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HISTORICAL ARCHAEOLOGY IN GEORGIA

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NEW SOUTH ASSOCIATES

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Historical Archaeology in Georgia

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Report Number 39

Georgia Archaeological Research Design Paper No. 14

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GARD PAPERS

Georgia Archaeological Research Design Papers are dedicated to the publication of Archaeological Contexts within Georgia's Comprehensive Plan for preservation and protection of its archaeological resources. Each paper within the monograph series synthesizes and evaluates information about a specific archaeological period and environmental area of the state, then offers recommendations about future research and management needs. Manuscript preparation is aided by National Park Service Historic Preservation Fund Grants administered by the Historic Preservation Section of the Georgia Department of Natural Resources. The **Papers** are distributed by the Laboratory of Archaeology, University of Georgia. Each **Paper** may be ordered from the Publications Secretary, Department of Anthropology, Baldwin Hall, University of Georgia, Athens, Georgia 30602.

Morgan R. Crook, Jr.
Managing Editor, **GARD Papers**
University of West Georgia

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No. 14 **Historical Archaeology in Georgia,** by J. W. Joseph, Theresa M. Hamby and Catherine S. Long, 2004

Preface

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The Georgia Archaeological Research Design (GARD) Papers have been dedicated to the publication of Archaeological Contexts within Georgia's Comprehensive Plan for the preservation and protection of its archaeological resources (Crook 1986). Ably edited by Morgan R. Crook, Jr. of the State University of West Georgia, the GARD Papers have served as an invaluable resource to both local and out-of-state archaeologists working on research and Section 106 projects. This GARD Paper departs from the usual format in that it includes the full range of environmental zones and temporal periods, rather than focusing on one period and environmental zone. This is a factor simply of a generous funding opportunity provided by the Georgia Department of Transportation in cooperation with the Federal Highway Administration, rather than a programmatic change in the GARD series. It is anticipated that future GARD Papers will adhere to the original spatial/temporal framework developed by Dr. Crook and his colleagues.

I appreciate the research that J. W. Joseph, Theresa Hamby, and Catherine Long have carried out in order to complete this joint project of the Georgia Department of Transportation and the Georgia Department of Natural Resources. It is a bold document in that it attempts (per the Scope of Work developed by DOT and DNR) to provide a comprehensive overview of historic period settlement, thus fulfilling contexts 31-36 in the original Archaeological Research Design (Crook 1986). Like the other contexts in this series, *Historical Archaeology in Georgia* intends to provide both a thorough grounding in current knowledge, as well as provide guidance to researchers who must address issues of management and National Register of Historic Places eligibility. It succeeds very well in both of those primary goals. That said, as the authors acknowledge, the document should be seen as a starting-point, rather than an end-point, to understanding Georgia's historical archaeology.

Certain aspects of the document are particularly strong. Chapter III, Culture History, is short, but cites the major secondary sources, as well as some primary document sources. Chapter IV, Inventory of Known Historical Archaeology Sites, points out some gaping lacunae in our knowledge. For instance, industrial sites outside the metro Atlanta, Columbus, and Augusta areas are few and far between. Similarly, military sites are scanty (except where Sherman passed through!). Chapter V (Historical Archaeology Site Types) is perhaps the most exhaustive. Strongly functional in orientation, it is especially exhaustive in its discussion of agrarian, community, and European-Native American interaction sites. A summary of major research on each site type is followed by suggestions for further research and brief discussions of issues associated with National Register eligibility for each type.

Chapter VI, (Standard Frame of Reference) provides guidelines for field research and lab analysis. Here the emphasis is less on artifact type definitions (which should be known to any qualified researcher) than on process-oriented questions. Chapter VI is, with Chapter V, the crux of the document. While relatively brief, it presents discussion of an issue common to State Historic Preservation Office technical reviewers across the country: assertions in Phase II reports that a site is "eligible" because it exhibits integrity. Integrity alone is not enough to justify an eligibility determination; rather, eligibility hinges on the information potential exhibited by the site with regard to specific research questions. Too many Phase II reports lack a well-grounded, explicit, and current research design for data recovery excavations, both here in Georgia and throughout the SHPO system. This document should help remedy that situation, at least with regard to some of the more problematical site types.

Dr. David Colin Crass
State Archaeologist

Acknowledgements

The preparation of this context for historical archaeology in Georgia was very much a collaborative effort between the Historic Preservation Division of the Georgia Department of Natural Resources, the Georgia Department of Transportation, the state's archaeological community, and New South Associates. It is impossible to recognize all of the people who have contributed to this effort, but it would not have been possible without the assistance of other archaeologists who have worked with Georgia's historic past. At the beginning of the project we published announcements and mailed requests for project information to the professional archaeologists working in the state. The response was excellent and it is through the contributions and information provided that this context could be written. The assistance and cooperation of the members of the archaeological community in Georgia are hopefully recognized by the citations of their work in the References Cited.

The research, development, and organization of this context were the product of a series of team meetings. In addition to New South Associates' Principal Investigator, Dr. J. W. Joseph, the project team consisted of Dr. Rowe Bowen, Director of the Cultural Resources Program at the Georgia Department of Transportation; Eric Duff, Chief Archaeologist with the Georgia DOT; Dr. David Colin Crass, State Archaeologist of Georgia and head of the Historic Preservation Division's Archaeology Section; and Bob Entorf, HPD Archaeologist and Project Manager. All deserve recognition as spiritual co-authors of this study. Rowe's long tenure as a historical archaeologist in the state produced constant benefits in references to projects long forgotten. He is also thanked for coordinating the project's schedule and funding. Eric provided a wealth of information and documentation on recent and on-going projects of the GDOT and also proved to be a keen-eyed editor of various drafts. Additional editorial review was provided by GDOT Archaeologists Jim Pomfret and Shawn Patch. Dave offered similar insights and assistance with other historical archaeological projects in the state, as well as bringing to the project his national perspective as a State Archaeologist, which helped to shape the content and organization of this study. Bob took on the most difficult job of all, keeping this team on focus, handling project administration, organizing meetings, and providing oversight and input. The effort of all of these partners is greatly appreciated. Funding for the project was provided by the Georgia Department of Transportation in Cooperation with the Federal Highway Administration. Dr. David Hally of the University of Georgia is thanked for his assistance in publishing this study.

Preparation of this context was a team effort for New South Associates as well. Dr. J. W. (Joe) Joseph served as the Principal Investigator for the project and the author of Chapters I, V, VII and VIII. Theresa Hamby and Catherine Long served as Research Associates with Ms. Hamby authoring Chapters II and IV and Ms. Long authoring Chapter III. Chapter VI was co-authored by Dr. Joseph and Ms. Hamby. Thomas Quinn served as Graphics Specialist. Kristen Labrie completed GIS work. Dr. Joseph, Ms. Hamby and Ms. Long provided editorial review. Lisa O'Steen provided assistance with the discussion of faunal assemblages from projects she had worked on. New South's Lab Director, Dr. Matt Matternes, provided a wealth of information on sources for the

analysis and identification of historic artifacts. Finally, Tom Wheaton, who directed several of the projects discussed herein, is thanked for tolerating the frequent pilfering of his library as well as for his editorial inspection of this report.

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I. Introduction

This volume represents a contribution to Georgia's Comprehensive Archaeological Preservation Plan, a component of the state's Historic Preservation Plan. The archaeological plan was conceived of as a series of 36 archaeological contexts (Crook 1986) defined by both physiographic regions (Coast, Coastal Plain, Piedmont, Blue Ridge, Ridge and Valley, and Cumberland Plateau) and cultural/temporal periods (Paleoindian, Archaic, Woodland, Mississippian, Historic Aboriginal, and Historic Afro-European). Its intent was to summarize and synthesize existing archaeological information for each region and cultural period, and in the process, to provide direction for future research and site identification.

This context for historical archaeology departs from Crook's scheme by considering historical archaeology on a statewide basis, rather than by physiographic regions. It thus represents the final six "contexts" (31-36) within the state plan. The nature of historic period occupation in Georgia is, by its very existence, a statewide, rather than regional, phenomenon, such that cultural adaptations, transformations and materials occurred by-and-large at the level of the state (and nation). There are exceptions to this rule, of course, such as tidal rice plantations which were limited to the coast, but even here the material culture of these coastal plantations was much the same as could be found in a contemporary piedmont town. To use one of the defining events in Georgia's history as an example, Sherman's March to the Sea and its forays crossed five of the six physiographic regions of the state. What connects sites associated with the March to the Sea is not their geography but their association as Civil War battlefields, and hence for the historical period time, topic, and theme become defining attributes more than geography and region. The context for historical archaeology in Georgia is thus a statewide context.

This shift in focus from region to state is not without consequences. Whereas other contexts generated by Georgia's Comprehensive Archaeological Preservation Plan have synthesized the results of regionally and temporally compact data sets, the state's historical archaeology is neither compact nor readily manageable. There are, at the time this is written, 9,174 recorded historical archaeological sites in the state. That number increases each day, as historical archaeology is the only component of the archaeological record whose numbers are increasing, rather than decreasing. The National Historic Preservation Act defines "historic" as 50 years of age or greater. Thus, historical archaeology in Georgia begins, at the present, in 1954, and each January 1st another year's accumulation of historic sites is added to the state's archaeological record. Given the post World War II population increases experienced by the state, and the significant urban population boom of Atlanta in the last decades of the twentieth century, there is no question that historical archaeological sites will increase in numbers and relevance in the future. This context should thus be seen more as a starting point, than a terminus, when its come to our understanding of the state's historical archaeological past.

This context is written as a guide to historical archaeology in Georgia as well as a synthesis of its results. Material culture, which is discussed in detail in the prehistoric

contexts in this series, is only briefly mentioned here. Instead, this volume seeks to introduce the reader to historical archaeology in Georgia. Its development is the product of several related tasks, primarily site file research at the Georgia Archaeological Site Files (GASF) at the University of Georgia and the collection of published and unpublished reports and articles on historical archaeology in the state. The gathering of reports was completed through the review of the report holdings at the GASF as well as those held by the Historic Preservation Division of Georgia's Department of Natural Resources. Reports were also acquired through notices published in the Society for Georgia Archaeology newsletter, *The Profile;* the Society for Historical Archaeology newsletter; and in response to letters sent out to members of the Georgia Council of Professional Archaeologists. These efforts focused on collecting reports and articles with a primary emphasis on historical archaeology, as opposed to all reports in which historic archaeological sites were mentioned. Thus archaeological survey reports were largely ignored, even though most surveys in Georgia identify historic archaeological sites.

The remainder of this volume presents the context for historical archaeology in Georgia. Chapter II provides a look at the state's Natural History, with an emphasis on those environmental and geophysical attributes of the state, which influenced its history. Georgia's History is the topic of Chapter III. The Inventory of Known Sites (Chapter IV) appears next. The Inventory is a two-pronged effort identifying the history and landscape of historical archaeology in Georgia and assessing the known distribution of sites. Site distributions are tabulated and mapped with reference to the six major physiographic zones, which form the geographic basis of the state's *Strategy*. Gaps in the data are noted, as are distributional trends. The Types of Historic Sites that occur in Georgia are presented as Chapter V. This typology builds on the Inventory and Culture History by identifying resources associated with a particular culture, function, time period, and in some instances region that can be associated and recognized as a type. The discussion of historic site types identifies the parameters of each type, the physical and geographic elements of the type, its distribution within the state, major studies of the resource, and research issues.

The Standard Frame of Reference (Chapter VI) follows. The Standard Frame of Reference provides direction for the methodology to be employed in assessing historic archaeological sites, and includes references for source material on historic artifacts. It also summarizes the results of the Inventory and Typology, identifying on-going research, data gaps, endangered resources, and productive versus less productive methodologies. On the basis of this summary, this section then outlines the sources of data that need to be collected for all historical archaeological sites and provides guidance on the assessment of historic archaeological site eligibility for the National Register of Historic Places.

The final component of the context is a discussion of Management Considerations (Chapter VII). This chapter identifies the threats to historical archaeological sites posed by different types of activities and associates the types of projects most likely to affect various resource types. This chapter also includes recommendations for the future identification and management of historic archaeological sites.

II. Natural Environment

As the largest state east of the Mississippi, Georgia enjoys a diverse natural environment extending from the Appalachians to the Atlanta Ocean. Schemes for the geographic divisions in the state are numerous, complex, and enjoy a history almost as long as the existence of the state itself. At least three comprehensive overviews of the state have been published in the last two centuries, all describing the state in as much cultural and physical detail as was available at the time. The Reverend Adiel Sherwood prepared the earliest of these studies, *A Gazetteer of the State of Georgia,* in 1827. This was followed more than 20 years later by George White's 1849 *Statistics of the State of Georgia*. The third overview, entitled *Georgia: Her Resources and Possibilities* was published by the commissioner of Agriculture, R. T. Nesbitt in 1896.

Each of these volumes was prepared to provide the reader with knowledge of the general character of the state at the time of publication, as well as specific information concerning the individual counties. Each book includes essays concerning the nature of the citizens, the geography, the climate, geology, agriculture, and manufacturing. The earliest of the volumes appears to have been prepared for the education of the state's populace, while the latter seem more skewed toward advertising the virtues of the state towards an outside audience. No matter the intent of the books, they each provide a glimpse of the physical and cultural nature of the state at the time of their publication. This information is especially helpful in informing an environmental overview with an emphasis on the effect of the environment on the formation of historic sites.

Sherwood, in *A Gazetteer of the State of Georgia* (1827), discusses the need for reference works for Georgia, stating:

> *The want of a work of minute geographical reference for this State, has been seriously felt for several years. Our territory has been explored, the origin of our rivers searched out, their windings traced, the sites of our towns and villages marked, and our various resources made visible to the eye of the legislature; but no one has taken the pains to embody these facts, and give them such publicity, that our population generally may become acquainted with them. This is the design of the following pages.*

With this as an introduction, Sherwood (1827:9-10) began his discussion of the state. Most pertinent to an environmental discussion was the section titled *Face of the Country.* Here, he divides the state into physiographic regions, perhaps for the first time. In his scheme, the state was divided into three sections based on latitude. The first section was between the Florida border and the 33rd parallel and was described as level. The soils in this southern section were noted as sandy with "rich low grounds". Soil fertility was said to be dependent upon the forests; those with pine only were unproductive, but mixed woods were fertile. Production of rice, as well as sea-island or black-seed cotton for exportation is noted, while sugar cane had yet to be exported.

Sherwood's (1827:9-10) second section, lying between the 33rd and 34th parallels, was described as having an uneven terrain. The soils were said to be remarkably fertile and

composed of a red loam. The northern-most section stretched from the center section to the 35th parallel and was characterized as hilly and mountainous. Its soils were also considered productive, though grey and gravelly in color and texture. Cotton production in the middle and northern sections was said to be of green-seed cotton, which was sold for half the price of the black seed, or Sea Island cotton of the coast.

George White's *Statistics of the State of Georgia* followed Sherwood 22 years later, in 1849. His book followed the outline first presented by Sherwood fairly closely with a few exceptions. Rather than divide the entire state by generalized regions marked by latitude as Sherwood had, he differentiated regions of the state by discussions of soil types and then the underlying geology. His observations are much like those of Sherwood, indicating that the Sea Islands are "…famous for producing the finer descriptions of Sea Island cotton" and the tidal swamp lands are known for producing immense quantities of rice. The middle region, he noted was composed of red, rich loamy soils that were suitable for the production of cotton, tobacco, and grains. The northern portion of the state was said to have rich valley lands (1849:37-38)).

Finally, in 1896, *Georgia: Her Resources and Possibilities* was prepared under the supervision of R. T. Nesbitt, then the Commissioner of Agriculture of Georgia. He returned to Sherwood's more specific divisions of the state, dividing it into sections because of differences in "…geology, topography, climate, and production." He, too, found three regions labeled Lower, Middle and Upper Georgia. Lower Georgia, described as a sandy, level region composed of Cretaceous and Tertiary formations, was said to cover more than half the state, passing from the coast to the " …heads of navigation near Milledgeville and Macon." The topography of Lower Georgia was said to rise by terraces, beginning at the coastal marshes extending up to 40 miles inland before changing from a level to undulating surface. Near the northern part of the region it was said to become hilly (1896:46).

Nesbitt's (1896:46-47) Middle Georgia is described as a "…broad, hilly region, having few elevations that are designated as mountains…" The Chattahoochee River is characterized as a water divide reaching nearly across the state. The images of Upper Georgia become more complex as Nesbitt states that the region; "…embraces a section with striking peculiarities of surface and great variety of soil."

In the years following Sherwood's, White's, and Nesbitt's schemes for the regional division of Georgia, many more such plans have been devised, each more complex than the last. The divisions presented here are based on the 1976 Clark and Zisa *Physiographic Map of Georgia* and have been simplified for use in this context. In order to provide consistency in statistics, each county was entirely contained within the physiographic sub region that contained the greatest portion of the county's area. The regions, their physical characteristics, the larger drainage system, and the counties they encompass are included in Table 1.

Table 1. Environmental Attributes of Georgia's Physiographic Regions

Table 1. Environmental Attributes of Georgia's Physiographic Regions					
Valley and Ridge Province	**Section**	**District**	**General Descriptions**	**Counties**	**Major Drainage**
	Cumberland Plateau	Lookout Mountain District	Lookout-Pigeon and Sand Mountains, separated by Lookout Valley. Elevations range from 2,200 to 800 feet.	Bartow, Catoosa, Chattooga, Crawford, Dade, Floyd, Gordon, Murray, Polk, Walker, and Whitfield	Tennessee River
	Southern Ridge and Valley	Chickamauga Valley	Northeast trending rolling valleys intersected by low parallel ridges with a top elevation of 1000 feet		Alabama
		Armuchee Ridges	Narrow ridges with elevations between 1,400 and 1,600 feet		
		The Great Valley	Scattered hills and ridges with elevations of 700-800 feet. Characterized by a broad and open topography.		
Blue Ridge Region	Southern Blue Ridge	Cohutta Mountains	Rugged mountains with elevations to 4,000 feet and intersecting valleys lying 1,000 to 1,500 feet below the mountain crests.	Cherokee, Dawson, Fannin, Gilmer, Habersham Lumpkin, Pickens, Rabun, Stephens, Towns, Union, and White	Savannah
		McCaysville Basin	Gently rolling topography with elevations up to 1,800 feet. Bisected by the Jasper Ridges and surrounded by mountains with elevations rising to 4,500 feet above the ege of the basin.		
		Blue Ridge Mountain	Mountains and ridges with elevations between 3,000 and 4,700 feet. Valleys lie up to 2,000 feet below the summits.		
	Upland Georgia Subsection of the Southern Piedmont Section	Cherokee Upland	Rough and hilly surface to northeast, with decreasing elevations to 1,000 feet in south. Has both deep, narrow and wider, more open valleys.		
		Hightower-Jasper	Low, linear parallel ridges		
		Central Uplands	Broad, open valleys separated low, linear ridges with elevations from 1,200 to 1,500 feet.		

Table 1. Environmental Attributes of Georgia's Physiographic Regions					
Piedmont	**Section**	**District**	**General Descriptions**	**Counties**	**Major Drainage**
	Upland Georgia Subsection of the Southern Piedmont Section	Dahlonega Upland	Deep narrow valleys in rough, hillly area with elevation up to 1,700 feet. To south, elevations to 1,200 feet and wider, more open valleys.	Baldwin, Bank, Barrow, Butts, Carroll, Clarke, Clayton, Cobb, Columbia, Coweta, DeKalb, Douglas, Elbert, Fayette, Forsyth, Franklin, Fulton, Greene, Gwinnett, Hall, Hancock, Haralson, Harris, Hart, Heard, Henry, Jackson, Jasper, Jones, Lamar, Lincoln, Madison, Meriwether, Monroe, Morgan, McDuffie, Newton, Oconee, Oglethorpe, Paulding, Pike, Putnam, Rockdale, Spalding, Talbot, Taliaferro, Troup, Upson, Walton, Warren, Wilkes	Savannah, Altamaha, Apalachicola
		Gainesville Ridges	Narrow valleys separating low, linear, parallel, northeast trending ridges. Elevations from 700 to 1,600 feet.		
		Winder Slope	Gently rolling topography with dome-shaped mountains and deep, narrow stream valleys. Elevations from 700 to 1,000 feet.		
		Washington Slope	Gently undulating surface with broad shallow stream valleys. Elevations range from 500 to 700 feet.		
		Greenville Slope	Rolling topography with both shallow open valleys and narrow deeper valleys. Elevations are from 600 to 1,000 feet.		
		Pine Mountain	Pine-Oak Mountain is lenticular in form. Ridges have elevations to 1,300 feet. Flint River has cut deep narrow gorge in east. Bounded by Fall Line to the south.		
Upper Coastal Plain	Sea Island and East Gulf Coastal Plain	Fort Valley Plateau	Anomolous area within Fall lIne Hills. Flat topped interfluves with narrow, steep walled valleys. Elevations range from 550 to 250 feet.	Bibb, Burke, Calhoun, Chattahoochee, Clay, Dooly, Dougherty, Glascock, Houston, Jefferson, Johnson, Lee, Macon, Marion, Muscogee, Peach, Quitman, Randolph, Richmond, Schley, Stewart, Sumter, Taylor, Terrell, Twiggs, Washington, Webster, and Wilkinson	Savannah, Altamaha, Apalachicola, Ogeechee
		Fall Line Hill District	Highly dissected. The only level land is marshy floodplains and narrow stream terraces. Maximum elevation is 760 feet between Columbus and Macon.		

Table 1. Environmental Attributes of Georgia's Physiographic Regions

Central	Section	District	General Descriptions	Counties	Major Drainage
Coastal Plain	Sea Island and East Gulf Coastal Plain	Okefenokee Basin	Characterized by low relief and numberous swamps. Elevations range between 240 and 75 feet. Swamps range in size from a few hundred square feet to the 660 square miles of the Okefenokee Swamp.	Appling, Atkinson, Bacon, Baker, Ben Hill, Berrien, Bleckley, Brantley, Brooks, Bulloch, Candler, Charlton, Clinch, Coffee, Colquitt, Cook, Crisp, Decatur, Dodge, Early, Echols, Effingham, Emanuel, Evans, Grady, Irwin, Jeff Davis, Jenkins, Lanier, Laurens, Long, Lowndes, Miller, Mitchell, Montgomery, Pierce, Pulaski, Screven, Seminole, Tatnall, Telfair, Thomas, Tift, Toombs, Treutlen, Turner, Ware, Wayne, Wheeler, Wilcox, Worth	Savannah, Altamaha, Apalachicola, Ogeechee, Satilla, Suwannee, Ochlockonee, St. Mary's
		Bacon Terraces	Moderately dissected terraces parallel to the coastline, beginning at 330 feet and extending to 160 feet in elevation.		
		Vidalia Upland	Moderately dissected area with narrow floodplains except on principal rivers. Elevations range from 500 to 100 feet.		
	East Gulf Coastal Plain	Tifton Upland	Characterized by narrow rounded interfluves, the area is moderately dissected. Elevations are 480 to 160 feet.		
		Dougherty Plain	Level to gently rolling lowland at intersection of Fall Line Hills and the Tifton Upland. Relief is low with maximum eleveations of 300 feet.		
Coast and Sea Islands	Sea Island and East Gulf Coastal Plain	Barrier Island	Advance and retreat of the Pleistocene sea levels resulted in a series of decreasing altitudes towards the ocean. Altitudes range from 190 feet and continue down to the current sea level. These former levels have experienced a slight to moderate dissection which allows marshes to exist in low areas with poor drainage.	Bryan, Camden, Chatham, Glynn, Liberty, and McIntosh	Savannah, Altamaha, Ogeechee, Satilla

Regionally, then, the state may be divided into four general physiographic classifications, the Valley and Ridge, the Blue Ridge, the Piedmont, and the Coastal Plain. These regions are defined by their overall topography and their underlying geology. The larger regions are then further divided due to more specialized local topography and geology. For the purposes of this study, the Coastal Plain has been subdivided into the Upper Coastal Plain, the Central Coastal Plain, and the Coast and Sea Islands (Figure 1). Along with the physiographic differences come differences in climate and vegetation that, in concert with the topography, affect the type of historic archaeological site formation in a region.

Analysis of the Georgia Archaeological Site files data has shown that all the historic site types expected for general living in the historic period, such has homes, roads, cemeteries, wells, blacksmith shops, mills, and farms, to name just a few, are found in each of the physiographic regions. However, there are some sites that are confined primarily to specific regions due to the intrinsic nature of that region. This tying of region to the formation of specific historic site types is discussed below.

Two physiographic regions, the Valley and Ridge and the Blue Ridge, cover the northernmost portion of the state. Together the regions border Tennessee and North Carolina to the North, Alabama to the west and South Carolina to the east. They are the mountainous portion of the state and as such, have been home to subsistence agriculture, rather than the market agriculture practiced in the rest of the state, although some of the small mountain valleys were found to have rich, highly producing soils. Instead of market agriculture, the underlying geology of the two regions made the area the home to the mining industry in the state.

The Valley and Ridge region was named for the series of valleys and ridges caused by the folding and faulting of the underlying sedimentary rocks. The region is home to limestone, barite, ochre, as well as coal. The Blue Ridge is composed of metamorphic rocks, many of which are metamorphosed sedimentary rock such as that found in the Valley and Ridge to the west (University of Georgia Department of Geology Website). Marble and talc are both mined in the region, but the gold mined from Dahlonega and the surrounding area in the early part of the nineteenth century is its most famous mineral resource.

The mineral deposits of Georgia were briefly discussed by Sherwood (1829:14) who states only that iron, copper, ochre, marble, and limestone are found. In his discussion of the geological formations of Georgia, George White (1849:24-26) describes the gold deposits found in the Valley and Ridge and Blue Ridge portions of the state. He also notes that "Iron is found in abundance, and of great purity…" In his discussion of Dade County, he states, " Dade is destined to furnish the State with coal. Iron ore of excellent quality, and other valuable minerals, exist in various sections." An iron works in the Lookout Valley is noted by White to produce 400 pounds of iron each day. Nesbitt, writing almost 70 years after Sherwood, devoted an entire chapter to what he termed

Figure 1. Georgia's Physiographic Regions, Showing the Counties Within Each

economic minerals, including their presence and their potential, realized or not, for economic exploitation. His writing includes discussions of gold, iron ores, granite, and marble, among many other geologic resources.

Historic sites recorded in the Valley and Ridge and Blue Ridge regions not related to subsistence or to the domestic realm appear to be industrial in nature, related to mining, specifically gold or iron mining, iron production, and quarrying. These site types are tied to the North Georgia region because of its underlying geology. Without the natural resources buried there, there was not potential for the development of mining and related industrial sites. The natural resources that drew prospectors and other would-be entrepreneurs led to settlement and the development of domestic sites in the regions.

When perusing the historic sources, references to iron ore and gold within the Valley and Ridge and Blue Ridge regions are of particular interest. Nesbitt's (1896:59) disappointment with the lack of development of the iron industry is apparent in his introduction to the section where he states:

> *In North Georgia the hills and mountains abound in magnificent deposits of iron ore, and while an occasional furnace is to be found, with here and there a station for ore shipments, the development is by no means commensurate with the magnitude of the deposits or the character of the ore.*

Despite Nesbitt's characterization of the iron industry, the archaeological record notes several sites related to the iron industry. These sites include those described as iron mines, iron furnaces, and charcoal kilns. Additional clues to the existence of an iron industry in Georgia are found in the Department of Agriculture's *Georgia Historic and Industrial* (1901:127-128). This book, published only a few years after Nesbitt, gives a more optimistic view of the Georgia Iron industry stating:

> *The red and the brown iron ores constitute one of the most important mineral resources here to be considered, and one that has been a continuous source of revenue to the State for more than half a century… The total amount of brown iron ore produced from these several deposits last year aggregated more than 400,000 tons, thus making Georgia the third in the list of brown iron ore producing States in the south.*

Recorded gold production related sites in the two regions include actual gold mines and sluice boxes. Nesbitt commented favorably on the gold deposits to be found in North Georgia saying,

> *… mining for gold has been almost constant in that section of Georgia. Dahlonega may be regarded as the center of the gold operations of the State, and at one time the output of the mines reached such an extent as to induce the general government to establish a branch mint at that place.*

The Valley and Ridge and Blue Ridge form the northern boundary of the Piedmont Region, the largest of the regions discussed here. The Piedmont extends the full width of

the state of Georgia from Alabama on the west to South Carolina on the east. Its southern border is the Fall Line, a natural boundary that demarcates the shift to the Upper Coastal Plain.

Unlike the Valley and Ridge and Blue Ridge Regions to the north, the Piedmont has no preponderant site type that is directly correlated to a specific aspect of the physiography of the region. While the majority of mining sites are found in the regions bordering the Piedmont to the north, there are several gold and iron mines recorded in the Piedmont. Metamorphic rocks underlie its mostly rolling hills. The only interruptions to the rolling topography are seen at the ridge of Pine Mountain, formed by faulting, and isolated granitic plutons such as Stone, Arabia, and Panola Mountains (University of Georgia Department of Geology Website). Stone Mountain is mentioned by Sherwood (1827:91) as Rock Mountain, but no economic exploitation is noted at that time. By the twentieth century, the cities of Stone Mountain and Lithonia were well known by Nesbitt (1896:430-431) as industrial centers devoted to granite work and archaeological sites related to granite quarrying have been recorded.

Though the Fall Line region at the southern margins of the Piedmont is well known for its historic use of water power, the Piedmont streams also powered many small community grist and saw mills, as well as larger industrial complexes such as textile mills. Nesbitt (1896:129) notes that " …important water-powers of the State…" are found in areas where the bedrock is metamorphic and the fall is steep with no underground caverns that might allow for a subsurface outlet. These ready sources of power led to the construction of many milling complexes, some of which are now archaeological sites. The Yellow River hosted many mills including the Holt's (Annistown) Mill complex as well as several downstream in Rockdale and Newton Counties. The Oconee River in Greene and Morgan Counties was the site of the Parks, Ross, and Lawrence Mills, as well as the Curtwright Factory. Cobb County was home to the Rugg's, Donnell's, Dodgen's and Simpson's Mill as well as the larger Concord Woolen Mill, all on Nickajack Creek. Also in Cobb County was the Akers/Winship Mill complex on Rottenwood Creek. The Roswell Manufacturing Company was sited at the confluence of Vickerys Creek and the Chattahoochee River in northern Fulton County. These are just a few examples of the mills recorded in the Piedmont Region.

Piedmont soils, famous for their red hue, are composed of kaolinite, halloysite, and iron oxides, the iron oxides giving them color (University of Georgia Department of Geology Website). These clay rich soils were exploited by potters on a small scale as well as in an industrial setting. Nesbitt (1896:69) notes that clay is found in what he terms Middle Georgia, as well as elsewhere in the state. The Stephens' Pottery in Baldwin county is described by Nesbitt as utilizing a clay bed with a thicknesses between four and ten feet and covering several acres of land and producing sewer pipe, flower pots and other ceramic items in a "large works". The Stephens Pottery is not currently recorded as an archaeological site, but two others in Hall and Paulding Counties are, and it may be assumed that others have escaped destruction and await discovery.

Sites within the Piedmont are primarily agricultural in nature, though domestic sites, a great number of which may be related to agricultural sites, are also prevalent. Early

agricultural development in the region was focused on cotton culture, practiced on upland plantations. The Piedmont's rolling topography, in combination with cultivation practices, caused fields to be exhausted within three to five years. Thus, while the main house and its support buildings were of permanent construction located near a road or trail, slave villages were moved to remain in proximity to the fields. Thus, these plantations caused the development of ephemeral sites, harder to detect archaeologically, as well as the more obvious "Big House" sites (Messick et al. 2001:16-17).

The practice of terracing also came about as a result of cotton agriculture. According to Nesbitt (1896:248-251), the widespread practice of agricultural terracing was the result of the so called Terrace Reform begun in 1889 as a response to flooding of cultivated "…rolling or broken lands…" such as those found throughout the Piedmont. Erosion left the plantation owners with exhausted soils and a decrease in production. Without the ability to move to new lands, the planters were forced to rejuvenate the property that had previously been written off. Agricultural terraces are a site type found within the Piedmont, although only sixteen terraces have been recorded as sites.

The Fall Line, marked as the transition between the Piedmont and the Upper Coastal Plain Regions because of its unique physiography, saw the historic development of water powered industry as well as the end of the navigable rivers from the coast. According to the University of Georgia Department of Geology (Website), the Fall Line was so named because of the waterfalls and rapids that mark the line. These water features were formed where the waterways flow off the crystalline Piedmont rocks into the sedimentary rocks of the Coastal Plain. The water more easily erodes the sedimentary bedrock changing the stream morphology. Above the Fall Line, on the harder bedrock, the streams have small floodplains and meanders that are not well developed. However, once the water flow crosses onto the softer bedrock south of the Fall Line, the streams and rivers develop marshes and floodplains, and eventually meanders.

Historically, these changes in waterways affected the development of sites in the area of the Fall Line. The waterfalls and rapids were a source of power for milling, both large and small scale. They also provided a barrier that would not allow ships to navigate farther north. The combination of power for industrial development and easy access by ships from the coast and the southern portions of the state led to the development of cities along the Fall Line, including Augusta, Milledgeville, Macon, and Columbus (University of Georgia Department of Geology Website).

The Fall Line's position as the boundary between falling water and navigable streams is illustrated in George White's (1849:443-449) description of Muscogee County, home to the City of Columbus. Indicating the ability to navigate the rivers south of the city, he notes, "There are generally about sixteen steamboats plying between Columbus and the bay." In contrast, he states, "The effective fall of the Chattahoochee at Columbus is 14 feet…" The city is depicted by White as the perfect industrial site with at least seven mills being driven by water power. The goods produced by these companies were then transported by means of ship to the south, and routes to the east, north, and west were anticipated by the planned construction of the railroad and the Tennessee Road.

A review of the sites found in the counties bordering the Fall Line to the north and south shows numerous mills, dams, turpentine stills, kilns, a brickyard, bridges, roads, docks, and railroad stations. The earlier small scale development led to the eventual construction of larger industrial milling complexes such as those found in Augusta and Columbus and the construction of controllable water power sources, such as the Augusta Canal. These industrial and transportation related sites are found in conjunction with the domestic and community sites that might be expected to develop in an area that experienced extensive historic settlement.

The Coastal Plain, as a whole, is underlain by sedimentary rocks and sediments that dip to the southeast. Nearer to the Fall Line, in the Upper Coastal Plain, the sedimentary strata are underlain by igneous and metamorphic rocks like those composing the Piedmont.

The Upper Coastal Plain and the Fall Line area are underlain by substantial kaolin deposits. The dominant mineral in the clay rich rock is a mineral called Kaolinite that is used in industries such as pharmaceuticals and paper. Historically, kaolin was called "China Clay" and was mined during the Colonial period for export to the potteries of England. Once kaolin mines were founded in Britain, import from the Colonies suffered, and effectively ended kaolin mining for over a century. Mining of kaolin was resumed in the late nineteenth century and continues to the present (Colorado School of Mines Website). None of the mine sites in the GASF database are specifically designated kaolin mines. This may be a result of data entry of sites simply as mines, or no historic kaolin pits may have been recorded to this date.

The Central Coastal Plain is comprised of Quaternary beach complexes. These ancient beaches are younger nearer the coast and form subtle ridges parallel to the coast. These shallow ridges are broken by the Ogeechee and Altamaha Rivers, but cause the Saltilla and Saint Mary's Rivers to flow around them. This resulted in poor drainage in Charlton and Ware Counties and the formation of the Okefenokee Swamp. The same system of shallow ridges, decreasing in altitude towards existing sea level, and the barrier islands results in moderate dissection of the landscape and the formation of marshes because of poor drainage.

These marshy lands were particularly suited for rice agriculture. George White (1849:123), in his description of Bryan County, notes; "The lands of the Ogeechee are of good quality, adapted particularly to rice," a sentiment echoed by Nesbitt (1896:364) almost 50 years later. Messick et al. (2001:8-9) state that with the labor and expertise provided by an enslaved work force, tidal rice agriculture became a mainstay of the coast. While rice grown in inland swamps was limited by the lack of control over water and exhausted the soils, tidal rice cultivation was much more efficient. The tidal surge at the coast was directed by a series of earthen dikes, ditches, and wooden trunks to flood enclosed rice fields. The infrastructure associated with rice fields was massive as well as long lasting and the dikes and ditches are still visible on the ground and on topographic maps, many of them recorded as archaeological sites. In addition to the working components of the rice fields are other sites associated with rice agriculture including plantation homes and outbuildings, slave quarters, rice mills and piers or docks to name

just a few. The Howfyl-Broadfield Plantation south of Darien Georgia, now a state historic site, as well as an archaeological site, has examples of a few of these site types.

Sea Island cotton was one of the original coastal crops. This cotton strain was introduced in 1786 and grew in the southern portion of the state below the 33rd parallel. However, it was found to grow best within a thirty-mile radius of the Sea Islands and on the islands themselves. It originally flourished in the sandy uplands, but was also found to grow on drained sea marshes. Some speculated that the presence of salt in the air or soil was the reason for the cotton's success. Plantation agriculture on the coast was begun with cotton and rice, though rice eventually became the most economically viable. A movement for crop diversification led to the eventual cultivation of indigo, sugar cane, silk worms and oranges (Messick et al. 2001:19-20). Remnants of these diverse agricultural pursuits can be found in the archaeological record on plantation sites in the Coastal Plain and Sea Islands.

The so-called Wiregrass and Pine Barrens areas of the Central Coastal Plain were not amenable to cotton agriculture. Thus, livestock herding and small-scale farming was of greater importance in the area (Messick et al. 2002:21). This pattern of subsistence farming was one found throughout the state, and farmsteads and associated features are among the most common historical archaeological site types found in the state. The naval stores industry, in which pine tree sap was collected to produce tar, pitch, and turpentine, was a major industry in the Central Coastal Plain by 1860. The predominance of long leaf pine in the region made it the ideal location for the collection of sap, and production of naval stores products. The industry resulted in the formation of sites such as tar kilns and turpentine stills.

Georgia's physical environment, its topography, mineral resources, geology, climate, and vegetation, has had an effect on archaeological site formation in the historic period. Discovery of gold deposits in the Valley and Ridge and Blue Ridge Regions led to mining and the resultant sites included mine pits, stamp mills, and sluice boxes. At the Fall Line, the combination of extensive waterfalls and the end of river navigation resulted in a line of industries spanning the midsection of the state. Towns and cities developed around these industries and industrial sites were joined by domestic and agricultural sites. Finally, at the coast, the power of the tide, in conjunction with low-lying swamps, allowed for the development of rice agriculture. The sites of the rice fields themselves are ubiquitous on the coast, and related sites such as great houses, slave villages or quarters, and corn or rice mills are found to a somewhat lesser degree.

III. Cultural History

European Exploration and Colonization

The Spanish were the first Europeans to explore Georgia, with Heranando De Soto traveling through the region from 1539-1542 in search of gold and other riches. While the Spanish did not find the mineral wealth here that they had encountered in Mexico and in South America, they did find potential religious converts among the Native American population. Spanish settlement of the region was thus comprised largely of missions. As early as 1566 the Spanish arrived on St. Catherines Island and established an outpost, which would be inhabited by soldiers and Jesuit priests (Coleman 1978). The mission settlement was called Santa Catalina de Guale. Several buildings were constructed and included a friary, church and kitchen which were surrounded by a palisade (Thomas 1988a). During the Guale rebellion in 1597 the church was burned down and was later rebuilt (Thomas 1988a). Santa Catalina de Guale was one of several missions established along the Georgia coast which were aimed at religious conversion of the native population. By the end of the seventeenth century all of these missions had been abandoned as the Spanish focused their attentions on Florida.

Permanent settlement of Georgia would be the product of Great Britain. The British saw the benefits of a settlement in this region as providing a buffer between Spanish Florida and the British settlements in Carolina, particularly the town of Charleston; for facilitating trade with Native American groups; and in providing land for the production of crops and goods needed in Great Britain. The creation of the Georgia colony was established by a royal charter to a group of 21 prominent men, including James Oglethorpe, who envisioned the new colony as providing a place of residence and redemption for the impoverished, religiously disenfranchised Protestants, and other unfortunates seeking a new life. Oglethorpe and the first group of colonists arrived in 1733, and after having been provided with tools and livestock by the colonists in Charleston, they sailed south and selected a bluff near the mouth of the Savannah River for their settlement. Oglethorpe negotiated with the Yamacraw chief, Tomochichi, who ruled this area, with the assistance of the trader John Musgrove and his mixed-breed wife, Mary. Oglethorpe received permission for a settlement on the Yamacraw Bluff and later negotiated a treaty giving the British rights to a narrow belt of land along the coast, less than 30 miles wide, from the Savannah River to the Altamaha River including the Sea Islands. The town Oglethorpe established would become Savannah and featured a city plan of Oglethorpe's creation which was based on squares and politically divided into wards (Bonner 1964, Coleman 1978).

The early economy of the colony was dependent on agricultural production which relied on free labor as Trustees of the Georgia colony banned the importation of slaves. Settlement spread along the coast and up the coastal rivers. However, the crops and products that the Trustees had hoped the colony would generate all proved to be unsuccessful. Efforts to plant mulberry trees and produce silk yielded some limited

results, but attempts to produce wine, potash, and olives all failed. Early government of the colony was also uncertain, as Oglethorpe had no official title. After a return trip home in which Oglethorpe took along the Yamacraw chief Tomochichi and his family, more colonists arrived and founded the town of Frederica on St. Simons Island. With his return to Georgia, Oglethorpe carried the new title of Commander-In-Chief of Forces in South Carolina and Georgia (Coleman 1978). William Horton worked with Oglethorpe and helped build both Fort Frederica and the associated town of Frederica (Elliott et al. 2002). His duties included supplying townspeople and soldiers with food and livestock and serving with Oglethorpe in the military (Elliott et al. 2002). Other forts established during this time period included Fort Argyle on Ogeechee River, Thunderbolt on Augustine Creek, and fortifications associated with the town of Ebenezer and other hamlets up the Savannah River. These fortifications were established just in time, as war with the Spanish in Florida over its border with the British colonies soon erupted. In 1740 Oglethorpe led a force of about 1,500, including British soldiers, rangers, and Native Americans, against the Spanish in Florida. Oglethorpe defeated Spanish outposts on the St. Johns River, but arrived at St. Augustine to find the Spanish fort strengthened as well as guarded by six ships. Following a defeat at Fort Mose, outside St. Augustine, in which runaway slaves fought on the side of the Spanish, Oglethorpe retreated to Georgia. Spanish forces invaded the colony in 1742 and captured Fort Frederica. However, Oglethorpe led his troops in an ambush of the Spanish forces at the Battle of Bloody Marsh and with this defeat the Spanish left Georgia (Coleman 1978).

In addition to the British colonists, other groups helped settle Georgia. One such group was composed of individuals from the Archbishopric of Salzburg, who were expelled from their home. Although challenged by a different language, the Salzburgers succeeded in establishing the town of Ebenezer and outlying farms (Coleman 1978). Moravians and Scots also settled Georgia. Smaller groups of individuals also came from Northern Italy, Switzerland, Wales and England. During the early settlement days a fort was established by Oglethorpe at the Savannah River to improve the relationship with the Creek Indians. It was called Augusta and was the center of Creek trade (Coleman 1978).

Oglethorpe encountered the Colonial town of Mount Pleasant as he passed through it on his journey to Coweta Town to meet with the Yuchi Indians (Elliott and Elliott 1990). Due to an earlier treaty signed in 1733, most of the Indian population had left, although some Indians still remained and lived near the settlements of Ebenezer. Mount Pleasant was an important trading post and river crossing for the trading of deerskin for European goods. Only Augusta maintained a more successful entity (Elliott and Elliott 1990). By the 1770s, Mount Pleasant became overlooked as other sections of the river became more accessible (Elliott and Elliott 1990). While it served as a trading post, it was also the location of a fort that Oglethorpe built to protect his interests from various Indian groups and other competing colonizers (Elliott and Elliott 1990).

Agriculture and the Beginning of Slavery

As colonists began to settle the new frontier they were entitled to fifty acres of land of which part was to be used to grow wine and silk to send back to Britain (Coleman 1978). Shortages were encountered early on as inexperience and a lack of manpower crippled the efforts of production. These factors led to the abolition of the ban on slavery in 1750 and the acreage-limit. Consequently, the population increased rapidly from 1,700 whites and 420 blacks in 1751 to 9,900 whites and 7,800 blacks in 1766 (Bonner 1964:9). Larger tracts of land were being sold as well because the Trustees dropped their 500-acre limit. As a result, wealthy landowners from South Carolina began to buy up lands along the Savannah River and Georgia became a slave state (Coleman 1976; Smith 1985). By this time, the colony of Georgia was spread out along the coast from Savannah to Darien and up the Savannah River to Augusta.

These changes introduced plantation agriculture that required a large labor force and sufficient lands. One of the first cash crops cultivated on the coasts was rice. It is likely that much of the knowledge of rice as a crop, and the technology needed to establish rice fields, dikes, and ditches, came to the New World from Africa (Carney 2001). The initial outlay of labor for tidal rice culture was great since it required that a system of dikes, canals, and gates or trunks be constructed in the swamps along the banks of the rivers. It was estimated that 40 slaves and 200 acres of suitable swamp land, in addition to tools, equipment for cleaning and processing the rice, and food for the upkeep of the workers for a year, were necessary to begin such an enterprise (Bonner 1964:17).

In addition to growing rice, other cash crops were experimented with in hopes of developing profits for the colony. Indigo was one of these crops but was grown with limited success in Georgia. Since it was planted in the uplands and during the off-season for rice, it complemented rice agriculture. The abrupt decline in rice prices during the 1740s resulted in an increase in the production of indigo. By 1750 the crop was well established on the Sea Islands and along the Ogeechee River. Hemp was cultivated under similar circumstances as indigo and its processing was less difficult. In 1762 a bounty to encourage the production of hemp was introduced by the Colonial government and the crop doubled the following year. Although the crop never reached the importance of a leading staple, it was among the more significant crops exported by the end of the Colonial period (Bonner 1964:20).

Some cotton was grown during the Colonial period, but for domestic use rather than for sale. During the imperial crisis, which resulted in the American Revolution, Georgians significantly increased cultivation of cotton for the first time. Americans who supported the non-importation resolutions of the early 1770s were cut off from British sources for cloth of all types. According to Chaplin (1993:178), cotton cultivation became a patriotic activity as well as sheering sheep for wool rather than slaughtering them.

The production of silk was considered to have great potential in the colony. Silk production required the feeding of mulberry leaves to silkworms, so mulberry trees were

planted on many farms and plantations. In fact, the planting of mulberry trees was a condition of land tenure in the early Colonial period and by 1750 it was made a requirement for holding the office of deputy in the Commons House of Assembly. The British Parliament and the Colonial government supported the silk industry. In 1749 the Common Council appropriated 40 shillings sterling for every woman in the colony who learned the art of silk winding within a year. A bonus of five pounds was given to the first three women who acquired the skill, which were all Salzburgers. The Salzburgers at Ebenezer were the most successful silk producers, and while many abandoned silk production after 1751, they continued the business up until the American Revolution when the British invaders devastated the town (Bonner 1964:16). Some silk was produced in Georgia as late as 1790 and there were several attempts to revive the industry in the nineteenth century, all of which resulted in failure (Bonner 1964:17).

Most of the land granted in the 1750s and 1760s was located along the coast, either on the mainland or islands. By 1760 Governor Wright reported to London that all of the good coastal land between the Savannah and Altamaha rivers had been granted as far inland as the Indian boundary. If Georgia were to receive more settlers, some of the cultivable land owned by the Creek Indians would have to be obtained. The Creeks ceded approximately 2,400,000 acres, which freed up coastal areas between the Altamaha and the St. Mary's rivers, and plus some additional land behind the original coastal Indian cession. This included lands from north of Ebenezer Creek to the Little River just above Augusta (Coleman 1976: 207). Large quantities of land were granted during this period, mainly to encourage and augment agriculture. One of the most prosperous agricultural areas in Georgia was the Salzburger settlement at Ebenezer. The Salzburgers were producing enough Indian corn, beans, upland rice, potatoes, barley, and wheat to take to the markets in Charleston, Purrysburg, and Savannah. There was also a filature for silk, two sawmills, and one gristmill in the town (Coleman 1976:209). Further development inland occurred after a 1773 treaty with the Creeks, which expanded the Georgia frontier up the Savannah River about a mile below the mouth of the Tugalo River (Anderson and Joseph 1988:334).

In slaveholding regions of the state and in areas where rice plantations flourished, a task system of slave labor was developed which provided some freedom within the confines of slavery. The task system involved a certain quantity of work, which was required to be accomplished within a single day, after which the slaves could tend to personal gardens and be involved in some limited economic pursuits. In other areas the gang system prevailed, where slaves were required to work from sun-up to sun-down. It has been noted by researchers that once the slaves were involved in working the task system, it was virtually impossible to get them, and sometimes their masters, to move to what was considered to be a more profitable system of gang labor (Morgan 1983:105-106).

The American Revolution

As the colonists became more aware of the control that Britain had over them, they began to resent their dependence on the so-called mother country. Within a short period, as a prelude to the American Revolution, a series of acts were passed that put taxes on goods that were leaving the colonies. The discontent among the colonists caused them to form a committee to address these issues. These governmental taxes proceeded to divide the Colonial population into differing views of who maintained the right to make decisions for the colony. In order to address these concerns, two meetings were held at Tondee's Tavern in Savannah in July and August of 1774. Resolutions were adopted and the attendees at these meetings discussed the selection of delegates to the First Continental Congress. In 1775, the colonists' actions continued to displease the British and ultimately Georgians stopped trade with Britain. Soon war ensued. On February 5, 1777, a permanent state constitution was adopted which outlined the positions of the governor and executive council, the court system, and included a bill of rights. From this document came the change from Colonial parishes to eight counties. Although a constitution was passed, the whole state did not recognize it because part of the state still maintained a provincial government and created their capitol at Augusta (Coleman 1978:17-23).

British officials sought to reclaim Georgia and sent troops in 1778. They were successful in taking Savannah despite the protective forces there. Battles continued as Britain urged individuals to renew their ties to Britain. Despite these attempts the war was soon over and the penalties and rewards were decided. While those loyal to the British, the Tories, lost part of their property or were banished from the colony, those who supported independence were rewarded with land bounties. Even though some of the Tories initially left, they returned after a short absence. The removal of the British allowed for new problems to be addressed and an opportunity for the average citizen to be involved in Georgia's future. This was most particularly apparent in the social and economical structures that shifted with the removal of the predominately wealthy Tories, which allowed for a more stable economic field. From 1790 to 1800 the population almost doubled from 82,584 people in 1790 to 162,686 in 1800 (Coleman 1978).

The end of Revolution resulted in freedom for many formerly enslaved Georgians. The confiscation of Torie lands and the departure of many Tories from the state meant that their enslaved African Americans were now master less. Free African-American communities appeared in Georgia's larger cities, such as Savannah and Augusta, at about this time. The Springfield community in Augusta is one example. Now no longer slaves, these individuals were able to work for various families in Augusta doing domestic chores, like cooking or washing, or commercial duties of tradesmen or watermen. Population growth of the free African-American community occurred so rapidly that by the early nineteenth century laws were instituted to control their actions. Georgia law continued to interfere with their presence as it tried to discourage further emancipation. These new laws did not entirely stop growth: growth was consistent except for a decade of decline between 1810 and 1820 (Joseph 1993). The end of the Civil War finally

brought changes to the social status of these individuals as all of the African-American population was finally free.

The Establishment of Staple Crops After the Revolution

After the war, the rice coast was slowly rehabilitated and plantations became thriving and profitable businesses once again. Those planters who had been loyal to the British had their lands taken away by the new state government. Approximately 200,000 acres of rice plantation were confiscated and resold or distributed. Several Revolutionary War heroes were given gifts of large plantations. Nathaniel Greene received a 2,170-acre plantation called Mulberry Grove along the Savannah River. The plantation had 500 acres of rice fields and 200 acres of highland fields suitable for the cultivation of other crops. Improvements consisted of a rice mill, barns, overseer's house, a handsome residence, slave quarters, gardens, fruit orchards, and a variety of shrubs (Smith 1985:30-31). Another area established after the American Revolution in Savannah was called New Leeds (Wood 1985). While becoming a thriving community, New Leeds attracted several groups of people. Among the variety of individuals living there was John Gardiner, a tanner and boot maker, who not only owned a plantation in Effingham County, but was also involved in shipping, real estate, and lumber factoring (Wood 1985).

The invention of the tidal powered rice mill by South Carolinian Jonathan Lucas in 1793 combined all of the processes of milling rice: grinding, winnowing, pounding, screening, and polishing. This invention increased the productivity of rice plantations immensely. Not all plantations had mills, but toll mills were set up for smaller planters where they could have their rice milled for a small percentage of the grain (Gray 1933:730). In addition, some of these plantations had rice mills and some of these had toll buildings so that neighboring planters who didn't own a mill could process their rice for a fee.

Broadfield Plantation grew rice during the nineteenth-century and was located on the Altamaha River a few miles south of Darien (Wood 1998). Henry Laurens, president of the Continental Congress and Lachlan McIntosh, a Revolutionary War General from the coast of Georgia, owned the land (Wood 1998). Over time the plantation remained in the families' ownership and the lands accumulated were divided between the children of James and Camila Troup (Wood 1998). The original house was made of tabby and slave quarters and other outbuildings were constructed. Rice was cultivated on the peninsula of land that jutted into the south channel of the Altamaha River (Wood 1998). In addition to rice, cotton was also grown on high ground, and both rice and cotton mills were constructed in the 1850s (Wood 1998). Broadfield plantation continued to grow rice until 1915 when the primary function became a dairy farm (Wood 1998).

Eli Whitney invented a fully operational cotton gin by early 1793. This helped to open up a bottleneck in cotton production that, according to Chaplin (1993), transformed rustic and slave-less upcountry yeomen farmers into planters. The cotton gin, the established

pattern of commercial agriculture in the coastal region, and the growing market for cotton in Britain brought about the beginnings of the era of "King Cotton".

The primary development of upland cotton in the early nineteenth century occurred in the eastern portion of central Georgia. The process of transferring cotton to market was expensive, since the Savannah River was only navigable below the Fall Line at Augusta and other rivers were only navigable to the edge of the Sandhills. Nonetheless, the area began to thrive. People flocked in, bringing slaves with them or buying more slaves. This resulted in the area passing quickly through a number of economic phases, from fur trading to a diversified economy of farming and handicrafts to a regime of commercial plantations (Gray 1933:685). Between 1790 and 1850 the slave population in Elbert County rose from 23 percent to 48 percent (Anderson and Joseph 1988:370). At the turn of the century Oglethorpe County was the western frontier containing a scatter of log houses and range livestock. The Oconee River still formed the western boundary of planters, but in 1802 and 1804 lands held by the Creeks were ceded and settlement moved two tiers of counties west to the Ocmulgee River. The area west of this line was not settled for another two decades until Indian title could be extinguished (Gray 1933:686)

Another area of cotton agricultural development was along the coast. In 1786 Sea Island cotton was introduced to Georgia. This type of cotton grew best on the Sea Islands and on the mainland within thirty miles from the coast. Some people believed that it was due to the presence of salt either in the soil or the atmosphere. The prices of Sea Island cotton began to drop in the 1820s and the high profits of the earlier days never returned. Rice was the more economically reliable crop, and those who owned rice lands turned increasingly to it as their staple crop. The combination of Sea Island cotton and rice made coastal Georgia the richest region in the state, while short staple cotton was creating its own fortunes elsewhere.

An example of a long-staple cotton plantation was Cannon's Point, which was located on St. Simon's Island and owned by John Couper from 1794-1850 (Otto 1975). John was of Scottish descent and left for a short time after the American Revolution but returned to marry and buy land for a plantation (Otto 1975). He owned 290 enslaved Africans who cultivated his cotton, yet he soon fell into heavy debt, due to natural disasters and the removal of some of his laborers in payment of debts (Otto 1975). By selling some of his own property to his son James Hamilton Couper, John was able to rebound from financial difficulties (Otto 1975). Although met with economic struggles, Cannon's Point was one of the four largest plantations on St. Simon's Island and Couper was one of the largest slave owners in Glynn County (Otto 1975). He was known for experimenting with crops and imported olives and dates as well as other plants, though long-staple cotton remained the plantation's main cash crop (Otto 1975).

Early Republic

Statehood would bring with it a series of challenges as Georgia and its communities learned to govern themselves. One of the first issues confronting the new state was the location of its capital. Savannah was viewed as too distant by many of Georgia's citizens as well as too closely aligned with the plantation aristocracy to serve as the capital. Augusta was preferred as a more central location. For a time the government met in both cities and the governor and executive council resided in both. In 1786 Georgia's government directed that a new town be built for the capital, to be named Louisville and located on the Ogeechee River, but this town was not completed until 1795. In the interim, Augusta served as the capital (Coleman 1978).

Perhaps the most pressing issue for Georgia's government was its dealings with the state's Native American population. European settlers moved into Creek and Cherokee territory with greater and greater frequency during the late eighteenth and early nineteenth centuries, leading to contact and sometimes conflict. Georgia's government was also concerned about the efforts of British and French sympathizers to ally the Cherokee and Creek to those nation's, an alliance that could threaten the stability of the state, which had a small militia. Thus the government embarked on a series of treaties aimed at obtaining land for the expansion of the state and the removal of Native Americans from the borders of its settlements. Through treaties, the Creeks were moved outside of Georgia by the 1830s (Hudson 1976:458-459), however, the Cherokees tried to remain in the northern portion of Georgia and acculturate into the white population. This acculturation was rapid and profound and consisted of the adaptation of Euro-American modes of economic production as well as political organization. By the 1820s, the Cherokees had achieved political stability and were involved in the agrarian economy of the American South. Their economy turned from the fur trade to the sale of livestock and grain to the Euro-American community. Cherokee farms began using Euro-American technology such as the plow and draft animal. They also began to build houses that were indistinguishable from their Euro-American neighbors. New Echota was of particular importance to the Cherokee Nation because it was the capitol. An alphabet was developed by the Cherokee and used in the *Cherokee Phoenix,* the newspaper of the Cherokee, which was printed at New Echota. Ultimately, the Treaty of New Echota would be signed by a group of Cherokees who did not represent the Tribal Council, which would exchange the Cherokee lands in Georgia for land in Oklahoma and $5,000,000.

The desire for Cherokee lands was promoted by the discovery of gold in the area in 1828. Following the Treaty of New Echota, the state appropriated Cherokee lands and then redistributed them in a lottery in 1832. It was up to the lottery winner to physically evict the Cherokee occupants from their homes. It wasn't until 1838 that the government began the forced removal of the Cherokees in what became known as the Trail of Tears.

The lands to be distributed by the lottery were surveyed in 1832 and divided into 160-acre land lots and 40 acre gold lots. Residents of Georgia who had lived in the state for three or more years, were 18 years of age or older, and citizens of the United States were

eligible to participate in the lottery. Some of the first owners who acquired land through the lottery quickly sold their tracts because they were primarily concerned with finding gold rather than farming.

The Treaty of New Echota was the last treaty made with the Native Americans for the acquisition of land. By this date, 1835, Georgia has reached its full extent in size (Figure 2).

The Sixes Gold Mine was considered one of the oldest mines in Cherokee County because it began its mining operations as early as the late 1820s (Norman 1998). Located a few miles southwest of Canton, Sixes was one of several areas in upper Georgia that was intruded upon in search of gold. Illegal mining operations continued as a variety of individuals participated in this opportunity to get wealthy quickly. The army was sent by request of the native Cherokee to end these practices in September of 1830, but was incapable of extinguishing all illegal activity surrounding Sixes gold mine community (Norman 1998). Despite the interest in gold, not everyone pursued it. Others occupied the land and farmed it; however, some were awarded steep hilly lands that were practically worthless and which were often abandoned. Some lottery participants were lucky enough to win fully operable farms that had been previously occupied by Cherokee families.

Georgia's economy expanded during the distribution of lands by lottery, and as a result, more banks were needed to provide credit. These banks were opened throughout Georgia in the cities of Savannah, Augusta, Macon, Milledgeville, and Columbus. Railroad banks developed but only a few survived the depression of the 1840s. Before the construction of railroads, attempts were made to make use of the navigable waters throughout Georgia. Two examples were the Savannah, Ogeechee and Altamaha Canal, which connected the Savannah and Ogeechee Rivers, and the Augusta Canal that provided access and power to the city of Augusta (Boney 1991:156). Additional support for water transportation came from the Supreme Court's decision to withdraw the monopoly placed on steamboats, thus allowing for modifications to be made to the vessels (Boney 1991). Although another form of transportation was now available, this did not stop the advancement of the railroad.

Seeing their neighbors in South Carolina build an effective railroad, which ran from Charleston to Hamburg (located near Augusta), and viewing it as a threat to their commerce, Georgians quickly organized construction. Interior towns of Athens and Eatonton established two railroad routes in the early 1830s, including the Eatonton-to-Augusta line and the Athens-Augusta railroad (Boney 1991:157). Others soon followed to protect their interests from being consumed by the South Carolina railroad. Savannah and Macon both joined the race and charters were granted in 1833 by the legislature and were defined as the following railroad companies; the Athens-Augusta line as the Georgia Railroad Company, the Savannah-Macon line as the Central of Georgia Railroad

Figure 2. A Map of Georgia Showing the Native American Land Cessions by Treaty Year (from Coleman 1978)

Company, and the Macon-Forsyth line as the Monroe Railroad Company (Boney 1991:157). Where the Georgia Railroad and Central Railroad met would become Atlanta.

Manufacture and Industry

During the early 1830s industrial endeavors took root in Georgia and the range of industries began to diversify. Examples of these industries included those that made brooms, buckets and boxes, as well as factories, tanneries and mills. These entities often developed near larger cities and manufacturing villages were often located near suitable water sources (Meadows 1951). As a leader in railroads and manufacturing, Georgia was given the title of Empire State of the South. Evidence of growth and development of manufacturing in Atlanta is provided by Jonathan Norcross, Esquire:

> *There is in the city one steam flouring-mill, investment $35,000, the operation of which may be placed at $150,000 per annum. One iron foundry and machine shop—cash operations $20, 0000 per annum. There are three carriage and wheelwright shops, two large tanneries, one large shoemaking establishment two large tanneries and shoe-establishments in course of construction. In addition to the Georgia Railroad and State machine shops, which employ large numbers of workmen, one car-shop is now going up as a private enterprise—investment $30,000* (Meadows 1951:332).

Growth in population and manufacturing enterprises were developing in Augusta, Macon, Columbus, and Athens and occurred between the years of 1830 to 1860. By 1850 entire state was home to 1,522 manufacturing entities which had a total value of products of $7,082, 075 (Meadows 1951). Textile mills were abundant in the state and reflected the importance of cotton to Georgia. Construction of one of the first cotton mills took place in Georgia in 1827 and was called the Georgia Factory (Meadows 1951). Three well-known mills from the mid-nineteenth century were the Augusta Cotton Factory, the Eagle Mills of Columbus, and the Mills at Roswell (Meadows 1951).

The Roswell factory was known for high quality material, which was sold to neighboring states of Tennessee and Alabama. Roswell King organized Roswell Manufacturing Company in 1839 (Wood 1993). Roswell King realized the potential for the textile industry and soon thereafter built a three and one-half story brick structure with a stone foundation of local granite (Wood 1993). Upon his death, his son Barrington managed the mill and added buildings: a cotton factory, a wool factory, a corn mill, a shoe shop, two blacksmith shops and a retail store (Wood 1993). The mill maintained operation during the Civil War, but like other mills, would not escape Sherman's wrath (Meadows 1951). Although the war destroyed many textile mills and other industries, statistics from 1870 show that there were 34 cotton mills in existence and 85,602 spindles compared to 33 mills and 85,186 spindles before 1860 (Meadows 1951:336).

Scull Shoals, located on the Oconee River, was a nineteenth century industrial town that began in 1782 (Wynn and Kratzer nd). Though Creeks lived in the area, the colonists built a fort in 1796 and were able to obtain land from the Creeks through a treaty signed in 1802. The invention of the cotton gin had spurred the spread of cotton agriculture to the upcountry and there was a need for a mill in this region to transform cotton fiber to thread and cloth that was easier to ship. The state government also provided the funds for a paper mill, the first in Georgia, at Scull Shoals (Wynn and Kratzer nd). Unfortunately the paper mill was out of business in 1815 but this did not hinder the growth of the village. Dr. Thomas Poullain owned the cotton mill from 1827-1868, and had boarding houses, stores, a warehouse, distillery, and a toll bridge. In 1854 he had 2,000 spindles and looms consuming 4,000 bales of cotton valued at $200,000 (Wynn and Kratzer nd).

The end of the century would bring about an explosion of a variety of manufacturing entities. The most lucrative times for the cotton mill industry occurred because of the use of more material and an increase in profit margins (Meadows 1951). The cotton expositions that took place in 1881 and 1895 provided impetus to the cotton industry, propelling Georgia to third in the South and sixth in the nation for the number of spindles in operation by 1900 (Coleman 1978:88). Another part of the cotton industry that proved profitable was cotton ginning, which was separated into private (for use of the plantation), public or both private and public use (Meadows 1951). In the year 1899 Georgia was ranked first in its total number of ginneries, with Texas second and Alabama third (Meadows 1951). Cottonseed oil mills were recognized as profitable around 1890 and there were 17 in existence (Meadows 1951). The oil had many diverse applications including butter, salad oil, lard, and for use in miner's lamps and medicinal compounds (Meadows 1951).

While cotton mills enjoyed their success, woolen mills were not nearly as profitable. The first woolen mill was constructed in 1840 and the number of woolen mills increased until 1870, when sheep shearing began to decline (Meadows 1951). Fertilizers and cattle feed were also important industrial products. In 1880 there were three fertilizer factories that produced goods valued at $256,500, and just ten years later there were 44 factories with a product valued at $5,026,034 (Meadows 1951:353). Natural resources were also used; trees for timber industries and clay for pottery. The tar and turpentine industries provided large exports for Savannah and Brunswick and succeeded in making smaller ports, like Darien and St. Mary, economically successful (Meadows 1951). After the trees were drained of their rosin, the tree was cut down and the sent to the mill, leaving an empty field, ready to be planted with cotton or other fruits and vegetables to be sold at market. A number of potteries developed in the state; the earliest were found in Washington County, while later centers of pottery production were in eastern Crawford County, near Macon, and at Mossy Creek near Cleveland in White County.

Mining of coal and iron occurred in the northern part of the state and was extracted with the help of convict labor (Coleman 1978). With the improvements in roads and the rebuilding and additions of railroads, growth in manufacturing and commercial agriculture flourished. Truck farming was expanded after the Civil War and sent out fruits and vegetables grown in cities like Augusta where they were shipped to Savannah

to be exported (Meadows 1951). Savannah and Brunswick were also noted for their mild climate, which allowed crops to be grown year round. Since the face of agriculture was changing and diversity was introduced, the towns of Bloomingdale, Meldrim, Guyton, Egypt, Oliver, and others located along the Central Railway abandoned cotton and chose to market more profitable crops (Meadows 1951).

The Civil War

The Civil War would disrupt the history of Georgia and would bring to an end slavery and the plantation. Although most battles occurred outside the state, Georgians still fought to support their idea of separation from the Union and the war would find its way to Georgia. The Union took control of the Carolina coast in November of 1861 and a small Confederate contingent tried to defend the coast (Boney 1991). The Georgia coast was quickly captured but by the spring of 1862, the Sea Islands were in the hands of the Confederates (Boney 1991). Fort Pulaski was captured and Savannah closed as a port and soon invasions and attacks on the railroads from the interior of Georgia began (Boney 1991). In September of 1863 the Union army captured Chattanooga and began to move south into Georgia (Boney 1991). The Confederacy won the battle at Chickamauga but the Union forces leadership changed and under Ulysses S. Grant's command the troops were reinforced and led by William Tecumseh Sherman. He began to march towards Atlanta.

Several battles were fought in northwest Georgia and included the Battle of Gilgal Church, located in western Cobb County about seven miles west of Marietta (Braley 1987). The battle took place on June 15-17, 1864, ten days before the Battle of Kennesaw Mountain (Braley 1987). The Confederate defenses followed the ridge-like divide between the Chattahoochee and Etowah Rivers and the Confederates used the high ground to their advantage by establishing a trench system, which incorporated Lost Mountain on the west, Pine Mountain in the center, and Kennesaw Mountain on the east (Braley 1987). The Union troops continued to push the Confederates south towards Atlanta, and as they followed the Western and Atlantic Railroad, inflicted many Confederate losses. Sherman continually destroyed transportation and communication entities in his "march to the sea" (Bone 1991). After capturing Atlanta, Sherman's forces split and continued to follow the railroad lines, destroying them as well as bridges, factories, and mills. On December 13, 1864 Savannah surrendered to Sherman and within four months the war would be over (Boney 1991).

Union soldiers who were captured were sent to the prisons at Camp Lawton and Andersonville, a prisoner-of-war camp that was built by African-American slaves (Prentice and Mathison 1989). Of the 31,000 inmates who were taken there, 13,000 of the prisoners died (Boney 1991).

Reconstruction

The Civil War devastated the economy of the American South. Houses, barns, railroads, and bridges were destroyed, crippling southern agriculture. The destruction of cities, factories, and warehouses paralyzed the economy. For planters, the loss of their buildings and farm equipment was minor in comparison to the effect brought about by the loss of their slave "capital". Slaves made up a major proportion of their financial investments and according to at least one estimate for the "cotton South", the investment in slaves amounted to almost sixty percent of the total investment required for the operation of a typical cotton plantation (Ransom and Sutch 2001).

The emancipation of the slaves changed the landscape of Georgia as contract wage labor was instituted by the Freedmen's Bureau. Wage labor contracts gradually gave way to two kinds of tenancy: sharecropping and share-renting. Prior to the share system was the squad system, which combined small-scale gang labor with the share system. Squads typically consisted of a kin-based group who worked an area of land for a share of the crops. Sharecropping required the tenant to pay the landlord part of the crop produced, while renting required that he pay a fixed rent in either crops or money. In sharecropping, the tenant supplied the labor and half of the fertilizer, while the landlord supplied the land, house, seed, tools, work animals, animal feed, wood for fuel, and the other half of the fertilizer. The landlord, in return, received half of the crop at harvest. In share renting, the landlord supplied the land, housing, and either a quarter or a third of the fertilizer costs. The tenant supplied the labor, animals, animal feed, tools, seed, and the remainder of the fertilizer. Generally, when the crop was harvested it was divided in proportion to the amount of fertilizer that each party supplied. However, there were variations on this type of contract (Orser 1988).

After the Civil War the railroads were rebuilt through bonds issued by the governor (Figure 3). This process took time due to a lack of government support and the national depression of 1873-1878 (Boney 1991:232). In the 1870s several industries were revived including cotton mills, tar and turpentine, and the marble and granite industries. In 1881 the International Cotton Exposition was held in Atlanta and proved to the nation that Georgia was at "the dawn of a new age" (Boney 1991:235). Textile mills in Augusta, Macon, and Columbus were important to stabilizing the recovery and experienced growth of 34 mills in the state in 1870 to 53 mills in 1890 (Boney 1991:235).

Cotton textile mills were Georgia's leading industry from 1890 to 1940. Canton Cotton Mill was chartered in 1899 and built in 1900 with its primary financial support coming from Robert Tyre Jones, owner of Jones Mercantile Company. The mill was constructed along the railroad near the Etowah River on the southwest side of Canton. Jones decided to switch from producing cotton sheets to producing denim and business increased as a result. A second mill was built in 1923 that began producing denim cloth with 750 looms and 23,000 spindles. The mill produced cotton tent twill for the government during the 1940s and soon an addition led to increased production. The mill updated its equipment

Figure 3. A Map Showing Railroads in Georgia ca. 1860 (from Coleman 1978)

and began the production of synthetic fibers. Consequently its name was changed to Canton Textile Mills. As the demand for cotton decreased so did production but unfortunately a decrease in production caused the mill to close in 1981.

A plethora of mills were located in the Augusta area due to favorable geographical conditions. As, a result, water-powered mills were prevalent. Mills were located along Sandy Run and Spirit Creeks and at Lower Leitner, Union Mill, Maxwell, and Scout ponds (Reed et al. 1994). Two types of wheels were used until the mid-nineteenth century and were either the undershot or the overshot depending on whether the water flowed underneath the wheel or if it was pulled down over the wheel in buckets (Braley and Froeschauer 1991). A total of seven mills were listed in the 119th Richmond District. While their primary function was lumber production, they also ground corn or wheat and sifted fine grains of flour (Braley and Froeschauer 1991). The first person to own a mill in the Augusta area was John Leith who received the land in 1784 by a land grant and constructed a mill shortly thereafter (Braley and Froeschauer 1991). Ambrose Gordon eventually bought Leith's land (presently known as the Boardman Pond Tract) and purchased additional land to build mills on Butler Creek. Gordon was politically active, serving in the Richmond County militia, a commissioner of the courthouse and jail, and a member of the grand jury. Although he obtained large parcels of land he was unable to keep them and eventually sold a majority to Dr. John Murray (Braley and Froeschauer 1991). Over time the land changed hands several times until the U.S. Army became the final owner in 1941.

As milling increased in scale, mills became industrialized and mill villages appeared. Child labor and payment in scrip, only for use at the company store, were two prominent characteristics of this new way of life (Boney 1991:269). Lumber mills and naval stores grew with continued construction of the railroads. Several cities were known for their industry and included the following: Savannah, the main port, which maintained companies that produced naval stores, sugar and paper; Columbus, known for textile mills and iron foundries; Augusta; and Macon, which had textile mills and clay works (Boney 1991:274). Rome, Griffin, LaGrange, Gainesville, Dalton, Canton, and West Point became textile centers (Boney 1991:274).

The Early Twentieth Century

At the beginning of the twentieth century, Georgia's population and economy exhibited many of the aspects that would define the state during the twentieth century. While primarily rural and agricultural, industrial growth had spurred an increase in the state's urban population and Savannah, Augusta, Macon, Columbus, and Atlanta had all emerged as cities. The rural population was beginning a relocation to urban centers; a pattern that would increase in frequency and numbers once the boll weevil had decimated the state's cotton fields. The advent of World War I (WW I) led to an increase in industry as Georgia became a major supplier for the war effort, providing canvas for tents, packaged meat, cottonseed oil, and other products. Georgia also became home to several

military camps, which would lead to the state's long-term role as the home to a number of Department of Defense installations.

Training facilities that were established in the state included Camp Gordon, in Chamblee. Camp Gordon was home to the famous 82nd Division, also known as the All-American brigade, the most famous member of which was Sgt. Alvin C. York who killed 20 Germans and captured 137 during a single operation. Training conducted at Camp Gordon included rifle and artillery ranges and trenches (Swanson and Joseph 2004). Camp Hancock, near Augusta, and Georgia played an important role in the development of the Infantry School of Arms. The school was able to train 20,000 to 30,000 men at one time (Ball 1939). Further changes were needed to handle the overcrowding at other infantry departments; therefore, the Infantry School of Arms was relocated to Columbus, Georgia. Once chosen, the community of Columbus quickly arranged the building of a temporary camp for the first incoming soldiers and loaned their resources as well (Ball 1939).

Although progress ensued, it was not without problems. As land was acquired for this new fort, farmers were often unwilling to sell their land in fear of never getting the money promised to them by the government. Labor shortages and conflicting orders in 1919 wreaked havoc on the completion of buildings, leaving many families without water, electricity, or sewage facilities (Ball 1939). The Works Progress Administration would not correct these difficulties until Congress initiated more money in 1920 and later. This enabled the completion of buildings, the purchase of motorized equipment and academic training (Ball 1939). It was not be until 1922 that the Infantry School was recognized as an institution and the camp's name changed to Fort Benning.

Perhaps the most dramatic change to occur during the early twentieth century was the agricultural devastation to cotton agriculture wrought by the boll weevil. The boll weevil reportedly reached Thomasville on August 25, 1915, and by 1921 had swept through the entire state. The "winged demon" devastated cotton harvests. In 1914, before the weevil's arrival, the average Georgia farm produced 252 pounds of cotton per acre. By 1923 that average had dropped to 106 pounds per acre. Damage from the weevil reached its peak in 1925, and the weevil continues to threaten Georgia's cotton fields in the present (Georgia Department of Agriculture nd.b). During the early 1920s, nearly 3,500,000 acres of farmland went out of production. The effects of the boll weevil lessened in the latter half of the 1920s, but cotton never again reached its earlier levels of production. Before the boll weevil, cotton accounted for 66 percent of the value of all Georgia crops. In 1929 it accounted for only 47 percent (Range 1954:173-174).

World War II would further limit the production of cotton in Georgia. Exports practically stopped and field labor was increasingly difficult to get. In addition the government announced in 1942 that edible crops were needed for the war effort. By the end of the war, Georgia's acreage in cotton was the smallest planted since 1869. By 1950 the state's cotton acreage was 80 percent lower than in the peak year of 1918 (Range 1954:180).

With President Roosevelt's New Deal of 1933 came the introduction of the agencies intended to help a wide variety of people. For Georgia, issues of erosion and poor soil hindered their production. An area of cropland equal to twelve average Georgia counties was destroyed by erosion (Ball 1939). As a remedy, the Agricultural Adjustment Agency was created to assist farmers by paying them not to grow crops. Advice was given from soil scientists on what types of crops would grow well in the used and unused lands (Ball 1939). While individual farmers were adjusting to the situation, farming communities were implemented and included: Pine Mountain Valley, Irwinville, Wolf Creek, and Briar Patch (Holmes 1991). The goals of these communities were cooperative agriculture and industry, which they hoped to achieve self-reliance. Although a noble effort, these communities did not achieve their desired goals (Holmes 1991).

It was not until 1940 that Georgia's agriculture would be healthy and according to Coleman, "healthier than it had been since the early days of the century" (1978:106). In addition to the governmental checks, the farmer still had part of the crop grown by the tenants that farmed on his land, but for only a short time, as the tenant voiced his desire for money too (Ball 1939). While Roosevelt sought to please the masses, which at this time were predominately the poor, the farmer increasingly disliked the role of the government in his affairs.

The election of Eugene Talmadge as Governor in 1933 brought new insight and conflict into Georgia's well being. As an individual who believed in hard work, self-reliance and saving, the agencies and assistance from the federal government often came into conflict with the ideals of Governor Talmadge (Ball 1939). Although he resisted aid, some still filtered through to the state, and his attitude actually led to improvements in the programs organization (Ball 1939). With the election of E. D. Rivers as Governor, a program of statewide building and development was started in 1937 and continued for four years (Ball 1939). Examples of construction included roads, bridges, and buildings for the Georgia State Hospital of Milledgeville, and Georgia Training School for Girls, and an electrification program. Perhaps the most important were the programs for the state's erosion problem and assistance to the tenant farmer.

As agriculture had been successful in the past, its role was changing. No longer was the state allowed to purchase food from other states but its new goal was to be self-sufficient and develop a balanced agricultural system (Ball 1939). These were difficult years and according to Ball, there were more than "one hundred thousand sharecropper families in Georgia and about seventy-four thousand tenant families" (Ball 1939:121-122).

World War II to the Present

With the beginning of America's involvement in World War II (WW II), Georgia's military importance grew as individuals came to Fort Benning, Robins Air Service, Fort Gordon, and Hunter Field to train. The arrival of war brought money into Georgia and was most reflected in per capita income, which doubled between the years of 1950 and 1970 (Boney 1991:341). Examples of increases in production included The Bell Aircraft

Company in Marietta, shipbuilding facilities at Savannah and Brunswick, ordnance plants in Macon and Milledgeville and other Georgia firms that received war contracts (Bartley 1991). These changes directed the population from farming to manufacturing and according to the 1950 census, there were more people employed in manufacturing than in agriculture—the first time in Georgia's history (Bartley 1991:343). Likewise, in Atlanta, factories emerged and finance, commerce, and administration centers soon settled (Bartley 1991:343). Other cities throughout the state were the recipients of economic success. Macon and Columbus experienced growth from military institutions, while Augusta benefited from the Savannah River Site in neighboring South Carolina, Brunswick experienced growth in tourism, Rome a diversified industrial base, Dalton textile industry, and Gainesville poultry processing (Boney 1991). As these changes were taking place people continually streamed into Georgia.

The defining aspects of Georgia's late twentieth century history were social and technological: the Civil Rights movement and air conditioning. The Civil Rights movement of the 1960s brought an end to racial injustices and inequalities which had haunted African Americans in the south throughout history and provided a social setting in which African Americans could receive equal treatment in pursuit of education and employment. Busing led to the integration of southern schools and greater interaction between blacks and whites. The lessening of racial tensions improved the social climate of the south and made the region more appealing to northern businesses. Atlanta would market itself on these grounds, proclaiming itself "the City too busy to hate."

The movement of population into the south, rather than out, was also a product of air conditioning. Air conditioning had been invented by William Carrier in 1902 as a way of controlling humidity in paper printing plants. Carrier and others recognized the greater applications of cool air and began to develop air conditioning units designed for commercial businesses; early commercial uses included the air conditioning of the J. L. Hudson department stores in Detroit in 1924 and the air conditioning of the Rivoli Theater in New York, which advertised itself as providing "cool comfort." Continuing developments led to the production of inexpensive window units in the 1950s and these soon became a standard feature of southern homes. With air conditioning, the South became more inhabitable. During the 1960s, the population of the South increased, rather than decreased, the first time that had happened since the Civil War. Population increase has occurred in each decade since. With the advent of air conditioning northern businesses moved south, taking advantage of cheap land and abundant labor. Georgia in general and Atlanta in particular benefited from this relocation, with Atlanta's position enhanced by the construction of one of the South's first major airports, today's Hartsfield-Jackson Airport, one of the nation's busiest. Air conditioning would have a profound affect on Georgia and the South, changing residential and community patterns as well as population. Air conditioning also did away with many traditional aspects of southern life, and University of South Florida professor Raymond Arsenault has written that "General Electric has proved a more devastating invader than General Sherman" (http://allsands.com/History/Objects/ airconditioning_vsb_gn.htm)

IV. Inventory of Known Historic Archaeological Sites

This inventory of archaeological sites with historic components was culled from the electronic database of sites maintained by the Georgia Archaeological Site Files at the University of Georgia. The files were provided to New South Associates in an Access database, current as of July 17, 2003. Any historic site recorded after that date is not included in this discussion.

The database contains four fields for site types, and twenty fields for period and phase. Using a search on a combination of site type and historic periods and phases, 14,000 sites were pulled from the database. This number was further refined by removing all sites that did not have the designation "Historic Non Indian" in the first period field. Then all sites without an historic site type in the first two site type fields were removed, with a few exceptions. If the third or fourth field had a major site type such as a plantation, mill, or farm, the site was kept. All sites with no site type designated in any of the four site type fields were not used. Finally, a large number of sites had no designations in the first two site type fields, only in the third and fourth. These were treated as if they were the first two fields and selected in the same fashion.

Once the sites were sorted and selected, a total of 9,174 sites remained. These were sorted by different variables to produce the tables presented in this chapter. First, the sites were sorted by county into the physiographic regions mentioned in the Environmental chapter. The totals by region are summarized below.

Table 2. Number of Historic Sites by Physiographic Region as Identified In Current Study

Georgia	Valley and Ridge	Blue Ridge	Piedmont	Upper Coastal Plain	Central Coastal Plain	Sea Islands - Coast
9,174	524	817	3,788	1,862	1,056	1,127

Dr. Mark Williams of the Department of Anthropology at the University of Georgia and the Director of the Georgia Archaeological Site Files, published an article in *Early Georgia* in 1994 concerning archeological site distribution in Georgia (Williams 1994). His discussion was based on the site file database as of April 1994 and covered all the sites and charted their distribution by time period and physiographic region in tabular form as well as graphically, utilizing GIS mapping recently available in the newly established Ecological Anthropology Laboratory.

At the time of Williams' report in April of 1994, only 27,749 sites in total had been recorded, a striking contrast to the 37,774 sites recorded as of July on 2003, less than ten years later. A marked increase in the number of recorded historic era sites is clear in each region with the exception of the Blue Ridge. In this region, there are actually a lower number of sites than was recorded nine years ago. Of course, sites have not been removed from the site files, so the disparity must be attributed to a difference in how the sites were attributed to regions by the two studies. This study, as mentioned above, drew the lines for physiographic region based on county boundaries. Thus some sites

attributed to the Blue Ridge by Williams in 1994 may well have been allotted to the Piedmont or Valley and Ridge. That may also be true for the other regions, thus a one to one comparison between the studies cannot be made. However, it is useful for a gross comparison of increase in recorded sites in an approximate 10-year period.

Table 3. Comparison of Sites by Physiographic Region Between 1994 and 2003

	Georgia	Valley and Ridge	Blue Ridge	Piedmont	Upper Coastal Plain	Central Coastal Plain	Sea Islands - Coast
NSA July 2003	9,174	524	817	3,788	1,862	1,056	1,127
Williams April 1994	6,108	285	860	2,641	1,071	619	632

Statewide, the inventory of historic archaeological sites has increased by roughly 50 percent over this nine-year period. The greatest increase occurs in the Valley and Ridge region, where the number of recorded sites increased by 84 percent. However, as noted above, the number of sites recorded in the Blue Ridge Region shows a decrease that may be attributed to differential assignment to regions. This suggests that some of the sites recorded by our assessment as being within the Valley and Ridge physiographic province may have been recorded by Williams as within the Blue Ridge. The combined total number of sites for the Valley and Ridge and Blue Ridge provinces together shows only a 17 percent increase between the two studies, which appears to be a more realistic measure of the increase in site identification since we are aware of no large scale projects in either region during the last nine years which would have recorded large numbers of sites. The greatest actual increase in site identification is thus within the Sea Islands and Coast, where the number of recorded sites has increased by 78 percent. This would appear to be the product of increasing development pressures along the coast. The third greatest increase in site documentation is within the Central Coastal Plain, at 70 percent, which would also appear to be a product of development pressures along the coast. Surprisingly, the second greatest increase is for the Upper Coastal Plain at 73 percent. The causes of this increase are not clear, but may be related to Section 110 site inventory procedures at two Department of Defense installations in this region, Fort Benning and Fort Gordon. Somewhat surprisingly, site density in the Piedmont region increased at a slower pace than the density of historic sites in the state as a whole. The Piedmont exhibited only a 43 percent increase in the number of historic sites. These differences in densities may reflect the fact that the Piedmont, and in particular the metropolitan Atlanta region, while witnessing considerable development and the conversion of large quantities of acreage to commercial and residential use, is not as governed by Federal regulations such as US Army Corps of Engineers 404 permits as the Sea Islands-Coast and Central Coastal Plains. The differences in densities may also reflect a greater historic occupation of the immediate coastal zone of the state. These differences may also reflect that the coastal region was the first settled in the state and thus would be expected to have a high density of sites. The Piedmont does contain the greatest percentage of historic sites recorded in the state, at 41 percent of the total, followed by the Upper Coastal Plain at 20 percent, the Sea Islands and Coast at 12 percent, the Central Coastal Plain at 12 percent, the Blue Ridge at 9 percent and finally the Ridge and Valley at 6 percent.

This study also utilized GIS mapping to graphically represent the distribution of historic sites on maps of the state (Figures 4-15). These maps include historic site distribution over the entire state, by physiographic region, by century, and by type. The sites were all depicted as dots of the same size, regardless of their recorded size.

The GIS effort of this study mirrors that of Williams in 1994, though focused solely on the historic period sites rather than sites from all periods. It is interesting to compare his Figure 15 map that depicts all the recorded Non-Indian Historic sites in the state, to the current map prepared for this study (Figure 4). Just a visual review of the map shows a much greater number of sites, an observation confirmed by Williams' (1994:71). Table 2 indicates there were 6,108 historic Non-Indian sites in the state at that time, over 3,000 less than are currently recorded.

Once mapped, the concentrations of sites become readily apparent, as do the reasons for the concentrations. Large scale public projects, such as the construction of reservoirs result in large-scale intensive surveys and the recordation of numerous sites. In the same vein, most work conducted on military bases, National Forests or Parks or other Federal Reservations requires a survey and the resulting recordation of sites. A more careful inspection of the maps also reveals sites oriented in a linear fashion, the result of corridor studies such as highways, transmission lines and gas lines. In the Valley and Ridge and Blue Ridge, the main site concentration is found around Lake Allatoona. In the Piedmont, West Point Lake, Lake Juliette, Lake Oconee, Clark Hills Lake, Russell Lake, and Lake Lanier all show dense site concentrations, as do the margins of the Ocmulgee and Little Rivers in the Oconee National Forest. Fort Benning and Fort Gordon in the Upper Coastal Plain, and Fort Stewart in the Central Coastal Plain, are home to the densest site clusters in their regions. Finally, in the Sea Islands-Coast region, Fort Stewart and the City of Savannah are home to dense site clusters.

The sites were also sorted, regardless of physiographic region, into seven groups of related site types: Agrarian, Industrial, Community, Military, Transportation, Cemeteries, and Miscellaneous. Data on European-Native American Interaction Sites could not be extracted from the site files. As many sites have more than one site type, they were included in each grouping that applied to them. For example, a mill site may have had an identified mill ruin, race, and dam. Thus, the site would be included in all three categories.

The majority of historic sites recorded, 72%, are found within the Community Sites category. No other category of sites comes close in number. Miscellaneous sites account for 9% of the total, Industrial sites for 6%, Cemeteries and Agrarian sites for 4% each, and Military and Transportation sites for 2% each. GIS maps were also generated for the each of the site categories, showing their distribution across the state (Figures 5-11).

Figure 4. GIS Map Showing the Distribution of Historic Sites by Physiographic Region

Figure 5. GIS Map Showing Distribution of Agrarian Sites by Region

Figure 6. GIS Map Showing Distribution of Industrial Sites by Region

Figure 7. GIS Map Showing Distribution of Community Sites by Region

Figure 8. GIS Map Showing Distribution of Military Sites by Region

Figure 9. GIS Map Showing Distribution of Transportation Sites by Region

Figure 10. GIS Map Showing Distribution of Cemetery Sites by Region

Figure 11. GIS Map Showing Distribution of Miscellaneous Sites by Region

Figure 12. GIS Map Showing the Locations of Eighteenth-Century Sites in the State

Figure 13. GIS Map Showing the Locations of Nineteenth-Century Sites in the State

Figure 14. GIS Map Showing the Locations of Twentieth-Century Sites in the State

Figure 15. GIS Map Showing the Locations of Unknown-Period Sites in the State

Trends can be seen in these maps. There is a distinct concentration of industrial sites in the metropolitan Atlanta area as well as immediately north of Atlanta, where both the iron industry and mining sites were prevalent. Other industrial site clusters appear near Columbus and Augusta. Community site density is also influenced by urban centers, which have been more heavily surveyed, by transportation corridors such as roads and rivers, and finally by DoD sites where Section 110 surveys have identified large numbers of sites. Military sites in the state, while few in number, are indicative of the Civil War as a band of sites can be seen between Chattanooga and Atlanta which most likely represent the actions of Sherman's Atlanta Campaign. Cemetery sites are more widespread, although again, the DoD installation at Fort Benning exhibits a cluster of sites. Finally, Miscellaneous sites occur more prevalently at the military bases of Fort Benning, Fort Stewart and Fort Gordon, where a higher degree of archaeological survey has been completed.

By time period (Figures 12-15), eighteenth-century sites are most common along the coast and up the Savannah River, representing the areas in the state that were first settled. Nineteenth-century sites show a predominance in the Upper Coastal Plain and Piedmont as well as clusters at the DoD installations. Both nineteenth- and twentieth-century sites show concentrations in the metropolitan Atlanta region, as well. Unknown-period sites are concentrated on the DoD installations and Atlanta area.

The National Register of Historic Places (NRHP) recommendations summarized in Table 4 are based on the field on the site forms and should not be considered definitive. Many of the older site forms have no recommendations at all. Some sites that were recommended eligible, were later tested and found not eligible, but the site forms were not updated to reflect these changes. Therefore, this information is useful only for general comparisons.

Table 4. Historic Sites NRHP Standing: Summary by Region

	Determined Eligible	Listed	Nominated	Recommended Eligible	Recommended Ineligible	Removed	Unknown
Valley and Ridge	3	0	0	86	292	0	143
Blue Ridge	3	0	0	162	522	2	128
Piedmont	24	13	32	401	2366	1	951
Upper Coastal Plain	4	5	1	120	1368	0	364
Central Coastal Plain	0	1	0	65	803	0	186
Sea Islands Coast	6	13	6	109	701	1	291
Totals:	**40**	**32**	**39**	**943**	**6052**	**4**	**2063**

The distribution of recommended eligible sites by region generally mirrors the overall distribution of sites by region, with some exceptions. Notably, 16 percent of the sites which are either determined eligible, listed, nominated, or recommended eligible are found in the Blue Ridge Region, which holds only 9 percent of the sites in the state. The reason for this variation is unclear.

The information and maps discussed above are based on data from the archaeological site files, not the individual forms. There are apparently some errors in this data. These include data entry errors as well as differences in coding that cannot be called errors, as different individuals would interpret information in different fashions. It is possible that, for example, the predominant site type recorded could be different depending on who entered it into the database. During this study it was noted that several sites were named plantations, however plantation was not included in any of the site type fields. Instead, the fields contained house or structure, barn/stable, historic scatter, or farm. While these site types were certainly correct, it may be that someone searching in the site form fields for plantation would miss these sites. We recommend that future updates of the site form include the site types presented in Chapter V as well as the site features which are currently listed.

The recorder of the site also plays a part in the accurate reporting of data to the site files. The person entering the data relies upon the recorder to accurately type and date the site and record it in a straightforward fashion as well as to update the form should additional information come to light. Some site types may consistently be misidentified in the field, or missed entirely. During this study, we noted that no tar kilns were recorded in the state, though a number of turpentine stills were, reinforcing the historical accounts of a thriving naval stores industry. We wonder if tar kilns, which may have a discrete physical presence, were missed in field studies. It is also possible, that some tar kilns may have mistakenly been identified as turpentine stills. It is hoped that this context will aid the more complete and accurate recording of historic sites in the future.

V. Historic Archaeological Site Types

Archaeological site types are defined by a number of attributes, including age, cultural affiliation, and function. The typology employed here is based primarily on function, although culture is given typological status for our discussion of European-Native American Interaction sites. The typology is grouped into nine classes of sites: Agrarian Sites, Industrial Sites, Community Sites, Military Sites, Transportation Sites, Cemeteries, European-Native American Interaction Sites, and Miscellaneous. Each section of the typology includes a basic summary of the types of sites associated with that class, more detailed description of the types, and references to the relevant archaeological work. The typology is presented in outline format below, while the text follows.

Table 5. Outline of Georgia Historical Archaeology Site Typology

- Agrarian Sites
  - Plantations
    - Coastal Rice Plantations
    - Coastal Cotton Plantations
    - Upland Plantations
  - Tenancy
  - Farms
- Industrial Sites
  - Mills
  - Potteries
  - Tar and Charcoal Kilns
  - Iron Furnaces
  - Mining
  - Blacksmith Shops
- Community Sites
  - Cities
  - Towns
  - House Sites
  - Dumps
- Military Sites
  - Colonial Fortifications and Early Nineteenth Century Frontier Fortifications
  - Revolutionary War and War of 1812 Sites
  - Civil War Sites
- Transportation Sites
  - Canals
  - Railroads
  - Roads, Trails and Trolley Lines
  - Wharves and Shipyards

Cemeteries

European-Native American Interaction Sites
- Missions
- Trading Posts
- Cherokee Towns and Homes

Miscellaneous
- Rock Pile Sites
- Fish Weirs

Agrarian Sites

Like most of the South, Georgia's history is rooted in the earth, and agriculture was the predominant occupation of the majority of Georgia's citizens through the mid-twentieth century. The importance of agriculture to the state's heritage has been recognized by the preparation of a context on that subject, *Tilling the Earth: Georgia's Historic Agricultural Heritage – A Context* (Messick et al. 2001), and that document should be referred to for further details on crop types and agricultural practices in the state. This section provides summary information on the historical archaeological work conducted on a variety of agrarian sites, including plantations, tenancy, and farms.

Plantations

Georgia's agricultural context defines the plantation on the basis of four attributes (Messick et al. 2001:52):

(1) The Separation of Labor and Management. Planters did not engage themselves in the day-to-day routine of agricultural labor but instead oversaw the work of others.

(2) The Use of a Non-Familial Labor Force. Plantations are mainly defined by their use of enslaved African-Americans during the antebellum ear, and by the use of tenant laborers after the Civil War. The agricultural context notes that the use of slave labor alone does not qualify an agricultural property as a plantation, and that there is a degree of scale in separating plantations and farms. Small slave-holdings where the owner and his family worked in the field alongside the slaves would be considered farms, not plantations. Plantations are distinguished by their reliance on a non-familial labor force, generally of more than five enslaved workers.

(3) An Agricultural Focus on Cash Crops. Plantations were agricultural businesses; they primarily grew crops that were intended for sale. In Georgia, the primary cash crops grown on the plantation were cotton and rice, although indigo, tobacco, sugar cane and other cash crops were also produced.

(4) Large Landholdings. The emphasis on the growing of cash crops and the use of larger, non-familial, labor forces placed an emphasis on the use of larger properties. Plantations generally consisted of 500 or more acres of land, with larger plantations holding thousands of acres.

In Georgia, the attributes of the plantation were significantly influenced by the cash crop that was grown. Cotton was the primary cash crop grown on Georgia plantations. Long-staple, or Sea Island, cotton was grown on plantations on the barrier islands and immediate coast, while short-staple cotton was grown on plantations of the interior, in particular the upper Coastal Plain and Piedmont. Rice was the second most important crop produced in Georgia, with rice plantations restricted to a narrow band along the coastal strip. Sugar was grown to an extent during the Colonial period on coastal plantations, and indigo was another crop grown by a number of Colonial era planters. Tobacco was produced in the upcountry of Georgia, although not as extensively as in states to the north. This section reviews the attributes, archaeology and research issues related to rice plantations, Sea-Island cotton plantations, upland cotton plantations, and other types of plantations in Georgia.

Rice Plantations

The date of introduction for rice agriculture to the southeastern United States is unknown, but rice was being grown in South Carolina almost from the inception of that colony in 1670. Rice was almost certainly introduced to the southeastern colonies by African-American slaves, as many of the West African tribes were experienced rice agriculturalists. Early on, rice was grown along the margins of inland swamps where soils were naturally moist. However, problems with both droughts and floods placed limits on the productivity of this form of rice agriculture, while the living conditions surrounding the inland swamps also hampered the growth of rice agriculture. The introduction of the tidal method of rice production would result in the creation of large-scale rice plantations.

Tidal rice agriculture is believed to have been developed by McKeown Johnstone, a planter in the Winyah Bay region of South Carolina, around 1758 (Smith 1985:21). While Johnstone is credited with the introduction of tidal rice production to the southeast, the method of production, like the crop itself, was likely a product of African-American slaves, as African rice agriculturalists had developed tidal production by the sixteenth century and were sought after by plantation owners and slave traders alike. Because tidal rice agriculture relied on the tidal surge along the rivers of the coast to both flood and drain rice fields, and because tidal rice was restricted to locations where the water was not too saline, tidal rice plantations were confined to a band along Georgia's rivers extending back approximately 20 miles from the coast. Tidal rice plantations appeared along the Savannah and the Ogeechee rivers as early as the 1760s and were flourishing by the mid-1760s. Tidal rice agriculture greatly expanded after the Revolutionary War and by the early nineteenth century tidal rice plantations were prominent features of all of the major coastal rivers. By 1860 there were 73 Georgia plantations producing more than 100,000 pounds of rice per year, the majority of which were located on the Savannah (22), Altamaha (20), Ogeechee (16), and Satilla (12) rivers. The remaining three

plantations producing more than 100,000 pounds of rice annually were located on swamplands near the town of Riceborough in Liberty County (Smith 1985:30-42).

Tidal rice agriculture required the creation of ditches and dikes and the gridding of swamplands into organized fields. The physical labor required to convert swampland to tidal rice fields was monumental and the process took several years from the beginning of a new field's construction to the time when it was able to produce rice. As a result, a relatively few wealthy planters with the slave labor and financial resources needed to create tidal rice plantations dominated this aspect of agricultural production, with these planters and their families often owning and operating multiple plantations. The first task in creating a rice field was to identify swampland that was suitable for conversion to rice agriculture. The land needed to be low enough to be flooded at high tide, yet high enough to be drained at low tide. To create rice fields, gangs of slave laborers would first clear the swamps of gum and cypress trees as well as other overgrowth. With the vegetation cleared, a dike or levee would be constructed around the perimeter of the field, built of mud and earth gained from the excavation of a ditch approximately 20 feet away from the inside wall of the dike. The area contained within this dike ranged in size from less than 200 acres to more than 500 acres. The inner ditch was approximately 5 to 15 feet in width and 5 feet deep, and would be used to allow rice flats to move around the field for the collection of harvested rice. The levee was generally several feet high, and between 10 to 15 feet in width. The levee needed to be able to withstand and hold both the rising of water caused by high tide, as well as provide protection from storm surge due to hurricanes and tropical storms, since if salt water was pushed into the fields, they would loose their productivity for a number of years (Smith 1985:45-48; Leech and Wood 1994).

With the outer perimeter established, the interior was next gridded and ditched. Individual rice fields were usually of 10 to 20 acres in size and were subdivided into one-acre plots. Force drains were dug to subdivide the fields – these were four feet wide and four feet deep. Quarter drains, dug through each acre plot, connected to the force drains. These smaller ditches were generally two feet wide and three feet deep. Interior banks were constructed around each field, from the earth removed by this ditching. Trunks were installed in the interior banks that allowed water to pass through the banks when opened, or to be retained within the banks when closed. Larger and heavier floodgates were built through the outer levee, connecting either directly to the river or to a canal that ran to the river (Smith 1985:48).

This system of trunks and gates, ditches and dikes, allowed planters to use the tidal surge to flood rice fields, retain water within the fields by closing the trunks and gates, and later to drain fields by opening trunks and gates at low tide. Fields were prepared for planting in March, with oxen and mules used to plow and harrow trenches 12 to 15 inches apart for the planting of seed rice. After the seed rice was distributed along these furrows, the fields were flooded and the water retained for a period of two to five days, until the seeds had sprouted. Once sprouted, the fields were drained. This initial flooding was known as the "sprout flow." As the seedlings took root, a second flooding, known as the "point" or "stretch" flow was retained for another two to five days. The fields were drained and let

dry for several weeks, during which light hoeing cleared the fields. The third flooding, the "long" or "deep" flow, followed. The rice was completely submerged by this flooding, which lasted for several days, and during which dead weeds and other trash floated to the surface and was removed from the banks. The long flow also killed any insects that might have infested the plants. The fields were again drained to a depth of six inches of water, which was left over the fields for several weeks before they were fully drained. The plants now grew for several weeks under dry conditions, and received more energetic hoeings. Finally, the fourth flooding, the "lay-by" or "harvest" flow, was made, and lasted for seven to eight weeks as the plants matured and as the heads of their stalks became heavy with rice. This flooding helped to support the rice stalks as the rice seed matured. At the end of this flooding the fields were drained and ready for harvest. Harvesting usually occurred in late August to early September (Smith 1985:48-49)

After harvesting, rice was sheathed and stacked to await threshing and winnowing, which usually took place in November and December. Threshing was accomplished by beating the rice sheathes with a sticks, and on some plantations a threshing floor was created for this purpose. After threshing, rice was taken to the winnowing house where the chaff was separated from the grain. The winnowing house was a small (10 foot square on average) elevated house. Built about 15 feet off the ground, rice was taken up a stairway on the outside of the house to the winnowing room, then dropped through a grating in the floor of the winnowing room to a prepared surface below. The wind carried the chaff away. The rice grain was still enclosed by an outer shell and was known as rough rice; the final step in its processing was to mill the rice. Steam or water powered pounding mills were built on the larger plantations to accomplish this task, however rice could also be milled in a large wooden mortar with a wooden pestle, and could be shipped to market as rough rice. Pounding mills were thus present only on the larger plantations (Smith 1985:54-55).

Rice plantations featured a relatively compact and stable settlement system, dictated in part by the limited availability of high ground suitable for human habitation, but also as a product of the tidal rice system itself, which allowed fields to be continually re-used year after year without exhausting their productivity. This was another product of the tidal flow, which brought nutrients into the fields, thus replenishing their productivity. The money generated by rice agriculture resulted in large and ornate main houses as well as more solidly constructed support buildings. Money was also spent on landscaping – oak-lined allees were common entry avenues to the rice plantations, some of which featured formal gardens incorporating elements of English garden design then in vogue. The landscape inventory of a rice plantation generally consisted of an entry avenue (for plantations situated on the river, the entry avenue was usually from the river, while some plantations featured two entryways, one from the water and a second by land), the planter's residence (the main house or big house), an overseer's house on the larger plantations, a kitchen, slave housing, stables, livestock barns, chicken coops, a smoke house, the winnowing house, other support buildings (for example, laundries, dairies, wood sheds, dovecotes, etc.), a slave cemetery, and, depending upon the plantation's location, a cemetery for the planter's family. Some plantations may also have had a pounding mill, and larger plantations also often supported grist and saw mills. Jails for

the confinement of rebellious slaves were found on some plantations (Vlach 1993:184-185). The main house, or big house, was most often a two-storied high style structure that was the central focus of the plantation landscape. Slave housing and support buildings were generally located away from, but within sight, of the main house. Slave housing on tidal rice plantations (as well as on Sea-Island cotton plantations) was commonly organized along streets, with a central road dividing two parallel and often symmetrical rows of dwellings. Organization of the slave community along streets provided the planter with better opportunities to observe his bondsmen, but this layout also fit the Georgian mindset, prevalent among many nineteenth century southern planters, and others of the era, which emphasized the balance, order and symmetry of both buildings and landscapes (Lewis 1985). A common, although not universal, settlement scheme featured the main house in a central location, with its prominence defined by the entry allees or avenues, and with both the slave village and agricultural support buildings flanking the main house at 200 to 400 yards distance, usually organized along a road leading to the rice fields (Figure 16).

On the larger rice plantations, multiple slave villages would have been present. Major Pierce Butler's plantation complex on Butler's Island is an example of this settlement type (Bell 1987:118-119). Butler owned and planted Butler's Island and Generals Island on the Altamaha River opposite Darien (the Butlers also owned Hampton Plantation on Little St. Simons Island). There were four slave villages on Butler's Island. Village 1 was located adjacent and to the west of the main house, which faced the landing at the river, while agricultural buildings, including a steam powered rice mill, flanked the main house to the east. Village 1 would have serviced the rice fields on the eastern end of Butler's Island, and may also have supported fields on Generals Island, across Butler River, where no village was located. Villages 2, 3, and 4 were all situated on Butler's Island on the banks of the Champney River, at a distance of between 0.35 and 0.75 mile apart. The occupants of these villages all worked in the rice fields on the western, larger, portion of Butler's Island. Interestingly, in addition to the steam powered pounding mill at Butler's Island, a tidal powered rice mill was located at the southeastern end of the island, in isolation. Multiple slave villages were present on many of the larger coastal rice plantations, eliminating the need to transport slaves for large distances from their homes to the fields.

Long-Staple Cotton Plantations

Like rice, long-staple cotton was also restricted to the immediate coast where climatic conditions allowed this crop to thrive. It is also known as "Sea Island" cotton in recognition of this geographic association. Because it shared many of the environmental requirements of rice, the two crops were often produced in tandem on coastal plantations. Long-staple cotton was grown in the Caribbean and made its way to Georgia after the Revolutionary War. The crop thrived in a saline environment, and hence grew best on Georgia's barrier islands, although it was later found that the crop would do well on

Figure 16. Plan of Butler's Island Rice Plantations Showing Locations of Rice Fields, Slave Villages, and Main House Complex (from Bell 1987)

drained swamplands of the immediate coast, and as a result of this discovery, by the late 1850s Florida had surpassed Georgia in the production of this crop (Gray 1933:733-734, Singleton 1980:39-40). As the name implies, long-staple cotton bolls were composed of 1.5 to 2 inch long silky fibers, which were valued for their use in fine clothing, lace, and thread. Long-staple cotton grew best in sandy soils, especially low-lying moist soils, and fields along the coast were often ditched and drained to create fields, in a manner similar to that used in rice agriculture. Fields were prepared in February and March with high ridges four to five feet apart created by hoeing, although by the later antebellum period (ca. 1830s) plows were used for this task instead. The seed was sown in April, and required four to eight hoeings. A relatively delicate crop, grass was pulled by hand. Long-staple cotton was thus an extremely laborious crop, well suited to production in a plantation setting. Using the hoe, a single laborer could cultivate three to four acres a day, while with the plow, the average daily acreage per hand increased to six to seven acres (Singleton 1980:40). While fields were not fertilized early on, their loss of production would require fertilization by the early nineteenth century, and thus both crop rotation and manuring were used on long-staple cotton fields by the 1830s. Fertilizers included marsh mud, crushed shell, and guano. Planters also paid great attention to the type of seed used, as the value of the crop varied from type to type. Most planters selected and developed their own strains (Singleton 1980:40-41).

Harvesting was a demanding affair, as the cotton required gathering as soon as the pods began to break. Harvesting generally required 10 to 12 pickings and trash such as leaves, sticks, and dirt had to be sorted from the fiber. Once harvested, the cotton fiber was allowed to dry in the sun, and then was moved into the shelter of barns until it was ready to be ginned. Long-staple cotton was ginned using roller gins, which were different from the Whitney gin used for short-staple cotton. Roller gins were manually powered at first, but both animal and steam powered roller gins appeared during the early nineteenth century. Once ginned, long-staple cotton received a final cleaning to remove broken seed fragments, and was then hand-packed in bales for shipment to market (Singleton 1980:42).

Coastal Plantation Archaeology in Georgia

The size, stability, architecture, and social structure of coastal plantations have made them favored subjects of archaeological research. Unlike many types of archaeological sites, rice plantation locations are readily recognizable by the appearance of rice dikes and ditches, landscape features of such scale that they are recorded in some locations on the USGS 7.5 minute topographic maps. Remnants of oak allees and other landscape features make the locations of main house complexes of both rice and long-staple cotton plantations relatively easily found, while their compact settlement as well as the use of more durable building materials such as tabby and brick make the identification of slave village locations feasible as well. There has thus been more archaeological research directed toward coastal plantations in Georgia than has been devoted to any other type of historic archaeological site in the state.

The first investigation of a Georgia plantation was conducted by James Ford in the 1930s at the Elizafield Plantation on the Altamaha River. Ford directed a six week long investigation of a tabby ruins site because it was believed to be the site of a Spanish mission, and determined instead that the ruins were part of the sugar-processing mill of the nineteenth century Elizafield Plantation. As Orser (1984:2) notes, this was "archaeology at a plantation rather than plantation archaeology." The earliest archaeological research of coastal Georgia's plantations was carried out under the direction of Dr. Charles Fairbanks of the University of Florida's Department of Anthropology. A pioneer in the field of plantation archaeology, Robert Ascher and Charles Fairbanks' 1971 article "Excavation of a Slave Cabin: Georgia, U.S.A."[1] was the first widely published work on plantation archaeology and concerned their excavation of a cabin on Rayfield Plantation on Cumberland Island. Fairbanks had previously directed work at Kingsley Plantation on Amelia Island, Florida, just south of the Georgia border (Fairbanks 1974). Under Fairbanks' direction, the University of Florida developed one of the first graduate programs in the eastern US with an emphasis on historical archaeology. Building on Fairbanks' own work in plantation archaeology, several of his students would conduct MA thesis and PhD dissertation research on coastal Georgia plantations (Otto 1975; McFarlane 1975; Singleton 1980; Hamilton 1980; Moore 1981; Eubanks 1982, 1985; Goin 1986) while the University of Florida's active research on the coast would lead to cultural resource management studies at the Kings Bay Naval Station (now known as Naval Submarine Base Kings Bay) which would also investigate coastal plantations (Smith et al. 1981, Adams, ed. 1987). Fairbanks is recognized as one of the founding figures in plantation archaeology, and is the author of a number of important publications (Fairbanks 1962, 1974, 1977, 1983).

As graduate research projects, the excavations conducted by the University of Florida students were generally small-scale affairs involving the excavation of a few test units at each site. This work was also influenced by Fairbanks' "backyard" approach (1977, 1983) that emphasized the collection of artifacts over the exploration of structural remains. Generally, one or two units were placed in structural areas, while the remainder were placed in the yard (Joseph 1989:57).

John Otto's work on the Couper family's Cannon's Point Plantation (1975, 1977, 1980, 1984) would prove to be one of historical archaeology's more influential bodies of research, a pioneering study of social status as revealed by the archaeological record. Otto looked at housing, faunal remains, ceramics, and other artifacts as a reflection of ethnic and social identity among plantation owners, overseers, and slaves, and concluded that housing best reflected social differences. He noted that all three social groups relied on industrial ceramics primarily produced in England, and that social status was revealed not so much by ceramic type as by form and function – for example, teawares were more likely to be found in the context of the plantation owner while hollowares, primarily

[1] Ascher and Fairbanks' article was the first to be published on historical archaeology in Georgia in the journal *Historical Archaeology*, which was published by the Society for Historical Archaelogy beginning in 1967. The Society for Historical Archaeology is the leading association of historical archaeologists in the Americas and has an international membership. *Historical Archaeology* is the premier journal of the field, and is now published in four issues a year.

bowls, were more common among slaves, presumably a reflection of slave's reliance on liquid-based diets. However, these dietary attributes were also shared by the overseers, and Otto observed that "the diets of slaves and overseers showed remarkable similarities" (Otto 1975:361). Otto concluded that while the plantation landscape and built environment reflected a racial division between Euro-American owners and overseers versus African-American slaves, the material remains suggested a social separation on the basis of ownership versus labor, with the material culture of planters distinct from that of both overseers and slaves. These studies remain influential and important for their examination of social status through material remains and for their use of the ethno-historic approach, combining landscape, architecture, food remains, and material culture to analyze behavior (see Lange and Handler 1985).

Theresa Singleton's and Sue Mullins Moore's dissertations would continue to examine the material correlates of social status on the coastal plantations. Both would employ the concept of artifact patterning introduced by Stanley South in his landmark publication *Method and Theory in Historical Archaeology* (1977). Discussed in greater detail in Chapter VI, South developed a scheme in which artifacts were sorted by functional classes (Kitchen, Architecture, Arms, Clothing, Personal, Tobacco, and Activities) and then by type and subtype. The relative contribution of the artifacts from each class to the entire assemblage was then expressed as a percentage, and a "pattern" defined by the percentage profile and distribution from a group of socially and temporally related sites. South defined two artifact patterns in his 1977 book – the "Carolina" pattern, which identified Colonial Anglo-American domestic sites in settled regions of the South, and a "Frontier" pattern, which identified domestic sites on the frontier. South assumed that cultural behavior itself was patterned by practices and beliefs, and that patterns could thus be used to define and identify sites associated with other social groups. The publication of *Method and Theory* thus encouraged the development of additional patterns.

Using the work conducted by the University of Florida on the coastal Georgia plantations as well as Kingsley Plantation, Theresa Singleton[2] defined a "Slave Artifact Pattern in Coastal Georgia/Florida" (1980:216) (Table 6). It featured a high architectural profile, fewer kitchen artifacts, and a relatively high contribution from tobacco artifacts. Singleton noted variation in the contribution of the tobacco and clothing categories and suggested that these groups may have reflected status within the slave community. Also of note in her discussion of archaeology of slavery along the coast was the observation of three colonoware sherds from the Butler Island slave village (1980:208-209).

[2] Theresa Singleton would add to her archaeological research of coastal Georgia plantations through work on the Colonel's Island project (see discussion below). She would go on to become one of the leading figures in African-American archaeology. She is the editor of two of the most comprehensive volumes on the subject (Singleton ed. 1985, 1999), the senior preparer of a guide to the literature of African-American archaeology (Singleton and Bograd 1995), as well as the author of a number of important articles on African-American archaeology and plantation archaeology (Singleton 1985, 1988, 1990, 1991, 1999). She is currently on the faculty in the Department of Anthropology at Syracuse University, which also houses African diaspora archaeologists Douglas Armstrong and Christopher DeCorse and which offers one of the nation's premier graduate programs in African-American archaeology. Prior to joining Syracuse, Dr. Singleton was with the Smithsonian Institution for a number of years.

Colonoware has a relatively rare occurrence within slave villages in Georgia, as opposed to its frequent occurrence on South Carolina slave sites.

Table 6. Theresa Singleton's (1980) Slave Artifact Pattern in Coastal Georgia/ Florida

Artifact Group	Mean Percent	Percentage Range
Kitchen	24.34	20.01-25.77
Architecture	70.78	67.90-73.33
Furniture	0.02	0.00-0.09
Arms	0.14	0.04-0.23
Clothing	1.03	0.34-1.68
Personal	0.09	0.05-0.17
Tobacco	3.32	0.28-9.70
Activities	0.28	0.22-0.39

On the heels of Singleton's work in Georgia, Thomas Wheaton and Patrick Garrow conducted archaeological data recovery excavation at Yaughan and Curiboo plantations in South Carolina and published a "Carolina Slave Artifact Pattern" which was in sharp contrast with Singleton's Georgia pattern. Wheaton and Garrow's pattern (Wheaton et al. 1983, Wheaton and Garrow 1985) was marked by a predominance of kitchen artifacts and relatively few architectural remains. For a time, the contrasting patterns raised questions about the utility of South's pattern concept, as well as the significance of geographic locations in cultural behavior and pattern formation on slave sites. In the mid 1980s, J. W. Joseph (1986), under the direction of Patrick Garrow, conducted excavations within a slave village associated within George Walthour's plantation holdings in Liberty County, Georgia as part of the cultural resource management studies conducted for Georgia Power's Vogtle-Effingham-Thalmann 500 Kv transmission line. Like Singleton's, Otto's and Moore's work, the excavations at the Walthour Plantation focused on establishing social identity within the plantation based on material remains. Building off his work in Liberty County, Joseph (1989) suggested that the different artifact patterns in fact reflected significantly different conditions associated with the archaeology of slavery in Georgia and South Carolina, conditions that were in part temporal but were also cultural. Specifically, he noted that the eighteenth-century slave sites which had been investigated to that time in South Carolina featured earth-fast, African-styled dwellings which would leave few architectural remnants, while the South Carolina slaves also used an African-American, slave-made, coarse earthenware, known as colonoware, as their primary ceramic. Being less durable than the industrial ceramics of Europe and North America, colonowares were thus prone to more breakage resulting in the greater recovery of pottery sherds. This explained the Carolina Slave Pattern's characteristics of a high kitchen profile and low architectural profile. In contrast, slaves on the Georgia plantations that had been investigated to that date, which dated to the nineteenth century, lived primarily in more substantial, Euro-American, dwellings, often of frame, which resulted in the archaeological recovery of significant quantities of nails. Their table wares were comprised primarily of industrial ceramics, which were more durable and broke less frequently, and which also probably would have been provided in

lower quantities to the slave communities on the coastal Georgia plantations than the colonoware found on the South Carolina plantation, which, since it was slave manufactured, had no restrictions on its production and numbers. Joseph's article (1989) thus pointed to significant differences in slave lifeways in Georgia versus South Carolina.

Sue Mullins Moore's dissertation (1981) would continue the work with patterning and result in the development of a Georgia planter artifact pattern (Table 7). Moore (1981, 1985) raised the issue of plantation scale and its influence on material culture, postulating that the economic benefits of the larger plantations would have been reflected in the material culture of all of the social classes at work on the plantation, and not simply the material of the planter. Her analysis of data from Cannon's Point, Sinclair, Pike's Bluff and the Jones Plantations supported this hypothesis, with the frequency, variety, and value of material remains, primarily ceramics, increasing as the size of the plantation operations increased. Moore also speculated that there would be fewer differences among the artifact patterns of slaves, overseers, and planters on smaller plantations, because of economic scale, and that the artifact patterns associated with field slaves would differ from those associated with house slaves. These hypotheses could not be supported with the data at hand, however, and Moore noted that the hypotheses should be reexamined as more data became available (Moore 1985:158).

Table 7. Georgia Planter Artifact Pattern (Moore 1981, 1985; Joseph 1986, 1987)

Artifact Group	Mean Percent	Percentage Range
Kitchen	54.09	45.86-67.24
Architecture	43.27	30.97-49.43
Furniture	0.01	0.00-0.02
Arms	0.09	0.00-0.12
Clothing	0.59	0.40-0.98
Personal	0.11	0.03-0.15
Tobacco	1.55	0.70-2.95
Activities	0.29	0.03-0.62

The analysis of subsistence remains from several of the sites investigated by the University of Florida as well as from Parland Plantation on Colonel's Island (Stienen 1978), and the results from coastal plantations in South Carolina and Virginia, was synthesized and presented in an article by Betsy Reitz, Tyson Gibbs, and Ted Rathbun (1985). Reitz et al. noted that enslaved African-Americans on the coastal plantations had the opportunity to supplement their diet with wild game procured by fishing, trapping, and hunting and that wild birds, fish and mammals supplemented the pigs, cows and chickens which were the basis of the domestically produced diet. This was true, however, of overseer's and planter's diets as well, and slaves may have procured wild foods for the entire plantation, or may have sold fish, fowl and game caught during the time off they received due to the task labor economy (Reitz et al. 1985).

Other notable plantation studies of the late 1970s and 1980s included archaeological survey and testing on Colonel's Island by the State of Georgia, for which Theresa

Singleton served as Field Director (Stienen 1978, Singleton 1985), Thomas Eubanks' testing of the McIntosh sugarhouse (Eubanks 1982, 1985), William Kelso's excavations of the eighteenth century Wormslow Plantation (Kelso 1979), and the National Park Service and John Ehrenhard's excavation of a slave structure on Thomas Stafford's plantation on Cumberland Island (Ehrenhard and Bullard 1981). Eubank's work, which dealt primarily with exposing and interpreting the layout and function of the McIntosh sugarhouse prior to its restoration, is notable as an examination of a sugar plantation in Georgia and as investigation of an industrial structure within a plantation setting. Kelso's excavations were noteworthy as they investigated an eighteenth-century plantation main house, which was constructed of tabby and built as a walled and fortified structure. Kelso's report, published in book form by the University of Georgia Press, provides an excellent discussion of tabby architecture and analysis of the fortified household. It, along with presently on-going research of the tabby Horton House on Jekyll Island, under the direction of Dan and Rita Elliott of Southern Research, represents one of the few examinations of an eighteenth-century plantation and tabby architecture yet to be completed in the state.

One of the larger plantation studies to be completed during the 1980s involved archaeological work at the plantations on the Naval Submarine Base Kings Bay, Camden County. Located on the Crooked River behind Cumberland Island, Kings Bay was home to a number of historic plantations, three of which received data recovery excavations by the University of Florida under a contract with the US Department of the Navy. This work was carried out under the direction of William Hampton Adams and was published in 1987 (Adams, ed. 1987).

Data recovery was conducted on the Kings Bay Plantation, Cherry Point Plantation, and Harmony Hall Plantation. The report of these investigations, which had a number of contributors, remains one of the most comprehensive looks at plantation archaeology in coastal Georgia. In particular, the interpretive chapters, which examine plantation health and medical care; clothing and personal adornment; hunting, fishing and raising food; table wares and food preparation; status; and plantation life and settlement offer excellent ethnohistorical synopses of the historical information on these topics in combination with the archaeological findings at Kings Bay. On the topic of health, Adams (Adams 1987a) notes that planters had a vested interest in maintaining the health of their slaves, and invested considerable time and money in medicinal treatments. Archaeologically, Adams (1987a) reports the recovery of medicinal vials from slave, overseer and planter contexts among the Kings Bay plantations. Adams also records the uses of decorative items, including both beads and coins, among the slave communities under the topic of health and hygiene. Pierced coins, including a 1714 *medio reale,* found in the Kings Bay quarters and pierced coins found in both the Harmony Hall kitchen and slave cabins, were considered to be African-American talismans (Adams 1987a:204). Pierced coins are reported to have been used by African Americans to bring good luck and to ward off malicious conjurers. Lorenzo Ezell, reported that "The old folks wear the rabbit foot or coon foot and sometimes a silver dime on a fishin' string to keep off the witches" (Genovese 1972:223). Reuben Taylor reported that "If you wear a silver coin, it brings you good luck.... And if anybody conjures you or works against you, the money turns

black and you know you have to do something about it before the conjure works" (Works Projects Administration 1940:124-125). Caton (1997) reports that in Ghana necklaces made of beads, coins, cowries, calabash pieces, pieces of corncobs, and shells are worn by children as protection from illness. It has also been reported that African-American fieldworkers in the South wore pairs of coins on anklets to make noise and ward off snakes (Eric Duff, personal communication to J. W. Joseph, December 11, 1999).

Blue glass beads were also recovered from slave contexts at the Kings Bay and Harmony Hall Plantations, and Adams (1987a:204) notes that blue beads were believed to ward-off the evil eye. The use of beads, and in particular blue glass beads, as talismans in African and African-American culture, is discussed by Caton (1977), Stine et al. (1996) and others. Boling (1987) provides information on clothing and other aspects of personal adornment among the social classes of plantations at Kings Bay.

Foodways at the Kings Bay plantations are treated in a comprehensive chapter that looks at both the history of hunting, fishing, gardening and crop production on coastal Georgia plantations as well as the archaeological findings from Kings Bay (Adams et al. 1987). Similar to Reitz et al.'s (1985) analysis, Adams et al. found the plantation diet to be diverse and comprised of both domestic and wild foodstuffs. Notably, gun parts including gunflints were found in the slave quarters of the Kings Bay plantations, although in fewer numbers than were recovered from planter and overseer contexts (Adams et al. 1987:275).

The ceramic assemblage from the Kings Bay plantations was large and diverse. At the Kings Bay slave quarters, where four dwellings were sampled, Boling and Adams (1987) noted little variation between the ceramic assemblages of one cabin and those of the next, and observed that "[e]ach cabin contained its own brown stoneware jug, combed yellowware jug, and piecrust-edged combed yellowware platter" (Boling and Adams 1987:286). Tablewares were also comparable and consisted of plain and dipped wares. Transfer prints were common within the planter's households, and Boling and Adams observed that the same or similar transfer print patterns appeared in each of the planter's assemblages, which they suggested was a product of a local market economy with the planters all obtaining their pottery from the same limited number of merchants in the region (Boling and Adams 1987:287).

Adams and Boling's (1987) analysis of social status among the inhabitants of the Kings Bay plantations was largely based on their examination of ceramics as a reflection of social status. This research was published in article form in *Historical Archaeology* in 1989 (Adams and Boling 1989). In particular, Adams and Boling made use of George Miller's Socio-Economic Status Index (1980, 1991) to examine and seriate ceramic assemblages by social status[3]. In part, their research was in response to a recently

[3] Miller's index was developed and later refined based on pricing guides prepared by the British pottery industry. Using plain cream colored ware as a basis, other decorative treatments and forms were then scaled or indexed against this ware, using ceramic price guides from a number of years. Thus, in 1836, for example, a dipped or banded bowl had an index value of 1.4 (meaning it cost 1.4 times as much as a plain

published study of the Kingsmill Plantation, Virginia, by William Kelso (1984), in which Kelso argued that ceramics were not a great gauge of social status. Adams and Boling concluded that ceramics did reflect social status, when measured by Miller's socio-economic index. They (1989:94) also noted the role of the task labor economy on the coastal plantations, observing that the slaves who labored on the Kings Bay plantations had the opportunity to earn an income as a result of their participation within the task labor economy, and hence as a result some of the ceramics found within the slave assemblages may have been purchased by the slaves themselves (Adams and Boling 1989:94).

In his analysis of plantation settlement systems at Kings Bay, Adams (1987b:313) noted that rivers and streams were the primary transportation corridors for the region and that settlement was thus tied to these drainages. Main house complexes were located on high ground nearest the river, often on bluffs that were eroding into the rivers. Surrounding the main house were its dependencies, including the kitchen, icehouse, school, and office, while agricultural support buildings including the commissary, smokehouse, stables, chicken coops, washhouse, granary, animal pens, barns, and storage sheds. The quarters for house slaves were generally found near the main house, while the field slaves quarters were also found near the main house complex, within 150 meters (492 feet) of the main house. The analysis of slave architecture over time indicates that the earliest cabins were composed of rooms ranging from 9'x9' to 10'x10' square while cabin sizes increased over time, resulting in rooms 15'x15' by the late antebellum. Houses were built of planks or log, with tabby or mud-and-stick chimneys (Adams 1987b:314).

The work at Kings Bay as well as earlier studies of Georgia's coastal plantations have noted the potential influence of task labor on the material culture of slaves. Task labor itself was a product of the coastal plantations. Historian Phillip Morgan has observed that rice plantation agriculture was organized around tasks, and that slaves were given the remainder of the day off once they had completed their tasks (Morgan 1982, 1983). The gridding of rice fields into orderly plots simplified the measurement of labor production. Thus on the tidal rice plantations, the work day could be defined by a measurable quantity of labor which was expected from that day, such as the hoeing of so many acres, the ditching of so many feet, the harvesting of so many plots. Coastal planters further defined both their slave laborers and their labor expectations in terms of hands. A hand referred to the amount of work a healthy adult male slave was expected to accomplish within a day. Slaves themselves were assigned hand values – thus a child might be recorded as a half hand, and an adult female as a three quarters hand. The planters, thus referring to the hoeing of a particular parcel as a two-hand task, meant that it would take two days for a full hand to complete, or four days for a half hand. With labor measured and calculated, slaves were given the following incentive – complete your assigned tasks, and your work day is done. Thus, slaves who worked on coastal plantations in the task labor system had the opportunity to earn free time, and with that time, to make crafts and produce foodstuffs which could subsequently be sold for income. Considering the potential influence of the task labor system on the material culture and archaeology of

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cream colored ware bowl in that year), a painted bowl an index value of 1.8, and a transfer printed bowl a value of 3.00 [Miller 1980:33]. See Chapter VI for further discussion of Miller's index.

slavery, Joseph (1987) postulated that slaves would have spent the income available to them as a result of the task labor economy on tobacco, decorative clothing items, ceramics, and possibly window glass. He further recommended that in order to recognize the effects of task labor within slave artifact assemblages, multiple slave dwellings within plantation quarters needed to be excavated and compared. Building on the analysis of task labor and the organization of coastal plantations, in a subsequent article (Joseph 1991), Joseph theorized that the ideology of coastal plantations could be understood as a system of classification and that this ideology was organized around labor and management, rather than race, echoing the findings of John Otto from Cannon's Point.

The 1980s was a significant decade in archaeology of coastal Georgia plantations, with an impressive volume and range of work completed. Significantly less work was directed toward coastal plantations during the 1990s. To a degree, this decline in research reflects the passing of Charles Fairbanks in the latter half of the 1980s and the decline of the University of Florida as a center for graduate research in historical archaeology. The decrease in research is also a reflection of the status of much of the Sea Islands as state or national parks that are protected from development. Thus, in addition to the decline of university-based graduate research, there were no major CRM projects during this decade. Projects that were conducted during this period included archaeological testing of Springfield Plantation (Simpkins and Lamas 1990) and survey and excavation at the Hofwyl-Broadfield Plantation (Wood 1992a, 1998), both of which were completed on state lands for the Department of Natural Resources. The National Park Service conducted additional archaeological research at Stafford and Rayfield Plantations on Cumberland Island under the direction of John Cornelison (http://www.cr.nps.gov/seac/cuis.htm), the report of which is in progress.

One of the more important projects completed during this decade involved archival research and shoreline documentation in association with the US Army Corps of Engineers, Savannah District's, New Cut Closure project on the Back River at Savannah. This study, conducted by Richard W. Leech and Judy L. Wood of the Savannah District (Leech and Wood 1994), primarily recorded the remains of vessels along the shorelines of the Back River in both Georgia and South Carolina, but also identified the remains of plantation sites on near shore locations. The report provides excellent historic background for the region, and records and illustrates a number of waterfront features from the plantations of the area, including the remnants of rice trunks, wharves, landings, and mills, in addition to barges, the vessels associated with the transportation of rice. Leech and Wood (1994) provide a comprehensive look at a neglected aspect of the coastal plantations, their waterfront architecture.

Coastal plantation archaeology of the twenty-first century is largely unreported to date. Anne Yentsch of Armstrong State University has directed several seasons of fieldwork at Lebanon Plantation, identifying both Colonial and nineteenth century remains associated with this Chatham County rice plantation. The presence of Yentsch at Armstrong State University offers the potential for a new University-based program in historical archaeology along the coast. Noted for her work in garden and landscape archaeology, Yentsch has previously worked in the Mid-Atlantic and Northeast (Yentsch 1994). Rice

dikes associated with Bourquin Plantation, Lebanon's immediate neighbor, have been recorded and assessed as National Register eligible by Matt Edwards during a survey of a proposed environmental restoration on Quacco Canal (Edwards and Langdale 2003). Edwards and Langdale include information on Lebanon Plantation, which extended into their project area, in their report.

Easily the most significant research on coastal plantations that has occurred in the past few years is the result of CRM investigations conducted on the Ford Plantation. The Ford Plantation consists of an 1,800-acre tract located on the Ogeechee River in Bryan County. Twelve hundred acres of the tract were initially surveyed in 1982 by Wapora for a development project scheduled at that time; cultural resource studies were required as a result of US Army Corps of Engineers 404 permit for the development. The Wapora report (1983) identified 15 sites and recommended 12 of these for testing, however, initial construction of a golf course for the development appears to have occurred without any further cultural resource investigations. The development was not completed, and the property went into foreclosure. It was acquired by the current owners in the early 1990s and residential development is now scheduled for the property. Containing the Henry Ford Mansion, an NRHP listed property, as well as a number of other historic structures, Ford Plantation also includes the remains of three rice plantations: Silk Hope (1760-1791), Cherry Hill (1770s-1870s), and Dublin/Richmond (1747-1870s). Additional survey, testing and data recovery studies for the Ford Plantation development have been carried out by the firm of Brockington & Associates under the direction of Principal Investigator Thomas G. Whitley. Data recovery reports for the excavations at these three plantations are presently in draft format and were not available for review (Butler et al. 2003; Whitley et al. 2003a, 2003b). Information on the project and its findings was taken from papers presented by Brockington and Associates staff at regional and national meetings (Huddleston and Severts 2002, Mauldin and Huddleston 2002, Olvey 2002, Whitley 2002), as well as from personal communication.

Data recovery excavations focused on the slave villages of the three plantations, and all followed a similar methodological protocol which included shovel testing on a 10 meter interval, followed by the excavation of 2 x 2 meter test units for the recovery of artifacts where shovel testing had identified concentrations, followed by backhoe test trenching to remove the overburden and expose the substrate for the identification and mapping of cultural features, followed by further machine exposure of localities with significant feature density (Whitley 2002). Relatively large numbers of pit features, referred to by Olvey (2002) as refuse pits, were identified within the Silk Hope and Cherry Hill slave complexes, but not at Richmond, where only a single large pit was found. Yard pit features have a strong association with early African-American slave sites along the coast and were prominent in association with the slave dwellings at Yaughan and Curiboo Plantations in South Carolina (Wheaton et al. 1983). Ethnoarchaeological research in Ghana, West Africa, by Kofi Agorsah (1983), indicates that these features were dug for a variety of functions, including to obtain clay and earth for household construction and maintenance, to obtain clay for the manufacture of pottery, as storage features for crops, and in some instances in association with shrines. In West Africa, as in the southern US, pit features were often filled with trash following their abandonment. Olvey (2002)

suggests that some of the pit features within the Ford Plantation slave villages may have been intentionally excavated for the burial of malodorous refuse, primarily animal bone. Whitley (personal communication 2003) notes that some pits contained dense deposits of refuse which were then covered with a layer of sand or clay, presumably for sanitary reasons. Pit features recorded by Olvey (2002) ranged in size from less than a meter to more than five meters across, with many of these features being greater than a meter in diameter. Several of the pits were noted as "clay-lined," which suggests that they may have functioned as pits for the mixing of clay and temper for house construction or pottery manufacture, or as root crop storage pits where the lining would have served to keep ground water from percolating into the pit during wet conditions.

At Silk Hope, an African-styled earth-walled structure was identified similar to those recorded by Wheaton et al. (1983) at Yaughan and Curiboo Plantations and which have been recorded in other locations in South Carolina (see Ferguson 1992, Joseph 2002, Shlasko 2002, Steen 2002, and Wheaton 2002 for discussions of wall-trench and earth-walled architecture in South Carolina). This structure is rectangular, measuring approximately 12'x7' feet, and is divided into two rooms. Mauldin and Huddleston (2002) describe it as "similar to one recovered at Yaughan" and as an "African style structure of stick and mud construction." Two types of African-styled structures have been recorded in South Carolina, both constructed using wall trenches. One features posts placed within the wall trenches with walls constructed of wattle and daub or earth and sticks, while the second was composed of wall trenches with the walls built of packed and pounded clay with binding agents (see Ferguson 1992, Wheaton et al. 1983, Joseph 2002). Presumably, the structure at Silk Hope represents the former construction style. Whitley (2002) suggests that this may have been a slave dwelling built by African-American slaves for residence during the construction of the dikes, ditches, and fields at Silk Hope, between 1750 and 1760. He further indicates that once the fields were complete and the remainder of the plantation constructed, this dwelling was apparently abandoned and a kitchen associated with the main house complex was built almost on top of its location (Whitley 2002).

Also notable for its recovery from the excavations at Ford Plantation is colonoware. This open-fired earthenware pottery is found on Colonial-era and later plantations from Virginia through the Caribbean. Colonoware was first identified as Colono-Indian ware by historical archaeologist Ivor Noël Hume of Colonial Williamsburg (1962). Noël Hume believed that this locally manufactured pottery was produced by Native Americans for sale to the colonists and hence the name. As plantation archaeology moved south, the ceramic was recovered from other Colonial-era plantations, and was found in large quantities in South Carolina. Leland Ferguson of the University of South Carolina was the first to propose that much of the pottery found on the plantations was produced by African-American slaves, rather than Native Americans (Ferguson 1980). He thus proposed that this type of pottery should be known as colonoware, rather than Colono-Indian Ware. Ferguson's work was born out by the excavations of Lees and Kimery-Lees at Limerick Plantation (1979), and most notably by the work of Wheaton and Garrow (Wheaton et al. 1983) at Yaughan and Curiboo Plantations, were detritus from the manufacture of colonoware was found in the slave villages. In South Carolina, two

types of colonoware were identified during the earliest investigations – a finely made, thin-walled, burnished ware which was made by the Catawba Indians for sale, and a thicker-walled, smoothed, coarser type which was considered to have been manufactured by enslaved African-Americans primarily for their own use. Ferguson (1992) refers to these as river-burnished ware and colonoware, respectively. More recent work by Ron Anthony of the Charleston Museum on a number of Charleston-area plantations, as well as by J. W. Joseph of New South Associates at the urban Charleston Judicial Center Site, indicate that there may be three or more styles or varieties of colonoware in coastal South Carolina. Both Anthony (2002) and Joseph (2002) recognize finely made, thin walled, polished wares which were produced by Native Americans and which are associated primarily with European-American kitchens; a thicker, more coarsely made ware found in slave villages and made by African-American slaves for their own use; and a style which is intermediate to the two and which includes European ceramic decorative devices such as pie edge crusting found on slipwares. The latter type is believed to have been made by African-American slaves primarily for sale and trade, and is found in both European-American and African-American contexts, although primarily in urban settings. Steen (1999), Anthony (2002) and Joseph (2002) also recognize the interaction of enslaved Native Americans and African-Americans in the development of colonoware which they suggest is the product of synergistic creation.

Prior to the work at Ford Plantation, colonoware was virtually unknown on coastal Georgia plantations. Singleton (1980) had reported the recovery of a few sherds but even these were not definitively identified as colonowares. The work at Ford Plantation has documented not only the presence of colonoware on coastal Georgia plantations, but also its likely manufacture there as well. Of the three plantation slave quarters excavated, a significant quantity of colonoware was recovered from Silk Hope. A total of 2,560 colonoware sherds were recovered from Silk Hope, representing approximately 60 vessels. Vessel forms are predominated by bowls (38) and jars (9). Vessel surfaces are described as smoothed to burnished and one example of a European-style scalloped rim is present in the assemblage, as are footed vessels. Smaller quantities of colonoware were recovered from the slave villages at Richmond (90 sherds) and Cherry Hill (2 sherds). Preliminary Neutron Activation Analysis of colonoware sherds and clay sources from the Ford Plantation sites, as well as sherds and clay from plantation sites in South Carolina, supports the assumption that the colonoware from the Ford Plantation sites was produced from local clays (Huddleston and Severt 2002).

Huddleston and Severt (2002) also report the recovery of a single colonoware vessel marked with an "X" on the base. Colonoware vessels with "X" marks have been recovered from a number of contexts in coastal South Carolina and are believed by Ferguson (1992, 1999) to represent African-American incorporation of the Kongo cosmogram. The cosmogram, comprised of a cross with a circle centered on its axis in its truest form, is an important symbol in the Kongo region/culture of West Africa, and its meanings and applications are discussed by Ferguson (1999) and Thompson (1983). The cross symbol was important in the ritual beliefs and practices of southern African Americans into the twentieth century, and Work Projects Administrations study of coastal African-American culture (1940) records several applications of this symbol in Georgia.

The work of the WPA, and that of archaeologist Christopher DeCorse (1999), suggest that over time the Bakongo cosmogram devolved into a cross or "X" mark, while its use extended beyond the rituals of the Kongo and into the creolized African-American culture which developed out of the diaspora.

In addition to the cross-marked colonoware from the Richmond Hill plantations, Mauldin and Huddleston (2002) report a number of other findings that may reflect religious beliefs and behaviors. At Cherry Hill Plantation, a collection of 11 white beads, four black beads, a blue bead, a purple bead, mirror glass, and a Spanish Real 1772-1788 coin were found cached within a slave house are believed to represent a ritual deposit (see Caton [1997] citation above, Wilkie [1997, 2001] and Brown [2001] for discussions of the use of beads, buttons, coins and other objects as talismans as well as for the burial of ritual assemblages in house floors). Mauldin and Huddleston (2002) also report the apparent ritual burial of a sheep at Cherry Hill. The sheep had not been butchered and was buried intact. Mauldin and Huddleston (2002) note that Brown (2001) reported the burial of a calf within the slave village at Frogmore Plantation, South Carolina, apparently as an element of a cosmogram revealed in the floor of a conjurer's cabin. Mauldin and Huddleston (2002) describe a voodoo ceremony reported by Zora Neale Hurston in 1920 during which a sheep was killed, covered with sheets of papers bearing petitions, and buried, and suggest that the sheep burial at Cherry Hill could reflect a similar ritual.

Additional work at Richmond Hill has been conducted by Ken Brown of the University of Houston. Brown is engaged in a multi-year project tracing the interaction and development of African religions and African-American Christianity in the New World. As an outgrowth of work on a Praise House from the slave and later tenant community at the Levi Jordan Plantation in Texas (Brown and Cooper 1990), he had previously conducted excavateion of an African-American Praise House on the Frogmore Plantation in South Carolina, where he had discovered deposits in the floor of the house which reflected African religious beliefs comparable to those discovered on the Jordan Plantation. Hearing of the work at Richmond Hill in papers presented by the staff of Brockington and Associates, Brown learned that the location of the Praise House at Richmond Hill was known but had not been examined during Brockington's data recovery. With permission from the developer, Brown excavated the Praise House at Richmond Hill, revealing four caches of artifacts in the four cardinal directions. The eastern deposit was a concentration of broken glass and mirror fragments. The southern deposit contained a lime plaster representation of a Sankofa religious symbol. The western deposit contained a human skull, likely Native American, which Brown believes was recovered from an eroding Native American site on the Ogeechee River in the area of the Praise House. To the north as a concentration of shells, placed in the form of a Christian cross. Brown writes (personal communication, February 26, 2004):

> *I have interpreted these deposits in the same way as the religious cross from the Jordan. The east relates to the "rebirth" of an individual into the adulthood and membership in the praise house (the glass would reflect the sunlight much as the surface of water). Individuals would be baptized by being placed under the surface of a river and then reborn. The shell*

"cross" is an obvious power symbol of Christianity. The skull relates to the passage of one from this life to the world of the spirits and ancestors. One of the major roles of Christianity was to ensure a happy and bountiful afterlife. The Sankofa symbol relates to the ancestors and the world of the dead, with its "look back to remember" meaning. Unlike the Jordan praise house, this one had only one set of deposits forming the cardinal direction cross. That makes sense given the location of the praise house near the owner's house, and his stated importance of the praise house in the "moral" upbringing of the enslaved. (Clay actually wrote a pamphlet on the subject in 1830). Anyway, it might be argued that if the political cross deposits actually existed at Richmond Hill, they would have been placed below the community leader's cabin in the village to the southeast.

Brown is currently in the process of synthesizing his work at Levi Jordan, Frogmore, and Richmond Hill plantations into a discussion of the African elements in African-American Christianity. The work at Richmond Hill highlights the importance of locating and examining the Praise Houses associated with other coastal plantations.

Future Research in Coastal Plantation Archaeology

The work at Ford Plantation highlights archaeology's ability to investigate and illuminate the creation of an African-American identity and culture along the Georgia coast. Future investigations of plantations should seek to expand on this research. In particular, investigations should target plantations that were occupied during the eighteenth century, a critical period in the creation of a creolized African-American culture. Mechanical stripping and/or remote sensing are recommended, in combination with shovel test and unit excavations, to identify and expose the locations of subsurface features. Because early African-Americans used wall-trench architecture and pit features as trash receptacles, this left little in the way of archaeological deposits in the plow-zone. Mechanical stripping and remote sensing may help to reveal the locations of eighteenth century enslaved settlements on lowcountry plantations. Slave settlements from the initial stages of rice plantation construction, when the labor was focused on the ditching and diking needed to create rice fields, are most likely to reflect African cultural traditions as the enslaved workers in these settlements functioned with limited European-American supervision and interaction. The work at Ford Plantation suggests that tidal rice plantations went through two stages of development and construction: (1) an initial period of several years in duration when slaves operated in relative isolation during the construction of the rice fields, and (2) a subsequent period in which the plantation was occupied and developed and during which the plantation landscape became more formalized and defined. Slave villages created during this latter period were probably not built on the same locations as the earlier villages. Indeed, the research at Ford Plantation suggests that these early villages may have been built on the most suitable habitation sites and hence subsequently subsumed and covered by the construction of main house complexes. Thus archaeologists should be alert to the potential for earlier slave settlements underneath the remains of nineteenth-century plantation big houses. Archaeologists should also seek to identify and excavate the locations of Praise House in the African-American workers villages.

Similarly, archaeologists should seek to identify the slave communities associated with inland swamp rice agriculture, the earliest type of rice production in the state. These settlements, which should be among the earliest and which may contain some of the best evidence of African cultural traditions, will be hard to find, but survey along inland swamp locations should be alert to the presence of Colonial-era artifacts and in particular colonowares, and should also recognize in making site evaluations that much of the material residue of these slave settlements will be contained in pit features and hence will not be exposed during traditional archaeological sampling (shovel testing and unit excavation). Low-density sites with colonoware, which are near inland swamp edges, should be recommended for further testing, and this additional work should incorporate remote sensing and/or mechanical stripping to identify subsurface features.

On nineteenth-century plantations, archaeological excavation projects within slave villages should examine multiple house/yard locations to assess variability in the material culture of these households and the possible effects and expressions of task labor within the slave community. Attention should be paid to artifacts that may reflect task labor income and acquisition, including clothing items, tobacco, ceramics, alcohol, and others.

Where tabby was used in plantation architecture, further research should be employed in documenting aspects of tabby construction as well as building forms and plans. Work conducted in the Beaufort, South Carolina area by architectural historian Collin Brooker indicates the prevalence of similar techniques, plans, and styles which may reflect the development of localized tabby tradition and style, as well as shared construction. Future work on tabby architecture along the coast should seek to supplement on-going architectural investigations by Brooker and others and should record the particulars of construction on various plantations to assess the presence or absence of regional styles and techniques.

Further work should be devoted to understanding main house architecture, the architecture of outbuildings, the organization of the main house yard, and its working infrastructure. The effects of economic scale and crop economies on these attributes should be examined, and the architecture and organization of house yards over time should be studied to determine how changing social values, ideologies, and technologies were reflected in the planter's crafting and construction of their immediate world.

Archaeological work completed to date has focused on the larger and more financially prominent of Georgia's coastal rice and cotton plantations. Following Moore's (1985) research, mid-sized and small plantations should also be examined with an emphasis on determining the extent, if any, that size and economic scale of the plantation was felt-throughout the social classes which resided on the plantation: the planter, overseer, driver, and slave. Archaeological examinations of status, as reflected in the archaeological record, should also recognize the presence of slave drivers, slaves who served as foremen for fieldwork crews, as well as the variability that might exist between field slaves and house slaves in material culture.

Continued analysis of subsistence remains from coastal plantations should examine variation among the foodways of the various social classes on the plantation, should look at the variety and range of faunal and plant remains which were obtained from the region, and should look for any temporal variation which might indicate the depletion of specific resources.

Industrial sites associated with coastal plantations, and specifically rice mills, should be identified and examined to provide information on technology and its application on the coastal plantations. Evidence of brick making should be sought, particularly for plantations near Savannah, as this industry may have been embedded into the economy of rice and long-staple cotton plantations with little historical record. Brick kilns were incorporated into the landscape of many of the coastal plantations surrounding Charleston, South Carolina (Wayne 1997), and given Savannah's size and use of brick architecture, it is likely that coastal Georgia plantations also supported this industry.

Regional comparisons should be made between coastal plantations in Georgia and their contemporaries in South Carolina as well as Florida. For a large part, plantation archaeology in Georgia has ignored the substantial body of work from South Carolina, and vice versa. Comparisons could help to determine if there are any differences which might be a product of trade and the goods available in Savannah versus Charleston; differences that might result from cultural backgrounds and historical events; or differences which may reflect subtle changes in the geography and environment. Treatment of the topic of rice and long staple agriculture as a regional, rather than state-by-state, development should help to provide a more comprehensive understanding of these plantations.

The locations of plantation cemeteries should be better researched and documented. Most of the larger coastal plantations would have had cemeteries for their African-American slave communities, while some may also have had cemeteries for the planter's family. Slave graves are likely to have only been identified by temporary markers (Works Project Administration [1940] records carved wooden markers from Georgia), which hence are unlikely to be preserved. The locations of these cemeteries may thus not exhibit much in the way of surface evidence, nor contain archaeologically recoverable artifacts. If cemeteries are found which require excavation and relocation in accordance with the Abandoned Cemetery Act, physical anthropology should be conducted to provide information on diet, health, and disease, and archaeological excavation should record burial remains, particularly those that may reflect ritual inclusions.

Further research should be directed toward documenting the construction and appearance of the rice fields themselves. The heights of rice dikes should be recorded to assess geographical and regional variability. Where trunks and gates are observed, these should be recorded to the extent possible in photographs and drawings to document this aspect of rice plantation technology and its use. A study of the rice field themselves would be of great use in better understanding the organization, lay-out and construction of these fields, and in predicting the locations of plantation complexes. Such a regional study may now be feasible through the application of modern technologies, specifically satellite

and aerial photography and GIS. The results of this research, in concert with the historical record, would greatly expand our understanding of the formation and construction of rice fields.

Upland Plantations

During time spent in 1793 at Mulberry Grove Plantation on the Savannah River, Eli Whitney perfected an invention that would change the agricultural history of the South and greatly expand the plantation's geography. Whitney's cotton gin allowed short-staple cotton to be profitably grown, harvested and marketed and this crop, which was well suited to the southern climate and soils, spurred the fluorescence of plantation agriculture and its spread into the interior. In Georgia, short-staple cotton plantations first appeared throughout the eastern part of the state. The crop grew best in the Upper Coastal Plain and Piedmont, and Augusta was an early center of short-staple cotton agriculture, followed by Macon and Columbus in the 1830s and 1840s (Messick et al. 2001:25-26). Sam Hilliard's (1984) *Atlas of Antebellum Southern Agriculture* maps the locations of plantations producing more than 2,000 bales of cotton, and shows that in 1820 the majority of these plantations were located in the Piedmont of South Carolina and the eastern Piedmont of Georgia, while by 1830 these plantations had spread across the Georgia Piedmont and were beginning to appear in Alabama. By 1850, this band extended into Mississippi and Louisiana, and Mississippi and Alabama had surpassed Georgia and South Carolina in the production of short-staple cotton. By 1860 the band of larger short-staple cotton plantations in the Piedmont had intensified, and had widened as well, with larger producers now appearing well into the Coastal Plain.

The creation of upland short-staple cotton plantations first required the clearing of fields. The work involved was not as labor intensive as the effort required to create rice fields, nor as geographically restrictive, and as a result there were many more cotton planters and plantations than there were rice planters and plantations[4]. Short-staple cotton was extremely exhaustive of soil nutrients, however, and therefore fields were only used for a short period of time, generally three to six years. Fields were created by cutting trees and pulling or burning stumps, allowing forests to be converted to agricultural use. In January and February, fields were plowed and prepared for planting, including the addition of fertilizer if any was used. In March and April, fields were planted. In May, cotton was "barred," which was accomplished by running a turn-plow along the rows of cotton plants, turning the soil to the middle. After this plowing the crop was chopped, or hoed. After the first hoeing, dirt in the middle was thrown back onto the ridges where the cotton plants were growing. As the plants grew, shallow plows or sweeps and hoes were used to control weeds. By August, cotton was ready to be picked. Cotton was harvested, ginned, pressed, and shipped to market between September and December. The production of subsistence crops, the cutting of wood for fires and new fields, and repairs to the plantation as well as new construction all filled the days of slaves on the cotton plantations. Unlike rice agriculture, labor was organized by gangs, and cotton gangs

[4] Because cotton was so exhaustive of soil, its production required the clearing of much of Georgia's landscape. This, in turn, led to rampant erosion in the Piedmont (see Trimble 1974). Erosion is one of the leading causes for the loss of archaeological site integrity in Georgia and much of the southeast.

generally worked from sun-up to sundown under the supervision of a slave driver or overseer (Anderson and Joseph 1988:412-414).

Because short-staple cotton rapidly exhausted soil nutrients, the settlement plan of upland cotton plantations differed from that of coastal plantations. Upland plantations featured less substantial main house complexes than found on the coast, and slave villages in particular were of impermanent construction. A main house complex and slave village would usually be established near the first fields that were cleared for cultivation. Crop rotation and the expansion of these fields into adjoining woodlands might provide for 10 to 15 years of productive agriculture, but eventually soils in the area would be exhausted. A second area would be established on other lands, with fields cleared by a smaller slave work force. Eventually, the main slave village and agricultural support buildings would be relocated to this new location, and in some instances the planter's main house complex was relocated and rebuilt as well. Archival and archaeological evidence of the changing settlement systems of upland plantations along the Savannah River are discussed by David G. Anderson and J. W. Joseph in the technical synthesis of cultural resource investigations of the Richard B. Russell Reservoir (1988).

Slave housing was predominantly of log construction, with dirt floors and shuttered windows. Log architecture made sense in the upper Coastal Plan and Piedmont – construction materials were readily available (forests had to be cleared to be converted to fields) and the construction of log dwellings required only slave's time and labor, and did not require any capital expenditure by the planter. Since slave villages were impermanent because of the need to create new fields over time, there was no incentive for planters to create more substantial and permanent slave dwellings. Carrie Hudson, who was born on an Elbert County plantation, remembers the slave cabins there as being of log construction, with most possessing a single room and the largest with two rooms. Chimney's were described as of mud-and-stick construction (Anderson and Joseph 1988:418); these are essentially wattle and daub structures and their construction and appearance is discussed in greater detail in George McDaniel's (1982) *Hearth & Home: Preserving a People's Culture.* Taken as a whole, log cabins with unglazed windows and mud-and-stick chimneys would have left little in the way of archaeological evidence, with the possible exception of a fired clay pad where the mud-and-stick chimney once stood.

Planter's residences were usually of frame and were most often elevated on piers to allow air to circulate under the house and to provide protection against termites and rot. The I-house was a common house plan found on Coastal Plain and Piedmont plantations and featured end chimneys, often of stone or brick construction. Remnants of these chimneys and piers are often the most archaeologically visible evidence of upland plantations. Outbuildings associated with the upland plantations included kitchens, wells, outhouses, barns, chicken coops, smokehouses, corncribs and on the larger plantations cotton gins and molasses cookers.

Upland plantation settlement systems are more variable than those of the coastal plantations. Main house complexes were generally located on level ground near a road or

trail, as these were the main transportation routes of the upcountry. Fields were established on ridges as well as shallow slopes and in floodplain settings where plantations were located along rivers or streams. The organization of structures within the main house complex was less formal and orderly than found on the coastal plantations – because of the variations in scale of these upland plantations, main house complexes ranged from small, disorganized conglomerations of structures, including the planters residence, slave dwellings and agricultural outbuildings, to more formal arrangements with entry avenues and a symmetrical lay-out on the larger plantations. In a study of farms and plantations within the Russell Reservoir on the upper Savannah River, Marcy Gray (1983) applied geographer Merle Prunty's (1955) analysis of plantation settlement systems to the upper Piedmont. Prunty (1955) had identified four systems of plantation settlement: (1) Nucleated – in which all components were clustered in one location, (2) Semi-Nucleated – in which settlement components were associated but not concentrated (ie. settlement was in the same general area but there were appreciable distances between components), (3) Conglomerate – in which there were several settlement areas, and (4) Dispersed – in which settlement was disassociated and almost random. Gray (1983) noted that the conglomerate plan best characterized upland agricultural settlements, which was presumably a result of the creation of multiple fields and villages (Joseph 1997a) (Figure 17).

Upland Plantation Archaeology in Georgia

Despite the significance and prevalence of upland plantations within the state, relatively little archaeological work has been directed toward short-staple cotton plantations. The earliest study which we found reference to was conducted by Dean Wood, then of Southeastern Wildlife Services, at Twin Oaks Plantation in Meriwether County, in 1979. Limited excavations were carried out in support of the restoration of the plantation. Twin Oaks possessed a Greek Revival main house constructed between 1855 and 1860 by Elbert Wimbush, an enslaved builder and craftsman from Greenville, Georgia. Twin Oaks featured a cook's house located near the main house which had been built of log, and test excavations in this area revealed a dense antebellum midden deposit (Wood 1979). Further work was recommended for the slave component of this site, but was apparently not carried out.

Cultural resource compliance studies completed along the upper Savannah River in preparation for the construction of the Richard B. Russell Reservoir examined a number of upland plantations and farms. However, all of the historic agrarian sites that received intensive investigation were located on the South Carolina side of the river. This research is none-the-less relevant to studies of upland plantations and should be referenced by archaeologists working on this topic in Georgia (see Drucker et al. 1982, Gray 1983, Orser and Nekola 1985, Orser et al. 1987, Orser 1988). Two other studies carried out for the Russell project, a historical investigation of the reservoir area (The

Figure 17. Plan Showing the Evolution of Upland Plantation Landscapes (from Anderson and Joseph 1988)

History Group 1981a) and the architectural documentation of historic buildings,including Georgia plantations (Worthy 1983), are also relevant resources. The cultural resource studies conducted for the Richard B. Russell Reservoir project are also summarized in a technical synthesis prepared by Anderson and Joseph (1988), which offers a broad chronological look at history and archaeology in the region. Finally, a popular synthesis of the Russell research has been prepared by Kane and Keaton (1993).

Of note from the Russell Reservoir project was the lack of investigation and identification of slave sites. Orser's excavations at Millwood Plantation examined tenant cabins which had likely served as slave dwellings during the antebellum period, however, Orser was unable to identify artifacts and features which were directly related to the slave occupation (Orser et al. 1987). Gray (1983:147-148) noted that none of the slave villages associated with the George McCalla Plantation had been found, even though there were at least 23 slave dwellings on the plantation. She hypothesized that some of the smaller historic sites identified during the Phase I survey within the historic limits of the plantation may have represented slave villages, but none of these sites, which were small, of low density, and eroded, were recommended for further work.

Cultural resource management studies also resulted in the investigation of the Freeman Plantation in Jones County. Data recovery excavations of this site were carried out by Garrow & Associates as mitigation for Georgia Power's construction of the Vogtle-Scherer transmission line (O'Steen et al. 1987). The site was owned by Robert Freeman and his descendants from ca. 1817 to 1876. Three aligned two-room stone-foundation structures were identified during the data recovery. O'Steen et al. note that while the arrangement of these structures suggests a possible slave village, the artifacts recovered indicate a higher status occupation. Archival research also indicated that at some point in time, this aspect of Freeman's Plantation holdings (the Freemans owned a considerable amount of land and several plantations in the region) may have been converted to use as a crossroads store and community. Archival research indicates that John Freeman operated a whiskey distillery in the county from 1818 to 1821, while his brother Enoch Freeman ran a store from 1821 to 1832. There were also references to Freeman's "neighborhood" and "public place." The recovery of a large quantity of alkaline glazed whiskey jug fragments supported the notion that this site may have functioned as a community center, and O'Steen et al. (1987:245) note that communinty activities were also incorporated into larger upland plantations, which served as social and economic hubs. After the Civil War, one of the structures on the Freeman Plantation site was converted by tenants for use as a blacksmith's shop, while a sorghum furnace was built adjacent to another (O'Steen et al. 1987:245-246). The work at Freeman Plantation provides interesting information on community aspects of plantation life, but relatively little in the way of information about plantation lifeways.

Testing phase projects have been completed for several upland plantations, some of which will receive data recovery excavations in the future. Southeastern Archaeological Services conducted testing phase excavations at the Rueben Armour Plantation in Greene County as a component of the cultural resource investigations completed for the Reynolds Plantation development on Lake Oconee. The site was first occupied in the

1850s and continued to be used until the 1930s. The archaeological work indicated that twentieth century activities had significantly impacted the integrity of archaeological deposits on the site (Ledbetter 1998a, 1998b).

Future Research in Upland Plantation Archaeology

The limited amount of archaeological research that has been directed toward upland plantations to date is the product of several factors. First, upland plantations were less intensively developed than coastal plantations and as a result left less of a material footprint and are more difficult to identify archaeologically. Second, plantation agriculture in the Piedmont would lead to a significant amounts of erosion (Trimble 1974), and this, coupled with the shifting settlement system employed in the uplands, has resulted in the loss or degradation of many of the earlier plantation sites that were subsequently reused as agricultural fields. Another factor that has limited research into upland plantations is their setting and geography. Upland plantations were rural and quite often extensive. As a result, their locations are not ones that are likely to be impacted by projects requiring archaeological survey, with the notable exception of reservoir projects such as the Richard B. Russell project.

One of the critical research issues facing upland plantation archaeology is to develop a better understanding of plantation settlement systems. Large-scale surveys in the upper Coastal Plain and Piedmont should be preceded by intensive archival research with the objective of defining and mapping, to the extent possible, plantation boundaries. Efforts should then be made to identify, associate, and relate late eighteenth- and nineteenth-century archaeological sites recorded within these boundaries as elements of the plantation system. Site evaluations of National Register of Historic Places eligibility should be made within the context of understanding plantation systems and settlements; and as a result, less attention should be given toward artifact density and site integrity as measures of significance with a greater emphasis on site function. In particular, efforts should be made to locate, define, and sample the locations of slave villages and in the ideal setting, to map, sample and compare the locations of multiple villages that may reflect shifts in plantation settlement over time. The collection of historic aerial photographs at the University of Georgia, which dates to the 1930s, should be consulted for the information it contains on the locations of former fields and possible structures. Collaborative research may be feasible in association with the large land-holding entities of the state, most notably the US Army Corps of Engineers (Strom Thurmond, Richard B. Russell and West Point reservoirs), the Department of Defense (Fort Gordon and Fort Benning), and the USDA Forest Service (the southern reaches of the Oconee National Forest). These agencies have already conducted large scale, if not total, survey of the property under their jurisdiction in compliance with Section 110 of the National Historic Preservation Act. The settlement study outlined above could be accomplished by overlaying intensive archival research on the existing site data followed by limited archaeological visitation and sampling of selected sites. When coupled with GIS, this study could provide better understanding of plantation settlement and could provide data to predict the locations of plantation main house complexes, slave settlements, and other features in the future.

Where the locations of slave villages can be identified, further work should be directed toward understanding African-American culture in the upcountry. As with coastal sites, research should incorporate machine stripping or remote sensing to determine and map the presence of subsurface pit features. At present, it is unknown whether and to what extent pit features may occur on upland African-American sites. Since at least one function of these features on the coast was to retrieve clay for pottery production and house construction, such features may not have been needed in the uplands where structures were of logs and colonowares were not made. However, there is also the potential that slave dwellings on the earlier plantations may have featured African-style wall trench construction, and there is also the prospect that colonowares could have been made within the early upland plantation slave villages. Olvey (2000) suggests that African Americans may have intentionally dug pits for refuse disposal; the presence or absence of pit features on upland slave sites would help to address this hypothesis. Similarly, ethnographic and archaeological research along the coast has provided evidence of a variety of African-American rituals that are indicative of the development of a distinctive African-American culture. There is little evidence of such beliefs and behaviors in the upcountry, however. Is this a product of the limited amount of research devoted to African-Americans in the uplands, or does it reflect real regional differences in the creation and expression of an African-American identity and culture?

As with the coastal plantation, archaeological research should examine the material correlates of social status and identity on the upland plantations. Because of the significantly greater variation in scale exhibited on upland plantations, Moore's (1985) concerns over the effect of scale on material remains within the plantation should also be applied to the uplands.

Subsistence research should examine the role of domestic and wild foodstuffs in the diet of upcountry planters, overseers, and slaves. Because slaves on upland plantations worked within the gang system of labor, rather than the task system, they may have had less time to devote to hunting, fishing, and trapping, and as a result wild foodstuffs may be of less importance and prominence in the upland plantation diet. They may also have had less access to firearms at this later point in time.

As with the coastal plantations, the locations of upland plantation cemeteries, and in particular slave cemeteries, should be sought. Settlement research should also consider this topic in an attempt to identify the choices made and the locations chosen for slave cemeteries.

Industrial elements found on the upland plantations should be researched. While cotton gins themselves would be expected to leave little in the way of archaeological remains, other features, most notably sorghum mills and cookers, are known to have been present on the upland plantations and should be identifiable through archaeological research (Orser 1985). Grist and sawmills were also elements of many upland plantations.

Tenancy

The era of the plantation did not come to an abrupt end with the conclusion of the Civil War. Plantations continued after the war, but their labor structure and physical appearance changed with the abolition of slavery. Tenancy refers to the postbellum era of plantation agriculture, when the labor force was comprised of tenant labors.

A variety of labor systems developed following the abolition of slavery, with sharecropping, share renting, standing rent and cash renting being the most prominent. In sharecropping, planter/landlords provided all of the resources except fertilizer, which was equally provided by the landlord and tenant, tenants supplied all of the labor, and the crop was evenly divided between the landlord and tenant. In share renting, the planter provided land, a residence, and a quarter to a third of the fertilizer, while tenants provided livestock, feed, seed, equipment and labor, and a portion of the crop, usually equivalent to the amount of fertilized provided ("fourths" or "thirds") was then paid to the planter. In standing rent, the planter provided the land and the housing, while the tenant provided all of the other resources and gave the planter a fixed amount of staple crop as rent. And in cash renting, the landlord provided housing and land and the tenant paid for the use of these resources either in cash or with a fixed amount of cotton. These systems of tenancy were used for both African-American and European-American tenants, and the system used was negotiated on a case-by-case basis, so that one planter/landlord might have multiple types of tenant labor systems at work on his land (Orser and Holland 1984, Anderson and Joseph 1988:448).

Immediately following the war, planters attempted to establish a new labor system that resembled in many respects the slave system. Known as the squad system, this labor organization employed gangs of workers who worked together in return for a share of the crop. While similar in concept to the gang system employed during the plantation era, squads were usually comprised on the basis of kinship and presented a smaller work force than that obtained through the use of gang labor. Squads allowed the planters to use the existing plantation settlement plan, with former slave villages being converted to squad quarters and with labor focused on the cultivation of larger fields (Orser 1986). However, the use of squad labor was short-lived, lasting no more than a decade, and plantation settlement eventually fissioned and resulted in a dispersed landscape as tenants sought independence and isolation from the supervision of planter/landlords. Orser (Orser and Nekola 1985, Orser et al. 1987, Orser 1988) provides detailed analysis of the shifts in settlement that resulted from the transition from slavery to tenancy. While former slave villages were initially occupied by squads, over a period of time slave villages were disbanded and tenants established new, isolated, homes and fields. This transition likely occurred over a period of five to ten years, as the older fields reached exhaustion. Prunty (1955) identified two types of tenant settlements, a "cropper" type, which did not feature barns or livestock pens as these resources were provided by the planter from a central location, and a "tenant-renter" system where agricultural support building were constructed in association with the tenant dwellings. Prunty estimates that croppers generally cultivated from 35 to 45 acres each, while tenant-renters cultivated from 55 to 65 acres.

Orser and Nekola's (1985) analysis of settlement data from Millwood Plantation indicates that the typical tenant site there was located at an elevation of 475 feet above mean sea level, on soils with a moderate agricultural potential, on a slight slope with a southern aspect, less than 0.3 miles from an intermittent stream, 0.5 to 1.5 miles from the nearest road or railroad, and less than 0.3 miles from their nearest neighbor. Fifty-three tenant sites were identified within the boundaries of Millwood Plantation as it existed in 1932. While not reflected in their analysis of Millwood's settlement, it is likely that tenant sites may have clustered or been organized on the basis of kinship, as familial relations and assistance were critical to the agricultural life (see Crass and Brooks 1997).

Work at the Savannah River Site near Aiken, South Carolina has provided information on typical tenant housing along the Savannah River Valley within the upper Coastal Plain, which is also applicable to Georgia. In general, a typical tenant farmstead consisted of a frame hall-and-parlor house about 563 square feet in size with a wood or brick foundation. The average number of outbuildings was 1.5 and most often consisted of a privy and a chicken house. The most common types of outbuildings that occurred at tenant sites in the Aiken Plateau of South Carolina consisted of privies (33.9%), chicken houses (26.8%), barns (17.9%), smoke houses (16.1%), and storage houses (14.3%). However, many tenant houses had no outbuildings at all (see Cabak and Inkrot 1997:117). Refuse disposal tended to be a sheet midden measuring on average 46,324 square feet (4,304 square meters), but ranging from 9,720 to 111,780 square feet (Cabak and Inkrot 1997:148, 154). Based on manufacturing marks, trash dumps containing primarily bottle glass and tin cans, seemed to have been a post-1920s phenomenon (Cabak and Inkrot 1997:190) (Figure 18).

The Archaeology of Tenancy in Georgia

By their nature, tenant sites leave little in the way of archaeological remains. This aspect of tenancy has led to a debate over the significance and National Register eligibility of tenant sites as a class (Anderson and Muse 1982, 1983; Trinkley 1983; Orser 1984). In general, it is recognized that tenant sites can be significant resources which can contribute to our understanding of the lifeways of a historically important, but under-reported, segment of society, but also that these sites are characterized by low artifact density and poor preservation and that as a result the majority are not significant resources.

The low visibility of tenancy is evident in Georgia's archaeological record. Despite the prevalence of tenant sites in the state, relatively few sites have been recorded and reported as tenant occupations. It is likely that many of the nineteenth and twentieth century historic artifact scatters recorded in the state actually represent tenant sites, however, since tenant sites leave little in the way of architectural evidence, it is nearly impossible to identify artifact scatters as tenant site locations without intensive historical research, which is not often conducted at the Phase I survey stage. Only a few testing projects have been directed toward tenant sites, while the amount of data recovery work on this site type is negligible.

Figure 18. Comparative Plans Showing the Organization of Upland Slave and Tenant House Yards (from Westmacott 1992)

Southern Research conducted limited testing of 9CB536 as part of the cultural resource investigations conducted for the Bartram Trail Tract in Columbia County. This tenant site featured a standing double pen structure built on stone piers. Surface features at this site included a chimney fall from an apparent second tenant structure as well as an oblong depression surrounded by earthen berms with cans, bucket fragments, and rubble in the interior. A single 1 x 2 meter unit was excavated on the site, which did not recover many artifacts (Cowie et al. 1999). No further work was recommended. Several tenant sites were recorded during survey and site testing completed by Southeastern Archaeological Services for the widening of US 441 in Wilkinson and Baldwin Counties. In general, this project found tenant sites to be disturbed by post-occupation factors (including the apparent razing of abandoned tenant structures) and that these sites had poor integrity (Hamilton and Rogers 1993). Resource Analysts Inc. conducted testing and data recovery work on a number of historic sites in Floyd County for Georgia Power's proposed Rocky Mountain Pumped Storage project (Ottesen and Riordan 1986). Both tenant and farm sites were examined. More information on this project is presented under the discussion of farms, below.

New South Associates conducted testing of tenant site 9FK52 as part of the cultural resource studies completed for improvements to SR 17. This site was a late nineteenth and twentieth century tenant site in Franklin County constructed by the White family. As part of her investigation of the site, Lisa O'Steen was able to gather information about this property, including the plan of the no longer extant tenant house, through interviews with members of the White family. The house was a three-roomed structure with a shallow front porch, larger rear porch, and an attached shed on one side. A small shed/barn was associated with the house, while an outhouse was located in the rear yard. Shovel testing at a 10-meter interval revealed a low density of artifacts in the area surrounding the former house site with higher quantities in the rear yard. A test unit in the rear yard revealed one cultural feature, a postmold. O'Steen (2003) concluded that the project would not have an adverse effect on the site as the road construction would take place in the front yard area where there were few artifacts or cultural features. An NRHP assessment of the site as a whole was not made.

Another tenant site identified by New South Associates as part of the cultural resource investigations for transportation improvements is the Free Cabin site – 9RI1036. This site was identified in Richmond County during an intensive survey of a proposed State Route 121/US Highway 25 widening project (O'Steen 1995; Kehoe and O'Steen 1995). Site 9RI1036 consists of two domestic buildings – a single pen cabin and a privy, and the ruins of a third, burned structure. The single pen cabin was documented in the architectural survey (Kehoe and O'Steen 1995) as the Free Cabin. Historic maps of this area show a row of four structures oriented parallel to US Hwy. 25. The location and orientation of the cabins suggests a postbellum tenant occupation with a possible antebellum component. Shovel testing revealed that the site measures 110 by 50 meters in size. Test units and shovel tests identified stratified midden deposits and features in the immediate area of structures. Major soil disturbance, however, was found beyond a range of approximately 10 meters around the structures. Artifacts recovered from the

units suggested that the site may have an antebellum slave component associated with a local plantation, possibly belonging to the Rhodes family. On the basis of these findings, the Free Cabin site was recommended as eligible for the NRHP.

Archaeological data recovery of the Free Cabin site was completed under the direction of Natalie Adams of New South Associates and the report is in progress. Adams' research revealed that the cabin was rebuilt from timbers and framing salvaged from another building, most likely a slave dwelling on the plantation. No antebellum remains were found by the data recovery excavations, which indicates that the cabin was not used during slavery. The linear organization of tenant cabins on this site thus suggests that they may have been built shortly after the Civil War when the squad system of tenant labor was prevalent. Machine stripping exposed a limited number of posts associated with fence lines as well as a large pit feature that contained a stone hearth at one end. The latter feature appears to have been a hog-scalding pit, used to boil pigs so that they could be skinned before butchering. Relatively few nineteenth-century artifacts were found, confirming the results of other archaeological investigations on the severe poverty of tenancy. Interestingly, historical research, as well as the archaeological work suggests that by the twentieth century this tenant row had become a hub for the local African-American community, with one of the tenant dwellings converted to use as a store and another resident of the site selling barbeque. There were also reports of moonshining at the site. This agricultural site thus appears to have transitioned into a rural African-American business and social center.

Future Research Directions for the Archaeology of Tenancy

One of the greatest difficulties confronting the archaeology of tenancy is the disturbed nature of these sites and their minimal material remains. In a study of Piedmont farmstead and tenant sites from South Carolina, Joseph and Reed (1997) reported that, once abandoned, tenant sites were often converted to use as agricultural fields, and that as a result of plowing and erosion, these sites are often poorly preserved. Work in Georgia suggests that this is the case here as well. However, in assessing Piedmont farmstead archaeology, Joseph and Reed (1997) noted that sites with standing architecture offer the best research potential, since these sites were not converted to use as fields and hence possess better-preserved archaeological remains. The findings at the Free Cabin site would appear to support this assessment with regard to tenant sites as well, since the archaeological work around the standing Free Cabin tenant structure revealed intact midden and also recovered features. However, the lack of artifacts associated with tenancy was also encountered by the work at Free Cabin, indicating that the low material profile of tenancy found by prior studies was a product of the social situation of tenants and not a factor of site integrity and preservation. Tenant sites with extant architecture should continue to receive close archaeological examination to determine if there are preserved artifact-bearing deposits which could provide information on tenant life.

Detailed analysis of tenant settlement systems would be a logical outgrowth and adjunct to the study of upland plantation systems proposed above and could be accomplished following much the same protocol. Analysis of tenant settlement systems and choices would greatly benefit from oral history. An oral history project carried out in conjunction

with the archaeological analysis of settlement patterns would help to illuminate the types of decisions and choices tenants made in selecting sites for fields and housing. Oral history could also help to address and understand the role of kinship in tenant settlement. With an emphasis on the material aspects of tenancy, such an oral history project could serve as a complement to James Agee and Walker Evan's landmark study of southern tenancy, *Let Us Now Praise Famous Men* (1973). Another avenue for examining and illuminating tenant settlement would be to draw on the acquisition records of the federal installations in the state, most notably Fort Benning, Fort Gordon, and Fort Stewart, to develop documentary studies on a par with that produced by Cabak and Inkrot (1997) from the acquisition records of the Department of Energy's Savannah River Site in South Carolina. Federal acquisition records normally include descriptions of all of the improvements on a tract, with photographs, as well as the property's location, and are valuable resources for reconstructing early twentieth-century rural settlements.

Archaeological investigations of tenant sites should determine the type of labor system employed, where possible. Sites associated with sharecropping would not be expected to possess agricultural outbuildings, while those of tenant-renters should. Sites associated with squad labor should include several associated dwellings that were all occupied during tenancy. Once labor systems have been determined and sites of each system investigated, comparisons should be made of their material culture to gauge both similarities and differences. Did tenants working under sharecropping arrangements receive all of their material items from the planter/landlord, including kitchenwares? Do the ceramics associated with cropper and renter occupations reflect any status variations which in turn might indicate which of these systems was more economically viable for the tenant? What evidence does the material culture of squad households and communities provide about consumer choices and status variation in a tenant community?

Examination of tenant sites should document refuse disposal patterns and should also seek and record any variations in refuse disposal practices that may have occurred by race and/or over time. Excavations of several sites in Georgia as well as others in the southeast, indicate that sheet midden deposits of trash developed in the yards of tenant dwellings. Archaeological excavations should to determine whether African-American tenants employed pit features for refuse disposal or had swept yard with trash around the edges of the yards, a practice which has been documented historically as well as continuing into the present (see Westmacott 1992).

The ritual incorporation of symbolically significant artifacts within African-American tenant architecture should be sought. Recent work from Pond Spring, the General Joseph Wheeler Plantation, in Decatur, Alabama has reported the recovery of possible ritual deposits within the 1930s rebuilding of a hearth box within a tenant dwelling at that plantation (Port et al. 2002). David Port's research documents the significance of the hearth within African-American households as well as a number of African and African-American rituals associated with the hearth, and suggests that the artifacts recovered from within the Pond Spring's hearth box, including a Catholic figurine and a fragment of a mortar, may represent religious inclusions. Work on African-American tenant sites

should be alert to the potential inclusion of religious and ritual artifacts within tenant structures.

The analysis of subsistence remains from tenant sites should seek to illuminate the nature and composition of the tenant diet as well as the sources foodstuffs. Dietary comparisons should be made between croppers and renters to determine any dietary differences that may reflect renters greater control over their diet. The role of wild food sources in the tenant diet should be examined as a possible indicator of the relative economic success of various tenant economies and systems.

Farms

Southern farms have been hidden to a significant degree in the shadows of the plantation. While historians have devoted considerable attention to the economic and social dynamics of the plantation South, far less has been said or written about farmers. This does not alter the significance of the farm in the South. The majority of Georgians who made their living from agriculture were farmers, and farms are a prominent and important element of the state's history. There are no geographic boundaries on farms distribution; they are found in every part of the state.

The state agricultural context (Messick et al. 2001:52) defines farms in contrast to plantations. On farms, labor and management were not separated. Farmers worked in their fields. While slaves and later tenants were found on Georgia's farms, farmers and their families were actively engaged in agricultural activities. Farms placed an emphasis on the production of subsistence crops. While many farms produced cash crops such as cotton, all devoted a significant amount of their acreage and labor to the production of subsistence crops and livestock needed to support their families. And farms were generally much smaller in size than plantations, with most farms in the state being less than 500 acres in size.

Farms consisted of the farmhouse and its outbuildings. The attributes of a farm varied from location to location and from farmer to farmer but there are general characteristics that can be applied to nearly all farms in the state. First, farms were located in convenient places. Convenience was largely defined by proximity to transportation and the existing network of roads; farms were usually built near roads. Convenient locations were also ones that were level and dry. In the Piedmont, this meant that farms were usually built on hills and ridges, while in the Coastal Plain, farms were found on slight elevation rises. Since roads in the Piedmont and Coastal Plain were also built on level dry ground to the extent possible, proximity to a road also provided farmers with a good building site.

Farmhouses were surrounded by the structures needed to support the household. The farmhouse yard thus contained a source of water (usually a well, sometimes a cistern, and in some locations a small barrel cistern placed at a corner of the house where it could collect water from the roof downspouts), an outhouse, a smokehouse, a storehouse, a

stable or garage, and a chicken coop. Farmhouse yards were frequently swept, particularly on African-American farms. Sheet midden, which included artifacts from this yard sweeping and other refuse, generally formed on the rear edges of the yard, and if the yard was fenced, the midden could be sharply bound by the fence line. The house usually faced the entryway to the farm and support features were usually placed in the rear yard of the house, or to one side, but very rarely in the front yard area. The front yard often featured some degree of landscaping while the rear yard (the support yard) was a workspace. Trees were left standing around the house to provide shade and help moderate the summer temperatures. Farmhouse locations can often be recognized on the historic aerial photographs by the presence of a small cluster of trees in an expanse of fields and pasture.

Agricultural buildings were usually located near the farmhouse. In the Piedmont, where many farms were built on ridge lines facing a road which ran along the ridge, the agricultural buildings would also be placed along the ridge and to one side or the other of the farm house. In the Coastal Plain there is less of a pattern to the placement of the agricultural buildings - these are sometimes located to a side, sometimes to the rear, depending on topography and drainage. Agricultural buildings included the barn or barns, livestock pens, equipment storage building, crop storage structures, forges and other technological features. Fields were placed where the landscape best allowed. Fields often surrounded the farm; again, since farms were built on level dry land and crops also grew best under these conditions, a common arrangement was to have a farm house facing the road backed by a work yard, with an agricultural building cluster to one side, and with fields on both sides as well as on the available level ground behind the house. In the Piedmont moderate slope was plowed and farmed; greater slope was often dealt with through the construction of terracing. Fenced pastureland was also placed near the farmhouse to provide livestock pasturage (Figure 19).

The separation of the house yard and the agricultural features has been described by folklorist Henry Glassie as a gender-based division of labor and resources (Glassie 1975). According to Glassie, women's work was focused on the house and yard, and the resources in the house yard supported the household economy by providing meat and eggs for the table, water for washing and drinking, and other resources. The agricultural area has been described as the man's domain and provided the resources needed to plow the field and harvest and store the crop. While Glassie's analysis recognizes one aspect of farmstead settlement, it is an over-simplification to apply this model to all farms. The degree of separation of these two elements, house and farm, as well as the role of both men and women in the farmstead's operation, varied greatly from place to place, by ethnicity, by social status, and by personal preferences, and these dimensions of farmstead layout in the South have yet to be researched and understood.

Archaeologically, one of the key aspects of farmstead life was the disposal of trash. Joseph and Reed (1997) define four patterns of refuse disposal from their work on Finch Farm in Piedmont South Carolina and these patterns are applicable to farmsteads in

Figure 19. Plan of the Reuben J. Anderson Farm in Elbert County (from Worthy, ed. 1982)

Georgia as well. The patterns they observed at Finch Farm were the Brunswick Pattern of Refuse Disposal (South 1977, 1979) in which refuse accumulated around the rear doors to structures; the accumulation of rear yard sheet midden (Moir 1982, Jurney et al. 1988); Drucker et al.'s (1982) Piedmont Pattern of Refuse disposal, in which trash was thrown down slope into gulleys adjacent to Piedmont farmsteads; and trash burning.

Joseph and Reed (1997:93) noted that at the time of their study, Finch Farm was occupied but had been acquired by the South Carolina Department of Transportation and was scheduled for demolition as part of the I-85 Northern Alternative's construction. They observed a concentration of artifacts around the rear door of the house in a pattern that Stanley South had identified from British Colonial sites that he called the Brunswick Pattern of Refuse Disposal. The Brunswick Pattern is characterized by the tossing of refuse out the backdoor of a house, so that a midden accumulates around this rear entrance. The Finch Farm data recovery project (Joseph et al. 1991) did not identify historic refuse in this location, only modern materials, and Joseph and Reed speculated that the occurrence of the Brunswick Pattern on this site may reflect its status as a transitional occupation. Concentrations of historic artifacts were found by shovel testing in the rear yard of Finch Farm representing the accumulation of sheet midden deposits. Sheet midden consists of refuse which was disposed on the surface and which over time accumulated and developed an organic content. The use of sheet midden as a refuse disposal practice is discussed in detail by Randy Moir (1982). Joseph and Reed (1997:93-94) note that sheet midden deposits occur on late eighteenth- and antebellum nineteenth-century sites. The use of rear yard sheet midden as a pattern of refuse disposal reflects some awareness of health and disease and the use of more sanitary practices than exhibited previously by the Brunswick Pattern. This suggests that temporally, the Brunswick Pattern may represent an eighteenth century behavior, while the use of sheet midden follows it in the late eighteenth and nineteenth centuries. Refuse was also disposed of in a similar fashion by throwing it into pigpens and gardens. Drucker et al.'s Piedmont Pattern of Refuse Disposal is prevalent on late nineteenth- and twentieth-century Piedmont sites and was accomplished by throwing trash into gulleys. At Finch Farm, a large trash dump, consisting of numerous intact and fragmentary bottles as well as other remains, was found in a small gulley not far from the farmhouse. The Piedmont Pattern in part responded to erosion by providing farmers with a way of controlling erosion by using refuse to fill gulleys and ravines. However, the Piedmont Pattern is also considered to be a product of late nineteenth-century manufacturing and the wide spread use of bottles as disposable containers. Bottle glass was not well suited to disposal in sheet middens, since broken bottles where a threat to the feet and hooves of both farmers and their livestock. Bottles also could not be easily burnt. Dumping bottles in gulleys and ravines thus provided farmers with a way of disposing of this class of artifacts while at the same time slowing the effects of erosion. The final method of trash disposal, burning, appears to have been employed as a contemporary of the Piedmont pattern, and involved the burning of refuse in open or contained fires. Trash burning may have increased in prevalence and frequency in the late nineteenth century in part in response to the increasing use of paper as a container product. This refuse disposal technique may also be a response to changing attitudes of the late nineteenth century regarding household sanitation.

Farmstead Archaeology in Georgia

Farms have been treated by a number of archaeological projects in Georgia. Because of their situation along roads, farms are frequently identified in the cultural resource studies of transportation projects, although since they possessed few resources and features in their front yards, transportation projects also often do not have an effect on this resource type. While farms have been dealt with by a number of projects, there is relatively little direct and intensive work on this site type.

One of the more intensive looks at farming in the state, and one of the few to address farms on a regional basis, was Resource Analysts, Inc.'s study of historic resources in the area of Georgia Power's proposed Rocky Mountain Pumped Storage Project in Floyd County (Ottesen and Riordan 1986). The Rocky Mountain Pumped Storage Project was planned for the Texas Valley located north of Rome. Ottesen and Riordan's (1986) report addresses the archival research and fieldwork for Phase II testing of eight sites and Phase III data recovery of four, however, laboratory analysis and final reporting were never completed. Their study does provide a good look at the settlement attributes of a variety of historic sites within the Ridge and Valley, including tenant houses, farms, and mills sites. Ottesen and Riordan's analysis focused on spatial attributes of both tenant and farmstead sites. They observed that artifacts were rarely found in front and side yard areas, but were commonly encountered as sheet midden in rear yards. Ottesen and Riordan (1986:230) noted that on the sites they investigated, the highest density midden was found from 8 to 15 meters behind the house and usually to one side of the year or another, suggesting that the midden was deposited opposite the location of an outbuilding in the rear yard.

Historic farmsteads have been tested by a number of projects throughout the state. Southeastern Archaeological Services completed excavations at the Sullivan farm (9CB59 and 9CB60) in Mistletoe State Park in Columbus County, recovering a limited quantity of materials from shovel tests in the house yard (Ledbetter et al. 1985). The University of Tennessee's Transportation Center conducted testing of several farm sites associated with the I-75 to State Route 371 Connector in Cherokee, Bartow and Forsyth counties (Alvey et al. 1994). Similarly, testing of improvements to Highway 441 in Wilkinson and Baldwin Counties conducted by Southeastern Archaeological Services also examined several farmsteads (Hamilton and Rogers 1993). Farms have been evaluated as part of the cultural resource investigations conducted for real estate developments. R. S. Webb and Associates tested the Hansard House, a nineteenth- and twentieth-century farm, in Forsyth County as a part of the cultural resource investigations completed for the Silver Creek Development. Several nineteenth and twentieth century farms have been identified and tested by Southeastern Archaeological Services as part of the cultural resource investigations completed for the Reynolds Plantation Development on Lake Oconee (Ledbetter 1998a, 1998b). Survey and testing by New South Associates for road improvements along SR 21 in Effingham County identified one late eighteenth- to early nineteenth-century farm site which was recommended eligible for the NRHP (Elliott et al. 1994). Testing was conducted by Garrow & Associates on a number of eighteenth century Salzburger farm sites as well as nineteenth-century farms/plantations

for planned construction of the Fort Howard paper plant (Smith 1986); following testing, the project was redesigned and the sites preserved. Brockington and Associates (Reid et al. 1996) conducted testing of the Gay Farms site in Randolph County; this complex, which contained a number of intact structures, also yielded well preserved archaeological deposits and was determined eligible for the NRHP. If the site cannot be avoided and preserved in place (see Benson 2001), then data recovery mitigation will be required. Finally, farmstead sites have been identified and tested at all of the state's military installations (Fort Benning, Fort Stewart and Fort Gordon). Researchers working at those installations should consult the base's cultural resource managers for the appropriate references. Archaeologists working on farmstead evaluations should consult the most comparable and nearest Phase II testing studies for comparisons. The projects listed above are by no means all of the ones to conduct Phase II work on farmstead sites.

While farmsteads, like tenant sites, are relatively common archaeological occurrences, only limited data recovery work has been conducted on these sites. Work has been conducted on several multi-component sites with historic farmstead occupations; these include the Tarver Site (Ledbetter et al. 1994), historic farmstead components at the Buzzard Roost sites (Ledbetter et al. 2002), and the Pigpen Site (Ledbetter 1988). All of these projects provide some description of historic farmsteads but have a primary emphasis on the prehistoric occupations.

Data recovery excavations were completed for a late nineteenth and early twentieth century farmstead in Gwinnett County, 9GW144, by Law Environmental (Elliott and Webb 1992). This site, which possessed standing architecture, possessed fairly well preserved archaeological components with 41 features identified during block excavations. Elliott and Webb's (1992) report indicates that the site conforms to the "Upland South" model in which features and activities were clustered in rear yard areas. Data recovery work was conducted on a small farmstead or tenant site in Elbert County by Southeastern Archaeological Services (Gresham and Wood 1986). They, too, noted that artifacts were found in a concentration around the house site.

Less work has been directed toward farmsteads of the Coastal Plain than has been devoted to upland farms; however, important studies have been completed that contribute information to our understanding of ethnicity and agriculture. Southern Research completed data recovery excavations at Hannah's Quarters in Jefferson County, Georgia under a contract with the Georgia Department of Transportation. Data recovery was accomplished largely through mechanical stripping and feature excavation. William Hannah was a Scots-Irish immigrant to Georgia. Fieldwork identified four clusters of features, all associated with this slave-holding farmstead (Elliott et al. 2002). Hannah's slave community ranged in number from one in the late 1790s to six by the 1810s. The archaeological work identified four clusters of features. Cluster A contained very few artifacts and may have been the location of an outbuilding. Cluster B contained a cellar, two pit features and two post features and produced a Mean Ceramic Date (MCD) of 1792, suggesting this was the location of William Hannah's first residence. Cluster C contained a large rectangular cellar, two pits and several posts and was interpreted as the location of William Hannah's second dwelling, while Cluster D revealed a small cellar a

large post or pit and produced a MCD of 1794. This latter area is interpreted as the location of one of William Hannah's slave residences. Elliott et al.'s (2002) report combines archaeological and historical evidence to provide a detailed description of farmstead settlement and life in the late eighteenth to early nineteenth centuries.

Dan and Rita Elliott's work at the Salzburger town of New Ebenezer has noted the presence and research potential of outlying farms, but the work conducted to date has focused on the town site itself and is discussed under the heading of Community Sites, below. Dan Elliott's (1998) review of Effingham County's historical archaeological resources and potential provides a summary of the wealth of significant sites in this one county, as well as the prospects for important archaeological research if and when funding is made available.

Future Directions for Farmstead Archaeology

Archaeological research conducted to date suggests that the best-preserved farmstead sites are either those with standing architecture (as also applies to tenant sites, see discussion above) or those that were not later used as plowed fields. Archaeological deposits have been defined both from sheet midden contexts as well as from features. Ottesen and Riordan (1986) report a peak in sheet midden artifact density at a distance of 8 to 15 meters behind the back of the house; future studies should employ close interval (5-10 meter) shovel testing in farm house yards to identify and map the presence and density of sheet midden deposits. Mechanical stripping, employed at the Hannah's Quarter site (Elliott et al. 2002), identified well-preserved features that allowed that farmstead's settlement to be mapped and understood. As with the coastal plantations, machine stripping appears to be a useful approach toward understanding farm sites, where conditions allow for its use. Refuse disposal patterns found on farmsteads do affect the benefit of stripping, particularly on those sites where much of the archaeological material exists as midden. Archaeologists working on historic farms should continue to devote attention toward the identification of refuse disposal patterns. To date, there has been limited reporting of Drucker et al.'s Piedmont Pattern of refuse disposal (at the survey phase, these sites may not be recognized as a component of a farmstead settlement, and hence they may be reported as either dumps or artifact scatters), nor has trash burning been recognized or recorded. Research should seek to define how farmers on the Coastal Plain dealt with the preponderance of bottles in the late nineteenth century, refuse that their neighbors to the north dumped in gulleys. Future studies should examine, expand, and refine the temporal and social dimensions of various refuse disposal techniques.

There has been little research to look at farmstead settlement on a regional basis and settlement studies could help to identify the locations of historic farms. The approach to settlement studies outlined above for both tenant farms and upland plantations would also work in understanding regional farmstead settlement.

Ethnicity should be examined and incorporated into the analysis of farmstead settlement and material remains. Differences in the architecture of German versus British barns have been noted in the northern US as well as potential differences in settlement plans.

The Elliott's (2002) provide an overview of German culture and material remains in the South, while Crass et al. (2002) document the results of work on a Germanic Swiss farmstead in South Carolina opposite Augusta. Both works indicate the resilience and recognition of some old country traits in the new world. University of Georgia Geographer Richard Westmacott (1992) has published an excellent look at contemporary African-American yards and gardens, many of which were agricultural, and which provide important information on African-American cultural aspects of site landscape. Sub-floor pit features are considered by some archaeologists to reflect an African cultural tradition and Patricia Samford (1999) has reported the use of these pits as ancestor shrines in both Virginia and North Carolina. The presence, content, and meaning of features should be noted on farms with slaves (such as Hannah's Quarter) and later tenant sites, as well as on the plantations. Researchers working in the Ridge and Valley, Cumberland Plateau and Blue Ridge physiographic regions should be aware of distinctive cultural developments associated with Scots-Irish settlements in the Appalachians that have been defined by Horning (1999) as "Hollow Ethnicity." These studies, and others (see Franklin and Fessler 1999, Joseph and Zierden 2002, Joseph and Zierden ed. 2002) all point to the multi-cultural makeup of the southern states and the influence of ethnicity in settlement, subsistence, and architecture, as well as material culture.

Both economic and social status within the farmstead landscape should also receive further attention. Comparative studies between farms should examine the influence of social status in farmstead settlement, architecture and material culture. Did larger, more economically productive, farms feature more formal architecture and a greater separation of domestic and agricultural facilities? Were there changes in the household material culture of more economically vigorous farms? In their study of Finch Farm, Joseph and Reed (1997) suggest that farmers spent their income on architecture, both domestic and agriculture, and that household goods such as ceramics were of lower value because there was limited social interaction among farmers. They thus found that the ceramics associated with the Finch Farm house were of a similar quality to those of a tenant on the farm, whereas there was a noticeable difference in the farmhouse versus tenant architecture. Does this apply in Georgia? Across different ethnic groups? To all social status? In different regions producing different crops?

Similarly, archaeologists should examine social status within the farm. This would include comparisons between farmers and their tenants, as well as farmers and slaves. The role of economic scale in creating variations between farmers and tenants, Moore's (1985) research issue for coastal plantations, should be examined on farmsteads as well as tenant sites.

There has been very little archaeological work with farmstead subsistence. Future research should attempt to identify how regional patterns were developed and were influenced in response to the crops and livestock produced in different geographic areas.

Industrial Sites

While Georgia was not as heavily industrialized as many of the northern states, the state did support a wide array of industries and industrial sites represent an important element of the Georgia's archaeological inventory. Industrial sites are found in both urban and rural contexts. Some types of industry occurred statewide, while others, such as gold mining, were geographically restricted. As the discussion of agrarian sites has noted, there were industrial elements of many plantations, including rice mills and cotton gins. This section looks at the archaeological work conducted on industrial sites in the state, addressing mills, tar kilns, potteries, iron furnaces, mining and blacksmithing.

Mills

Mills were prominent features of Georgia's historic landscape and were found on waterways throughout the state. Mills ranged in scale from small grist and saw mills consisting of a single building and water wheel power usually operated by a miller with occasional help to larger textile mill complexes where multiple looms were in operation with a labor force in the hundreds. These larger mills are usually referred to as factories. While grist, saw and textile mills were most common, other types of mills, including rope mills, paper mills, paint mills and others were all found in the state.

Historically, mills and water were tightly connected as water was the source of a mill's power. The components of a mill consist of the water source, the means of conveying the source to the mill (often accomplished by a headrace), the wheel pit and power source (a water wheel and later a turbine), the mill itself, and the means of returning water once its power have been drawn (a tailrace). The power of a water source and mill were defined by its fall, and this was technically referred to as its head. Mills were most prevalent along the Fall Line, the geological break between the Piedmont and the Coastal Plain. Here, the head increased greatly over a short distance as watercourses crossed the Fall Line provided an excellent and convenient source of power. Three of Georgia's largest cities - Augusta, Macon, and Columbus - were all built along rivers at the Fall Line and all were heavily industrialized. Their Fall Line locations were also a product of transportation, as river travel through and above the Fall Line was difficult due to the shoals and rapids that the Fall Line created. Thus cities immediately below the Fall Line possessed the benefit of being the points furthest north which provided river travel to the coast, as well as having the available waterpower for industrialization. These cities, and other Fall Line locations, served as trade and transshipment points were the produce of the upcountry was brought for shipment to the coast and other destinations, as well as industrial hubs were some of these products were converted into manufactured goods.

The placement of mills in the Piedmont, as well as in the Cumberland Plateau, Ridge and Valley, and Blue Ridge, was largely a product of topography. Mills themselves were often built a few hundred meters or so below a shoals or a fall. A headrace would be built from the shoals and would carry water to the mill. Headraces were often made of wood although they may have featured stone supports. In some locations they were carved into the underlying bedrock or were built of stacked stone mortared to bedrock. The headrace would move the water along a very slight decline; by combining the drop in

elevation gained over the falls or shoals as well as additional loss of elevation moving several hundred meters downstream, the objective was to gain 10 to 15 feet of head as that was the height required to power a water wheel (Wallace 1978, Jeane 1984).

Where topography did not provide sufficient fall to power a mill, mill dams were constructed. Mill dams would create a mill pond, raising the water level to a sufficient height to power the mill, and water would be transferred from the dam to the mill via a headrace. Mill dams are frequent occurrences in the upper Coastal Plain, where the topography was varied enough to make dams feasible. Mill engineer James Leffel discussed various types of mill dams in an 1881 publication. He notes that two factors were critical to determining the type of mill dam needed: (1) the setting of the dam, and (2) the types of raw materials available for construction (Leffel 1881:5). While stone was the preferred building material, Leffel realized that in many locations stone was not available and that frame dams were thus the most practical type in much of the country, including Georgia. For sandy locations, he recommended the use of a log dam, constructed by overlapping courses of logs to create a wedge-shaped dam. The log form would be held in place by metal or wooden spikes, and the dam would then be covered with earth, twigs, and other small debris. A variation of the log dam, described by Leffel as a "Safe and Economical Dam" (1881:11), was constructed of log cribs that were then filled with earth, stone or gravel. The cribs were placed on a log or frame foundation, created by securing logs or framing side-by-side. The cribs would then be covered by an additional layer of logs or framing and then by earth. Perhaps the most economical of Leffel's frame designs was the hollow frame dam. Here, a wedge-shaped form was created out of heavy timbers and its upper surface then covered with a sheet of planking or decking. Earth would then be applied over this form (Leffel 1881). Finally, for drainages with muddy bottoms, Leffel (1881:24) recommended a pile dam, constructed by driving two parallel rows of pilings that were then covered with a facing of horizontal logs and earth (see Reed et al. 1994 for further discussion of dam types). These and other variants of frame-core dams were most commonly used in the Coastal Plain, although brick dams occurred on some twentieth century mill sites located near urban, industrial, centers. It is important to realize that dam construction is hidden by the overburden of earth that was applied to all frame-core dam forms; documentation of dam construction techniques can only occur where dams have been breached or where they are slated for removal.

There were a variety of water wheels used to power mills. Most common was the overshot wheel. As the name implies, overshot wheels were powered by a raceway that supplied water to the top of the wheel. Paddles or buckets where attached to the wheel to catch the water as it poured onto the wheel and to force the wheel to turn by the power of the water and its gravity. Overshot wheels turned in the direction of the water flow. As a rule, overshot wheels were fairly easy to construct and provided a large amount of power, however, it was difficult to regulate the power of these wheels and millers also had a problem with the backsplash created by the water which fell from the wheel at mid-height. The breast wheel was powered by water that struck the wheel at the mid-point of its side. Breast wheels were constructed with deeply pocketed paddles with aprons built into their sides that helped contain the water and increase the power of the wheel. These

wheels also often had a fixed outer concave shell that helped to keep the water in the wheel; this shell was known as the breast. Breast wheels turned opposite the direction of the water flow, and because the water was released from the bottom of the wheel, they produced minimal backsplash. Breast shot and overshot wheels were the most common types used on Georgia mills. Where wheels are no longer extant, the type of wheel employed can often be determined by reconstructing the height of the raceway and the height of the wheel and determining where the water source and wheel made contact[5].

Another type of water wheel was the undershot wheel. This type of wheel generated a lower level of power than overshot or breast wheels, since it required less head, but was easy to construct and was used as a power source for smaller operations on farms and plantations. As the name implies, undershot wheels were powered form the base of the wheel. The simplest type of undershot wheel was placed in the water course and turned by the current of the water, rather than gravity and current; a variant was built with a slanting headrace that applied water to the lower quarter of the wheel. A version of the undershot wheel, and the predecessor of the turbine, was the tub wheel. A tub wheel is in essence an undershot wheel turned on its size and placed within a circular box or tub. As water entered the tub it turned its wheels by force, before exiting. The high speed produced by the tub wheel often allowed it to be connected to the mill without using gears. A modification of the tub wheel was the reaction wheel, invented by Calvin Wing in 1830. Using a cast iron tub with a large opening on one side and six smaller holes around its perimeter, the reaction wheel used the pressure of the water being forced into the wheel by gravity and out of the wheel through the perimeter openings to turn the wheel. It was more durable than wooden wheels, but was also more complicated and difficult to install and operate. The reaction wheel would lead to the invention of the turbine (www.osv.org/education/WaterPower). In the southeast, the "mixed flow" turbine was most popular, as it combined both downward and axial water flows to be used as power. The scroll case turbine is an example of this type of turbine. It featured a snail shaped housing which water entered through the large opening in the shell, internal buckets, and a smaller hole in the center of the shell where water exited.

Power sources were connected to the mill by shafts, gears, and belts. Gearing was necessary not only to transport the power from the wheel to the mill, but also to regulate the power since it was difficult to adjust the flow of water and the force produced by water wheels. In a grist mill, power was transferred to a vertical shaft running through two mill stones. The lower stone was fixed, while the upper stone turned. Grain was poured through an opening in the top of the stones and was ground between the stones. Small grooves cut into the stone allowed the ground meal to exit. In a saw mill, the power was transferred to a wooden frame, known as the sash, which was connected to the power source by a wooden sweep or pitman's arm. As the pitman's arm rotated, it moved the vertical saw blade up and down, allowing it to cut wood that was pushed through the saw. A saw mill could cut as much wood in a day as two men could cut

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[5] Theodore Hazen, who is in the business of restoring historic mills, provides a website with comprehensive information on mill technology. Hazen's website can be found at www.angelfire.com/journal/millbuilder.

manually in a week. In textile mills, power was transferred to textile machinery by belts and pulleys (www.osv.org/education/WaterPower).

Siting of the mill itself was largely dependent on topography. In the ideal setting, the mill was built on level, slightly raised, ground adjacent to the drainage. Where level ground was not available, mills were often terraced into the valley walls. Mills were often built near roads. Most rural grist and saw mills in Georgia served the residents of the surrounding area, and hence access to transportation was vital to the mill economy. Shoals and falls also were used historically (and prehistorically) as fords for crossing drainages in the Piedmont, and hence these locations were often part of the early transportation system. In the Coastal Plain, where mills required the construction of dams, mill dams also served as drainage crossings and were also connected to the transportation system. Gregory Jeane (1974) notes that mill complexes were often built to take advantage of either a mill's topographic conditions as well as the effort expended on the construction of a mill pond and dam. A complex might consist of a grist mill on one side of the drainage and a saw mill on another or a secondary mill function might be built upstream from the grist mill. Figure 20 shows Jeanne's Geographic Model of a mill complex. Because they were located in proximity to streams and rivers, mills were subject to damage by flooding. Depending upon its length of operation, a mill site might have been rebuilt three or more times during its history, and while in some instances earlier foundations were reutilized, in other cases rebuilding employed changes in the design and plan of the mill. Understanding the relationship of structural ruins on such sites is one of the challenges to historical archaeology, and requires close attention to foundation construction, mortar, and other details, as well as the recovery of diagnostic artifacts.

The Archaeology of Milling in Georgia

Mills have received a considerable amount of archaeological attention in Georgia. The degree of archaeological research that has been directed toward these sites appears to be the product of several factors. First, mills are fairly easily identified as they often contain massive visible remnants of buildings, dams, and raceways. Second, mill sites are affected by several types of projects that are subject to federal historic preservation laws. These include reservoir projects, sewer line projects, transportation projects, and large-scale, US Army Corps of Engineer's permitted, residential developments. As the hubs of historic rural settlements, mill sites are well known to the local community and their locations are frequently mentioned when archaeologists consult with the residents of an area about archaeological sites in their vicinity. More recently, mill sites have been obtained as elements of park properties acquired through the state's Greenspace program, and some, such as Tribble Mill and the Alcovy River Mill in Gwinnett County, Sweetwater Creek in Douglas County, and others, are interpretive elements of these parks.

Figure 20. Gregory Jeane's Model of a Mill Complex

The first, as well as one of the most intensive, examination of historic milling in the state was the work conducted by the University of Georgia for the Georgia Power Company's Wallace Reservoir. Wallace Reservoir (known today as Lake Oconee) was created by the Georgia Power Company in the late 1970s to provide hydroelectric power for a pumped storage facility. Covering approximately 19,000 acres in Greene, Putnam, Morgan and Hancock Counties, the Wallace Reservoir project dammed the Oconee River, flooding a portion of it as well as its tributary, the Appalachee River. Survey and site evaluation was begun in the early 1970s, while data recovery excavations were carried out in 1977 and 1978. While most of the data recovery work was directed toward prehistoric sites, documentation and excavation was also carried out on four mill sites: Park's Mill, the Curtright Factory (Long Shoals), Ross Mill, and Lawrence's Mill. Directed and reported by Al Bartovics and R. Bruce Council[6] (Bartovics 1979; Bartovics and Council 1979; Council 1978, 1979), the archaeological investigation of these sites has been synthesized by Karen (Kay) Wood (1992b)[7]. As Wood notes in her introduction (1992b:1):

> *Although the historic salvage archaeology conducted as part of the Wallace Reservoir Project is unfamiliar to many, it is one of the most significant industrial archaeology projects to take place in Georgia. The emphasis on industrial archaeology in the Wallace Reservoir Project was the first of its kind in the southeast and the sites examined are some of the most impressive.*

Park's Mill was established on the Greene County side of the Oconee River in the early 1800s. The mill was located at a ferry crossing of the Oconee River that was part of the Three Chops Road, the stage route from Philadelphia to New Orleans. Due to its location on this historic roadway, the settlement around the mill also supported a tavern and store. The mill complex would expand across the river into Morgan County where a saw mill and dwelling were built, and over time the Morgan County portion of the mill became its center. Parks Mill was developed by Richard Park, a wealthy planter with an estate valued at $100,000 at the time of his death in 1851. The mill passed to his son James. Destroyed by Union forces during the Civil War, the mill was rebuilt by James Park and

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[6] Both Al Bartovics and Bruce Council were pioneering figures in the field of industrial archaeology, which was gaining recognition and structure in the 1970s. Bartovics, a graduate student at Brown University, met with Paul Rivard and Ted Sande in 1971 to discuss the field of industrial archaeology, and out of that meeting and others came the Society for Industrial Archaeology (SIA), which first met that year. The Society for Industrial Archaeology today is composed of 1,800 members and it journal, *IA: The Journal of Industrial Archaeology,* published twice yearly, is the leading source for articles and reviews on industrial archaeology and related topics. After leaving Georgia, R. Bruce Council would join Nick Honerkamp at the University of Tennessee-Chattanooga, and Council is well know for his work (in association with Nick Honerkamp) on the Bluff Furnace iron industry site, published by the University of Tennessee Press in 1992.

[7] Kay Wood is an important figure in historical archaeology and particularly industrial archaeology in Georgia. She and husband Dean Wood were among the founders of Southeastern Archaeological Services of Athens. They later established their own firm, Southern Research. Kay's introduction to industrial archaeology came as a member of the University of Georgia team working on the Wallace Reservoir industrial sites and her thesis was written on the faunal remains from these sites. She has also directed and reported on several seasons of excavations at the Roswell Mills (see discussion below).

his partners after the war. By the late 1800s the Parks had sold their interest in the mill, and its operations were taken over by Charles White. White established the community of "Riverside" around the mill seat in the early twentieth century, and the mill and town continued in operation through the Great Depression. Following the Depression, however, the rural economy faltered, and the community was abandoned (Wood 1992b:123-124). At the time of its archaeological documentation, the Park's Mill Site consisted of several standing structures, including the Park's House. Excavations within the mill revealed an intact wooden raceway and uncovered two complete and one partially salvaged turbine, all *in situ* (Wood 1992:27-31) (Figure 21).

The Curtright Factory was developed in the community of Long Shoals, Greene County, in 1845 by local John Curtright and a northern industrialist, John Merrell, who had previously established the Roswell Cotton Mill in Roswell. The Curtwright Factory was established for the production of yarn and cloth and a mill village was created next to the three and half story brick mill to house the workers. While Merrell ran the mill, the factory was owned by stockholders to whom Merrell reported. This created friction as the stockholders demanded the payment of dividends at times when profits would have been better spent reinvesting in new machinery for the mill. In 1850, the Curtright Manufacturing Company purchased the Ross Mill Complex across the Oconee River in Putnam County. By 1852 Merrell had resigned as manager and he was replaced by David Howell. The Curtright Factory continued its economic decline and in 1856, it was heavily in debt and was sold to Henry Atwood, one of the shareholders. Atwood appears to have revitalized the mill's fortune, possibly using slave labor, but his death in 1864 combined with the Civil War brought the factory to an end (Wood 1992b:124-125). The archaeological investigation of the Curtright Factory recorded a substantial complex containing the remnants of 40 buildings as well as the factory. Most were dwellings constructed for the mill village. Excavation within the factory recovered an intact, well-preserved, twin turbine installation (Wood 1992b:58-60).

Ross Mill was established opposite the Curtright Factory in Putnam County in 1842 by planter David Ross. By 1846 Ross had established a complex that included a grist and flour mill, saw mill, and a water-powered cotton gin. Ross died in the late 1840s and the mill was sold by his heirs to the Curtright Factory, of which Ross had been a shareholder. Improvements were made to the mill's power sources during the ownership by the Curtright Factory, and the mill's operations survived those of its parent company, passing through the hands of Henry Atwood, over to the Spivey family in the 1870s, and subsequently back to Atwood's heirs. The mill continued operations into the twentieth century (Wood 1992b:127). Excavations at Ross Mill uncovered two well-preserved wooden tube wheels that were off-set from a wooden raceway (Wood 1992b:101).

The Lawrence Mill was built below the mouth of Richland Creek in an area with a high settlement density. Wood (1992b:127) notes that it was probably one of several mills built along Richland Creek. The Lawrence Manufacturing Company was established in 1851, with the intent of constructing and operating a textile mill, however, census records

Figure 21. Photograph of Excavations at Parks Mill Showing Turbines (from Wood 1992b)

indicate that a grist mill was built instead. The mill's operations, like others in the region, went through financial ups and downs, and by the early twentieth century the mill had closed (Wood 1992b:127). Only limited archaeological research was carried out at Lawrence Mill.

Wood's (1992b:128-132) comparison of the four sites notes several aspects of interest to other mill studies. All four sites were located at drainage crossings, with Parks Mill located at a major road crossing of the Oconee. All of the mills began operation in the first half of the nineteenth century. Parks Mill and Ross Mill were originally powered by overshot water wheels, which were replaced by tub wheels. Curtright Factory, the largest operation, was powered by turbines. Wood notes that all of the mills went through changes in ownership, with corporate ownership appearing at peak production times and with the mills reverting to single ownership in the late nineteenth and twentieth centuries, as production declined. The production of all of the mills declined during the late nineteenth century. Wood documents several factors that influenced this decline:

1) The replacement of water power by steam power, and the creation of more efficient and more productive steam powered machinery after the Civil War.

2) The appearance of large, commercial, grain and flour mills in the late nineteenth century, which, coupled with the low costs of shipping via the railroad, made the flour and meal produced by these large companies less expensive than locally milled flour.

3) The decline of the rural population and rural agriculture, a product of the national expansion to the west as well as the decline in the productivity of Georgia farms due to erosion and soil exhaustion.

4) The isolation of cotton mills, such as Curtright Factory, from the developing rail network, which was critical for the shipment of goods to market.

5) The lack of capital needed to maintain the latest and most efficient machinery and technology. Tremendous gains were made in the construction of turbines, textile machinery, and other mechanical components in the late nineteenth century. In order to maintain a competitive edge, factories had to repeatedly reinvest in the newest technology, something that the small factories with limited shareholders, like Curtright, were unable to accomplish.

6) A general aversion to industrialization in the South, and the lack of workers seeking factory jobs.

Much of the land surrounding Lake Oconee has been incorporated in Reynolds Plantation, a residential development. Archaeological survey and site work on the upland

areas are being conducted by Southeastern Archaeological Services, and Jerald Ledbetter, project director, advises us that this work will include additional work with the mill communities and the families, such as the Curtrwights, associated with them.

A second reservoir-driven project that looked at a number of mills in Georgia was completed by Building Conservation Technology for the Richard B. Russell Reservoir. This project examined seven mills, six of which were located in Georgia (Newman 1984). The Georgia mills examined included White Mill, Eureka Mill, Mattox Mill, Pearle Mill, Gray-Heardmont Mill, and the Beaverdam Creek Mill, all in Elbert County. The last three mills were part of a milling complex known as the Beaverdam Creek Mill Complex. Newman (1984:97) notes that the first mills in the area were grist mills geared toward servicing regional farms. As the agricultural economy expanded and the plantation took root, planters entered the industry and created more substantive mill complexes. Eureka Mill, Mattox Mill, and Gray Mill were all examples of mills owned by planters. As tenancy replaced the plantation after the Civil War, Newman notes that the production of the mills declined, which he blamed on the "largely cashless" tenant community. In the Russell Reservoir region, Newman observes that there was a "weak attempt" to revive the industry in the late nineteenth century, with Gray Mill converting from its function as a grist mill to operation as a textile factory, but this conversion may also have been prompted by the stagnant status of grist mills during tenancy. All of the mills failed in the early twentieth century. A significant flood in 1908 ended the operations of all of the Georgia mills accept Pearle Mill (Newman 1984:97-98).

Newman observes that the Elbert County mills did not participate in the rapid evolution of mill power technology, which occurred in the last decades of the nineteenth century. Tub wheels as well as early forms of turbines were employed by all of the mills into the twentieth century. Newman notes that mixed-flow turbines, which were common among northeastern mills before 1880, did not appear on the Russell Reservoir mills until 1895, and then only at the Pearle Mill. Referring to the 1880 census data for Elbert County and neighboring Abbeville County, South Carolina, Newman observed that turbines were employed by only 50 percent of the mills. In contrast, in Massachusetts in 1875, 82 percent of the mills were powered by turbines. Elbert County thus lagged behind technological innovations that were being adapted by other parts of the country. Newman associates this technological lag with two factors: agricultural productivity and erosion. During tenancy, the agricultural production of the county declined, and as noted, tenants were less likely to be able to afford to have grain custom milled (hand mortars could still be used for this task). Thus there was neither the demand nor income to allow millers to upgrade their mill machinery. Also, tub wheels and early turbines may have been better suited to water conditions along the Savannah River. Because of their large size, simple operations, and central discharge, these power sources were less likely to clog from silt and debris than later turbines like the mixed flow, which featured more complicated apparatus and smaller openings (Newman 1984:98-99).

One of the most detailed regional perspectives of milling in Georgia was prepared by Gregory Jeane as a doctoral dissertation (1974). While not an archaeological study, Jeane's dissertation, which focused on grist milling in northwest Georgia through

historical documents and the examination of standing or partially standing mill complexes, is a valuable resource for anyone working with mills. Jeane (1974:106) documents four types of mill complexes identified in his study of northwest Georgia. The simplest of these was the single mill complex, consisting, as the name implies, of a single mill designed to service families in the surrounding area. At a slightly greater scale of complexity was the double mill complex, in which both grist and saw mills operated at a single site. The combination of functions allowed such mills to serve different needs of people in the region, although it did not substantially expand the mills area of service. Jeane calls the next stage in the development of mill complexes "a significant jump in scale," which was represented by the addition of flour milling to the grist/saw complex. Flour milling, which required finer quality grinding stones and different gearing, was more expensive than grist milling and thus may have expanded the territory of a mill complex, since it was less commonly available. The final stage of milling Jeane terms the "integrated mill pattern," which consisted of grist, flour, and saw mills associated with a number of other industrial/mercantile functions, which might include a hostelry, furniture mill, cotton gin, or distillery.

Jeane (1974:106) also notes that, while not the centers of villages and towns, mills did serve as the "nuclei of rural hamlets." Thus mills were important sites for social interaction, and acted as hubs in a rural, isolated, and dispersed economy where members of this rural landscape received the latest gossip and discussion, as well as meal and flour. Jeane notes that these functions of the mill would later be replaced by the county seats and other urban settlements.

While Wood's synthesis of the work done on the Wallace Reservoir mills, Newman's study of milling in the Richard B. Russell Reservoir, and Jeane's dissertation research are the most comprehensive and regional looks at milling in Georgia, a number of other studies have documented mill sites. These are discussed below by region.

In the Augusta area, two projects at Fort Gordon have examined and reported on milling. Southeastern Archaeological Services conducted archaeological data recovery at the Boardman Mill Dam and Pond site in Richmond County. Their work indicated that the Boardman Dam was built with a wedge-shaped frame core, although the exact type of dam construction could not be determined. They also recorded both the support pylons for a water wheel and the brick and stone turbine pit from which the turbine had been removed (Braley and Froeschauer 1991). New South Associates completed archaeological survey, testing of four mill sites, and HABS/HAER data recovery of a fifth for another project. The mills examined included Lower Leitner, Union Mill, Maxwell Mill, Scout Pond, and Leitner Mill, all of which were located on Sandy Run and Spirit creeks in Richmond County (Reed et al. 1994). In their analysis of these mills, Reed et al. (1994:177) noted that drainages in this portion of the upper Coastal Plain, the sand hills, were historically described as providing moderate power sources using impounded water, sufficient for grist and saw mills but not factories. They also observed that both Spirit Creek and Sandy Run supported a large density of mills. Gregory Jeane (1974:101) has observed that mills generally served the agricultural community within a day's travel of the mill site, usually a distance of between four and seven miles each way.

The spacing of the mills Reed et al. examined ranged from 1.3 to 3.4 miles apart along the drainages, meaning that they would have serviced a smaller catchment area then described by Jeane. This degree of industrialization was apparently influenced by the appearance of several saw mills that serviced the construction trade of nearby Augusta. In the siting of mills, Reed et al. noted two factors, both of which were probably related. Mills were sited on roads, and they were also sited at drainage constrictions. These constrictions would have offered narrower, more easily dammed locations and for this same reason offered better crossings for road and trails than broader stream valleys which were more often swampy and which would have presented more difficult crossings. Roads were frequently built over mill dams, and it is uncertain which came first, the road or the mill dam, at these sites (Reed et al. 1994:178). Reed et al. note that both tub wheels and turbines were used to power mills in Richmond County in the 1880s.

Moving west, several mill sites in Cobb County, metropolitan Atlanta, have been documented as a result of on-going compliance research for transportation projects. Archeological survey and assessment work for the Cobb County East-West Connector developed historical profiles of several mills in proximity to this corridor: Ruff's Mill, Donnell's Mill, Dodgen's Mill, and Simpson's Mill (Stoops 1990:21-25). Ruff's Mill, a grist mill, appeared to date to the late 1840s, and was shown on an 1864 map in association with Simpson's Mill and Dodgen's Mill. The imprint of historic milling along this portion of Nickajack Creek was demonstrated by an 1847 map, which refers to the area as "Mill Grove." At some point before the Civil War the milling operations at Ruff's Mill and a textile mill, known as the Concord Woolen Mill, was built downstream from the grist mill. This latter mill was destroyed by federal troops, but had been rebuilt by 1869. The textile mill subsequently burnt in 1889, but was again rebuilt and remained in operation through the 1910s. As part of the cultural resource compliance studies for the East-West Connector, data recovery excavations were completed at a factory worker's house site associated with the mill (Stoops et al. 1992) and at the mill itself (Ledbetter 1996). Excavations within the mill building recovered fragments of the machinery used in this textile mill, which Ledbetter identified as Crompton-Knowles Loom with a Dobby head (Ledbetter 1996:42). This type of loom was produced from the 1800s until 1984, according to Ledbetter. Excavations of the worker's house (Stoops et al. 1992) yielded a significant quantity of artifacts. Stoops et al. (1992:140) noted that refuse was disposed of in a small ravine originating from a springhead, suggesting a lack of concern with potential health issues and the pollution of the spring. Marked ceramics were predominantly from Ohio, reflecting the dominance of the US market by the ceramic factories of the East Liverpool District of Ohio. The ceramics recovered were predominantly utilitarian (Stoops et al. 1992:141).

Archaeological survey investigations for the Kennedy Parkway project in southern Cobb County have identified mill remains associated with the Akers/Winship Mill complex on Rottonwood Creek (Wheaton and Reed 1993a). This complex, consisting of at least two mill sites, was developed shortly prior to the Civil War. The two mills were sold to the Akers family, Atlanta area grocers, in 1873, who appear to have used these mills for the production of flour and feed for their stores. The 1880 census records indicate that the first mill was powered by a turbine under a 23 foot head, while the second was also

turbine powered, utilizing a 26 foot head (Wheaton et al 1992:17). Testing of the Akers Mill site (9CO344) revealed that the mill had been built into the bank overlooking the Chattahoochee River, with six separate terraces acting like individuals floors in the mill operation. The existence of the terraces and intact archeological deposits on each has allowed the archeological study to address the internal technological structure of the mill, a historical dimension rarely recovered archeologically since technological equipment was normally removed from mill buildings prior to their demolition or collapse. The recovery of machinery parts from the mill suggests the implementation of the "New Process" of mill technology, which dates to the 1880s and developed around the use of roller mills (Dedrick 1924:31-34). Wheaton and Reed (1993a) suggest the New Process technology may have been employed at the Akers Mill in part because the mill served commercial grocers and in part because of the degree of competition among millers in the metropolitan Atlanta area. Data recovery was conducted on a portion of the site which could not be avoided. The area examined appeared to be a domestic occupation, rather thanthe industrial structure, and limited artifacts were found (Roberts et al. 1995).

The archeology of industrial milling in the metropolitan Atlanta area has also been addressed by Kay Wood. Wood (1989, 1991b, 1993) has led the survey and testing investigations of a number of mill sites associated with the Roswell Manufacturing Company. The Roswell Company was established in Roswell, Georgia in 1839 by Roswell King, a New Englander who became active in the plantation economy of coastal Georgia in the late 1780s. In 1837 King moved to north Georgia, establishing a community at the confluence of Vickerys Creek and the Chattahoochee River which was specifically dedicated to milling. This mill complex is nearly a mile in length, stretching along Vickery Creek from the city of Roswell to the Chattahoochee River. Wood (1993:19-20) notes that within the complex were four separate mills: cotton mills dating from 1839, 1854 and 1882 respectively, and the Ivy/Laurel Woolen Mills (ca. 1870). The ruins of this complex are protected; some are located within the Chattahoochee River National Recreation Area and are protected by the National Park Service, while much of the remainder are the property of the City of Roswell, which is currently developing interpretive park programs around the mill complex. Wood's (1993) research indicates that the mill complex is extremely well preserved, although obscured in areas by kudzu. Power sources employed by the mills, some of which are still in-place, ranged from vertical water wheels to turbines and in the later stages of their operation, steam and electricity. The Roswell Mill complex represents an important mill site whose on-going research and eventual interpretation should greatly benefit our understanding of industrial milling in Georgia.

In Cherokee County, to the north of Cobb County, remnants of another mill, the Little River Mill, was examined by Southeastern Archeological Services in advance of a sewer line project by Cherokee County (Gresham and Wood 1993). The site was apparently first used as a mill in the late 1840s. At sometime after the Civil War, the mill came into the possession of Joel Haley, who manufactured cotton and woolen yarns at the mill. Changing ownership several times in the late nineteenth century, the mill was purchased by John Dorn in 1907. By this time the mill was producing rope. Dorn increased the scale of the mill's operations and added a small worker's village to the complex. In

1928, the mill was sold to the Appalachian Development Company, a subsidiary of the Georgia Power Company, as part of a hydroelectric reservoir project Georgia Power was then considering which was known as the Etowah Development Project. While owned by Georgia Power, the mill was leased to Joe and Smith Johnston, who continued to produce rope at the mill until it closed in 1949. The rope mill was profitable; however, in the 1940s, Georgia Power sold its holdings along the Etowah River to the US Army Corps of Engineers, who created Lake Allatoona on this land. The lake backed up to the Little River Mill, but did not flood the mill site. Gresham and Wood's (1993) report primarily contains historical background and architectural description of the mill ruins.

In Dawson County, the Upper Roberts Mill has been documented. This mill was recorded by R. S. Webb & Associates as part of the cultural resource studies conducted for the Cherokee County Raw Water Supply Reservoir. This saw mill was established by John M. Roberts in 1890 and operated until 1915; apparently, neither successors nor buyers could be found to take over the mill's operations after Robert's death in 1912. The archaeological studies documented the mill's components, which included the head race, wheel pit, tail race and mill (Webb 1996).

In Gwinnett County, Southeastern Archaeological Services conducted data recovery excavations at the Shadrack Bogan Site as part of the expansion and redesign of the I-85 and State Route 20 Interchange. The Bogan Site is located near one of the earliest mill complexes built in Gwinnett County, Woodard's Mill, which was constructed on Ivey Creek in the early 1820s. The owner of the Bogan Site, Shadrack Bogan, also built a mill on Ivey Creek between 1821 and 1823. Data recovery excavations of the Bogan site recovered ceramics from the late eighteenth and early nineteenth centuries, suggesting the potential that a Cherokee cabin may have preceded Bogan's occupation of the site. Prehistoric materials were also found. The work completed also suggested the possible presence of a sawmill on or near the site, with a logging hook made from a wrought iron buggy axle among the artifacts recovered (Gresham 1997).

Elsewhere in Gwinnett County, New South Associates conducted data recovery at the Ballard/Holt/Steadman/Maguire/Annestown Cotton/Baxter Cotton Mill on the Yellow River for the Gwinnett County Department of Transportation as part of the Annistown Road improvements. This mill had originally been recorded and tested by R. S. Webb & Associates (Gantt et al. 1996). As the name implies, this mill seat witnessed a succession of mill industries dating from the mid-nineteenth century onward. In the latter stages, the mill seat served two cotton factories. The section of the mill investigated by New South Associates (Messick et al. 1998) was located at the lower end of the mill complex and consisted of a series of terraces overlooking a turbine pit location on the river's edge. The data recovery study suggested that the mill seat in this area may have been for a yarn mill associated with the cotton factories present on the site in the late nineteenth and early twentieth century. The recovery of a number of iron rollers used in yarn manufacture supported this interpretation. However, the area of the site investigated had been consumed by fire, and subsequently dismantled, and as result no intact mill features were found (Messick et al. 1998:112-114). Interestingly, excavations underneath a rock outcrop on the site recovered Woodland and Mississippian ceramics, quartz crystals, and

also revealed cupules which had been carved into the shelter's stone. Jannie Loubser's ethnographic analysis of these remains pointed to the symbolic significant of shoals and falls within southeastern Native American belief systems. As mill sites were frequently built on these locations, archaeologists working in such settings should be alert to the potential prehistoric content and meaning of such sites.

Southwest of Atlanta, some archaeological work has been conducted at the Sweetwater Factory in Douglas County. The Sweetwater Manufacturing Company was established in 1849 and included a textile mill, grist mill, flour mill, and saw mill, all located along a one mile stretch of Sweetwater Creek. The textile operations were of great importance to the Confederacy during the Civil War, and the Sweetwater Factory (then operating as the New Manchester Manufacturing Company) supplied the Confederacy with cotton cloth yarn for uniforms, tents, and other uses. The population of the mill village swelled to over 100 people as a result. When Union troops under the command of General William Tecumseh Sherman began the Atlanta campaign, their objectives included the destruction of two mills which were vital to the Confederacy: the Roswell Factory and the Sweetwater Factory. Both mills were burned in July of 1864. Sherman's troops also captured the mill workers, who were predominantly women since most men had enlisted in the Confederate Army. Over 400 women and children from the Roswell and Sweetwater factories were shipped north to a prisoner-of-war camp in Louisville, Kentucky where they were held until signing an oath of allegiance to the Union. Those who refused to sign were held until the end of the war (www.friendsofsweetwatercreek.org/mill.html). Ray Crook of the State University of West Georgia has conducted limited archaeological excavations within the factory in advance of architectural restoration (Crook and Harris 1993). These excavations revealed a complex stratigraphy containing machinery parts, architectural debris, and preserved cotton fabric. The site is preserved and interpreted as a state park and offers excellent potential for future archaeological study.

Another protected mill site which is receiving archaeological investigation and public interpretation is Scull Shoals. Scull Shoals is located on the Oconee River in Greene County, within the boundaries of the USDA Forest Service's Oconee National Forest. The Scull Shoals community began as a frontier settlement in 1782 which was fortified in 1796. Following the 1802 Treaty with the Creek, the settlement expanded across the Oconee River and quickly developed as a major manufacturing center. With funding from the state legislature, the state's first paper mill was built there in 1811 by George Paschal and Zachariah Sims. While the paper mill was only in operation until 1815, the industrial potential of the site was evident and the community continued to expand. Under the ownership of Dr. Thomas Poullain, Sr., Scull Shoals' industry included a grist mill, saw mill, cotton gin, textile factories, blacksmith shop, distillery, and warehouses, while the company town contained stores, churches, and housing and a population of 600. A fire in 1845 destroyed much of the town and the mills were rebuilt in brick. A flood in 1887 caused severe destruction to the town which was inundated for four days, and the mill never fully recovered from thus flood, closing in 1900. Erosion was the primary cause of the mill's closure. By the late nineteenth century eight to nine inches of silt had built up over the shoals, decreasing the head of water available to the mills and thus

reducing their power. As a result of erosion the Oconee was also more flood prone (www.scullshoals.org).

Archaeological investigations of Scull Shoals are currently on-going through the Forest Service's Passport in Time program. Passport in Time (PIT) allows volunteers to assist the Forest Service in documenting and studying historic and archaeological sites on Forest lands. To date, more than 100 people have contributed more than 6,000 hours of work at Scull Shoals, under the direction Jack Wynn, Forest Archaeologist-Retired, and Jud Kratzer of Armstrong State University. Work conducted to date has focused primarily on domestic occupations of the site, including work in the mill village in 1999 (Kratzer 1998, 1999, 2000; Wynn and Kratzer nd). The long-term investigation, documentation and interpretation of Scull Shoals offers the potential of making tremendous contributions to our knowledge of Georgia's industrial past.

To the west, the historic Eelbeck Community in Chatahoochee County, within Fort Benning, has been investigated by the University of Alabama (J. Smith 1992). Eelbeck was a long-lived grist mill and associated community, established in circa 1826 and continuing in operation until the property was purchased by the US government for the construction of Fort Benning in 1941. As with the majority of mills in Georgia, Eelbeck went through a series of owners and in the early twentieth century became the Eelbeck Manufacturing Company, a merchant flour and grist mill. Archaeological investigations at Eelbeck documented a number of structural remains from the late nineteenth and early twentieth centuries, and sampled residential deposits associated with the community (J. Smith 1992).

Another mill which has been examined in west Georgia is Young's Mill, located in Troup County. This site was documented by Brockington and Associates (Espenshade and Gardner 1989). This mill complex dates from the 1870s. Located on Beech Creek, a tributary of Yellow Jacket Creek and the Chattahoochee, the mill complex contains the remains of both a saw and grist mill, as well as associated commercial and domestic structures. The dam at Young's Mill was constructed of coursed granite with a cement cap, and varied in height from 6.9 to 10.5 feet. It was buttressed by retaining walls on either bank, and the saw mill and grist mill were seated at the dam on the opposite banks of Beech Creek (Espenshade and Gardner 1989:77). According to the 1880 census, the grist mill was powered by a 12 horsepower 48 inch Leffel turbine driven by a seven foot head. The saw mill, built in 1896, was powered by a 23 inch Leffel turbine (Espenshade and Gardner 1989:101-103). Factors related to the selection of this location as a mill seat included stream constriction, a rock ledge/fall in the stream, the presence of a road crossing, and land ownership. Espenshade and Gardner found no evidence that erosion and siltation effected the operations of Young's Mill. They noted that the mill differed from other Georgia mills in several factors, notably its ownership throughout its history by a single family as well as its operation into the 1940s, much later than most grist mills. The latter aspect they attributed to a preference of residents within the nearby town of Lagrange for stone-ground meal over commercial meal. The title of their report references this aspect of milling and the comments of an oral informant that stone ground "meal tastes sweeter…" (Espenshade and Gardner 1989:75). In addition to their

historical description of the mill, Espenshade and Gardner provide an excellent regional overview of milling in west central Georgia.

Other studies providing information on milling in the upcountry include Southeastern Archaeological Services' cultural resource investigations of the Factory Shoals Wilderness Park in Newton County (Braley and Doyon 1984), which described grist and saw mills constructed by John Edge between 1825 and 1839, and a Bobbin Mill. Cultural resources inventory of Georgia Power's Barnett Shoals property in Clarke County documented the Star Thread Mill, constructed in 1889 (O'Steen and Reed 1986). Survey and testing for the Upper Towaliga Reservoir in Henry and Spaulding counties by R. S. Webb & Associates recorded several mills, including the Atkins Mill and the Long Branch Creek Mill (Webb 1997). Several mills were recorded by Chad Braley for a survey of upland areas at J. Strom Thurmond Reservoir, including well preserved remains the Hopewell Factory, constructed at Anthony Shoals between 1847 and 1852 for the manufacture of cotton and wool cloth and yarn; Cades Old Mill, an early nineteenth century grist and flour mill; and Cades/Burton Mill, a later nineteenth century grist mill (Braley 1998). Braley (1998:393) recommended that these mills be recorded as a district at Anthony Shoals. Mills are commonly recorded by cultural resource surveys; the listing provided above is by no means complete.

While most of the mills which have been documented in the state occur in the upper Coastal Plain and Piedmont, mills were present in the lower half of the state. The earliest mills recorded in the state were built in association with the Salzburger town of New Ebenezer (see discussion under towns, below) in the late 1730s. A 1747 painting of New Ebenezer shows three large undershot wheels as the power source of these mills (Espenshade and Gardner 1989:42). Coastal Plain and Coastal mills were powered through impoundments, by the direct current of the rivers, or on the immediate coast by tidal power. An assessment of mill dams and mill sites completed by Partnership for Response and Recovery (1996) following flooding caused by Tropical Storm Alberto in 1994 provides some information on mills in Houston, Macon, Crawford, Taylor and Randolph counties.

Future Directions for the Archaeology of Milling

Mills played an important role in Georgia's history and their significance in the state is reflected in the number of mill sites which have received archaeological documentation. The level of investigation also reflects the importance of mill seats, which often occurred at shoals or falls. Shoals were important places in prehistory as well as in history, and it should be noted that prehistoric occupations have been recorded at a number of mill sites discussed above, including Scull Shoals, Anthony Shoals, Holts Mill, the Shadrack Bogan site, and others. It is likely that unrecognized prehistoric components exist at other mill locations. Historically, shoals supported a number of functions which made them highly charged and intensively occupied landscapes. Shoals provided stream and river crossings and thus were critical junctures in the transportation system of the state. Because of these crossings, shoals supported other historic occupations including ferries, bridges, taverns, stores, and towns often developed at these locations. Historic fish weirs were constructed immediately upstream of many shoal locations, providing another

resource for this setting. And finally, as discussed above, shoals provided the motive power for mills and, thus, were the most utilized environment for mill seats in the state. Shoals are the most intensively occupied physiographic locations in the state, and are deserving of further study and analysis as historic landscapes (Bill Frazier, personal communication, 2003). Where applicable, future studies of milling should examine shoals in a holistic perspective, recording, mapping and researching the locations and the range of historic occupations present at these sites, and should seek to place historic mill development within the context of the historic land use and the development of shoals. Comparative studies looking at the histories and layout of shoal communities over time and across the state would help to illuminate regional trends and variations which effected not only milling, but other historic occupations as well.

Future studies of historic milling should employ a regional perspective to address how the technology and setting of the mill under investigation compares with other mills in that region. Census research should be undertaken to record the types of motive power being used by mills in the region as well as their changes over time. Historic maps should be researched to identify other mills recorded on the same drainage as well as adjoining drainages and their spacing and topography. Jeane's observations regarding the distances between mills should be applied to the analysis of regional settlement and mill distribution.

Mills should be classified based on the typological analysis developed by Jeane. Mill classifications would include single seat (grist or saw mill), double seat (grist and saw mill), complex (grist, flour and saw mill), and integrated complex/factory (grist, flour and saw mill in combination with a textile factory). Where possible, the settlement analysis outlined above should also include the mill classification to determine the influence of this aspect of mill technology on mill distribution.

Archaeological excavations at both the Wallace Reservoir and Richard B. Russell Reservoir have produced well preserved examples of mill power machinery, notably tub wheels and turbines. Future projects need to search for these components and expose and record them where they exist. Comparative study of tub wheels in particular, as well as analysis of the layout and arrangement of wheel and turbine locations with mill raceways, needs to be conducted to determine if regional patterns exist in tub wheel manufacture and in tub wheel and turbine arrangement. Similarly, archaeological studies should accurately map and record the locations, in both plan and profile, of raceways, mill foundations, pilings, terraces, and other technological/architectural elements to assess the type of water wheel used to power the mill in those situations where vertical wheels preceded horizontal wheel applications. Mill dams should receive further attention to address their construction as well as changes in dam architecture across space and over time.

Further work should be devoted to domestic occupations at mill sites, including the miller's residence, where this is located in proximity to the mill, as well as mill village housing. Comparative studies should assess the social and economic status of millers in relationship to farmers and planters, and should also compare the status of millers who

ran different scales of mill operations: single seat, double seat, complex, etc. Work in the mill villages should examine the material from multiple households, including subsistence remains, to understand social status and consumer choices within mill villages. Where mills were operated by enslaved African-Americans before the Civil War, archaeological examination of the slave housing and material culture of industrial slaves would provide a significant counterpoint to studies of slavery on the plantation.

Archaeological excavations within mill buildings and textile factories should record, map and identify mill machinery. This is particularly relevant where mill buildings were consumed by fire (ie. Sweetwater Factory) and where the interior deposits may reflect the stratified deposition of a building's contents, allowing mill structure and technology to be reconstructed.

The history of milling at a particular site must be understood within the context of its region and regional models and histories developed for the mill industry. These regional models should consider the impacts that erosion and siltation had on milling, the effects and proximity of towns and cities, the ownership history and its relationship to regional history, and changes in population densities.

The archaeological examination of historic milling should be recognized as a multidisciplinary effort in which historians and architectural historians may play a more essential role than the archaeologists. Mill studies should include detailed local history, the development of regional histories, the recording and analysis of architectural remains, as well as archaeological excavations and results.

Tar and Charcoal Kilns

The naval stores industry was important to Georgia's economy during the eighteenth and nineteenth centuries and one industrial element of this industry, tar kilns, which were used for the production of tar and pitch, appear as archaeological sites. Tar kilns also produced charcoal and so the two are related, but kilns were also made specifically for the production of charcoal, especially in north Georgia where the iron industry required this fuel. Tar was produced by firing dead pine in an earth covered kiln, and was used as a waterproofing coating in ship construction. Pitch was distilled from tar and was used as a sealant and caulking by ship builders. Southern pine forests provided excellent sources of tar and pitch for the naval stores industry and tar kilns appear from the Carolinas through Louisiana. While tar could be produced from pines in the Piedmont as well as those of the Coastal Plain, tar kilns are most common nearer the coast, as these locations provided the easiest shipment of the finished product to ship builders in Savannah, Brunswick and Darien. There are seven elements to the production of tar, as recorded by Michael Harmon and Rodney Snedeker (1997:147-148). These are:

1) <u>Proximity, Selection and Procurement of Fuel.</u> Seasoned pine was the preferred fuel for tar kilns. In the South, longleaf pine was the main fuel source. Forest sections were normally cut or cleared in advance of

tar kiln construction, allowing the wood to dry and season. Seasoned trees were then cut and split into pieces for easier stacking and waste materials, such as stumps and limbs, were stored separately for use as fuels.

2) Preparation of the Kiln Foundation. The ground surface was cleared in a circular area for the construction of the kiln. Soil was excavated to form a shallow circular depression, generally in between 15 and 25 feet in diameter. Clay was the preferred base for tar kilns, but kilns could also be built on sand. In sandy setting, the kiln floor was probably packed.

3) Trench Construction. A trench was dug from the center of the kiln through the outer perimeter. The function of this trench was to allow the tar to drain from the interior of the kiln to the outside where it could be collected and processed. The trench thus sloped downward from the interior to the exterior. A pipe was often placed in this trench and occasionally multiple trench drains were dug. On the outer perimeter a ditch or hole was dug and the trench drained into this location. This ditch was usually around six feet in depth. Barrels or troughs would be placed in the ditch to allow for the collection of the tar. An outer ditch may have been dug to encircle the kiln and collect tar running off of the kiln's outer surface.

4) Kiln Construction. The kiln was created by stacking the cut wood in a circular or octagonal fashion. Wood was stacked with the grain facing inward. The center of the kiln contained waste wood such as stumps and limbs and was used as a fuel source within the kiln. Twelve to 15 cords of wood were generally used in a kiln's construction. An opening was left at the top of the kiln. Kilns have been described as looking like "haystacks" and were generally between 10 and 15 feet in height.

5) Kiln Covering. The outer surface of the kiln was covered in earth, turf, and pine straw to dampen the fire once the kiln was ignited. Tar was created by allowing the dead wood in the kiln to burn at a low heat, hence a dampening cover which kept oxygen from the kiln fires was necessary.

6) Firing of the Kiln. Kilns were fired from the opening in their top. Once the fire had caught, this opening was covered with earth to prevent combustion. Long poles were used to poke holes through the sides of the kiln, beginning at the top and then moving toward the bottom as the kiln's firing proceded. Referred to as "tempering the heat", the poles introduced oxygen to keep the fire from dieing. Harmon and Snedeker note that tar making "was a smoky, dirty, and often hazardous occupation. If the burn proceeded too slowly, there

was danger that the kiln could explode and hurt the operators. If the fire flared up, tar would be wasted" (Harmon and Snedeker 1997:148).

7) Collection of the Tar. By the second day of the firing the tar had begun to flow and would continue to flow for a period of four to five days. As the tar ran through the trench or pipe it exited the kiln into the ditch where it either drained into the barrel or a trough. In the latter instance, the tar would be collected from the trough and transferred to the barrel. Tar was collected day and night while the firing was on-going and a barrel of tar was normally collected per cord of wood in the kiln. As the tar flow slowed, on the sixth day after firing, additional dirt was thrown onto the kiln to smother the fire. Once the kiln had cooled, it was dismantled and charcoal was collected from its remnants.

Archaeologically, tar kilns are recognized as a raised circular platform with a central depression, outer ring, and an adjacent ditch. Visible remnants of a metal pipe may also appear. Few if any artifacts are found in association with most kilns, although the workers who constructed the kiln and collected the tar would have camped nearby and may have left some material remains (Harmon and Snedeker 1997:152). In coastal areas, planters were often engaged in the naval stores industry and there is the potential for short-term slave encampments associated with timber and tar production along the coast. Natalie Adams has documented such a site from the North Carolina Coastal Plain and provides historical and archaeological information on slave's participation in the lumber and naval stores industries (Adams 2002).

Harmon and Snedeker (1997:153-154) identify several attributes of kiln location in the Coastal Plain. They state that kilns were most often constructed on low-lying ridges and knolls whose changes in topography are so subtle that they often don't appear on the USGS maps. Kilns are often found near seasonal drainages, and older kilns are often found near permanent drainages. While current vegetation is not an accurate reflection of historic vegetation, Harmon and Snedeker note that areas which are presently planted in longleaf pine are likely to have been pine forests in the past as well. Finally, based on their research in the Coastal Plain of North Carolina, Harmon and Snedeker note that tar kilns are likely to cluster. This suggests that a section of forest was harvested and worked at a time, resulting in several kilns in the same general area. Where one kiln is found, they note that additional kilns are likely (Harmon and Snedeker 1997:153-154).

Charcoal kilns were similar in construction to tar kilns although green wood was used rather than seasoned wood. Gregory Jeane (1984:99-102) provides detailed discussion of the creation of tar kilns in the Etowah Valley of north Georgia, where they were associated with the iron industry. Like tar kilns, charcoal kilns also required a circular clearing and were usually 30 feet in diameter. Wood was stacked to form the kiln in the same manner as with tar kilns, with the heaviest end of the wood placed in the center of the kiln. Three vertical poles were used to mark the center of the kiln and to leave an opening at the top of the kiln; wood was stacked around these poles. Between 20 and 50 cords of wood could be employed in the construction of a charcoal kiln. Charcoal kilns

required no drainage trench nor ditch for the collection of tar, but in all other respects the archaeological evidence of charcoal kilns is the same as that of tar kilns.

The Archaeology of Tar and Charcoal Kilns in Georgia and Future Directions

Despite their prevalence in neighboring states, tar kilns have received little attention or documentation in Georgia. In part, this is likely to reflect the absence of large land-holding agencies such as the USDA Forest Service from Georgia's Coastal Plain, as much of the research directed toward this resource has been promoted by Forest Service archaeologists in North Carolina, South Carolina, and Florida. The lack of recorded tar kiln sites also suggests a lack of familiarity with this resource type, which, since it presents little in the way of material remains, may not have been recognized and recorded as sites during some archaeological surveys. At present, there are no recorded tar kilns in the state and tar kilns are not listed as a site type. Thirteen charcoal kilns have been recorded. Six of these kilns are recorded in northwest Georgia (Bartow, Cherokee and Floyd counties), and are likely to be associated with the iron industry of that region, which required charcoal (see discussion below). The others are recorded in Haralson (5), Lincoln (1) and Richmond (1) counties.

Future research should seek to determine if tar kilns occurred less frequently in coastal Georgia than in the Coastal Plain of North and South Carolina, and if so, to determine the historical factors that led to this change in distribution. Where tar kilns are identified, work should be devoted to accurately recording and mapping these sites and to comparing site plans and locations with published research on this site type. As a resource type, much of the information available from tar kilns can be recorded at the survey level of investigation. Charcoal kilns should similarly be recorded. Where charcoal kilns are found in the Etowah Valley region, research should attempt to identify the iron furnace with which the kiln is associated.

Potteries

Of the historic industries which developed in the state, the pottery industry was probably the most wide spread and was certainly the industry which most affected the day-to-day lives of Georgia's citizens. Agrarian life required storage jars for the packing and storage of meat, canning jars for the preservation of fruits and vegetables, churns for the processing of butter from milk, milk pans for the collecting of milk, water coolers to take drinking water into the fields, syrup jugs for the storage of molasses syrup, and smaller jugs for the shipment and consumption of alcoholic beverages as well as for later reuse. Households needed pitchers for the serving of beverages as well as mugs and cups. Plates and sometimes platters used in the home were made from local pottery, although the production of flatwares was more difficult to achieve in a folk pottery, and so flatwares were normally imported. Finally, ant traps, ceramic cups with an outer ring to hold water, were used to protect the feet of southern tables and pie safes from ants. Glass canning jars began to replace some of the fruit and vegetable storage functions by the late nineteenth century, as glass bottles would replace jugs. However, from the eighteenth-

century settlement of the state through the early twentieth century, most of these functions were filled by stoneware pottery. Beginning in the early nineteenth century, much of this stoneware was made at potteries in the state.

The first recorded potter to work in the state appears to have been Andrew Duché. Duché operated a pottery in Philadelphia in the 1730s, and subsequently moved to Charleston, SC, where he established a pottery in 1735. By 1738 he had relocated to Savannah, having received funding from the English Trustees of Georgia to move. Duché's Savannah shop and production were described by Colonel William Stephens in that year (in Burrison 1983:103):

> *Encouragement given to a potter for carrying on that manufacture, I humbly conceive was no ill bestowed; for its very apparent the Bounty was rightly applied: the building a convenient dwelling house, with a large Kiln in a room annexed, together with 2 other large rooms, one for a workhouse, & the other for a Store room…. he has baked off 2 kilns of handsome Ware, of various kinds of Pots, Pans, Bowls, Cups & Jugs, fit for many uses…. He is making some tryal of other kinds of fine clay; a small Teacup of which he shewed me, when held to the Light, was very near transparent…*

Burrison notes that from the records of materials that Duché order for his shop, he was apparently making tin- and lead-glazed earthenware tablewares and utilitarian forms. Duché experimented with the production of porcelain and claimed to have been successful in its manufacture; the presence of kaolin clay deposits in Georgia and in South Carolina provided the key element needed to manufacture this type of ceramic, although Burrison questions whether Duché actually achieved its production (1983:104-105).

Duché's politics would make his tenure in Georgia short-lived. He became a member of the Malcontents, a group opposed to the anti-slavery laws and land-grant policies of the colony, and in 1743 left the colony, returning to Philadelphia (Burrison 1983:106-107). Other potters followed his footsteps in Savannah, although none with large-scale operations. Documented examples of their work are rare; it is likely that the tin- and lead-glazed vessels they produced were comparable to others being manufactured in the northern states and in England and hence bear to no distinctive characteristics. Excavations at the Salzburger site of New Ebenezer (see discussion under communities, below) have recovered examples of a glazed earthenware which may have been made within the community, as there is a strong pottery tradition among Germanic cultures with the Moravians of Winston-Salem, North Carolina, creating one of the first pottery center in the southeast in the mid-eighteenth century. To date, however, no kiln or wasters have been found from New Ebenezer which would conclusively place pottery production there. Ceramic production in the state, and in particular the growth and spread of the stoneware industry, would follow discoveries made in the Edgefield District of South Carolina in the 1810s.

The stoneware industry of the Edgefield District was the product of three brothers, Amos, Abner and the Reverend John Landrum, and a glazing technique which was possibly introduced by Abner and which allowed rural potteries to make the glazes necessary to produce impermeable stonewares. This glaze is known as alkaline glaze, and is composed of wood ash and sand. Alkaline glazes were known and had been employed for centuries in Asia, and ceramicists were aware of the glazing technique in both the US and the United Kingdom. However, the Landrums appear to have been the first to apply this glazing technique to the production of commercial stonewares. Alkaline glaze was particularly well suited to the southern US which was predominantly rural. The lack of rail lines and limited urban centers in the state made it difficult for prospective potters to obtain either slip clays (most of which were mined in the northeast, one style of which is the Albany slip) or salt used at that time to glaze stoneware. Sand was abundant, and wood ash easy to obtain, in the South, however. The Landrums were marketing stoneware for sale as early as 1819 and are likely to have developed the use of an alkaline glaze, as well as a kiln, by the middle of the 1810s. A large and influential stoneware center followed, as multiple stoneware potteries were established in Edgefield. A number of these employed enslaved African Americans as stoneware turners and in other roles, and one of Edgefield's most renowned potters was an enslaved African-American potter, Dave, who inscribed poetic verse on some pieces of his production. The Edgefield District, as well as the potter Dave, are the subject of several books which may be consulted for more information (Baldwin 1983, Koeverman 1998).

Potters from the Edgefield District moved west, and the first center of stoneware production in Georgia was one established in Washington County by the 1830s. Pottery from Washington County bears a number of similarities to pieces produced in Edgefield, generally featuring ovoid forms and even medium to dark green glazes.[8] While pottery would ultimately be produced across much of the state, several centers of production developed, in part due to the distribution of clay but mostly due to the creation of social and familial networks which allowed the knowledge of folk pottery, as well as the resources needed for its creation, to be shared.

Folklorist John Burrison of Georgia State University has prepared the most extensive survey of stoneware production in the state (1983), which should be referred to for more detailed description of the potters themselves, and also of regional variation in styles and forms. The centers reported by Burrison are Northern Washington County, Eastern Crawford County, Jugtown (Upson/Pike Counties), the Atlanta Area (Fulton County), Northern Paulding County, Jug Factory (Barrow County), Gillsville (Hall/Bank Counties), and Mossy Creek (White County). A ninth center, Stockton, in Lanier County, is described by Cormany (2000). Perhaps the most extensive of these pottery

[8] Archaeologists who encounter alkaline glazed stoneware sherds on their sites frequently hope to be able to identify the area of production, if not the pottery itself, on the basis of the appearance of the glaze. However, the appearance of alkaline glazes varied significantly from kiln load to kiln load on a single pottery, depending on the type of wood ash used, the proportion of ash to sand, the presence of additives such as lime and paint rock, the atmospheric conditions at the time of the firing, and the placement of the piece within the kiln. Alkaline glaze can thus not be used to determine place of manufacture. Alkaline glazes range in color from light gray green to yellow to very dark green to brownish black, and in texture from smooth and even to heavily streaked and runny.

centers was Eastern Crawford County. Located southwest of Macon, the potteries in this county focused much of their production on the creation of 1/2 gallon and gallon jugs used to hold and distribute whiskey and other beverages produced at a number of Macon-area distilleries. Crawford County potters used stamped initials placed on the top of jug handles as a way of marking their wares; while not exclusive to Crawford County, this type of maker's mark is far more prevalent there than in other portions of the state, and hence stamped handles (capacity marks were also stamped onto handles) are most likely evidence of Crawford County manufacture. The potteries themselves were identified by the marks, and these are recorded in both Burrison (1983) as well as by Howard Smith (1985). Crawford County potters also produced a unique form not seen elsewhere in the state, the flower pot shaped pitcher and cream riser. These large pitchers (generally half gallon to two gallons in size) are alkaline glazed forms in the shape of a flower pot with a spout and handle. Finally, Crawford County developed a unique glaze application created by the addition of ground hematite to the alkaline glaze mixture. Known as the "paint rock" glaze, these appear as very shiny brown to reddish brown to black glazes which are distinctive from other alkaline glazes (but somewhat similar to Albany slip glazes).

Stoneware production required a mill for the mixing of clay and glazes, a building to house the potters treadle wheel and to store green ware while it was waiting on glazing and firing, and a kiln to fire the ware. Southern kilns, including those built in Georgia, employed a distinctive style known as the "groundhog" kiln. Groundhog kilns are long low-lying rectangular kilns with a fire box at one end and a chimney stack at the other. Their name derives from the fact that these kilns were sometimes built into hill sides and were thus semi-subterranean, although free-standing groundhog kilns also appeared in Georgia. Espenshade (2002) provides a summary of southern kiln sizes and attributes. He notes that kiln size was influenced by a number of factors, including (2002:189):

- *Market Demand.* The closer a pottery was to a market and the greater the demand was for its production, the larger the kiln.

- *Productivity of the Turners.* The size of the work-force influenced the size of the kiln. A single potter, working part-time, would not have required a large kiln, whereas a commercial operation employing several pottery "turners" would have required a large kiln.

- *Access to Building Materials.* Kilns were most commonly made of brick. Kiln construction thus required access to brick as well as mortar. The availability of a high quality brick source influenced the size of the kiln. Espenshade notes that this was especially the case for the bricks used in the construction of the kiln arch, and curved arch bricks were sometimes salvaged from abandoned kilns.

- *Size of Kiln-Building Force.* The number of kiln builders, and perhaps most importantly, the experience of the kiln construction force, greatly influenced the size of the kiln.

- *Fuel Source.* Southern kilns predominantly used wood as a fuel source. Fuel wood could be cut and harvested from surrounding forests and could also be salvaged from slab piles at lumber yards. The availability of a fuel source was thus an influence in kiln size, although Espenshade also notes that larger kilns may have been more efficient in their use of fuel.

- *Storage Space for Fuel, Unfired Pottery and Fired Pottery.* A large kiln required more space and structures for the storage of fired and unfired pottery as well as fuel and hence larger operations required the space and investment in storage facilities.

- *Hauling Capacity.* Folk pottery was typically taken from the pottery to market by wagon and Espenshade observes that potters typically spoke of the capacity of their kilns in terms of wagon-loads. A kiln size that produced more pottery than there was capacity to haul to market was thus inefficient.

- *Ability to Reach Temperature.* The production of stoneware required high temperatures which became more difficult to achieve using wood as a fuel in larger kilns. This factor, more than any other, probably limited the maximum size which could be achieved in southern kilns.

- *Control of the Fire.* A variety of factors influenced how the fire burned, and controlling the burn was critical to successfully firing a load of pottery, as too high a burn would cause vessels to warp, shear and melt while too low a temperature would not mature the glazes or stoneware bodies. As the control of the firing became more difficult as kiln size increased, this was probably the second most influential element in limiting the size of southern kilns.

- *Control of the Post-Fire Cooling.* Groundhog kilns were sealed once the firing was complete to allow the wares inside time to gradually cool. As the kiln itself cooled, it also contracted. For larger kilns, this created problems with cracking of the kiln structure and in a worst-case scenario, collapse.

- *Centralized Risk.* Espenshade notes that smaller kilns were easier and less expensive to build and therefore presented less risk to the potter in the event of a collapse.

- *Economy of Scale of Loading and Unloading/Number of Firings.* The loading and unloading of pottery in groundhog kilns was the most difficult labor of the pottery. A larger kiln allowed more pottery to be fired, reducing the number of loading, firing, cooling and unloading episodes required. The reduction in the number of firing episodes also favored larger kilns.

- *Tradition.* Kiln building was a folk tradition, and the knowledge of how to build a groundhog kiln was passed on from potter to potter by word-of-mouth and

example. Thus kiln-building was a conservative action, and kiln size reflected the customs and experience of the builder as well as those of the pottery center.

Espenshade provides a table summarizing kiln sizes from a number of potteries in Georgia as well as other southern states (Espenshade 2002:190). Kiln lengths ranged from 12 feet to 27.5 feet and widths from four feet to 15 feet. Many of the kilns listed in his table are from 16 to 20 feet long and six to eight feet wide, and Espenshade thus believes that dimensions of 17 by 8 feet represent the "folk template" for southern groundhog kilns (2002:189).

Archaeologically, kiln sites are frequently recognized by two features: remnants of the kiln itself and a waster dump where vessels that were damaged during firing were thrown. Depending on the size, scale and duration of the pottery, multiple examples of both kilns and waster dumps may be present. The waster dumps themselves may appear as mounds of broken pottery; alternatively, some potters threw wasters into gulleys and ravines where they would not be noticeable to the surveyor. Waster dumps were also hauled off for use in the construction of early roads, and hence many have been destroyed. Those that survive have frequently been looted by collectors searching for "intact" vessels that had glaze imperfections or firing cracks that caused them to be discarded by the potter, as well as those seeking stamped handles which can be cosmetically attached to handle-less jugs and sold as "signed" examples. While there are no statistics on the number of waster dumps which have been impacted by vandalism, the percentage is undoubtedly high.

The Archaeology of Potteries in Georgia and Future Directions

Relatively little archaeological research has been directed toward the pottery industry in Georgia. The work that has been accomplished is largely a product of the presence and influence of Dr. John Burrison of Georgia State University's Department of Folklore, who in addition to authoring the comprehensive study of pottery in the state, has also inspired, directed and assisted several archaeologists interested in Georgia's potteries. The results of the archaeological work that has been conducted in the state was the subject of a Volume 30, Number 2 of *Early Georgia,* (2002) and the contents of that issue are summarized here.

William R. Jordan conducted field survey and research on several pottery sites in northern Washington County as the subject of a Master's thesis overseen by John Burrison (Jordan 1996). He also conducted reconnaissance level surveys of sites in the Jug Factory District (1994) and Gillsville District (1995) while at Georgia State. Jordan's work in Washington County is summarized in *Early Georgia* (2002). Jordan conducted limited work at several potteries in northern Washington County in an effort to identify kilns and waster dumps. At the Cyrus Cogburn site (9WG86), Jordan determined that the kiln location had been destroyed by modern activities but that remnants of the waster dump were present. Excavation units in the waster dump recovered a large number of sherds which document a strong association between the pottery and potters of the Cogburn site and the Edgefield District. Within the waster dump Jordan recovered a number of sherds marked with slashes. The use of slashes to indicate a vessel's capacity

was a trait found in the Edgefield District, where it is thought to represent the work of enslaved African-American potters, but it is not frequently seen in Georgia. Jordan also identified a number of sherds that had been marked with impressed letters, including C, T, P, L, V and a backwards S. The stamping of pottery with impressed letters occurred at the Pottersville Factory of Abner Landrum. At Potterville, these marks are believed to reflect the identification of individual turners as the makers of a particular piece of pottery, and both Cyrus Cogburn and Shimuel Timmerman, who worked with him, came from the Edgefield District and may have worked at Potterville (Jordan 2002:142-154). Shimuel Timmerman would later use the "T" mark to identify the work of the pottery he established in Stockton, Georgia (Cormany 2000). Jordan also visited the Lucius Jordan site (9WG87), the Redfern site (9WG88), the James Bussell site (9WG89) and an unknown pottery (9WG52). He observed that the majority of the sites had received impacts, from looters, timber clearing, and land development. Of the sites, Jordan recommended further work at the Redfern site to determine if the kiln was present as well as further work at the Bussell site to recover larger artifact samples and better assess its integrity (Jordan 2002:168).

Also presented in *Early Georgia* is Scott Butler's research of the Gunter family, the patriarch of whom, Allen Gunter, was another of Georgia's potters with an origin in the Edgefield District. Butler provides a thorough history of the Gunter family, several of whom were potters, and their movement across the state. However, he was unable to locate the pottery of Allen Gunter, which would be one of the earliest in the state, and notes among the difficulties in identifying pottery sites: (1) deed records are poor and usually don't specify potter locations, (2) the potteries themselves are small and hard to find, and (3) modern development has destroyed many of the sites. Butler does provide descriptions of archaeological materials identified at later Gunter pottery sites elsewhere in the state (2002:178-180).

Chris Espenshade (2002) discusses excavations of the Sligh Pottery in Paulding County. The Sligh Pottery was investigated by Espenshade, Dennis Blanton, J. W. Joseph and Mary Beth Reed in 1986 after Espenshade and Blanton became aware of its existence and need of documentation. The Sligh Pottery exhibited a relatively intact kiln as well as a large waster dump containing both alkaline-glazed and Albany slip-glazed sherds. A two-foot wide face of the water dump was excavated and the materials recorded and analyzed in the field (Espenshade notes that traditional unit excavation in the 8.4 foot high dump would have recovered an overwhelming amount of material and also would threaten the stability of the remainder of the dump). Excavations within the waster dump revealed evidence of a kiln rebuilding (as a lens of brick rubble and mortar) after which the volume of sherds being placed in the waster dump dramatically increased. The excavations also revealed that the earliest levels and pottery exhibited an alkaline glaze, while the later periods, and particularly the period following the major rebuilding of the kiln, employed a commercial Albany slip. Espenshade (2002:188-192) notes that the rebuilt kiln was considerably larger than most, with dimensions of 27.5 by 12 feet. He thus speculates that the rebuilding reflects an effort to expand the pottery's operations during the late 1870s to early 1880s, and that concurrent with the expansion of the kiln was the change to an Albany slip glaze and the hiring of more laborers. However, the

artifact recovery from the waster dump suggests that the Sligh's had more difficulty controlling the firing process of this larger kiln, and as a result more pieces were defective and had to be trashed on the waster dump. While the larger kiln would, simply by its size, have led to more production and thus an increase in the volume of the waster dump, Espenshade notes that the later strata of the dump show severe firing difficulties, including vessels which had melted together and collapsed due to excessive heat. Thus, much of the content of the dump appears to reflect problems arising from the operation of a large kiln (see Espenshade's summary of kiln size issues and attributes, above). The use of an Albany slip glaze, as opposed to the alkaline glaze, appears to reflect the pottery's move to a more commercial standing as well as greater accessibility to rail lines and the Albany slip itself (2002).

William R. (Rowe) Bowen and Linda Carnes (2002) work at the Rolader pottery occurred 1977 in collaboration with John Burrison, when all three were at Georgia State University. Bowen and Carnes investigated the Rolader site with the objective of learning more about the glazes used by folk potters in the Atlanta area as well as the forms they produced. Bowen and Carnes' work revealed the Rolader pottery primarily employed Albany slip glazes, although examples of alkaline-glazed, salt-glazed, and Bristol-slip glazed sherds were also found. Bowen and Carnes also identified a number of sherds where different glazes were used on the exterior and interior of a vessel, and in these instances the most common combination was the use of Albany slip as the exterior glaze and alkaline glaze on the interior. Unglazed wares were also found, and Bowen and Carnes report that the Rolader's appear to have shifted their production to the manufacture of unglazed flower pots late in the pottery's history (Bowen and Carnes 2002). The shift from the production of glazed utilitarian wares to unglazed flower pots and garden wares occurred at many stoneware potteries in the state, and is perhaps best shown the Craven and Hewell potteries of Gillsville, both of which were once stoneware potteries but now produce unglazed garden wares (the Hewells have renewed their production of alkaline glazed stonewares, following the successes of the Meaders family, and in particular Lanier Meaders, in revitalizing folk pottery manufacture).

The projects reviewed above all point to the loss of many of Georgia's remaining pottery sites as well as the threat of further damage and vandalism to those remaining. Future research should seek to develop reconnaissance level inventories of sites associated with the major pottery production centers in the state. This work should be coordinated with and completed in concert with the efforts of John Burrison with the objective of developing a statewide inventory and preliminary assessment of potteries. Efforts to identify and record pottery sites should include consultation with knowledgeable collectors, some of whom already know of the locations of sites in the region. With an inventory in hand, funding should be sought to conducted limited excavations at a representative number of relatively intact sites associated with each center. This work should seek to develop maps of each site showing the locations of the kiln, waster dump, and other features; should seek to record the dimensions of the kiln and the attributes of its construction; and should seek to examine and record the contents of the waster dump. The technique used by Espenshade (2002) to record and analyze the Sligh Pottery offers a model for a relatively low cost and non-intrusive/non-destructive technique for

examining waster piles. For examples of the type of reporting which would hopefully be produced as a product of such study, the work done by Castille et al. (1993) and Carl Steen (1994) should serve as examples.

Efforts should also be made to examine and record the pottery produced in Georgia that is now in private collections. There are a very large number of intact pieces of Georgia pottery that are held in private collections in the state. However, there is also a growing interest in the collection of southern folk art, including pottery, in the other portions of the nation, particularly the northeast. New York auction houses have sold several southern pottery collections with many of the items sold out of state. As the collectors of Georgia pottery age, this trend is likely to accelerate. The completion of a private collections inventory would provide an excellent resource to document the pottery produced in the state and would help to expand our knowledge of marks and decoration associated with specific potteries or production centers. Such a survey is not purely an archaeological project and could be completed by folklorists or material culture specialists. Grant funding may be obtainable through several arts foundations as well as other sources. Completion of such a collections survey would aid the future updating and re-publication of Burrison's statewide survey.

Iron Furnaces

The mineral resources of the Etowah Valley led to the expulsion of the Cherokee and the historic settlement of northwest Georgia, and generated two sets of industrial activity: mining and the manufacture of iron. Mining sought precious metals which occurred in the region, most notably gold, and is discussed below, but perhaps the most valuable mineral in northwest Georgia was iron ore. The iron ores in the region received national attention and led to the development of an extensive iron industry. According to a geologist writing in the *Iron Manufacturer's Guide* in 1859 (Lesley 1859:464-465):

> *The iron ore beds of Cass County, Georgia, are found in the Allatoona hills near the Etowah River, and may be traced in a northeast to southwest direction along these hills for about forty miles. Some of the beds are seen to continue almost without interruption for twelve miles…. The quantity of ore in this region is incalcuable….*
>
> *Of the wonderful profusion of these ores, and of their richness I can unhesitantly speak in the highest terms; the best varieties and largest quantities I saw were among those within two or three miles of the Etowah River where it is crossed by the railroad. I have visited almost all of the great iron deposits of the United States; have explored the beds of the Iron Mountains of Missouri; but have never been so impressed by any exhibition of ore as by the mines of the Etowah District.*

The iron industry was introduced to Georgia in the late eighteenth to early nineteenth centuries, and by the 1840s, the industry had moved to the Etowah Valley where it

achieved fluorescence. Jacob Stroup and his family were key figures in the industry's development in the state. Originally from Pennsylvania, the Stroups had been engaged in the iron industry for generations and were associated with iron furnaces built in North and South Carolina, as well as Georgia and later Alabama. The first furnace which Jacob Stroup built was constructed on the Sequee River in Habersham County in 1832. The second was built in 1836, on Stamp Creek within the Etowah District. Jacob Stoup and his son Moses built a third furnace in 1844, on the banks of the Allatoona River, and this furnace would become the heart of the Etowah Manufacturing and Mining Company, which included the furnace, a rolling mill, a nail factory, a railroad spike manufacturing machine, a flour mill, two grist mills, two saw mills, and a company town. Both slave and hired labor were employed at Etowah (Joseph and Reed 1987:50).

While the Etowah Company was the focus of the iron industry in north Georgia, a number of other furnaces were established in the Etowah Valley. These included the Allatoona Furnace, Pool's Furnace, Union Furnace, the River Furnace, Lewis's Furnace, Cartersville Furnace, Bartow Furnace, Donaldson's Furnace, and the Diamond Furnace (Joseph and Reed 1987:55-61, Jeane 1984, Jordan and Huddleston 1998). The industry was short-lived, however, and the 1850s were its hey-day. The Civil War, the development of the iron industry in Birmingham, Alabama in the years after the war, and the isolation of the Etowah District from major manufacturing centers, all conspired to bring the iron industry in north Georgia to a halt by the late nineteenth century.

Iron furnaces were composed of a variety of elements, depending upon the scale of the furnace operation. The basic requirements of a furnace were a source of iron ore, a water source to power water wheels and bellows, an adequate supply of timber for the production of charcoal used to fire the furnace, a supply of limestone or argillaceous clay to serve as a flux, and stone for the construction of the furnace. As Joseph and Reed (1987:21) note, the key ingredients were ore, water, stone and wood. Furnaces tended to be built on large tracts of land where all of these resources could be found in abundance and because of this furnace operations were often referred to as iron plantations (Ferguson and Cowan 1997). Iron ore was mined either by strip or surface mining or by shaft mining. In north Georgia, where extensive veins of hematite iron ore were available near the surface, the ore was mined through pits, a form of surface mining. Ore was moved from the mines to the furnace by horse and wagon and on the more substantial operations by rail. In addition to ore, charcoal was created in charcoal kilns (see description above) and moved to the furnace, and a flux, usually either limestone or argillaceous clay, was also mined and transported to the furnace. As the flux melted at a lower temperature, it was used to melt and draw away impurities from the ore when the ore was being fired (Joseph and Reed 1987:23-27).

Furnaces were constructed of stone in the shape of truncated pyramids and contained an interior brick or stone lining and refractory. Granite and sandstone were the preferred building stones in the Etowah Valley, although any stone other than limestone could be used. Blast furnaces, as the type of furnace built in north Georgia was known, were usually between 30 and 35 feet in height, with an opening in the center of the truncated pyramidal top. The furnace was constructed by building four stone pillars with space

between them allowing for two different types of entryways; the working arch, which accessed the hearth and through which molten iron ran, and the tuyere arches, which were the space provided for the bellows. The stonework was unmortared since the furnace needed to be able to breath, and water needed to be able to escape during firing. The pillars and arches tapered inward, with the arches generally 14 feet in height. Above the arches the four stone pillars joined and were continued in height while decreasing in width. The top of the truncated stone pyramid was normally capped with an iron plate with an opening in its center; this plate allowed fuel and ore to be fed into the interior of the furnace. Within the interior base of the furnace, a hearth and crucible were built of fire brick or finished sandstone. The interior lining of the furnace was mortared in place. Above the hearth, the lining expanded and this opening was known as the bosch. The base of the bosch contracted to funnel molten iron into the crucible. Outside the working arches narrow troughs were dug into the earth. These were known as sows, and the cooled iron which would then be removed from the sows was known as pig iron (Joseph and Reed 1987:26-29).

Furnaces were commonly built next to ridges, bluffs, or hills as an elevation was needed to transport the iron ore and fuel to the top of the furnace and then inside. Charcoal and wood were used to fill the lower half of the furnace, and were fired, and ore then filled the upper half. Charcoal was added with the ore as needed, and bellows were used to supply oxygen to the fire through the tuyere arches to keep it burning at a high heat. Molten iron began to flow by the end of the first day's firing. Once fired, the blast would be continued for a long period of time, often as many as 30 weeks at a time, during which the furnace was fed continuously and the pig iron collected, cooled, and removed by workers splitting 12 hour shifts. A furnace was operated by a founder, who tapped the hearth and fed fuel and ore into the furnace, a keeper who created the sows and collected the pig iron, molders who worked the pig iron into forms for shipping, colliers, miners, woodcutters, and teamsters. On antebellum southern iron furnaces, many of these positions were filled by enslaved African Americans (Joseph and Reed 1987:30).

The Archaeology of Iron Furnaces in Georgia and Future Directions

While iron furnaces were significant aspects of Georgia's industrial history, they have not received much in the way of archaeological study. Furnaces were largely confined to the Etowah Valley, a setting now dominated by Allatoona Lake. The Cooper furnace is preserved and displayed just below the Allatoona Lake dam. Limited work on other furnaces has been conducted under the direction of the US Army Corps of Engineers, Mobile District, which administers Allatoona Lake. Garrow & Associates conducted architectural and historical documentation of Donaldson's Furnace in 1987 (Joseph and Reed 1987), however, no archaeological studies were conducted in association with this work. Their report does list and provide some descriptions of other extant furnaces in the region.

Brockington and Associates tested 11 archaeological sites associated with three furnaces, Stamp Creek, Allatoona, and Etowah (Cooper's) in 1998. Several of these sites were iron mines and are discussed in the section on Mining, below. With the exception of domestic

occupations associated with the Etowah Furnace, the other sites investigated were industrial in nature (Jordan and Huddleston 1998).

Future research should build on the work conducted to date to compare and contrast the dimensions and construction of furnaces in Georgia with those of neighboring states such as North and South Carolina and Alabama. This work should seek to identify both regional trends and the influence and appearance of furnace architecture by the Stroups, who were prominent figures in the development of the iron industry in the southeast.

Future research should seek to develop a better image and model of the iron furnace work yard. Archaeological studies, perhaps employing remote sensing techniques, should be conducted in front of furnaces to identify the locations of remnant sows and their dimensions. Work around the furnaces should also attempt to identify the locations of ancillary support structures, such as forges for the molding of pig iron, water wheels for the powering of bellows, the bellows themselves, and storage structures. Where possible, the locations of iron mines and the roads connecting mines to the furnace should be mapped and interpreted as part of the furnace plantation landscape.

Efforts should be made to identify and examine the domestic areas associated with iron furnaces. Most iron furnaces in Georgia operated for months at a time, but were not year-round operations and occupations. Seasonal domestic complexes must have been established for those periods when the furnace was in operation. The discovery and recovery of these occupations could shed light on the material expressions of industrial slaves and other working class citizens and in turn could be compared and contrasted with the material remains of contemporary agrarians and others.

Mining

The discovery of gold in the Cherokee lands of north Georgia prompted increased interest in the region by European-Americans and would ultimately lead to the Treaty of New Echota, the forced removal of the Cherokees from north Georgia, and the occupation and development of this last segment of the state. Gold was reportedly being mined as early as 1819 near the Cherokee town of Sixes, and was well reported following the discoveries of Frank Logan and Benjamin Parks in White and Lumpkin counties in 1828 and 1829, respectively. By 1829, mining operations were established in what would become White County, and by 1830, nearly 300 ounces of gold per day were being recovered from mines in Cherokee County. The center of gold mining in the state was Auraria (Latin for "City of Gold") and Dahlonega, and the quantity of gold being produced from the region was so great that the federal Government created a mint in Dahlonega in 1838. By the 1840s, Georgia's gold resources were already declining, and the discovery of gold in California in 1849 prompted the Gold Rush and resulted in most of the miners leaving Georgia. Gold mining continued after the Civil War on a small scale, and flourished for a short period during the 1880s as hydraulic mining again made the recovery of gold in the state a profitable industry (http://ngeorgia.com/history/goldrush.html).

Iron ore was mined primarily through open pits, while gold was mined through placers (collecting nuggets exposed on sand or gravel deposits in streams or mining placers by panning or sluicing), open pits, and shafts. Many of Georgia's gold mining operations were relatively small scale, family operations which would have left only the remnants of pits and shafts as archaeological legacies. Gold mining sites were common in the northern quarter of the state, however, with as many as 500 mines reported. Norman (1998) plots the distribution of mines in the region surrounding the Sixes Mine of Cherokee County from historic accounts, which recorded 27 mines, including Sixes, dispersed in a broad band within three miles of the Sixes Mine. He (Norman 1998:47) provides a table listing the types of mining operations used at these various mines. Open pits and shafts were the most common, each appearing on eight of the 13 mines for which there are reports (61% each). Placers were used on five of the mines (38%). Several mines (n=3; 23%), including Sixes, combined pits, shafts, cuts, and adits, which were horizontal shafts or openings. For example, the Cherokee Mine in Land Lot 428 included placer workings in two tributaries of Blanket Creek, "at least" seven adits, five shafts, one large cut, as well as many pits. A few small pits characterized the majority of mining operations in Georgia, while the industrial mines employed large-scale vertical and horizontal excavations, smaller scale pits, and placers to extract as much gold as possible from their sites.

The Archaeology of Mining in Georgia and Future Directions

Relatively few mining sites have been archaeologically investigated in the state. This is no doubt due in part to the fact that the archaeological residues of mining, shafts, and pits, contain little information beyond their presence and location and hence do not require detailed study. The locations of pit mines may also be difficult to recognize and record, as once revegetated, these features can blend into the landscape quite easily.

R. S. Webb & Associates completed archaeological data recovery of the Sixes Gold Mine (9CK537) for the Harbor View Development project on Allatoona Lake in Cherokee County (Norman 1998). Sixes was one of the earliest mines in Georgia, with gold reportedly being recovered from the area before the Cherokee's removal. The land lot containing the Sixes mine was acquired in 1833, by Allen Lawhon, a veteran of the War of 1812, whose military service entitled him to draw several lots in the 1832 land lottery. Lawhon quickly established his mining operations, indicating he was aware of the gold on this land lot at the time he acquired it, or that mining was already in progress, and by 1834 extensive mining was reported on the site. The mine passed through a series of owners throughout the nineteenth and early twentieth centuries and mining activities were carried out through the 1930s, with some mining taking place on the property as late as 1960. Webb & Associates' data recovery work largely consisted of historical research and mapping of the mine areas within the 22.44 acre study site. Two hundred and fifty-two mining features were identified and mapped as part of this data recovery. These features included 17 placer excavations, 58 open pit excavations, 58 open trench excavations, 13 assay pits, 81 waste piles, seven tram lines, five horizontal shaft (adit) openings, three vertical shaft entrances, nine collapsed shafts, and one hydraulic mining feature. Excavation blocks and units placed in a domestic area recovered evidence of

mining operations, but very few domestic artifacts. Norman's work indicated that processing techniques including stamp milling, mercury amalgamation, mechanical concentration and assay evaluation were all carried out as part of the mining operations, which ultimately covered more than 160 acres of land. R. S. Webb & Associates also conducted data recovery excavations at the LaBelle Gold Mine in Cherokee County.

Gold was not the only mineral mined in the state. As noted above, iron ore was also mined in north Georgia and other mining activities occurred on a limited basis. Evidence of iron ore mines around Allatoona Lake are presented in Jordan and Huddleston (1998). In general, iron ore mines were open pit operations with few if any associated structures or features.

Future research on mining sites in the state should examine mines which were in operation for a short period of time to determine if there is a temporal sequencing of various mine techniques such as open pit, open trench, placer, shaft and adit in Georgia. The geography and geology of mining sites should also be recorded and studied to assess the degree to which mining techniques were a product of the natural environment.

Where there is evidence of processing equipment associated with the mines, such evidence should be recorded and studied in detail to address the types of technology employed as well as the time and type of mining operation.

Future projects should seek to locate evidence of housing which may have been established for mine workers. Where such housing areas exist, fieldwork should attempt to recover evidence of the domestic activities, materials, and subsistence remains associated with miners.

Blacksmith Shops

Blacksmith shops were features on all of the larger plantations in the state, and also occurred as separate industries in many of Georgia's small towns. As an archaeological site type, few "smithies" have been examined in the state. However, one site, 9CO246, has been recorded by David Rotenstein and Rotenstein's (1986) report provides both an overview of elements of a blacksmith shop as well as example of the types of materials which can be recovered from such sites archaeologically.

Site 9CO246 was identified during the survey of road widening activities along SR 120 in Cobb County. While not in the construction limits of the road widening project, the site was threatened by commercial development, and Rotenstein completed limited documentation of the site in coordination with the developer. This documentation was primarily architectural although limited archaeological study was also completed.

Blacksmith shops consisted of a forge and anvil within a structure. At 9CO246, Rotenstein identified a frame single pen structure with a gable roof. The ridge line of the gable was left "open" with the shingling starting below the gable ridge. Rotenstein

(1986) notes that this architectural feature would have allowed smoke from the forge to clear, and would also have brought more light into the shop, which may have been necessary in the days before electricity. At 9CO246, as at other blacksmith shops, the anvil was placed to one side of the front of the forge. This arrangement allowed the blacksmith to heat metal over the forge to the point where it was malleable, and to then turn and work the metal object with a hammer at the anvil. At 9CO246, the base block of the anvil was placed in a pit which had been dug into the floor of the blacksmith structure. Placement of the anvil block in a pit was common for blacksmith shops with earthen floors, as this helped to prevent the anvil from "walking" while being subject to heavy blows from the hammer. Rotenstein notes that the pit at 9CO246 was larger than would have been necessary to secure the anvil base (a pit roughly the size of the anvil base was all that was needed to secure the anvil in position) and speculated that this may have reflected the recovery of additional clay for use in the construction of the forge. Forges were generally 30 inches in height and between 24 to 40 inches square. The forge at 9CO246 fit these dimensions. Archaeological excavations at the site recovered fragments of hoes and other agricultural tools which were obviously waiting repair, as well as liquor bottles and an old shoe, which were possibly evidence of on-the-job relaxation. Rotenstein notes that his findings were comparable to those of Marcy Gray (1983) during excavation of 38AB21 for the Richard B. Russell Reservoir. No blacksmith tools were found at either site. Presumably, tools would have been salvaged and either sold or reused elsewhere when a smithy was abandoned.

As industrial archaeological sites, documentation of blacksmith shops should include the recording of the forge's dimensions, materials, and style of construction, and the identification of pit features which may indicate the location of the anvil. Metal detector work may be useful in identifying the locations of any collections of tools and implements which were waiting repair at the time the shop was abandoned.

Community Sites

While much of Georgia's population historically lived in rural settings, in direct association primarily with other family members, many Georgians lived and interacted in communities. Community Sites, as a type, address those historical archaeological sites which either occur in a communal environment, such as a city or town; supported communal activity, such as taverns; and sites which are the products of communal activity, such as dumps. House sites are also included in this section, since the majority of houses which have been archaeologically studied in the state are either located in communities or are the residences of wealthy and politically influential people who played prominent roles in community affairs. The following discussion looks at the archaeology of community sites in Georgia.

Cities

Cities and towns were important aspects of Georgia's settlement from its origin and the establishment of Savannah, the state's oldest city. While the difference between a city and town is largely one of scale and size, the definition used here to distinguish between the two is that a city is legally incorporated, codified, or defined and is governed and administered by elected or appointed officials. Towns, as well as villages and cross-roads communities, represent a congregation of houses, stores, churches and other structures which have not yet reached a scale where they require legal organization. Our discussion of community sites begins with the consideration of cities, and urban archaeology.

Urban archaeology is a relatively recent specialization within the discipline of historical archaeology, coming into existence in the 1960s and early 1970s. While limited excavations had taken place in urban settings previously, usually on specific house lots, the 1970s saw the development of archaeological research programs focused on cities with the understanding of the processes of urbanization as part of their research design. The birth of urban archaeology required changes in field methodologies, with the use of heavy machinery frequently required to penetrate concrete and asphalt surfaces and to reach the depths needed to identify buried historic deposits. Whereas cities had previously been considered by archaeologists as too disturbed to contain intact archaeological deposits, urban archaeologists, armed with backhoes and machine-powered augers, quickly learned that in many instances city-sites reflected the continual building and rebuilding of city-scapes and the build-up of cultural deposits, and urban archaeologists became adept at recording and interpreting site stratigraphy. Some of the first cities to receive archaeological attention were the older cities of the eastern seaboard, Philadelphia, Boston, New York and Alexandria. In the southeast, Charleston began to be investigated by Elaine Herold of the Charleston Museum in the late 1970s. In Georgia, urban archaeology would raise its head not only in Savannah, as expected, but in Atlanta, where the creation of the Metropolitan Atlanta Rapid Transit Authority's (MARTA) subway system of the mid-1970s would lead to a program of CRM archaeology under the direction of Roy Dickens of Georgia State University. Dickens, and his colleagues Rowe Bowen, Linda Carnes, and Tim Crimmins, would be very influential in raising the awareness of urban archaeology in the southeast and in demonstrating the utility of CRM archaeology to respond to resource identification and evaluation for federally funded and permitted urban infrastructure and revitalization projects. Dicken's edited volume *Archaeology of Urban America: The Search for Pattern and Process* (1982) was the first widely published compilation on this new field. The MARTA project will be discussed in greater detail, below.

While all cities share the attribute of being legally organized communities, the characteristics of each city varies as a result of its history and landscape. Previous topics in this chapter on site typology have been introduced with a discussion of the type's attributes, but to do so here would require a historical synopsis of each of Georgia's major cities, which is beyond this study's scope. Most cities in Georgia have histories written of them, and those should be referred to by any historical archaeologists approaching work in that city. We thus shift directly to an examination of the urban archaeology in the state, providing a survey of the major work completed to date, city by city.

Urban Archaeology in Georgia

Savannah

Savannah has been the focus of urban historical archaeological research since the late 1970s/early 1980s, and as such is one of the first southern cities to receive archaeological attention. The work that has been conducted within the city to date has largely been in response to federal compliance requirements, and is supplemented by a small number of grant and privately funded studies. These studies as a whole have documented that the city exhibits excellent archaeological preservation.

One of the earliest archaeological studies to take place in the city confines was an examination of the Savannah Revolutionary Battlefield Park and the Central Railroad of Georgia, recorded as archaeological site 9CH703. Site 9CH703 was initially recorded by Edward Rutch of Historic Conservation and Interpretation, Inc., in 1981, following excavations and industrial archaeological documentation undertaken in 1980 (Rutch and Morrell 1981). This site has been the focus of several archaeological studies, including: Rutch and Morrell's initial survey and limited excavation of the property, Karen Wood's (1985) data recovery excavations of late eighteenth and nineteenth century working class occupations within the site boundaries, and Larry Babits and Julie Barnes (1984) excavations of the Central Railroad of Georgia train shed. Babits and Barnes' work was primarily industrial in nature, recovering evidence of railway development in Savannah between 1835 and 1950. Excavations at the Central of Georgia property have documented the presence of a diverse range of cultural components with varying states of preservation. Rutch and Morrell (1981) recovered evidence of prehistoric, Colonial, Revolutionary War era, and nineteenth-century industrial occupations during their excavations. They concluded, however, that much of the Central of Georgia Railyard had been placed on the historic location of Spring Hill, and that the grading of Spring Hill for the construction of the railyard had resulted in the loss of prehistoric, Colonial, or Revolutionary War era remains beneath the railyard proper. The stratigraphy they revealed suggests that soils cut by the railyard construction may have been deposited to the north and east.

Kay Wood's (1985) excavations for the Fahm Street Extension, located on the northern edge of 9CH703, documented between 1.2 and 2 meters of fill overlying a late eighteenth-century occupation horizon with well preserved cultural features. Wood's investigations targeted a specific working class residence associated with the historic neighborhood of New Leeds, where a number of tanners and bootmakers lived. Research focused on a lot which had belonged to John Gardiner, a tanner as well as boot and shoemaker, and provides important information on the late eighteenth-century working-class life in Savannah. Wood's report also presents information on changing land use patterns.

In 1982 and 1983, the General Services Administration (GSA) sponsored archaeological excavations of what was referred to as the "Telfair Site" to mitigate adverse impact to archaeological remains resulting from the construction of what is now the Juliette Gordon Low Federal Building. Archaeological excavations were carried out by the Jeffery L.

Brown Institute of Archaeology at the University of Tennessee Chattanooga under contract with the National Park Service and examined a series of domestic features within the Belitha Tything and Trust Lot Q of the Heathcote Ward. This project resulted in the excavation of a series of irregular blocks in Tything Lots 2, 5, 6, 7, and 8 and a single block in Trust Lot Q. The total area exposed measured 185 square meters, and resulted in the discovery of 225 archaeological features from the eighteenth through twentieth centuries (Honerkamp et al. 1983).

The excavations at the Telfair Site revealed subsoil sand at an average depth of between 1.2 and 2 meters below surface. The stratigraphic profiles presented in Honerkamp et al. (1983) suggest a highly variable soil sequence and site formation process which was probably building or lot specific. The research results of this project were focused on broad "patterns" of urban life and on urban site formation processes.

The Coastal Georgia Archaeological Society, under the direction of David Crampton of the US Army Corps of Engineers, Savannah District, conducted several seasons of fieldwork at the Owens-Thomas Carriage House in Savannah. These excavations revealed intact segments of an eighteenth century wall and floor which are believed to be from the house of William DeBraham. The results of this work have been reported in summary form, as has been the analysis of ceramics from the site (Huddleston et al. 2000).

Augusta

New South Associates completed archaeological data recovery excavations of the Riverfront Augusta site (9RI165) in 1989. Located along the Reynolds Street terrace and slopes leading toward the Savannah River and the levee, these excavations made use of large scale machine stripping to identify, map, and sample cultural features. A total of 4,380 square meters was stripped and 430 cultural features were identified (1 per 10 sq m). The focus of the project was to identify remains associated with the free African-American community of Springfield. Springfield came into existence at some point in the late eighteenth century, after the conclusion of the Revolutionary War, and this community was established on the outskirts of Augusta on land that had been the property of a British Loyalist who died during the war, and hence whose ownership was in question in the years immediately following. The archaeological work succeeded in identifying the remains of a post-in-ground structure on the river slopes which overlapped the boundaries of two of the lots laid out on the property by European-American landowners. This positioning suggested a squatter occupation on un-developed land, and as land ownership and rental by free African Americans in Georgia was legally restricted, it was hypothesized that by the nineteenth century, many of Springfield's free African-American residents would have lived as squatters on the Savannah River's banks. The structure exhibited several episodes of rebuilding, which presumably reflected construction efforts following floods along the river's banks, and the posts used were both hand hewn round posts and machine-cut square posts, suggesting an expedient architecture which used whatever materials were available. The dimensions of the house were comparable to house dimensions among the Yoruba of Africa as well as to those of

later shotgun houses which developed in the US out of an African-Caribbean building tradition (Vlach 1975, 1978). The yard area surrounding the house contained a number of pit features, and artifacts recovered from these pit features reflected free African-American lifeways during the first half of the nineteenth century (Joseph 1993:337-350).

The ceramics recovered from Springfield included both inexpensive plain wares and more costly transfer printed wares. Hollowwares (bowls, cups, etc.) were more common than flatwares, an observation which fit the results found from enslaved African-American sites in the southeast, where the prevalence of hollowwares was assumed to reflect an African-American diet based on stews and soups. Interestingly, the socio-economic index values from the site suggested that money was spent on hollowwares over flatwares, which also suggested that the African-American diet, and table, was predominated by bowls and cups and liquid based meals. Dietary remains revealed cuts associated with southern African-American foodways, such as pork jowls and feet, as well as the presence of wild species including turtles. These were supplemented by chicken and other fowl which were locally raised (Joseph 1993:350-362).

The most interesting artifact recovered from Springfield, and one of the most fascinating historical artifacts recovered in the state, was a clay pipe molded in the shape of a human head (Figure 22). Decorated with gilt paint, the pipe was clearly Biblical in nature featuring large gilt cross earrings. Research on this pipe identified it as a Ninevien figure made by the French pipe maker Gambier in ca. 1850. Joseph's (1993:363-372) research on this pipe outlines the historical contexts associated with tobacco use among African cultures as well as legal restrictions in the US concerning African-American's use of pipes and tobacco. For example, an 1802 City of Augusta ordinance prohibited free and enslaved African-Americans from smoking a pipe or cigar in public, noting that such privileges were reserved for whites. Beyond the social contexts of this pipe were potential symbolic and spiritual meaning. At the heart of the Springfield community lies the Springfield Baptist Church which is the state's oldest continually operating African-American church. The town of Nineveh was described in the Bible, and it was once of the first Biblical sites to receive archaeological attention, with excavations conducted in the 1840s. Considered to be the birthplace of Biblical archaeology, the results were published in Henry Austen Layard's book *Nineveh and It's Remains* (Layard 1849). Joseph (1993:327) presents an illustration from that book of the excavation of a large statuary head which he speculates may have been the model for Gambier's pipe design. Layard's work at Nineveh was taken as proof of the validity of the Bible, since these were

Figure 22. Ninevien Pipe from Springfield Excavation

the first excavations to discover a town mentioned in the Bible. Interestingly, Joseph (1993:364) notes that the Old Testament prophecy of Nahum tells of God's freeing of the Ninevien slaves, and he thus speculates that the free African-Americans of Springfield may have been aware of the archaeological excavations of Nineveh and may have seen in its discovery the hope for the end of slavery. The Riverfront Augusta report (Joseph 1993) provides an excellent summary of free African-American's history and archaeology, and the results of the project have also been published and discussed in several articles (Joseph and Reed 1991; Joseph 1992, 1997b, 2000).

Christopher Murphy of Augusta State University has directed several seasons of research on the campus of Augusta State, which formerly was the Augusta Arsenal, including several in collaboration with the Savannah River Archaeological Research Program (SRARP). Prior to the establishment of the Augusta Arsenal on the site (in operation from 1826 to 1955), this was the location of the Freeman Walker plantation, Bellevue. In 1976, Murphy conducted limited test excavations inside the quadrangle of the Augusta Arsenal, and this work, as well as the history of Bellevue and the Arsenal, are reported by Murphy and Crass (1996). The units uncovered a sheet midden of late nineteenth to early twentieth-century artifacts, as well as several features. Murphy and Crass (1996:69-70) note that the sheet midden, reflecting refuse discarded on the ground while the Arsenal was in operation, was concentrated along the walls and possibly under or behind no longer extant buildings, in locations which would not have been noticeable. While the midden was comprised primarily of architectural items (nails, window glass, etc.) it also contained a fair amount of domestic debris (ceramics, bottle glass and fauna). The origins of these materials within the Arsenal are less certain, although Murphy and Crass note that the midden was identified between a barracks and an officer's quarters. Murphy and Crass's (1996) review of the work on the Augusta Arsenal site also highlights research issues which could be addressed by future investigations of the site.

Atlanta

One of the earliest urban archaeology projects completed in Georgia were the excavations carried out in conjunction with the construction of the MARTA subway system. MARTA was the first large scale urban development in the southeast to receive archaeological investigation as a result of federal historic preservation and environmental laws. Archival research, survey and limited excavations were carried out for the MARTA project by Georgia State University, under the direction of Roy Dickens[9]. Two

[9] The late Roy S. Dickens had a profound influence on historical archaeology in Georgia during the brief time he was at Georgia State University in the late 1970s and early 1980s. Dickens was trained at the University of North Carolina under Joffre Coe, and his dissertation focused on Cherokee archaeology of the North Carolina mountains. While Coe was disdainful of historical archaeology in general, Dickens was likely influenced by two classmates and colleagues from North Carolina, Stanley South and Leland Ferguson, and upon arriving at Georgia State became the first University-based archaeologist in the state to show an interest in historical archaeology. While MARTA would be Dickens' largest historic project, he would also direct and participate in work on Civil War sites, dumps, house sites, historic cemeteries, and other resources. His influence is felt in the work of his colleagues and students at Georgia State, including Linda Carnes (now at Fort Bragg, North Carolina and a recognized authority on folk pottery of the

reports were issued as a result of this work, Bowen et al. (1977) and Carnes and Dickens (1979). The results of the MARTA project and issues associated with urban archaeology were also the subject of two articles, Dickens and Bowen (1980) and Dickens and Crimmins (1982), while Dickens' exposure to urban archaeology prompted him to develop one of the earliest edited volumes on the subject, *Archaeology of Urban American: The Search for Pattern and Process* (Dickens 1982). The MARTA project was one of the first to make archaeologists in the southeastern US aware of the prospects and difficulties associated with historical archaeology in an urban setting. MARTA project excavations in the Edgewood dump site are discussed below under the heading of Dumps.

Archaeological, historical and architectural historical investigations of the community of Johnsontown were carried out by The History Group for MARTA in 1982. The History Group was an early CRM consulting collaboration which also conducted work for the Richard B. Russell Reservoir (1981b). Headed by Darlene Roth, other members of The History Group included Roy Dickens, Robert S. Webb, James Collins and Sarah Hill. Roth, Collins and Webb were the lead figures for the Johnsontown project. This community developed during the early twentieth century on the location of a failed suburb known as Peachtree Park, located to the north of Atlanta. The archaeological work was correlated with historic maps of the neighborhood as well as extant architecture, providing excellent definition of the social-historical contexts of the artifacts encountered. However, the archaeological study was not deemed productive by The History Group (1982:59) and no further work was recommended. The archaeological field work identified a high degree of disturbance across the entire site (Johnstontown is in the vicinity of the present-day Lennox Mall and in the early 1980s was being subjected to urban redevelopment). Privies that were identified on the site proved to be sterile, "the wells were unsuitable for excavation," the dumps and middens contained "stratigraphic inversions," and the cellars "were actually basements and part of the functional living areas of the houses, not storage spaces" (The History Group 1982:59). While not a productive excavation, The History Group's history of the community (1981b) should be referenced by others working with twentieth-century urban communities.

Limited survey and testing excavations were conducted by Garrow & Associates in association with the redevelopment of Underground Atlanta. This work, completed for the construction of parking garages on MLK Boulevard on opposite sides of Pryor street, encountered the transformation of downtown Atlanta's terrain by cutting and filling associated with twentieth-century construction. While subsoil deposits were found immediately below the surface on the west side of Pryor street, more than four meters of fill deposits were exposed on the opposite side of the street, presumably reflecting cutting from the west and filling of a ravine to the east (Joseph and Reed 1996).

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southeast), Rowe Bowen (now head of the Cultural Resources Division at the Georgia Department of Transportation), Sarah Hill (now at the Atlanta History Center) and Linda Worthy. Dickens was prolific in his writing and his work, but he is perhaps best known for the cartoon-illustrated popularization of archaeology, *Frontiers in the Soil,* recently re-published by the Univeristy of Georgia (Dickens and McKinely 2003). One can only wonder where historical archaeology in Georgia might now be had Roy Dickens remained with us and with Georgia State.

R. S. Webb & Associates (Webb and Gantt 1996) completed historical research and conducted limited archaeological survey, monitoring, and data recovery for the construction of the Federal Center on the former site of Richs Department Store in downtown Atlanta. Only a single artifact-bearing feature was excavated, a well, which appeared to have been filled between 1850 and the early 1880s. Limited analysis was conducted on these remains, although Webb and Gantt (1996:102) note that the recovery of expensive and abundant cuts of meat, gold jewelry, fancy buttons, high priced ceramics, and vases and figurines all indicate the materials were associated with high status households.

Brockington and Associates conducted archaeological investigations of the Techwood/Clark Howell urban revitalization project. The revitalization efforts were partially funded by the Department of Housing and Urban Affairs (HUD) and hence subject to compliance with Section 106 of the NHPA. Archaeological investigations were carried out sporadically over a two-year period in response to a series of reconstruction efforts and were reported in 15 interim reports as well as single summary volume addressing both the history of the project area and the archaeological results (Gardner and Huddleston 1998).

None of the archaeological deposits recovered by the Techwood and Clark Howell housing project studies could be associated with specific families and occupations. Gardner and Huddleston (1998:237) address the challenges this presented to the project, as well as the research benefits of twentieth-century deposits. They provide an excellent and in-depth analysis of the artifacts recovered by the project, looking at housing project lifeways. Their analysis of decorative styles and status indicators as revealed by the ceramics showed that the material culture of Techwood and Clark Howell homes featured more expensive tablewares produced as decorated sets, as well as lower socio-economic status undecorated wares. The analysis of faunal remains from the site shows a preference and predominance of pigs throughout the occupation of the site, with a decline in the occurrence of chicken over time, presumably as the area became more urban. Higher priced foods, such as fish, were present throughout and wild species were nearly non-existent. Gardner and Huddleston (1998:248) note that the residents of Tech Flats enjoyed a variety of foods including those that could be raised and produced on site, those obtained from local butchers and grocers, and others which were imported from greater distances. Patent medicines appear to have been used for medicinal purposes, and a number of patent medicine bottles were recovered. Their analysis of trade origins and networks indicates that certain goods, such as beer, were imported, while others, such as soda, were locally produced (Gardner and Huddleston 1998:267). Gardner and Huddleston (1998) provide a comprehensive overview of twentieth-century artifacts and their analyses should be referenced by other archaeologists interested in the analysis of twentieth-century sites and of community housing project sites.

Columbus

While only a few projects have been conducted in this west Georgia river port, they include the largest urban data recovery study conducted in the state, which is still in progress, as well as a large faunal collection.

Southeastern Archaeological Services completed archaeological data recovery excavations at the Public Safety Complex (Ledbetter et al. 1997). The site, located on the block bounded by 5th and 6th Avenues and 9th and 10th Streets, was originally laid out in 1828. Ledbetter et al. identified 666 features in an area of 1,800 square meters of machine stripping (a density of 1 feature per 2.7 sq m). A total of 116 features were excavated, including a number of artifact-rich features such as wells, privies, and cellars, with deposits ranging from ca. 1840 to ca. 1920. The site was predominantly occupied by African-American tenants in the latter decades of the nineteenth century, with faunal remains in particular reflecting ethnic foodways over time (Ledbetter et al. 1997:403-404).

The Tillery lot was occupied after the Civil War by African-American tenants. By 1908, the School House lot was also occupied by African-American tenants. Although city ordinances against depositing garbage and animal carcasses in abandoned wells, privies, and trash pits were passed in 1890, at least some garbage was deposited in features on these lots into the middle twentieth century. Most were rapidly filled with garbage and buried. Thirty eight domestic mammals (pigs, cows, sheep/goats, dogs, and a rat), two rabbits, an opossum, 24 wild and domestic birds, 10 fresh and saltwater fish, and 58 dozen oysters were identified in the assemblage. Domestic mammals dominated the assemblage in terms of count, weight, and biomass or estimated meat quantity (Ledbetter et al. 1997).

The analysis of the remains from the Public Safety Complex site indicates that in the mid-nineteenth century, chickens and possibly pigs were still being raised on urban lots. Wild birds, freshwater fish, beef, and mutton/goat portions were probably purchased in a market or acquired seasonally in the vicinity of Columbus. Beef, mutton, and wild turkeys were imported from as far away as Kansas City. The oysters and fresh and salted marine fish were brought up along the Chattahoochee River from the Gulf of Mexico (Ledbetter et al. 1997).

A much higher diversity of wild species, including fish, birds, and mammals, was found in the later features, which is atypical of most late nineteenth-century faunal assemblages. This appears to reflect the increase in the tenant population on these lots during the late nineteenth and early twentieth centuries. The presence of tenants may have both required and enabled the purchase of a wider selection of meats, fish, and poultry than found on domestic lots without tenants. Food accounts could be divided in many ways, the total food bill for the family divided by the number of boarders plus head of household, totally separate accounts for meat and special foods, or totally separate accounts for each boarder. Heads of household, predominantly women, ran cafes or restaurants, and did not simply add people to the regular family mealtime routine. Some boarding houses functioned as restaurants to non-boarders also. Ledbetter et al. (1997)

thus suggest that the overall increased income of a household with tenants may have allowed for more choices in the marketplace and a more varied diet for the entire household (Ledbetter et al. 1997).

An extensive data recovery project was conducted by Southern Research Historic Preservation Consultants for the 2nd Avenue Downtown Redevelopment Project. This study examined a 10 block area in downtown Columbus. The data recovery excavations, directed by Rita Elliott, focused on four and a half city lots, and recorded 3,000 cultural features. Twenty-four wells, 15 privies, and 12 cellars were excavated, along with other features, and the material from these deposits represent Creek as well as subsequent European-American and African-American occupations. This project is the largest urban data recovery study conducted in Georgia and one of the largest completed in the southeastern US. Fieldwork was completed in 1998. Analysis and reporting are on-going as of this date, with the final data recovery report projected for completion in 2004.

Other Cities

One of the earliest urban projects conducted in the state was an archaeological salvage investigation of the Bay Street urban renewal project in Brunswick, conducted by West Georgia College in 1975. This investigation revealed both prehistoric and historic materials, however, apparently in mixed, un-stratified, contexts (Sheldon 1976)

Two projects have been completed along the waterfront of Darien. Water and Air Research conducted survey and evaluation studies for a sewer project in 1986 (Dickinson et al. 1986). Excavations were conducted on both prehistoric and historic sites in the route of the sewer line. The historic sites investigated were located along Darien's waterfront and Dickinson et al. (1986) observed six attributes of the waterfront deposits: (1) the use of fill deposits to create habitable land from previously inundated locations, (2) the presence of ballast as a building material in structures, roads and in landfill, (3) the presence of discrete deposits of trash and other "culled" goods, (4) a comparatively high percentage of kitchen debris, (5) limited artifactual evidence of commercial activities, and (6) a relative lack of faunal remains.

Fred Cook Archaeological Services conducted data recovery excavations of site 9MC367 in Darien in 1991 (Cook 1991). Historic deposits recovered on this site included the location of a tabby warehouse which burned in 1863 as well as nineteenth century refuse. Cook's (1991:175-176) analysis includes information on the use of tabby in construction along the coast.

Future Directions for Urban Archaeology in Georgia

The work completed to date in Georgia only serves to illustrate the potential of urban archaeology to address issues concerning the history and social background of Georgia's cities. Future projects should seek to develop and expand on these investigations by examining additional sites and city areas. The analysis of these projects should occur

within the context of the urban landscape and archaeologists working in the city must develop and present detailed land use histories of their sites which reflect their position in the developing urban area as well as changes in the social and cultural background of their inhabitants. Research into city directories, which list the names, ethnic background, and employment of urban residents by street address, is a vital element of urban archaeology and should be accomplished for all projects where city directories exist. Sanborn Fire Insurance Maps exist for the second half of the nineteenth century in most Georgia cities and these maps, which provide detailed depictions of the locations of buildings and support facilities, should be included in reports and utilized to help analyze and explain structure locations and their changes over time.

Urban projects completed in Georgia, and elsewhere, have documented excellent feature preservation with the projects which have employed machine stripping all revealing high densities of features. Due to the nature and magnitude of urban developments, machine stripping, feature mapping, and feature excavation is a recommended protocol for urban data recovery, and unit excavation should be employed only to the extent necessary to document site stratigraphy and to sample midden deposits where such exist. Efforts should be made to strip and map feature locations within entire lots, and one element of the interpretation and analysis of urban sites should address the landscape of the urban lot. By the second half of the nineteenth century, features such as privies which were often used as trash repositories, appear to have been clustered along rear lot lines, and urban archaeologists should be aware of this landscape pattern. However, recent work in Charleston, South Carolina (Joseph 2002) indicates that in that city early Colonial features were found nearer the street, with rear yard areas reserved for gardens and livestock. These locations would have been built-over by later residential structures, and archaeologists working in cities with a Colonial history (such as Savannah, Darien and Brunswick) should be careful to examine these near-street areas for the potential locations of Colonial features. Understanding the development and evolution of urban landscapes is critical to understanding the history of a site and to predicting the locations of deposits elsewhere in the city.

Urban research should seek to make comparisons not only with other contemporary sites which have been excavated within a particular city, but also with other contemporary sites in Georgia. Studies should compare and contrast places of manufacture to assess the degree to which marketing patterns and accessibility varied across the state, as well as to gauge the importance of local industries across the state. Research should also address the changes in urban landscapes, households, and material culture over time.

Faunal and floral remains should be analyzed for information they can provide not only regarding the urban diet but also landuse patterns and refuse disposal. The work that has been completed to date suggests that livestock were raised in urban settings later than suspected or permitted by law. The analysis of subsistence remains, such as that conducted in Columbus by Ledbetter et al. (1997), highlights the ability of food remains to interpret urban lifeways.

Future work should seek to identify and examine ethnic enclaves which were present in many of Georgia's cities and to compare and contrast ethnicities and to interpret the changes in ethnic identity which occurred over time. The locations of both enslaved African-American residences as well as those of free African Americans should be sought and the results of these investigations compared with the work conducted to date on African-American lifeways on the plantation.

Work in port and coastal cities should examine land reclamation and waterfront architecture to develop a better understanding of how Georgians dealt with building on the waterfront and the materials they used to create land fills.

Towns

As noted above, for this typology, towns are distinguished from cities on the basis of their legal organization and governance. While we employ a fairly simple typology in this study which distinguishes between towns and cities, towns themselves, or perhaps more accurately, communities, have been the topic of considerable historical research which has resulted in the publication of several more in-depth typologies (Casagrande et al. 1964:312-314; Wheaton and Reed 1993b:9-10). In Georgia, Darlene Roth has researched community formation and organization for the Historic Preservation Division of the Department of Natural Resources, and two publications have resulted from this work (Roth 1989, 1992). Roth (1992) recognizes 17 community types in Georgia. Their attributes and definitions are outlined below.

- *Settlements.* Settlements are described as small and dispersed roadside communities with a limited number of commercial, civic, and/or religious structures.

- *Crossroads Communities.* These communities are larger than settlements and are centered on the intersection of two or more roads. They tend to have a variety of community structures in addition to domestic occupations.

- *Water Town.* Water towns include coastal and river ports as well as towns which developed around ferry crossings. They are identified by their association with a water resource as the basis of their existence.

- *County Seats.* As the name implies, county seats feature the courthouse for the county which is often the central point of the community's organization, frequently associated with a square.

- *Capitol Towns.* These are the cities in Georgia which at various time's in the state's history served as State Capitols.

- *Market Towns.* These are larger communities, such as Macon and Columbus, which were established at the intersections of roads, rivers, and later railroads, and which supported the economic endeavors of their region. These cities are frequently formally organized with a grid system of streets.

- *Railroad Towns.* These towns developed around railroad depots, providing access to rail transportation as well as goods shipped by rail to the citizens of the surrounding area. Railroad towns are very common in Georgia and are described by Roth as the most frequent community type in the state.

- *Linear Communities.* These are concentrations of houses and sometimes stores arranged in a linear fashion along a road or railroad. Roth notes that these types of communities frequently appear on the outskirts of larger towns and cities.

- *Educational Centers.* These are towns established to support educational institutions in the state.

- *Military Centers.* These are communities developed to support military operations and fortifications.

- *Resort Communities.* These communities are associated with recreational and resort activities, and in Georgia are predominantly found in association with a pronounced geographical feature, such as the coast, the mountains, and springs.

- *Mill Villages.* These communities were developed as part of or in association with the construction and operation of mills and factories.

- *Utopian Communities.* These communities were established primarily for religious purposes and were most often segregated communities where only people who shared those religious views could reside.

- *Temporary Communities.* These were communities established and occupied for only a short period of time, such as religious camp sites and logging communities.

- *Aboriginal Communities.* Native American town sites, such as the Cherokee Capital of New Echota, are included in this designation.

- *Communities within Communities.* These are smaller, recognizable communities located within larger community settings. The free African American community of Springfield, discussed above, is an example of

this community type as it existed within the city of Augusta but was recognizable as its own community.

- *Combinations and Permutations.* Roth notes that many communities have complex histories and changed over time, and hence can be included in more than one type. For example, a County Seat can also be a Market Seat, as well as a Water Town and Railroad Town.

While this typology was developed primarily as an aid to historic preservation efforts and architectural historical surveys in the state, it provides a useful construct for classifying and comparing the archaeological remnants of communities.

The Archaeology of Towns in Georgia

Towns have been the topic of historical archaeology as much, if not more, than cities, although no town has received the magnitude of investigation that has been directed toward urban archaeology in the state. While towns have been looked at as a product of CRM investigations, much of the work on town sites in Georgia has been the product of grant and/or state funding. The archaeology of towns, in particular, is marked by the work of one couple, Dan and Rita Elliott, and is noted for their efforts at New Ebenezer. The archaeology of towns also exhibits a geographic bias, with the majority of towns which have received investigation located along the coast and the Savannah River. This review of the archaeology of towns in Georgia works from the opposite direction, beginning in the uplands and then moving south. Archaeological examinations of Petersburg, Wrightsboro, Traveler's Rest and Florence are discussed first, before preceding to a discussion of the work at New Ebenezer, Skidaway, Frederica, the Lost Cities, and Vernonburg.

Petersburg was established between the Broad and Savannah Rivers in 1786, as a commercial trading center for the tobacco trade, which was an important crop in Georgia's upcountry in the late eighteenth century. The town was short-lived, however, as the tobacco economy faltered in the early nineteenth century, as its demise was brought about by the replacement by the railroads of the Savannah River as the main transportation corridor to and from the upcountry. By 1840 the town had been abandoned. Presently submerged by the water's of Lake Thurmond, Rita Elliott was able to map and document the town's location from artifact and architectural concentrations on the lake's bed (Elliott 1988).

Soil Systems Inc. conducted archaeological and historical investigations of Wrightsboro in 1981 (Garrow et al. 1981). This research was completed to determine what evidence could be found of Wrightsboro, an eighteenth century Quaker town. Their work identified 10 archaeological sites and 19 structures or structural ruins, and their assessment was that the town site was eligible for nomination to the National Register as a historic district. Another study in Wrightsboro which made limited use of archaeological excavation was Askin's (1979) examination of the Rock House.

Traveler's Rest was a late eighteenth to early nineteenth-century town located on the Flint River just south of the town of Montezuma. It was the subject of a series of archaeological investigations sponsored by the City of Montezuma as Section 106 actions for a HUD funded housing development on the site. New South Associates completed archaeological data recovery studies of one portion of the town in 1992 with the results published in Wheaton and Reed (1993b).

Traveler's Rest was established as a way station on Georgia's frontier, which was then the Flint River. Wheaton and Reed (1993b:136) observe that the community could be classified as both a Crossroads Community and Water Town during its period of peak occupation (1810 to 1860) and as a dispersed community following the railroad's introduction to the region at Montezuma to the north, and the relocation of much of Traveler's Rest to that town. Archaeological work at Traveler's Rest made use of machine stripping to clear and map features associated with one corner of the town. Remains of a main road, three houses, outbuildings, and fence lines could be identified from the distribution of features on the site, although the houses themselves all appeared to have been of log construction. Socio-economic status indices indicated that all of these households were of lower to middle class economic status (Wheaton and Reed 1993b:132).

The town of Florence was established in 1827 on the Chattahoochee River on the frontier with Alabama. The town site was investigated by Southeastern Archaeological Services in 1988 in conjunction with proposed improvements to the Florence Marina State Park. The area examined was located on the edge of town and the archaeological work encountered lot lines associated with two houses. A cellar dating to between 1840 and 1860 was excavated and produced 23,934 artifacts (Ledbetter and Braley 1989). The materials recovered represented artifacts associated with a well-to-do household in the town.

While the archaeology of upcountry towns is dominated by examples of towns which were established as trading centers and entrepots, the archaeology of Georgia's colonial town introduces a settlement type not included in Roth's (1992) community typology. As part of the colonial settlement strategy, and as a buffer between the Native American tribes of the interior and the major British coastal colonial cities, the Trustees of Georgia, as well as the Lords Proprietors of South Carolina, established a settlement scheme in which religiously oppressed settlers from various countries were invited to come to the New World and establish ethnically discrete towns and settlements (Joseph and Zierden 2002). The result was a number of ethnically based towns. In Georgia, these included the Salzburger Germanic towns of Old and New Ebenezer, Vernonburg, and the German Village at Fort Frederica. All have received some archaeological attention, with the most intensive work focused on New Ebenezer.

Rita and Dan Elliott[10] have directed several seasons of archaeological research and have also compiled extensive historical background on the town of New Ebenezer in Effingham County. This work has been grant funded and also conducted on a volunteer basis and reflects the Elliott's dedication to addressing the history of this important site. The town of Ebenezer was established in 1734, by a group of Lutherans from the Salzburg region of Germany, known as the Salzburgers. The Ebenezer town site was abandoned after two years and a new location, on a bluff overlooking the Savannah River, was established with the new settlement known as New Ebenezer. By the 1760s, this town was the center of a thriving Germanic community of nearly 1,000 citizens. The Revolutionary War signaled the beginning of the end of New Ebenezer, however, as religious and political infighting hurt the community. The need for ethnically-based communities also diminished after the war, as the creation of a new national identity, the American, lessened the need to maintain and express European ethnicity in the New World. The town slowly faded from the scene in the late eighteenth century (Elliott 1988; Elliott and Elliott 2002).

Elliott and Elliott's work at New Ebenezer has revealed a number of aspects of German life in the colonies (Elliott and Elliott 1990, 2002; D. Elliott 1988). Among these is the recovery of a buff-colored coarse earthenware ceramic which appears to be locally made. As Elliott and Elliott note, there was a strong ceramic tradition among the Germanic settlers of the American colonies, and other colonial settlements, such as the Moravian settlement at Salem, North Carolina, developed potteries as part of both their community and industry. Salzburger Jean Pierre Pury noted in 1731 "there is not one potter in all the Province [South Carolina], and no earthenware but what comes from England…. a pot-house… would succeed perfectly well, not only for Carolina but for all the other colonies in America" (in Elliott and Elliott 2002:88). The buff-colored earthenware found at New Ebenezer is either unglazed, yellow slip-glazed, or lead-glazed, and cream pans, jars and saucers are all forms which have been recovered at the site. This pottery was apparently produced by George Gnann in the later stages of New Ebenezer, but the potter responsible for this ware early on (examples have been recovered from contexts dating to as early as 1740) is unknown (Elliott and Elliott 2002:88). Examples of this pottery have been recovered from as far away as the German settlement of Saxe Gotha, near present-day Columbia, South Carolina (Adams 2000).

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[10] Rita and Dan Elliott easily win any competion for First Couple which might exist in historical archaeology in Georgia. They have produced an impressive volume of work (referenced in this section as well as in many other sections of this context) and as importantly have been instrumental in the operations and promotion of the Society for Georgia Archaeology. They are the leading figures in the study of the state's colonial history, with Dan having researched colonial fortifications, Rita having investigated colonial industries, and both having worked on a number of colonial and early federal period towns. Rita Elliott is also one of the prominent figures, not only in Georgia but in the US at large, in promoting the integration of archaeology and education. Their work at New Ebenezer incorporates many of these aspects and stands as a landmark in the dedication of one couple to reveal, interpret and present the history of one of the state's forgotten landmarks. The Elliotts have worked with a number of the state's CRM firms over time and are currently with Southern Research. Much of their work, however, has been completed through the non-profit research center, the LAMAR Institute, of whom Dan Elliot is a Director. The LAMAR Institute has created a program of outreach and publication that should be the model for others throughout the nation, with a large and wide-ranging number of studies available for free download as pdf. files on their web site - http://shapiro.anthro.uga.edu/Lamar/

The Elliott's also consider the architecture of New Ebenezer to reflect the Germanic heritage of the Salzburgers. Timber framed post-in-ground architecture was revealed at New Ebenezer and appears to represent the adaptation of Germanic architectural styles to the southeastern climate and materials (Elliott and Elliott 2002:89). However, the Elliotts also note that the inhabitants of New Ebenezer were relatively quick to shed their German identity, particularly after the Revolutionary War. The Elliott's work at New Ebenezer continues, and this project offers the potential to further expand upon our knowledge of ethnic life and settlement in colonial Georgia.

Limited work was conducted in a CRM setting by Garrow & Associates on the town site of Skidaway New Village on Skidaway Island. Skidaway New Village was established as an outlier of Savannah by the 1740s to be settled by impoverished British immigrants. Survey and evaluation studies directed by Marvin Smith examined two lots within the town site. Evidence of tabby architecture was uncovered, as well as colonoware sherds which are more likely to be of Native American manufacture and trade than of African-American production, given their age (Smith et al. 1986).

Excavations have also been completed in the village of Frederica in association with investigations of Fort Frederica. Much of this work is unreported, although Honerkamp (1980) provides an overview of the archaeological excavations conducted by Charles Fairbanks, Kathy Deagan, and himself in both the fort and town. More recently, Dan Elliott conducted a CRM survey of outlying sections of the town for Garrow & Associates (D. Elliott 1987). The Frederica town site developed in support of the fort, and it is of interest to note that a "German Village" was described as part of the town, suggesting the presence of a separate ethnic community within the larger town.

Any discussion of the archaeology of towns in Georgia cannot be considered complete without mention of the Lost City Survey. Conducted by Dan Elliott through the LAMAR Institute in the late 1980s, the Lost City Survey was a reconnaissance level investigation of town sites in Chatham and Effingham Counties, including Vernonburg, Acton, Savannah, Abercorn, Old Ebenezer, New Ebenezer, Ebenezer Mill District, Bethany, and Mount Pleasant. This study gathered preliminary archival documentation and histories for each of the towns, and conducted archaeological fieldwork to determine their locations and conditions. The location of Acton had been lost to modern development, while the growth of Savannah over time had covered and in many instances destroyed any remains of the original town settlement. Mount Pleasant, Bethany, Abercorn, New Ebenezer, the Ebenezer Mill District and Vernonburg were all found and proved to be well-preserved. Elliott notes that the histories and settlement plans of these towns varied significantly. Savannah, New Ebenezer and Vernonburg exhibited centralized "urban" plans while Bethany, Abercorn and the Ebenezer Mill District were dispersed occupations. Military fortifications were associated with Savannah, Abercorn, New Ebenezer, and Mount Pleasant. Mount Pleasant was originally a Yuchi Indian village, subsequently a trading post and military garrison, and ultimately a town. Elliott notes that settlement patterns of the towns exhibited similarities, with preferences for bluff locations along the Savannah River as well as high ground overlooking the back swamps

of the Savannah. Mount Pleasant was established at a crossing of the Savannah River (Elliott 1990:142-143). The Lost City Survey provides important information on abandoned town sites along the Savannah River, and generated additional research at three sites: New Ebenezer, Vernonburg and Mount Pleasant. Work at New Ebenezer was discussed above. Mount Pleasant is discussed under the heading of Trading Post. The work at Vernonburg is discussed below.

Dan and Rita Elliott conducted historical research and archaeological survey and testing at Vernonburg as a LAMAR Institute grant funded project in 1993, and the results of that work were reported in Elliott and Elliott (1994). Vernonburg was established in the 1740s, by German settlers although the ethnicity of the town shifted over several decades to English. The town continued to be occupied up through the 1940s, making it one of the longest lived of the lost towns. Test excavations at Vernonburg examined several domestic tracts in the town, all of which were found to be well-preserved with intact cultural features. The components identified by the testing work were dated by MCDs to a range from 1776 to 1805 (D. Elliott and R. Elliott 1994:99). The Elliott's indicate that the early town lots and residents were located on the Savannah River bluff line, while by the nineteenth century lots were larger and had moved to the outskirts of the town. Their analysis of Vernonburg includes comparison of the Artifact Pattern produced from the town with a number of other community patterns (D. Elliott and R. Elliott 1994:108), which provides a useful and informative comparative look at patterning and its application to community settings (D. Elliott and R. Elliott 1994:107-113).

Future Directions for the Archaeology of Towns

Archaeologists working in a CRM setting on transportation project surveys should utilize Roth's (1992) community typology and historic maps, in particular county highway maps, to determine the locations and types of communities which may be archaeologically present within their survey limits. Highway widening projects in particular are likely to pass through and potentially impact a number of former communities. Archaeological surveys for these projects should attempt to identify the archaeological residues of these communities and to compare and contrast the findings from various community types.

The results of the Lost City Survey should be followed with funding and support adequate to conduct more comprehensive work on the town sites with archaeological potential. These abandoned towns are important archaeological resources which contain information on community development and social history in Georgia. While several lost towns exist that have good archaeological integrity, development pressures are likely to ultimately result in the loss of these remaining towns. Their acquisition through state or county green space funding should be encouraged and accomplished if possible, with the long-term goal of conducting further research and interpreting these sites for the public. Surveys in other portions of the state, particularly along the coast, which has the longest history in the state, should be aware of the potential for abandoned town sites and historical research should proceed fieldwork. There are undoubtedly other lost towns in Georgia, and the Elliott's research has demonstrated that these sites have tremendous research potential.

As additional work is conducted on town sites, synthetic and comparative research should seek to examine and contrast the material aspects of life in Georgia's towns with both urban and rural life. The research needed to be able to to make such comparisons does not exist throughout most of the state, but may be present in the association of sites and projects which have been completed in Effingham, Chatham, Bryan and Liberty counties. The potential exists for the development of an archaeological history of this particular region, and if funding becomes available, such a history should be prepared for the public's benefit.

House Sites

Three nineteenth-century house sites and ditches at the Darien Bluff Site (9McI10) were recorded by Shelia Kelly Caldwell during the 1950s in association with work at nearby Fort King George (see below). These excavations were reported in 1970 (Caldwell 1970). Fieldwork was conducted in association with improvements to the Fort King George site, under the auspices of the Georgia Historical Commission, which hoped to identify remnants of a Spanish mission on the site. Machine stripping conducted for the construction of a parking lot revealed the remains of a nineteenth-century tabby house and associated structures and ditches. Selected ceramics from this project, along with the notes, were sent to C. Malcolm Watkins for analysis and Watkins prepared a monograph on this work. He concluded, based on his analysis, that three nineteenth-century houses were present which contained artifacts indicative of a prosperous middle-class household (Watkins 1970). This study was one of the first to address nineteenth-century sites in the historical archaeology of Georgia, and it is interesting to reflect upon a time when it was necessary to send nineteenth-century artifacts to the Smithsonian for analysis.

Archaeological excavations were conducted by the Parks, Recreation and Historic Sites Division of DNR at the Robert Toombs house site in Washington County. This work was completed by John R. (Chip) Morgan of the DNR's Historic Preservation Section in 1976. The Toombs House, dated to 1797, was built by Dr. Joel Abbott and subsequently went through several changes in ownership before being acquired by Georgia statesman Robert Toombs in 1837 (Morgan 1981:1). The state's acquisition of the house for interpretation as a historic site led to issues concerning its restoration which could affect archaeological resources, and also produced questions about the construction sequence of the house which archaeology could potentially address. Morgan's research indicated that the house was constructed in four phases which the artifactual evidence allowed to be placed in chronological order (Morgan 1981:140-142); that an appendix to the house had been removed, that the original Abbott portion of the house had been moved back from the road prior to the house's expansion, and also a tentative assessment of the season when each phase of construction took place (Morgan 1981:142-154).

Karen Wood conducted archaeological excavations of the Thomas M. Gilmer house site in Oglethorpe County in 1980. The historic ca. 1800 Gilmer house had been relocated to Wilkes County and the archaeological work on the house site was conducted to gain a better understanding of its setting so that the re-located house site could be placed in a more historically accurate recreated environment. Wood's (1980a) research documented

the visible remnants of the house foundation as well as sheet midden deposits from the surrounding yard and identified the location of a well and a log outbuilding. She noted that the Gilmer house was the last surviving element of the Goosepond District, an early settlement in Oglethorpe County, and recommended that further work be conducted on the site and in the district.

Kay Wood also conducted investigations of the Crawford W. Long House in Danielsville, Madison County, in 1980. The house had been acquired by Robert Doyal who received a grant from the Heritage Conservation Recreation Service for its restoration, and the archaeological survey was required as a condition of that grant. The archaeological excavations identified a stone chimney pad and the remains of a brick chimney from an exterior chimney (Wood 1980b:23).

Archaeological excavations at the Elisha Winn House in Gwinnett County were completed by Soil Systems Inc, in 1980 under the direction of Patrick H. Garrow[11] (Garrow 1980). This work was conducted in association with the planned restoration of the Winn House. The archaeological investigations revealed that erosion had impacted the site but succeeded in identifying the location of missing wings of the house and an outbuilding, which was probably a kitchen. The survey also identified structural ruins in the area of a modern barn which were believed to represent the location of a building which housed the first court sessions in Gwinnett County. Finally, another set of ruins were identified which possibly represented the site of a historic jail (Garrow 1980:18-19).

Brockington and Associates conducted archaeological testing and data recovery excavations at Bulloch Hall in Fulton County in 1998. These excavations were completed to assist the interpretation of Bulloch Hall, which is operated by the City of Roswell as a house museum. Excavations were conducted in the areas proposed for the reconstruction of a slave house, well shelter, and privy (Butler et al. 2000). The area of the reconstructed slave house was historically used for slave housing at Bulloch Hall and the artifacts recovered thus presumably reflect enslaved African-American lifeways.

[11] Patrick H. Garrow is a leading figure in the history of the cultural resource management (CRM) industry in this nation and a guiding force in CRM historical archaeology in the southeastern US. Garrow first made his mark in Georgia archaeology while on the faculty of Shorter College, conducting work at the Chieftains (see below) and the landmark excavations of the King Site, a sixteenth-century Mississippian site in north Georgia with evidence of Spanish contact. He subsequently worked briefly as a historical archaeologist for the state of North Carolina before joining the environmental engineering firm Soil Systems, Inc. (SSI) in the late 1970s and returning to Georgia. Garrow would develop the CRM program at SSI, one of the first in the nation. Under his direction, SSI would become a major player in CRM in the US. SSI and Garrow carried out a number of important projects in historical archaeology, most notably the work at Yaughan and Curriboo Plantations. After SSI ceased its CRM operations, Garrow and his wife Barbara would establish Garrow & Associates which too rose to prominence in the industry from the mid 1980s to the mid 1990s. Garrow & Associates would be acquired by the national environmental firm TRC in the mid-1990s and has operated as TRC-Garrow until recently. Pat Garrow has worked on a wide range of historic sites throughout the eastern US and is best recognized for his work in urban archaeology. Through his leadership of a series of prominent CRM firms Garrow employed and trained a number of historical archaeologists working in the state and elsewhere today, including Dennis Blanton, Dan Elliott, Chris Espenshade, Beth Gantt, Joe Joseph, Terry Klein, Lisa O'Steen, Lynn Pietak, Marvin Smith, Brian Thomas, Guy Weaver, Paul Webb, R. Steven Webb and Tom Wheaton. He is currently semi-retired from CRM and living in the town of Dandrige, Tennessee.

Analysis of the foodways indicate that the Bulloch Hall slaves subsisted on domestic animals which were occasionally supplemented by turtles. Comparisons of the status indicators of ceramics recovered from the slave area with those recovered from a midden associated with a well which presumably represents the main house indicates, not surprisingly, that the main house residents were of high status (Butler et al. 2000:56-61). This observation was confirmed by several measurements of socio-economic status which Butler et al. (2000) described and employed.

The GDOT has conducted archaeological excavations and historical research on the Spier House site (9FU411) in south Fulton County, under the direction of Shawn Patch (Patch 2004). The property is associated with Allison Spier, a planter and politician who moved to Fayette County and the study site in 1851 (the property was then located in Fayette County and would not be added to Fulton County until later). While previously a resident of Pike County, Spier had served as a Judge of the Inferior Court and his success as farmer led to the acquisition of African-American slaves and wealth and precipitated his move to Fayette County and his transition to life as a planter. The 1850 Census records him as the owner of 26 slaves (Patch 2004:21), and Spier acquired more than 800 acres in Fayette County for his new plantation.

Patch (2004) believes Spier constructed the house whose ruins now define site 9FU411 in 1851, when he moved to Fayette County. The house site is significant for its architecture and was recommended eligible to the NRHP under Criteria C and D (Patch 2004:37-38). The Spier house apparently features a two storied I-house with paired end chimneys and an attached kitchen "elle" with a rear chimney. The end chimneys on the main building are of granite construction with an interior brick lining. The granite work features an unusual coursing, with large broad vertical granite slabs alternating with a thinner course of granite fragments and chips. The kitchen elle features a walled cellar with a hearth within the cellar. While the chimney of the kitchen is not as refined in its architecture as the main house chimneys, it is also constructed of granite and includes a massive granite lintel. In addition to the cellar hearth, there is an exterior staircase leading into the cellar which suggests the possibility that it may have served as a residence, possibly for some of Spier's enslaved workers.

The coursing and construction of the main house chimneys, the use of granite in the house's construction, and the presence of a lined basement with a chimney hearth and exterior entrance are all unusual attributes in antebellum architecture in Georgia. Following the identification of the Spier House, GDOT Historian and Archaeologist Terri Lotti encountered a similar appearing standing structure in DeKalb County and when interviewing its owner, learned that this structure too contained a heated basement which according to the owner had been used to house slaves. Further archaeological and historical investigations of the Spier House are currently being conducted by New South Associates, and preliminary research suggests that this building style may have been brought to Georgia from the Shenandoah Valley of Virginia. Patch's work at the Spier House highlights historical archaeology's ability to provide a more complete understanding of Georgia's architectural heritage.

Dumps

As communities grew in size, the amount of refuse they produced became an issue. Trash dumps developed in community settings through both formal and informal processes. Prior to organized garbage collection, many citizens disposed of their refuse themselves, with vacant lands being employed as trash dumps. In the Piedmont, gulleys and ravines were especially used as dumping sites as these locations were uninhabitable and since use of these settings as trash dumps also acted as a deterrent against erosion. The disposal of trash in gulleys, the "Piedmont Pattern of Refuse Disposal" (Drucker et al. 1992) has already been discussed under the topic of farms. In community settings such as towns and cities, this refuse disposal pattern likely represented the trash and refuse of a number of families and households, and such dumps were often associated with a particular neighborhood or area. As cities grew in size, all developed municipal garbage collection and disposal programs. Municipal garbage collection was found in all of Georgia's cities by the middle of the twentieth century, and in some cities municipal garbage collection programs were instituted by the late nineteenth century. Municipal trash dumps are perhaps the most communal of community sites, since the refuse they contain reflects a broad range of households and neighborhoods, often cross-cutting social and ethnic boundaries. For this reason, the research value of dumps have limitations, however, the artifacts these sites contain do have interpretive potential. Two Atlanta-area dumps have received archaeological attention, Edgewood and Maddox Park.

The Edgewood Dump was recorded by Georgia State University as an element of the MARTA project. The site was associated with the Edgewood Community, located on the outskirts of Atlanta, and was represented by a ravine filled with domestic refuse during the period from 1908 to ca. 1911 (the 1912 Sanborn Fire Insurance Map shows a house on this location, indicating that the ravine had been filled before that date) (Hill 1982:292). Limited excavations of the site under the direction of Roy Dickens resulted in the recovery of 522 whole bottles. Sarah Hill used the bottles, identifiable information they contained about their date of manufacture, and the tight time frame of their deposition to look at time lag in bottle use. Interestingly, she noted that the greatest time lag between the date of product manufacture and disposal occurred for fresh beverages, such as soft drinks and juices. This, she noted, could have been a produce of recycling of the bottles themselves, or may indicate that such beverages were not frequently consumed in the community. Beer, another fresh beverage, also had a long time lag between production and disposal. Longer time lags were seen for medicinal bottles and wine, however, in both of these instances the contents of the bottles were not ones which required prompt consumption. As a whole, Hill found the time lag depositions at the Edgewood Dump to be longer than those represented by three other dump sites in her comparison, which may reflect the lower socio-economic class of the residents of the Edgewood community (Hill 1982).

A second study of the artifacts from the Edgewood Dump was conducted on the recovered ceramics by Linda H. Worthy (1982). Worthy's article on the Edgewood ceramics devotes considerable attention to defining the types and forms of pottery encountered on late nineteenth to early twentieth century sites, which at that time were

not well documented. Of the ceramics recovered from the Edgewood Dump, she notes a higher frequency of bowls and cups than would be expected. She notes that the analysis of other artifacts from the dump suggest that the deposits formed during the fall and winter, and thus observes that "One would expect more use of soups and stews in the cold months and at times of greater food consumption" (Worthy 1982:348). Worthy also calculated the manufacture and deposition time lag of the ceramics from Edgewood, based on maker's marks, and observed that porcelain had the greatest time lag at 20.25 years and stoneware the shortest, at 17 years. She suggests that porcelain, because of its cost, less frequent use, and durability would have been expected to be the most long-lived ceramic, whereas stoneware, because it was inexpensive and more heavily used, would be the least long lived (Worthy 1982:353). Finally, her review of manufacture and trade networks at Edgewood indicated that the majority of the ceramics on the site were produced from industries in the US and abroad (Worthy 1982:356-358).

The final article to result from the Edgewood Dump project was an analysis of the foodways exhibited at the site by Paula Davidson (1982). Davidson examined the fauna recovered by the Edgewood excavations. On the basis of her analysis, she concluded that the fauna "reflect the activities of several lower middle-class suburban families during a winter season" (Davidson 1982:329). Evidence to support this interpretation included the presence of numerous soup bones, which Davidson (1982:329) took to be examples of "cold-weather subsistence activity." Davidson's analysis of the faunal remains also benefited from interviews with a former resident of the Edgewood community. This respondent informed Davidson that the communities meat preferences were, in order, beef, chicken, pork and fish. The respondent also indicated the pork was eaten more frequently in the winter. Finally, the informant advised Davidson that soup was eaten year-round, although more soup was consumed in the winter months. The analysis of the faunal remains from the Edgewood site confirmed these and other observations (Davidson 1982:392-394). Unfortunately, Davidson did not identify the ethnic background of her informant or the community.

John Milner Associates and New South Associates conducted historical and archaeological investigations of the Maddox Park Site (9FU114) for another MARTA project in 1988. Maddox Park was known as the city of Atlanta's "Sanitary Dumping Ground" and was in operation from 1884 to 1910 (Reed et al. 1988). The Maddox Park report provides an excellent history of the development of municipal garbage collection in Atlanta as well as the technology of garbage collection and disposal. The archaeological study of the site determined that it was eligible for nomination to the National Register of Historic Places, exhibiting several phases of expansion and deposition which thus offered a series of time capsules documenting the material culture of Atlanta during the late nineteenth and early twentieth centuries. However, the locations proposed for development by MARTA's Proctor Creek rail line had already received impacts from twentieth-century construction, and as a result, no further work was recommended. The Maddox Park report provides cursory but no comparative analysis of the limited artifact collections recovered from machine split-spoon auger excavations.

Future work on dump sites should recognize that there is considerable redundancy and volume in the materials that dumps contain and therefore large scale excavation is not necessary to examine these sites. Where there are temporally discrete dump deposits, such as at Maddox Park which expanded over time or as exhibited by stratification on community dumps, analysis of the changes over time should be an objective. Other analyses should look at trade network, seasonality, and community patterns as expressed by dumps.

Military Sites

Georgia has a long, diverse and fascinating military history which has received a fair degree of archaeological attention. While the Civil War history of the state is best known to its residents, fortifications exist from the earliest days of settlement onward. Several of these have been the focus of archaeological research, and the following discussion presents the Archaeology of Military Sites in Georgia from settlement on.

The Archaeology of Military Sites in Georgia

The Archaeology of Colonial and Early Nineteenth-Century Frontier Fortifications

British colonization of Georgia brought with it a series of fortifications to protect the colony from attacks by the Spanish in Florida as well as from Native American uprisings. Savannah itself was palisaded, and as the city grew an outer defensive line preceded its expansion up through the Civil War. Darien and Frederica were the other major fortified settlements of the colonial era. Smaller military garrisons and forts were located at Mount Pleasant and Ebenezer on the Savannah River, the Isle of Hope on the Skidaway Narrows, Fort Argyle on the Ogechee River, and Mount Venture on the Altamaha River. These garrisons served as the base of operations for the Rangers. The Rangers were colonial troops assigned to patrol Georgia's frontiers and to sound the alarm in the event of enemy attack. Unlike the British military, the Rangers were comprised of American colonists and operated as small companies on a somewhat informal basis. Dan Elliott (1997) notes that they usually traveled by horseback, but were equally adept on foot and in travel on the rivers by sailing or rowing. Their uniforms probably incorporated parts of the uniform of Oglethorpe's 42nd Regiment of Foot, which featured a red coat with olive trim. They were likely armed with two flintlocks, a pistol and a carbine, and would also have carried as field supplies a powderhorn, pack, cartridge box (cartouche) and a blanket (Elliott 1997).

Three of the Ranger garrisons have received archaeological attention: Mount Pleasant, Fort Argyle, and the Isle of Hope. At Mount Pleasant General Ogelthorpe authorized a garrison of a dozen Rangers. While the Rangers were decommissioned in 1748, some apparently remained stationed at Mount Pleasant until 1756 and William DeBraham's map of 1757 recorded the location of a "Mount Pleasant Ft". Dan Elliott and Rita Elliott's (1990) excavations at Mount Pleasant identified posts and bricks which appear to

be part of the fort's construction, but knowledge of the configuration of this fort awaits further archaeological research.

Excavations at Fort Argyle were sponsored for Fort Stewart and the Department of Defense with funding from the DoD's Legacy Program. Dan Elliott (1996, 1997) conducted archival and archaeological research on the fort. He notes that Fort Argyle was originally constructed in 1733, as a small square enclosure with projecting corner bastions, which was defended by four cannon. Elliott indicates that a central two-story blockhouse was probably present within this enclosure. The fort was rebuilt in either 1742 or 1743, during King George's War. The size of the fort was expanded to a square enclosure measuring 110 feet on each side. A barracks with a brick chimney was built into one side of the fort, nearest the bank of the Ogeechee River. A third rebuilding occurred during the French and Indian War of the 1760s. However, there is little historical or archaeological documentation to indicate the size and configuration of the fort at this time (Elliott 1997).

Archaeological excavations of Fort Argyle completed by the LAMAR Institute in 1996 uncovered several sections of palisade line and ditch, a moat, two corner bastions, and several structures. Among the artifacts recovered by the excavations were gun flints made both of English flint and of bottle glass, the latter an expediency brought about by life on the frontier. Analysis of the military remains from Argyle suggested to Elliott that most of the weaponry used by the Rangers was small, with pistols preferred over muskets. The degree of use wear seen on gunflints, as well as the efforts to fashion a flint from bottle glass, speak to the Ranger's isolation on the frontier and their need to conserve the resources which were critical to their existence. Elliott's (1996, 1997) work at Fort Argyle provides an important look at the lives of the colonial Rangers which hopefully will be supplemented and complemented by future investigations of other ranger garrisons.

Another colonial garrison which has received archaeological attention is Captain Noble Jones' Wormsloe. This plantation site was established by Noble Jones on Skidaway Island in the late 1730s and included a fortified house site, and a small company of Rangers. Wormsloe was a tabby fortified house site and a garrison of about 10 Rangers were stationed there in the 1740s (Kelso 1979:10). The fortified house is described by Kelso along with the artifacts recovered during excavation of the site.

Kelso also investigated the oldest fort constructed in the state, Fort King George (Kelso 1968). This fort was built at the town of Darien to protect the colony's southern coast from Spanish attacks. The first fort was built in 1721, prior to the establishment of the colony, but this fort accidentally burnt to the ground in 1727. Fort King George was built on the location of an earlier Spanish mission, on a bluff at a bend in the Altamaha River. The troops that built Fort King George would later build Fort Frederica, which in essence replaced Fort King George. Kelso's work recovered artifacts from the Spanish mission as well as material from the later town of Darien, which was created in 1736, by Scottish Highlanders. Fort King George is today the location of an interpretive park.

Fort Frederica was established to protect Georgia's southern coast from Spanish invasion. Located on St. Simons Island, Frederica was built in 1736. The settlement included both a town and fort, and due to the threat from the Spanish, located only 75 miles away, Oglethorpe enclosed the 40 acre town site with an earthen rampart, palisade, and ditch. Fort Frederica was built within this enclosure on a bend on the bank of the Frederica River. Constructed of tabby, the fort had three bastions and a projecting battery, known as a ravelin, which guarded the entrance. The early garrison at Frederica was small, and Oglethorpe, concerned by the threat of attack, returned to England to raise forces. He was given the 42nd Regiment of Foote, consisting of nearly 600 troops. A year after these troops arrived at Frederica, England declared war on Spain and thus began the nine-year conflict known in the America's as King George's War. Following an attack by Oglethorpe on St. Augustine, the Spanish attacked Frederica. The Spanish troops landed at Gascoigne Bluff and marched on the fort, but Oglethorpe surprised them with an ambush at the Battle of Bloody Marsh. Repulsed, the Spanish retreated from Georgia, never to attack again. When peace was declared in 1748, the garrison at Fort Frederica was disbanded and the town's population also declined. In 1758 a fire swept through what remained of the town, bringing Frederica to an end (Moore 1997).

The National Park Service's General Management Plan (NPS 2001) for Fort Frederica indicates that there have been at least 40 archaeological investigations of Fort Frederica. The earliest work was conducted by the University of Florida and is the subject of Nicholas Honerkamp's dissertation (1980). Efforts to identify the reports of more recent investigations by the NPS were not successful, and there does not appear to be any recent report summarizing the archaeological work at Frederica conducted by the NPS. The GMP (NPS 2001) notes that various archaeological excavations on the site have exposed the remains of 21 tabby and brick foundations, including the remains of a burial vault, the foundations of homes within the city walls, the magazine, and a barracks.

While the forts described above were all created to provide a presence on Georgia's colonial frontier, archaeological work has also been conducted at one early Federal period frontier fort which is described in this section. Fort Hawkins was created in 1806 as a military outpost situated on a high hill overlooking the Ocmulgee River and what was then Georgia's frontier. The site was close to Ocmulgee Old Fields, an important Native American settlement and Creek town and the location where several trails, including the federal road, cross the shoals of the Ocmulgee River. The selection of this location for a fortification thus also benefited trade with the Creeks and other Native Americans. The importance of Ocmulgee Old Fields in the Indian trade is noted by the fact that a trading post was established there during Colonial times. Fort Hawkins would be named for Benjamin Hawkins, who was a key figure in state and national relations with Native Americans during the late eighteenth and early nineteenth centuries. The fort was constructed by John Hawkins in 1805 as a Native American factory, a trading post on the frontier, which also supported a military company. Its life as a trading post was relatively sort lived, however; as the factory was losing money almost from the outset, in part because the Native Americans were used to receiving a value of 25 cents per each deer pelt which was no longer supported by the European market but which the traders at Fort Hawkins continued to pay. By 1813 a new fort and factory, Fort Mitchell, had been

established far to the west which quickly assumed ascendancy in the Indian trade leading to the cessation of Fort Hawkins. In 1816 Fort Mitchell was designated as the main federal factory for the Indian trade and Fort Hawkins was relegated to the roll of storage. An 1812 report indicates that 73 soldiers were garrisoned there and during the War of 1812 the Fort served as a training center for recruits. After the war, however, the importance of the fort declined and it was no longer needed following the Indian land cessions of 1821 and 1826, which expanded Georgia's western boundary to the Chattahochee river, where it is today. By this time Fort Hawkins was abandoned (DeVorsey and Waters 1971).

Archaeological work at Fort Hawkins was first conducted by Gordon R. Willey while Works Progress Administration (WPA) excavations were on-going at the Ocmulgee National Monument. Willey conducted a two week field investigation which examined palisade lines and the location of one of two blockhouses on the site. Wiley found evidence of the palisade, including the preserved remnants of posts used in its construction. His results were never formally reported but the field notes and drawings were filed at the Ocmulgee National Monument. Now legendary historical archaeologist Stanley South reviewed Willey's notes and prepared a short report of his observations. Willey had reported that the western palisade line extended for a length of 90 feet before reaching a 10 foot gap. Past this gap the line extended another 20 feet before reaching a 20 foot gap. Willey's notes indicated that he thought that the area of this second gap possibly had been scraped, destroying evidence of the palisade line. However, South (nd), observing that historical reports described four long houses which were centered on each of the fortification's four palisade lines, suggested that the long house could have been build of log construction with their walls becoming elements of the palisade line. Thus the 20 foot gap would indicate the location of a long house which would mean that the fort's walls were 240 long on each side, and the 10 foot gap the location of a gate. With these interpretations in hand, Richard Carrillo conducted excavations at Fort Hawkins in 1971 with the goal of further understanding Fort Hawkin's construction. Carrillo's work found the western palisade lines which had been recorded by Willey and found sections of the southern palisade line and ditch, although along this axis there was a greater degree of disturbance. Based on these findings, Carrillo (1971:31) stated:

> *Through the combined use of archaeology and historic documents it was possible, in this instance, to clearly identify some major dimensions of Fort Hawkins, and, by inference, conjecture other dimensions…. The distance between the north wall of the southeast blockhouse and the center of the 22 foot gap is 148 feet. This figure when doubled results in a conjectured dimension of 296 feet for the east palisade. The fact that the assumed north-south dimension closely coincides with that of the known east-west dimension is evidence that the 22 foot gap represents one of the… [long houses] mentioned in the historic account.*

While Carrillo, Willey and South's work has answered several questions about Fort Hawkin's construction and dimensions, there are still questions outstanding. The Fort Hawkins' commission is presently seeking funding to conduct additional archaeological

research on the site with the long-term objective of revitalizing this site for heritage tourism. A reconstructed blockhouse with a small exhibit are present on the site and may be visited through arrangements with the Fort Hawkins Commission.

The Archaeology of Revolutionary War, Frontier and War of 1812 Fortifications

It is the nature of fortifications that many are not easily contained within one time period. Most of the land that was suitable for fortification in one period of time was equally defensible and important in another. Likewise, fortifications were frequently rebuilt and re-used over time, and the history of military conflicts in Georgia produced a pattern in which a location was fortified and garrisoned in response to the defensive needs of the time of its origin, allowed to decline and deteriorate during times of peace, and subsequently restored, rebuilt and reoccupied as conflict again reared its head. This is the case with the two forts covered in this section, Fort Morris and Fort Pulaski, both of whom saw their origins as fortified sites in the colonial era and who continued to receive military attention and construction through the Civil War.

Fort Morris was established at Sunbury in Liberty County and was the subject of an intensive archaeological and historical investigation sponsored by the Division of Historic Preservation in the Georgia Department of Natural Resources and conducted by Dan Elliott of Southern Research (D. Elliott 2003). Elliott notes that the earliest records of fortifications in the area which would become Fort Morris date to 1741, when Captain Mark Carr established a fortified plantation with a company of Rangers at a location on or near what would become Fort Morris. The fort itself was constructed for the Revolutionary War and was later rebuilt and reused as Fort Defiance during the War of 1812. During the Civil War confederate troops were garrisoned at Sunbury and may have camped on the fortifications. Fort Morris was established on a bend in the Medway River. This placement emphasized the strategic value of the bends, which provided a good line-of-sight in both directions, and a location on a river bend was chosen for several of Georgia's fortifications, including Mount Pleasant, Fort Argyle, and Fort Frederica, all discussed above.

Fort Morris was built to defend the town of Sunbury, established by Mark Carr in 1758. By 1760 a log fort had been built at the town although Elliott (2003:17) notes that the colonial records reveal neither its location nor dimensions. The Revolutionary War would bring about the construction of Fort Morris. Sunbury was controlled by the American revolutionaries at the beginning of the war and the Continental Congress passed a resolution for the construction of a fort there as well as in Savannah. Construction of the Revolutionary War Fort Morris began in July of 1776. A map of the fort prepared by Lieutenant Colonel Archibald Campbell shows the fort as rectangular in shape with projecting corner bastions. Fort Morris was used as a staging area for American troops in three unsuccessful attacks on east Florida. The British attacked Sunbury and Fort Morris in 1778, but were rebuffed. A second attack and siege launched in 1779 was successful and in January of that year Fort Morris was taken and was renamed Fort George. By September of 1779 the British abandoned Sunbury and its fort, which were shortly re-occupied by the Americans. However, the British retook control of the town and fort in October, 1779 and held them until 1782. In the spring of 1782 the

fort was re-captured by the Americans. The disruptions of the Revolutionary War would lead to the decline and end of the town of Sunbury, while Fort Morris itself would be abandoned at the end of the war (D. Elliott 2003:24-40) (Figure 23).

During the War of 1812, an earthen-walled fort known as Fort Defiance was built on the site of Fort Morris. This fort was garrisoned for a short time during the war, but was not attacked. The remains of this earthen fortification are still visible on the site today (D. Elliott 2003:42).

The archaeological investigation of Fort Morris made use of ground-penetrating radar (GPR) to search for subsurface anomalies in several areas of the fort, machine stripping to ground truth the locations of potential features, and shovel test and test unit excavation. A very large number of anomalies were recorded by the GPR, reflecting the intensity of the occupation of Fort Morris, Fort George, and the later Fort Defiance. The excavations also recovered large numbers of military artifacts, including lead shot, gun flints, shrapnel, and a bayonet fragment; gun parts such as locks, escutcheon plates, and trigger guards; and military uniform buckles and buttons. The density of deposits and features in the areas investigated, as well as the size of the Fort Morris site, preclude an absolute interpretation of the history of the fort, but Dan Elliott (2003) was able to make a number of observations based on his research. The archaeological work suggests that Fort Morris was larger than the later Fort Defiance extending to the south of the walls of that 1812 fort. The archaeological work, as well as the history of other Revolutionary War battles and forts, suggests that Fort Morris was substantially expanded and rebuilt following its capture by the British and conversion into Fort George. Dan Elliott (2003:121-122) notes that the British troops stationed at Fort Morris were considerably more numerous than the Americans forces previously garrisoned at the fort, which would have called for an increase in the fort's dimensions. He also observed that a large amount of shrapnel and other munitions debris as well as dense deposits of burned materials were observed at several locations on the site. This suggested to Elliott that following the British bombardment and capture of the fort in 1779, much of its buildings would have been substantially damaged and in ruins, and that it is thus likely that the British would have burnt the remaining structures and shoveled the debris into depressions left by the attack and others. Among the depressions which were apparently filled at this time was a section of moat which located one area of Fort Morris's walls (D. Elliott 2003:122). Elliott notes that as part of this clean-up, useful and valuable artifacts such as weapons, coins and jewelry were likely collected by the British troops.

The archaeological work identified the location of a burnt structure in what would later be the Fort Defiance parade grounds which was interpreted to have been the Revolutionary War era American barracks. While the full limits of this structure

Figure 23. Enlargement of Col. Archibald Campbell's Map of 1779 Showing Fort Morris (from D. Elliott 2003)

(Structure 2) were not defined, the archaeological work indicated that the floor of this structure was composed of brick and tabby rubble, while the hearth was made of clay (D. Elliott 2003:125).

No evidence was found of the location of American or British troops killed during the battles at Sunbury. Dan Elliott (2003:126) notes that on other Revolutionary War battlefields in Georgia, the dead appear to have been hastily buried on the battlefield. At the Revolutionary War battle of Spring Hill, in Savannah (noted above under Cities), contemporary accounts indicate that mass graves were dug on the battlefield with as many as 100 soldiers placed in each mass burial. Other eighteenth-century forts in Georgia had associated cemeteries which would have been used for the burial of troops who died of illnesses as well as wounds. Such a cemetery was likely associated with Fort Morris, and could also contain the graves of soldiers killed in battle. The location of this cemetery, as well as further analysis of the fort itself, must await future research.

Dan Elliott (2003) offers one of the most comprehensive looks at a Revolutionary War site produced to date in the southeastern US. The report provides a wealth of data on military history, fortifications, uniforms, and armaments and should be referenced by anyone addressing late eighteenth and nineteenth century pre-Civil War military history in the state.

Fort Pulaski is a post-War of 1812 fortification that, like Fort Morris, was built on or near earlier colonial fortifications. Fort Pulaksi was built on Cockspur Island, just inside the mouth of the Savannah River. This location was chosen for the construction of Fort George, a 100 foot square palisaded fort with a 30 foot high block house, that was constructed in 1758 to guard against pirates as well as attacks by the Spanish. Fort George had fallen into disrepair by the 1770s. Fortifications on this point were rebuilt in 1794, as a result of Congress's passage of the "First American System of Fortifications." Fort Greene, built on the site of Fort George, was constructed of timber-and-earth construction and was surrounded by pickets. Used primarily as a quarantine station, Fort Greene was destroyed by a tropical storm in 1804 (Meader 2001:2-3). The Second System of Coastal Defense was created by Congressional appropriations in 1807 which resulted from growing tensions with Great Britain. These tensions resulted in the War of 1812, and in 1816 funding was authorized for a Third System of Defense which was intended to rebuild the coastal fortifications which had been damaged during the War of 1812. Fort Pulaski is a product of the Third System.

Planning for Fort Pulaski was begun in 1829 with survey work conducted by Major Samuel Babcock and assisted by a young West Point graduate Robert E. Lee. Construction of the massive brick fortification began in 1833 and would not be completed until 1847. Approximately 25 million bricks were used in the construction of the fortification's walls, which were constructed by enslaved African-American laborers working under the supervision of skilled northern masons who were recruited for the job. The length of time needed for the construction of the fort was a product of its scale, cost, sporadic financial appropriations, and frequent storms and hurricanes which impacted the

construction effort. The fort was named for Count Casimir Pulaski, who had fought with the American forces at the Siege of Savannah (Meader 2001:3-4). The fort would see its most sustained action during the Civil War, and is discussed in the section that follows.

The Archaeology of Civil War Sites

In January of 1862, Georgia Governor Joseph E. Brown ordered the Georgia Volunteer Militia to take command of the then unoccupied Fort Pulaski. The Confederate troops quickly prepared the fort for engagement, and in March, 1862 Union forces had blockaded the Savannah River and had begun the construction of batteries for the bombardment of Fort Pulaski. The Union attack occurred on April 10, 1862, and by day's end the Confederate commander, Colonel Charles Olmstead, surrendered to the Union. The Union bombardment had created a large breach in the southeast wall of the fort, and cannon fire through this breach struck close to the magazine and would ultimately strike it and in doing so, annihilate the Confederate forces of Fort Pulaksi. Olmstead's hand was thus forced, who on his surrender stated "I yield my sword, but trust I have not disgraced it" (Meader 2001:5). The cannon fire which penetrated Fort Pulaski's walls was the product of new rifled cannons firing from the batteries on Tybee Island, and the capture of the fort was a major Union victory. As the former Park Superintendent at Fort Pulaski, Ralston Lattimore noted, it also made Fort Pulaski "an interesting relic of another age" (in Meader 2001:5-6). The Union forces occupying Fort Pulaski established a prisoner-of-war camp on the site. However, Fort Pulaski was involved in no subsequent battles for the remainder of the war.

A number of archaeological studies have been conducted at Fort Pulaski as well as on the Union batteries involved in its attack. Efforts by Park Superintendent Lattimore and NPS archaeologist John Griffin to identify the locations of Fort Greene and Fort George in 1958 were unsuccessful and the location as well as status of those forts remains unknown.

In 1990 NPS archaeologists David Anderson and John Jameson conducted an archaeological survey of a hammock on McQueen's Island to test a theory by park rangers Talley Kirkland and Kent Cave that Battery Halleck was present on this spot. Anderson (1995) and Jameson located the battery and found it to be very well preserved. Efforts are currently in progress to conserve the land which holds Battery Halleck.

Additional excavation by the NPS include stratigraphic testing of dikes on Cockspur Island (Jameson 1998). Remote sensing surveys were completed in 1994 and 1997 of the area surrounding two grave markers near the northwest bastion to determine if this location was the resting ground of 12 to 14 Confederate Officers who died at Fort Pulaski while held as members of the Immortal 600 Prisoners of War (POWs). These surveys identified anomalies and were followed by the stripping of the soil in this area, which exposed 37 graves. Many of these appear to be of Civil War era age and presumably these include the graves of the prisoners of war as well as those of Union troops who died while in service at Fort Pulaski and others (Groh 1999). However, further work will be needed to verify that the remains of the Immortal 600 are contained within this cemetery (Groh 2000).

Southeastern Archaeological Services has recently completed archaeological data recovery excavations at Battery Hamilton (9CH953), a Union battery associated with the attack on Fort Pulaski (Braley 2003). Battery Hamilton was constructed on Bird Island, approximately three miles up the Savannah River from Fort Pulaski. Bird Island is a marsh island which is inundated at high tide several times a year, and as a result wooden features of the battery were extremely well preserved. Archaeological work at Battery Hamilton was conducted in association with GDOT wetland mitigation efforts, and were designed to be minimally intrusive. Battery Hamilton had initially been investigated by Gordon Watts of Tidewater Atlantic Research (Watts 2001) and the location of the battery can be seen on historic and current aerial photographs of Bird Island. Braley used metal probes to delineate the locations of gun emplacements and other features and topographic mapping to record the location of the earthen berm surrounding the battery (Braley 2003:20-24). The battery was rectangular in shape with an off-set square gun platform midway along the eastern side. Probing identified the remains of five gun platforms as well as the location of a powder magazine, a possible traverse, and isolated timbers which could represent other gun locations. Test pits dug as part of this investigation revealed that the timbers were well preserved due to their presence in the wet marsh muck. As a result, the battery was considered to be eligible for nomination to the NRHP. GDOT prepared a stabilization and site preservation plan for Battery Hamilton to insure that it was protected during the wetland mitigation efforts as well as monitored in the future (Patch et al. 2003).

Another coastal Civil War site which has received archaeological attention is Fort McAllister. Situated on a bluff near a bend in the Ogeechee River, the fort was constructed on the plantation of George McAllister as part of the Confederate defense of Savannah. The fortification was constructed of earthen embankments with cannon and mortar sites guarding the Ogeechee. However, it was captured by Union troops in December of 1864, a victim of Sherman's March to the Sea. Now a state historic site, archaeological work at Fort McAllister has been conducted by Larry Babits (1982) and Karen Wood (1992c). Babits investigated a mortar battery to the south of the fort as a volunteer effort completed by the Coastal Georgia Archaeological Society. This excavation revealed that this mound was in fact a mortar battery and provided recommendations for its interpretation and reconstruction. Wood investigated an area on the west side of the fort which was scheduled for park related development. While her investigation did not reveal any Civil War-era remains, it did recover materials associated with the McAllister's plantation and Wood (1992c:39) recommended that the planned improvements be relocated to avoid impacting these remains.

While the NPS has conducted limited archaeological research on the Union POW camp at Fort Pulaski, the Park Service has conducted more in-depth research on another Civil War site, the Confederate POW camp at Andersonville. Andersonville was selected for the construction of a Confederate POW camp in late 1863. The location, in Sumter County, was chosen because it was in the deep south, thus insulated from Union attack, because it was located on a fresh water source, because it was near the Southwestern Railroad, and because the town of Andersonville had a small population and thus was

unable to voice great concern over the construction of the camp. Construction began in December of that year with the design of a rectangular prison encompassing approximately 16.5 acres. This enclosure was thought to be large enough to hold 10,000 POWs and a stream flowed through the center of the camp, providing a source of fresh water. The stockade was constructed of wooden palisades by enslaved labor, the palisade posts measuring eight to 12 inches in diameter and pressed tightly together. About 25 feet away from the interior of this palisade line was constructed a light fence. The space between this fence and the palisade was known as the dead zone and guards posted on the palisade walls would shoot any prisoner who entered this space (Prentice and Prentice 1990).

Almost 20,000 prisoners were held in the stockade by June of 1864, twice the number that had been planned, and as a result the prison walls were expanded 610 feet to the north, adding an additional 10 acres of stockade and bringing the total area within the palisade walls to 26.5 acres. By August of that year 33,000 Union prisoners where held at Andersonville, which was originally known as Camp Sumter. With Union forces under the direction of General William Tecumseh Sherman beginning their invasion of Georgia that same summer, the Confederates erected outer defensive earthworks to guard the camp in the event of attack (Prentice and Prentice 1990).

Sherman's capture of Atlanta further threatened Andersonville and most of the Union POWs were shipped to other camps. Approximately 5,000 POWs remained at Andersonville until the end of the Civil War in April, 1865. During the 15 months that Andersonville was in existence, 13,000 Union POWs died of malnutrition, disease and exposure, and the name Andersonville became synonymous with the horrors of Civil War POW camps and of the war itself (Prentice and Prentice 1990).

The NPS has conducted several seasons of archaeological fieldwork at Andersonville in association with the reconstruction and interpretation of the site. These investigations are reported Prentice and Mathison (1989), M. Prentice and G. Prentice (1990) and G. Prentice and M. Prentice (1990, 2000). This work identified the locations of the northern stockade lines and gate and determined that the stockade was built by digging a five-foot deep and two foot wide trench, then setting the posts in the trench and backfilling around them. Sections of preserved posts were found, however, those observed were hewn round posts, not the squared and tightly packed posts described in some historic documents. G. Prentice and M. Prentice (1990) believe that this was because the northern line was constructed by Union POWs as part of the 1864 expansion, not the enslaved African-Americans who built the original structure. The work completed by the Union POWs was more hastily accomplished with less effort and was accomplished by the prisoners themselves, and for all of these reasons was not as robust. While not mentioned by Prentice and Prentice, there may also have been security risks associated with giving the Union POWs the axes and adzes needed to make square hewn posts, risks that may have outweighed the benefits of more solid construction.

Archaeological investigation of the North Gate revealed that it was constructed as a rectangular box projecting outward from the stockade walls. Square hewn posts were

used in its construction, as in the original stockade walls. Doors were centered on the east and west walls of this enclosure. Prentice and Prentice note that the dimensions of the gate measured 27.6 feet by 34.8 feet rather than the 30 by 30 foot dimensions cited in the historical records (G. Prentice and M. Prentice 1990). Artifacts recovered from the excavations of the North Gate included food remains consumed by the African-American workers, an axe head, and other items (G. Prentice and M. Prentice 1990).

Excavations conducted in 1990 identified a failed escape tunnel along the southern stockade wall. This tunnel was very narrow, just wide enough for a man to fit through. Guy Prentice and Marie Prentice (1990) note that the tunnel was dug in the southern corner of the stockade, where the soils were sandy and easier to dig. Unfortunately for the POWs, these sandy soils also resulted in the stockade posts collapsing into the tunnel, preventing an escape (G. Prentice and M. Prentice 1990).

While Andersonville is the best known of Georgia's POW camps as well as the best-known POW camp of the Confederacy, it is not the only POW camp in the state to have received archaeological attention. Wheaton and Langdale (2000:6) indicate that there were six Confederate military prisons in the state. In addition to Andersonville, these included Camp Oglethorpe in Macon where Union officers were held, Camp Davidson in Savannah, open fields used as prisons in Blackshear and Thomasville, a slave pen in Atlanta, and Camp Lawton in Millen.

Camp Lawton was created in response to the conditions at Andersonville. Confederate General John Winder, commander of all Confederate prisons east of the Mississippi, instructed a new stockade to be built in Georgia in the summer of 1864, at a time when nearly 2,000 Union troops were dieing each month at Andersonville. The site selected wase on the Central of Georgia railroad near Millen, which had an excellent and abundant fresh water source, Magnolia Springs, that produced nearly nine million gallons of water per day. Adequate fresh water was the greatest detriment found at Andersonville, and the location of the new camp was chosen with this in mind. The stockade created at this location would be known as Camp Lawton. Constructed of unhewn pine posts, the stockade covered 1,398 feet on its north and south sides and 1,329 feet on the east and west, encompassing an area of 42 acres. It was believed to be the largest prison in the world and was certainly the largest in the Confederacy. Earthworks were constructed outside the stockade to defend it from attack along the road to Millen. Three earthworks were described as in-progress in 1864; a pentagonal fort on the high ground southeast of the stockade, a three sided bastion to the southwest, and a third in progress to the north. The layout and design of the fortification are similar to that of Andersonville, with a deadline (here located 30 feet inside the stockade walls) and boxed gates. The prisoners who were held at Camp Lawton were not "fresh fish" but instead "suckers" or "dry cod" who had already been imprisoned at other Confederate camps (Wheaton and Langdale 2000:8-12).

The archaeological work at Camp Lawton consisted of topographic mapping, metal detector survey, and trench excavation of earthworks located alongside SR121/US25 and in the area of impact from potential widening activities. Camp Lawton now operates as a

state park within the Division of Parks and Historic Sites in DNR, and park officials were concerned that these earthworks could have been elements of the defensive works described in progress in 1864. The archaeological work, in comparison with the design attributes of other Confederate POW camps, determined that these earthworks were not Civil War related and instead were likely to be a product of twentieth-century road construction. Wheaton and Langdale (2000) provide a thorough review of other Confederate POW camps that should be examined by anyone working with other POW camps in the state.

Some of the most hotly contested real estate of the Civil War lay on a line between Chattanooga and Atlanta that defined Sherman's march on Atlanta and the Confederate defenses. Several battlefields sites have been examined which are part of the Atlanta Campaign, and a number of Union and Confederate earthworks and rifle pits have been recorded by survey projects that are not discussed here. Battlefields that have been studied include Chickamauga (on the border with Tennessee), Picketts Mill, Gilgal Church, Kolbs Farm and Pickett's Mill. The NPS administers the Chickamauga-Chattanooga National Military Park in Tennessee and Georgia and David Brewer (1987) has compiled an overview of archaeological resources in the park. This overview includes summary descriptive information on several historic locations associated with battlefield activities in Georgia.

One of the earliest projects to look at a Civil War site in Georgia was Roy Dickens work at the Pickett's Mill battlefield. The Battle of Pickett's Mill in Paulding County happened on May 27th and 28th. Occurring during a period of heavy rainfall and across a rugged landscape, heavy casualties were experienced by both Union and Confederate forces. Approximately 14,000 Union troops attacked the Confederate line manned by a force of nearly 10,000. The Union lost nearly 1,200 during the attack, while the Confederate casualties numbered 500. The Confederate victory at Pickett's Mill slowed, but did not alter, the course of the Atlanta Campaign. Pickett's Mill was obtained by the state of Georgia for presentation as a state park, and Roy Dickens conducted an archaeological survey of the site that identified historic resources associated with the battle. Worthy and Dickens (1979) conducted an archaeological survey of the route of a pipeline through the site which identified and recovered Civil War artifacts, including both spent and dropped Union munitions.

Southeastern Archaeological Services investigated the Gilgal Church Battlefield site in response to the proposed construction of a transmission line and substation by Oglethorpe Power. Because this construction would adversely impact remnants of the fortification lines, archaeological data recovery was conducted (Braley 1987). The Battle of Gilgal Church occurred between June 15th and 17th, 1864, and was part of the Confederate defensive efforts of General Joseph Johnson to slow if not halt Sherman's march on Atlanta. While perhaps more accurately described as a sustained series of skirmishes, Braley notes that Gilgal Church can be classified as a battle because the Union forces were able to overpower the Confederate troops and change the location of the Confederate defensive line (Braley 1987:3). Archaeological excavations conducted by Braley examined three sections of the Confederate earthworks. The excavations

recovered a number of unfired percussion caps and bullets, which Braley notes were "presumably dropped during the course of reloading during the fighting which occurred between June 15 and 16, 1864. Judging from the horizontal distribution of different caliber bullets, companies of men, presumably under the command of General Patrick Cleburne, were issued either .54 or .57, .577 and .58 caliber weapons" (Braley 1987:57). An artillery emplacement on a hilltop was apparently not heavily involved in the Confederate defense given the virtual lack of friction primers from this site. Braley also observed that it was somewhat surprising that no food-related artifacts were found. He thus suggests that while the earthworks and trenches were constructed well in advance, they were only occupied during the battle itself. Braley writes, "The soldiers either relied on provisions carried in their packs or went behind the lines to prepare and consume meals" (Braley 1987:57-58).

Following the Confederate defeat at Gilgal Church, the battle shifted south to an extensive services of earthworks built around Kennesaw Mountain. The Kennesaw Mountain National Battlefield preserves and interprets a 2,888-acre site containing the remains of the Battle of Kennesaw Mountain, fought between June 8th and July 2nd, 1864. Within the park, limited archaeological work has been conducted for the Battle of Kolb's Farm (Moore et al. 1989). The Battle of Kolb's Farm occurred on June 22, 1864 between Confederate troops under the command of General John Hood and Union Forces led by General Joseph Hooker. The NPS archaeological study focused on defining evidence of the farm and associated structures which could be used in interpret the battle, most of which were identified.

Southeastern Archaeological Services conducted archaeological data recovery of Civil War features associated with the battle surrounding Lattice's Farm, which was part of the defense of Atlanta centered on Kennesaw Mountain. These earthworks were apparently part of the Confederate's outer system of defense for the Kennesaw Mountain line. Wood and Wood (1990:119) state that they were built between June 1st and June 18th, 1864. The battle occurred on June 18th when Union forces under the command of Colonel Frederick Bartlefield attached the Confederate positions. The Union forces heavily outnumbered the Confederate troops and attacked during a driving rain, and the Confederates quickly abandoned their position. Wood and Wood (1990:120-121) state that the earthworks were created with their ditches placed to the east, indicating that they were Confederate earthworks, and were concentrated on several ridges between Pine Mountain and Kennesaw Mountain. Artifacts recovered included both Confederate and Union munitions, with the recovery of unfired Union shells on the slopes suggesting the reloading of weaponry by the Federal troops as they advanced on the Confederates. Minie balls and Enfield bullets were the most frequently recovered artifacts. Wood and Wood (1990:121) note that from the positioning of Confederate bullets, the Confederate defenders were apparently skirmishing out in front of the trenches more than firing from within them. Wood and Wood note that Braley observed this same pattern at Gilgal Church.

Garrow & Associates conducted Phase II site testing and Phase III data recovery of another section of the Atlanta defense lines in 1993 and 1995 (Fryman et al. 1993,

Fryman 1996). This section of Confederate earthworks was located along Noonday Creek and was attacked by the Union forces immediately following their victory at Lattimer's Farm. The attack is described by Union Colonel Benjamin Scribner (in Fryman et al. 1993:12):

> *The whole line advanced in a violent rain and thunderstorm As our movements became developed, the enemy opend their batteries, as well as volley after volley of musketry, from their works. The flash and roar of artillery mingled with the lightening and thunder, as if nature had conspired with man in a work of destruction…. Breastworks were thrown up, and various movements and dispositions were made during the day and night, which were rendered useless the next morning by the retreat of the enemy.*

The data recovery excavations of 9CO352, a section of the Confederate earthworks that were part of the attack on Kennesaw Mountain, sought to address four research questions. With regard to the first, the similarities in the design of the earthworks, Fryman (1996:55-57) provides an in-depth review of military engineering practices of the Civil War. He notes that two elements were stressed by engineers of the time: (1) that fortification types should be selected that would maximize the firepower of the troops manning the fortification at points along the line, and (2) the fortifications should be integrated into the landscape to improve their defensive capabilities. Fryman noted that the Confederate earthworks recorded at 9CO352 did both, making use of both right angle line and redans to improve firepower. The redan was located on a hill top and allowed the Confederates to use cannon fire to defend the slopes below as well as to defend the right angle lines located to either side. Fryman observed that in its placement, the Confederate earthworks at Noonday Creek were well fitted to their environment, providing a clear line of site and firing range along the creek. He also observed that the earthworks at 9CO352 were constructed with their parapet in front and their ditch to the rear, as opposed to the line at Lattimer's Farm that was constructed with the ditch in front. Other differences between the lines were that the one at 9CO352 was continuous, whereas the line at Lattimer's Farm was segmented and interspersed with rifle pits. He also notes that while the lines at Lattimer's Farm followed natural contours, those at 9CO352 were positioned to provide a clear line of sight to Noonday Creek as well as to support and receive protective coverage from the redan and artillery emplacement on the hill overlooking the creek. These differences he attributed to the nature of their constructions, noting that the lines at 9CO352 were part of the main Confederate defensive line constructed in advance of the Union attack while the earthworks at Lattimer's Farm were thrown up more hastily in an effort to delay the Federal force's advance on Kennesaw Mountain (Fryman 1996:55-60).

Fryman's second research question asked if the Confederate troops manning the line had made any alterations to the entrenchment. He noted that Braley had identified a drainage ditch in the earthworks at Gilgal Church that apparently was dug by the Confederates after that trench line had been constructed, but there was no evidence of such excavations at 9CO352. Fryman (1996:60-61) also hypothesized that the Confederate troops would have tried to fortify their positions through the placement of headlogs on the top of the

parapet. This was documented in historic photographs of the Resaca battlefield site, where posts where driven into the parapets to hold the headlogs in place. Fryman noted that at 9CO352, careful examination of the parapets for soil discoloration, which would indicate the placement of such posts, failed to reveal any soil changes and thus headlogs appear not to have been used (Fryman 1996:62).

Fryman's third research question dealt with life in the trenches. This question assumed that the data recovery excavations would yield clothing remains, particularly buttons, to allow a determination to be made of the state and identity of the regiments manning this section of the trench. Unfortunately, no such artifacts were recovered. The excavations did recover munitions that affirmed Fryman's second hypothesis, that the munitions associated with the troops manning this section of the line would be more uniform because they were supplied by the Quartermaster Department to the Army of Tennessee. The analysis of percussion caps recovered from the site showed a high degree of uniformity, supporting this hypothesis (Fryman 1996:62-63).

The final research question of the 9CO352 data recovery concerned the location of the Confederate campsites. Fryman noted that while both Union and Confederate Army regulations gave specification on campsite locations, archaeological examination of the campsites associated with temporary fortifications was virtually non-existent (Fryman 1996:63). Machine stripping to the south of the entrenchments on the site failed to identify any evidence of refuse pits or latrines. However, Fryman observed that large quantities of charcoal were found in the trench ditch itself, supporting historical documentation that the soldiers manning the trenches camped immediately behind them. Residue of their encampment presumably washed into the ditch over time. Fryman also observed that Army of Tennessee's regulations were opposed to the construction of campfires on the front lines, as these would give away the line's position to the enemy, and that field kitchens were established well to the rear of the lines and hot food brought forward. Thus there would be little evidence of the encampments themselves (Fryman 1996:63).

Fryman offers the most comprehensive look at the system of earthworks constructed by both the Confederates and the Federal troops during the Atlanta campaign and presents an excellent historical background on the principles of military construction of that era. His report should be referenced by anyone working with Civil War fortifications and the research questions he presents should also be applied to other sites.

Research conducted at the Center for Disease Control's (CDC) Chamblee Campus on a trench system there illustrated the continuum in trench warfare from the Civil War to WW I (Swanson and Joseph 2004). The trenches at the CDC were dug into the slope of the hillside overlooking the Arrow Creek floodplain and provided a good defensive position. However, excavations of the trenches indicated that they had never been used and possibly had not been finished, as the trench floor was sloping, unlined, and had not been compacted by repeated use. A metal detector survey of the trench and shovel testing of the area surrounding it also failed to identify any associated artifacts. The trench did not appear in the Civil War atlases as the site of any battles or defensive

works, however, Sherman's approach on Atlanta moved through the general area and there is thus the possibility that a defensive position was begun at this location, but quickly abandoned, during changes in the Confederate's command of the Atlanta defenses. However, the trenches found at the CDC site may also date to a later war, WW I. In the early twentieth century, land in this area was obtained by the Army for the construction of Camp Gordon, a training base that was home to the 82nd Division, also known as the "All-American" Brigade. Reports in the Atlanta Journal indicate that training exercises involving the construction and attack of entrenched positions was carried out at Camp Gordon. Swanson and Joseph (2004) believe that the trenches at the CDC may have been dug for training exercises involving the attack of a fortified hillside. While considered not eligible for the NRHP, the CDC may preserve and interpret sections of these trenches.

Future Directions for the Archaeology of Military Sites in Georgia

The archaeological work conducted on Georgia's military sites to date highlights the incredible diversity of military activities and fortifications present in the state. While comparative data is not available, it seems likely that Georgia possesses a great range and array of military sites than any of its southeastern neighbors. Many of these sites are preserved and interpreted as parks, and interpretive prospects remain for others. While not an archaeological issue, we highly encourage state and federal agencies to pool their resources to develop tourism brochures, websites and materials highlighting the military sites in the state and the state's military tourism. While the Civil War already prompts a number of heritage tourists to visit the state, the potential exists to develop holistic programs which look at the changes in the state's history and its defense and which link sites from the coast through to the mountains within this interpretive framework.

Additional inventory efforts should be directed toward identifying the locations of the states Colonial and early Federal forts and trading posts. Some of this inventory has already been accomplished by Dan Elliott, and Elliott should be contacted as part of this effort to verify the locations of all military sites he has already tracked down. Needless to say, Elliott is also the person best suited to accomplishing this project, which could be accomplished via grant funding through the LAMAR Institute. Inventory efforts should determine if fortifications' locations can been identified, and if so, their state of preservation. With identification in hand, sources of funding should be sought to obtain and protect more of these sites, possibly through greenspace initiatives as discussed above. These resources are few, important, and largely unprotected. Fortifications and trading post sites offer significant research potential for the understanding of the interactions between Native Americans and the colonists, as well as for a more in-depth assessment of Georgia's military history.

Similarly, an inventory should be completed of the Civil War earthworks remaining from the defense of Atlanta. Remnants of these earthworks are increasingly threatened by development in the metropolitan Atlanta area and a comprehensive inventory of the remaining fortifications would aid their management, evaluation, and documentation. Where Civil War earthworks are threatened by development, they should be recorded to the extent possible in the regulatory context if preservation-in-place is not possible. The

Atlanta campaign and the Civil War were defining moments in the history of the state – the archaeological remnants of this event should all be considered eligible for nomination to the NRHP until proven otherwise. Documentation of these earthworks should follow and apply the research protocol and outline developed by Fryman for 9CO352.

Archaeology is beginning to recognize the significance of WW I and WW II sites in Europe, and in particular the ability of archaeological research to contribute to our understanding of trench warfare during the first World War. Georgia's place as the site of a number of training bases provides the opportunity to contribute to this research by recording and investigating trenches completed for training exercises. Future survey and assessments on both current and abandoned military sites should recognize and explore this potential.

It is the nature of military sites that most are likely to represent a significant place in history and thus be eligible for nomination to the NRHP regardless of the time period these sites represent. Data recovery efforts at these sites should identify the history of the military activities in which the site was involved; the troops and their commanders who participated in these events; the architecture and technology of their fortifications; their landscapes; the military armaments, uniforms and other materials; as well as the social lives of their soldiers.

Transportation Sites

Transportation systems were integral to the development of Georgia and are prevalent throughout the state. Not surprisingly, transportation was an element of virtually every site which has been discussed to date in this context, whether that transportation be a shoal crossing that led to development in a road system and later the use of the shoals for a mill, or fortifications being cited on bends in the river where they could monitor river traffic in both directions. Elements of transportation have thus been discussed in the previous sections. This section reviews those sites and projects that have been conducted with an explicit focus on transportation sites, including work on canals, roads, railroads, and wharves. Other transportation site types that have not yet been considered in the historical archaeology of Georgia include railroad depots, ferries, causeways, and shipyards.

Not surprisingly, there has been relatively little historical archaeological research devoted to transportation sites in the state. In part this reflects the existence of these sites as elements of the state's engineering infrastructure, which, if extant, are classified as historic structures rather than archaeological sites. The limited work conducted on transportation sites also reflects the tendency of transportation spines to remain fixed over time. Thus, in most places in the state, later road and railroads were built on top of the remains of their predecessors, and hence these archaeological deposits are sealed, and in some instances destroyed, by active transportation lines. A final aspect of transportation sites that has limited the degree of archaeological work directed toward them is their technology and nature. While it would be inaccurate to describe the technology of

transportation systems as simple, it is not incorrect to state that much of the construction and appearance of roads, railroads, canals, and other transportation works is accurately described in historical records and hence historical archaeology can do little to further elaborate upon the understanding of these systems. The archaeology that has been directed toward transportation sites in the state reflects this observation, as much of it has documented the existence and appearance of transportation resources, but has not made substantive contributions to our understanding of these sites.

Canals

Canals were used as transportation systems for the movement of goods in the Coastal Plain and were also constructed for the movement of water in the Piedmont to provide motive power to industrial sites. Examples of both types of canals have received archaeological attention.

New South Associates conducted an archaeological and historical investigation of the Savannah-Ogeechee (S-O) Canal in Chatham County as an element of the master planning study for the S-O Canal (Botwick and Finlay 2000). The canal was a product of national interest in canals spurred by the successful completion of the Erie Canal in New York State. In 1824 the State of Georgia issued a charter to Ebenezer Jenkes for the construction of a canal linking the Savannah and Ogeechee rivers. In 1825, Jenkes traveled to New York to meet with Governor De Witt Clinton to discuss the Erie Canal, and Governor Clinton recommended his son, De Witt Clinton, Jr, for the work in Georgia. Meanwhile, back in Georgia, a new group had been formed, known as the Savannah, Ogeechee, and Altamaha Canal Company (SOACC), which purchased the canal's rights from Jenkes. This new entity was built upon the investments of a number of prominent local citizens, and boasted that in addition to being a profitable investment that would spur the prominence of the port city, the proposed canal would even improve Savannah's environment, since "the swamps will be drained, the forests cleared & the country more open to sea breezes" (the *Savannah Georgian,* February 15, 1826, as cited in Botwick and Finlay 2000:20). Given these patriotic and climatic benefits, construction of the canal quickly forged ahead (Botwick and Finlay 2000:18-22).

Construction of the canal, as its boosters noted, would result in the clearing of large expanses of forests. It would also require a massive excavation effort and prove to be the largest construction project undertaken in Savannah to that date. While Irish immigrant workers were brought to Savannah for the canal project in its early stages, the labor force soon shifted to African-American enslaved laborers who were hired from area plantations. The use of a slave labor force meant that much of the work on the canal was accomplished in accordance with the agricultural schedule, at times when there wasn't demanding work on the plantations. Work thus progressed slowly, and the 16.5-mile segment of the canal between the Savannah and Ogeechee rivers took nearly five years to complete, with a peak labor force of nearly 577 workers. The canal, which featured six locks, cost more than $190,000 to build, and was overseen in the early stages by engineer De Witt Clinton, Jr. and after 1827 by Edward H. Gill, another veteran of the Erie Canal (Botwick and Finlay 2000:22-23).

The canal's dimensions, referred to as its "prism" in the lexicon of canals, measured 33 feet across the bottom and 48 feet wide at the surface, with a water depth of four to five feet. Embankments were established on either side of the canal for much of its course to contain the excavation and to provide a towpath for mules and horses that would pull the canal boats on their way. The walls of the prism were "puddled," that is, a surface was applied to help them retain water and this surface was made of a mixture of gravel and clay which was rammed into the prism's face. Two tidal locks and four lift locks were built into the canal, the tidal locks at the canal's connections to the Savannah and Ogechee to control the passage of the tidal surge up these rivers into the canal, and the lift locks along the way as required by topography. In addition to the tidal surge, water for the canal was obtained by a reservoir dug for the project and known as Half Moon Lake. The locks nearest the city were made of wood and proved to be problematical, as they required frequent rebuilding, while the three locks furthest from Savannah were made of brick, stone and cement. Lockkeepers' houses were built at five of the six locks. In addition to all of these canal features, construction required the building of 11 bridges, nine culverts, and an aqueduct (Botwick and Finlay 2000:23-25).

The canal boats were typically shallow draft rafts measuring 85 feet long by 17 feet wide. They could carry a cargo of 55 to 60 tons and were pulled by two mules or horses along a towpath on the east side of the canal and were also poled along by a boater (Botwick and Finlay 2000:25).

Completion of the canal spurred the growth of the lumber industry along the Ogechee River and the early years of the S-O Canal were busy. However, the SOACC was continually pressed for funds to satisfy its creditors. By the mid-1830s the wooden locks had rotted and required replacement, and a section of the canal sprang a leak, which led to a 73-foot wide gash, and a long period of costly repairs while the canal was inoperable. The appearance of the railroads in the 1830s also sapped the enthusiasm and financial support for the canal. Renovations of the canal were carried out in the 1830s and the canal continued its operations. The 1850s actually brought a decade of prosperity to the canal as agricultural and silvicultural production in the region increased the use of the canal. During the Civil War, the Confederate defense of Savannah would result in damages to the canal as Confederate troops removed the canal's embankments in several locations to create swamps behind their positions. The S-O canal remained closed for months following the war, but was rebuilt in 1866 as resurgence in the lumber industry on the Ogechee River called for its services. The canal enjoyed another decade of good times. Heavy rains in June, 1876, washed out the embankments and the canal's operations were suspended. By this time the lumber industry was moving farther west and there was less demand for the canal. A yellow-fever outbreak of the late 1870s caused Savannah's citizens to point to the stagnant waters of the canal in blame. The SOACC began selling its real estate assets in Savannah to the Central of Georgia Railroad in the 1880s, and by the early 1890s the Central of Georgia acquired all of the SOACC's stock as well as any hope of the canal's resurgence (Botwick and Finlay 2000:25-30).

Botwick's archaeological survey of the S-O Canal included the visual inspection of the canal itself and the identification and evaluation of canal features. He observed that for the majority of its length, the S-O Canal possessed good integrity with a visible prism, berm and towpath. Sections of the tow path had been lost in areas to road construction, and large areas of the landscape surrounding the canal had been cleared and developed, removing the historic setting. The integrity of Locks 3, 4, 5, and 6 was determined to be moderate to good, and these brick and sandstone locks possessed original features including iron hardware at Lock 3 and a wooden door at Lock 5. Lock 2 had been removed at a later point in the S-O Canal's history. Lock 1 was located within the Georgia Port Authority's Terminal and could only be visually inspected from a distance. However, Botwick noted that this lock appeared to be in good shape (Botwick and Finlay 2000:40-46). Archaeological survey along the canal identified a number of prehistoric and non-canal related historic archaeological sites. It also investigated an apparent Lockkeeper's House Site (9CH941) that had been previously examined by Jud Kratzer of Armstrong State University. This site was found to have a low density of artifacts but moderate preservation and was recommended for further work (Botwick and Finlay 2000:48).

While the S-O Canal represents an example of a canal whose primary function was the transportation of goods, the Augusta Canal in Augusta is an example of a canal whose main purpose was to move water. A comprehensive history of the Augusta Canal has been authored by Ed Cashin (2002) of Augusta College and limited archaeological investigations have taken place along the canal, which is presently operated by the Augusta Canal Association as a historic park. The Augusta Canal was created to provide water for textile mills and other industries in Augusta although it also offered safe passage around the rapids of the Savannah River for boat traffic coming downstream to the town. The canal was the idea of Colonel Henry H. Cumming, a prominent businessman who heeded the call of William Gregg and others that the south should industrialize. He hired J. Edgar Thompson, Engineers, to conduct a survey, and Thompson recommended that a wing dam could be used to divert water from the Savannah River above its falls into a canal that would provide a sufficient volume of water and head to power a number of industries along its path. A Commission was formed to guide the construction and shares were sold by subscription. Construction began in 1845, and by the end of the first year, the first level had been built. The first factory on the canal was under construction by 1847. Completion of the second and third levels caused a decrease in the volume of water on the first, and the need to heighten the wing dam. Like the S-O Canal, the Augusta Canal also experienced problems with breaches in the berms and malfunctions at the locks. However, the canal gave birth to a number of factories, and by 1860 there were 12 industries located on the canal (Botwick et al. 2003:67-69; Cashin 2002:13-14).

During the Civil War Augusta became a major industrial supplier to the Confederacy, with the Augusta Manufacturing Company providing uniforms and canvas for tents and bedding. The Confederate Power Works was established on the Augusta Canal, occupying both banks and producing three million pounds of powder over its three years of operation. Industrial production returned to normal in the years following the war and

the industries along the canal thrived and increased. By the early 1880s the industries along the canal included seven cotton works, one large iron works and two smaller foundries, two spinning mills, a cottonseed mill, and water works. A flood in 1912 inundated downtown Augusta with more than 36 feet of water, and following this a levee was built from the canal along the Savannah River's banks south of the town. While additional floods would do damage to the canal, the Augusta Canal continues to serve the industries along its route, making it the nation's only industrial canal still in use (Botwick et al. 2003:72). Archaeological survey of proposed flood control improvements failed to identify any archaeological resources associated with the canal, although it did locate the remains of a WPA era flood control structure on the Savannah River's banks (Botwick et al. 2003:59).

Leech and Wood's (1994:145-149) survey of resources along the Back River at Savannah identified the remains of the Planters Canal tollgate. The Planters Canal was constructed across Hutchinson Island in 1878 by a group of South Carolina planters, and provided easier access for the plantations along the Back River to Savannah. Passage through the canal was paid by a toll. Charlotte Inglesby recalled that "At the Cut's far end there was a small toll house with a platform one board wide. A Negro would come out with a tin can fastened to the end of a long pole and Lynah would drop a coin into this receptacle" (in Leech and Wood 1994:147). The archaeological remnants of this tollgate included the gate platform as well as pilings from the canal that formed the gate.

Railroads

The history of the S-O Canal highlights the role that the railroads played in changing transportation systems in the state. Railroads were introduced to the state in the late 1830s and as they connected cities and towns that also altered the human landscape[12]. The discussion of towns has noted this influence and the creation of a new community form, the railroad town, as well as the abandonment of communities like Traveler's Rest (Wheaton and Reed 1993b) when the railroad connected to neighboring towns, rather than to them. A historic context for railroads in Georgia was prepared by Alexandra de Kok (1991). De Kok's context should be used by historical archaeologists working with historic railroads and includes a history of the various rail lines constructed in the state, a description of the engineering elements associated with a railroad, as well as discussion of the archaeological remnants of railroad sites. As far as the structures associated with a railroad are concerned, de Kok notes that the primary structure was the rail bed. Architectural elements of the rail bed included dams, cuts, embankments, fill, trestles, bridges, depots, culverts, water chutes, water towns, coal chutes, construction laborer's houses, tool sheds, maintenance facilities, and others (de Kok 1991). A number of these should appear in the archaeological record. Cuts were commonly used in the Piedmont and Mountains and are described by de Kok as large ditches with a flat bottom. Fills are described by de Kok as similar to embankments "but a fill generally stretches across the entire length of low ground." By this definition, it appears that what de Kok is referring

[12] The website www.railga.com provides excellent references on the history of the various rail lines and depots in the state as well as references and other information.

to can also be termed a causeway. Embankments are described as "mounds of earth which help keep the railroad bed level." Embankments were normally found near streams where they connected with a trestle. Trestles are found at stream crossings, and consist of pilings with an interconnected lattice work. The trestle is a support structure of connected pilings used to carry a bridge deck across a stream, and the remnants of these features are usually represented by stumps of the pilings. Bridges are less likely to appear in the archaeological record, although de Kok notes that brick and stone abutments may survive from the bridge deck. Depots are often represented archaeologically by "pads" of stone for the older examples, and of concrete for the newer depots. Watering stations are represented by a grid network of stone or concrete blocks, which would have supported the water towers pillars. Railroad towns have been already discussed, above. De Kok notes (1991) that there has been little archaeological study directed toward railroads, but that hopefully her context will help to "bring about a change in thinking."

The GDOT has sponsored two studies of rail lines in the state. The first examined the Tallulah Falls Railroad that connected Franklin, North Carolina with Athens, Georgia. Built between 1872 and 1907, the railroad was constructed to connect the Blue Ridge Railroad near Rabun Gap with Athens (Bowen nd:1). Efforts to construct this line ran through a series of changes in company organization and operation, and the history of the Tallulah Falls Railroad highlights the sometimes-precarious nature of the railroad industry. The Tallulah Falls Railroad, once completed, would only operate through the middle of the twentieth century. Remembrances of workers who built and operated the railroad as well as the oral history of residents in the region it passed through helped to describe its construction. Given the rugged terrain, trestles were an integral aspect of construction and 58 wooden trestles were constructed on this line. Trestles were made of large timbers, generally a foot square, and were built with two to three decks depending upon the height of the crossing. Trestle footings were composed of stone pilings or concrete piers. According to one of the workers on the rail line, the pattern for the construction of the trestles was copied from the trestles built for the Southern Railroad (Bowen nd:6). While these wooden structures required more maintenance and repair, they were significantly less expensive to construct than steel or concrete bridges. The GDOT study notes that remnants of the stone and concrete trestle pilings are the only evidence remaining of the railroad today. Rowe Bowen of GDOT has also conducted historical research and architectural documentation of the Tifton, Thomasville and Gulf-CSX Railroad in southwest Georgia (Bowen 1996). This line was the product of a Thomasville businessman, W. W. Ashburn, who saw the economic benefits of connecting Thomasville with the Southern Railway system at Tifton. Ashburn convinced the Moultrie and Thomasville division of the Georgia Albany Railroad Company to construct the line, which was begun in 1899 and completed in 1900. The railroad increased the production of naval stores and timber in the Thomasville. Documentation of this line was primarily cartographic and photographic (Bowen 1996).

Larry Babits and Julie Barnes of Armstrong State University conducted archaeological investigations of the Central of Georgia Train Shed in 1984. This project was also referenced in the discussion of urban archaeology and Revolutionary War as the Central

of Georgia complex was built over the Revolutionary War battlefield of Spring Hill. The work Babits and Barnes conducted was in response to renovations of the train-shed structures and hence focused on those locations proposed for construction. The Central of Georgia is Georgia's oldest railroad company, which was established in Savannah in 1833, two years after the completion of the South's first railroad line, which ran between Charleston and Hamburg, SC. Hamburg was located on the Savannah River opposite Augusta, and the presence of a railroad depot in this town threatened Augusta's economy as a regional trading center and spurred the creation of a rail system in Georgia. The Central of Georgia was created to link Macon and Savannah. In 1836 work began on the creation of a depot and rail yard in Savannah, on the property bordered by West Broad Street, Augusta Street, Oak Street and Musgrove Creek. This rail yard would expand and evolve over time as the Central of Georgia became a successful rail line with connections to other cities and as both passenger and freight traffic to Savannah increased. The rail yard would thus require various sets of tracks and switches which would allow incoming trains to be moved to clear sections for parking. Both "T" and "U" shaped rails were used in the construction (Babits and Barnes 1984:11-13).

The archaeological work conducted at the Central of Georgia Train Shed was somewhat limited by its restriction to the areas of new construction. However, Babits and Barnes (1984:63) did discover that the rail lines were intact and included stringers and ties from the original 1836 construction, as well as fill deposits and later rail construction. The Central of Georgia trainshed and depot complex thus has excellent potential to address the layout, design, and evolution of a rail system through future archaeological research. The site is owned in part by the City of Savannah and serves as the Savannah History Museum while other sections and structures are owned by the Savannah College of Art and Design. Further information on the history of the Central of Georgia is available at the Museum.

Wharves and Shipyards

All of Georgia's port cities and its major coastal plantations were dependent on wharves for the docking of ships and the loading and unloading of goods and passengers. Wharves were thus historically important in the state. Shipyards were built in association with wharves, most frequently directly adjoining the wharves and are discussed in this section as well.

There were a variety of wharf forms as well as materials used in their construction. A *marginal wharf* refers to a wharf that was created as a parallel extension of the shoreline. Marginal wharves are also sometimes termed *quays* in the historical literature. Wharves that projected out into the water were also referred to as piers. There were several forms of pier construction. Solid-fill piers were created of fill within a frame. Framing that was used for solid-fill pier architecture included *crib, solid-filled crib, cobb,* and *grillage/raft.* A cribbed wharf was created of overlapping hewn timber that created a box-like structure with internal cells. Crib wharves usually had a floor and hauled over the location where they were to be sunk and then filled with ballast stone, mud, and sand. When the outer

facing of the crib was so tightly constructed that it could be filled with earth alone, this form was known as a solid-filled crib. A cobb wharf was of similar construction but generally made of unhewn timbers with larger cells. The fill of cobb wharves consisted entirely of stone. A grillage/raft wharf was constructed of alternating layers of timbers laid as headers and stretchers and stone. These were floated into position, weighed down with stone, and sunk, and successive layers were added to reach the required height (Figure 24). A review of wharf construction along the eastern seaboard conducted by Ed Morin indicates that crib, cobb, and grillage/raft wharves were the predominant types used in the colonial era (Morin 1991; Reed et al. 1995:159-163). Other projecting wharf (pier) types include *piling* wharves and *block-and-deck* wharves. A *dock* is an artificial body of water used to hold ships, and appeared as *wet docks* and *dry docks,* in which the water could be drained so repairs could be made to a ship. A *slip* refers to the space between two piers. A *bulkhead* was a frame or stone wall constructed as a retaining wall on marginal wharves as well as on some projecting wharves (Reed et al. 1995:159).

Two archaeological projects in Savannah have looked at the history and archaeology of wharves in Georgia. Archaeological survey excavations of the proposed Radisson Hotel complex and river walk were completed by the Jeffrey L. Brown Institute of Archaeology under the direction of Bruce Council and Nick Honerkamp (Council 1990). As port operations in the city of Savannah increased, there was a need to expand the wharf facilities up river and this area became known as the Eastern Wharves. The Eastern Wharf Company was established in the 1830s and one of its leaders was Gazaway Bugg Lamar, who was active in the shipbuilding industry of Savannah and who was involved in the construction of the most famous ship to be built in Georgia, the Confederate ironclad CSS *Georgia* (Swanson and Holcombe 2003). Swanson and Holcombe's history of the *Georgia* also includes background information on the shipyards of the Eastern Wharves. The Eastern Wharf Company began to acquire land on the river in 1836 and by 1837 a newspaper article referenced a ship's construction "on the new Eastern wharf" (Council 1990:12). The Eastern Wharves would expand over time as a complex of wharves, warehouses, and shipyards. The Eastern Wharves would include some of Savannah's most important shipyards, including the Willink yard. During the Civil War a number of vessels were constructed at these yards for the Confederacy. Swanson and Holcombe (2003:33) write that the CSS *Georgia* was likely constructed at Harding's Shipyard that was located adjacent to Alvin Miller's iron foundry. Willink produced another ironclad, the *Savannah* and the gunboat *Macon,* and had completed the hull of a third ironclad, the *Milledgeville,* when Sherman's approach forced the scuttling of this vessel in the Savannah River (Council 1990:18).

Figure 24. Plans of Various Types of Wharf Construction (from Reed et al. 1995)

Council's survey of the Eastern Wharves site identified twentieth century remains of maritime commerce that were still standing. Along the waterfront itself, Council notes that an underwater survey had been conducted by Panamerican Consultants, which identified the remains of submerged piers and bulkheads. Council observes that a large concrete bulkhead was present on the property that dated to the 1960s. Another discovery of the project were the remnants of a marine railway slip. This slip consisted of a concrete abutment resting on massive heavy sill timbers. There was also evidence of dolphins, large bundles of driven timber pilings, along the harbor line, as well as a twentieth-century wharf and floating ramp (Council 1990:55-57). Council's interpretations noted that the "challenges of wet-site archaeology are numerous" (Council 1990:58). He observed that structural foundations were built with masonry footings on heavy timber beams. While the resources found at the Radisson Hotel site were not considered eligible for nomination to the NRHP; monitoring of the waterfront area during construction of the hotel was recommended.

TRC Garrow Associates conducted Phase I survey and Phase II site evaluation of the former Southern Manufactured Gas Plant site in Savannah (Holland and Pietak 2001, Pietak 2001). The site is located at the southeast corner of East Bay and East Broad Streets. Archival research revealed that this site was the location of Henry F. Willink's shipyard and wharf. Willink was historically important for the construction of several vessels for the Confederate Navy (Holland and Pietak 2001). Phase II testing revealed deep soil deposits, extending to between seven and 15 feet below surface, with substantial deposits of late nineteenth- and twentieth-century fill. Large timbers were encountered in two trenches that Pietak (2001) believes may represent elements of Willink's wharf. Monitoring and further archaeological investigation of the site is recommended when environmental remediation of the site is conducted.

Leech and Wood's (1994) Back River survey identified the remains of two plantation wharves and a wharf associated with a store (also see Errante 1997 for information on plantation waterfronts). Cooley's Wharf was part of Cooley's store on the Back River. It appeared to have been damaged during construction of US17A and was represented by remnants of a bulkhead, round and square puncheons, and both Native American and historic artifacts. This site was recommended ineligible for the NRHP (1994:230-234). At the Pennyworth Plantation Rice Mill Complex the remains of crib wharf were found as well as the remains of the cribbing which supported the Rice Mill itself, which extended into the river. The rice mill cribbing was constructed of southern pine with an average distance between the crib piles of 10 feet on centers. The horizontal cribbing was dovetailed and in some instances attached with iron spikes. The mill wharf cribbing was constructed of eight-inch square piles with brick fill. Leech and Wood (1994:181) note that the mill wharf continued around the west side of the mill, at an angle, with this angled section serving as the fenders for a canal entrance. Remnants of a slip were located at another portion of the complex. Leech and Wood (1994:214-215) note that:

> *Pennyworth Plantation is one of the best represented Savannah River rice plantations in the historical record. It had a diverse history spanning the*

period from 1825 to the early 20th century and was one of the last active rice plantations on the river. Archaeological survey identified the rice mill complex, along with its wharf, canal, and protective bulkheading. Also identified were another wharf area, a dock, a multicomponent wharf (a dock, two small barges and a rice trunk), a vessel cluster (an auxiliary sail vessel, a small flat and a rice trunk), and a wooden sailing vessel…. The site features one of the largest wharf and dock complexes on the Back River.

This site was recommended eligible for the NRHP. Leech and Wood (1994) should be referred to for further information on this site and its components, as well as their excellent drawings of the architectural elements at this site.

Poplar Grove Plantation offered a comparable rice plantation complex and also contained a rice mill and wharf. A series of wood pilings are present from the wharf complex, with eight to nine foot centers. These pilings were made from southern pine. Evidence of mortise and tenons could be seen in the piling although preserved elements of the cribbing were buried in pluff mud and inaccessible. A small crib was found near the rice mill, which was constructed of eight by nine to 10 inch hewn timbers. These rested on puncheons. A number of beeched vessels were found here, as well as at other points along the Back River (such as Pennyworth Plantation discussed above) and Leech and Wood note that these vessels were used to shore up the banks of the river (Leech and Wood 1994:71-116).

Roads

Little archaeological work has been directed at roads in Georgia, although historic road and trail traces have been recorded by a number of surveys (and have probably been ignored by even more). Limited work has been conducted in Atlanta. Eric Duff of the Georgia DOT has documented trolley line remnants and cobble stone street paving for two projects in Fulton County: the Kelly Street Trolley Tracks and the MLK and Pryor Street trolley tracks (9FU254). Theresa Hamby of New South Associates has also documented a section of cobblestone paving on the Jones-Simpson Avenue in Atlanta. In all of these instances the resources lie within or beneath active roadways and hence cannot be fully exposed, interpreted, and evaluated. However, these resources are in essence preserved in place by the later resurfacing and re-use of these roads.

CRM surveys should record all road traces as archaeological sites. Evidence of old trails and roads can frequently be observed in the Piedmont as cuts and depressions. The cuts, particularly where deep, are likely to be quite old with the depth of the depression more a product of use and erosion than of construction. Recording these as archaeological sites would help to better trace the developing transportation systems of the state and may also aid the identification of early towns and farms.

Future Directions for the Archaeology of Transportation Sites in Georgia

Transportation sites are like military sites in that the development of the transportation systems of the state were linked to its history and thus most transportation sites can be considered to have historical associations and values. However, the significance of transportation sites lies in their location, construction, and history, and hence these research values do not require extensive excavations and in many instances can be recorded at the survey phase. Historical archaeologists working in the state should make a concerted effort to record and document all transportation remains identified on their projects. Documentation should include the location, dimensions, and attributes of each resource as well as the historical information about each that is readily available.

Archaeologists working on waterfront urban sites should be aware of the information regarding landfill and building in wet environments available from the archaeology of wharves. Leech and Wood's (1994) work in particular shows that the construction techniques for building wharves as well as for building structures in wet and unstable settings used comparable sub-structural elements of cribs, cobbs, etc. Where landfill occurred, elements of the waterfront may have been incorporated into the resulting streetscape, such as in Mobile, Alabama, where streets and structures were placed over existing docks, utilizing dock pilings as elements of their support (Reed et al. 1995). All waterfront settings, regardless of their current use and appearance, should be examined as though they were wharves as wharf architecture is likely to have either preceded them or to have been incorporated into their construction.

Cemeteries

Historic archaeological sites in Georgia includes the places were people lived, worked, grew food, made goods, defended their home land, and traveled. They also include the places where people were buried once their lives were over. Historic cemeteries are common across the state and while the locations of many are known, just as many, if not more, are abandoned and exist as archaeological sites. Cemeteries have received considerable archaeological attention in the form of archaeological involvement in their removal and relocation, but limited in-depth analysis.

The Historic Preservation Division of the Department of Natural Resources has recently published a book on historic cemeteries, which provides guidance on the location, documentation, preservation and legal status of cemeteries in Georgia (Van Voorhies 2003). Van Voorhies notes that a cemetery is legally defined as "any land… dedicated to and used, or intended to be used, for interment of human remains." Georgia law also provides that the use of an area for burial purposes serves as evidence that the land was intended for that use and hence any burial is considered to constitute a cemetery (Van Voorhies 2003:3). Van Voorhies provides guidance for the recording and treatment of historic cemeteries as well as laws and regulations governing their treatment. Georgia's

Abandoned Cemeteries and Burial Grounds Act (36-72-1) requires that the number of graves present in an abandoned cemetery be determined by an archaeologist using non-intrusive techniques (Van Voorhies 2003:76-91). This law has led to a number of archaeological surveys of cemeteries in the state as well as the relocation of cemeteries by several CRM firms. A summary of mortuary archaeology in the state was prepared by the Georgia Council of Professional Archaeologists in 2000 (Elliott et al. 2000). Dan Elliott et al. (2000) note that as of that date more than 100 cemeteries had been delineated by CRM firms, primarily in metropolitan Atlanta. Cemetery relocations included a large number of cemeteries that were relocated prior to reservoir construction at Lake Hartwell, Lake Allatoona, West Point Lake, Clarks Hill and Russell Reservoir, among others. Records of these removals are found at the Mobile and Savannah District offices of the US Army Corps of Engineers. Elliott et al. (2000) state that more than 25 cemeteries have been removed by archaeologists with CRM firms since the passage of the Abandoned Cemetery Act.

While these projects represent a considerable volume of archaeological research, the delineations and removals generated in response to the Abandoned Cemetery Act leave little in the way of records and make scant contributions to our understanding of historic cemeteries and their occupations, since these projects are not research-driven. More substantive studies which have been conducted include the excavation of 431 "Christianized" Native American graves from a Spanish mission on St. Catherines Island (Thomas 1988a, 1988b; see below). On St. Catherines Island, the ceramics and buttons recovered from three nineteenth-century graves that were excavated during work on Cunningham Field Mound D were analyzed and described by Thomas et al. (1997) who used them to illustrate status differences among the individuals interred.

The grave of a Confederate soldier was found during the widening of Columbia Drive in DeKalb County. GDOT archaeologist Rowe Bowen (1981) presents the analysis of the skeletal remains, clothing and material culture, and historical research which allowed this burial to be identified as belonging to the Confederate Soldier Jacob R. Wheeler in a compelling article published in *The Atlanta Historical Journal.* Archaeological work has been conducted at two Atlanta-area cemeteries in response to projects by MARTA: Oakland Cemetery (Dickens and Blakely 1979, Blakely and Beck 1982) and the Nancy Creek Cemetery (Garrow 1985; Elliott et al. 2000). Initial excavations around Oakland Cemetery were conducted for the MARTA east line project. Subsequent to this work, Historic Oakland Cemetery, Inc. (HOCI) made plans to sell a 5.7 acre tract within the cemetery where no markers were present to raise funds for the cemeteries restoration. Blakely and Beck (1982) conducted archaeological excavations in this area that determined that it contained the pauper cemetery at Oakland. The excavations in the cemetery, which were directed by Roy Dickens, revealed a number of apparent grave shafts that proved upon excavation to hold human remains. Excavation of 17 graves revealed that all were African-Americans who for the most part were buried by the City of Atlanta as paupers, although in some instances the presence of more ornate coffins possessing viewing windows suggested a degree of wealth in the deceased's family or community. The individuals studied ranged in age from 2 years to nearly 80 years, although nearly half were juveniles or young adults (Blakely and Beck 1982:197-204).

Archaeological and physical anthropological recovery and analysis was conducted by Southeastern Archaeological Services at the Mount Gilead Baptist Church cemetery in Muscogee County. Graves associated with this cemetery were uncovered during a construction project and Dean Wood and associates worked with the cemetery removal company to analyze and record these remains from a biocultural and historical perspective (Wood et al. 1986). The cemetery was associated with the Mt. Gilead Baptist Church, 1832-1849, although two African-Americans who were found buried in the cemetery were believed by Wood et al. (1986:67) to represent interments from the Missionary Colored Baptist Church. The age at death of the individuals buried within the Mt. Gilead cemetery ranged from newborn infants to an elderly woman of 84. A large percentage of the burials recovered were those of infants and children, and Wood et al. (1986:69) report that 64 percent of those buried were under the age of 11. Relatively few or no deaths occurred between the ages of 11 and 30, and once surviving childhood, residents of the area appear to have enjoyed a relatively long life. The average age at the time of death of adult males in the cemetery community was 59.4 years, while that of adult females was 64.9 years. However, Wood et al. note that even when the members of Mt. Gilead Church lived into middle age and early old age, their health was not good. A variety of skeletal pathologies were identified in the population, as well as injuries such as broken bones and in one instance, a shotgun blast that led to the death of a five year old (Wood et al. 1986:69-75).

Dean Wood and his colleagues (1986:78) report that the cemetery was arranged in north-west rows with the head of the burial to the west, facing east. Spaces within rows and between rows may reflect family plots that were not fully used at the time the cemetery was abandoned. Coffins were either hexagonal or rectangular in shape. Boards were sometimes placed across the lid of the coffin, and in some instances underneath the coffin, presumably to keep the coffin from collapsing prematurely. As the hexagonal coffins clustered on the east side of the cemetery, Wood et al. interpreted this distribution as a possible indication that this side of the cemetery was the first used, noting that hexagonal coffins were earlier than rectangular coffins.

One of the more unusual cemetery projects conducted in the country, and not just the state, was work performed at the Old Georgia Medical College in Augusta by Robert Blakely of Georgia State University and his colleagues. Renovations in the basement of this building yielded a dense deposit of human bones within the earthen floor. Examination of these remains determined that they represented African-American burials that had been robbed from local cemeteries for use in classes on human dissection, anatomy, and other topics at the college. The remains had been buried in the basement floor and covered in quicklime and over time an assemblage of more than 9,000 human bones occurred. Blakely and Harrington, editors, (1997) present a book that looks at the bizarre circumstances and racist attitudes behind these skeletal remains.

The Medical College building was designed by the prominent southern architect Charles Blaney Choskey (he is also the architect of the Phi Beta Kappa Hall and campus chapel at the University of Georgia) in 1835. The building was completed in 1837 and featured

large lecture rooms, a museum, a library, and dissecting rooms. Constructed in the Greek Revival style, the building soon became a landmark in Augusta, with visitors to the city commenting on its style and taste (Barnes 1997:34). It would serve as the college's only teaching facility until 1912, when the college moved to a new location.

The curriculum of medicine in the nineteenth century was dependent on the availability of human cadavers for dissection and lessons on anatomy, skeletal structure, and pathologies. Grave robbing thus occurred throughout the country as various medical colleges sought the human remains necessary for their teaching endeavors. Blakely and Harrington (1997:162) observe that racism was evident in the graves that were chosen for robbing, with the graves of African-Americans being preferred, particularly in the south. The emphasis on human dissection as the foundation of medical education originated from the medical curriculum of France, and the "Paris-method" spread to the US. However, there were not enough cadavers available to meet the demand, and so the profession of grave robbing emerged (Georgia law prohibited the removal of an interred body in 1833). Grave robbers scouted cemeteries for fresh graves (anatomy professors refused to accept bodies that had been buried for more than 10 days as purification would have set in by then). Graves were usually robbed between November and March when medical schools were in session and bodies were better preserved. The public was aware that grave robbing was taking place, and Blakely and Harrington (1997:166) note that there was public outcry in Philadelphia in the winter of 1883 when after the snow melted, the city cemeteries looked like they had been struck by aerial bombardment and the citizenry recognized the extent of grave robbing which had taken place. Techniques to protect graves were developed, including "mortsafes" which were iron barred cages that were placed over the surface of the grave with the bars extending well into the ground (Blakely and Harrington 1997:168-169).

The corpses that were obtained for classes on dissection and anatomy at the Medical College of Georgia were procured by an African-American slave, Grandison Harrison. Harrison was a Gullah from coastal South Carolina who was purchased in Charleston by the Medical College's seven member faculty for the fee of $700 in 1852. While his official title was Porter, one of his main jobs at the college was to obtain cadavers and also to assist in their dissection. It was illegal to dissect as well as to dig cadavers in Georgia until 1887 and thus the College's faculty used Grandison Harrison for these tasks to remove themselves from the threat of legal prosecution (Sharpe 1997:212-213). Sharpe (1997) provides an excellent biography of Harrison's role both with the Medical College and within the African-American community in Augusta. Harrison was treated as faculty by the students of the Medical College, many of whom believed he held an honorary doctorate of medicine. He gained wealth and prominence for his services to the Medical College, and was both respected and feared in Augusta's African-American community.

Harrington's (1997) study of pathologies represented by the collection of bone from the Medical College of Georgia revealed a surprising fact: that the frequency of pathologies was far less than would be expected from a contemporary cemetery of that time. While noting that some evidence of pathologies may have been lost by the fragmentary and

disarticulated nature of the Medical College of Georgia sample, Harrington suggests that this finding is more a product of two factors – an apparent preference for younger male remains, and a possible avoidance of graves known to have been associated with diseased individuals. Blakely and Harrington's (1997:168) analysis of the skeletal remains from the Medical College of Georgia site indicate a distinct preference for African-American males for dissection.

Bones in the Basement contains a number of other articles which look at dissection techniques, medical artifacts, subsistence remains, medicine, race, racism and politics in Georgia. It is a fascinating book that tells the story of one of the most interesting historical archaeology projects to take place in Georgia.

The summary offered above is not a complete listing of cemetery projects in Georgia, only the highlights. Elliott et al. (2000) should be referred to for additional information on cemetery archaeology in the state.

Future Directions for the Archaeology of Cemeteries in Georgia

As Elliott et al. (2000) note, there is a considerable volume of work on cemeteries being conducted by historical archaeologists in the state but there is little in the ways of records of these projects. While the Abandoned Cemetery Act requires the involvement of archaeologists in cemetery delineations as well as removals, the Act does not specify any repository for the records of this work. Elliott et al. (2000) indicate that there are an estimated 15,000 cemeteries in the state, of which only 5,584 are recorded on the USGS GNIS files. While county cemetery surveys exist, which are summarized by Brooke (1995, see also 1989), the majority of cemeteries in the state are not recorded. In an effort to develop a more comprehensive listing of cemeteries, Elliott et al. (2000) recommend that all cemeteries that are delineated be recorded as archaeological sites at the time of their delineation. Elliott and his colleagues note that such documentation is not required by the Abandoned Cemetery Act and recommend that the law be modified to include this as a requirement. Elliott et al. (2000) also recommend that all reports of cemetery investigations be submitted to the Georgia Archaeological Site Files (GASF) for curation, including the reports of cemetery removals and relocations. These efforts would begin to build a database that would provide Georgia's citizens with better information about its cemeteries and should be followed by all archaeologists working with historic cemeteries. The GCPA also developed a form for the recording of burials shortly after the Abandoned Cemetery Act was passed. This form was designed to record rudimentary information on the human remains being removed for relocation and was not intended to require an in-depth physical anthropological analysis. It is recommended that this form or something like it be revitalized and used by archaeologists engaged in the removal of abandoned cemeteries and be curated with the other records of cemetery removal at the GASF. Under the present system, much of the records of cemetery's locations and re-locations are inaccessible to descendents and other interested parties.

European-Native American Interaction Sites

The Historic Indian Period archaeology of Georgia has been summarized in three papers prepared as part of the Georgia Archaeological Research Design series, and anyone dealing with historic period Native-American sites should consult the appropriate volume for the most salient information (Smith 1992, Thomas 1993, Braley 1995). European artifacts also appeared on Native-American sites as a product of trade. Those locations are not discussed in this section since the interaction was indirect, and the reader is referred to Pearson (1977) and Waselkov (1989). Included in this discussion are the Spanish missions of the coast and trading posts and historic Cherokee sites where Native Americans and the European colonists interacted.

Spanish Missions

Archaeological excavations of the Spanish mission of Santa Catalina have been ongoing on St. Catherines Island since 1981 under the direction of David Hurst Thomas of the American Museum of Natural History (Thomas 1988b). The Spanish mission system involved a large number of mission sites in the northern reaches of what is now Florida as well as a small number of missions extending up the eastern seaboard. The second-most northern of these was the Spanish Mission at Santa Catalina. The Santa Catalina mission was established in 1566 to Christianize the Guale Indians and would be abandoned in 1684 when the English presence at Charleston prompted the re-organization of the mission system. Santa Catalina was attacked by British troops and Yamassee Indian allies in 1680 and although the Guale were able to hold off the attack, these hostilities led them to re-think their association with the Spanish missionaries and soon after they abandoned St. Catherines Island. Without Indians to Christianize, and with the English presence in Charleston increasing, the mission was largely abandoned by 1681 and formally dissolved in 1684 (Thomas 1988b:85-86). [13]

St. Catherines Island has been the focus of archaeological research for a number of years although the early excavations on the island emphasized the impressive Native American mounds and other sites located there. Joseph Caldwell of the University of Georgia conducted a survey in the area of Santa Catalina during the course of his investigations of some of the mounds, and recorded in his field notes that "There is no reason to believe, at present, that this is not the site of the mission of Santa Catalina" (in Thomas 1988b). The American Museum of Natural History began field work on St. Catherines in 1974 and although the museum was also interested in the prehistoric sites on the island, David Hurst Thomas developed a research program around the topic of the Spanish mission and began searching for the site. Thomas (1988b:88-89) notes that one difficulty in locating the mission was the density of prehistoric materials, from both the Guale as well as earlier cultures on the island, which made the location of Spanish artifacts difficult.

[13] In addition to David Hurst Thomas' overview of mission archaeology in the state, John Worth offers a website which includes an excellent review of the history and distribution of Spanish missions in Georgia – http://members.aol.com/jeworth/gbomiss.htm.

Using a close interval auger test excavation program that he had seen Kathy Deagan describe in her successful survey of St. Augustine, Thomas was able to locate a 100 meter square area that appeared to contain the mission. A proton magnetometer survey and subsequent ground-penetrating radar survey were employed next to tighten the location of the mission itself. With these results in hand, Thomas (1988b:92) was able to identify the location of the church, a kitchen, a friary, and the associated Guale village. Excavation followed and has been on-going over a number of years (Thomas 1988b:91-94).

The archaeological reconstruction of Santa Catalina's plan corresponds fairly closely with the historical description of a mission built on Amelia Island by refugees from Santa Catalina. The mission was enclosed in a rectangular palisade with four bastions that was surrounded by a ditch or moat. The interior of this structure featured an open plaza in front of the church while the friars' residence and kitchen were found to one side. The area of the church was fully exposed. Its façade was constructed of wattle and daub over a post-in-ground framework while the side and back walls were constructed of a mixture of wattle-and-daub and planking. The nave was also built of wattle and daub. A sacristy was built into the Gospel side of the church (to the left when facing the alter) and would have been used for the storage of vestments, candles, and other materials. Charred wheat kernels were also found in the sacristy (Thomas 1988b:97).

Within the church was the only known cemetery at Santa Catalina. Four hundred and thirty six burials were excavated, all of whom were Christianized Guale Indians. A third of these burials were placed in the Christian supine position with their feet pointed toward the alter and their hands crossed on their chest or abdomen. Thomas (1998b:99) states that the remaining human remains were "found as scattered, disarticulated bone in the upper grave fill-a secondary zone of disturbance created when previous interments were disturbed by later interments." It is unclear whether these previous burials were earlier Christian burials that have been disturbed and disarticulated by later Christian burials or whether the earlier burials were from the Guale occupation of the site. A significant number of grave goods were found with the burials. These included 15 rings, 12 metal and wood crosses, 10 bronze religious medallions, 10 glass and gold leaf cruciform adornments, 8 shroud pins, 4 intact majolica vessels, 2 complete glass crucets, 2 hawks bells, 2 copper sheet fragments, a silver religious medallion, a gold religious medallion, a clay tablet with the images of saints. Also found were tens of thousands of trade beads, several projectile points, a chunky stone, and a shell gorget carved in the rattlesnake Citico motif (Thomas 1988b:99). Also excavated at Santa Catalina were the remains of the friary (Thomas 1988b:100-103).

Thomas (1988b:123) notes that grave goods were not permitted by the Catholic Church. However, religious representation through material objects was very much a part of the post-Mississippian tribal cultures encountered in the New World, and thus the Catholic friars appear to have bent their traditions in an effort to make conversion more enticing. The fact that a rattlesnake gorget was included with the burial of an infant near the altar of the church at Santa Catalina indicates that the Friars were willing to accept some display of the Guale's traditional beliefs and cultures, so long as such display occurred

within the context of the church. The role played by the gorget was replaced for most of the Guale buried at Santa Catalina by religious medallions, rings bearing religious statements and images, crucifixes, and other objects of religious adornment (Thomas 1988b:119). The excavations at Santa Catalina provide an important look at both the Spanish presence in Georgia and Spanish efforts to convert the Guale, and are expected to generate additional insights as it continues.

Santa Catalina was not the only Spanish mission located in the state; in fact, it was one of many. The locations of other mission sites are less well known and have received limited archaeological attention. Thomas (1993:23-39) summarizes the historical and geographical information on these sites and should be referred to for greater detail. He notes in his descriptions that many of these mission sites were moved during their occupation and hence may have left multiple, but more ephemeral, evidence. Only one mission site other than Santa Catalina has received any detailed excavation, the mission complex of Santo Domingo de Asao and its later incarnation as Santo Domingo de Talaxe. Refer to Thomas (1993) for a more complete discussion of the mission sites where limited survey has potentially determined their location, but no follow-up work has been conducted to confirm that these are indeed the missions.

Joseph and Shelia Caldwell conducted excavations at the Darien Bluff Site (9McI10) that appear to have encountered remains associated with the mission of Santo Domingo de Asao. Joseph Caldwell, in his MA thesis, reports the discovery of a small cemetery with the remains of 14 Europeans and Native Americans, as well as the recovery of a large quantity of olive jar sherds. He also reported the discovery of "notable… quantities of fallen fired wall plaster from mud daub structures which had been burned" (Caldwell 1943:30 as cited in Thomas 1993:25-26). While he thought that these represented the remains of Guale structures, he acknowledged that they also could represent evidence of Spanish architecture (Thomas 1993:26). Shelia Caldwell continued excavations at Darien Bluff in 1952, identifying the locations of 15 structures. A large number of Spanish artifacts were found in the pit features associated with these structures, as well as a number of Native American ceramics (Caldwell 1953, 1954). Spanish artifacts were also identified by the excavations at Fort King George, which Caldwell believed were associated with the mission of Santo Domingo de Talaxe. Kelso (1968), in his excavations at the site, also recovered a Spanish iron knife and the butt plate of a Spanish musket and believes that Shelia Caldwell had found the location of the mission and associated house in her earlier work (Thomas 1993:26). Marvin Smith of Valdosta State University is conducting on-going excavations of the Lilly Site, 9Lw2, which is believed to be the location of the mission Santa Cruz de Cachipile, 1623-1658. This site is near Valdosta. Both Native American and Spanish artifacts have been recovered from the site to date, as well as the location of a large, burned, post-in-ground structure which may be mission related.

Trading Posts

Dan and Rita Elliott have conducted historical and archaeological studies of Mount Pleasant (Elliott and Elliott 1990). Mount Pleasant was a Yuchi Indian Town located on the Savannah River that was later the site of a trading post and military garrison. The Indian trade was an important element of colonial Georgia, with the Native Americans providing deer skins and other animal pelts in exchange for a variety of trade goods, most notably beads and clothing items, firearms and other weaponry, and alcohol. Trade was on-going in Georgia prior to the establishment of the colony. Shortly after the colony was established, sixteen traders applied for colonial licenses. Elliott and Elliott (1990:11-12) note that the deer skin trade was centered on Augusta but that after Augusta, Mount Pleasant was the second most important trading center. Indian traders reportedly were established in Mount Pleasant as early as 1712. A 1743 inventory of traders in the colony identified four traders with 13 assistants based out of Mount Pleasant. Elliott and Elliott's archaeological study of Mount Pleasant was limited, but recovered a large quantity of glass beads that were likely trade items. The archaeological excavations also revealed the reworking of European wine-bottle glass fragments by Native Americans into scraping and cutting tools, which could have been used to process deer hides. Elliott and Elliott suggest that Native American women may have lived at or in association with the military garrison established at Mount Pleasant (see discussion below), and may have made pottery for use by the traders and soldiers, as well as processed deer hides (Elliott and Elliott 1990:56). The Elliott's work at Mount Pleasant highlights the research potential of this site to address the interaction between Native Americans, traders and soldiers on Georgia's early frontier, and it is hoped that more in-depth work can be directed toward this settlement in the future.

Southeastern Archaeological Services conducted archaeological data recovery of Mary Musgrove's trading post at Cowpens for the Georgia Ports Authority in 2002 and 2003. Mary Musgrove is possibly the most fascinating figure to have yet been studied in the historical archaeology of Georgia. Her father was a Scottish or English trader and her mother a Creek Indian. She was born in the Creek town of Coweta on the Ocmulgee River where she was known by the name Coosaponakeesas and she was fluent in the Creek Muscogean language as well as in English. At sometime between 1706 and 1710, at the age of either six or 10, her father brought her to Ponpon in South Carolina, where she was christened Mary and educated as an English Christian. In 1716 she married John Musgrove, who was also part Creek, and they resided in South Carolina, most likely working in the deerskin trade. In 1732 she and her husband moved across the Savannah River and established a trading post at Yamacraw Bluff, the location that would become Savannah. It was here that she met James Oglethorpe when he arrived in Georgia, and in 1733, she translated the negotiations between Oglethorpe and Tomochichi. The following year, James Musgrove was granted a 500 acre tract on the Savannah River, where he and Mary would establish the Cowpens Trading Post. John Musgrove and the Musgrove's children died in 1735, leaving Mary the owner of the 500 acre tract and trading post at Cowpens as well as 10 indentured servants and large herds of cattle and horses. At Oglethorpe's urging, she established a second trading post, at Mount Venture on the Altamaha, in that same year. Mary married Jacob Matthews, one of her indentured

servants, two years later. Her influence with the Creeks led them to ally with the British and helped the British to defeat the Spanish forces at the Battle of Bloody Marsh. In 1742, after the passing of Jacob Mathews, Mary married Thomas Broomsworth, an Anglican clergyman. Thomas pressed claims for past services by Mary to the colony, and between 1757 and 1759 Mary Musgrove was awarded 4,100 pounds sterling, as well as title to St. Catherines Island. She died in 1765 on St. Catherines (R. Elliott 2003a, Mayle 2003).

Archaeological excavations at the site recovered a large number of artifacts dating to the period from 1735 to 1750. In a newspaper interview, archaeologist Chad Braley characterized the artifact collection in three words "Alcohol, tobacco and fire arms." The excavations recovered a large number of gun flints, tobacco pipes, and rum jugs and bottles, all of which would have been items provided at a trading post in exchange for deer skins and other pelts. These artifacts were recovered from a cellar that appears to have been part of the trading post structure. Work on the project also identified and recorded structures associated with the late eighteenth-century Grange Plantation (Mayle 2003). The analysis of the remains from the Musgrove Trading Post is currently in progress, and it is anticipated that the report will be prepared over the next few years.

Ledbetter et al.'s (2002) data recovery excavations of the Buzzard Roost sites (9TR41, 9TR56 and 9TR106) in Taylor County examined a series of historic Creek sites associated with trade activities. Ledbetter et al. (2002:252-255) report that the extent of trade and Native American – European interaction is unclear. The site was located on a trail crossing of the Flint River and was reported by both William Bartram and Benjamin Hawkins as a historic Creek town known as Salenough or Buzzard Roost. Machine stripping revealed post impressions of rectangular structures and associated storage pit features. A significant quantity of trade goods was also found at sites 9TR41 and 9TR56, sufficient enough to suggest to Ledbetter et al. that traders may have been in occupancy on the site. Two hundred and seventy-five glass beads were recovered from the site, as were European glass and ceramic artifacts, silver and brass, clothing and decorative items, gunflints and musket balls, iron hoes and knives, kaolin pipe fragments and other artifacts. Fragments of bottle glass show flaking and reworking presumably to function as cutting and scraping implements. Their description of these artifacts and these sites is a valuable resource for anyone dealing with trading posts and trade activities.

Cherokee Towns and Homes

In response to the settlers incursion on their traditional lands as well as a re-organization of Cherokee government which was modeled on both traditional practices and the American system, the Cherokee Indians constructed a new capitol at New Echota in Gordon County in 1825. While built as a Cherokee town, New Echota witnessed considerable interaction by the Cherokee and the settlers, and it was also home to a American missionary, Samuel Worcester. The history and archaeology of New Echota are thus summarized here.

The location for New Echota was selected by the Cherokee National Council in 1825 as representing a point near the center of the Cherokee Nation as it was then constituted. Several Cherokees already lived in this area along the Oostanaula River. Alexander McCoy operated a ferry crossing of the Oostanaula and Coosawatee rivers while Elijah Hicks owned a tavern and dwelling house "of some value." Both were allowed to bid first for their property in the new town. Two other Cherokees who lived in the area of the town, Crying Wolf and War Cub, were displaced and were compensated for their lands (Loubser et al. 2002:14).

A town plan was established and lots were surveyed and sold. The town plan featured a central square two acres in size surrounded by 100 one-acre lots. By 1826, a new Council House had been built in the square, replacing an earlier structure. The plan of this building was apparently an octagonal structure, although in other historical descriptions of New Echota a rectangular council building was described. Loubser et al. (2002:15) suggest that there may have been two-council houses: a larger octagonal structure for tribal meetings and a smaller rectangular building for the regular meetings of the National Council. Historical descriptions of the town depict it as consisting primarily of log residences with a few frame structures and supporting a printing press where the Cherokee newspaper, the Phoenix, was published, as well as stores and the missionary school of Samuel Worcester. While the town was quiet and lightly occupied for much of the year, it bustled during the fall meeting of the National Council when as many as 300 Cherokees came to town. It was also the site of the most critical council meeting in Cherokee history. With the discovery of gold in north Georgia, American miners and settlers invaded the Cherokee territory and the American military did nothing to stop this invasion. There was considerable debate among the Cherokee over the merits of a proposal made by the United States government to give the Cherokee land in Oklahoma as well as money in exchange for the Cherokee territory in the eastern US. During the National Council meeting of 1835, a group of Cherokee including Elias Boudinot, Major Ridge, John Ridge, and Stand Watie signed the Treaty of New Echota that deeded all Cherokee lands in the eastern US to the US government in exchange for five million dollars and land in the Arkansas territory. Although not the legal representatives of the Cherokee Nation, efforts by Chief John Ross to have this treaty revoked were unsuccessful, and the treaty was ratified by the US Senate in 1836 by a one vote margin. Federal troops arrived in 1837 and constructed Fort Wool on a 20 acre parcel adjoining New Echota, and in May of 1838, the troops rounded up the remaining Cherokee and began the march to the western territories. Now known as the "Trail of Tears," more than 4,000 Cherokee died on this journey. The town of New Echota would carry on for a number of years, but when the railroad connected with the town of Calhoun to the west, New Echota would be abandoned (Loubser et al. 2002:15-22). Today it is operated as a State Historic Site, and is also recognized as a National Historic Landmark and a Traditional Cultural Property reflecting the values, accomplishments, and history of the Cherokee in Georgia.

The state of Georgia has commissioned several archaeological studies of New Echota. The first, and most extensive, was carried out by Clements de Baillou in 1954, shortly after the state's acquisition of the site. De Baillou used large scale machine stripping to

map and excavate cultural features. Based on this work, he identified the locations of seven houses and two larger buildings, which he interpreted to represent public structures (de Baillou 1955). One of these larger structures was a circular building of post-in-ground construction measuring 120 feet in diameter. This he interpreted as a "rotunda" representing the location of the New Echota council house, although Loubser et al. (2002:49) state that post-in-ground council houses were not built by the Cherokee Nation after 1820. They suggest that this building may have been associated with the earlier Cherokee settlement of New Town, which was present on this location.

In addition to mapping the locations of structures in the town, de Baillou's excavations were able to delimit the routes of the original roads into town and the public well. These results were used to design the reconstruction of New Echota as a state park (Loubser et al. 2002:52-53).

Roy Dickens conducted work at New Echota in 1963 in the area that today is the visitors' center parking lot. Unfortunately, these results were not reported, although a site plan of Dicken's excavations is curated at the University of West Georgia's Antonio J. Waring, Jr. Archaeological Laboratory (Loubser et al. 2002:53).

Stephen Baker conducted excavations at New Echota for the Georgia Historical Commission in 1969. Baker's work included a reassessment of de Baillou's findings, and he concluded that de Baillou's placement of the roads in New Echota was incorrect (Baker 1970). Loubser et al. (2002:53), in their review of the work at New Echota, state that de Baillou was accurate in his positioning of the roads. Baker also conducted excavations at the Lum Moss site, an associated Cherokee house site, in concert with the planned development of the Elks Club golf course opposite the New Echota historic site. Baker identified the remains of a New Echota-era Cherokee house site as well as earlier Woodland Period components on the site. Baker also identified the location of a slave dwelling associated with the Cherokee Elijah Hicks house site (1970). More recent studies of New Echota include Karen Wood's (1994) testing of the location of a bathroom and septic field, which identified disturbed components, and a survey of the entire park property by Southern Research which identified eight archaeological sites on the park's grounds, including a Cherokee house site and probable Cherokee quarry (Keith 2000).

Clements de Baillou also conducted limited excavations at the home of James Vann, a mixed-blood Cherokee, in Murray County. This work was conducted for the Georgia Historical Commission and described by de Baillou in an article in *Early Georgia.* A mill, trading post, and tavern were all constructed in association with the Vann House. The archaeological excavations located the mill and a kitchen as well as a second building believed to be an office, but did not succeed in identifying the location of the trading post (de Baillou 1957).

Additional work was conducted at the Vann House in 1979 by Chip Morgan and in 1991 by Karen Wood. Morgan's work (1979) was completed as part of the site's development as a historic site and recovered historic artifacts from several locations. Wood (1991b) conducted a survey of the entire 24-acre site, but with disappointing results. She noted

that the archaeological survey was not successful in identifying the locations of outlying buildings on the property and that surface alterations have apparently destroyed much of the context for archaeological deposits associated with James Vann.

Several seasons of work have been completed at the Chieftains, the home of Major Ridge, a prominent Cherokee, signer of the Treaty of New Echota, and well-to-do businessman. Located on the outskirts of Rome, the Chieftains is now interpreted as a house museum. Archaeological work on the site was initiated between 1969 and 1971 by Patrick Garrow with financial support of the Celanese Fibers Corporation of Rome who then owned the site. Garrow's (1974) excavations recovered a number of artifacts from Ridge's occupation, as well as later residents, and excavated a cellar associated with the site. Additional work was conducted by Lisa O'Steen and Pat Garrow in 1998 (O'Steen and Garrow 1998) and by John Worth in 2000 (Worth 2000). Like the Vann site, none of these surveys have had much success in locating outbuildings associated with Major Ridge's occupation, but they have recovered artifacts of his era that aid the interpretation of Ridge's life.

Future Directions for the Archaeology of European-Native American Interaction Sites

By their nature, the sites included in this classification are important resources that can illuminate our knowledge of European-American and Native American interaction and cultural evolution. As such, sites that can be included in this classification should be considered as eligible for the NRHP unless they have received significant degrees of disturbance. Future archaeological work directed toward this class of sites should expose and record architectural remains in order to address changes in architecture which occurred as Native Americans were exposed to European building techniques and vice versa, should address the cultural landscape and the evolution of land use patterns, and should recover artifacts and other material remains which reflect trade practices as well as the substitution of European materials - such as glass - for natural materials in Native American crafts and technologies. The analysis of subsistence remains should address the degree, timing and nature of changes in foodways as European-introduced crops and animals were adopted by the historic Native Americans. The social and historical contexts of the interaction, whether for trade, religious conversion, or other reasons, should be fully explained and should serve as a context for the analysis of the archaeological findings and comparisons with other sites.

Future work should be directed toward the survey, identification and evaluation of the Spanish missions in Georgia. Thomas (1993) records a number of missions in the state, most of whose locations and conditions have not been defined. As development continues in the coastal regions of the state, these resources will be threatened and may already be lost. Grant funding should be sought for a survey of all of Georgia's mission sites, and once identified, efforts should be made to either acquire and protect these sites or to insure that they receive some form of regulatory review. The Spanish influence in the state was not profound, and the Spanish presence is a largely forgotten element in the

state's history. These sites were important, however, as they served as part of the battlefield between the Spanish in Florida and the English in the Carolinas for the control of Georgia's coast, and they are deserving of further attention, preservation and interpretation.

Trading posts are a highly important but little examined feature of colonial Georgia. The limited archaeological work that has been conducted on these sites to date provides a fascinating look at the interactions between Native Americans, traders, and soldiers on the frontier. Efforts should be made to identify and examine other trading post sites, such as Mount Venture, as well as sites in the interior.

Miscellaneous Sites

Three site types, rock piles, fish weirs, and artifact scatters, do not easily fit into any of the categories outlined above and are described here under the heading of Miscellaneous Sites.

Historic Rock Pile Sites

In the past decade, a number of residential developments in northern metropolitan Atlanta have encountered stone mounds or rock piles on their property that have become the subject of heated public debate. Much of this debate has centered on whether these rock pile sites represent prehistoric or historic activities. Tom Gresham (1990) has provided an overview of the attributes and characteristics of historic rock piles and his discussion is summarized here.

Historic rock piles were created in northern Georgia for a number of reasons. Perhaps the most common was field clearing, and farmers would remove large stones from their fields so the stones would not damage their plows and other agricultural equipment. Evidence of this type of rock pile is usually found in the form of a dispersed line of stones along the edge of a relative flat landform, such as a hill, terrace, or ridge. In other instances, rock piles were used to control erosion in the Piedmont, In this scenario, linear stone piles are found across (perpendicular to) erosional gulleys. These piles are generally several stones thick in the center of the gulley, diminishing to one of two stones in height as the pile moves up slope. The function of these piles was to diminish erosion by slowing the flow of water through the gulley and thus lessening the degree and depth to which the gulley was cut. Walls and terraces were sometimes made of stone. Stones were also piled as piers and supports for raised structures, and in this instance would appear as relatively low stacks of stones forming a square or rectangular pattern. Stones were used in the construction of chimneys and may result in a pile of stone when the chimney has collapsed. In this instance there should be evidence of smoke on some of these stones as well as associated historic artifacts. Finally, Gresham (1990) provides historical accounts that indicate that by the early twentieth century, farmers were gathering and stacking stone for sale and use in housing construction in Atlanta.

Evidence of these stone piles appears as tall, regularly stacked cylindrical piles of stone (Gresham 1990). The distinction between prehistoric stone mounds, which frequently served as burial markers, and historic rock piles is difficult and in some cases cannot be made on the basis of visual observation alone. Loubser (1999) reports that prehistoric stone mounds were generally greater than three meters in diameter, were composed of different types of stones, had intact A horizon soils beneath them, exhibit either the remains of human bones or elevated calcium and/or phosphate levels in the soils beneath them, and are associated with prehistoric artifacts.

Historic Fish Weirs

Another class of stone-piled historic site found in the state is fish weirs. Bill Frazier has pioneered the study of fish weirs in the state and is actively attempting to have them recorded more frequently by archaeological surveys. Fish weirs (also referred to as fish traps and fish dams) are constructed of V-shaped patterns of stone in a river with a wooden trap placed at the mouth of the "V". As Frazier notes, CRM surveys are generally land-based and hence have not been observant of the presence of traps in streams and rivers within their survey boundaries. Fish traps were made both during prehistory as well as historically, and hence all of these sites cannot be assumed to be historic, although Frazier also notes that prehistoric fish weirs are usually found in close association with a village. He (2003) cites several historical records of fish traps as evidence that traps were made and operated by European-American settlers as well as the Native Americans who preceded them. Fish weirs are also discussed in the context developed for Georgia's inland waters (R. Elliott 2003b).

Artifact Scatters

One of the most common site types found in the state are historic artifact scatters. Scatters in most instance are the product of refuse disposal. They may represent yard midden deposits which have lost integrity due to plowing or other factors, and in other instances trash may have been included with food scraps thrown into hog pens and may also have been distributed with refuse thrown onto fields. Artifact scatters in and of themselves have little research value. If they are not associated with an identifiable structure or occupation, they have no research value beyond the identification of their location, contents and age.

VI. Standard Frame of Reference

The purpose of this section is to provide a basic framework upon which to approach the study of a historic site as well as the criteria and attributes to be used in evaluating its significance with respect to the NRHP. Guidelines are provided for the methodological approach to historic archaeology in Georgia. These guidelines are recommendations, not established criteria, but it is important to recognize that the evaluation of historic sites can be better accomplished if standardized analyses and approaches are used. Common references, both for material culture and approach, are provided, as are limited discussion of analytical processes in general use in the field.

Guidelines for Historical Archaeology in Georgia

Archival Research

The degree of archival research a site should receive is a product of the age and nature of the site as well as the phase of investigation. At the survey level, archaeologists working in the state should make certain that they are as familiar with the history of the area they are investigating as possible. Where county and local histories exist, these should be reviewed prior to fieldwork to determine if there are notable resources described in these studies that may appear in the project area. Knowledgeable individuals, including members of the local historical society, if there is one, should be consulted for information they possess on the history of the region being studied. Surveyors should also review historic highway maps and topographic maps of the project area and should note the locations of structures and other sites recorded on these maps, which may no longer be extant. If time permits, the review of the historic aerial photographs (1930s vintage) at the University of Georgia Science Library is an excellent tool for noting resource locations in a project area. For urban locations, the Sanborn Fire Insurance Map Series (at the Georgia Institute of Technology library and other reference repositories) is an excellent source of information on the location of late nineteenth-century structures in an area.

At the evaluation phase, archival research should include a chain-of-title research to determine the ownership and if possible, the occupancy of the site. The research values of domestic sites are a product of the site's history and occupancy in combination with the archaeological record. Chain-of-title research should be followed with census and tax research to better understand the social and ethnic background of the site's occupants. This site history must be taken into consideration along with the archaeology when making assessments of NRHP eligibility. For example, a domestic site with well preserved sheet midden deposits would not be considered an eligible site if the archival research on this site revealed that the site had been occupied by persons of varying ethnic and/or social backgrounds. In this instance, the historical background of the site would

be considered to be mixed, and thus the archaeological deposits would have less research value.

At the data recovery/mitigation level, historical research should be broadened to include searches for wills, diaries, letters, and newspaper accounts of the site under investigation and should also develop comparative information on the history and related sites in the region.

Field Methods

Standardized field techniques used in archaeological survey in Georgia, consisting of 30-meter interval shovel testing in most instances, should be adequate to identify most historic sites. However, it must be recognized that certain site types, such as Colonial farmsteads, were compact and contained a limited number of artifacts, and hence these sites and others like them may be difficult to locate using a 30-meter interval shovel test survey. Consultation of historic maps and aerial photographs may identify locations where tighter interval testing should be employed. As noted in the discussion of coastal plantations, enslaved African Americans disposed of trash in subsurface pits and hence the locations of slave villages may not yield many artifacts via shovel tests. If the archival research indicates the presence of a plantation, areas that are likely to contain slave villages should be surveyed at a tighter interval and machine stripping or remote sensing may also be advisable as techniques to identify the locations of these sites. Colonial farms along the coast and coastal plain were frequently sited on higher-level elevations near a permanent drainage and these locations should also be tested at a tighter (20 meter or less) interval. Shoals were the hubs of a number of activities in the piedmont, and shoals should receive detailed visual survey in addition to shovel testing, seeking visual evidence of old road beds as well as remnants of raceways, dams and other features. At the survey phase, archaeologists should also be alert for the appearance of domesticated plants, as transplanted flowers, trees and shrubs often provide the first evidence of the location of a former house site. Surveys of settings with rivers and streams and on the waterfront should alert for the presence of fish weirs as well as for remnants of wharves.

Because of the depth of deposits as well as the presence of pavement and other obstacles, which preclude the use of shovel tests, urban locations may require the use of heavy machinery at the survey and evaluation phase. Backhoe test trenching has been used in a number of urban settings with the objective of identifying the stratigraphy of a site as well as the depth of occupation horizons, historic living surfaces, which may contain cultural features.

CRM surveys are normally completed by two specialists (often from separate companies) seeking different resources: historic structures and archaeological sites. There is a tendency for archaeologists working on CRM surveys to ignore historic structure sites as already recorded by the architectural historian. The locations of historic structures should be surveyed and these locations should be treated as historic archaeological sites. Where the project is a road widening it may only affect the front yard of these structures that contain limited archaeological remains. If no resources are found, it is not necessary to

complete a site form. Where the project's limits include the totality of the standing structure, it should immediately be considered as an archaeological site. Eligibility assessments for historic sites with standing historic architecture should also consider and incorporate the architectural features. Even if the house architecture is not considered eligible, if the archaeological components of the site are considered eligible, then any follow up archaeology should include recording of the house as a site feature.

At the testing phase, shovel tests should be placed on a 10-meter grid across the area and the density of kitchen, architecture, and other artifact classes should be separately mapped to assess site structure. A well-preserved domestic site will normally exhibit separate areas of kitchen materials (often from sheet midden deposits) and architectural remains (often from structures). Metal detector survey, on two meter transects, is also a useful and efficient way to identify the locations of former structures on historic sites.

Remote sensing techniques, in particular ground-penetrating radar (GPR), have been proven to be effective in delimiting sites containing large structures, such as fortifications, and burials, and should be employed in the investigation of such sites. Recent work by the GDOT demonstrates that GPR with current post-processing software can also identify and map the locations of features such as posts and privies on historic sites (personal communication, Shawn Patch and Jim Pomfret, GDOT) and historical archaeologists should thus be aware of current and future trends in remote sensing which offer an alternative to more time consuming and intrusive excavation procedures.

Survey and site evaluation actions most often occur in compliance with historic preservation laws and regulations. There are thus project restrictions that must be taken into consideration in the evaluative work. For example, the GDOT defines the Area of Potential Effect (APE) of their projects as within the permanent and temporary road right-of-ways. For GDOT projects, all archaeological field investigations are restricted to the APE. Site NRHP evaluations are thus conducted only for the portion of the site within the APE and if the site appears to extend outside the APE, it's eligibility may be recorded as "unknown" since a complete evaluation of the site cannot be made within the context of the GDOT undertaking.

Data recovery studies are a product of the site being investigated and research designs should be prepared for all sites receiving data recovery that outlined the project's research goals and the methods to be used to achieve those goals. Machine stripping is recommended where conditions permit, with the objective of exposing, mapping and excavating cultural features. Where conditions due not allow for stripping, close interval shovel testing (5 meter or less) and density mapping of artifact distributions may also be used to define site structure and identify areas for hand excavation.

Lab Methods

The evaluation of historic sites requires knowledge of the materials found on the site and a system of classification. South presented the method most widely used for classifying

the material culture recovered from excavation of a historic site, in 1977 in the discussion of his Carolina Artifact Pattern. We recommend that the South system of classification be used since it is the one most commonly applied by historical archaeologists and since it allows comparisons to be made between sites as well as between a specific site and classes of sites. South called his classifications a type-ware-class-group system, basing his categories on artifact types defined by Ivor Noël Hume (1970). Recovered artifacts were organized into functional classes such as Kitchen or Clothing. Each class was further broken down into material type, then ware, and finally type. As his example, he used a pearlware sherd. The sherd would belong to the Kitchen Group, the Ceramic Class, the Earthenware Material, and finally the type was blue painted pearlware.

South's original classes were Bone, Architecture, Furniture, Arms, Clothing, Personal, Tobacco, and Activities. Currently, historical archaeologists categorize bone under the Kitchen Class, and have added a Miscellaneous Class. The types of artifacts included in each Group are fairly self-evident. The Architecture Group contains construction materials and decorative items such as nails, window glass, and doorknobs. The Furniture Group is composed of hardware, such as escutcheons and other furniture parts. The Kitchen Group contains ceramics, glass, animal bones and plant remains. The Personal Group contains items such as coins, combs, and toothbrushes. The Arms Group houses firearms parts and ammunition. The Tobacco Group contains items used in smoking tobacco such as pipe stems and bowls. Finally, the Miscellaneous Group contains the rest of the recovered material culture unable to be placed in the other Groups. A significant change to South's original classifications was presented by Patrick Garrow in 1982 and consisted of the removal of colonoware ceramics from the Activities Group and their placement in the Kitchen Group resulting in a revised Carolina Artifact Pattern.

The ultimate purpose of these classifications was to allow artifact data from historic sites to be quantified, to reveal any patterns, and to allow for the direct comparison of historic sites. South's (1977) Carolina Artifact Pattern was based on five sites he had excavated. In these sites, a clear pattern is seen is in which the percentages of artifacts belonging to each group remain within the same range across the five sites. South then compared these sites to those excavated by others, demonstrating that pattern appeared to hold. He cautioned that only by collecting historic site data in a consistent and replicable fashion, and comparing it to other sites, would the pattern be tested. Since 1977, many historic archaeologists have tested the Carolina Artifact Pattern, and revised it, as well as developed new patterns.

When looking at site dating rather than patterning, the artifacts found in the Kitchen Group are most useful in providing dates. Though date ranges are offered by pipe stem dating, analysis of nail manufacture, and manufacture and marking of bottle glass, ceramics are one of the cornerstones of dating on a historic sites and other dates are often only supporting evidence. Noël Hume (1970) recognized early on that ceramics of different wares and decorations had a definite period of popularity, thus allowing the archaeologist to ascribe a time period to features from which they were recovered.

Stanley South developed a formula for deriving mean ceramic dates for features and presented it in his 1977 *Method and Theory in Historic Archaeology*. South's system, based on Noël Hume's work defining ceramic types and dates of popular usage, is now a widely used tool in dating historic sites. The mean ceramic date (MCD) formula uses the median manufacture date for ceramic types, taking into account the frequency of each type's occurrence within the feature in order to arrive at a date for the subject deposit. Of course, for any deposit, the terminus post quem (TPQ), or "date after which" must be considered as the deposit can only be dated after the beginning manufacture date of the most recent artifact found, despite the dating evidence presented by MCD or other artifacts.

In the study of historic ceramics, George Miller's name may be one of the most recognized in the field, having published extensively and providing references widely used in ceramic analysis. Of particular interest to the interpretation of historic occupations are his studies concerning economic scaling. Miller, in his 1980 article *Classification and Economic Scaling of 19th Century Ceramics*, laid out a system by which archaeologists could determine the expenditure of the site occupants on ceramics and the social status thus implied. Miller noted that analysis concentrating on ware type, rather than decoration, became less useful during the nineteenth century than it had been for the century previous. Creamware, or CC was the most inexpensive ware and its cost was the index value against which prices of decorated wares were compared. Miller revised his CC index values in a 1991 article *A Revised Set of CC Index Values for Classification and Economic Scaling of English Ceramics from 1787 to 1880.* The article provided updated CC index values to replace those presented in the earlier publication, as well as providing descriptions of common ceramic types recovered from sites dating from the late eighteenth through the nineteenth century. Miller developed his indexing for use with ceramic vessels, not sherds, and this technique should be used for collections that have undergone Minimum Vessel Count (MVC) analysis.

The recovery of ceramic sherds bearing maker's marks can be invaluable in dating features. Maker's marks were intended to identify the manufacturer to the public. Within the historic context, these marks may indicate the date of the ceramic. Most pottery producing companies have a standard mark, however, the marks changed over time and under the purview of different owners or through mergers and acquisitions. Another factor affecting the marks from the late nineteenth century are the enactment of laws or acts, such as the McKinley Tariff Act of 1891, which required that England be added to marks on ceramics from Britain. Literally hundreds of marks are known and they, as well as other information useful for dating ceramics are the subject of several publications, including Ralph and Terry Kovel's 1986 *Kovels' New Dictionary of Marks* and Geoffrey A. Godden's 1964 *Encyclopedia of British Pottery and Porcelain Marks.*

Maker's marks are also found on glass bottles, tobacco pipes, silver and pewter wares, jewelry, and occasionally on brick. These marks, when identified, can give information concerning the date of the artifact as well as the location of manufacture.

Ball clay or kaolin tobacco pipe stems are often the most ubiquitous artifacts found on eighteenth- and nineteenth-century historic sites. Early efforts to ascribe dates to the pipe

stems were made by J. C. Harrington (1954). Harrington's studies collected data concerning the interior diameter of thousands of pipe stem fragments collected in both Britain and the United States. This information was sorted into a series of five time periods stretching between 1620 and 1800. Harrington still felt that his sample size was too small and would only benefit from additional study and refinement. Lewis Binford (1962) continued the work on pipe stem dating basing a statistical formula on Harrington's data. Additional study by Noël Hume showed that the formula was only accurate between 1680 and 1760 and that at least 950 recovered stems were required for derivation of an accurate date. As noted by Bradley (2000), a more accurate date for a pipe assemblage is found when combined with information concerning pipe maker's marks and bowl configuration.

The following references, divided by artifact type, are provided to give a broad overview of sources for the identification of historic artifacts, as well as Internet resources for historical archaeology. The printed materials include scholarly books as well as those of collectors, site excavation reports, leaflets, and journal articles. Also included are a variety of Internet web sites that may be valuable for artifact illustration as well as comparison to ongoing work that has yet to be published. These sources are widely in use and may provide an introduction to the material culture present at historic sites, as well as to current methods in the practice of excavating, analyzing, and reporting historic sites.

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Assessment of Eligibility

Current Inventory and Data Gaps

There are, as of July, 2003, 9,174 historic archaeological sites recorded in the state. The Georgia State Archaeological Site Form contains a number of historic site types (some of these are more appropriately thought of as site features), most of which have been covered in the discussion of the archaeological literature of the state presented in Chapter V. Table 8 presents the historic site types recorded by the GSASF, within the typological categories employed in this study: Agrarian, Industrial, Community, Military, Transportation, Cemeteries and Miscellaneous. Information was not retrieved on European-Native American Interaction Sites, although missions are recorded together with churches under the heading of Community Sites.

By far the most commonly recorded site type in the state is a Community site. Of the 9,174 recorded historic sites, 7,159 (78%) are recorded as Community sites. Within the class of Community sites, Houses or Structures contribute 3,839 sites and Historic Artifact Scatters add an additional 2,774 sites (the combined total of these two types is 6,613), meaning that these two site types represent 92 percent of the Community category as well as 72 percent of all of the historic sites recorded in the state. Other Community site types include a bank, a baptistery, a bomb shelter, nine brick piles, 15 camps, five cellar caves, one cement pool, 92 chimneys, 26 churches or missions, five cisterns, 30 city trash dumps, one city waterworks, two courthouses, 115 domestic trash dumps, 25 foundations, one gas pump, 12 historic ceramic scatters, two historic villages, four horse race tracks, six inns or hotels, 21 outhouses, 10 schools, 20 settlements, three sewers, five springs, one spring box, one storage site, 10 stores, two taverns, 15 unspecified dumps, and 104 wells.

There are only 443 Agrarian sites recorded in the state. These include 98 barns or stables, two cattle dipping vats, one diversion berm, one erosion break, 187 farms, two farm machinery, 59 fence/wall/stock pens, 19 field clearings, 12 field walls, two granaries, three historic corn cob cribs, 13 plantations, three rice paddies, 31 terraces, and 10 water troughs/tanks.

There are 548 Industrial sites recorded in the state. These include five blacksmith shops, five brickyards, 13 charcoal kilns, five corn mills, 12 cotton gins, 70 dams, seven factories, two forges, five furnaces, one generator, 31 gold mines, 41 grist mills, three iron furnaces, 29 iron mines, 19 kilns, five man-made levees, one meat processing plant, two mica mines, five mill dams, six mill ponds, 13 mill races, 107 unspecified mills, 38 mines, three power plants, 29 quarries, two rice mills, 58 saw mills, one sluice box, four

Table 8. Identified Site Types

Site Grouping	Site Types	Total Number
Agrarian Sites	Barn, Stable, Cattle Dipping Vat, Diversion Berm, Erosion Break, Farm, Farm Machinery, Fence, Wall, Stock Pen, Field Clearing, Field Walls, Granary, Historic Corn Crib, Plantation, Rice Paddy, Terrace, Water Tank, Trough	443
Industrial Sites	Blacksmith Shop, Brickyard, Charcoal Kiln, Corn Mill, Cotton Gin, Dam, Factory, Forge, Furnace, Generator, Gold Mine, Grist Mill, Iron Furnace, Iron Mine, Kiln, Man Made Levee, Meat Processing Plant, Mica Mine, Mill Dam, Mill Pond, Mill Race, Mill Unspecified, Mine, Power Plant, Quarry, Rice Mill, Saw Mill, Sluice Box, Sugar Mill, Tannery, Textile Mill, Turpentine Still, Warehouse, Storage Building	548
Community Sites	Baptistery, Brick Pile, Camp, Cave/Cellar, Cement Pool, Chimney, Church or Mission, Cistern, City Trash Dump, Court House, Domestic Trash Dump, Foundation, Gas Pump, Historic Artifact Scatter, Historic Ceramic Scatter, Historic Isolated Artifact, Historic Village, Horse Race Track, House or Structure, Inn or Hotel, Out House, School, Settlement, Sewer, Spring, Spring Box, Storage Site, Store, Tavern, Unspecified Dump, Well	7,159
Military Sites	Battlfield, Earthworks, Fort or Battery, Firing Range, Prison Camp, Military Supply Cache, Military Berm, Military Cemetery	165
Transportation Sites	Airport, Airstrip, Barge, Boat Yard, Bridge, Canal or Ditch, Causeway, Culvert, Dredge Spoil, Jetty, Pier, Landing, Pilings, Dock, Railroad Station, Railroad Track, River Ferry, Road, Ship or Boat, Stage Coach Depot, Trolley, Walkway	231
Cemeteries	Historic Cemetery, Military Cemetery, Isolated Burial	443
Miscellaneous Sites	Archaeological Experiment Station, Glyphs, Historic Earthwork, Unknown Use, Historic Fish Weir, Historic Isolated Artifact, Historic Rock Pile, Historic Shell Pile, Historic Trench, Monument, Memorial, Sign, Push Pile, Still	906

sugar mills, two tanneries, one textile mill, 16 turpentine mills, and five warehouse/storage buildings. The dam sites may better represent transportation sites than industrial sites but the assumption is that most were mill related even if that function was not specified on the site form.

There are 165 Military sites recorded in the state. These include 31 battlefields, 63 earthworks, 59 forts or batteries, three firing ranges, one prison camp, seven military supply caches, one military berm, and one military cemetery.

There are 231 Transportation sites recorded in the state. These include one airport/airstrip, three barges, one boat yard, 69 bridges, two causeways, 25 canals or ditches, two culverts, one dredge spoil pile, one jetty, 35 piers/landings/pilings or docks, 34 railroad stations or tracks, four river ferries, 30 roads, 18 ships or boats, two stage coach depots, one trolley, and two walkways.

Four hundred and forty-three Cemeteries are recorded in Georgia. These include 441 historic cemeteries, one military cemetery, and one isolated burial.

The Miscellaneous category includes 906 sites. These include an archaeological experiment station, two glyphs, 12 historic earthworks of unknown function, 19 historic fish weirs, 394 isolated historic artifacts, 234 historic rock piles, 17 historic shell piles, 15 historic trenches, three monuments/memorials/signs, 17 push piles, and 192 stills.

This review of the existing inventory of sites in Georgia illustrates some problems with site definition that may affect the assessment of eligibility. First, sites are frequently being identified and recorded as isolated elements, rather than as the functional units needed for the full evaluation of their eligibility. This can be seen in several of the site classes. For example, the industrial classification includes five milldams, six millponds, and 13 millraces, as well as 70 dams whose functions are not identified. The milldams, millraces, and millponds are obviously elements of mills, but since they are not recorded as such it would be difficult to assess their significance. The Agrarian class includes 98 barns or stables, 59 fence/wall/stock pens, 19 field clearings, 12 field walls, two granaries, and three historic corn cob cribs; again, all of these are likely to be elements of farms or plantations, but their recording as isolated features hinders our ability to assess their significance. This issue of treating the identified but isolated material remains as a site rather than recognizing these materials as one element of a site and searching the archaeological and historical evidence to define the total entity is perhaps best exemplified in the class of Community sites. There are, to date, only two villages or towns recorded in the archaeological record of the entire state. Yet there are also 3,839 house sites or structures. These historic house sites undoubtedly contain the remains of groupings of homes that could be associated and interpreted as communities following the typology outlined by Roth (1992). It is also likely that many of these house sites were parts of farms or plantations, both of which appear to be under-represented in the state's archaeological record. Recognizing and understanding historic archaeological sites within their cultural context is a critical step to their assessment of eligibility and one that is presently missing for many of the recorded sites in the state.

Assessing Historic Sites' Eligibility

Thus the first step in the assessment of site's eligibility is to define the site by class and by type, and then determine if the totality of the site has been recorded. CRM surveys, by their legal status, may only examine a portion of the site that is in the project's APE. However, the NRHP criteria apply to sites, not site areas, and the entire site must be identified and assessed, when feasible, before the affects of the project on the portion within the APE can be determined. Where only a portion of the site is available for evaluation, the assessment of integrity process outlined below should be applied to the site area under study.

The second step in determining site eligibility is to assess the site's integrity. *National Register Bulletin* 36 presents the Guidelines for Evaluating and Registering Historic Archaeological Sites and District (Townsend et al. 1993) and applies the seven aspects or qualities of integrity to historic sites. The seven aspects are: location, design, setting, materials, workmanship, feeling and association. The application of each of these aspects of integrity to historic archaeology in Georgia is discussed below.

Location refers to the place where a historic event took place or where a historic structure was constructed. In order for a historical archaeological site to have integrity of location, it must be on the location with which it was associated and it must demonstrate the integrity of location. For example, a deposit of Spanish era artifacts, while historically significant, would not have the integrity of location if research revealed that those artifacts had been brought into their current position as fill. Similarly, the location of a Civil War battlefield where entrenchment fortifications were built would not have integrity of location if the area of the entrenchments had been cleared and bulldozed and no archaeological evidence of them remains.

Design refers to a combination of features that create the form, plan, structure, space and style of a property (Townsend et al. 1993:17). In historical archaeology, it often refers to the site landscape and the preservation and identification of all of the elements and components of that landscape. For example, a historic mill site that was represented by the archaeologically definable locations of the mill dam, head race, tail race, wheel pit, and mill house would be considered to have good integrity of design. If the same mill site were only represented by the tailrace, then its integrity of design would be considered poor.

Setting refers to the physical environment of a site. A historic fortification located on a river bend would be considered to have a good integrity of setting if the area surrounding the fort was natural and appeared much as it had when the fort was in use. If the area surrounding the fort has been built up with subdivisions and the view of the river showed large modern docks and buildings, then the setting of this fort would be considered poor. However, the loss of setting would not diminish the site's research value and hence would

not affect the site's NRHP eligibility within the context of Section 106 compliance evaluations.

Materials refers to the physical elements that form a site. For historic sites, integrity of materials means that there are evidences of a site's architecture and the materials that formed it, and that these are relatively intact. For example, if the archaeological excavation of a crib wharf revealed that wharf timbers and their connections were still intact, as well as the wharf fill, then the wharf would be considered to have good integrity of materials. If the excavation of this wharf revealed that the timbers had all decomposed and washed away and the wharf fill had collapsed into a heap, then the integrity of materials would be considered poor.

Workmanship refers the evidence of craftsmanship and construction present in the built environment and the historic site's ability to convey that workmanship. In historic archaeological sites it is often expressed by the preservation of structural remains and their ability to convey construction techniques. A historic house site with standing end chimneys whose chimneys are intact and displayed an unusual pattern of stone coursing would be considered to have integrity of workmanship. A house site whose chimneys are built with rubble construction and which is partially collapsed would not have integrity of workmanship.

Feeling refers a property's ability to express its historic character. A crossroads community where the locations of homes and stores can be mapped and recognized archaeologically would be considered to have good integrity of feeling. This same community, where modern construction had destroyed some site areas and where the archaeological materials could not be used to distinguish between commercial and domestic sites, would not have integrity of feeling.

Association is used to express the connection between a site and historic event. A section of entrenchments and defensive works that are on the location of a Civil War battle would have good integrity of association with that battle. A comparably preserved section of earthworks that were nearby but were not involved in the battle would not have the integrity of association.

With historic archaeological sites, the aspects of integrity can usually be condensed and consumed within three attributes common to all archaeological sites: space, time and occupation. Evaluations of historic site's NRHP eligibility must also consider these attributes when assessing a site's eligibility.

Space refers to the ability of an archaeological site to express its historic layout and design, and in essence represents the horizontal integrity of a site. For example, a historic plantation site whose archaeological data is sufficient to locate and identify the locations of the planters house, slave village, and agricultural work yard would be considered to have good spatial integrity. This same site, where the artifacts from shovel testing or other investigations did not distinguish between different components of the site, would not be considered to have good spatial integrity.

Time refers to a site's ability to yield data that can be segregated on a temporal basis. In some settings, such as urban occupations, temporal integrity may be expressed as the site's vertical dimension and the preservation and presence of stratified deposits. Single component sites obviously have good temporal integrity, but since many sites were reoccupied over time, temporal integrity can also be expressed through the preservation of closed context cultural features. A site whose artifacts are found strictly in the plow zone and which was occupied over a broad period of time does not have good temporal integrity.

Occupation is a concept used to assess the integrity of a site that had multiple occupants over time and across space. Urban locations in particular were used for extended periods of time and hence may have changing spatial plans and overlapping temporal inhabitations. Such sites would still be considered to have good integrity if their preservation was such that the remains from the 1740s military garrison on the site could be recognized and distinguished from the remains of a 1810s plantation occupation on the same landform.

While these attributes provide a number of different ways for historical archaeologists to assess the integrity of their sites, it is important to recognize that the assessment of a site's integrity is only the first step in the determination of eligibility. In order for a site to be considered eligible, it must have integrity and meet one of the four criteria of the NRHP. The NRHP criteria are expressed as:

> *The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and:*
>
> *A. that are associated with events that have made a significant contribution to the broad patterns of our history; or*
>
> *B. that are associated with the lives of persons significant in our past; or*
>
> *C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
>
> *D. that have yielded, or may be likely to yield, information important in prehistory or history.*

While the eligibility of the majority of archaeological sites is evaluated in reference to Criterion D, archaeologists should apply the other criteria as well if appropriate. For example, a Civil War fortification used in the Battle of Kennesaw Mountain is also

eligible under Criterion A, Mary Musgrove's trading post is eligible under Criterion B, and the unusual architectural ruins of the Spier House are considered eligible under Criterion C. Unlike prehistoric sites, historical archaeological sites may be eligible under multiple criterion and archaeologists evaluating such sites should consider eligibility against all of the criteria that are applicable.

If a site meets the aspects of integrity outlined above and can be shown to address one or more of the research concerns outlined in Chapter V, or other research considerations, then it should be considered eligible for nomination to the NRHP.

VII. Management Considerations

Threats to Historic Sites in Georgia

Although Georgia is adding to its inventory of historical archaeological sites with each passing year, historic sites are also being lost to development and construction as the state's population expands. This section considers the threats to historic archaeological sites posed by various projects.

The greatest threat facing historic archaeological sites in the state is large-scale development of land for residential, commercial, or industrial purposes. As Smith and Harris (2001:65-67) note, this type of development is frequently referred to as "sprawl." Sprawl is dependent upon the use of the automobile for transit and is also characterized by a relatively low population density. It results in the continuing outward expansion of urban locations through suburbanization and the creation of housing subdivisions and supporting commercial strips. Smith and Harris (2001:767) cite Downs (1998) as defining ten attributes of sprawl: (1) unlimited outward expansion, (2) low-density settlement, (3) leapfrog development, (4) fragmentation of the authority governing land use, (5) dominance of transportation by privately owned automobiles, (6) lack of centralized planning, (7) widespread "strip" commercial development, (8) fiscal disparities among localities, (9) segregation of land use types by zones, and (10) reliance on trickle-down effect to provide housing for low income households.

As Smith and Harris observe (2001:67-72), metropolitan Atlanta is experiencing sprawl of historic proportions. During the 1990s, the population of the Atlanta region grew faster than any other city in the US except Los Angeles, and added enough people and developments in this one decade to create a city the size of Birmingham, Alabama (Smith and Harris 2001:68). Statistics compiled by the Atlanta Regional Commission, as cited by Smith and Harris (2001:72), indicate that 26,584 acres were developed per year between 1990 and 1995. The current per year figures are most likely higher. The ARC further indicates that between 1995 and 2020 an additional 526,464 acres will be developed within the metropolitan Atlanta area. This is an area equivalent to the size of DeKalb, Gwinnett and Rockdale counties combined. While sprawl if resulting in the greatest consumption of land in the Atlanta region, it is also impacting other sections of the state, particularly along the coast. Smith and Harris (2001:69) observe that the populations of Bryan and Camden counties respectively increased by 52% and 45% during the 1990s. Smith and Harris (2001:73) calculate that the development of 26,584 acres per year in the metropolitan Atlanta area alone is resulting in the loss of between 949 to 1,898 archaeological sites per year.

One of the characteristics of sprawl is its creation of large, low density, suburbs. Large-scale (ie. greater than 50 acres in area) developments almost inevitably employ heavy equipment to clear and modify the land. As a result of the intensity of this construction, most archaeological sites are either heavily damaged or destroyed in the process. Large-scale land management activities' impact on cultural resources are generally not regulated

and hence are not subject to historic preservation review and oversight. There are exceptions to this characterization. For example, Corps of Engineers (COE) 404 permits are required for developments that may discharge dredged and fill material into waters of the United States, including wetlands. Cultural resources survey in compliance with Section 106 of the National Historic Preservation Act may be required as a condition of such permits. However, COE permitting is limited to a few development projects, and not all developers who should comply with permitting requirements do so. Thus, COE permitting provides very limited protection for archaeological resources, statewide. County governments have the authority to incorporate historic preservation planning into their permitting processes; however, few counties elect to do so. Cobb County, in the metropolitan Atlanta area, is one exception, and Cobb County requires archaeological reconnaissance review of development properties in archaeologically sensitive areas, including the locations of Civil War era battles and earthworks. By and large, the cultural resource overview and protection provided by federal and local permitting is limited and protects only a small fraction of the total universe of archaeological sites. The Georgia Environmental Protection Division requires the identification, evaluation and treatment of archaeological sites on larger projects undertaken by the state.

The majority of historic archaeological sites are thus not protected as a resource under local, state or federal regulations. Historic cemeteries are protected, however, under Georgia's Abandoned Cemetery Act (OCGA 36-72). This act requires that where abandoned cemeteries are identified in an area to be developed, the developer must hire an archaeologist to conduct a survey to determine how many burials are present within the cemetery and must have a surveyor record the locations of graves and the cemetery on the development plans. If the cemetery is to be removed, the developer must hire a genealogist to identify the descendents of the individuals contained in the cemetery, and must present to the County Planning Department plans for their removal and reburial.

Other development activities also may affect historic archaeological sites, to differing degrees. Sewer line projects have a higher potential to impact historic mill sites than most other projects, as sewers are normally cited along creeks and streams where mill remains may also be found. Transportation projects, in particular road widenings, have a high potential to impact the front yards of historic house sites, although these locations in general have a low frequency of archaeological remains and hence often are not considered to be sensitive areas. Reservoir projects may affect the greatest range of sites, as mills, farms, cemeteries and other site types all occur in the floodplains. At present, there are a wide range of activities affecting historical archaeological sites and extremely limited jurisdictional protection for these resources.

Future Identification and Management of Historic Archaeological Sites

This context represents the first effort to summarize and review what is known about historical archaeology in Georgia. It is hoped that it will serve as a starting point for a more detailed synthesis of relevant research, as well as lead to better recognition and

assessment of historic sites. We recommend that as funding becomes available, detailed syntheses should be produced of the major historic site classes presented in the typology (e.g. agricultural, industrial, etc.) that would allow the subject matter and pertinent reports to be more fully considered. This context should also be updated at five-year intervals to incorporate the results of research conducted during that period. Contexts offer an excellent mechanism for streamlining environmental review since they make available to those archaeologists making site evaluations the results of research needed to develop informed decisions and site evaluations. However, contexts must be kept current to retain this value.

Recommendations for further research on historic sites have been made in Chapter V and should be referred to by those working on a particular type of site. However, some of these recommendations have a management aspect and are hence repeated here. In particular, funding should be sought through granting agencies, public and private foundations, and other sources to identify particularly sensitive historic site types that are currently endangered by development as well as other threats. Spanish missions, trading posts, early fortifications, lost towns, and Civil War battlefield and defensive sites from the Atlanta Campaign and March to the Sea are all examples of rare and important site types whose locations should be proactively sought so they can be taken into consideration by local and state planning agencies.

It is important the county and local governments be made aware of site locations. On-going developments with the Geographic Information System (GIS) data from the GASF will make site information accessible to county and local planners. However, site data only reflects what is known and thus does not record the vast majority of archaeological sites. It may be possible to develop archaeological sensitivity mapping on a county-by-county basis which would help local governments recognize locations and projects which may affect archaeological sites. Similarly, county governments in areas where sprawl is ongoing are encouraged to develop historical archaeological overviews and to conduct limited surveys to locate particularly sensitive resources in each county. Where important sites are found, they should be obtained and protected as green space, if possible, and if protection is not feasible, then recording and further study should be included as a stipulation of permitting.

DNR's Parks and Historic Sites Division has established an excellent program of integrating archaeological research into its administration of historic sites, and in recent years, in using archaeological research as an element of public interpretation and education. Many of the projects which Parks and Historic Sites has conducted have been carried out in response to proposed construction and site development actions. It is recommended that long-term planning for the administration of Georgia's historic sites include archaeological research issues which can lead to a more comprehensive understanding of these sites as well as better interpretation and presentation. Where possible, these research programs should be conducted for the public's educational benefit as part of the park's interpretive activities. Similar recommendations are made for the parks administered in Georgia by the National Park Service.

While Georgia's public can be made aware of the state's historic archaeological heritage through projects like these, more attention needs to be given toward making the results of historical archaeological research accessible. The State Historic Preservation Office, Department of Transportation, the Corps of Engineers, the National Park Service, the Department of Defense, and other state and federal agencies dealing with archaeological resources are all strongly encouraged to include public outreach and education in their project scopes of work for all excavation and documentation projects. Outreach can take place through site tours, through the development of interpretive brochures and websites, through presentations to the media, and through other techniques. The public is fascinated by archaeology and historical archaeology in particular has the ability to connect people in the present to the past and to foster a stronger sense of community and history. Public outreach should become a routine component of historic archaeology in Georgia, not an exception.

In a similar vein, an expanded understanding of Georgia's history and archaeology could be helped through the publication of a version of this context as a popular study. HPD and DNR are encouraged to explore the potential for the present context to be re-cast as a popular history and published by a press with high visibility in the state, such as the University of Georgia Press.

Historic archaeology should also be given a stronger presence within the state's university programs. There are 34 colleges and universities in the state's system, however, there are historical archaeologists on the faculty of only three schools: Armstrong Atlantic State University, Augusta State University and Georgia Southern University. The state's Board of Regents and the administration of Georgia's colleges and universities are encouraged to seek and consider historical archaeologists for openings within their Departments of History, Anthropology, Historic Preservation, and other programs, and to support and encourage research within the state by such faculty.

As its knowledgeable citizens can attest, Georgia has a fascinating history. As this context hopefully demonstrates, its historical archaeology is equally fascinating. Given the extent of Georgia's history, the size of the state, and the physical diversity of its landscape, there is probably not another state in the US with a historical archaeological heritage as rich as Georgia's. It is hoped that the publication of this context will encourage historical archaeologists of the future, as well as those of the present, to explore Georgia's past.

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