallen Tree Midden I-A has a mean body sherd thickness is 8.61 mm, which is largest mean for the midden contexts. Figure 5.4 illustrates that Fallen Tree Midden I-A and Meeting House Field have on average slightly thicker body sherds than Back Creek Village. The patterns are the same even if the outliers are removed. Filfot data suggest that body thickness increases over time, a trend highlighted in Chapter 4 by wall thickness at 1 cm and 3 cm below the rim, and midden clusters discussed in Chapter 3. However, different vessel function cannot be ruled out, and further work is required to explore this idea. A sherd thickness comparison at Back Creek Village among clay, grit and sand tempers showed clay tempered filfot sherds are slightly thicker (mean = 7.18 mm) than grit or sand tempered filfot sherds (mean = 6.81 mm and 6.86 mm, respectively). The slightly larger sherd thicknesses, and use of clay tempers for filfot sherds likely reflect a different potting community of practice than the grit tempered filfot sherds. Clay tempered filfot sherds were recovered from all Back Creek middens and a comparison of the three midden clusters showed middle Irene middens (Cluster 1) were thinner (mean = 6.93 mm) than late Irene (Cluster 2) middens (mean = 7.41 mm) and Cluster 3 (mean = 8.69 mm). These data show that clay tempered filfot sherds get thicker over time.

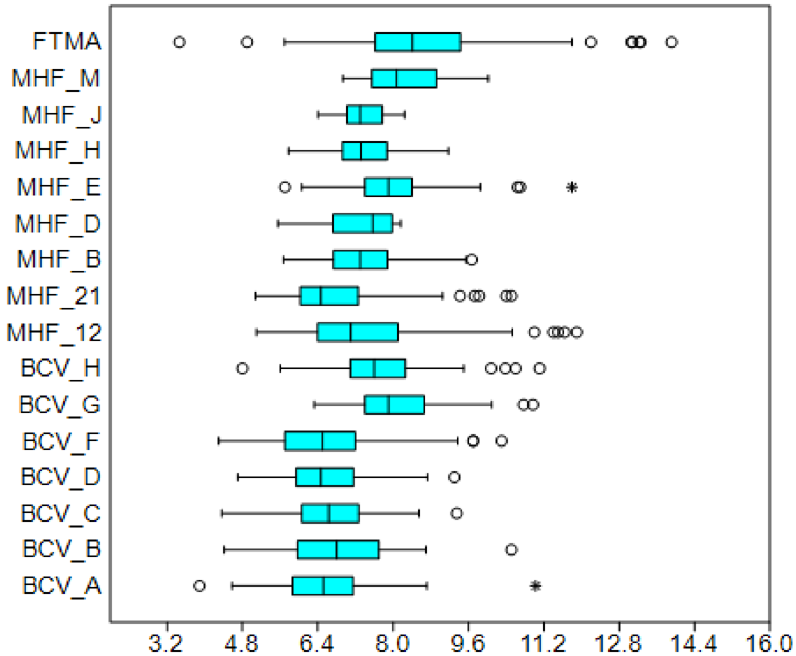

Fig. 5.4. Boxplot of all village filfot thicknesses. Measurements in mm.

Table 5.3. Body sherd thickness summary by each midden.

Measurements	**MHF_12**	**MHF_21**	**MHF_B**	**MHF_D**	**MHF_E**	**MHF_H**	**MHF_J**	**MHF_M**	**BCV_A**	**BCV_B**	**BCV_C**	**BCV_D**	**BCV_F**	**BCV_G**	**BCV_H**	**FTMA**
N	108	157	26	10	84	22	8	13	133	26	75	124	226	64	71	197
Min	5.1	5.08	5.67	5.55	5.7	5.78	6.41	6.93	3.89	4.41	4.36	4.7	4.3	6.33	4.8	3.46
Max	11.9	10.51	9.67	8.16	11.8	9.17	8.24	10.02	11.03	10.51	9.35	9.3	10.3	10.97	11.11	13.91
Mean	7.46	6.74	7.37	7.27	8.04	7.49	7.38	8.2	6.57	6.89	6.72	6.58	6.55	8.08	7.7	8.61
Std. error	0.14	0.08	0.18	0.26	0.12	0.19	0.2	0.28	0.09	0.26	0.11	0.08	0.08	0.13	0.14	0.11
Variance	2.19	1.03	0.82	0.67	1.16	0.8	0.32	1	0.99	1.7	0.88	0.85	1.28	1.03	1.33	2.42
Stand. dev	1.48	1.02	0.91	0.82	1.08	0.89	0.56	1	0.99	1.3	0.94	0.92	1.13	1.01	1.15	1.55
Median	7.12	6.47	7.29	7.36	7.94	7.29	7.36	8.07	6.52	6.75	6.63	6.48	6.49	7.9	7.6	8.41
Coeff. var	19.85	15.08	12.29	11.29	13.41	11.91	7.62	12.22	15.11	18.89	13.96	14.04	17.27	12.56	15.01	18.06

Filfot Vessel Designs and Paddles within Village Assemblages

In Chapter 4, filfot designs and paddles were discussed broadly. In this section, I present midden filfot design and paddle data. The Meeting House Field assemblage has six of the fourteen diagnostic filfot designs (Table 5.4). Middens 12, 21, and E have more than one diagnostic filfot design, while Middens B, H, and M have only one. Middens D and J did not have any diagnostic filfot designs assigned, although filfot stamped sherds were recovered from each midden. Back Creek Village assemblage also has six of the 14 diagnostic filfot designs (Table 5.4). Middens A and F have more than one diagnostic filfot design, while Middens B, C, D, and H have only one. Aside from Design 2, each diagnostic design at Back Creek is associated with only one midden, therefore one household. Midden G does not have any diagnostic filfot designs assigned, although filfot stamped sherds were recovered. Fallen Tree Midden I-A assemblage has three of the fourteen diagnostic filfot designs (Table 5.4). Design 2 was identified at all village sites; however, not all midden assemblages at Meeting House and Back Creek contained the design. Design 2 was identified within Fallen Tree Midden I-A, cluster 1 middens at Meeting House, and cluster 1 and 2 middens at Back Creek indicating that the design was used from middle Irene into the early Mission period. The presence in these middens also indicates social interactions among potters and/or paddle carvers across St. Catherines. A handful of additional diagnostic designs overlap within villages and among sites. Design 6 was recovered both at Meeting House Field Midden 21 and Back Creek Village Midden F and indicates middle Irene social interactions. Design 7 was identified both at Back Creek Village Midden B and Fallen Tree Midden I-A indicating social interactions during the late Irene/early Mission period. Meeting House Field middens 12 and 21 share Design 12 and middens H and M share Design 13, suggesting social interactions between potters and/or paddle carvers within

Meeting House. Six diagnostic designs (1, 5, 8, 9, 10, and 11) are unique to individual middens and tentatively suggest stylistic choices by potters to distinguish their vessels. One final observation, middens containing Designs 7, 9, and 13 at Meeting House and Back Creek are part of Cluster 2 and tentatively suggest temporal variation of filfot designs.

Table 5.4. Diagnostic filfot designs by midden.

	Meeting House Field middens								**Back Creek Village middens**							**Fallen Tree**
	12	**21**	**B**	**D**	**E**	**H**	**J**	**M**	**A**	**B**	**C**	**D**	**F**	**G**	**H**	**Midden I-A**
N	2	3	1	0	2	1	0	1	2	1	1	1	4	0	2	7
Design 1	–	–	–	–	x	–	–	–	–	–	–	–	–	–	–	–
Design 2	x	–	x	–	x	–	–	–	–	–	x	x	x	–	x	x
Design 5	–	–	–	–	–	–	–	–	–	–	–	–	x	–	–	–
Design 6	–	x	–	–	–	–	–	–	–	–	–	–	x	–	–	–
Design 7	–	–	–	–	–	–	–	–	–	x	–	–	–	–	–	x
Design 8	–	x	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Design 9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	x
Design 10	–	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Design 11	–	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Design 12	x	x	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Design 13	–	–	–	–	–	x	–	x	–	–	–	–	–	–	–	–

Diagnostic designs are important, at the same time, partial designs provide additional information about filfot designs and paddles. Table 5.5 provides a breakdown of partial designs by midden. The Meeting House Field assemblage contains nine distinct partial designs, Back Creek Village has fourteen, and Midden I-A has four. Nine partial filfot designs are shared among the village middens. Currently, the sample size is too small to determine if a diagnostic or partial filfot design is unique to a midden. However, the data show that middens typically contain multiple filfot designs.

Table 5.5. Partial filfot designs by midden.

	Meeting House Field middens								Back Creek Village middens							Fallen Tree
	12	**21**	**B**	**D**	**E**	**H**	**J**	**M**	**A**	**B**	**C**	**D**	**F**	**G**	**H**	**FTMA**
N	4	4	1	1	2	1	0	0	5	2	2	6	7	3	1	4
Partial 1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	x
Partial 2	–	–	x	–	x	–	–	–	–	–	–	x	x	–	–	x
Partial 3	–	–	–	–	–	–	–	–	–	–	–	–	x	–	–	–
Partial 4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	x	–
Partial 5	–	–	–	–	–	–	–	–	x	–	–	–	x	–	–	–
Partial 6	–	–	–	–	–	–	–	–	–	–	–	–	x	–	–	–
Partial 7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Partial 8	x	x	–	–	–	–	–	–	–	–	–	x	x	–	–	x
Partial 9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Partial 10	–	x	–	–	–	–	–	–	x	–	x	x	x	–	–	–
Partial 11	–	–	–	x	–	–	–	–	–	–	–	–	–	–	–	–
Partial 12	x	x	–	–	–	–	–	–	x	–	–	x	–	x	–	–
Partial 13	x	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
Partial 14	–	–	–	–	–	x	–	–	x	–	x	–	–	–	–	–
Partial 15	–	–	–	–	x		–	–	–	–	–	x	–	x	–	–
Partial 16	–	–	–	–	–	–	–	–	–	x	–	–	–	x	–	–
Partial 17	–	–	–	–	–	–	–	–	–	x	–	–	–	–	–	–
Partial 18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	x
Partial 19	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Partial 20	–	–	–	–	–	–	–	–	–	–	–	–	x	–	–	–
Partial 21	–	x	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Filfot land and groove measurements at each midden have a wide range of measurements (Tables 5.6 and 5.7). Saunders (2000) reported that mean land and groove sizes at Meeting House for Clusters 1 and 2 were similar and overall smaller than Mission period Altamaha stamped sherds. The land and groove measurements for the current study show a range of measurements, but do not show filfot lands getting wider over time, but rather the opposite. Filfot lands were slightly smaller leading into the Mission period. Interestingly, Meeting House Field filfot land and groove measurements, in general, were slightly larger than Back Creek and Fallen Tree Midden I-A filfot sherds.

Table 5.6. Filfot land measurements summary by midden. Land measurements are mm.

	Meeting House Field middens								Back Creek Village middens							Fallen Tree
Measurements	**12**	**21**	**B**	**D**	**E**	**H**	**J**	**M**	**A**	**B**	**C**	**D**	**F**	**G**	**H**	**FTMA**
N	110	158	25	10	84	22	8	13	133	26	75	124	226	64	71	190
Min	0.8	0.8	0.8	1	0.83	0.84	0.65	1.27	0.88	0.98	0.8	0.4	0.6	0.62	0.65	0.73
Max	2.75	2.27	2.18	2	2.82	2.55	1.97	2.12	2.3	1.7	2.29	2.15	2.32	2.1	2.1	2.46
Mean	1.61	1.49	1.44	1.53	1.61	1.52	1.66	1.64	1.36	1.32	1.32	1.18	1.26	1.39	1.28	1.37
Std. error	0.04	0.02	0.07	0.09	0.04	0.1	0.16	0.06	0.02	0.04	0.03	0.03	0.02	0.04	0.04	0.02
Variance	0.19	0.06	0.11	0.08	0.15	0.21	0.2	0.04	0.06	0.04	0.07	0.1	0.09	0.08	0.09	0.09
Stand. dev	0.43	0.24	0.33	0.29	0.39	0.45	0.45	0.21	0.24	0.19	0.27	0.32	0.3	0.28	0.31	0.31
Median	1.54	1.5	1.44	1.57	1.68	1.5	1.9	1.58	1.35	1.32	1.27	1.2	1.2	1.4	1.27	1.33
Coeff. var	26.8	16	23.3	18.8	24.3	29.9	27.1	12.9	17.3	14.3	20.7	27.1	23.7	20.4	24.1	22.33

Table 5.7. Filfot groove measurements summary by midden. Measurements in mm.

	Meeting House Field middens								Back Creek Village middens							Fallen Tree
Measurements	**12**	**21**	**B**	**D**	**E**	**H**	**J**	**M**	**A**	**B**	**C**	**D**	**F**	**G**	**H**	**FTMA**
N	110	158	25	10	84	21	8	13	128	26	75	121	224	63	70	189
Min	0.3	0.6	1	1	0.83	0.8	1.2	1.04	0.8	1	0.9	0.7	0.5	0.7	0.8	0.80
Max	2.89	2.22	2	2	2.93	2.52	3.2	2.18	2.4	2.1	2.8	2.2	2.8	2.8	3.5	4.34
Mean	1.58	1.27	1.5	1.47	1.75	1.42	2.05	1.63	1.4	1.4	1.4	1.2	1.3	1.4	1.5	1.47
Std. error	0.05	0.02	0.05	0.11	0.05	0.09	0.29	0.09	0	0	0	0	0	0	0.1	0.03
Variance	0.23	0.08	0.06	0.12	0.23	0.18	0.69	0.11	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.18
Stand. dev	0.48	0.27	0.25	0.35	0.48	0.43	0.83	0.33	0.3	0.2	0.3	0.3	0.3	0.4	0.5	0.43
Median	1.5	1.2	1.55	1.36	1.7	1.35	1.71	1.65	1.3	1.4	1.3	1.2	1.3	1.4	1.4	1.40
Coeff. var	30.6	21.5	16.6	23.5	27.3	30.2	40.6	20.3	19.1	18.3	23.9	21.6	24.4	25.8	32.9	29.03

Table 5.8 presents paddle counts for each of the middens. The Meeting House Field filfot assemblages contained a total of 24 unique paddles. The paddles for each midden ranged from one to seven with an average of three paddles per midden. Back Creek Village had 37 unique paddles identified and paddles for each midden ranged from three to eleven with an average of five paddles. Midden I-A had 12 unique paddles. In general, Cluster 1 middens from Meeting House Field and Back Creek contain more paddles and suggest longer midden use. No paddle matches have been made among the villages. Of all the site assemblages studied, Back Creek has the highest number of unique paddles.

Table 5.8. Filfot paddle counts from each midden.

Midden	**N**
MHF_12	6
MHF_21	7
MHF_B	2
MHF_D	1
MHF_E	4
MHF_H	*2
MHF_J	1
MHF_M	*1
BCV_A	7
BCV_B	3
BCV_C	3
BCV_D	7
BCV_F	11
BCV_G	3
BCV_H	3
FTMA	12

Figure 5.5 is a CA plot of midden clusters based on filfot paddle designs. Axes 1 and 2 capture 60.77% of the variation. Although the paddle design sample size is small, there are a few patterns highlighted in the CA biplot. First, design numbers that plot directly to the midden

location indicate these designs are unique to those middens, whereas designs that plot between midden clusters are shared among assemblages. Second, Cluster 1 middens for Meeting House Field and Back Creek plot to the top right quadrant indicating shared designs likely associated with social interactions among sites during the middle Irene phase. Back Creek Clusters 2 and 3 plot with Fallen Tree Midden I-A in the lower right quadrant and indicate several shared designs during the late Irene/early Mission period. Meeting House Field midden Cluster 2 plots in the lower left quadrant and is distant from the other midden clusters because lack of shared paddle designs with the other midden clusters.

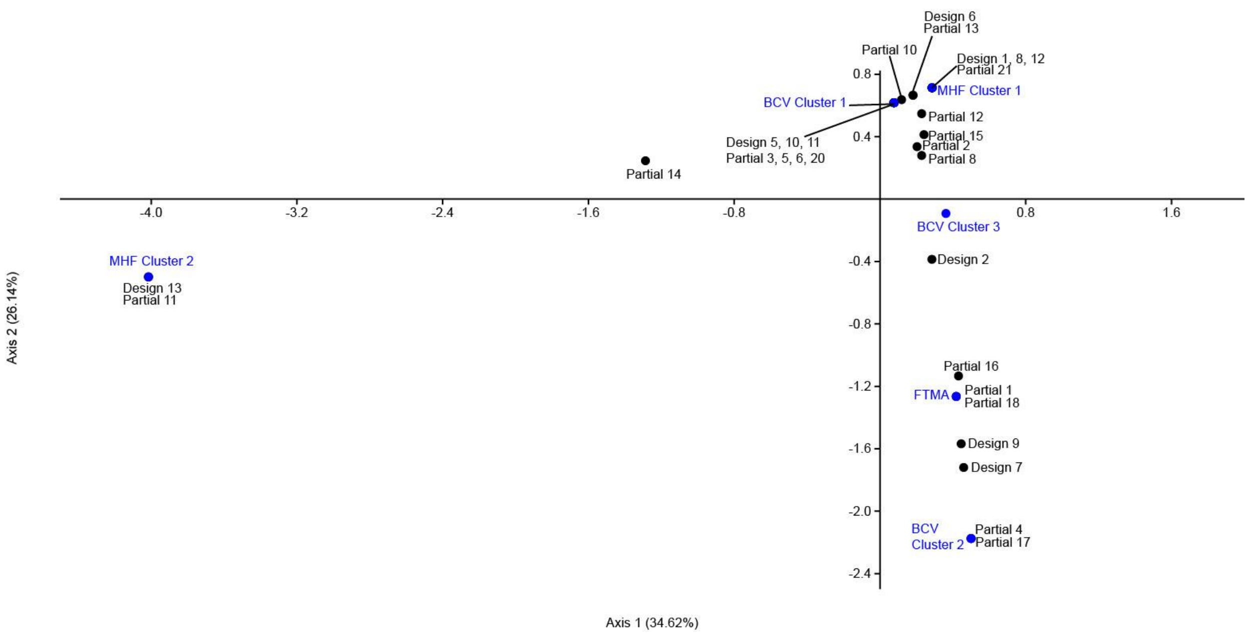

Fig. 5.5. CA plot of midden clusters based on paddle designs. Axes 1 and 2 capture 60.77% of the variation.

SUMMARY OF VILLAGE FILFOT ASSEMBLAGES

In summary, the village data showed that Irene potters used similar grit temper resources and manufacturing practices for filfot pottery, which included a range of grit temper sizes and abundance. These data indicate a large grit tempered filfot community of practice in which St. Catherines potters practiced similar clay recipes, produced vessels with similar thickness, and shared firing techniques. Filfot analysis also showed that other tempers, such as clay and sand, were occasionally used in clay recipes. I believe that the use of clay temper indicates a distinct potting community of practice that is separate from the traditional grit tempered filfot pottery. Irene potters fired filfot pottery under a variety of conditions, but it is currently unclear to the author if the differences in firing conditions are temporal or pottery manufacturing related and further work is required. Filfot body sherd thickness data indicated that vessels became thicker over time. In addition, clay tempered filfot sherds were slighting thicker than grit and sand tempered filfot sherds.

The filfot cross is the most common complicated stamped motif made by Irene paddle carvers and used by Irene potters. The motif frequency reflects the importance of the symbol during the Irene period. However, the St. Catherines midden analysis also shows that filfot design variation was allowed. Filfot designs, which are visible but often overstamped, likely contained information about the potter's ideology or affiliations. Sites or middens that share designs likely reflect social interactions among potters and/or paddle carvers. Meeting House Field filfot designs included six diagnostic and nine partial, and 24 unique paddles. Back Creek Village had six diagnostic and 14 partial designs, and 37 unique paddles. Fallen Tree Midden I-A had 12 diagnostic designs, four partial filfot designs, and 11 unique paddles. Middle Irene midden clusters (cluster 1) at Meeting House Field and Back Creek contained on average two times more paddles and designs than Late Irene midden clusters indicating longer use of these middens. Currently, 14 filfot diagnostic and partial designs, or 42% of the filfot designs identified, are shared among two or more middens. Designs 2 and 9 are the most common designs for midden assemblages indicating a social structure that preferred these designs, yet allowed for variations. Designs 7, 9, and 13 have only been recovered from late Irene and early

Mission period middens and suggest temporal design differences.

VILLAGE VERSUS MORTUARY SITES

In Chapter 4, attribute analyses highlighted patterns between the Fallen Cemetery and the other assemblages. Although a few patterns are likely related to differences in sample size, patterns in temper types and decoration techniques suggested different pottery manufacturing techniques and I argued, the presence of non-local wares. In this section I take a closer look at mortuary filfot stamped pottery, specifically temper and designs, to compare to the village baseline discussed above. In addition, I wanted to explore if there was pottery circulation among the villages and the mortuary sites.

FILFOT MORTUARY TEMPERS

The filfot sherds studied from the South End Mound I and the Fallen Tree Cemetery assemblage have 19 and 34 different temper categories, respectively. Like the village sites, grit temper is dominant in both mortuary assemblages, but grit temper categories are not as diverse as Back Creek Village (SEMI = 14 and FTMC = 10). Figure 5.6 is a CA plot of the middens and mortuary sites. Axes 1 and 2 capture 65.56% of the variation. The biplot shows that South End Mound I clusters with middens near the center of the plot. Fallen Tree Cemetery, on the other hand, plots to lower right quadrant. Fallen Tree Cemetery has a lower percentage (74.42%) of grit tempered filfot sherds and a higher percentage (15.8%) of sand/grit tempered filfot sherds. Clay tempered combined with clay variants are less than 7%. The variety of filfot temper for the Fallen Tree Cemetery highlights the diverse temper pattern discussed in Chapter 4. Midden temper diversity ranges from one to seven categories. Fallen Tree Cemetery has nine tempers. I believe this greater temper diversity indicates non-local vessels created by potters with different manufacturing practices. Of the 12 reconstructed filfot designs at the Fallen Tree Cemetery the majority are grit tempered; however, Designs 2, 14 and Partials 4, 5, 8 and 10 in this study are associated clay/grit, sand/grit, and sand/grit/clay tempers. These tempers combined with the filfot designs are unique to the Fallen Tree Cemetery. Future petrographic and chemical characterization analyses will help identify and explore potential non-local vessels at the mortuary sites.

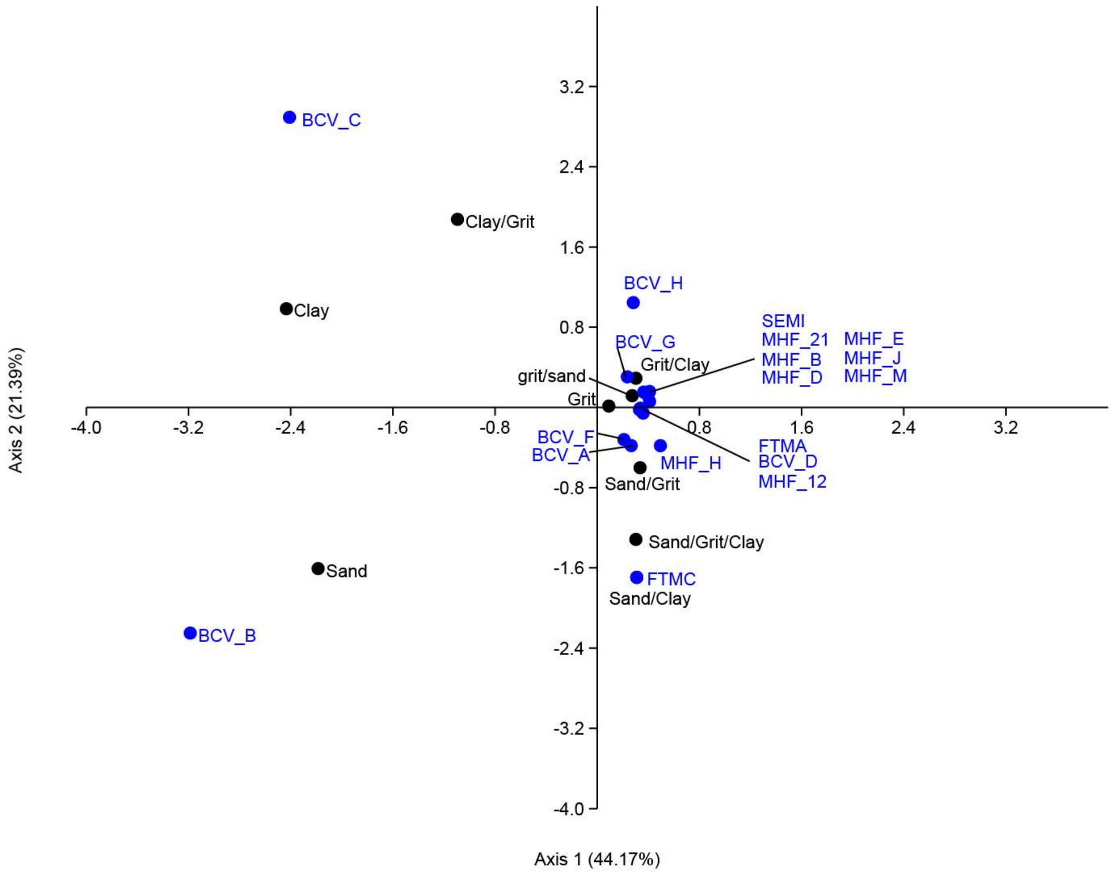

Fig. 5.6. CA plot of middens and filfot tempers. Axes 1 and 2 capture 65.56% of the variation in the sample.

Figure 5.7 is a CA plot that compares village and mortuary grit tempered filfot sherds. Axes 1 and 2 captures 67.03% of the variation. The Fallen Tree Cemetery and Fallen Tree Midden I-A plot in the upper left quadrant with higher percentages of common, very coarse grit.

Back Creek Village Middens, D, F, G, Meeting House Midden 12, and South End Mound I plot in the lower left quadrant with higher percentages of common, coarse grit and moderate percentages of common, frequent grit filfot sherds. Meeting House Field Middens 21, D, and J and Back Creek Village Midden A and H plot to the lower right quadrant with relatively higher percentages of common and occasional, coarse grit, and occasional, very coarse grit filfot sherd. The remaining seven middens from Meeting House and Back Creek plot with the top right quadrant with similar percentages of frequent, very coarse grit and lower percentages of filfot sherds with granular grit. Meeting House and Back Creek Village middens are clustered relatively close to the center of the plot indicating similar use of grit size and abundance. Fallen Tree Cemetery and Midden I-A are separate from the middens with higher percentages of common, very coarse grit.

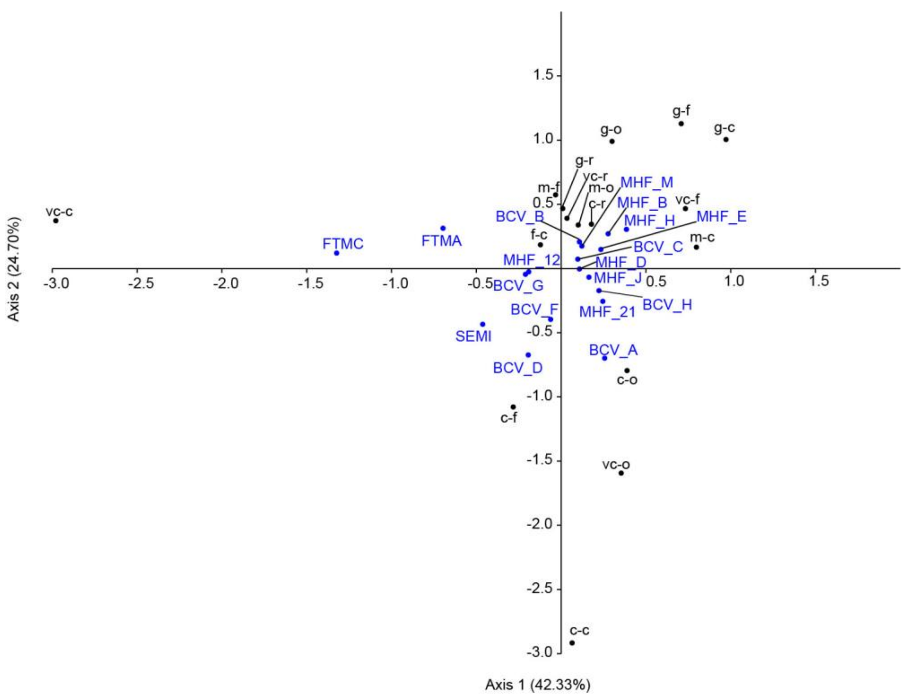

Fig. 5.7. CA plot sites based on only grit tempered filfot sherd percentages. Axes 1 and 2 capture 67.03% of the variation in the sample. Grit temper size and abundance key: c-c = coarse-common, c-f = coarse-frequent, c-o = coarse-occasional, c-r = coarse-rare, f-c = fine-common, g-c = granular-common, g-f = granular-frequent, g-o = granular-occasional, g-r = granular-rare, m-c = medium-common, m-f = medium-frequent, m-o = medium-occasional, vc-c = very coarse-common , vc-f = very coarse-frequent, vc-o = very coarse-occasional, and vc-r = very coarse-rare.

DESIGNS AND PADDLES

Mortuary assemblages contained nine of the 14 diagnostic filfot designs discussed in Chapter 4. Unfortunately, many of the filfot sherds are heavily overstamped, making it difficult to discern elements of the filfot designs. Table 5.9 provides a filfot design breakdown for midden and mortuary contexts. South End Mound I has Designs 1, 2, 3, 4, 7, 9, and 12. Two of these designs are, so far, unique to South End Mound (Design 3 and 4), while Designs 1, 2, 7, 9 and 12 overlap with the village sites. The Fallen Tree Cemetery has Designs 1, 2, 5, 9, and 14. All but one design (14) at Fallen Tree Cemetery overlap with other village or mortuary sites. Although design 14 does not match specifically to a site, it does share similarities with Design 13, which was found at Meeting House Field. In addition to the diagnostic designs, partial designs were identified at South End Mound I and Fallen Tree Cemetery. South End Mound I has three partial designs (6, 11, and 19) and Fallen Tree Cemetery has seven partial designs (4, 5, 7, 8, 9, 10, and 13). South End Mound I had a total of 13 paddles and Fallen Tree Cemetery 20. Taking a closer look at distribution of diagnostic filfot designs within the Fallen Tree Cemetery, Design 2 was recovered from Burial 30, Design 5 from Burial 41, and Design 9 from Burials 15, 17, and 35. In addition, Designs 1, 2, 9, and 14 were recovered from general unit and tree root excavations. Partial filfot designs were identified with Burials 14, 31, 38, 41, and 49. Although not all burials have diagnostic designs, most of the burial pits contained sherds with at least one filfot pottery design. So far, no paddle matches have been made among the St. Catherines mortuary sites or with village sites to help identify the circulation of pottery among village and mortuary sites.

Table 5.9. Filfot designs present in midden and mortuary contexts.

	Meeting House Field Middens							Back Creek Village Middens							Fallen Tree Midden I-A	South End Mound I	Fallen Tree Cemetery
	12	21	B	D	E	H	M	A	B	C	D	F	G	H	FTMA	SEM I	FTMC
N	5	7	2	1	3	2	1	7	4	3	6	10	3	2	7	10	12
Design 1	.	.	.	.	x	.	.	.	.	.	.	.	.	.	.	x	x
Design 2	x	.	x	.	.	.	.	.	.	x	x	x	.	x	x	x	x
Design 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.
Design 4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.
Design 5	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	x
Design 6	.	x	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.
Design 7	.	.	.	.	.	.	.	.	x	.	.	.	.	.	x	x	.
Design 8	.	x	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Design 9	.	.	.	.	.	.	.	.	x	.	.	.	.	.	x	x	x
Design 10	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.	.
Design 11	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.	.
Design 12	x	x	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.
Design 13	.	.	.	.	.	x	x	.	.	.	.	.	.	.	.	.	.
Design 14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x
Partial 1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.
Partial 2	.	.	x	.	x	.	.	.	.	.	x	x	.	.	x	.	.
Partial 3	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.
Partial 4	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	x
Partial 5	.	.	.	.	.	.	.	x	.	.	.	x	.	.	.	.	x
Partial 6	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	x	.
Partial 7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x
Partial 8	x	x	.	.	.	.	.	.	.	.	x	x	.	.	x	.	x
Partial 9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x
Partial 10	.	x	.	.	.	.	.	x	.	x	x	x	.	.	.	.	x
Partial 11	.	.	.	x	.	.	.	.	.	.	.	.	.	.	.	x	.
Partial 12	x	x	.	.	.	.	.	x	.	.	x	.	x	.	.	.	.
Partial 13	x	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.	x
Partial 14	.	.	.	.	.	x	.	x	.	x	.	.	.	.	.	.	.
Partial 15	.	.	.	.	x	.	.	.	.	.	x	.	x	.	.	.	.
Partial 16	.	.	.	.	.	.	.	.	x	.	.	.	x	.	.	.	.
Partial 17	.	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.
Partial 18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.
Partial 19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.
Partial 20	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.
Partial 21	.	x	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Filfot Paddle Matches

Although no paddle matches were discovered among village and mortuary sites, one paddle match was identified between Middens H and M, which are over 80 m apart from each other (fig. 5.8). Petrographic and chemical analyses could help determine if the sherds are from the same vessel or not. If the sherds from middens H and M are not the same vessel, this reflects either trade within the site or people moving within the site. If the sherds are from the same vessel, this could reflect ceremonial activities at Meeting House or reuse of broken pottery. Although there are no paddle matches among sites, the Design 13 at Meeting House Field is similar to a Design 14 at the Fallen Tree Cemetery (fig. 5.9). The difference between the two designs is the center element. Designs 13 and 14 are distinct based on the position of the scrolls and links these sites and the potters who made the vessel, and wood carver who made the paddle. The center element variation could be a way for the potter and wood carver to distinguish an affiliation, such as a household, village, or clan.

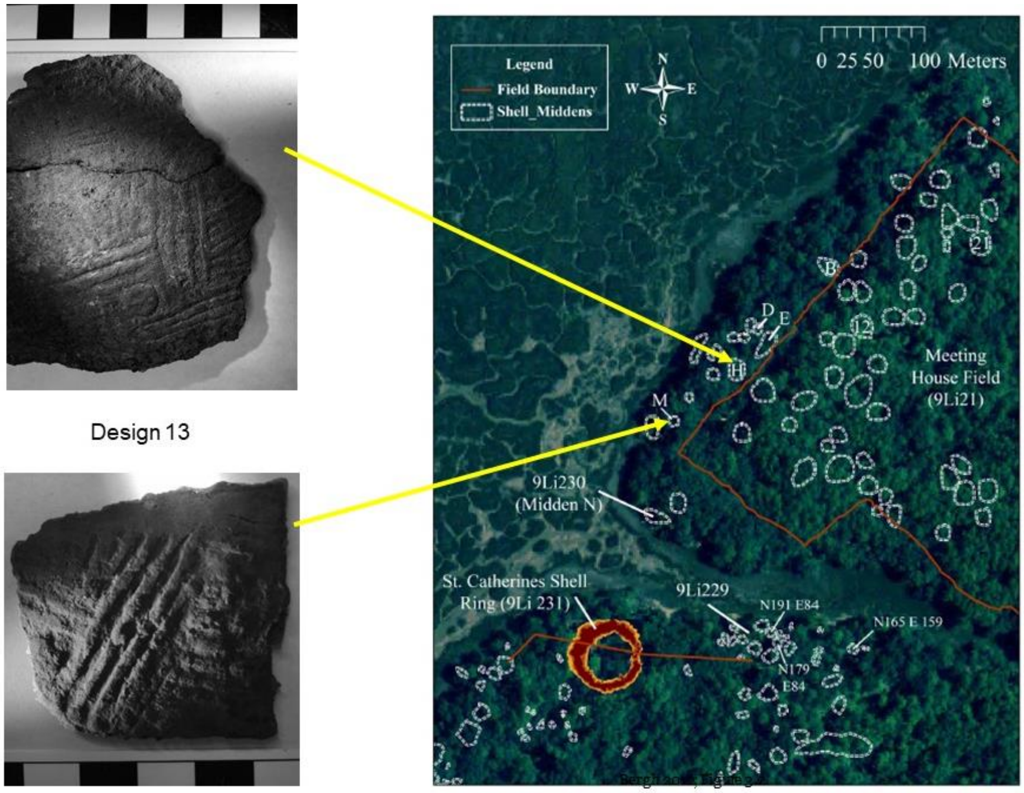

Fig. 5.8. First filfot paddle match at Meeting House Field. Map courtesy of Elliot Blair.

Fig. 5.9. Design 14 filfot sherd (27.4/1232) from the Fallen Tree Cemetery. Photographer Nicholas Triozzi. Photograph courtesy of American Museum of Natural History, Division of Anthropology.

FILFOT STAMPED POTTERY DISCUSSION

This case study looked at technological and stylistic attributes of filfot pottery at the midden level. The technological attributes I targeted were temper, firing conditions, and body sherd thickness, while the stylistic attributes consisted of filfot design elements. The St. Catherines midden evidence shows that filfot pottery practices and designs fall with Hypothesis 3, which states that village filfot pottery had a combination of technological and stylistic traits. The St. Catherines data indicate a more nuanced story, providing evidence not wholly in line with either Hypothesis 1 or 2. At the beginning of my research, I assumed that filfot sherds from middens would reflect distinct pottery manufacturing practices and would likely have mutually exclusive filfot designs. On the contrary, the evidence shows that St. Catherines Irene potters across the island learned and practiced making filfot pottery with similar manufacturing techniques, which consisted of similar grit shape and abundance, vessel thickness, and firing conditions. These similarities reflect a broader grit tempered pottery community of practice. To complicate the story, the midden filfot attribute research highlights a few larger patterns, including temporal trends and a distinct clay tempered filfot community of practice.

Filfot designs, on the other hand, showed variation at the midden level. The overall filfot-cross motif was important to Irene peoples, which is reflected by high sherd frequencies in midden assemblages. The filfot cross motif represents a world symbol, but potter and woodcarvers added variation to the design, to possibly identify house, village, or clan affiliation. Due to overstamping, the sample size for the St. Catherines diagnostic and partial reconstructed filfot designs was small. However, design analysis shows that many of the middens have more than one filfot design and paddle. Filfot designs ranged from one to ten and unique paddles ranged from one to twelve per midden. Designs 2 and 9 were identified at several middens and indicate a preference that was reinforced by the Irene social structure, but also allowed for variation with the design. Design similarities among middens likely reflect more common interactions of potters within these households, than middens that have fewer shared similarities. Although the sample size is small, several designs are unique to individual middens and tentatively suggest stylistic choices by potters to distinguish their vessels.

The comparison of village and mortuary filfot stamped pottery indicated grit tempered filfot practices are similar between village and mortuary sites on St. Catherines. In addition, the comparison highlighted filfot temper diversity at the Fallen Tree Cemetery, perhaps reflecting distinct pottery practices through non-local wares. Several filfot designs were shared among mortuary and village contexts, which indicated no distinct mortuary filfot designs. I believe the filfot design diversity at the mortuary sites, specifically Fallen Tree Cemetery, also relates to social interactions. Design 2 was the only filfot design identified at all five sites, with seven unique paddles at Back Creek, three paddles apiece at Meeting House, Fallen Tree Midden I-A and the Cemetery, and one paddle at South End Mound I. This design was associated with middens in Cluster 1 at Meeting House, middens with in Cluster 1 and 2 at Back Creek village. Design 2 was a popular motif, likely imbued with cosmological reference. Unfortunately, no paddle matches have been identified among village and mortuary sites on St. Catherines Island to indicate local social interactions at mortuary events. The absence of paddle matches among sites has limited our understanding about Irene vessel circulation among sites. However, one paddle match at Meeting House Field highlights social interactions between middens 80 m apart and suggest the movement of people and/or pottery across the village.

CHAPTER 6

CONCLUSIONS

This dissertation examined coastal South Appalachian Late Mississippian pottery manufacturing practices, surface decorations, and vessel use. Late Mississippian pottery in coastal Georgia, known locally by researchers as Irene, is a regional variant of the broader Lamar ceramic tradition within interior Georgia. Irene ceramics, first described by Caldwell and McCann (1941) in their report on the Irene Mound, are coarse grit tempered jars and bowls with plain, complicated stamped, and incised surface treatments. Although Caldwell and McCann and subsequent researchers acknowledged variations with the Irene ceramics, very little has been done to quantify and track Irene variation. This study fills the gap by examining ceramics from five Late Mississippian assemblages — three village and two mortuary sites — from St. Catherines Island, Georgia.

This research focused on three questions: (1) How do the village and mortuary ceramic assemblages vary (typology, morphology, composition, decoration) between sites? (2) Are there unique Late Mississippian pottery production and social practices that reflect pottery communities of practice at each site? And (3) does pottery circulate among and between the sites, and if so, what types of interactions/social relationships might these reflect? To address these questions, ceramic typology and detailed technological and stylistic attribute analyses were conducted at both the site and midden (i.e., sub-site) level. In addition, a community of practice framework was used to explore how St. Catherines Irene potters learned to make pottery and how the community members reproduced the knowledge. These datasets provide a wealth of information about ceramic types, tempers, firing conditions, rim attributes, vessel size and shape, and decoration. Based on the data collected, four major patterns were identified.

First, the village ceramic assemblages show temporal changes. Irene potters during the Pipemaker's phase (middle Irene, A.D. 1350–1450) manufactured more stamped wares, fewer plain, and a very limited number of incised vessels. During the Pine Harbor phase (late Irene, A.D. 1450–1580) there was a shift: Irene potters manufactured fewer stamped and more incised and plain wares. As highlighted by the Fallen Tree Midden I-A assemblage, Guale potters during the early Mission period manufactured more incised and plain wares combined than stamped wares. In other words, stamped pottery manufacturing decreased over time, and plain and incised pottery increased. A similar pattern was reported by other coastal scholars (Blair 2015; Braley et al. 1986; Cook 1978, 1980a, 1980b, 1986; Pearson 1984; Pearson and Cook 2010; Saunders 2000). The proportions of stamped, plain, and incised sherds were extremely helpful in refining our understanding of site occupation at Meeting House Field and Back Creek Village. Higher percentages of stamped sherds with lower percentages of incised and plain sherds indicate Pipemaker's Creek phase (A.D. 1350–1450) occupation. An increase in incised and plain sherds together with a decrease in stamped sherds indicates a Pine Harbor phase (A.D. 1450–1580) occupation. Additional Irene to Mission period ceramic changes include increased use of coarse grit, sand and sand/grit tempers, greater diversity of firing conditions, increased vessel wall thicknesses, wider rimstrips and folds, greater diversity of incised designs, and the construction and use of flared bowls.

Second, attribute data indicate a persistent grit tempered pottery tradition shared by a large group of Irene potters. The St. Catherines village assemblages highlighted ceramic similarities based on a range of tempers, firing conditions, and vessel thicknesses. The evidence implies that St Catherines Irene potters shared similar learning techniques and knowledge about tempers, vessel thickness, and firing conditions. The learning process for Irene potters contributed to the stability of the grit tempered ceramic tradition. Surface decorations differed between villages. Meeting House had no check stamped pottery, few incised sheds, and several unique filfot designs. Back Creek Village had a few checked stamped sherds, a moderate number of incised, and a high frequency of filfot designs and paddles, and several unique designs. Fallen Tree Midden I-A had a few checked stamped sherds, high frequency of incised sherds, high diversity of incised designs, and low diversity of filfot designs.

The study also identified a small, yet distinct, group of potters at Back Creek Village who manufactured complicated stamped pottery with clay/grog temper. This pottery stands out because during the Late Mississippian, clay/grog temper use was not common along the Georgia coast. Potters who used clay/grog temper lived to the south along the Florida-Georgia border during the San Pedro period (approximately A.D. 1450–1625; Ashley 2009). San Pedro pottery consisted primarily of plain, check-stamped and cob-marked wares with limited record of complicated-stamped, cord-marked, textile-impressed (Ashley 2009; Ashley and Rolland 1997). These few Back Creek sherds reflect a combination of potting practices that combines clay temper with filfot-cross decoration, a motif primarily associated with Georgia wares, and provides indirect evidence for Late Mississippian social interactions. The interactions perhaps reflect intermarriages between Florida and Georgia communities and the blending of ceramic techniques and decorations. In this study, I argued that the use of sand and sand/grit tempers reflected temporal trends in temper. On the other hand, sand and sand/grit tempers could also represent distinct potting community of practice during middle and late Irene phase. Petrographic and chemical analyses will help to shed light on these ideas.

The third finding in this study relates to filfot cross designs. The filfot cross motif is ubiquitous surface decoration within Irene assemblages on the Georgia coast. The motif frequency reflects the importance of the symbol, which likely represents a world symbol for Irene people. Although previous researches acknowledge design variation, I quantified design variation by examining the four main elements of the motif. This allowed me to reconstruct and track designs and paddle between and within the St. Catherines Island assemblages. In this study, I identified 35 diagnostic and partial filfot designs and 97 unique filfot paddles. This analysis showed that one design (Design 2) was found within all assemblages and indicates a persistent use of the design from middle Irene to early Mission period. Alternatively, Designs 7 and 9 only appear in late Irene and early Mission contexts. A village filfot designs comparison showed three diagnostic designs (Designs 2, 6, and 7) that overlap between villages indicating social interactions between the sites. Eight designs are unique (Designs 1, 5, 8, 9, 10, 11, 12, and 13) to one village and often one midden. The design variation indicates a need to distinguish vessels and potters. These distinctions contain visual information that likely reflects a potter's community affiliation, such as village or clan. As for a diagnostic comparison between village and mortuary contexts, six designs (Designs 1, 2, 5, 7, 9, and 12) overlap and three designs (Designs 3, 4, and 14) are unique. Although no paddle matches were identified between the five St. Catherines assemblages to show direct contact between village and mortuary sites, villages and mortuary sites shared more filfot designs than between villages. The higher frequency and diversity of shared designs provide indirect evidence of social interactions between groups brought together from different villages during mortuary events. The shared designs reflect potter or household affiliations during mortuary activities.

The fourth finding in this study relates to differences in mortuary and village assemblages. Vessel forms at the mortuary sites consisted of bowls and jars/urns, but also contained unique cup and boat-shaped vessel forms. In general, South End Mound I had larger bowls and jars than any other site, but the Fallen Tree Cemetery had a greater range of vessel sizes and shapes. On St. Catherines Island, very few individuals were buried with vessels, and except for urns, many of the mortuary vessels were small and likely contained some type of perishable offering. Most of the ceramics recovered from the Fallen Tree Cemetery excavations were from the shell burial caps or surrounding unit soil. Research is ongoing to determine if the shell caps were reused local midden materials or if the shell was created by ceremonial events associated with mortuary activities.

Regardless, the Fallen Tree Cemetery assemblage stands out. First, the assemblage contained greater temper diversity, which included non-local wares and greater variability in grit temper abundance, shape, and size. Second, the Fallen Tree Cemetery assemblage contained a greater diversity of surface decorations, which resulted in lower percentages of complicated stamped pottery and higher percentages of incised and check stamped. The significantly greater quantities of incised and check stamped sherds are intriguing at Fallen Tree Cemetery. If incised and check stamped vessels were associated with mortuary activities, South End Mound I would have higher frequencies of both types, which was not the case. I believe that check and some of incised wares recovered at the Fallen Tree Cemetery are likely non-local and these vessels indicate social interactions, such as active participation in mortuary events, between St. Catherines and non-St. Catherines Irene people. Petrographic and chemical analyses are necessary to test the non-local vessel idea. The Fallen Tree Cemetery assemblage also contained a greater diversity of vessel forms and sizes. Wallis (2011) documented Woodland period burial mounds in northern Florida and southern Georgia were places of group gathering, vessel exchange, and gift giving. People during the Mississippian period likely gathered for ceremonial and mortuary events as well. The greater diversity of ceramic types, technological and stylistic attributes, and vessel shapes and sizes in the Fallen Tree Cemetery assemblage likely reflect people from various villages and clans interacting in mortuary events.

The St. Catherines data suggest a more nuanced story, in which most Irene potters participated in a relatively uniform, grit tempered pottery community of practice, but a small, distinct clay/grog tempered pottery group was also present. Stylistic attribute analysis, especially filfot cross designs showed a few shared designs across assemblages, but also identified more unique designs within the villages and a greater diversity of designs shared between village and mortuary sites. In addition, the data showed ceramic temporal changes between villages and distinctions, such as surface decorations and vessel shapes and sizes, between village and mortuary assemblages. These research and findings provide a better understanding of Irene pottery manufacturing practices and learning, and local and non-local social interactions during the Late Mississippian period on St. Catherines Island.

Irene Potters and Pottery on St. Catherines Island

St. Catherines Irene peoples lived year-round in villages, with discrete boundaries, across the island landscape and buried their dead typically in low-earthen sand mounds. Ethnohistoric accounts of the Mission period Guale people, who were descendants of the Irene people, and Irene period mortuary data indicate social and political systems structured by social hierarchy and chiefly leadership. Although understanding of spatial patterning within Irene villages is limited on the Georgia coast, researchers believe household and public structures, such as council houses, were organized around plazas. Households were likely comprised of matrilocal extended families with family members living close together within a village. Each structure had at least one associated shell midden that contained evidence of Irene subsistence. Irene groups on St. Catherines had all their food resources within walking or canoeing distance. People hunted and collected nuts, fruits, and other plant resources from the island forest. They collected and fished marine and estuarine resources from local marshes, and cultivated a variety of plants including maize. St. Catherines Island's full length is approximately 16 km and 4.5 km in width; therefore, the full length of the island can be walked in four to five hours and the width in an hour. In other words, all Irene sites on St. Catherines Island were within easy walking distance. Village communities created shared social identities and communal ties between individuals. At a broader scale, mortuary sites or other ceremonial contexts, gathered people together from multiple towns to participate in ceremonial events.

Irene potters on St. Catherines Island, who were likely women, made pottery at the household level within their village communities. Villages and mortuary sites, analyzed in this study, were within an hour's walking distance of each other. Potters within villages likely had daily interactions, while potters from other St. Catherine Island villages had less frequent interactions. Therefore, Irene potters on St. Catherines likely participated in numerous direct or face-to-face social interactions, which provided opportunities to learn and exchange pottery manufacturing practices and designs. In general, Irene pottery production consisted of multiple tasks and techniques which included clay and temper collection, paste mixing, coil making, vessel construction, decorating, surface finishing, and firing. We assume Irene women potters preformed all these potting tasks, but it is quite possible that multiple people participated in pottery production, including men who collected clays/tempers and carved wooden paddles, and children who helped fetch water to mix the clay and temper. Irene potters probably provided some direct instructions to novice potters for vessel manufacturing with each task requiring different learning time lengths. Technique repetition provided novices the opportunity to hone their motor-skills and form habits, conscious and unconscious, in order to produce socially acceptable ceramic vessels. Learning for Irene potters was likely intergenerational, in which sister, mother, and grandmother instructed novice potters.

St. Catherines Irene potters practiced a grit tempered ceramic tradition that changed through time. Midden and village analyses did not show mutually exclusive pottery practices, but rather broad similarities that consisted of a limited range of tempers — with preference for grit. Irene potters used local grit resources with varying degrees of grit temper abundance, sizes, and shapes. Vessels were constructed by coiling ropes of clay that were approximately 1 cm in diameter. In addition, Irene potters used a variety of oxidizing and reducing firing conditions and constructed a range of vessel shapes, sizes, and thicknesses. The evidence shows shared learning and knowledge of pottery practices and designs between Irene households and villages on St. Catherines, and indicates a broad grit temper pottery community of practice with acceptance of some variability. The learning process for Irene potters contributed to the stability of the grit tempered ceramic tradition, which lasted approximately 280 years. Filfot design analysis shows that a few diagnostic designs were shared between villages, including one design that persisted more than 100 years. Many of the diagnostic village fiflot designs are unique to a village and often a midden, indicating distinctions between village contexts. These visible distinctions likely reflect potter associations, for example village or clan. In addition, middens typically contained multiple designs and paddles, in particular the middle Irene middens often had higher frequencies of designs and paddles likely due to longer occupations. These longer used middens help provide a generational record within household middens of filfot designs. Yet, more filfot designs are shared between village and mortuary sites, suggesting greater social interactions during mortuary events. Temporal differences between the assemblages show an increase in the use of sand and sand/grit tempered wares, thicker vessels, wider rimstrips and folds, smaller diversity of filfot designs, greater diversity of incised designs, and increase use of incising with punctation and/or stamping into the Mission period.

St. Catherines Irene potters used a variety of rim treatments on ceramic vessels; however, the limited sample size and depositional differences could not confirm the temporal patterns that Pearson and other researchers on the coast suggested. Interestingly, St. Catherines Island Irene rim treatments differ from other coastal Irene sites due to the high percentage of finger-pinched/indented rimstrips within ceramic assemblages. Although more research is needed, perhaps finger-pinched/indented rimstrips are associated specifically with St. Catherines potters.

Irene potters constructed bowls and jars for everyday use, which typically consisted of medium and large sized carinated or straight-sided bowls, and flared or straight-sided jars. Mortuary vessel forms were similar to village vessels, but included two additional forms a cup and "boat-shaped" vessel. In addition, mortuary vessel sizes typically included more small and extra-large vessels. Village vessels were used for cooking, storage, and serving. Mortuary vessels had similar functions, but also included urns and smaller containers for offerings. More research is necessary to provide further information about Irene vessel functions on St. Catherines. However, the temporal trends in surface decorations suggest changes in vessel use. In the early and middle Irene phases, potters made more stamped cooking jars and fewer plain and incised storage and serving bowls. In contrast, potters during the late Irene and early Mission periods made fewer stamped cooking jars and more incised and plain storage and serving bowls.

St. Catherines Irene potters predominantly decorated vessels by stamping carved wooden paddles onto the damp clay vessel exterior. Although we do not know for sure, wooden paddles were likely carved by someone other than the potter, such as men whom had woodcarving technology experience (Wallis 2011). Irene potters used several complicated stamped designs; but the filfot cross was the motif of choice for Irene potters and people using the pots. The longevity of the filfot cross design indicates an important symbol for Irene people. The motif was used on both everyday and mortuary vessels. The filfot cross is a very symmetrical design, yet, design variation did occur and was socially accepted. St. Catherines village and mortuary sites have several filfot designs in common and suggest social interactions (i.e., vessel exchange or participation on mortuary events) between potters or other community members. In contrast, the village assemblages contained more unique filfot design to indicate distinctions between vessels and potters.

In summary, Irene potters on St. Catherines learned the skills and techniques that reflected their social interactions. St. Catherines grit tempered pottery shows similarities between assemblages, indicating a broad community of practice. At the same time, St. Catherines Irene grit tempered pottery does not reflect practices/techniques that are completely uniform. The persistent grit tempered tradition suggests that learning and practice were stable, but allowed for variation. Currently, there is no evidence to suggest that communities or households were mutually exclusive in pottery learning, practice, or design. Therefore, most Irene potters on St. Catherines had similar pottery learning experiences. One exception stands out: the potters who made the clay/grog tempered complicated stamped pottery at Back Creek Village. The use of clay/grog is distinct from the traditional grit and indicates different recipe training and likely reflecting intermarriage of someone outside of St. Catherines into the Back Creek community.

Additional social interactions are highlighted by the differences between the Irene mortuary and village assemblages on St. Catherines. Irene mortuary events, especially at the Fallen Tree Cemetery, brought together local and non-local people and/or pots. Although more work is required to tease apart the local and non-local vessels, this research shows that St. Catherines Irene potters engaged and likely learned from other communities.

Broader Significance

Until recently, coastal ceramic studies focused on identifying ceramic types, which hid variation within an assemblage. My research fills this gap, by examining technological and stylistic variations through detailed attribute analyses of a particular type, to establish a baseline for Mississippian ceramic variation on St. Catherines Island. This study adds to both the local and regional conversation about refining Mississippian pottery chronology, specifically during the Irene period, and helps refine our understanding of village occupations on St. Catherines. The evidence indicates that Irene potters were making more stamped vessels and fewer plain and incised vessels during the early and middle Irene phases (A.D. 1300–1450). During the late Irene and early Mission phases (A.D. 1450–1600), potters are making fewer stamped and more plain and incised vessels.

This study provides information on Irene learning, ceramic manufacturing, and design on St. Catherines Island by weaving together multiples lines of evidence (temper, firing conditions, wall thicknesses, rim elaborations, and surface decorations, especially complicated stamped pottery). Irene potters had a stable grit tempered pottery tradition that consisted of a limited range of grit categories, firing conditions, and vessel thickness. As for stylistic attributes, this study shows a diversity of incised designs created by potters leading into the early Mission period. In addition, complicated stamped analysis identified and characterized variation within the filfot motif, which indicates distinctions between potters and reflects likely potter affiliations. Irene potters shared several filfot designs, but also created unique designs indicating varying degrees of social interaction. These findings will be useful for future research at a regional scale.

In addition, my research adds to the regional discussion of Irene mortuary sites and use of ceramic vessels, by comparing St. Catherines village assemblages to local mortuary assemblages. The St. Catherines data highlighted possible social interactions within each site based on the similarities and differences observed between assemblages. Mortuary events at the Fallen Tree Cemetery likely included non-St. Catherines peoples because the assemblage typically contained greater attribute diversity and did not match the village data. Sadly, no filfot paddle matches were identified between the village and mortuary sites to provide direct evidence of social interactions between local Irene villagers at mortuary events.

Finally, this study provides new information on coastal complicated stamped designs and adds to the broader examination of coastal Late Mississippian iconography. Irene potters used the filfot stamp to decorate both domestic and mortuary wares. Specifically on St. Catherines, Irene potters used at minimum 35 filfot designs and 97 paddles. Several assemblages on St. Catherines share filfot designs suggesting either pots or people moved around and highlights social interactions that require more exploration. In addition, this research highlighted several unique filfot designs that distinguishes a potter and their vessel from others.

This project demonstrates the value of exploring small-scale ceramic variation through multiple lines of evidence from different contexts and different scales to provide a better understanding of the Late Mississippian learning and pottery practices, and social interactions on St. Catherines Island. More broadly, my research adds to the anthropological/archaeological dialogues about craft learning, production, social interactions, and iconography.

Future research directions

This dissertation provides a baseline for Mississippian ceramic variation, specifically Irene ceramics, at village and mortuary sites on St. Catherines Island. As discussed, the St. Catherines dataset has similarities and differences with other Irene sites. Yet, more work is necessary on both the local and regional levels to test patterns and proposed ideas. The following section provides several future research examples. First, a broader regional study of complicated stamped pottery is necessary to explore regional variation, to identify and refine our understanding of temporal changes related to complicated stamped pottery, and to reconstruct past networks and interactions. Second, petrographic analysis and chemical sourcing studies would help explore temper differences (specifically the complicated stamped sherds with variants of clay/grog, grit, and sand tempers) that I believe reflect ceramic micro-styles and distinct pottery practices. I also recommend petrographic and sourcing studies for incised and checked pottery. These studies would help characterize local, St. Catherines wares from the village assemblages, and be compared to sherds at the mortuary sites to help identify potential non-St. Catherines wares. Third, expanding the study and characterization of local clay resources will help us understand local clay workability and help with future sourcing studies. Fourth, additional attribute analysis on ceramic firing condition is necessary to quantity the degree of carbon retention. This refined information could help further differentiate pottery manufacturing practices within and between sites on St. Catherines. Fifth, this dissertation research primarily focused on the decorated Mississippian ceramics with greater attention on complicated stamped sherds. A detailed study of plain wares, characterizing temper, firing conditions, and ranking surface treatment, can provide additional information on manufacturing practices. Sixth, a refit project will help refine our knowledge of vessel shapes and size on St. Catherines. In addition, large refits of flared rims will help us more accurately measure and quantify rim flares, which in turn can help us explore vessel function. Finally, a study focused on vessel function and consumption practices would complement this dissertation research and allow for more complete picture of Mississippian ceramic use on the Georgia coast.

APPENDIX A
VILLAGE ARTIFACTS BY SITE AND LEVEL

Tables A.1 to A.3 describe the artifacts by level for the three St. Catherines Island village contexts: Meeting House Field, Back Creek Village, and Fallen Tree Midden I-A. Table A.1 lists the artifacts recovered from the 2008, 2009, and 2015 excavations at Meeting House Field. The first table lists the artifact frequencies for the site and includes the percentages of artifacts by level. This table is followed by artifact tables for each Meeting House Field midden. Table A.2 pertains to artifacts recovered from the 2008 excavations at Back Creek Village. The first table provides the artifact frequencies for the site and includes the percentages of artifacts by level. This table is followed by artifact tables for each Back Creek Village midden. Table A.3 relates to artifacts recovered from the 2005 and 2013 excavations at Fallen Tree Midden I-A and includes artifact frequencies by unit and feature.

A.1. Meeting House Field, all middens.

Level	Baked Clay Item	Bead, Pearl	Bead, Shell	Bone, Worked	Daub	Ceramic, ABO	Ceramic, Other	Fired Clay	Glass	Lithic, Core	Lithic, Flake	Lithic, Other	Lithic, Shatter
Surface	-	-	-	-	-	1	-	-	-	-	-	-	-
1	-	-	2	-	-	1,047	-	4	-	-	3	-	-
2	-	1	1	-	17	837	-	11	-	-	2	5	-
3	-	-	5	-	-	800	-	8	-	1	7	1	-
3/4	-	-	-	-	-	-	1	-	-	-	-	-	-
4	-	-	3	-	1	470	-	7	-	-	2	2	-
5	3	-	-	-	-	404	-	8	-	-	3	-	-
6	-	-	1	-	-	275	-	5	-	-	2	3	-
7	-	-	1	-	3	293	-	5	-	-	-	-	-
8	-	-	-	1	10	209	-	2	-	-	1	-	1
9	-	-	-	-	-	115	-	2	-	-	2	-	-
10	-	-	-	-	-	45	-	1	-	-	1	-	-
wallscrape	-	-	-	-	1	71	-	5	1	-	-	-	-
sidewall	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**3**	**1**	**13**	**1**	**32**	**4,567**	**1**	**58**	**1**	**1**	**23**	**11**	**1**

A.1. Meeting House Field, all middens (continued).

Level	Lead Shot	Modern Metal	Metal, Scale	Iron pot frag.	Mica	Ochre	Pearl	Prehistoric Pipe Frag.	Historic Pipe Frag.	Prehistoric Pipe	Whelk	Total	%
Surface	-	-	-	-	-	-	-	-	-	-	-	1	0.02
1	2	-	-	-	-	-	1	-	-	-	1	1,060	22.31
2	5	-	-	-	-	-	-	-	1	-	3	883	18.59
3	1	1	-	-	-	-	-	1	-	-	9	834	17.55
3/4	-	-	-	-	-	-	-	-	-	-	-	1	0.02
4	-	-	-	-	2	-	-	-	-	-	1	488	10.27
5	-	-	-	-	-	2	-	1	-	1	1	423	8.90
6	-	-	-	-	-	-	-	-	-	-	-	286	6.02
7	-	-	-	-	-	-	-	-	-	-	-	302	6.36
8	-	-	-	-	-	-	-	-	-	1	1	226	4.76
9	-	-	-	-	-	-	-	-	-	-	-	119	2.50
10	-	-	-	-	-	-	-	-	-	-	-	47	0.99
wallscrape	-	-	1	-	-	1	-	-	-	-	-	80	1.68
sidewall	-	-	-	1	-	-	-	-	-	-	-	1	0.02
Total	**8**	**1**	**1**	**1**	**2**	**3**	**1**	**2**	**1**	**2**	**16**	**4,751**	**100.00**

A.1. Meeting House Field artifacts by midden.

Midden 12

Level	Bead, Shell	Ceramic, ABO	Ceramic, Other	Fired Clay	Lithic, Flake	Lithic, Other	Lead Shot	Metal, Scale	Ochre	Prehistoric Pipe Frag.	Historic Pipe Frag.	Whelk	Total	%
1	-	305	-	2	1	-	-	-	-	-	-	-	308	28.21
2	-	325	-	3	-	1	1	-	-	-	1	-	331	30.31
3	2	325	-	1	-	-	-	-	-	1	-	4	333	30.49
3/4	-	-	1	-	-	-	-	-	-	-	-	-	1	0.09
4	-	49	-	1	1	-	-	-	-	-	-	-	51	4.67
5	-	25	-	-	-	-	-	-	2	-	-	-	27	2.47
6	-	3	-	-	-	-	-	-	-	-	-	-	3	0.27
wallscrape	-	36	-	-	-	-	-	1	1	-	-	-	38	3.48
Total	**2**	**1,068**	**1**	**7**	**2**	**1**	**1**	**1**	**3**	**1**	**1**	**4**	**1092**	**100.00**

Midden 21

Level	Baked Clay Item	Bead, Shell	Daub	Ceramic, ABO	Fired Clay	Glass	Lithic, Flake	Mica	Whelk	Total	%
1	-	2	-	301	-	-	-	-	-	303	33.93
2	-	1	2	237	1	-	-	-	2	243	27.21
3	-	-	-	161	2	-	4	-	4	171	19.15
4	-	-	-	89	-	-	1	2	1	93	10.41
5	3	-	-	47	1	-	-	-	-	51	5.71
6	-	-	-	12	-	-	1	-	-	13	1.46
7	-	-	-	1	-	-	-	-	-	1	0.11
wallscrape	-	-	1	14	2	1	-	-	-	18	2.02
Total	**3**	**3**	**3**	**862**	**6**	**1**	**6**	**2**	**7**	**893**	**100.00**

A.1. Meeting House Field artifacts by midden (continued).

Midden B

Level	Bead, Shell	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Total	%
surface	-	-	1	-	-	1	0.31
1	-	-	11	1	-	12	3.72
2	-	-	42	1	-	43	13.31
3	-	-	17	-	1	18	5.57
4	-	-	34	1	-	35	10.84
5	-	-	50	2	1	53	16.41
6	1	-	78	2	-	81	25.08
7	1	2	47	4	-	54	16.72
8	-	-	5	2	-	7	2.17
9	-	-	-	1	1	2	0.62
wallscrape	-	-	15	2	-	17	5.26
Total	**2**	**2**	**300**	**16**	**3**	**323**	**100.00**

Midden D

Level	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Whelk	Total	%
1	-	40	1	-	-	41	37.61
2	14	24	3	1	-	42	38.53
3	-	18	1	-	1	20	18.35
4	-	6	-	-	-	6	5.50
Total	**14**	**88**	**5**	**1**	**1**	**109**	**100.00**

A.1. Meeting House Field artifacts by midden (continued).

Midden E

Level	Bead, Shell	Bone, Worked	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Lithic, Other	Lithic, Shatter	Pearl	Prehistoric Pipe Frag.	Prehistoric Pipe	Iron pot fragment	Total	%
1	-	-	-	50	-	-	-	-	1	-	-	-	51	5.21
2	-	-	1	73	-	-	1	-	-	-	-	-	75	7.66
3	1	-	-	51	1	1	1	-	-	-	-	-	55	5.62
4	3	-	-	139	-	-	2	-	-	-	-	-	144	14.71
5	-	-	-	110	-	-	-	-	-	1	1	-	112	11.44
6	-	-	-	99	-	-	-	-	-	-	-	-	99	10.11
7	-	-	-	67	-	-	-	-	-	-	-	-	67	6.84
8	-	1	1	203	-	-	-	1	-	-	1	-	207	21.14
9	-	-	-	115	1	-	-	-	-	-	-	-	116	11.85
10	-	-	-	45	1	-	-	-	-	-	-	-	46	4.70
wallscrape	-	-	-	6	-	-	-	-	-	-	-	-	6	0.61
sidewall	-	-	-	-	-	-	-	-	-	-	-	1	1	0.10
Total	**4**	**1**	**2**	**958**	**3**	**1**	**4**	**1**	**1**	**1**	**2**	**1**	**979**	**100.00**

Midden H

Level	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Lithic, Other	Metal, Modern	Whelk	Total	%
1	-	32	-	1	-	-	-	33	8.25
2	-	18	1	1	-	-	-	20	5.00
3	-	34	1	-	-	1	-	36	9.00
4	-	59	3	-	-	-	-	62	15.50
5	-	38	1	1	-	-	1	41	10.25
6	-	11	2	-	1	-	-	14	3.50
7	1	178	1	-	-	-	-	180	45.00
8	9	1	-	1	-	-	1	12	3.00
9	-	-	-	1	-	-	-	1	0.25
10	-	-	-	1	-	-	-	1	0.25
Total	**10**	**371**	**9**	**6**	**1**	**1**	**2**	**400**	**100.00**

A.1. Meeting House Field artifacts by midden (continued).

Midden J

Level	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Lithic, Other	Lead Shot	Total	%
1	-	15	-	-	-	1	16	7.62
2	-	28	1	-	3	4	36	17.14
3	-	74	1	-	-	1	76	36.19
4	1	20	-	-	-	-	21	10.00
5	-	1	-	-	-	-	1	0.48
6	-	59	-	1	-	-	60	28.57
Total	**1**	**197**	**2**	**1**	**3**	**6**	**210**	**100.00**

Midden M

Level	Bead, Shell	Ceramic, ABO	Fired Clay	Lithic, Core	Lithic, Flake	Lithic, Other	Whelk	Total	%
1	-	33	-	-	1	-	1	35	10.80
2	-	32	-	-	-	-	1	33	10.19
3	1	64	-	1	1	-	-	67	20.68
4	-	57	1	-	-	-	-	58	17.90
5	-	114	4	-	-	-	-	118	36.42
6	-	10	1	-	-	2	-	13	4.01
Total	**1**	**310**	**6**	**1**	**2**	**2**	**2**	**324**	**100.00**

Midden N

Level	Bead, Pearl	Bead, Shell	Ceramic, ABO	Fired Clay	Lithic, Flake	Lead Shot	Total	%
1	-	-	260	-	-	1	261	62.00
2	1	-	58	1	-	-	60	14.25
3	-	1	56	1	-	-	58	13.78
4	-	-	17	1	-	-	18	4.28
5	-	-	19	-	1	-	20	4.75
6	-	-	3	-	-	-	3	0.71
wallscrape	-	-	-	1	-	-	1	0.24
Total	**1**	**1**	**413**	**4**	**1**	**1**	**421**	**100.00**

A.2. Back Creek Village all middens

Level	Baked Clay Item	Bead Blank, Shell	Bead, Shell	Bead, Stone	Bone, Other	Bone, Pin	Bone, Worked	Daub	Ceramic, ABO	Ceramic, Other	Fired Clay
1	2	-	18	-	-	-	-	16	860	-	8
2	-	-	26	-	6	-	2	110	1,019	6	14
3	-	2	6	2	-	-	2	88	553	2	28
4	-	-	-	-	-	-	-	22	285	-	2
5	-	-	-	-	-	2	-	62	61	-	44
6	-	-	-	-	-	-	-	24	13	-	12
7	-	-	-	-	-	-	-	2	9	-	2
8	-	-	-	-	-	-	-	-	-	-	-
wallscrapes	-	-	-	-	-	-	-	-	206	-	-
Grand Total	**2**	**2**	**50**	**2**	**6**	**2**	**4**	**324**	**3,006**	**8**	**110**

A.2. Back Creek Village all middens (continued).

Level	Lithic, Biface	Lithic, Flake	Lithic, Other	Ochre	Prehistoric Pipe Frag.	Shell, Other	Whelk	Shell, Worked	Grand Total	%
1	-	2	6	-	2	-	14	2	930	24.81
2	-	12	12	-	2	2	22	-	1,233	32.90
3	-	20	32	-	-	-	22	2	759	20.25
4	-	10	12	-	-	-	14	-	345	9.20
5	2	2	10	-	-	-	8	-	191	5.10
6	2	-	6	2	-	-	2	-	61	1.63
7	-	-	4	-	-	-	-	-	17	0.45
8	-	-	2	-	-	-	-	-	2	0.05
wallscrapes	-	-	-	-	-	-	4	-	210	5.60
Grand Total	**4**	**46**	**84**	**2**	**4**	**2**	**86**	**4**	**3,748**	**100**

A.2. Back Creek Village artifacts by midden.

Midden A

Level	Bead, Shell	Bead, Stone	Daub	Ceramic, ABO	Ceramic, Other	Fired Clay	Lithic, Flake	Lithic, Other	Whelk	Total	%
1	4	-	4	117	-	-	-	-	-	125	15.88
2	-	-	100	176	6	2	-	2	6	292	37.10
3	-	2	56	104	-	20	4	8	2	196	24.90
4	-	-	14	61	-	-	2	4	2	83	10.55
5	-	-	6	17	-	2	2	2	2	31	3.94
6	-	-	2	-	-	-	-	-	-	2	0.25
wallscrapes	-	-	-	58	-	-	-	-	-	58	7.37
Total	**4**	**2**	**182**	**533**	**6**	**24**	**8**	**16**	**12**	**787**	**100.00**

Midden B

Level	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Lithic, Other	Whelk	Total	%
1	2	111	2	-	-	-	115	43.89
2	-	73	2	-	2	2	79	30.15
3	22	30	-	2	2	2	58	22.14
4	2	6	-	-	-	2	10	3.82
Total	**26**	**220**	**4**	**2**	**4**	**6**	**262**	**100.00**

Midden C

Level	Baked Clay Item	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Lithic, Other	Prehistoric Pipe Frag.	Whelk	Shell, Worked	Total	%
1	2	4	104	-	-	2	2	2	2	118	32.96
2	-	8	122	-	4	-	-	2	-	136	37.99
3	-	2	49	2	-	-	-	-	-	53	14.80
4	-	-	23	-	2	2	-	-	-	27	7.54
5	-	-	1	-	-	-	-	-	-	1	0.28
wallscrapes	-	-	23	-	-	-	-	-	-	23	6.42
Total	**2**	**14**	**322**	**2**	**6**	**4**	**2**	**4**	**2**	**358**	**100.00**

A.2. Back Creek Village artifacts by midden (continued).

Midden D

Level	Bead Blank, Shell	Bead, Shell	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Lithic, Other	Prehistoric Pipe Frag.	Whelk	Total	%
1	-	2	2	157	2	2	-	-	-	165	33.33
2	-	-	-	133	4	-	2	2	4	145	29.29
3	2	-	-	56	-	4	6	-	10	78	15.76
4	-	-	-	34	-	-	2	-	6	42	8.48
5	-	-	-	7	-	-	-	-	-	7	1.41
6	-	-	-	1	-	-	-	-	2	3	0.61
7	-	-	-	-	-	-	2	-	-	2	0.40
wallscrapes	-	-	-	53	-	-	-	-	-	53	10.71
Total	**2**	**2**	**2**	**441**	**6**	**6**	**12**	**2**	**22**	**495**	**100.00**

Midden F

Level	Bead, Shell	Bone, Pin	Daub	Ceramic, ABO	Ceramic, Other	Fired Clay	Lithic, Biface	Lithic, Flake	Lithic, Other	Whelk	Total	%
1	4	-	4	160	-	2	-	-	4	4	178	18.54
2	6	-	2	274	-	4	-	4	2	4	296	30.83
3	4	-	8	143	2	4	-	8	14	4	187	19.48
4	-	-	4	61	-	2	-	6	2	2	77	8.02
5	-	2	54	16	-	42	2	-	4	-	120	12.50
6	-	-	18	2	-	12	2	-	4	-	38	3.96
7	-	-	-	-	-	2	-	-	-	-	2	0.21
wallscrapes	-	-	-	58	-	-	-	-	-	4	62	6.46
Total	**14**	**2**	**90**	**714**	**2**	**68**	**4**	**18**	**30**	**18**	**960**	**100.00**

A.2. Back Creek Village artifacts by midden (continued).

Midden G

Level	Bead, Shell	Bone, Worked	Daub	Ceramic, ABO	Fired Clay	Lithic, Flake	Lithic, Other	Whelk	Shell, Worked	Total	%
1	-	-	-	91	2	-	-	8	-	101	22.20
2	8	2	-	98	2	2	2	2	-	116	25.49
3	-	2	-	139	2	-	-	4	2	149	32.75
4	-	-	2	61	-	-	2	-	-	65	14.29
5	-	-	-	1	-	-	-	-	-	1	0.22
6	-	-	2	3	-	-	2	-	-	7	1.54
7	-	-	-	2	-	-	-	-	-	2	0.44
wallscrapes	-	-	-	14	-	-	-	-	-	14	3.08
Total	**8**	**4**	**4**	**409**	**6**	**2**	**6**	**14**	**2**	**455**	**100.00**

Midden H

Level	Bead, Shell	Bone, Other	Daub	Ceramic, ABO	Lithic, Flake	Lithic, Other	Shell, Other	Whelk	Total	%
1	8	-	-	120	-	-	-	-	128	31.14
2	12	6	-	139	2	2	2	2	165	40.15
3	2	-	-	24	2	2	-	-	30	7.30
4	-	-	-	39	-	-	-	2	41	9.98
5	-	-	2	15	-	2	-	6	25	6.08
6	-	-	2	7	-	-	-	-	9	2.19
7	-	-	2	7	-	2	-	-	11	2.68
8	-	-	-	-	-	2	-	-	2	0.49
Total	**22**	**6**	**6**	**351**	**4**	**10**	**2**	**10**	**411**	**100.00**

A.2. Back Creek Village artifacts by midden (continued).

Sand Mound

Level	Ceramic, ABO	Lithic, Other	Ochre	Total	%
1	-	-	-	0	0.00
2	4	-	-	4	20.00
3	8	-	-	8	40.00
4	-	-	-	0	0.00
5	4	2	-	6	30.00
6	-	-	2	2	10.00
Total	**16**	**2**	**2**	**20**	**100.00**

A.3. Fallen Tree Midden I-A artifacts by unit and feature.

Context	Bead Blank, Shell	Bead, Bone	Bead, Ceramic	Bead, Glass	Bead, Shell	Bead, Stone	Bone tools	Daub	Ceramic, ABO	Ceramic, Historic	Ceramic, Other
A	-	-	-	-	1	-	2	-	626	-	-
B	-	-	-	-	-	-	-	1	204	-	-
D	-	-	-	-	1	-	-	2	153	-	-
E	1	-	-	-	1	-	-	9	287	3	-
F	-	-	-	-	-	-	-	8	321	4	-
G	-	-	-	-	2	1	-	-	303	-	-
H	-	1	-	-	2	-	-	-	387	1	-
N4 E807	-	-	-	1	-	-	-	-	42	-	-
N4 E808	1	-	-	1	-	-	-	-	137	1	-
N5 E805	-	-	-	-	-	-	-	-	4	-	-
N5 E806	-	-	-	-	-	-	-	-	16	-	-
N5 E807	-	-	-	-	1	-	-	-	50	-	-
N5 E808	-	-	-	-	1	-	-	-	36	1	-
N6 E805	-	-	-	-	-	-	-	-	153	-	-
N6 E806	-	-	-	-	-	-	-	-	71	-	-
N6 E807	-	-	-	-	1	-	-	-	71	-	1
N6 E808	-	-	-	-	1	-	-	-	225	1	-
F (FT 2013) 1 NE Bisect	-	-	-	1	-	-	-	-	7	-	-
F (FT 2013) 6	-	-	-	-	-	-	-	-	2	-	-
F (FT 2013) 9	-	-	-	1	14	1	2	3	2,105	4	-
F (FT 2013) 11	-	-	-	1	3	2	1	-	749	1	-
F (FT 2013) 14	-	-	-	1	11	-	-	-	25	-	-
F (FT 2013) 25	-	-	-	-	-	-	-	-	8	-	-
F (FT 2013) 29	-	-	-	-	-	-	-	-	46	1	-
F (FT 2013) 30	-	-	1	-	4	-	2	-	541	-	-
F (FT 2013) 67	-	-	-	-	-	-	-	-	1	-	-
F (FT 2013) 67 SW BISECT	-	-	-	-	-	-	-	-	11	-	-
F (FT 2013) 70	-	-	-	-	-	-	1	-	21	-	-
F (FT 2013) 73	-	-	-	-	-	-	-	-	6	-	-
F (FT 2013) 74	-	-	-	-	-	-	-	-	16	-	-
Operation 9	-	-	-	-	-	-	1	-	69	-	-
Total	**2**	**1**	**1**	**6**	**43**	**4**	**9**	**23**	**6,693**	**17**	**1**

A.3. Fallen Tree Midden I-A artifacts by unit and feature (continued).

Context	Fired Clay	Glass	Lithics	Metal Fishing wght.	Iron nail	Iron UID	Lead	Lead Shot	Iron scale	Slag	Metal, UID
A	-	-	3	-	-	-	1	-	-	2	-
B	-	-	-	1	1	-	-	-	-	-	-
D	-	-	1	-	-	-	-	-	-	-	-
E	-	-	3	-	-	-	-	1	-	1	-
F	-	-	2	-	-	-	-	-	-	-	-
G	-	-	2	-	-	-	-	-	-	-	-
H	-	5	1	-	-	-	-	-	-	-	-
N4 E807	5	-	-	-	-	-	-	-	-	-	-
N4 E808	1	-	-	-	-	-	-	-	-	-	-
N5 E805	-	-	-	-	-	-	-	1	-	-	-
N5 E806	-	-	-	-	-	-	-	-	-	-	-
N5 E807	-	-	-	-	-	-	-	-	-	-	-
N5 E808	1	-	1	-	-	-	-	-	-	1	-
N6 E805	-	-	1	-	-	-	-	-	-	-	-
N6 E806	-	-	-	-	-	-	-	-	1	-	-
N6 E807	5	1	-	-	-	-	-	-	3	-	-
N6 E808	15	-	1	-	-	-	-	-	-	-	-
F (FT 2013) 1 NE Bisect	3	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 6	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 9	63	2	5	-	-	-	-	1	2	-	1
F (FT 2013) 11	41	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 14	10	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 25	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 29	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 30	23	-	1	-	-	-	-	-	-	-	-
F (FT 2013) 67	-	-	-	-	-	1	-	-	-	-	-
F (FT 2013) 67 SW BISECT	5	-	1	-	-	-	-	-	-	-	-
F (FT 2013) 70	8	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 73	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 74	5	-	-	-	-	-	-	-	-	-	-
Operation 9	-	-	-	-	-	-	-	-	-	-	-
Total	**185**	**8**	**22**	**1**	**1**	**1**	**1**	**3**	**6**	**4**	**1**

A.3. Fallen Tree Midden I-A artifacts by unit and feature (continued).

Context	Ochre	Prehistoric Pipe Frag.	Historic Pipe Frag.	Whelk	Total	%
A	4	-	-	2	638	8.92%
B	46	1	-	-	254	3.55%
D	-	-	-	2	159	2.22%
E	-	-	-	-	306	4.28%
F	-	-	-	-	335	4.68%
G	-	-	-	-	308	4.30%
H	2	-	-	1	400	5.59%
N4 E807	-	-	-	-	48	0.67%
N4 E808	2	-	-	-	143	2.00%
N5 E805	-	-	-	-	5	0.07%
N5 E806	-	-	-	-	16	0.22%
N5 E807	-	-	-	-	51	0.71%
N5 E808	-	-	-	-	41	0.57%
N6 E805	-	-	-	-	154	2.15%
N6 E806	1	-	-	-	73	1.02%
N6 E807	-	-	-	-	82	1.15%
N6 E808	2	-	-	1	246	3.44%
F (FT 2013) 1 NE Bisect	-	-	-	-	11	0.15%
F (FT 2013) 6	-	-	-	-	2	0.03%
F (FT 2013) 9	15	-	1	5	2,225	31.09%
F (FT 2013) 11	18	-	-	-	816	11.40%
F (FT 2013) 14	1	-	-	1	49	0.68%
F (FT 2013) 25	-	-	-	-	8	0.11%
F (FT 2013) 29	1	-	-	-	48	0.67%
F (FT 2013) 30	16	-	-	-	588	8.22%
F (FT 2013) 67	-	-	-	-	2	0.03%
F (FT 2013) 67 SW BISECT	-	-	-	1	18	0.25%
F (FT 2013) 70	-	-	-	-	30	0.42%
F (FT 2013) 73	-	-	-	-	6	0.08%
F (FT 2013) 74	-	-	-	-	21	0.29%
Operation 9	-	-	-	-	70	0.98%
Total	**108**	**1**	**1**	**13**	**7,156**	**100.00%**

APPENDIX B
GEORGIA COAST CERAMIC TYPES

Table B.1 describes the chronology and ceramic types for the Georgia coast. The table includes periods, phases, ceramic types, and general temper for the types. In addition, the table provides ceramic date ranges for the North Georgia coast and St. Catherines Island. The information is based on Thomas 2008: 405, Table 15.1 and 423, Table 15.3.

B.1. Georgia coast chronology and ceramic types.

Periods	Phases	Ceramic types	Temper	North Georgia Coast Dates (uncalibrated)	North Georgia Coast Dates (calibrated)	St. Catherines Island Dates (calibrated)
Altamaha	Altamaha	Altamaha Line Block Altamaha Check Stamped Altamaha Cross Simple Stamped Altamaha Simple Stamped Altamaha/Mission Red Filmed Irene Incised Irene Burnished Plain Irene Plain Irene Complicated Stamped	Grit	A.D. 1580–1700+	–	A.D. 1580–1700+
Irene	Irene II/ Pine Harbor	Irene Incised (many lines and bold incising) Irene Complicated Stamped Irene Burnished Plain Irene Plain	Grit	A.D. 1450–1580	–	A.D. 1450–1580
	Pipemaker's Creek	Irene Incised (few incised lines) Irene Complicated Stamped Irene Burnished Plain Irene Plain		A.D. 1350–1450	–	–
	Irene I	Irene Complicated Stamped Irene Burnished Plain Irene Plain		A.D. 1325–1450	A.D. 1310–1410	A.D. 1300–1450
	Savannah II	Savannah Complicated Stamped Savannah Check Stamped Savannah Cord Marked Savannah Burnished Plain Savannah Plain	Sand	A.D. 1300–1325	A.D. 1300–1390	Savannah phase deleted

B.1. Georgia coast chronology and ceramic types (continued).

Periods	Phases	Ceramic types	Temper	North Georgia Coast Dates (uncalibrated)	North Georgia Coast Dates (calibrated)	St. Catherines Island Dates (calibrated)
St. Catherines	St. Catherines	St. Catherines Net Marked St. Catherines Cordmarked St. Catherines Burnished Plain St. Catherines Plain	Fine clay/grog	A.D. 1000–1200	A.D. 1150–1280	A.D. 800–1300
Wilmington	Wilmington	Wilmington Cord Marked Wilmington Brushed Wilmington Fabric Marked Wilmington Plain	Coarse clay/grog	A.D. 600–1000	A.D. 660–1150	A.D. 350–800
	Walthour (Deptford III)	Wilmington Cord Marked Walthour Check Stamped Walthour Complicated Stamped Wilmington Plain		A.D. 500–600	A.D. 630–660	
Deptford	Deptford II	Deptford Complicated Stamped Deptford Cord Marked Deptford Check Stamped Refuge Simple Stamped Refuge Plain	Sand and grit	A.D. 300–500	A.D. 410–630	350 B.C. – A.D.350
	Deptford I	Deptford Linear Check Stamped Deptford Cord Marked Deptford Check Stamped Refuge Simple Stamped Refuge Plain		400 B.C. – A.D. 300	400 B.C. – A.D. 410	

B.1. Georgia coast chronology and ceramic types (continued).

Periods	Phases	Ceramic types	Temper	North Georgia Coast Dates (uncalibrated)	North Georgia Coast Dates (calibrated)	St. Catherines Island Dates (calibrated)
Refuge	Refuge III	Deptford Linear Check Stamped Deptford Check Stamped Refuge Simple Stamped Refuge Plain	Sand and grit	900–400 B.C.	1000–400 B.C.	1000–350 B.C.
	Refuge II	Refuge Dentate Stamped Refuge Plain Refuge Simple Stamped		1000–900 B.C.	1200–1000 B.C.	
	Refuge I	Refuge Simple Stamped Refuge Punctated Refuge Plain Refuge Incised		1100–1000 B.C.	1360–1210 B.C.	
St. Simons	St. Simons II	St. Simons Incised and Punctated St. Simons Incised St. Simons Punctated St. Simons Plain	Fiber	1700–1100 B.C.	1980–1360 B.C.	3000–1000 B.C.
	St. Simons I	St. Simons Plain		2200–1700 B.C.	2860–1980 B.C.	

APPENDIX C
MISSISSIPPIAN CERAMIC TYPES BY SITE

Table C.1 describes the frequencies and percentages of all Mississippian ceramics types for the five assemblages: Meeting House Field, Back Creek Village, Fallen Tree Midden I-A, South End Mound I, and Fallen Tree Cemetery.

Table C.1. Mississippian ceramic types for each assemblage.

	MHF		BCV		FTMA		SEMI		FTMC		Total	
Ceramic types	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Altamaha brushed/scraped	-	-	-	-	4	0.16	-	-	-	-	4	0.04
Altamaha check and line block stamped	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Altamaha check stamped	-	-	1	0.08	4	0.16	-	-	1	0.02	6	0.05
Altamaha checked and linear stamped	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Altamaha circle in circle stamped	-	-	-	-	2	0.08	-	-	-	-	2	0.02
Altamaha circle in square stamped	-	-	3	0.24	18	0.73	-	-	1	0.02	22	0.2
Altamaha complicated stamped	-	-	-	-	-	-	-	-	2	0.04	2	0.02
Altamaha cord marked stamped	-	-	-	-	2	0.08	-	-	-	-	2	0.02
Altamaha cross simple stamped	-	-	-	-	55	2.23	-	-	11	0.2	66	0.6
Altamaha decorated	-	-	-	-	7	0.28	-	-	1	0.02	8	0.07
Altamaha incised	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Altamaha incised and punctated	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Altamaha incised, punctated, and stamped	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Altamaha line block and check stamped	-	-	-	-	2	0.08	-	-	-	-	2	0.02
Altamaha line block and corn cob stamped	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Altamaha line block and cross simple stamped	-	-	-	-	12	0.49	-	-	-	-	12	0.11
Altamaha line block stamped	4	0.36	1	0.08	58	2.35	1	0.19	47	0.85	111	1.02
Altamaha linear and cross simple stamped, check	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Altamaha plain	-	-	-	-	30	1.22	-	-	-	-	30	0.27
Altamaha punctated	-	-	-	-	43	1.74	-	-	4	0.07	47	0.43
Altamaha punctated and stamped	-	-	-	-	6	0.24	-	-	4	0.07	10	0.09
Altamaha simple stamped	-	-	-	-	41	1.66	-	-	2	0.04	43	0.39
Altamaha square in square stamped	-	-	1	0.08	1	0.04	-	-	-	-	2	0.02
Altamaha stamped	-	-	-	-	81	3.28	-	-	6	0.11	87	0.8
Clay and grit check stamped	-	-	-	-	-	-	-	-	4	0.07	4	0.04
Clay and grit complicated stamped	-	-	4	0.32	-	-	-	-	5	0.09	9	0.08
Clay and grit cordmarked	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Clay and grit decorated	13	1.16	1	0.08	-	-	-	-	2	0.04	16	0.15
Clay and grit incised	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Clay and grit plain	-	-	-	-	-	-	-	-	4	0.07	4	0.04
Clay and grit stamped	1	0.09	2	0.16	1	0.04	-	-	3	0.05	7	0.06

Table C.1. Mississippian ceramic types for each assemblage (continued).

	MHF		BCV		FTMA		SEMI		FTMC		Total	
Ceramic types	N	%	N	%	N	%	N	%	N	%	N	%
Clay complicated stamped	1	0.09	18	1.43	-	-	-	-	1	0.02	20	0.18
Grit ad clay cordmarked	-	-	-	-	-	-	-	-	2	0.04	2	0.02
Grit and clay check stamped	-	-	-	-	-	-	-	-	11	0.2	11	0.1
Grit and clay complicated stamped	1	0.09	5	0.4	1	0.04	-	-	9	0.16	16	0.15
Grit and clay cross simple stamped	-	-	-	-	1	0.04	-	-	2	0.04	3	0.03
Grit and clay decorated	-	-	-	-	1	0.04	-	-	18	0.32	19	0.17
Grit and clay incised Grit	-	-	-	-	1	0.04	-	-	3	0.05	4	0.04
and clay line block Grit	-	-	-	-	-	-	-	-	1	0.02	1	0.01
and clay plain	-	-	-	-	2	0.08	1	0.19	31	0.56	34	0.31
Grit and clay punctated	-	-	-	-	-	-	-	-	2	0.04	2	0.02
Grit and clay stamped Grit	-	-	3	0.24	6	0.24	-	-	26	0.47	35	0.32
and clay stamped and punctated	-	-	1	0.08	-	-	-	-	-	-	1	0.01
Grit and sand check stamped	-	-	-	-	1	0.04	-	-	8	0.14	9	0.08
Grit and sand complicated stamped	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Grit and sand cross simple stamped	-	-	-	-	-	-	-	-	5	0.09	5	0.05
Grit and sand decorated	-	-	2	0.16	1	0.04	-	-	13	0.23	16	0.15
Grit and sand incised Grit	-	-	-	-	2	0.08	-	-	-	-	2	0.02
and sand plain	-	-	-	-	2	0.08	-	-	20	0.36	22	0.2
Grit and sand punctated	-	-	-	-	2	0.08	-	-	-	-	2	0.02
Grit and sand stamped	-	-	1	0.08	10	0.41	-	-	36	0.65	47	0.43
Grit and shell deocrated	-	-	-	-	-	-	-	-	4	0.07	4	0.04
Grit brushed/scraped Grit	1	0.09	-	-	4	0.16	-	-	-	-	5	0.05
check stamped	-	-	4	0.32	19	0.77	2	0.39	304	5.47	329	3.01
Grit circle in circle stamped	1	0.09	4	0.32	-	-	-	-	-	-	5	0.05
Grit circle in square stamped	2	0.18	6	0.48	-	-	-	-	-	-	8	0.07
Grit complicated stamped	13	1.16	96	7.61	-	-	-	-	-	-	109	1
Grit cob marked	-	-	-	-	-	-	1	0.19	-	-	1	0.01
Grit cordmarked	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Grit cross simple stamped	8	0.72	6	0.48	1	0.04	-	-	8	0.14	23	0.21
Grit decorated	244	21.82	146	11.58	246	9.96	-	-	217	3.9	853	7.81
Grit depressed square stamped	-	-	1	0.08	-	-	-	-	-	-	1	0.01
Grit engraved	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Grit incised	5	0.45	6	0.48	15	0.61	-	-	6	0.11	32	0.29
Grit incised and stamped	-	-	2	0.16	2	0.08	-	-	-	-	4	0.04
Grit line block or cross simple stamped	-	-	5	0.4	3	0.12	-	-	-	-	8	0.07
Grit line block stamped	1	0.09	4	0.32	-	-	-	-	1	0.02	6	0.05

Table C.1. Mississippian ceramic types for each assemblage (continued).

	MHF		BCV		FTMA		SEMI		FTMC		Total	
Ceramic types	N	%	N	%	N	%	N	%	N	%	N	%
Grit linear stamped	31	2.77	68	5.39	2	0.08	-	-	11	0.2	112	1.02
Grit linear and cross simple Stamped	-	-	6	0.48	-	-	-	-	-	-	6	0.05
Grit plain	36	3.22	90	7.14	278	11.26	-	-	105	1.89	509	4.66
Grit punctated	-	-	-	-	71	2.88	-	-	19	0.34	90	0.82
Grit simple and cross simple stamped	-	-	1	0.08	-	-	-	-	-	-	1	0.01
Grit simple stamped	1	0.09	-	-	-	-	-	-	-	-	1	0.01
Grit square in square stamped	3	0.27	1	0.08	-	-	-	-	-	-	4	0.04
Grit stamped	148	13.24	254	20.14	531	21.51	48	9.25	870	15.65	1,851	16.94
Grit stamped and punctated	-	-	-	-	2	0.08	-	-	-	-	2	0.02
Grit textile impressed	-	-	2	0.16	-	-	-	-	-	-	2	0.02
Grit, sand , and clay plain	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Irene brushed/scraped	-	-	1	0.08	1	0.04	-	-	-	-	2	0.02
Irene check stamped	-	-	8	0.63	2	0.08	-	-	35	0.63	45	0.41
Irene circle in square	-	-	-	-	1	0.04	-	-	3	0.05	4	0.04
Irene complicated stamped	350	31.31	221	17.53	321	13	375	72.25	1104	19.86	2,371	21.7
Irene decorated	9	0.81	4	0.32	10	0.41	-	-	77	1.38	100	0.92
Irene incised	23	2.06	42	3.33	233	9.44	5	0.96	552	9.93	855	7.82
Irene incised and punctated	-	-	-	-	6	0.24	-	-	8	0.14	14	0.13
Irene incised and stamped	-	-	-	-	7	0.28	1	0.19	7	0.13	15	0.14
Irene linear stamped	-	-	2	0.16	-	-	-	-	-	-	2	0.02
Irene plain	36	3.22	84	6.66	145	5.87	85	16.38	330	5.94	680	6.22
Irene punctated	-	-	1	0.08	21	0.85	-	-	8	0.14	30	0.27
Irene stamped	80	7.16	4	0.32	29	1.17	-	-	404	7.27	517	4.73
Irene stamped and punctated	-	-	-	-	6	0.24	-	-	49	0.88	55	0.5
Irene/Altamaha circle in square stamped	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Irene/Altamaha decorated	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Irene/Altamaha linear stamped	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Irene/Altamaha plain	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Irene/Altamaha punctated	-	-	-	-	5	0.2	-	-	2	0.04	7	0.06
Irene/Altamaha stamped and punctated	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Sand and clay check stamped	-	-	-	-	-	-	-	-	7	0.13	7	0.06
Sand and clay complicated stamped	-	-	-	-	-	-	-	-	19	0.34	19	0.17
Sand and clay cordmarked	-	-	-	-	-	-	-	-	6	0.11	6	0.05
Sand and clay decorated	2	0.18	-	-	-	-	-	-	10	0.18	12	0.11

Table C.1. Mississippian ceramic types for each assemblage (continued).

	MHF		BCV		FTMA		SEMI		FTMC		Total	
Ceramic types	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Sand and clay incised	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Sand and clay plain	2	0.18	-	-	-	-	-	-	9	0.16	11	0.1
Sand and clay stamped	1	0.09	-	-	-	-	-	-	17	0.31	18	0.16
Sand and girt brushed/scraped	-	-	2	0.16	-	-	-	-	-	-	2	0.02
Sand and grit check stamped	-	-	-	-	6	0.24	-	-	87	1.56	93	0.85
Sand and grit circle in circle stamped	1	0.09	-	-	-	-	-	-	-	-	1	0.01
Sand and grit complicated stamped	1	0.09	16	1.27	-	-	-	-	22	0.4	39	0.36
Sand and grit cordmarked	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Sand and grit cross simple stamped	-	-	-	-	-	-	-	-	10	0.18	10	0.09
Sand and grit decorated	9	0.81	4	0.32	4	0.16	-	-	110	1.98	127	1.16
Sand and grit incised	-	-	1	0.08	3	0.12	-	-	1	0.02	5	0.05
Sand and grit linear stamped	3	0.27	-	-	-	-	-	-	-	-	3	0.03
Sand and grit plain	7	0.63	16	1.27	3	0.12	-	-	93	1.67	119	1.09
Sand and grit punctated	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Sand and grit stamped	4	0.36	9	0.71	11	0.45	-	-	173	3.11	197	1.8
Sand brushed/scraped	-	-	1	0.08	-	-	-	-	-	-	1	0.01
Sand check stamped	-	-	-	-	-	-	-	-	17	0.31	17	0.16
Sand complicated stamped	1	0.09	9	0.71	1	0.04	-	-	13	0.23	24	0.22
Sand cordmarked	-	-	1	0.08	-	-	-	-	5	0.09	6	0.05
Sand decorated	8	0.72	11	0.87	6	0.24	-	-	43	0.77	68	0.62
Sand incised	3	0.27	1	0.08	4	0.16	-	-	4	0.07	12	0.11
Sand incised and punctated	1	0.09	-	-	1	0.04	-	-	-	-	1	0.01
Sand incised and stamped	-	-	1	0.08	1	0.04	-	-	-	-	2	0.02
Sand linear stamped	-	-	2	0.16	-	-	-	-	-	-	2	0.02
Sand plain	33	2.95	46	3.65	14	0.57	-	-	46	0.83	139	1.27
Sand punctated	-	-	-	-	2	0.08	-	-	2	0.04	4	0.04
Sand simple stamped	-	-	-	-	-	-	-	-	2	0.04	2	0.02
Sand stamped	1	0.09	9	0.71	8	0.32	-	-	75	1.35	93	0.85
Sand, clay, grit plain	-	-	-	-	-	-	-	-	3	0.05	3	0.03
Sand, clay, grit stamped	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Sand, grit, and clay plain	-	-	-	-	-	-	-	-	11	0.2	11	0.1
Sand, grit, clay check stamped	-	-	-	-	-	-	-	-	6	0.11	6	0.05
Sand, grit, clay complicated stamped	-	-	1	0.08	1	0.04	-	-	19	0.34	21	0.19
Sand, grit, clay cordmarked	-	-	-	-	-	-	-	-	2	0.04	2	0.02
Sand, grit, clay decorated	-	-	-	-	1	0.04	-	-	2	0.04	3	0.03
Sand, grit, clay stamped	-	-	-	-	-	-	-	-	6	0.11	6	0.05

Table C.1. Mississippian ceramic types for each assemblage (continued).

	MHF		BCV		FTMA		SEMI		FTMC		Total	
Ceramic types	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Savannah check stamped	-	-	13	1.03	5	0.2	-	-	113	2.03	131	1.2
Savannah complicated stamped	1	0.09	3	0.24	3	0.12	-	-	33	0.59	40	0.37
Savannah cordmarked	10	0.89	-	-	2	0.08	-	-	27	0.49	39	0.36
Savannah decorated	1	0.09	-	-	1	0.04	-	-	13	0.23	15	0.14
Savannah incised	1	0.09	-	-	-	-	-	-	-	-	1	0.01
Savannah linear stamped	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Savannah plain	13	1.16	2	0.16	15	0.61	-	-	82	1.47	112	1.02
Savannah punctated	-	-	-	-	1	0.04	-	-	-	-	1	0.01
Savannah stamped	3	0.27	1	0.08	4	0.16	-	-	51	0.92	59	0.54
Savannah/Irene stamped	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Shell stamped	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Shell plain	-	-	-	-	-	-	-	-	1	0.02	1	0.01
Totals	**1,118**	**100**	**1,261**	**100**	**2,469**	**100**	**519**	**100**	**5,560**	**100**	**10,927**	**100**

APPENDIX D
SELECTION OF RIM PROFILES

Figures D.1 to D.4 illustrate a selection of rim profiles for Meeting House Field, Back Creek Village, Fallen Tree Midden I-A, and Fallen Tree Cemetery. Rim profiles consist of incurved, straight, and flared bowls and straight and flared jars from each site.

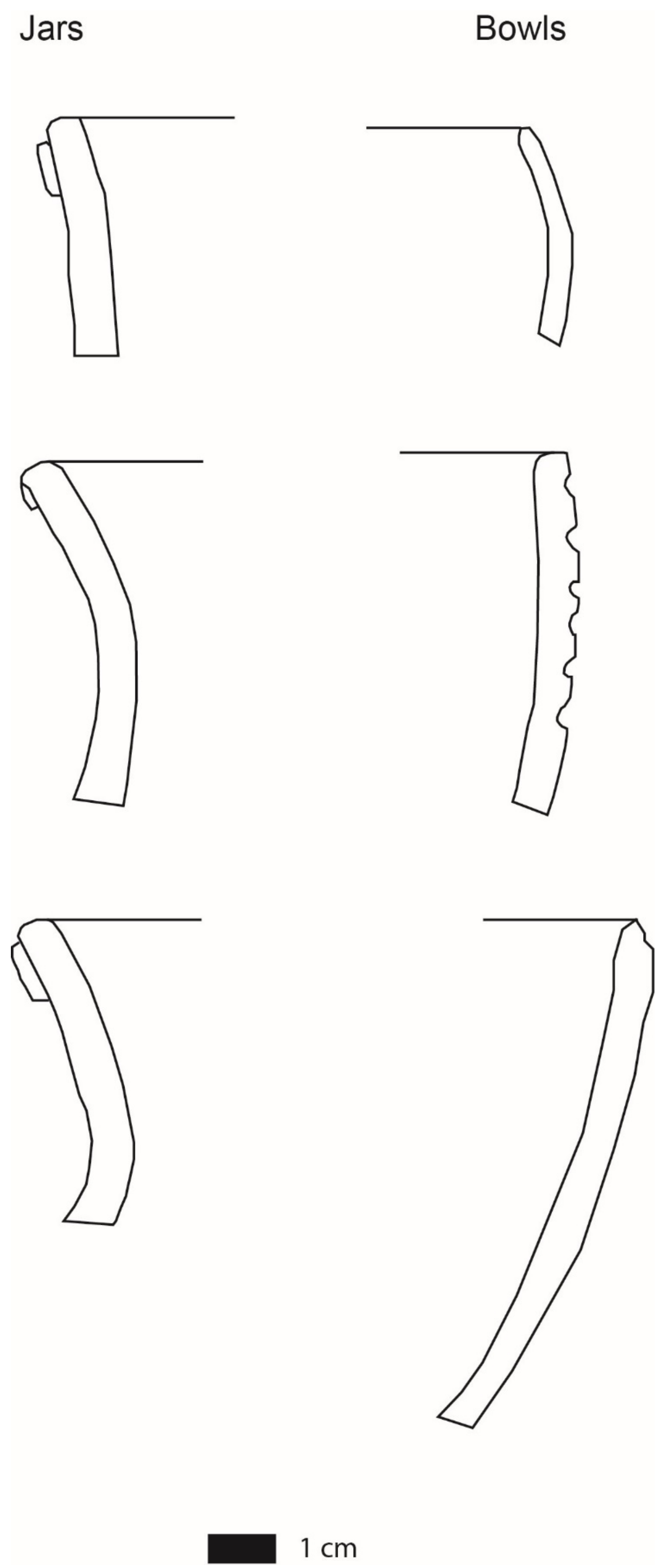

Fig. D.1. Meeting House Field selected rims profiles.

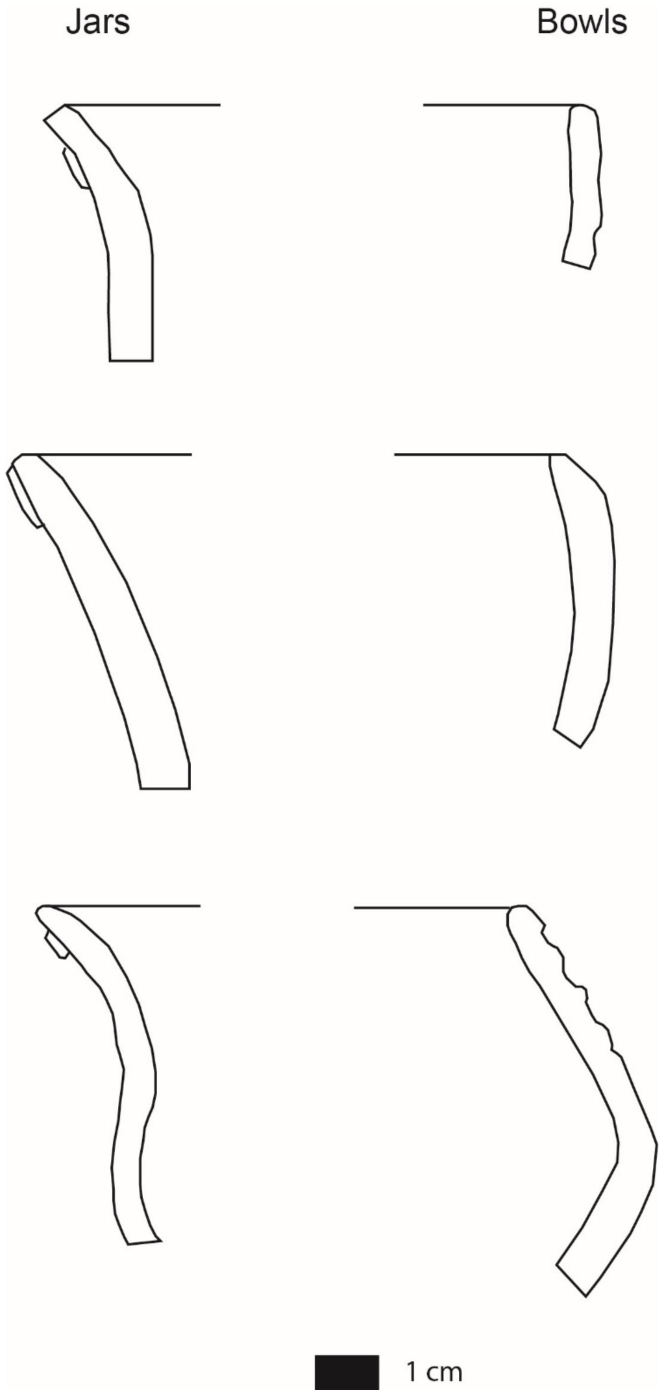

Fig. D.2. Back Creek Village selected rims profiles.

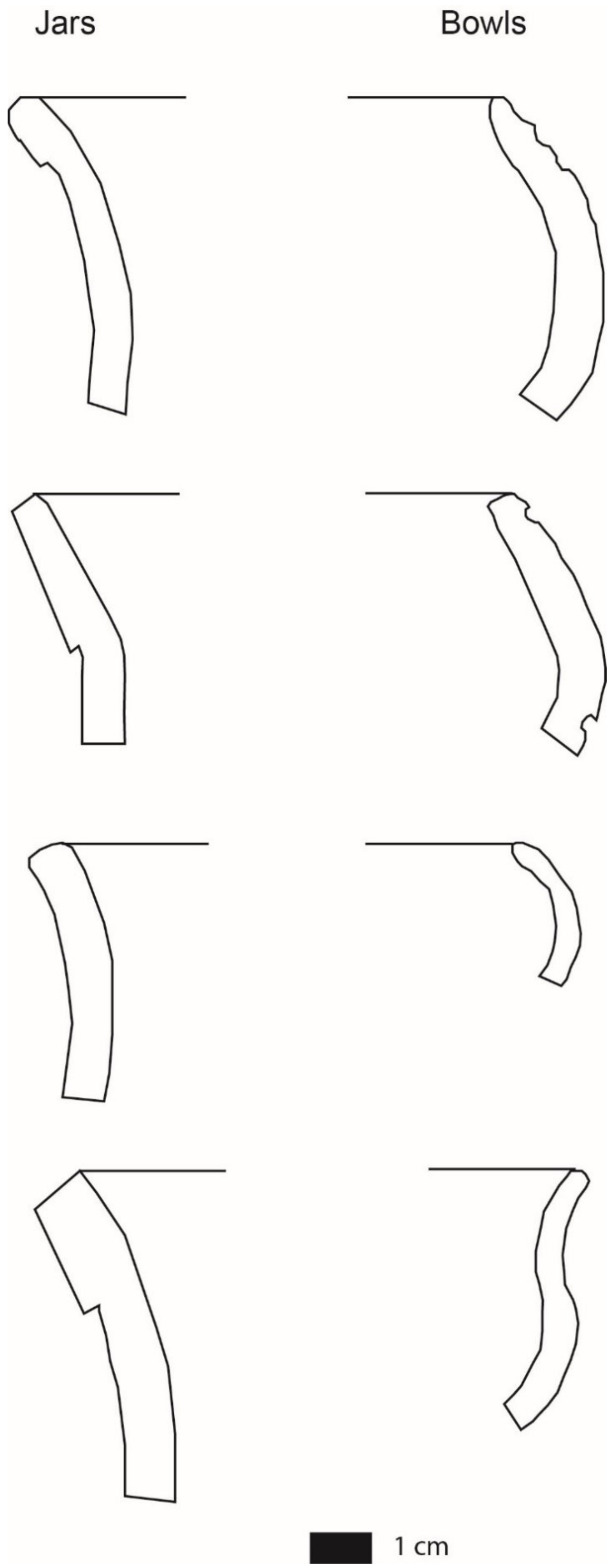

Fig. D.3. Fallen Tree Midden I-A selected rims profiles.

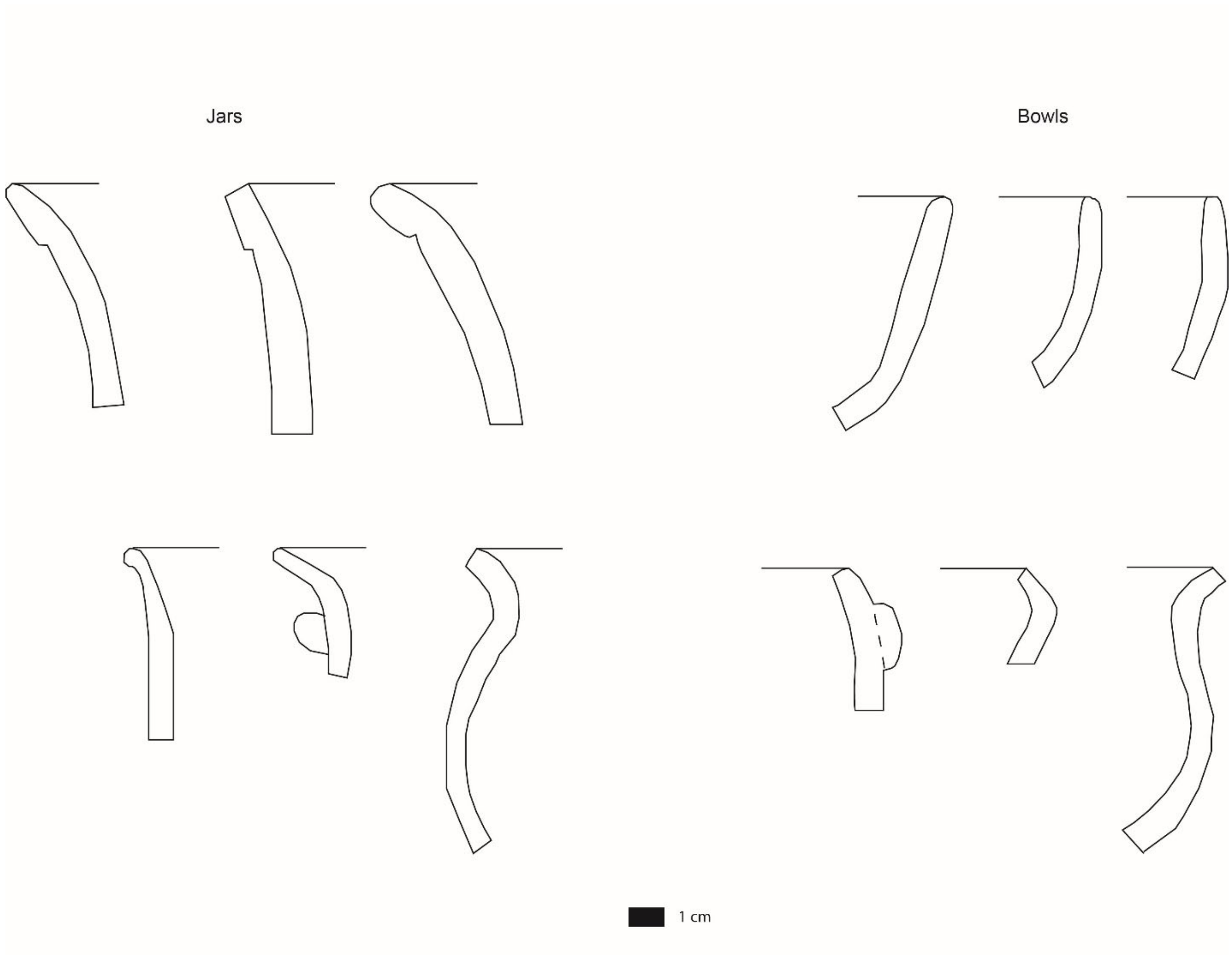

Fig. D.4. Fallen Tree Cemetery selected rims profiles.

APPENDIX E
RIM TREATMENTS AND ELABORATIONS FOR VILLAGE SITES

Tables E.1 to E.3 describe the rim treatments and elaborations for the three St. Catherines Island village contexts: Meeting House Field, Back Creek Village, and Fallen Tree Midden I-A. Table E.1 relates to rims recovered from the 2008, 2009, and 2015 excavations at Meeting House Field. The first table lists the rim frequencies and percentage for all middens. This table is followed by rim tables for each Meeting House Field midden. Table E.2 pertains to rims recovered from the 2008 excavations at Back Creek Village. The first table lists the rim frequencies and percentages for the site. This table is followed by tables for each Back Creek Village midden. Table E.3 relates to rims recovered from the 2005 and 2013 excavations at Fallen Tree Midden I-A and includes rim frequencies and percentages by unit and feature.

E.1 Meeting House Field rim treatments and elaborations by midden.

	Midden 12		Midden 21		Midden B		Midden D		Midden E		Midden H		Midden J		Midden M		Midden N		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
plain	1	7.69	2	9.52	-	-	-	-	3	9.68	4	33.33	-	-	3	33.33	-	-	13	13.13
incised	-	-	-	-	3	50	1	20	2	6.45	-	-	-	-	-	-	-	-	6	6.06
incised and punctated	-	-	-	-	-	-	-	-	1	3.23	-	-	-	-	-	-	-	-	1	1.01
stamped	2	15.38	-	-	-	-	-	-	1	3.23	-	-	-	-	-	-	-	-	3	3.03
stamped, complicated	1	7.69	1	4.76	-	-	-	-	1	3.23	-	-	-	-	-	-	-	-	3	3.03
stamped, uid	2	15.38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2.02
punctated	1	7.69	-	-	-	-	-	-	3	9.68	1	8.33	-	-	-	-	-	-	5	5.05
punctated, cane	-	-	-	-	1	16.67	-	-	1	3.23	-	-	-	-	-	-	-	-	2	2.02
punctated, uid	-	-	-	-	-	-	-	-	1	3.23	-	-	-	-	-	-	-	-	1	1.01
node	1	7.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.01
node, punctated	-	-	1	4.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.01
rimstrip and indented	2	15.38	10	47.62	1	16.67	1	20	4	12.90	3	25	-	-	-	-	-	-	21	21.21
rimstrip and punctated, cane	1	7.69	4	19.05	-	-	3	60	4	12.90	1	8.33	-	-	5	55.56	-	-	18	18.18
rimstrip, punctated	-	-	1	4.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.01
rimstrip, segmented	-	-	-	-	-	-	-	-	1	3.23	-	-	-	-	-	-	-	-	1	1.01
folded and punctated	-	-	1	4.76	-	-	-	-	-	-	1	8.33	-	-	-	-	-	-	2	2.02
folded and punctated, cane	-	-	-	-	-	-	-	-	3	9.68	1	8.33	-	-	-	-	1	100	5	5.05
folded/rimstrip	-	-	1	4.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.01
folded/rimstrip and punctated	1	7.69	-	-	1	16.67	-	-	1	3.23	-	-	-	-	-	-	-	-	3	3.03
rolled	-	-	-	-	-	-	-	-	1	3.23	-	-	-	-	1	11.11	-	-	2	2.02

E.1 Meeting House Field rim treatments and elaborations by midden (continued).

	Midden 12		Midden 21		Midden B		Midden D		Midden E		Midden H		Midden J		Midden M		Midden N		Total	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
decorated, uid	1	7.69	-	-	-	-	-	-	-	-	-	-	1	100	-	-	-	-	2	2.02
unidentified	-	-	-	-	-	-	-	-	4	12.90	1	8.33	-	-	-	-	-	-	5	5.05
Total	**13**	**100**	**21**	**100**	**6**	**100**	**5**	**100**	**31**	**100**	**12**	**100**	**1**	**100**	**9**	**100**	**1**	**100**	**99**	**100**

E.1 Meeting House Field rim treatments and elaborations by midden and level.

Midden 12

	plain		stamped		stamped, complicated		stamped, uid		punctated		node		rimstrip and indented		rimstrip and punctated, cane		folded/rimstrip and punctated		decorated, uid		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	-	-	-	-	-	-	-	-	1	100	-	-	-	-	1	100	-	-	-	-	2	15.38
2	-	-	1	50	1	100	2	100	-	-	-	-	-	-	-	-	-	-	1	100	5	38.46
3	1	100	1	50	-	-	-	-	-	-	-	-	-	-	-	-	1	100	-	-	3	23.08
4	-	-	-	-	-	-	-	-	-	-	1	100	1	50	-	-	-	-	-	-	2	15.38
5	-	-	-	-	-	-	-	-	-	-	-	-	1	50	-	-	-	-	-	-	1	7.69
Total	**1**	**100**	**2**	**100**	**1**	**100**	**2**	**100**	**1**	**100**	**1**	**100**	**2**	**100**	**1**	**100**	**1**	**100**	**1**	**100**	**13**	**100**

Midden 21

	plain		stamped, complicated		node, punctated		rimstrip and indented		rimstrip and punctated, cane		rimstrip, punctated		folded and punctated		folded/rimstrip		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	2	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	9.52
2	-	-	-	-	-	-	4	40	1	25	1	100	1	100	-	-	7	33.33
3	-	-	-	-	-	-	4	40	3	75	-	-	-	-	-	-	7	33.33
4	-	-	1	100	-	-	-	-	-	-	-	-	-	-	-	-	1	4.76
5	-	-	-	-	-	-	1	10	-	-	-	-	-	-	1	100	2	9.52
wallscrape	-	-	-	-	1	100	1	10	-	-	-	-	-	-	-	-	2	9.52
Total	**2**	**100**	**1**	**100**	**1**	**100**	**10**	**100**	**4**	**100**	**1**	**100**	**1**	**100**	**1**	**100**	**21**	**100**

E.1 Meeting House Field rim treatments and elaborations by midden and level (continued).

Midden B

	folded/rimstrip and punctated		incised		punctated, cane		rimstrip and indented		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-
5	1	100	2	66.67	-	-	-	-	3	50
6	-	-	1	33.33	-	-	-	-	1	16.67
wallscrape	-	-	-	-	1	100	1	100	2	33.33
Total	**1**	**100**	**3**	**100**	**1**	**100**	**1**	**100**	**6**	**100**

Midden D

	incised		rimstrip and indented		rimstrip and punctated, cane		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	1	100	1	100	-	-	2	40
2	-	-	-	-	-	-	-	-
3	-	-	-	-	3	100	3	60
Total	**1**	**100**	**1**	**100.**	**3**	**100**	**5**	**100**

E.1 Meeting House Field rim treatments and elaborations by midden and level (continued).

Midden E

	plain		incised		incised and punctated		stamped		stamped, complicated		punctated		punctated, cane		punctated, uid		rimstrip and indented		rimstrip and punctated, cane		rimstrip, segmented	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	1	50	-	-	-	-	-	-	-	-	1	100	-	-	1	25	-	-	-	-
4	1	33.33	-	-	-	-	1	100	1	100	-	-	-	-	1	100	1	25	1	25	-	-
5	-	-	1	50	-	-	-	-	-	-	1	33.33	-	-	-	-	2	50	-	-	-	-
6	-	-	-	-	1	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	25	-	-
8	1	33.33	-	-	-	-	-	-	-	-	1	33.33	-	-	-	-	-	-	1	25	-	-
9	-	-	-	-	-	-	-	-	-	-	1	33.33	-	-	-	-	-	-	1	25	1	1
10	1	33.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**3**	**100**	**2**	**100**	**1**	**100**	**1**	**100**	**1**	**100**	**3**	**100**	**1**	**100**	**1**	**100**	**4**	**100**	**4**	**100**	**1**	**1**

E.1 Meeting House Field rim treatments and elaborations by midden and level (continued).

Midden E (continued)

	folded and punctated, cane		folded/rimstrip and punctated		rolled		unidentified		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	1	33.33	-	-	-	-	-	-	1	3.23
2	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	3	9.68
4	-	-	-	-	-	-	2	50	8	25.81
5	-	-	-	-	1	100	-	-	5	16.13
6	-	-	1	100	-	-	1	25	3	9.68
7	-	-	-	-	-	-	-	-	1	3.23
8	2	66.67	-	-	-	-	1	25	6	19.35
9	-	-	-	-	-	-	-	-	3	9.68
10	-	-	-	-	-	-	-	-	1	3.23
Total	**3**	**100**	**1**	**100**	**1**	**100**	**4**	**100**	**31**	**100**

Midden J

	decorated, uid		Total	
Level	**N**	**%**	**N**	**%**
1	-	-	-	-
2	-	-	-	-
3	-	-	-	-
4	1	100	1	100
Total	**1**	**100**	**1**	**100**

E.1 Meeting House Field rim treatments and elaborations by midden and level (continued).

Midden M

	plain		rimstrip and punctated, cane		rolled		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	-	-	-	-	-	-	-	-
2	2	66.67	-	-	-	-	2	22.22
3	-	-	-	-	1	100	1	11.11
4	1	33.33	2	40	-	-	3	33.33
5	-	-	3	60	-	-	3	33.33
Total	**3**	**100**	**5**	**100**	**1**	**100**	**9**	**100**

Midden N

	folded and punctated, cane		Total	
Level	**N**	**%**	**N**	**%**
1	-	-	-	-
2	-	-	-	-
3	1	100	1	100
Total	**1**	**100**	**1**	**100**

E.2 Back Creek Village rim treatments and elaborations by midden.

	Midden A		Midden B		Midden C		Midden D		Midden F		Midden G		Midden H		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
plain	5	20.83	2	50	4	28.57	6	37.50	8	29.63	-	-	12	57.14	37	28.03
incised	1	4.17	-	-	-	-	-	-	-	-	3	11.54	-	-	4	3.03
stamped, check	2	8.33	-	-	1	7.14	-	-	-	-	-	-	-	-	3	2.27
stamped, complicated	1	4.17	1	25	4	28.57	2	12.50	1	3.70	1	3.85	-	-	10	7.58
stamped, textile	2	8.33	-	-	-	-	-	-	-	-	-	-	-	-	2	1.52
stamped, uid	1	4.17	-	-	-	-	-	-	1	3.70	-	-	-	-	2	1.52
punctated	1	4.17	-	-	-	-	-	-	1	3.70	9	34.62	2	9.52	13	9.85
node	2	8.33	-	-	1	7.14	-	-	3	11.11	-	-	-	-	6	4.55
node, punctated	-	0	1	25	-	-	-	-	4	14.81	-	-	-	-	5	3.79
rosette, cane punctated	1	4.17	-	-	-	-	-	-	2	7.41	-	-	-	-	3	2.27
rosette, punctated	-	-	-	-	-	-	-	-	1	3.70	-	-	-	-	1	0.76
rimstrip	1	4.17	-	-	-	-	1	6.25	-	-	-	-	1	4.76	3	2.27
rimstrip and indented	5	20.83	-	-	1	7.14	5	31.25	4	14.81	2	7.69	1	4.76	18	13.64
rimstrip and punctated, cane	2	8.33	-	-	-	-	1	6.25	-	-	4	15.38	-	-	7	5.30
rimstrip, punctated	-	-	-	-	-	-	-	-	-	-	-	-	2	9.52	2	1.52
folded	-	-	-	-	-	-	-	-	-	-	-	-	1	4.76	1	0.76
folded and indented	-	-	-	-	-	-	-	-	-	-	1	3.85	-	-	1	0.76
folded and punctated	-	-	-	-	-	-	-	-	-	-	1	3.85	1	4.76	2	1.52
folded and punctated, cane	-	-	-	-	-	-	-	-	1	3.70	2	7.69	-	-	3	2.27
folded/rimstrip	-	-	-	-	1	7.14	-	-	-	-	-	-	-	-	1	0.76

E.2 Back Creek Village rim treatments and elaborations by midden (continued).

	Midden A		Midden B		Midden C		Midden D		Midden F		Midden G		Midden H		Total	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
rolled	-	-	-	-	-	-	1	6.25	-	-	-	-	-	-	1	0.76
decorated, uid	-	-	-	-	-	-	-	-	1	3.70	-	-	-	-	1	0.76
unidentified	-	-	-	-	2	14.29	-	-	-	-	3	11.54	1	4.76	6	4.55
Total	**24**	**100**	**4**	**100**	**14**	**100**	**16**	**100**	**27**	**100**	**26**	**100**	**21**	**100**	**132**	**100**

E.2 Back Creek Village rim treatments and elaborations by midden and level.

Midden A

	plain		incised		stamped, check		stamped, complicated		stamped, textile		stamped, uid		punctated		node		rosette, cane punctated	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	-	-	1	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	1	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	100
3	-	-	-	-	-	-	-	-	-	-	1	100	-	-	1	50	-	-
4	1	20	-	-	2	100	-	-	2	100	-	-	1	100	-	-	-	-
5	1	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
wallscrapes	2	40	-	-	-	-	1	100	-	-	-	-	-	-	1	50	-	-
Total	**5**	**100**	**1**	**100**	**2**	**100**	**1**	**100**	**2**	**100**	**1**	**100**	**1**	**100**	**2**	**100**	**1**	**100**

Midden A (continued)

	rimstrip		rimstrip and indented		rimstrip and punctated, cane		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	-	-	2	40	-	-	3	12.50%
2	1	100	2	40	-	-	5	20.83%
3	-	-	1	20	1	50	4	16.67%
4	-	-	-	-	-	-	6	25%
5	-	-	-	-	-	-	1	4.17%
wallscrapes	-	-	-	-	1	50	5	20.83%
Total	**1**	**100**	**5**	**100**	**2**	**100**	**24**	**100%**

E.2 Back Creek Village rim treatments and elaborations by midden and level (continued).

Midden B

	plain		stamped, complicated		node, punctated		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	-	-	-	-	1	100	1	25
2	2	100	1	100	-	-	3	75
Total	**2**	**100**	**1**	**100**	**1**	**100**	**4**	**100**

Midden C

	plain		stamped, check		stamped, complicated		node		rimstrip and indented		folded/rimstrip		unidentified		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	3	75	-	-	1	25	1	100	-	-	1	100	1	50	7	50
2	1	25	-	-	1	25	-	-	1	100	-	-	1	50	4	28.57
3	-	-	1	100	1	25	-	-	-	-	-	-	-	-	2	14.29
wallscrapes	-	-	-	-	1	25	-	-	-	-	-	-	-	-	1	7.14
Total	**4**	**100**	**1**	**100**	**4**	**100**	**1**	**100**	**1**	**100**	**1**	**100**	**2**	**100**	**14**	**100**

E.2 Back Creek Village rim treatments and elaborations by midden and level (continued).

Midden D

	plain		stamped, complicated		rimstrip		rimstrip and indented		rimstrip and punctated, cane		rolled		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	3	50	1	50	-	-	-	-	1	100	-	-	5	31.25
2	1	16.67	1	50	-	-	4	80	-	-	-	-	6	37.50
3	-	-	-	-	1	100	1	20	-	-	1	100	3	18.75
4	1	16.67	-	-	-	-	-	-	-	-	-	-	1	6.25
wallscrapes	1	16.67	-	-	-	-	-	-	-	-	-	-	1	6.25
Total	**6**	**100**	**2**	**100**	**1**	**100**	**5**	**100**	**1**	**100**	**1**	**100**	**16**	**100**

Midden F

	plain		stamped, complicated		stamped, uid		punctated		node		node, punctated		rosette, cane punctated		rosette, punctated	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	1	12.50	-	-	-	-	-	-	-	-	2	50	-	-	-	-
2	2	25	-	-	1	100	1	100	3	100	2	50	1	50	1	100
3	-	-	-	-	-	-	-	-	-	-	-	-	1	50	-	-
4	1	12.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	2	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
wallscrapes	2	25	1	100	-	-	-	-	-	-	-	-	-	-	-	-
Total	**8**	**100**	**1**	**100**	**1**	**100**	**1**	**100**	**3**	**100**	**4**	**100**	**2**	**100**	**1**	**100**

E.2 Back Creek Village rim treatments and elaborations by midden and level (continued).

Midden F (continued)

	rimstrip and indented		folded and punctated, cane		decorated, uid		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	-	-	1	100	-	-	4	14.81
2	1	25	-	-	-	-	12	44.44
3	2	50	-	-	1	100	4	14.81
4	1	25	-	-	-	-	2	7.41
5	-	-	-	-	-	-	2	7.41
wallscrapes	-	-	-	-	-	-	3	11.11
Total	**4**	**100**	**1**	**100**	**1**	**100**	**27**	**100**

Midden G

	incised		stamped, complicated		punctated		rimstrip and indented		rimstrip and punctated, cane		folded and indented		folded and punctated		folded and punctated, cane		unidentified		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	
1	-	-	1	100	-	-	-	-	1	25	-	-	1	100	1	50	-	-	4	15.38
2	1	33.33	-	-	2	22.22	-	-	1	25	-	-	-	-	-	-	-	-	4	15.38
3	-	-	-	-	5	55.56	1	50	2	50	1	100	-	-	-	-	1	33.33	10	38.46
4	2	66.67	-	-	2	22.22	1	50	-	-	-	-	-	-	1	50	1	33.33	7	26.92
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	33.33	1	3.85
Total	**3**	**100**	**1**	**100**	**9**	**100**	**2**	**100**	**4**	**100**	**1**	**100**	**1**	**100**	**2**	**100**	**3**	**100**	**26**	**100**

E.2 Back Creek Village rim treatments and elaborations by midden and level (continued).

Midden H

	plain		punctated		rimstrip		rimstrip and indented		rimstrip, punctated		folded		folded and punctated		unidentified		Total	
Level	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1	1	8.33	-	-	1	100	1	100	-	-	-	-	1	100	-	-	4	19.05
2	6	50	2	100	-	-	-	-	1	50	-	-	-	-	1	100	10	47.62
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	1	50	1	100	-	-	-	-	2	9.52
5	2	16.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	9.52
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	3	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	14.29
Total	**12**	**100**	**2**	**100**	**1**	**100**	**1**	**100**	**2**	**100**	**1**	**100**	**1**	**100**	**1**	**100**	**21**	**100**

E.3 Fallen Tree Midden I-A rim treatments and elaborations by unit and feature.

	plain		incised		incised and punctated		incised and punctated, cane		incised and punctated, point		incised, crescents	
Unit/Feature	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
A	-	-	9	20.45	1	20	1	50	-	-	1	50
B	1	4.55	1	2.27	-	-	-	-	-	-	1	50
D	1	4.55	2	4.55	-	-	-	-	-	-	-	-
E	2	9.09	4	9.09	-	-	-	-	-	-	-	-
F	-	-	5	11.36	-	-	1	50	2	66.67	-	-
G	2	9.09	2	4.55	-	-	-	-	-	-	-	-
H	5	22.73	3	6.82	-	-	-	-	1	33.33	-	-
N4 E807	-	-	-	-	-	-	-	-	-	-	-	-
N4 E808	-	-	1	2.27	-	-	-	-	-	-	-	-
N5 E805	-	-	-	-	-	-	-	-	-	-	-	-
N5 E807	-	-	-	-	-	-	-	-	-	-	-	-
N5 E808	-	-	1	2.27	-	-	-	-	-	-	-	-
N6 E805	-	-	-	-	-	-	-	-	-	-	-	-
N6 E807	-	-	1	2.27	-	-	-	-	-	-	-	-
N6 E808	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 9	5	22.73	9	20.45	3	60	-	-	-	-	-	-
F (FT 2013) 11	3	13.64	5	11.36	1	20	-	-	-	-	-	-
F (FT 2013) 14	1	4.55	1	2.27	-	-	-	-	-	-	-	-
F (FT 2013) 25	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 29	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 30	2	9.09	-	-	-	-	-	-	-	-	-	-
Operation 9A	-	-	-	-	-	-	-	-	-	-	-	-
Total	**22**	**100**	**44**	**100**	**5**	**100**	**2**	**100**	**3**	**100**	**2**	**100**

E.3 Fallen Tree Midden I-A rim treatments and elaborations by unit and feature (continued).

	stamped, check		**stamped, complicated**		**stamped, cross simple**		**stamped, uid**	
Unit/Feature	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
A	-	-	-	-	-	-	-	-
B	-	-	-	-	-	-	-	-
D	-	-	1	33.33	-	-	-	-
E	-	-	-	-	-	-	2	25
F	-	-	-	-	-	-	-	-
G	1	50	-	-	-	-	-	-
H	-	-	-	-	2	100	1	12.50
N4 E807	-	-	-	-	-	-	-	-
N4 E808	-	-	-	-	-	-	-	-
N5 E805	-	-	-	-	-	-	-	-
N5 E807	-	-	-	-	-	-	-	-
N5 E808	-	-	-	-	-	-	-	-
N6 E805	-	-	-	-	-	-	-	-
N6 E807	-	-	-	-	-	-	-	-
N6 E808	-	-	-	-	-	-	-	-
F (FT 2013) 9	1	50	1	33.33	-	-	1	12.50
F (FT 2013) 11	-	-	1	33.33	-	-	1	12.50
F (FT 2013) 14	-	-	-	-	-	-	-	-
F (FT 2013) 25	-	-	-	-	-	-	1	12.50
F (FT 2013) 29	-	-	-	-	-	-	-	-
F (FT 2013) 30	-	-	-	-	-	-	2	25
Operation 9A	-	-	-	-	-	-	-	-
Total	**2**	**100**	**3**	**100**	**2**	**100**	**8**	**100**

E.3 Fallen Tree Midden I-A rim treatments and elaborations by unit and feature (continued).

	punctated		punctated, cane		punctated, crescent		punctated, D shape		punctated, point		punctated, uid	
Unit/Feature	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
A	-	-	17	24.64	3	60	-	-	-	-	-	-
B	-	-	9	13.04	-	-	-	-	-	-	-	-
D	-	-	2	2.90	-	-	-	-	-	-	-	-
E	-	-	5	7.25	-	-	-	-	1	100	-	-
F	-	-	4	5.80	-	-	-	-	-	-	1	14.29
G	-	-	5	7.25	-	-	1	50	-	-	1	14.29
H	-	-	6	8.70	-	-	1	50	-	-	2	28.57
N4 E807	-	-	1	1.45	-	-	-	-	-	-	-	-
N4 E808	-	-	-	-	-	-	-	-	-	-	-	-
N5 E805	-	-	1	1.45	-	-	-	-	-	-	-	-
N5 E807	-	-	-	-	-	-	-	-	-	-	-	-
N5 E808	-	-	-	-	-	-	-	-	-	-	-	-
N6 E805	-	-	2	2.90	-	-	-	-	-	-	-	-
N6 E807	-	-	1	1.45	-	-	-	-	-	-	1	14.29
N6 E808	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 9	-	-	9	13.04	2	40	-	-	-	-	2	28.57
F (FT 2013) 11	-	-	4	5.80	-	-	-	-	-	-	-	-
F (FT 2013) 14	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 25	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 29	-	-	1	1.45	-	-	-	-	-	-	-	-
F (FT 2013) 30	1	100	2	2.90	-	-	-	-	-	-	-	-
Operation 9A	-	-	-	-	-	-	-	-	-	-	-	-
Total	**1**	**100**	**69**	**100**	**5**	**100**	**2**	**100**	**1**	**100**	**7**	**100**

E.3 Fallen Tree Midden I-A rim treatments and elaborations by unit and feature (continued).

	rimstrip and punctated, cane		folded		folded and indented		folded and punctated, cane		folded and punctated, crescent		folded and punctated, likely triangular		folded and punctated, uid	
Unit/Feature	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
A	-	-	-	-	1	14.29	22	44.90	-	-	-	-	-	-
B	-	-	-	-	-	-	1	2.04	-	-	-	-	-	-
D	-	-	-	-	1	14.29	-	-	-	-	-	-	-	-
E	-	-	-	-	-	-	3	6.12	-	-	-	-	-	-
F	-	-	-	-	1	14.29	6	12.24	-	-	-	-	-	-
G	1	25	-	-	-	-	4	8.16	-	-	-	-	-	-
H	-	-	-	-	3	42.86	2	4.08	-	-	1	100	2	66.67
N4 E807	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N4 E808	-	-	-	-	-	-	1	2.04	-	-	-	-	-	-
N5 E805	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N5 E807	1	25	-	-	-	-	-	-	-	-	-	-	-	-
N5 E808	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N6 E805	-	-	-	-	-	-	1	2.04	-	-	-	-	-	-
N6 E807	-	-	-	-	-	-	1	2.04	-	-	-	-	-	-
N6 E808	-	-	-	-	-	-	1	2.04	-	-	-	-	-	-
F (FT 2013) 9	2	50	2	100	-	-	4	8.16	-	-	-	-	1	33.33
F (FT 2013) 11	-	-	-	-	1	14.29	2	4.08	1	100	-	-	-	-
F (FT 2013) 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F (FT 2013) 30	-	-	-	-	-	-	1	2.04	-	-	-	-	-	-
Operation 9A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**4**	**100**	**2**	**100**	**7**	**100**	**49**	**100**	**1**	**100**	**1**	**100**	**3**	**100**

E.3 Fallen Tree Midden I-A rim treatments and elaborations by unit and feature (continued).

	rolled		rolled and punctated, crescent		indented		lip decorated		red filmed		scraped		decorated, uid		unidentified		Total	
Unit/Feature	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
A	-	-	-	-	-	-	-	-	-	-	-	-	4	26.67	1	3.03	60	19.93
B	-	-	-	-	-	-	-	-	-	-	1	33.33	2	13.33	-	-	16	5.32
D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	2.33
E	-	-	-	-	-	-	-	-	-	-	-	-	1	6.67	2	6.06	20	6.64
F	-	-	-	-	-	-	-	-	-	-	-	-	1	6.67	5	15.15	26	8.64
G	-	-	-	-	-	-	-	-	-	-	2	66.67	1	6.67	1	3.03	21	6.98
H	-	-	-	-	1	100	-	-	-	-	-	-	4	26.67	1	3.03	35	11.63
N4 E807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.33
N4 E808	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0.66
N5 E805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.33
N5 E807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.33
N5 E808	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.33
N6 E805	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1
N6 E807	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.03	5	1.66
N6 E808	1	100	-	-	-	-	-	-	-	-	-	-	1	6.67	1	3.03	4	1.33
F (FT 2013) 9	-	-	1	100	-	-	1	100	-	-	-	-	-	-	16	48.48	60	19.93
F (FT 2013) 11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	6.06	21	6.98
F (FT 2013) 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0.66
F (FT 2013) 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.33
F (FT 2013) 29	-	-	-	-	-	-	-	-	1	100	-	-	-	-	-	-	2	0.66
F (FT 2013) 30	-	-	-	-	-	-	-	-	-	-	-	-	1	6.67	2	6.06	11	3.65
Operation 9A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.03	1	0.33
Total	**1**	**100**	**1**	**100**	**1**	**100**	**1**	**100**	**1**	**100**	**3**	**100**	**15**	**100**	**33**	**100**	**301**	**100**

APPENDIX F
FILFOT DESIGN CODES

Table F.1 lists the filfot cross design numbers and codes used to track filfot variation. Codes consist of motif, scroll direction, center element, and end element. For example, f-ccw-cis-rc is a filfot motif with counterclockwise scrolls, a circle in square center element, and raised circle end element.

Key to abbreviations in design codes: f, filfot cross; ccw, counterclockwise scroll; cw, clockwise scroll; cic, circle in circle; cis, circle in square; ds, depressed square; rs, raised square; sis, square in square; rc, raised circle; dc, depressed circle; na, not available.

F.1. Filfot design numbers and codes.

Design number	Code
Design 1	f-ccw-cic-rc
Design 2	f-ccw-cis-rc
Design 3	f-ccw-ds-dc
Design 4	f-ccw-rc-na
Design 5	f-ccw-rs-rc
Design 6	f-ccw-sis-na
Design 7	f-cw-cic-rc
Design 8	f-cw-cis-dc
Design 9	f-cw-cis-rc
Design 10	f-cw-ds-dc
Design 11	f-cw-rs-rc
Design 12	f-cw-sis-rc
Design 13	f-cw-cis-rc diagonal
Design 14	f-cw-cic-rc diagonal
Partial 1	f-ccw-cic-na
Partial 2	f-ccw-cis-na
Partial 3	f-ccw-ds-na
Partial 4	f-cw-cic-na
Partial 5	f-cw-cis-na
Partial 6	f-cw-ds-na
Partial 7	f-cw-sis-na
Partial 8	f-na-cic-na
Partial 9	f-na-cic-rc
Partial 10	f-na-ds-na
Partial 11	f-na-rc-na
Partial 12	f-na-sis-na
Partial 13	f-ccw-na-dc
Partial 14	f-ccw-na-rc
Partial 15	f-cw-na-rc
Partial 16	f-ccw-na-na
Partial 17	f-na-sis-rc
Partial 18	f-cw-na-dc
Partial 19	f-na-na-oval
Partial 20	f-na-rs-na
Partial 21	f-na-cis-na

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