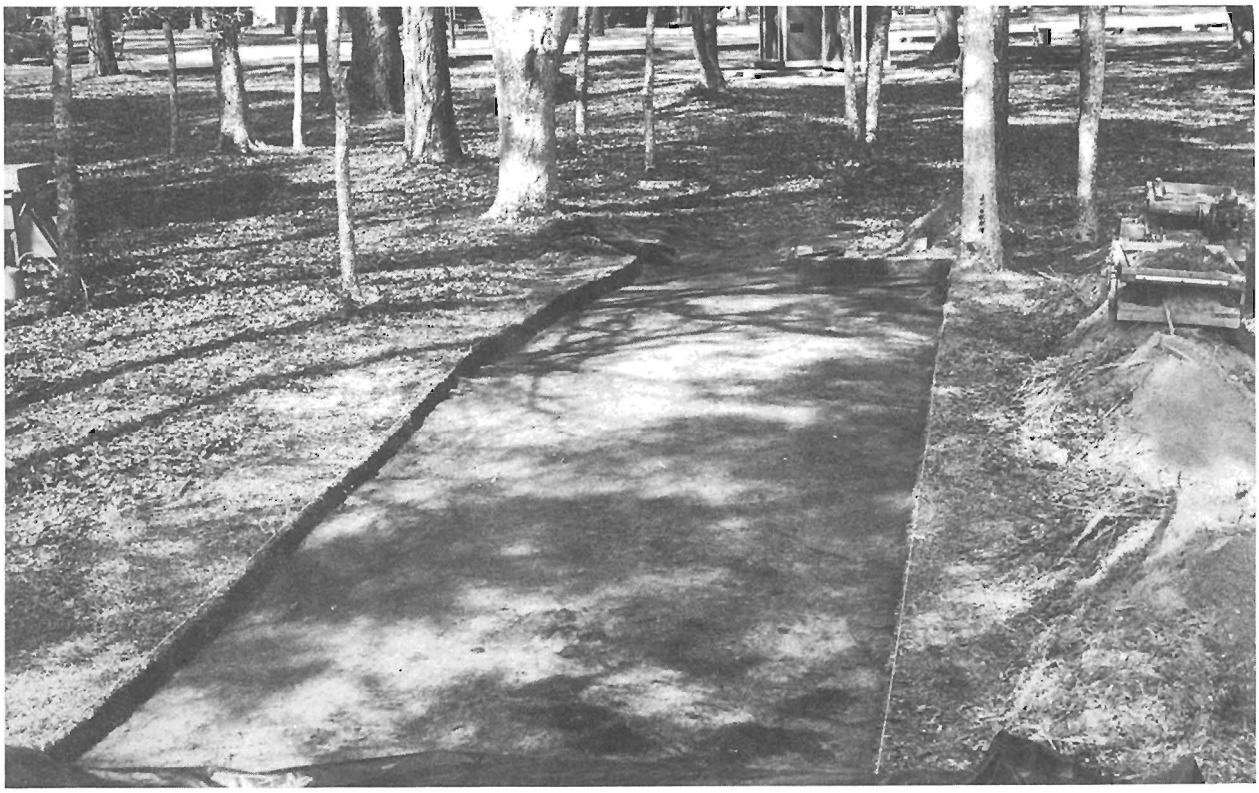
ARCHAEOLOGICAL TEST EXCAVATIONS AT 38CH644 BUCK HALL BURIAL MOUND, FRANCIS MARION NATIONAL FOREST, CHARLESTON COUNTY, SOUTH CAROLINA



CHICORA FOUNDATION RESEARCH SERIES 25

ARCHAEOLOGICAL TEST EXCAVATIONS AT 38CH644, BUCK HALL BURIAL MOUND, FRANCIS MARION NATIONAL FOREST, CHARLESTON COUNTY, SOUTH CAROLINA

RESEARCH SERIES 25

Prepared For:
United States Forest Service
Francis Marion National Forest
McClellanville, South Carolina 29548

Michael Trinkley

Chicora Foundation, Inc.
P.O. Box 8664 ■ 861 Arbutus Drive
Columbia, South Carolina 29202
803/787-6910

July 1991

ISSN 0882-2041

Library of Congress Cataloging-in-Publication Data

Trinkley, Michael
Archaeological test excavations at 38CH644, Buck Hall Burial Mound, Francis Marion National Forest, Charleston County, South Carolina / Michael Trinkley.
p. cm. -- (Research series, ISSN 0882-2041 ; 25)
"Prepared for United States Forest Service, Francis Marion National Forest."
"July 1991."
Includes bibliographical references.
1. Buck Hall Mound (S.C.) 2. Woodland Culture--South Carolina--Charleston County. 3. Excavations (Archaeology)--South Carolina--Charleston County. I. Francis Marion National Forest (S.C.) II. Title. III. Series: Research series (Chicora Foundation) ; 25.
E99.W84T76 1991
975.7'915--dc20 91-25537
CIP

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences - Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

I cannot quit the Indians without mentioning and observation that has often raised my wonder. That in this province, settled in 1670 (since the birth of many a man now alive) then swarming with tribes of Indians, there remains now, except the few Catawba's, nothing of them but their names; no trace of their emigrating or incorporating into other nations, nor any accounting for their extinction by war or pestilence equal to the effect.

-- Lt. Gov. William Bull, Jr., 1770

ABSTRACT

This study reports on brief excavations conducted at the Buck Hall Recreation site (38CH644) in the Francis Marion National Forest during February 1983. The work, undertaken as a field project by the Charleston Area Chapter of the Archaeological Society of South Carolina, was directed by Dr. Michael Trinkley and Ms. Martha Zierden.

The site, known for a number of years by local collectors, consists of a large scatter of Middle Woodland prehistoric remains, as well as at least three discrete earthen mounds. The investigations were designed to produce an accurate topographic map of one mound, conduct sufficient excavations in the mound to identify its formation processes and probable function, and to obtain temporally sensitive artifacts from the excavations.

These excavations reveal that the Buck Hall Recreation site represents at least a Middle Woodland occupation, ca. 500 B.C. to A.D. 1000, and that the investigated mound is a mortuary feature. Excavations also revealed the presence of shell midden deposits to the southwest of the mound, perhaps representing a seasonal village area.

This study documents the extension of Middle Woodland sand burial mounds southward from the North Carolina coast into Charleston County. This suggests that the use of burial mounds, at least among coastal groups, was a more common trait than previously thought.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

Two groups deserve special thanks -- without the assistance of the Charleston Area Chapter of the Archaeological Society of South Carolina this work would never have been undertaken. I want to especially thank Col. William L. Koob for his interest in and dedication to avocational archaeology. It was his enthusiasm which kept this project going.

As too often happens, once the field work was completed, the report languished. Without the financial assistance of the United States Forest Service this work may well never have been completed. I want to thank Mr. Robert Morgan for his interest in seeing the completion of the study and patience for the time it has taken.

Ms. Martha Zierden deserves tremendous thanks for her interest in the site, willingness to participate in the direction of the project, and intrinsic patience and goodwill. Buck Hall was an adventure which neither of us is likely to forget.

A number of individuals donated their time and energy to the project. Although it has been over nine years ago, they deserve our appreciation and thanks: Paul Alexy, Budd Cupp, Roger and Joyce Godell, William Koob, Allen Liss, Marion Moxley, Joanne Murphy, Dea Murray, and Pat Reddick. If, over the years, anyone has been forgotten, I apologize.

Finally, I wish to thank those who have taken the time to review a draft copy of this study, including Dr. H. Trawick Ward, Mr. Robert Morgan, Mr. Robert Wise, and Ms. Martha Zierden.

INTRODUCTION

Background

The Buck Hall Recreation Area is situated on the Atlantic Intracoastal Waterway (AIWW) in the Francis Marion National Forest (Wambaw District, Compartment 191), about midway between Charleston and Georgetown, South Carolina and about a mile northeast of Awendaw Creek (Figure 1). The site, bordering the AIWW to the south and southeast, is situated within a recreational facility constructed about 1976 and operated by the U.S. Forest Service.

The site consists of at least three sand mounds bordering the edge of the AIWW, interspersed with pockets of shell midden, and has been known by local collectors for a number of years. Donald Mackintosh (personal communication 1983) "excavated" at least one of the three mounds in the early 1960s. As a result of Mackintosh's early work the site was recorded by the South Carolina Institute of Archaeology and Anthropology as 38CH194 in 1975, although the exact location was unknown. In 1978-1979, Soil Systems, Inc. conducted an archaeological reconnaissance of the Atlantic Intracoastal Waterway (Williams 1980). During that work site number 38CH194 became applied to the historic components in the vicinity of Buck Hall, specifically the Confederate earthworks (Williams 1980:155). No mention was made of the prehistoric site which originally caught the attention of local collectors.

As a result of additional survey in the Awendaw vicinity and contact with Donald Mackintosh, I recorded the Buck Hall Recreation site as 38CH644 in 1983. It is important to realize, however, that some collections, particularly those of Donald Mackintosh, now at the South Carolina Institute of Archaeology and Anthropology, will refer to this same site as 38CH194.

In February 1983 a Special Use Permit for test excavations at the Buck Hall site was issued by the Forest Service. The project was also sponsored by the Charleston Area Chapter of the Archaeological Society of South Carolina. The archaeological investigations were conducted from February 17 through 21, 1983 by the author and Ms. Martha Zierden (The Charleston Museum), with assistance from Charleston Area Chapter members. A total of 204 person hours were devoted to the work, which opened 578 square feet of excavation units and moved 417 cubic feet of soil.

Analysis of the recovered materials and provisional curation was conducted in late 1983. No report of these investigations, however, was possible until the U.S. Forest Service generously offered their support to underwrite the final analysis and

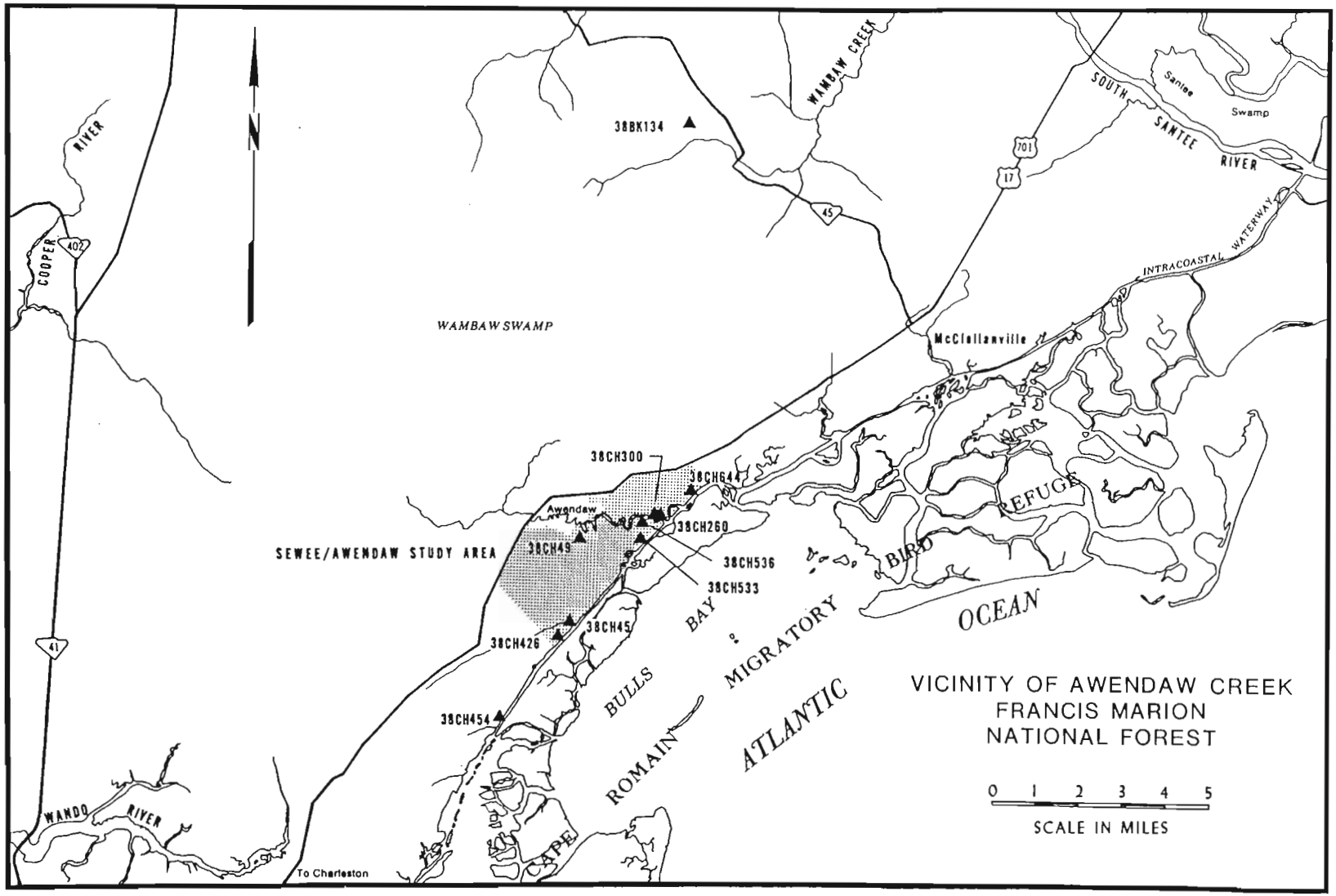


Figure 1. Location of 38CH644 in the Awendaw Creek area.

publication of this study.

Scope and Goals

As will be discussed in more detail in a following section, the initial interest in the Buck Hall site was generated because of its unusual sand mound features. These mounds, averaging about 2 feet above grade and from 20 to 30 feet in diameter, were thought to represent either individual house middens or, possibly, small burial mounds. Both explanations appeared reasonable based on previous research at Middle Woodland sites in the coastal area, although interviews with Donald Mackintosh tended to support the presence of human remains in the mounds.

The primary objective of the 1983 work was to determine the nature and function of at least one of the sand mounds remaining at the Buck Hall site. This work would identify the presence of either household refuse (i.e., shell midden deposits) or human remains in the context of an artificially constructed mound. A secondary objective was to record those mounds still visible.

More specific goals included the collection of temporally diagnostic artifacts from both the selected mound and the adjacent midden areas, the collection of material suitable for radiocarbon dating, a careful investigation of mound stratigraphy, and the plotting of features within and adjacent to the mound.

These goals were to be accomplished through the controlled excavation of a single, undisturbed mound, using standard archaeological field techniques, described in a following section. Although this project incorporated limited testing in the area around the mound and toward the AIWW, no effort was made to establish site boundaries or to extensively explore site diversity.

Curation

Artifacts recovered from these excavations have been curated at The Charleston Museum as Accession Number 1985.17. The field notes and photographic materials have been transferred to the Francis Marion National Forest for curation at a facility of their choice. All records and duplicate copies were provided to the Forest Service on pH neutral, alkaline buffered paper and the photographic materials were processed to archival permanence.

NATURAL SETTING

Physiographic Province

Charleston County is located in the lower Atlantic Coastal Plain of South Carolina and is bounded to the east by the Atlantic Ocean and a series of marsh, barrier, and sea islands (Mathews et al. 1980:133). While elevations in the county range from sea level to about 70 feet mean sea level (MSL), elevations in the Awendaw vicinity typically range under 10 feet MSL. The mainland topography, which consists of subtle ridge and bay undulations, is characteristic of beach ridge plains (Mathews et al. 1980:133).

The Buck Hall site area is today situated at the edge of the Atlantic Intracoastal Waterway (AIWW) (Figure 2). Topography is fairly level, with a gentle slope to the southwest and north. The construction of the AIWW in the 1930s altered the physical appearance of the site vicinity with the creation of an artificial dredged channel in the marsh about 1500 feet southeast of Awendaw Creek and the formation of a series of dredge spoil pile islands between the mainland and Bull's Bay, a mile to the south. Prior to the dredging of the AIWW, Awendaw Creek flowed southeasterly from the interior to the west of 38CH300 (see Figure 1) and then formed an S-curve which entered Bull's Bay through the channel now known as Harbor Creek. Other major drainages in the site vicinity, prior to the hydraulic re-engineering of the AIWW, included Saltpond and Graham creeks (Figure 3).

In terms of coastal morphology, South Carolina is usually considered a transition between North Carolina and Georgia. North Carolina's coastal morphology is controlled primarily by wind-generated waves, with the formation of long, thin barrier islands broken by only a few tidal inlets. The morphology of Georgia's coast is dominated by tidal factors, with resulting short, rectangular barrier islands and large tidal inlets. South Carolina has a mixed wind and tidal energy coast with the wind influence restricted to the northern coast and the tidal influence increasing as one moves southward (Brown 1975).

Based on this, Brown (1975) has divided the coast into three geomorphological zones: arcuate strand (north of the Santee River), cuspate delta (Santee River delta area), and barrier/sea island region (south of the Santee River). The Buck Hall site, therefore, is within this barrier/sea island region, although it is located on the mainland with up to a mile of low tidal marsh separating it from Bull's Bay. Some nearby islands, such as Raccoon Key, are considered marsh islands and consist primarily of tidal marsh with widely spaced Holocene sand ridges. Others, such as Bull's Island,

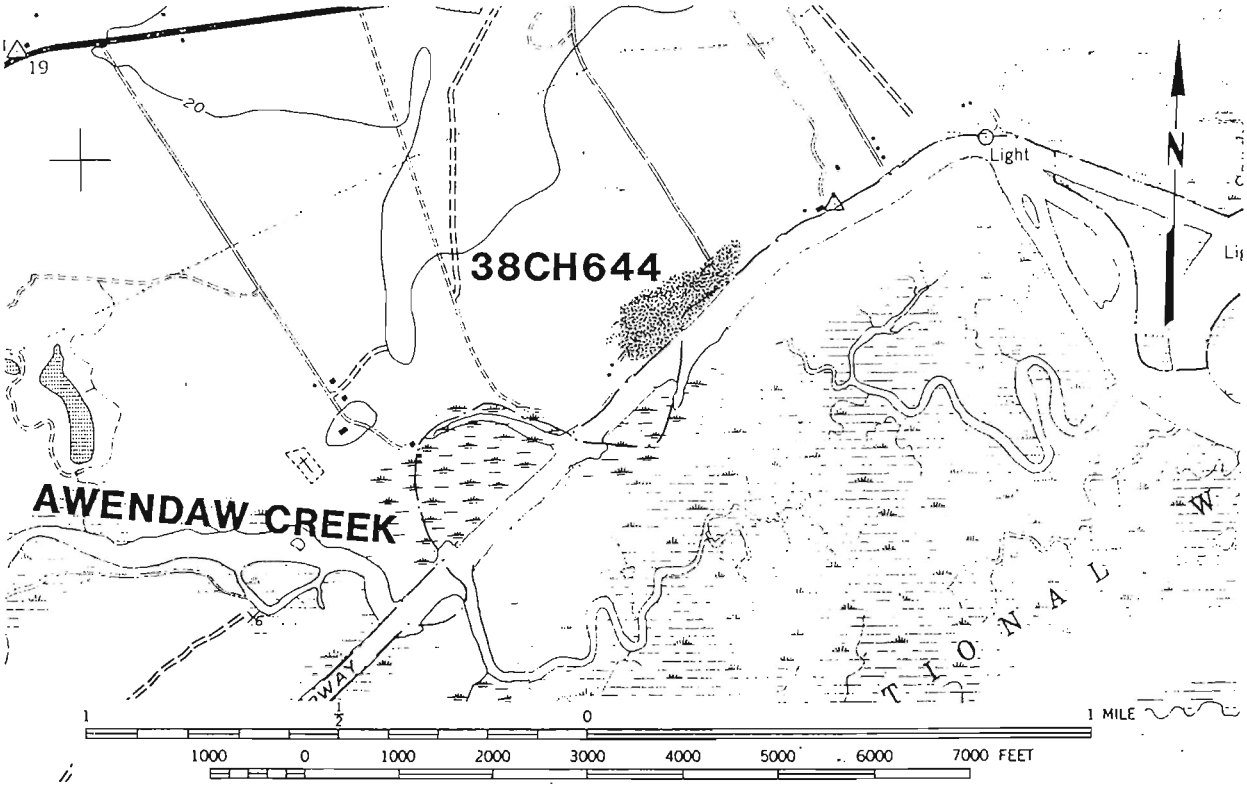


Figure 2. Vicinity of the Buck Hall Recreation Area site.

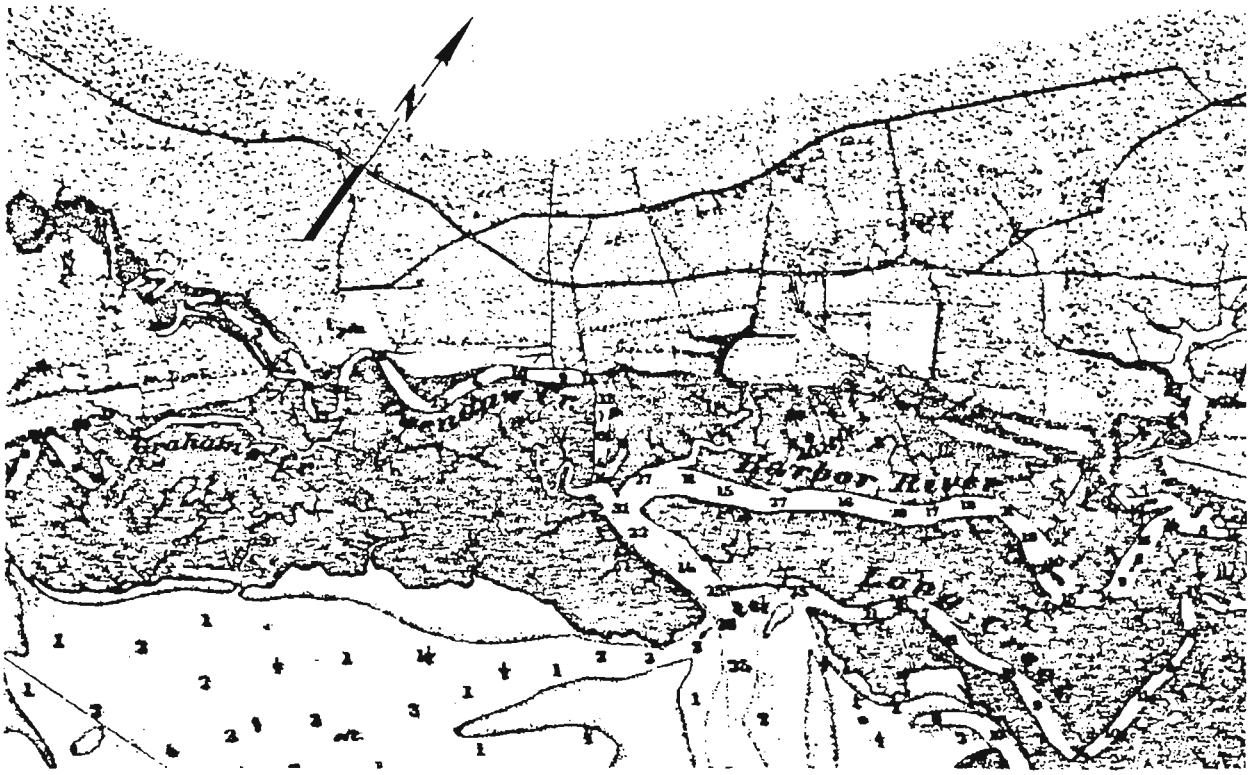


Figure 3. Area of Bull's Bay and Awendaw Creek in 1886.

are considered barrier islands and consist of Holocene beach dune ridges oriented parallel to subparallel to the present shoreline (Mathews 1980:65).

Geology

Coastal Plain geologic formations are unconsolidated sedimentary deposits of very recent (Pleistocene and Holocene) age lying unconformably on ancient crystalline rocks (Cooke 1936; Hilliard 1984:6-7; Miller 1971). The Pleistocene sediments are organized into topographically distinct, but lithologically similar, geomorphic units, or terraces, parallel to the coast. The study area is situated on the Pamlico terrace which includes deposits that accumulated when the sea level was about 25 feet above its present level. Cooke (1936:149) notes that the formation consists chiefly of fine sand and blue or gray clay. More recently, Colquhoun (1969) suggests that the project area is part of the Silver Bluff formation.

Work by Brooks et al. (1989) has provided information on the fluctuation of sea level along the South Carolina coast over the past 7000 years. Their work reveals a gradually, but constantly, changing sea level, with formation and drowning of estuarine areas. It appears that large estuarine areas were forming about 2250 B.C., a date which corresponds to the origin of the Stallings and Thom's Creek phases of the Early Woodland. The period from about 500 B.C. through A.D. 1000, typically considered the Middle Woodland, is characterized by somewhat more stable, but higher sea levels (although they are still about 1.5 feet lower than modern levels). During the Late Woodland period the sea levels begin falling again, to a level about 3 feet below those today by A.D. 1400. Afterwards they continue to rise through the South Appalachian Mississippian period (ca. A.D. 1200 to 1400).

Data from the nineteenth and twentieth centuries suggest that the level is continuing to rise. Kurtz and Wagner (1957:8) report at 0.8 foot rise in Charleston sea levels from 1833 to 1903. Between 1940 and 1950 a sea level rise of 0.3 foot was again recorded in Charleston. These data, however, do not distinguish between sea level rise and coastal submergence.

The Pleistocene mainland soils typically exhibit more distinct horizon development and greater diversity than those of the more recent sea islands. Sandy to loamy acid soils predominate in level to gently sloping areas and the specific soil series are closely associated with natural drainage characteristics (Mathews et al. 1980:41).

In the project area the soils are Chipley loamy fine sands. These are typically found in nearly level areas and are moderately well drained to somewhat poorly drained. They are acidic throughout and have a water table which fluctuates from 2 to 5 feet below the

ground surface. The A horizon is usually about 0.5 foot in depth and consists of a very dark gray loamy sand. Underlying this a C horizon which grades from a yellow-brown into a light yellow-brown (Miller 1971:10, Map 18).

Inland from the site is a strip of soft tidal marsh and Capers soils which run about southwest-northeast, forming a relic tidal slough. This suggests that the Buck Hall site was originally a finger of relatively high, well-drained soil bordered to the north and west by small tidal sloughs and to the south by a large expanse of tidal marsh.

Floristics

The vegetation patterns of the Buck Hall area evidence considerable alteration by cultivation and more recent forest management activities. The area is today forested in mixed hardwoods (primarily oaks) and pine (Figure 4).

The project area is situated in the Atlantic Coast Flatwoods region. Cypress, blackgum, and tupelo were historically abundant on the poorly drained swamplands, while sweetgum, white oak, water oak, ash, and occasionally loblolly pine were found on the better drained alluvial river bottom areas. These same hardwoods competed with loblolly pine on the poorly drained flatwoods and on dry ridges longleaf pine was a common species (Ellerbe 1974:18). Kuchler (1964:111) broadly defines the area's potential natural vegetation as an oak-hickory-pine forest characterized by medium

Figure 4. Buck Hall site looking to the west.

tall to tall forests of broadleaf deciduous and needleleaf evergreen trees.

Nearby both subclimax and climax maritime forest communities exist in the areas bordering the salt marsh and are dominated by salt-tolerant, evergreen species. The subclimax maritime forest is maintained by frequent fires and consists of loblolly pine and cabbage palmetto. The dominant understory species is yaupon holly, although wax myrtle and southern red cedar are also present. Small quantities of black oak, live oak, and sweetgum may also be found in areas which have not burned within the past few years (Sandifer et al. 1980). Along the outermost edge of the uplands, adjacent to the salt marsh, climax live oak forests similar to those at Buck Hall, are present. Often called "upland maritime forests," these communities are dominated by live oak and laurel oak, with holly, red bay, bull bay, water oak, and pignut hickory also present. Loblolly pines may also be present (Sandifer et al. 1980:450).

In addition, the vicinity of Buck Hall contains high and low salt marsh communities and freshwater communities in and around bogs. The low salt marsh is dominated by cordgrass (Spartina) and is flooded twice daily. The high salt marsh, being higher in elevation and being somewhat removed from tidal influences, is characterized by Juncas.

It is probable that the vegetation in the Buck Hall was being somewhat affected by logging and farming as early as the eighteenth century and was intensively affected by the nineteenth century. The pollen record is, therefore, somewhat useful for the prehistoric period. Wright sates that:

> [t]he transformation to temperate deciduous forest similar to that of today occurred rapidly through a series of successional stages and in most of the area it was essentially completed by 9,000 years ago, with relatively minor changes since then in the proportion of the principal forest components (Wright n.d.:23).

Watts (1979:n.p.) would characterize the vegetation and climate after 7600 B.C. as being "rather similar to the present," and "essentially like the present" after 4000 B.C. One significant aspect of these palynological studies is that hickory is consistently a minor species, representing 5% or less of the recovered fossil pollen. Even today the two most common hickories -- mockernut and pignut -- are not very common. Fowells (1965:116) states that mockernut hickory can grow on sandy soil with pines and live oak, but it is best suited to moist, bottomland hardwood forests, while pignut hickory is only a minor component in a limited number of forests (Fowells 1965:125). The relatively abundant bitternut hickory is likewise found on the richer, overflow bottoms of the coastal plains (Fowells 1965:112).

The presence and diversity of hickories is significant because of their suspected contribution to prehistoric diets (Harris and Sheldon 1982; Trinkley 1976, 1986). It is probable that some prehistoric sites were located specifically to take advantage of the relatively uncommon hickory stands, regardless of soil drainage or other locational features. Such a settlement pattern would help to explain the small number of prehistoric site locations which Brooks and Scurry (1978) found on poorly drained soils.

In the Buck Hall area, however, it seems that hickory would never have been a major component of the available resources. Examination of the catchment zone within a 2-mile radius of the Buck Hall Recreation Area site suggests very few potential locations of hickory stands. About 30% of the catchment consists of deep water (Bull's Bay) and inland swamp (Wambaw Swamp, which is the most likely area for hickory stands), 35% of the catchment is dominated by sandy high lands which would support mesic and xeric adapted species, while the remainder of the catchment consists of marsh and shallow waters.

Climate

The climate of Charleston County is subtropical, with long, hot, and humid summers and mild, dank winters (Hilliard 1984:13; Kronberg 1971:72; Landers 1970). The major climatic controls of the area are the latitude, elevation, distance from the ocean, and location with respect to the average tracks of migratory cyclones. The large amount of nearby warm ocean water surface produces a marine climate, which tends to moderate both the cold and hot weather. The Appalachian Mountains, about 220 miles to the west northwest, block shallow cold air masses, moderating them before they reach the Charleston area (Landers 1970:2-3; Mathews et al. 1980:46).

The average yearly precipitation is 49.9 inches, with slightly over 34 inches occurring from April through October, the growing season for most sea island crops. Charleston has approximately 266 frost free days annually (Kronberg 1971:73). This mild climate, as Hilliard (1984:13) notes, is largely responsible for the presence of many southern crops, such as cotton. Recent investigations have suggested, however, cyclical periods of drought which certainly affected both prehistoric and historic agricultural activities (Anderson et al. 1991).

ARCHAEOLOGICAL CONTEXT

Woodland Period Archaeology Along The Central South Carolina Coast

Early Woodland

The earliest phase of the Woodland Period is called Stallings, after the type site excavated by the Cosgroves in 1929 (Claflin 1931). These "Stallings Island people" produced a rich cultural assemblage of bone and antler work, polished stone items, grooved and perforated "net sinkers" or steatite disks, stone tools (including projectile points, knives, scrapers, and cruciform drills), and fiber tempered pottery (see also Williams 1968). It was over a decade before the typological significance of the Stallings ware was recognized and a formal type description was offered (Fairbanks 1942; Griffin 1943). The definitive feature of this pottery is its large quantity of fiber, now identified as Spanish Moss (Simpkins and Scoville 1981), included in the paste prior to firing. Vessel forms include simple, shallow bowls and large, wide-mouthed bowls, as well as deeper jar forms. The pottery is generally molded, although coiling fractures are occasionally present, particularly later in the period. Firing was poorly controlled, and the pottery was incompletely oxidized. The pottery was decorated with punctations (using periwinkle shells, reeds, and sticks), finger pinching, and incising. At least some of these motifs may be temporally sensitive (Trinkley 1986).

Stallings phase sites are found clustered in the Savannah River drainage (Claflin 1931; Hanson 1982; Sassaman 1991) and in the Coastal Zone south of Charleston (Anderson 1975). Recent studies have also identified the pottery at least as far north as the Tar drainage in North Carolina (Phelps 1983:27-28), which suggests either the culture's remarkable adaptive capability or the widespread initial acceptance of pottery manufacture. Stoltman (1966, 1974) obtained an early radiocarbon date of 2515±95 B.C. (GXO-345) from Rabbit Mount in the Savannah drainage. This area has produced a number of large Stallings sites, such as Stallings Island (Bullen and Greene 1970; Claflin 1931), Fennel Hill (38AL2 notes on file, South Carolina Institute of Archaeology and Anthropology), Rabbit Mount (Stoltman 1974), and Bilbo (Williams 1968:152-197;Dye 1976), with elaborate material assemblages. As a result, the Savannah drainage is generally accepted as the birthplace of the Stallings culture. The stimulus for this elaboration on the preexisting Late Archaic culture may be related to a complex process of population increase and disequilibrium with the environment (see Hanson 1982:21 and Smith 1974:306-311). Such a situation is similar to Binford's (1968) hypothesis regarding

population stress as a factor in new forms of food procurement. Hanson (1982:13) notes that by 2500 B.C. mussel availability had increased through changes in sea level, river gradient, and channel location. More recent research (Brooks et al. 1986), however, questions this reconstruction and has found that mussel availability in the Savannah River drainage may have begun to decrease by 2500 B.C.

These middens, however, represent only one aspect of the Stallings settlement system. Another portion of that system is represented by Stallings sites which evidence little shell. While many of these are sparse scatters, such as Clear Mount (Stoltman 1974) and Pinckney Island (Trinkley 1981b), some evidence intensive occupation with features and a rich cultural assemblage, such as the Love (38AL10; Trinkley 1974) and Fish Haul (38BU805; Trinkley 1986) sites. At the Fish Haul site a Stallings phase "D"-shaped structure containing about 90 square feet of floor area has been identified (Trinkley 1986:145-147) and Stoltman (1974:51-54) recovered a lean-to structure at Rabbit Mount. The function of essentially non-shell midden sites such as Love and Fish Haul is only partially understood at present, although shellfish seasonality and ethnobotanical studies (Claassen 1986; Lawrence 1986; Trinkley 1986) are beginning to suggest late fall and winter occupation.

These non-shell sites may represent a seasonal round in the Stallings settlement system. Riverine shellfish may have been gathered in the fall when the Savannah River and its tributaries were low and clear, while other resources away from the river were exploited during the period of high discharge in the late winter and spring (Anderson and Schuldenrein 1985:13). Additional work within the Savannah drainage is necessary to understand more fully the relationship between large shell middens, dense non-shell upland and coastal sites, and sparse upland and coastal "scatters."

Stallings pottery was produced at least as late as 1060±80 B.C. (UGA-1686), based on a date from the Cunningham Mound C in Liberty County, Georgia. Milanich and Fairbanks (1980:78) suggest that fiber tempering may be found on the Georgia coast as late as A.D. 1. While Stallings pottery is usually considered older than, and often the progenitor of, Thom's Creek pottery, recent radiocarbon dates leave little doubt that the two pottery styles are largely contemporaneous (Trinkley 1980b). Hanson (1982:14), however, notes that where both Stallings and Thom's Creek sherds are found stratigraphically separated on the same site, the Stallings ware is the earlier of the two. Such a situation may indicate that "the agent of tempering changed earlier on the coast than in the riverine setting" (Hanson 1982:14).

The following Thom's Creek phase dates as early as 2220±350 B.C. (UGA-584) from Spanish Mount in Charleston County (Sutherland 1974) and continues to at least 935±175 B.C. (UGA-2901), based on

a date from the Lighthouse Point Shell Ring, also in Charleston County (Trinkley 1980a:191-192). The Thom's Creek phase is characterized by an artifact assemblage almost identical to that of Stallings sites. The only major differences include the replacement of fiber tempering with sand, or a clay not requiring tempering, and the gradual reduction of projectile point size.

Thom's Creek pottery, first typed by Griffin (1945), consists of sandy paste pottery decorated with the motifs common to the Stallings series, including punctations (reed and shell), finger pinching, simple stamping, incising, and very late in the phase, finger smoothed (Trinkley 1980b). Investigations at the Lighthouse Point and Stratton Place shell rings, stratigraphic studies at Spanish Mount and Fig Island, radiocarbon dates from Lighthouse Point and Venning Creek, and the study of surface collections from a number of sites, have suggested a temporal ordering of the Thom's Creek series. Reed punctated pottery appears to be the oldest, followed by shell punctated and finger pinched motifs. Late in the Thom's Creek phase, perhaps by 1000 B.C., there is the addition of Thom's Creek Finger Smoothed (Trinkley 1983:44). Vessel forms include deep, straight sided jars and shallow conoidal bowls. Lip treatments are simple, and coiling fractures are common. Firing of the Thom's Creek vessels is certainly better than that evidenced for Stallings, but there continues to be abundant incompletely oxidized specimens.

The projectile points, which are typically Savannah River Stemmed (Coe 1964) during the Late Archaic Period and early Stalling phase, are reduced in size during the Thom's Creek phase and are appropriately classified as Small Savannah River Stemmed (Oliver 1981; see also Trinkley 1980a:Plate 14). Raw materials used in their production include coastal plain chert, quartz, quartzite, orthoquartzite, and rhyolitic stones. Anderson and Joseph (1988:195-199), however, question Oliver's (1981) thesis that the large Savannah River point was fairly rapidly replaced by smaller points. They note that there appears to be a "long co-occurrence of both large and small forms" (Anderson and Joseph 1988:197), while also correctly noting that Coe's (1964) original typology has been rather inconsistently used by researchers. As an alternative to Oliver's (1981) approach, they suggest that other factors affecting point size, especially trends in raw material use, be more intensively investigated and factored into typological studies (see Sassaman et al. 1989). Some researchers suggest, with considerable validity, that a major problem with current Woodland lithic typologies is that they fail to recognize the shift from bifacial core reduction techniques to an amorphous core reduction technology (which may be intimately related to the adaptation of a sedentary lifestyle). In addition, work in the Savannah River area is providing evidence of what some call "cultural quarrying" or the scavenging and recycling of earlier materials in the Woodland Period as source materials became more scarce (Sassaman et al. 1989:297-299).

Bone pins illustrated by Williams (1968:152-197) and Trinkley (1980a:Plate 17) may have functioned as weaving or netting tools (shuttles or needles). Common to Thom's Creek sites are whelk shells with a carefully executed and well-smoothed hole in the shoulder of the body whorl close to the aperture and a heavily worn or smoothed columella and outer whorl. These tools likely served as scrapers (see Trinkley 1980a:209-214). Other whelk tools evidence a heavily battered columella which has resulted in a blunt tip.

Like the Stallings settlement pattern, Thom's Creek sites are found in a variety of environmental zones and take on several forms. Thom's Creek sites are found throughout the South Carolina Coastal Zone, Coastal Plain, and up to the Fall Line. The sites are found into the North Carolina Coastal Plain, but do not appear to extend southward into Georgia. There appears to be strong concentration of Thom's Creek sites in the Santee River drainage and the central South Carolina coast (see Anderson 1975:184).

In the Coastal Plain drainage of the Savannah River there is a change of settlement, and probably subsistence, away from the riverine focus found in the Stallings phase (Hanson 1982:13; Stoltman 1974:235-236). Thom's Creek sites are more commonly found in the upland areas and lack evidence of intensive shellfish collection. In the Coastal Zone large, irregular shell middens, small, sparse shell middens; and large "shell rings" are found in the Thom's Creek settlement system.

Limited testing has been conducted at one small Thom's Creek non-shell midden on Sol Legare Island (38CH779) in Charleston County, South Carolina (Trinkley 1984). The site evidenced very limited reliance on shellfish and faunal remains, with the bulk of the food remains consisting of large mammals. Excavations also identified a portion of a probable Thom's Creek post structure situated about 180 feet inland from the marsh edge.

Excavations at other Coastal Zone Thom's Creek sites includes the work by Sutherland (1973, 1974) at the Spanish Mount shell midden (38CH62). While this work has never been completely published, the site appears to represent a seasonally occupied camp with a diffuse subsistence base, including reliance on shellfish, floral material, fish, and mammals. Work at the Bass Pond Dam site (38CH124) in Charleston County, suggests a similar subsistence orientation (Michie 1979; work in progress by Chicora Foundation).

By far the most work has been conducted at Thom's Creek phase shell rings (see Trinkley 1980a, 1985). These sites are circular middens about 130 to 300 feet in diameter, 2 to 6 feet in height, and 40 feet in width at their bases, with clear interiors. These doughnut-shaped accumulations were formed as small mounds, arranged around an open ground area, and gradually blended together. The ring itself is composed of varying proportions of shell, animal bone, pottery, soil, and other artifacts. The midden soils are

silts, and the shell is lensed and crushed. Post holes are abundant, although no structures have been clearly defined. Pits are evidence throughout the midden, but under the midden, large shellfish steaming pits, several feet in diameter and 2 to 3 feet in depth, are more clearly evident. Their use and the subsequent disposal of the shells actually formed the middens.

These shell rings were apparently mundane occupation sites for fairly large social units which lived on the ring, disposed of garbage underfoot, and used the clear interiors as areas for communal activities. The sites further suggest relatively permanent, stable village life as early as 1600 B.C., with a subsistence base oriented toward large and small mammals, fish, shellfish, and hickory nut resources (Trinkley 1985; see also Lawrence 1989).

Following Stallings and Thom's Creek are the Refuge and Deptford phases, both strongly associated with the Georgia sequence and the Savannah drainage (DePratter 1979; Lepionka et al. 1983; Williams 1968). The Refuge Phase, dated from 1070±115 B.C. (QC-784) to 510±100 B.C. (QC-785), is found primarily along the South Carolina coast from the Savannah drainage as far north as the Santee River (Williams 1968:208). Anderson (1975:184) further notes an apparent concentration of Refuge sites in the Coastal Plain, particularly along the Santee River. The pottery is found inland along the Savannah River (Peterson 1971:151-168), although it does not extend above the Fall Line (see Anderson and Schuldenrein 1985:719).

The Refuge series pottery is similar in many ways to the preceding Thom's Creek wares. The paste is compact and sandy or gritty, while surface treatments include sloppy simple stamped, dentate stamped, and random punctate decorations (see DePratter 1979:115-123; Williams 1968:198-208). Anderson et al. note that these typologies are "marred by a lack of reference to the Thom's Creek series" (Anderson et al. 1982:265) and that the Refuge Punctate and Incised types are indistinguishable from Thom's Creek wares. Peterson (1971:153) characterizes Refuge as both a degeneration of the preceding Thom's Creek series and also as a bridge to the succeeding Deptford series. There is a small stemmed biface associated with the Savannah drainage Refuge sites. This type has been termed Groton Stemmed by Stoltman (1974:114-115) and Deptford Stemmed by Trinkley (1980c:20-23). Peterson suggests that, "a change from the 'Savannah River' to the small stemmed points, a diminution basically, could occur during the Refuge" (Peterson 1971:159), although points similar to the Small Savannah River Stemmed continue to occur.

While large Refuge shell middens, such as 38JA61 (Lepionka et al. 1983), occur, a significant change in the Refuge settlement pattern and subsistence base is clearly evidenced. At the end of the Thom's Creek phase a number of small, non-shell midden sites

are found. This pattern of small sites, situated away from potential shellfish sources, continues in the Refuge phase (see, for example, Peterson 1971:164-168). Refuge pottery is common on coastal sites south of the Santee River, but is usually found in sandy buried soils with few features or organic remains (see, for example, Trinkley 1982 and the distribution discussions by Anderson et al. 1982:266).

It is difficult to reconstruct the subsistence base, although the sites suggest small, seasonal camps for small groups (Trinkley 1982). The settlement fragmentation, which began at the end of the Thom's Creek phase, around 1000 B.C., may relate to an increase in sea level, from a Thom's Creek phase low of 10 feet below the current high marsh surface at 1200 B.C. to a high of about 3 feet below the current high marsh surface at 950 B.C. (Brooks et al. 1989). This increasing sea level drowned the tidal marshes (and sites) on which the Thom's Creek people relied. The following Refuge phase evidences the fragmentation necessary when the environment which gave rise to large sedentary populations disappeared.

The Deptford culture takes its name from the type site located east of Savannah, Georgia, which was excavated in the mid-1930s (Caldwell 1943:12-16). Deptford phase sites are best recognized by the presence of fine to coarse sandy paste pottery with a check stamped surface treatment. This pottery is typically in the form of a cylindrical vessel with a conoidal base. The flat bottomed bowl with tetrapodal supports found at Deptford sites along the Florida Gulf coast (Milanich and Fairbanks 1980:79) is very rare in South Carolina. Other Deptford phase pottery styles include cord marking, simple stamping, a complicated stamping which resembles early Swift Creek, and a geometric stamping which consists of a series of carved triangles or diamonds with interior dots (see Anderson et al. 1982:277-293; DePratter 1979).

The Deptford technology is little better known than that of the preceding Refuge phase. Shell tools are uncommon, bone tools are "extremely rare" (Milanich and Fairbanks 1980:77), and stone tools are rare on Coastal Zone sites. All of this indicates to some researchers that "wood must have been worked into a variety of tool types" (Milanich and Fairbanks 1980:75). One type of stone tool associated with South Carolina Deptford sites is a very small, stemmed projectile point tentatively described as "Deptford Stemmed" (Trinkley 1980c:20-23). This point is the culmination of the Savannah River Stemmed reduction seen in the Thom's Creek and Refuge phases. Similar points have been found at a variety of Deptford sites (see Milanich 1971:175-176; Stoltman 1974:115-116, Figure 20i-j, 40h-j). Also found at Deptford sites are "medium-sized triangular points," probably similar to the Roanoke Large Triangular point (Coe 1964:110). In the Savannah River area Sassaman et al. (1989:156-157) report that Deptford pottery appears much more strongly associated with triangular projectile points

than with the small stemmed points. They note, "small stemmed bifaces are attributed to the Early Woodland period with the recognition that they probably persisted into the subsequent period but were rapidly and thoroughly replaced by triangular forms by 2000 B.P." (Sassaman et al. 1989:157).

Perhaps of even greater interest is the co-occurrence of the larger triangular points (such as Roanoke) with smaller triangular forms (such as Caraway) traditionally attributed to the Late Woodland and South Appalachian Mississippian periods. This situation has been reported at Coastal Plain sites (Blanton et al. 1986:107), Savannah River sites (Sassaman et al. 1989:157), and Coastal Zone sites (Trinkley 1990). Blanton et al. (1986) suggest that these point types were used at the same time, but perhaps for different tasks.

Milanich (1971:Figure 12) illustrates a generalized distribution of this series, which is divided into the Gulf and Atlantic subregions. This distribution, however, should extend to the South Carolina Fall Line and probably as far north as the Neuse River in North Carolina. Anderson (1975:186) has found Deptford wares distributed throughout the South Carolina Coastal Plain, with major sites at the mouths of the Santee and Savannah Rivers. The earliest date for Deptford, 1045±110 B.C. (UGA-3515), has been obtained from 38LX5 in Lexington County (Trinkley 1980c:11). The most recent date comes from St. Simons Island, Georgia, where a date of A.D. 935±70 (UM-673) was obtained. Milanich and Fairbanks (1980:60) suggest a tighter range of about 500 B.C. to A.D. 600, while Anderson et al. (1982:281) suggest a date range of about 800 B.C. to A.D. 500.

Deptford sites on the South Carolina coast are usually small, especially when compared to the earlier Thom's Creek middens, and they are usually multicomponent. Deptford Coastal Zone sites, while containing shell, do not represent massive mounds, but rather thin middens formed as series of small shell heaps which have been deposited adjacent to the marsh and gradually formed continuous masses. These heaps were the result of short periods of site use, perhaps as a base camp for shellfish collecting (see Milanich and Fairbanks 1980:72-73; Trinkley 1981b). Results of soil chemical analyses from the Pinckney Island midden (Trinkley 1981b:53-54) suggest less than intensive occupation. The chemical studies support Milanich's assessment that occupation was not on the shell piles, but adjacent to them (Milanich and Fairbanks 1980:72-73; Trinkley 1981b:53-54).

Milanich (1971:192-198; see also Milanich and Fairbanks 1980:70-73) suggests that the Deptford phase settlement pattern involves both coastal (i.e., Coastal Zone) and inland (i.e., Coastal Plain) sites. The coastal sites, which are always situated adjacent to tidal creek marshes, evidence a diffuse subsistence system. The inland sites are also small, lack shell, and are

situated on the edges of swamp terraces. This situation is similar to that found in South Carolina, although there are Deptford middens which exhibit a very focal subsistence emphasis (Trinkley 1990). Sites such as Pinckney Island (38BU67 and 38BU168; Trinkley 1981b) and Minim Island (38GE46; Drucker and Jackson 1984; Espenshade and Brockington 1989) evidence large Coastal Zone Deptford occupations, while sites such as 38BU747 (Trinkley 1990) evidence only small, focal shell midden occupations.Sites such as 38BK984 (Roberts and Caballero 1988) provide evidence of Coastal Plain non-shell midden Deptford occupation.

At Pinckney Island the bulk of the calories came from shellfish while mammals played a relatively insignificant role (Trinkley 1981b:57-60). A similar situation occurs at Minim Island (38GE46), where late spring and summer occupation is documented with a reliance on fishing, with mammals being a secondary, if not minor food source. In the fall there is evidence of intensive oyster gathering and possible use of nearby hickory masts (Drucker and Jackson 1984; Espenshade and Brockington 1989).

Inland, sites such as 38AK228-W, 38LX5, 38RD60, and 38BM40 indicate the presence of an extensive Deptford occupation on the Fall Line and the Coastal Plain, although sandy, acidic soils preclude statements on the subsistence base (Anderson 1979; Ryan 1972; Trinkley 1978, 1980c). These interior or upland Deptford sites, however, are strongly associated with the swamp terrace edge, and this environment is productive not only in nut masts, but also in large mammals such as deer. Perhaps the best data concerning Deptford "base camps" comes from the Lewis-West site (38AK228-W), where evidence of abundant food remains, storage pit features, elaborate material culture, mortuary behavior, and craft specialization has been reported (Sassaman et al. 1989:96-98).

Milanich observes that "this dual distribution . . . suggests a transhumant subsistence pattern," with inland sites occupied in the fall for the collection of floral resources and the hunting of deer (Milanich 1971:194; Milanich and Fairbanks 1980:72). While such a subsistence round may have been practiced, it cannot be documented from the available evidence. Some sites, such as Pinckney Island, were clearly occupied in the late winter (Trinkley 1981b:60). Minim Island, however, was apparently occupied in the summer (Drucker and Jackson 1984), although a fall or winter occupation cannot be precluded. 38BU747 was likewise occupied during the spring and summer (Trinkley 1990).

This view of an estuarine Deptford adaptation with minor interior occupations must be re-evaluated based on the Savannah River drainage work of Brooks and Hanson (1987) and Sassaman et al. (1989:293-295) who suggest larger residential base camps and foraging zones along the Savannah River, coupled with smaller, household residences and foraging zones in the uplands along small tributaries. While it is not yet clear if these upland sites

represent a perennial settlement pattern or a seasonal fissioning typical of the Late Archaic, it seems likely that the pattern was equally affected by demographic pressures and external socio-political influences (see Sassaman et al. 1989:303-304). Of considerable potential significance is evidence of trade between coastal and interior Deptford groups. For example, the Lewis-West site (38AK228-W) has produced evidence of sharks' teeth and whelk shells from the coastal region.

Throughout much of the Coastal Zone and Coastal Plain north of Charleston, a somewhat different cultural manifestation is observed, related to the "Northern Tradition" (e.g., Caldwell 1958). This recently identified assemblage has been termed Deep Creek and was first identified from northern North Carolina sites (Phelps 1983). The Deep Creek assemblage is characterized by pottery with medium to coarse sand inclusions and surface treatments of cord marking, fabric impressing, simple stamping, and net impressing. Much of this material has been previously designated as the Middle Woodland "Cape Fear" pottery originally typed by South (1960). The Deep Creek wares date from about 1000 B.C. to A.D. 1 in North Carolina, but may date later in South Carolina, based on two radiocarbon dates of 120±130 B.C. (QC-1358) and A.D. 210±110 (QC-1357). The Deep Creek settlement and subsistence systems are poorly known, but appear to be very similar to those identified with the Deptford phase.

The Deep Creek assemblage strongly resembles Deptford both typologically and temporally. It appears this northern tradition of cord and fabric impressions was introduced and gradually accepted by indigenous South Carolina populations. During this time some groups continued making only the older carved paddle-stamped pottery, while others mixed the two styles, and still others (and later all) made exclusively cord and fabric stamped wares.

Middle Woodland

Although the Deptford phase is discussed as part of the Early Woodland, many authors place the phase intermediate between the Early and Middle Woodland (see, for example, Anderson et al. 1982:28, 250). Such an approach is not unreasonable, because Deptford exhibits considerable temporal range and cultural adaptations which are more characteristically Middle Woodland (see also Anderson 1985:53). The Deptford phase, however, is still part of the early carved paddle stamped tradition which is replaced by the posited northern intrusion of wrapped paddle stamping during the Middle Woodland. Clearly the Deep Creek pottery, at the same time period as Deptford, is part of this "Northern Tradition," yet the Deep Creek, on temporal grounds, is considered Early Woodland by Phelps (1983:17, 29). This is meant simply to indicate that the transition from Early to Middle Woodland is not as clear as one might wish.

The Middle Woodland in South Carolina is characterized by a pattern of settlement mobility and short-term occupation. On the southern coast it is associated with the Wilmington phase, while on the northern coast it is recognized by the presence of Hanover, McClellanville or Santee, and Mount Pleasant assemblages. Wilmington and Hanover may be viewed as regional varieties of the same ceramic tradition. The pottery is characterized almost solely by its crushed sherd temper which makes up 30 to 40% of the paste and which ranges in size from 3 to 10 mm. Wilmington was first described by Caldwell and Waring (Williams 1968:113-116) from coastal Georgia work, while the Hanover description was offered by South (1960), based on a survey of the Southeastern coast of North Carolina (with incursions into South Carolina). The Wilmington phase was seen by Waring (Williams 1968:221) as intrusive from the Carolina coast, but there is considerable evidence for the inclusion of Deptford traits in the Wilmington series. For example, Caldwell and McCann (1940:n.p.) noted that, "the Wilmington complex proper contains all of the main kinds of decoration which occur in the Deptford complex with the probable exception of Deptford Linear Checkstamped" (see also Anderson et al. 1982:275). Consequently, surface treatments of cord marking, check stamping, simple stamping, and fabric impressing may be found with sherd tempered paste.

Sherd tempered Wilmington and Hanover wares are found from at least the Chowan River in North Carolina southward onto the Georgia coast. Anderson (1975:187) has found the Hanover series evenly distributed over the Coastal Plain of South Carolina, although it appears slightly more abundant north of the Edisto River. The heartland may be along the inner Coastal Plain north of the Cape Fear River in North Carolina. Radiocarbon dates for Wilmington and Hanover range from 135±85 B.C. (UM-1916) from site 38BK134 to A.D. 1120±100 (GX-2284) from a "Wilmington House" at the Charles Towne Landing site, 38CH1. Most dates, however, cluster from A.D. 400 to 900; some researchers prefer a date range of about 200 B.C. to A.D. 500 (Anderson et al. 1982:276).

Largely contemporaneous with the sherd tempered wares are the Mount Pleasant, McClellanville, and Santee series. The Mount Pleasant series has been developed by Phelps from work along the northeastern North Carolina coast (Phelps 1983:32-35, 1984:41-44) and is a Middle Woodland refinement of South's (1960) previous Cape Fear series. The pottery is characterized by a sandy paste either with or without quantities of rounded pebbles. Surface treatments include fabric impressed, cord marked, and net impressed. Vessels are usually conoidal, although simple, hemispherical, and globular bowls are also present. The Mount Pleasant series is found from North Carolina southward to the Savannah River (being evidenced by the "Untyped Series" in Trinkley 1981b). North Carolina dates for the series range from A.D. 265±65 (UGA-1088) to A.D. 890±80 (UGA-3849). The several dates currently available from South Carolina (such as UGA-3512 of A.D. 565±70 from Pinckney Island) fall into

this range of about A.D. 200 to 900.

The McClellanville (Trinkley 1981a) and Santee (Anderson et al. 1982:302-308) series are found primarily on the north central coast of South Carolina and are characterized by a fine to medium sandy paste ceramic with surface treatment of primarily v-shaped simple stamping. While the two pottery types are quite similar, it appears that the Santee series may have later features, such as excurvate rims and interior rim stamping, not observed in the McClellanville series. The Santee series is placed at A.D. 800 to 1300 by Anderson et al. (1982:303), while the McClellanville ware may be slightly earlier, perhaps A.D. 500 to 800. Anderson et al. (1982:302-304; see also Anderson 1985) provide a detailed discussion of the Santee Series and its possible relationships with the McClellanville Series. Anderson, based on the Santee area data from Mattassee Lake, indicates that there is evidence for the replacement of fabric impressed pottery by simple stamping about A.D. 800 (David G. Anderson, personal communication 1990). This may suggest that McClellanville and Santee wares are closely related, both typologically and culturally.

The best data concerning Middle Woodland Coastal Zone assemblages comes from Phelps' (1983:32-33) work in North Carolina. Associated items include a small variety of the Roanoke Large Triangular points (Coe 1964:110-111), sandstone abraders, shell pendants, polished stone gorgets, celts, and woven marsh mats.

It appears that both ossuaries and sand mounds are found along the entire Carolina and Georgia coasts, although precise dating and thorough understanding of their cultural significance has yet to be achieved. The available information, however, suggests a relatively egalitarian society was common to all. Anderson suggests that, "these mound/ossuary complexes appear to represent principal burial areas for local lineages or other currently unrecognized social entities" (Anderson 1985:56).

On the Coastal Plain of South Carolina, researchers are finding evidence of a Middle Woodland Yadkin assemblage, best known from Coe's work at the Doerschuk site in North Carolina (Coe 1964:25-26). Yadkin pottery is characterized by a crushed quartz temper and cord marked, fabric impressed, and linear check stamped surface treatments. The Yadkin ceramics are associated with medium-sized triangular points, although Oliver (1981) suggests that a continuation of the Piedmont Stemmed Tradition to at least A.D. 300 coexisted with this Triangular Tradition. The Yadkin series in South Carolina was first observed by Ward (1978, 1983) from the White's Creek drainage in Marlboro County, South Carolina. Since then, a large Yadkin village has been identified by DePratter at the Dunlap site (38DA66) in Darlington County, South Carolina (Chester DePratter, personal communication 1985) and Blanton et al. (1986) have excavated a small Yadkin site (38SU83) in Sumter County, South Carolina. Anderson et al. (1982:299-302) offer

additional typological assessments of the Yadkin wares in South Carolina.

These Middle Woodland Coastal Plain and Coastal Zone phases continue the Early Woodland Deptford pattern of mobility. While sites are found all along the coast and inland to the Fall Line, shell midden sites evidence sparse shell and artifacts. Gone are the abundant shell tools, worked bone items, and clay balls. Recent investigations at Coastal Zone sites such as 38BU747 and 38BU1214, however, have provided some evidence of worked bone and shell items at Deptford phase middens (see Trinkley 1990).

In terms of settlement patterns, several researchers have offered some conclusions based on localized data. Michie (1980:80), for example, correlates rising sea levels with the extension of Middle Woodland shell middens further up the Port Royal estuary. Scurry and Brooks (1980:75-78) find the Middle Woodland site patterning in the Wando River affected not only by the sea level fluctuations, but also by soil types (see also Trinkley 1980a:445-446). They suggest that the strong soil correlation is the result of upland sites having functioned as extraction areas, principally for exploitation of acorns, hickory nuts, and deer. Shell midden sites, they suggest, also represent seasonal camps and therefore exhibit small size, low artifact density, and infrequent re-occupation. Ward's (1978) work in Marlboro County suggests that interior site patterning changed little from the Early to Middle Woodland. Sites continue to be found on the low, sandy ridges overlooking hardwood swamp floodplains, which suggests that while pottery styles changed, site locations, and presumably subsistence, did not (see also Ferguson 1976).

Late Woodland

In many respects the South Carolina Late Woodland may be characterized as a continuation of previous Middle Woodland cultural assemblages. While outside the Carolinas there were major cultural changes, such as the continued development and elaboration of agriculture, the Carolina groups settled into a lifeway not appreciably different from that observed for the previous 500 to 700 years (cf. Sassaman et al. 1989:14-15). This situation would remain unchanged until the development of the South Appalachian Mississippian complex.

The Late Woodland on the extreme southern South Carolina Coastal Zone is characterized by the St. Catherines phase, first defined by Caldwell (1971) based on his St. Catherines Island work. St. Catherines ceramics are characterized by clay tempering (obviously finer than the preceding Wilmington sherd temper) and by carefully smoothed or burnished interiors. Surface treatments include fine cord marked, burnished plain, and net impressed (DePratter 1979:119, 131-132), although sparse quantities of fabric impressed pottery are also observed from South Carolina (Trinkley

1981b:82) and Georgia (Larsen and Thomas 1982:304-305). Caldwell viewed the St. Catherines pottery as a refinement of the Wilmington tradition of sherd tempering (Caldwell 1971:91), and sand burial mounds continue to be a significant aspect of the assemblage (Brooks et al. 1982; Larsen and Thomas 1982; Trinkley 1981b:90-92).

While a number of St. Catherines burial mounds have been studied, only one midden area, Victoria Bluff (38BU347), in Beaufort County, has been even briefly tested (Trinkley 1981b:73-78). At this site the economy was based on shellfish collection and there is substantial evidence of a winter-early spring occupation. There is, as yet, no documentation of a seasonal round, although some large St. Catherines sites have been found which suggest at least semi-permanent villages (Trinkley 1991).

The St. Catherines pottery, previously given a terminal date of about A.D. 1150 by DePratter (1979:111), probably dates into the fourteenth century, based on the Victoria Bluff (38BU347) and Pinckney Island (38BU67, 38BU168) work where dates of A.D. 1380±75 (UGA-3516) and A.D. 1535±65 (UGA-3514) were obtained (Trinkley 1981b). The tenacity of this simple lifestyle suggests that the effects of the Guale intrusion was relatively minor in many ways, or they at least co-existed with the native inhabitants whose lives were generally unchanged.

Farther north along the Carolina coast, Anderson et al. (1982:303-304) suggest a continuation of the Santee series into the Late Woodland. The Hanover and Mount Pleasant series may also be found as late of A.D. 1000. Along the southeastern North Carolina coast, South (1960) has defined the Oak Island complex, which is best known for its shell tempered ceramics with cord marked, fabric impressed, simple stamped, and net impressed surface finishes. The phase is briefly discussed by Phelps (1983:48-49), but curiously this manifestation is almost unknown south of the Little River in South Carolina. Very little is known about the northern coastal South Carolina Late Woodland complexes, although sites such as 38GE32 may document the occurrence of village life in the Late Woodland.

There is only somewhat vague and tantalizing evidence of agriculture or the use of domesticated plants during this period in South Carolina. Investigations at 38AN8 have yielded carbonized gourd rind, as well as a very small sample of squash and corn pollen (see Wood et al. 1986:106). Agriculture, however, cannot be documented in any meaningful way until the rise of the South Appalachian Mississippian period, either in the Piedmont or on the coast.

Synopsis of Burial Mound Research

North Carolina

Sand burial mounds are typically found in the Coastal Plain of North Carolina, east of the fall line and south of a line from Raleigh to Cape Hatteras (MacCord 1966:37; Wilson 1982). There are 21 burial mounds known in North Carolina, including four in Duplin County, five in Robinson County, one in Sampson County, seven in Cumberland County, two in Wake County, one in Harnett County, and one in Brunswick County. All appear very similar.

In 1883, J.A. Holmes described the general characteristics of the 13 mounds then known:

> [t]hey are usually low, rarely rising to more than three feet above the surrounding surface, with circular bases varying in diameter from 15 to 40 feet, and they contain little more than the bones of human (presumably Indian) skeletons, arranged in no special order. They have been generally built on somewhat elevated, dry, sandy places, out of a soil similar to that by which they are surrounded. No evidence of an excavation below the general surface has as yet been observed. In the process of burial, the bones or bodies seem to have been laid on the surface, or above, and covered up with soil taken from the vicinity of the mound (Holmes 1916:19).

The earliest excavation of these mounds in North Carolina was undertaken by Holmes in the 1880s. Although rather imprecise by today's standards, Holmes' work does provide the largest sample of excavation data. He reported fragments of charcoal, small shells believed to be Marginella beads, an occasional celt, and a few pottery sherds generally described as "scratched" or "cross scratched" (Wilson 1982:16). The human remains were consistently in a very poor state of preservation, although numerous examples of burnt bone were found.

Following Holmes' excavations was the work by Charles Peabody in the early twentieth century (Peabody 1910). Excavations in Cumberland County mounds revealed a celt, occasional projectile points, a platform pipe, and, in one case, cylindrical copper beads. Human remains, while present, were in very poor condition and at least some had been burnt.

During 1960 through 1962 excavations were undertaken at the McLean Mound in Cumberland County (MacCord 1966). Artifacts recovered included triangular points (probably Roanoke points), celts, hammerstones, stone and clay pipes, plain and fabric impressed pottery, stone gorgets, and beads of shell and bone (MacCord 1966:36). Charcoal associated with one of the burials yielded an age of 980 ± 110 years: A.D. 970 (M-1354), although the

presence of other artifacts suggests a date of perhaps of A.D. 1400.

The work at the McLean Mound also produced the first detailed analysis of the human remains recovered. The investigations found cremations, bundle burials, multiple burials, and flexed burials. Although 438 individuals were represented in the collections, many of them were cremated, bone condition was very poor, and only 11 crania were available for detailed study.

In 1962 South (1962) partially excavated the McFayden Mound in Brunswick County. Artifacts, while sparse, included triangular points, celts, fabric impressed pottery, stone gorgets, and shell beads. Multiple and bundle burials were observed, as well as cremations. This mound is dated by identified artifacts to the period from A.D. 1000 to A.D. 1600 (see Wilson 1982:160-162 for discussion).

The skeletal remains associated with this mound have been analyzed by Wilson (1982), who found a total of 41 adults and 6 subadults. Cranial indices and stature estimates of the individuals from the McFayden Mound suggest a strong morphological resemblance to "Siouan populations from the southern coastal and piedmont regions of North Carolina and the northern coastal region of South Carolina" (Wilson 1982:172).

Based on her exhaustive study, Wilson concludes:

> The question of ethnic-cultural associations of the sand burial mounds, it is probable that such features cannot be associated with any one prehistoric physical type or aboriginal group. In the coastal plain of North Carolina, it would appear that peoples with different physical characteristics and material culture were responsible for the construction of some of the mounds excavated to date. Available data (Stewart 1966), for example, suggests that a non-Siouan population, probably Iroquoian, was responsible for the construction of Cd°1, the McLean Mound in Cumberland County. Presumably, these Indians were the predecessors of the historic Tuscarora of the inner coastal plain. The McFayden Mound, on the other hand, was probably built by Siouan people, as were the Duplin County 1 and 2 Mounds excavated by Holmes (Wilson 1982:172-173.)

Wilson also suggests that at least some of the reported ossuaries from the southern North Carolina coast may represent the initial stage in mound construction:

> Speculating further, the "ossuary" at Nh^{v}28, across the Cape Fear River from McFayden in New Hanover County, could represent an initial stage in the construction of

> a burial mound. The skeletal remains at Nh^{v}28 could be the central bone deposit of a planned burial mound that was not completed. Limited evidence to support this interpretation is the physical location of Nh^{v}28 on a sandy ridge, as with the other sand burial mounds including McFayden; the Siouan physical associations of the skeletal material within the Nh^{v}28 deposit; and the lack of any substantial pit associated with the Nh^{v}28 feature, as is usually the case with ossuaries used by the Algonquians to the north (such as those of the northeastern North Carolina coast and the Nanjemoy Ossuaries in Maryland) (Wilson 1982:173).

Phelps briefly reviews the status of burial mound research in North Carolina observing:

> a distinctive cultural feature of Middle Woodland age in the South Coastal region is the rather extensive distribution of low, sand burial mounds, placed with the Cape Fear phase because of their content and occurrence elsewhere in the eastern Woodlands area in this temporal position. . . . The high frequency of secondary cremation, platform pipes, and other objects in the mounds, and the fact that at least some of them seem to be placed away from their contemporaneous habitation sites, points to southern influence during this period in the South Coastal region. Their known spatial extent is limited to the region, and no comparable structures have been reported from either South Carolina or the North Carolina Piedmont. . . . Further research in both mounds and associated villages is needed to determine relationships of the mounds to the cultural phase that produced them and to correlate them with similar manifestations such as those on the Georgia Coast (Phelps 1983:35)

South Carolina

Of course, Phelps' comments concerning the absence of sandy burial mounds from South Carolina was only partially correct. C.B. Moore's investigations along the southern coast of South Carolina in the late 1890s reported the presence of fourteen "mounds," all in Beaufort County. Of these, at least eight are burial mounds (Bluffton, Callawassie, two at Hassell Point, Indian Hill, Little Island, and two at Button Hill), based on the presence of central deposits of bone and calcined remains. Where artifacts were present they consist of small number of small triangular points, and plain or cord marked sherds (Moore 1898). Regrettably, little else can be obtained from Moore's account of the excavations.

The Callawassie Island Burial Mound (38BU19) was re-investigated by Brooks et al. (1982) and the surrounding village

area was recently tested by Trinkley (1991). This work has revealed the presence of abundant St. Catherines pottery and a probable date of about A.D. 1000. The human remains recovered from the excavations by Brooks et al. are briefly discussed by Rathbun (1982), who places the individuals intermediate "between diffuse hunter-gather societies and fully settled agricultural ones" (Rathbun 1982:118), a conclusion clearly consistent with our current knowledge of St. Catherines subsistence activities. Unfortunately, too few cranial data were available for any conclusions regarding ethnic-cultural associations. It seems reasonable, however, to associate these individuals with the Muskhogean groups to the south, into Georgia.

A similar, probable St. Catherines burial mound was recorded by Trinkley (1981b) in the vicinity of Victoria Bluff in Beaufort County (38BU368). This site, like the Callawassie Island mound, is in close proximity to a St. Catherines village area (38BU347).

Rathbun has also identified an ossuary (38HR36) from Horry County, South Carolina (Rathbun 1989:12; see also Conner 1985; Hyman 1983). Although relatively little information is currently available on this site, it may represent a series of deposits similar to that reported by Wilson from $Nh^{V}28$ in North Carolina (Wilson 1982; see also Coe et al. 1982), with 42 individuals recovered.

Georgia

Sand burial mounds also have been known from the Georgia coast since C.B. Moore's investigations in 1890s. Recent studies include those by the American Museum of Natural History on St. Catherines Island, Georgia, which document the Early and Middle Woodland use of sand burial mounds (Larsen and Thomas 1982; Thomas and Larsen 1979).

While the early Refuge use of the Georgia burial mounds may be disputed, there does appear to be very good evidence for the practice being adopted as early as the Deptford phase. The authors note that:

> obviously, little comparative data exist to use in our analysis of the Refuge-Deptford mounds on St. Catherines Island. We suspect that sites of this nature have been largely ignored because of their subtle appearance and because they lack spectacular material remains. But it seems equally likely that the unobtrusive nature of the sites has allowed many to escape the looting visited upon the better known, larger mounds (Thomas and Larsen 1979:134).

The investigations at both the Deptford and the St. Catherines mounds reveal that extended burials are more common than either

bundles or cremations, a situation which stands in contrast to the results from North Carolina. While male and female individuals are found in approximately equal proportions, adult remains are much more common than subadult (Larsen and Thomas 1982:325). This is interpreted as evidence supporting a band level of sociopolitical integration and the infrequent inhumation of subadults is taken as evidence of achieved, rather than ascribed, status.

Summary

It appears that the early burial mounds along the Georgia coast, like those discussed by Wilson for North Carolina, developed gradually. Thomas and Larsen observe:

> Caldwell summed up the situation rather nicely in his brief discussion of the early Seaside I tests: "we may start with a dimple and end with a pimple" (Caldwell 1971). Over half of the individuals found in the nine mounds were buried prior to construction of the mound. Although we have no way of estimating the time lapse between interment and mound construction, radiocarbon and stratigraphic evidence indicates that in some cases this lapse could have been as much as two millennia (Thomas and Larsen 1979:153).

The mounds along the North Carolina and Georgia coasts are also both marked by their simplicity. Grave goods are uncommon and most artifacts are found as fill, perhaps gathered up from nearby village deposits. In the examined mounds, males and females both appear equally common and subadults tend to be less common than adults.

The most noticeable contrast between the burial mounds of Georgia and North Carolina may be the consistent use of extended burials to the south, contrasted with a variety of secondary interments or cremations to the north. While there are too few data to offer any conclusive statements, this seems likely to be associated with ethnic or cultural differences.

The presumed burial mound gap between southern coastal South Carolina and southeastern coastal North Carolina has been filled by the 1983 excavations of the Buck Hall Recreation site. While Figure 5 suggests that the central South Carolina coast is relatively devoid of burial mounds, the comments by Thomas and Larsen (1979:134) may have wider application than previously realized. These mounds are rather small and unimpressive. It is questionable how many would be found using common survey techniques or how many could survive a century of intensive agricultural activity. The current study, more than anything else, should alert archaeologists to the possibility that similar sites exist along the Charleston, Georgetown, Horry county coasts. Only through more detailed investigations will the supposed "gap" be completely filled.

Although these discussions have dealt with only burial mounds, it is increasingly clear that ossuary interments played an important role during the Middle and Late Woodland periods. Loftfield (1990) summarizes our current knowledge regarding ossuaries in North Carolina, noting that three basic patterns are known:

1. Iroquoian ossuaries associated with gravel-tempered pottery and secondary bundle internments of small family groups. Marginella shells are frequently present and these ossuaries are found within village areas.

2. Algonquian ossuaries associated with shell-tempered pottery and secondary, usually incomplete, interments of large numbers of individuals. These ossuaries are located on the outskirts of the village and associated artifacts are very rare.

3. Ossuaries placed on high sand dune ridges which contain bundle burials and evidence some sharing of the bone. These ossuaries also evidence grave goods.

Loftfield suggests that this last type of ossuary represents "acculturation [between Siouan and Algonquian groups] (used in its most general sense), and implies, by extension, some form of population movement" (Loftfield 1990:120). He suggests that:

> the change in ossuary style may be related to the passage of time during which the Algonquian population adopted elements of a different ossuary complex from their Sioux neighbors. This adoption represented a continuation of a pattern of Algonquian assimilation of "Southern" traits, but one which required a long-term relationship with a neighboring population such as would occur in the vicinity of a stable boundary. It has been hypothesized that the stable boundary developed because the Algonquian adaptive strategy, relying on the produce of temperate zone large open water estuaries, was not viable any further south than New River in Onslow County. In such a marginal environment (from the perspective of the "traditional" Algonquians) the immigrant population was never able to grow large enough to totally overwhelm the original inhabitants. Instead a stable but permeable boundary was established across which cultural ideas spread slowly. The Algonquians along this boundary were becoming ever more "southernized," accepting traits from the coastal Sioux while the southern coastal Sioux were accepting Algonquian traits. Each group thus was becoming more like the other (Loftfield 1990:121-122).

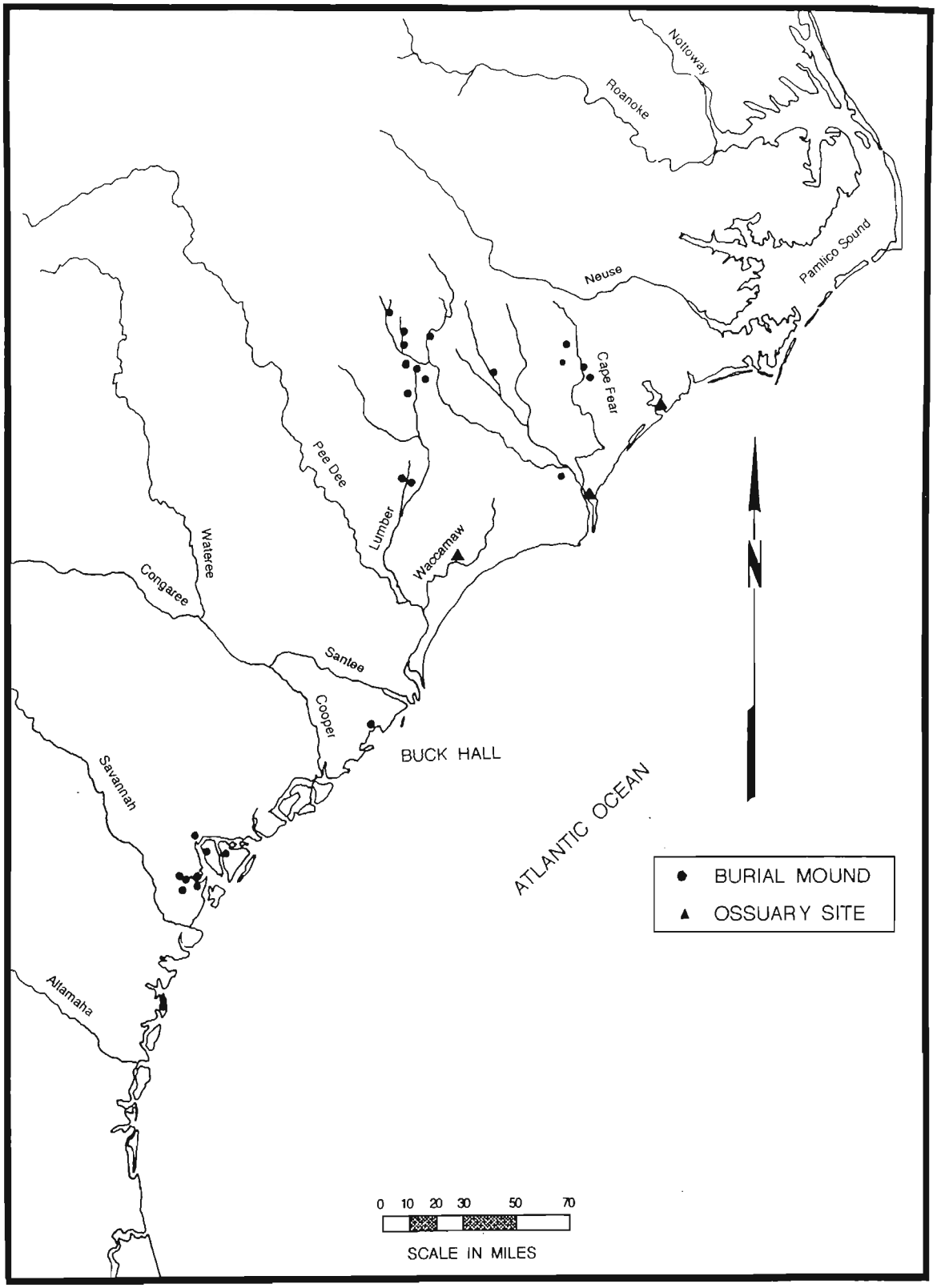


Figure 5. Distribution of burial mound and ossuary sites along the Carolina coasts.

EXCAVATIONS

Strategy and Methods

As previously discussed, the excavations at the Buck Hall Recreation site were undertaken as a project by the Charleston Area Chapter of the Archaeological Society of South Carolina in 1983. This was the first professional investigation of the site, although at least one local collector had "excavated" in the low sand mounds visible along the edge of the Atlantic Intracoastal Waterway. The purpose of the current project was to examine the form and function of the sandy mounds in the hope of verifying their use as burial features.

Consequently, one mound, which appeared to be the least damaged by local relic collectors, was selected for investigation. Only a very limited effort was directed toward the exploration of the surrounding village or midden, also known to exist within the confines of the Buck Hall Recreation Area. The mound excavation used relatively large block excavations to maximize the exposed profiles and ability to identify features. Large excavation units were also chosen to maximize the recovery of temporally sensitive artifacts.

An examination of the site area revealed the presence of at least four potential mounds, designated A through D from west to east across the site. Mounds A and B both appeared to have been extensively damaged by relic collectors. Mound A measured about 41 feet north-south by 43 feet east-west. Mound B measured about 35 feet north-south by 40 feet east-west. Mound D, east of the access road to the boat landing at Buck Hall, was situated somewhat further inland than the other mounds and was somewhat lower and less well defined. It measured about 29 feet north-south by 27 feet east-west.

Mound C, situated in the central area of the facility, measured about 40 feet in diameter and was elevated about a foot above the surrounding topography. Mound C was chosen for excavation because of its central location, clear contours, intact condition, and similarity to vandalized Mounds A and B.

The site grid, oriented magnetic north-south, was placed to bisect Mound C. A permanent grid point was placed between the south edge of the mound and the AIWW sea wall at 100R100. This point, a 3-foot metal rod driven flush to the ground, was 8.3 feet S40°E of a 4 foot live oak and 12.3 feet north of the sea wall. A 200R100 point was established north of the mound and triangulated in reference to a nearby pine and oak. An additional permanent

horizontal control point was chiseled into the south corner of the eastern-most concrete pad for a port-a-let. This point, at 259.75R100 was also assigned an assumed elevation of 100.00 feet for vertical control. Secondary vertical control points were established at the south corner of the western port-a-let (AE=99.96 feet) and the sea wall (AE=97.49 feet).

A modified Chicago 10-foot grid was established, with each square designated by its southeast corner from a 0R0 point off site. Thus, the southeast corner of unit 50R25 would be 50 feet north of the 0R0 point and 25 feet right or east. Initially a series of four 10-foot and two 5-foot units (125R105, 130-160R110, 170R105) were laid out bisecting the mound north-south and extending past the anticipated toe of the mound (Figures 6 and 7). Later, a 10-foot unit was laid out off grid to explore the adjacent shell midden. The southeast corner of this unit, oriented magnetic north-south, was 193.18 feet from 100R100 at a bearing of N130°W.

Soil from these excavations was screened through 1/4-inch mesh using mechanical sifters. Units were troweled at the base of Level 1 and 2, photographed in black and white and color, and plotted. Excavation was by relatively arbitrary levels which were later correlated with natural soil zones, and soil samples were routinely collected. Profiles were made at the base of the excavations using a scale of one inch to two feet horizontal and one inch to one foot vertical.

Field notes were prepared on pH neutral, alkaline buffered paper and photographic materials were processed to archival standards. Field notes and duplicate archival copies, have been transferred to the U.S. Forest Service, Wambaw District. The specimens from the excavation are curated at The Charleston Museum.

Identified Remains

Mound Excavations

Throughout the excavations Level 1 refers to the uppermost humic soil, averaging 0.05 to 0.1 foot in thickness. Level 2 represents a mottled tan sand in the area surrounding the mound, but a mottled light tan fill within the mound proper.

Unit 125R105, a 5-foot square, was excavated south of the mound to a depth of 0.8 foot below the existing grade in a series of four levels. Level 1 consisted of the thin, recent humus layer overlying a tan sand. In the northeast corner of the unit a ill-defined smear of brown sand, burnt clay, and charcoal was found at the base of Level 1. As excavations continued this sand graded into a light tan to yellow fine sand.

Unit 130R110, a 10-foot square, was excavated in two levels to a depth of 0.3 foot, stopping just at the surface of the posited

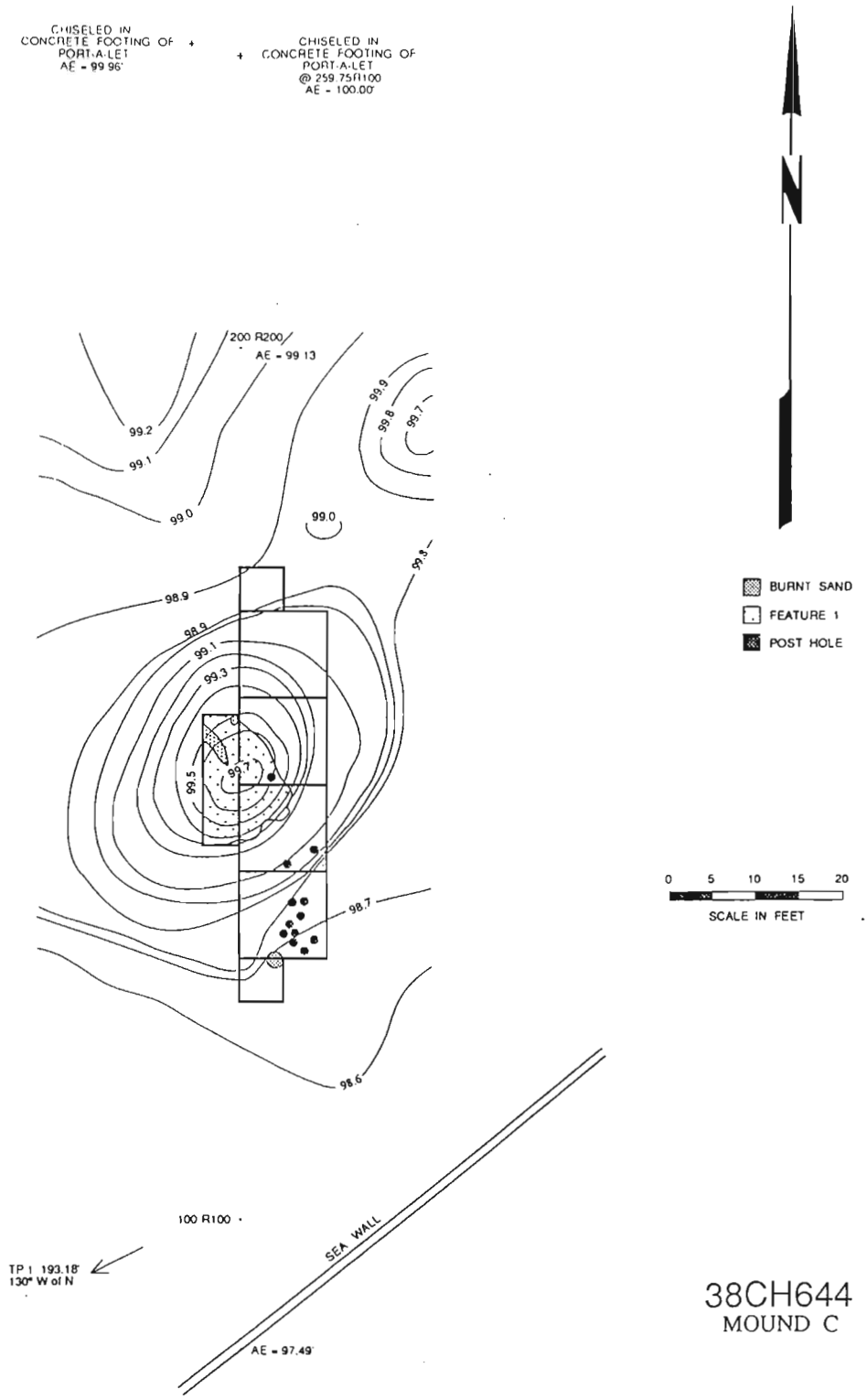


Figure 6. Plan view of Mound C, 38CH644.

Figure 7. Mound C excavations completed, view to the northwest.

mound fill. The dark smear observed in 125R105 was found continuing into the unit and appeared to represent a burnt area on the surface of the mound. Once troweled the unit clearly revealed the toe of the mound extending across the central portion of the unit. Mound fill was identified as a mottled yellowish-brown sand, while the area outside (i.e., south) of the mound was a mottled tan sand also found in 125R105. A series of 12 possible post holes were plotted in the southeast quadrant of the unit. One of these, at 132.5R106.3, contained a small quantity of clay in the fill. Upon excavation the stain had a depth of 0.1 foot. While not resembling a root, it was very shallow and no additional stains in this unit were removed.

Excavation in 140R110 was taken to a depth of 0.4 foot in a series of three level. Level 1 corresponded to the humus found in other areas of the site, while Level 2 represented the uppermost portion of mound fill. Level 3 consisted of flat shoveling the unit in order to better define features. At the base of Level 3 the floor revealed two post holes in the southeastern quadrant. One of these, at 141.8R108.5, evidenced a post mold in a post hole, and was excavated. The post mold was about 0.4 foot in diameter and the hole was 0.9 foot in diameter. The feature extended to a depth of 0.8 foot below the floor of Level 3. This unit also revealed a large feature in the northwestern quadrant consisting of a gray

sand (Feature 1), which is discussed in detail below.

Unit 150R110 was excavated in two levels, corresponding to those in 140R110 (with the exception that no flat shoveling was required). The unit was placed entirely within the mound and the floor of the excavation revealed a complex mottling of gray, tan, and brown soils. Feature 1, identified in 140R110 to the south, continued along the west profile and was confined to the southwestern quadrant of the unit. Two additional post holes were identified, but not excavated.

160R110 was excavated in two levels corresponding to those in 150R110. Considerable mottling was encountered at the base of the excavations and no clear evidence of the north mound toe was encountered. Excavation of a 5-foot unit, 170R105, to the north did reveal possible evidence of a somewhat irregular edge and it is likely that these units were not excavated sufficiently deep to allow the mound fill to be distinguished from the surrounding tan sand. Complicating matters, the soils of 170R105 were very moist and only gross soil differences could be determined.

Feature 1, as previously mentioned, was found in the central portion of the mound (along the west wall of units 140-150R110). To further explore this feature an inset measuring 4 feet in width by 15 feet in length was excavated at 143R100. Removed in two levels, Feature 1 was found at the base of the inset, covering the entire area. Although the limits of this feature were not encountered, it was estimated to cover an area of at least 15 feet east-west by 19 feet north-south. Two areas of mottled white, tan, and orange sand were also encountered within the feature. These appeared to represent areas of burning.

The outline of the feature was vague, but sufficiently distinct from the remainder of the soils to suggest a burial deposit. Excavation of this feature was begun at the western wall of the insert. Small, poorly preserved bone flakes were almost immediately found in the gray sandy fill. Identifiable fragments were retained and the loose fill was bagged for waterscreening. Mixed with this gray sand fill was eroded shell. In efforts to identify the edge of this feature, we found that it was apparently excavated through an old humus level, into the underlying light tan subsoil.

Our efforts to recover additional bone from waterscreening was largely unsuccessful. The bone was in such a poor state of preservation that it was destroyed by the combination of water and the nozzle pressure. Small quantities of charcoal, however, were recovered from the waterscreened soil.

Given the short period allocated for the excavations, the absence of a physical anthropologist on site, the poor state of the bone preservation, and our inability to totally excavate the

feature, it was decided to stop excavation, thoroughly document the existence of the feature, and backfill the area. The work accomplished by the project, however, did document that the feature represented a multiple secondary burial deposit in a pit, excavated below the pre-existing ground surface.

Profiles of the mound (see Figure 8 for the west profile, looking west) suggest a rather simple construction, beginning with a excavation of a burial chamber or pit under the mound, into the prehistoric humus to a depth of approximately 0.5 foot. The fill of this feature, identified as Feature 1, consists of grayish sand and burnt orange and white sand. The fill was mounded up approximately 0.3 to 0.4 foot above the old humus. Very limited excavation has revealed the presence of disarticulated human remains in the fill. These burial deposits are capped with a lens of mottled, but relatively sterile, tan sand about 0.6 foot in thickness. Covering the entire mound is a cap of more recent humus about 0.4 foot in depth.

The Buck Hall mound stratigraphy clearly parallels that found at the McLean Mound by MacCord (1966:9) and the McFayden Mound by South (1962). It is also nearly identical to the reconstructed phasing of the McLeod Mound on St. Catherines Island (Thomas and Larsen 1979:Figure 10). While admittedly there are very few ways that a mound can be built, these similarities strongly suggest that the Buck Hall mound fits into this widely distributed burial mound tradition.

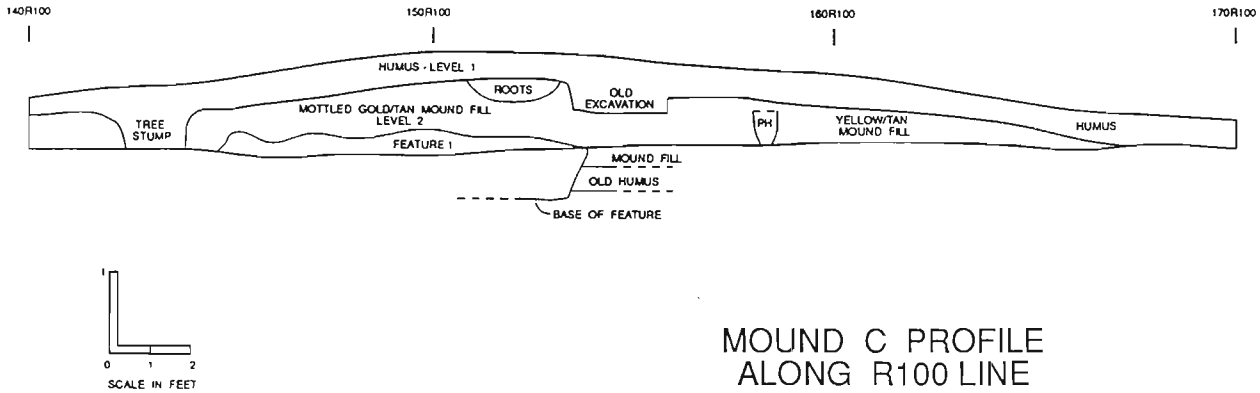


Figure 8. West profile of the mound excavations at 38CH644.

Midden Excavations

A single 10 foot unit (designated Test Pit 1) was excavated into a suspected shell midden area to the southwest of Mound C. This unit revealed a shell midden about 0.7 foot in depth underlying a thin smear of yellow sand believed to be the remnants of soil used to fill behind the sea wall. The midden consisted almost entirely of oysters, with very infrequent specimens of clam, periwinkle, and whelk. At the base of the midden was yellow subsoil. Two features were identified, but not excavated, at the base of the midden. In addition, a large tree stain was found in the northwest corner (Figure 9).

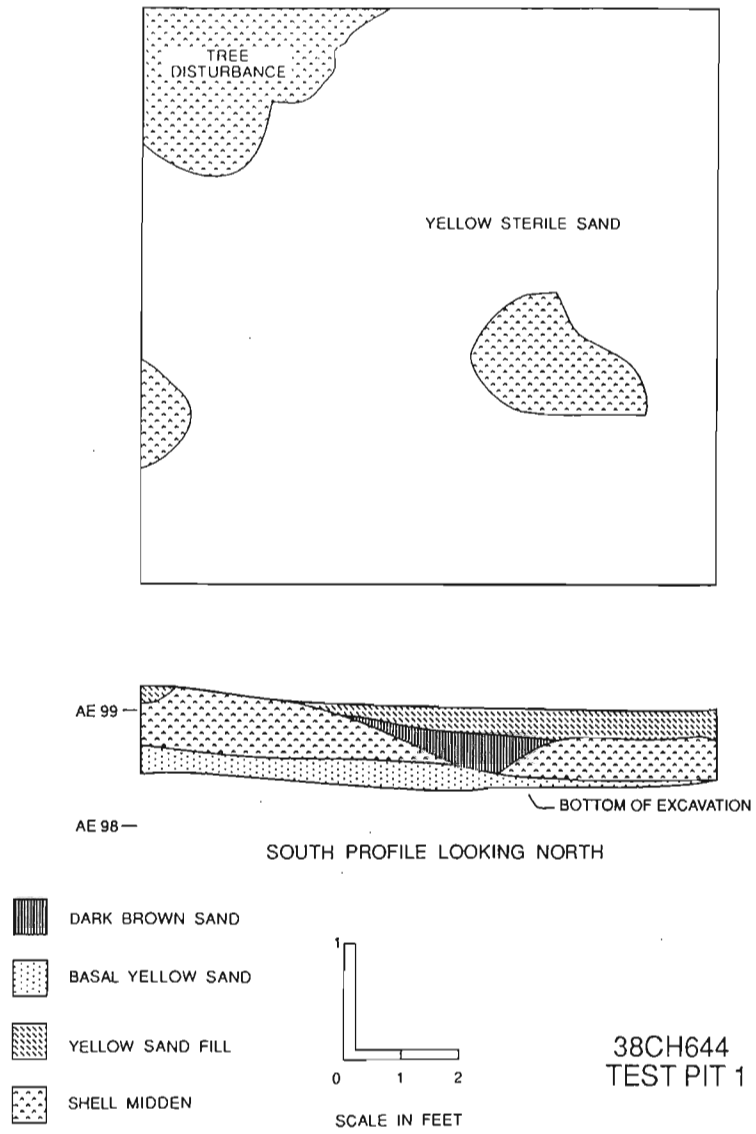


Figure 9. Plan and profile of Test Pit 1.

ARTIFACTS

Pottery

A total of 20 sherds were recovered from these excavations, 11 coming from Test Pit 1. Those from the mound excavation were found evenly distributed throughout the levels and include materials from the late Early Woodland (Deptford), Middle Woodland (McClellanville or Santee), and South Appalachian Mississippian (Pee Dee). One specimen, a Deptford Check Stamped sherd, was recovered from the excavation of Feature 1 (see Table 1, Figure 10). The materials from Test Pit 1 include primarily McClellanville or Santee sherds, although two Deptford Series and two unidentifiable sherds were also recovered.

Although the sample is very small, 10 sherds (50%) have been typed as McClellanville or Santee material, six (30%) as Deptford, three (15%) as unidentifiable, and one (5%) as Pee Dee. The single Deptford sherd recovered from Feature 1 provides a late Early Woodland *terminus post quem* for the site. Based on this collection it seems likely that the mound was constructed sometime during the late Early Woodland or, more probably, the Middle Woodland.

Table 1.
Artifacts Recovered from 38CH644

	Deptford		McClellanville/Santee			Pee	UID	Lithics		Historic
	check stamp	simple stamp	plain	simple stamp	dentate stamp	Dee	sherd	chert raw material	CSPP	Material
125R105, L.2										1
125R105, L.3			1							
130R110, L.1							1			1
150R110, L.1										1
160R110, L.1										3
160R110, L.2	2					1			1	
170R105, L.1	1									
Insert			2					1		
Test Pit 1		2	6	2	1					
Feature 1	1									

Although this work identified a small quantity of McClellanville/Santee pottery, the sample is too small to be of any real assistance in better defining the series or answering any of the questions surrounding the two typologies. The materials are consistent with the typologies offered by Anderson et al. (1982:302-208) and Trinkley (1981a).

Lithics

Only two lithics were recovered from these excavations. A fragment of fossiliferous chert was found in the Insert and an orthoquartzite triangular projectile point was found in 160R110 at the base of Level 3 (within the mound fill) (Figure 10). This point measures 23 mm in length and 13 mm at the base. It is 2 mm in thickness. These measurements place it within the range of the Caraway point defined by Coe (1964:49; n.d.:n.p.). This point has been typically associated with late prehistoric to protohistoric groups in North Carolina. While its association with the single Pee Dee sherd recovered from the excavations would not be troubling, its identification in a predominately Middle Woodland context is problematic. It seems likely that it represents an intrusive element which post-dates the deposition of the mound. Alternatively, recent typological work has suggested that the various projectile point types may have greater temporal latitude than previously suspected. Such may be the case with the Caraway type.

Historic Materials

The Buck Hall Recreation site is in the general vicinity of several large nineteenth century sites. It is therefore not

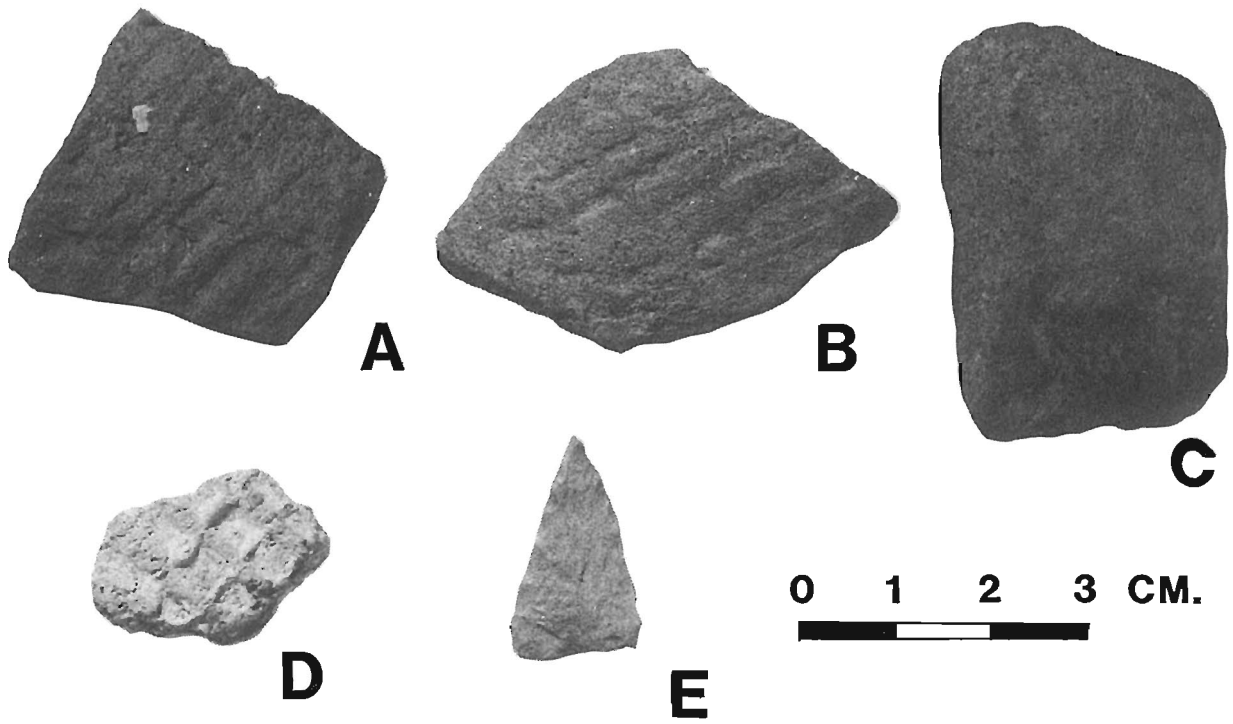


Figure 10. Artifacts from 38CH644. McClellanville/Santee Simple Stamped; B, McClellanville/Santee Dentate Stamped; C, McClellanville/Santee Plain; D, Deptford Check Stamped; E, Caraway projectile point.

surprising that these excavations identified a small quantity of nineteenth and early twentieth century materials. In all but one case the materials were found from Level 1.

A fragment of a "black" glass wine bottle was recovered from Level 2 of 125R105. A modern wire nail and an iron axe-wedge were found in 130R110. A clear glass tube fragment was found in 150R110. A metal trouser fastener, lead fishing weight, and fragment of unidentifiable iron were found in 150R110.

SUMMARY AND SYNTHESIS

The excavations at the Buck Hall Recreation site demonstrated that at least Mound C represents a late Early Woodland or, more likely, Middle Woodland sand burial mound. It also demonstrated that surrounding the mound were pockets of probable village or camp debris dating from approximately the same period. The work did not, nor was it intended to, determine the extent of the site or the variety of components which might be present.

This work is of special interest since it begins to remove at least some of mystery surrounding the supposed "absence" of burial mound ceremonialism along the northeastern South Carolina coast. Although a single site hardly fills the void along the coast from the Little River south to the Broad River, it at least suggests that similar features may be present elsewhere. It also suggests that these sites may be, at best, difficult to identify. In the heavily wooded Francis Marion forest the slight rise of 1 to 2 feet is virtually invisible. In areas of extensive cultivation these slight mounds would have been rapidly plowed away. Traditional cultural resource management surveys, using transects at 100 feet intervals might entirely miss the mounds, perhaps finding only a thin veneer of Middle Woodland shell midden.

Clearly a number of factors have caused sand burial mounds along this section of South Carolina's coast to go undocumented. While the loss of scientific data is always unfortunate, this situation is even more troubling. These mounds appear to bridge the portion of South Carolina's coast lying between the historic Muskhogean or Guale people to the south and the Siouan people to the north. The coast from the Wando River to the Little River has always been troubling for archaeologists (and linguists) since it seems to represent a area of mixture and diversity.

The identification and excavation of burial mound sites such as the one at Buck Hall has the potential to answer at least some of the ethnic-cultural questions raised by previous researchers. Many more biocultural studies have been conducted in Georgia and North Carolina than in South Carolina, so the identification of sites such as Buck Hall is of tremendous significance to the development of long-term research goals.

The work to the south, in Georgia and the southern coastal plain of South Carolina, reveals sand burial mounds constructed by Muskhogean ethnic cultural groups. These relatively large mounds, with grave goods and a combination of extended, bundle, and cremated burials, are replaced by very different burial contexts along the North Carolina coast, attributed to Siouan, Algonquian,

and Iroquoian groups.

The Buck Hall sites falls into an intermediate area, both geographically and culturally. Like the Siouan burial mounds and Algonquian ossuaries, the mound is not associated with any recognized *large* village area. Also like these more northern groups, those which built the Buck Hall mound chose not to include burial goods. The mound size is also considerably decreased from that typical of the Muskhogean groups to the south.

The very tentative evidence continues to support the concept of the northern South Carolina coast as representing an area of considerable cultural mixing and diversity. Just as the area between the Sioux and the Algonquians in North Carolina seems to represent a transitional zone, the Bulls Bay area of South Carolina also appears to document the transition between the Muskhogean groups to the south and the Siouan groups to the north.

If this is the case, and for now it must at least be considered as a viable approach, then we must also view with cautious skepticism the efforts of some researchers to conduct typological analyses relying exclusively on systems established along the southern coastal plain of South Carolina or Georgia.

While it may be that the ceramic sequence for the North Carolina and northeastern coast of South Carolina has, as one researcher suggests, "only partial developmental connections" (Cable 1991:40), this begs the question of what those developmental connections may be.

By refusing to accept the possibility that the northern coastal sequence is different than that of the central or southern sequences, or even that it may have "developmental connections" with other areas, a researcher is engaging in more than simply "parsimonious" behavior. The key to scientific understanding is building on previous research, not discounting it as unworthy of one's current intellectual consideration.

Investigations conducted at the Buck Hall Mound 8 years and 4 months after those reported in this study found no clear evidence of Feature 1 or the previously identified, albeit poorly preserved, bone remains (Poplin 1991).

While this can be explained in a variety of ways, it appears that the most viable explanations relates to soil chemical changes, perhaps as a result of the use of impermeable black polyethylene to cover the feature in 1983. The very limited research currently available has documented "some limited chemical changes . . . after 20 months of burial" at a site in California (Hester 1990:II-3).

This serves as a warning at two levels for other researchers. First, it clearly reveals the importance of being able to complete

excavations once they are begun. In the case of Mound C, it would have been appropriate to continue the excavations, removing the skeletal material using an emulation of polyvinyl acetate on the damp material.

Second, it begins to document that "time-honored" traditions of site stabilization, such as the use of polyethylene as a barrier, may damage, rather than preserve, some archaeological contexts. Hopefully, this will encourage additional research into the micro-environmental changes which may take place as a result of site burial so that better techniques can be developed.

These investigations, of course, cannot address the probability that other "mounds" at 38CH644 are the result of spoil being deposited during the construction of the sea wall along the Intra-coastal Waterway (Poplin 1991). Mound C, however, was carefully documented and provides clear evidence of artificial construction for the purpose of covering an ossuary pit.

From a management perspective, if this pit is no longer preserved, as indicated by more recent research, than it appears that the investigations at Mound C have exhausted its potential to contribute significant information. Consequently, our attention should be directed to identifying other sites which can yield well preserved information on the question of burial practices along the northern South Carolina coast.

SOURCES CITED

Anderson, David G.
1975 Inferences from Distributional Studies of Prehistoric Artifacts in the Coastal Plain of South Carolina. Southeastern Archaeological Conference Bulletin 18:180-194.

1979 Excavations at Four Fall Line Sites: The Southeastern Beltway Project. Commonwealth Associates, Inc., Jacksonville, Michigan. Submitted to the South Carolina Department of Highways and Public Transportation, Columbia.

1985 Middle Woodland Societies on the Lower South Atlantic Slope: A View from Georgia and South Carolina. Early Georgia 13:29-66.

Anderson, David G., Charles E. Cantley, and A. Lee Novick
1982 The Mattassee Lake Sites: Archaeological Investigations Along the Lower Santee River in the Coastal Plain of South Carolina. Commonwealth Associates, Inc., Jackson, Michigan. Submitted to National Park Service, Archaeological Services Branch, Atlanta.

Anderson, David G., David W. Stahle, and Malcolm K. Cleaveland
1991 Climate, History, and Prehistory Along the Savannah River. Paper presented at the 1991 Conference on South Carolina Archaeology, Columbia.

Anderson, David G. and Joseph Schuldenrein (editors)
1985 Prehistoric Human Ecology Along the Upper Savannah River: Excavations at the Rucker's Bottom, Abbeville and Bullard Site Groups. Commonwealth Associates, Inc., Jackson, Michigan. Submitted to National Park Service, Archaeological Services Branch, Atlanta.

Anderson, David G. and J.W. Joseph (editors)
1988 Prehistory and History Along the Upper Savannah River: Technical Synthesis of Cultural Resource Investigations, Richard B. Russell Multiple Resource Area. Garrow and Associates, Atlanta. Submitted to National Park Service, Interagency Archaeological Services, Atlanta.

Binford, Lewis R.
1968 Post-Pleistocene Adaptations. In New Perspectives in

Archaeology, edited by Sally R. Binford and Lewis R. Binford, pp. 313-341. Aldine, Chicago.

Blanton, Dennis B., Christopher T. Espenshade, and Paul E. Brockington, Jr.
1986 An Archaeological Study of 38SU83: A Yadkin Phase Site in the Upper Coastal Plain of South Carolina. Garrow and Associates, Atlanta. Submitted to South Carolina Department Highways and Public Transportation, Columbia.

Brooks, Mark, D.J. Colquhoun, J.G. Brown, and P.A. Stone
1989 Sea Level Change, Estuarine Development and Temporal Variability in Woodland Period Subsistence-Settlement Patterning on the Lower Coastal Plain of South Carolina. In Studies in South Carolina Archaeology, edited by Albert C. Goodyear and Glen T. Hanson, pp. 91-100. Anthropological Studies 9. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Brooks, Mark and Glen Hanson
1987 Late Archaic-Late Woodland Adaptive Stability and Change in the Steel Creek Watershed, South Carolina, draft. Ms. on file, Savannah River Archaeological Research Project, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Brooks, Mark and James D. Scurry
1978 An Intensive Archaeological Survey of Amoco Realty Property in Berkeley County, South Carolina with a Test of Two Subsistence-Settlement Hypotheses for the Prehistoric Period. Research Manuscript Series 147. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Brooks, Mark, Larry Lepionka, Ted A. Rathbun, and John Goldsborough, Jr.
1982 Preliminary Archaeological Investigations at the Callawassie Island Burial Mound (38BU19), Beaufort County, South Carolina. Research Manuscript Series 185. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Brooks, Mark, Peter A. Stone, Donald J. Colquhoun, Janice G. Brown, and Kathy B. Steel
1986 Geoarchaeological Research in the Coastal Plain Portion of the Savannah River Valley. Geoarchaeology 1:293-307.

Brown, Paul J.
1975 Coastal Morphology of South Carolina. Unpublished M.S. thesis, Department of Geology, University of South Carolina, Columbia.

Bullen, Ripley P. and H. Bruce Greene
1970 Stratigraphic Tests at Stalling's Island, Georgia. Florida Anthropologist 23:8-23.

Cable, John S.
1991 Archaeological Test Excavations on the Northeastern Perimeter of the Buck Hall Site (38CH644), Francis Marion National Forest, South Carolina. Technical Report 44. New South Associates, Stone Mountain, Georgia.

Caldwell, Joseph R.
1943 Cultural Relations of Four Indian Sites of the Georgia Coast. Unpublished Master's thesis, Department of Anthropology, University of Chicago, Chicago.

1958 Trend and Tradition in the Prehistory of the Eastern United States. Memoirs of the American Anthropological Association 88.

1971 Chronology of the Georgia Coast. Southeastern Archaeological Conference Bulletin 13:88-92.

Caldwell, Joseph R. and Catherine McCann
1940 Semi-Annual Report on the Excavations in Chatham County. Ms. on file, Chicora Foundation, Inc., Columbia.

Claassen, Cheryl
1986 Clam Seasonality. In Indian and Freedmen Occupation at the Fish Haul Site (38BU805), Beaufort County, South Carolina, edited by Michael Trinkley, pp. 323-327. Research Series 7. Chicora Foundation, Inc., Columbia.

Claflin, William H.
1931 The Stallings Island Mound, Columbia County, Georgia. Papers of the Peabody Museum of American Archaeology and Ethnology 14(1), Harvard University, Cambridge.

Coe, Joffre L.
1964 The Formative Cultures of the Carolina Piedmont. Transactions of the American Philosophical Society 54(5).

n.d. The Poole Site: Randolph County. Unpublished Ms. on file, Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

Coe, Joffre L., H. Trawick Ward, Martha Graham, Liane Navey, S. Homes Hogue, and Jack H. Wilson, Jr.
1982 Archaeological and Paleo-osteological Investigations at the Cold Morning Site, New Hanover County, North Carolina. Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

Colquhoun, Donald J.
1969 Geomorphology of the Lower Coastal Plain of South Carolina. Division of Geology, S.C. State Development Board, Columbia.

Conner, Cynthia
1985 Analysis of the Surface Sherd Collections from 38HR36, A Late Woodland Ossuary Site in Horry County, South Carolina. Ms. on file, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Cooke, C. Wythe
1936 Geology of the Coastal Plain of South Carolina. Bulletin 867. U.S. Geological Survey, Washington, D.C.

DePratter, Chester B.
1979 Ceramics. In The Anthropology of St. Catherines Island 2. The Refuge-Deptford Mortuary Complex, edited by David Hurst Thomas and Clark Spencer Larsen, pp. 109-132. Anthropological Papers 56(1). The American Museum of Natural History, New York.

Drucker, Lesley and Susan H. Jackson
1984 Shell in Motion: An Archaeological Study of the Minim Island National Register Site, Georgetown County, South Carolina. Carolina Archaeological Services, Columbia. Submitted to Charleston District, U.S. Army Corps of Engineers, Charleston, South Carolina.

Dye, David
1976 The Bilbo Site Revisited: Archaeological Investigations from Chatham County, Georgia. Unpublished Mater's thesis, Department of Geography and Anthropology, Louisiana State University, Baton Rouge.

Ellerbe, Clarence M.
1974 South Carolina Soils and Their Interpretations for Selected Uses. South Carolina Land Resources Conservation Commission, Columbia.

Espenshade, Christopher T. and Paul E. Brockington
1989 An Archaeological Study of the Minim Island Site:

Early Woodland Dynamics in Coastal South Carolina. Brockington and Associates, Atlanta. Submitted to U.S. Army Corps of Engineers, Charleston District, Charleston.

Fairbanks, Charles H.
1942 The Taxonomic Position of Stalling's Island, Georgia. American Antiquity 7:223-231.

Ferguson, Leland G.
1976 An Archaeological Survey of a Fall Line Creek: Cane Creek Project, Richland County, South Carolina. Research Manuscript Series 94. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Fowells, H.A.
1965 Silvics of Forest Trees of the United States. Agricultural Handbook No. 271. U.S.D.A., Forest Service, Washington, D.C.

Griffin, James B.
1943 An Analysis and Interpretation of the Ceramic Remains from Two Sites Near Beaufort, S.C. Bureau of American Ethnology Bulletin 133:159-167.

1945 Ceramic Collections from Two South Carolina Sites. Papers of the Michigan Academy of Sciences, Arts, and Letters 30:465-476.

Hanson, Glen T., Jr.
1982 The Analysis of Late Archaic-Early Woodland Adaptive Change Along the Middle Savannah River: A Proposed Study. South Carolina Institute of Archaeology and Anthropology Notebook 14:1-38.

Harris, Suzanne E. and Elizabeth Sheldon
1982 Ethnobotanical Analysis of Carbonized Plant Remains from the Mattassee Lake Sites (Cooper River Rediversion Project, Berkeley County, South Carolina). In The Mattassee Lake Sites: Archaeological Investigations Along the Lower Santee River in the Coastal Plain of South Carolina, edited by David G. Anderson, pp. 337-352. Commonwealth Associates, Inc., Jackson, Michigan. Submitted to National Park Service, Interagency Archaeological Service, Atlanta.

Hester, James J., editor
1990 Experiments on the Effects of Site Burial on Archaeological Materials. In The Archaeological Sites Protection and Preservation Notebook. Waterways Experiment Station, Corps of Engineers, Vicksburg,

Mississippi.

Hilliard, Sam B.
1984 Atlas of Antebellum Southern Agriculture. Louisiana State University Press, Baton Rouge.

Holmes, J.A.
1916 Indian Mounds of the Cape Fear. In Chronicles of the Cape Fear River, 1660-1916. James Sprunt, Raleigh.

Hyman, Suzanne
1983 Preliminary Inventory and Analysis of Skeletal Material from the Holiday Site. Ms. on file, Department of Anthropology, University of South Carolina, Columbia.

Kronberg, Nathan
1971 Climate. In Soil Survey of Charleston County, edited by E.N. Miller, Jr., pp. 72-74. U.S.D.A., Soil Conservation Service, Washington, D.C.

Kuchler, A.W.
1964 Potential Natural Vegetation of the Conterminous United States. Special Publication 36. American Geographical Society, New York.

Kurtz, Herman and Kenneth Wagner
1957 Tidal Marshes of the Gulf and Atlantic Coasts of Northern Florida and Charleston, South Carolina. Studies 24. Florida State University, Tallahassee.

Landers, H.
1970 Hilton Head and the Sea Islands of South Carolina. Climatography of the United States Number 21-383. Environmental Science Services Administration, U.S. Department of Commerce, Washington, DC.

Larsen, Clark Spencer and David Hurst Thomas
1982 The Anthropology of St. Catherines Island 4. The St. Catherines Phase Mortuary Complex. Anthropological Papers 57(4). The American Museum of Natural History, New York.

Lawrence, David
1986 Oysters from the Fish Haul Site. In Indian and Freedmen Occupation at the Fish Haul Site (38BU805), Beaufort County, South Carolina, edited by Michael Trinkley, pp. 328-333. Research Series 7. Chicora Foundation, Inc., Columbia.

Lawrence, David (editor)
1989 Studies of Southeastern United States Aboriginal Shell

Rings. 3 volumes. Department of Geology, University of South Carolina, Columbia.

Lepionka, Larry, Donald Colquhoun, Rochelle Marrinan, David McCollum, Mark Brooks, John Foss, William Abbott, and Ramona Grunden
1983 The Second Refuge Site, Location 22 (38JA61), Savannah National Wildlife Refuge, Jasper County, South Carolina. University of South Carolina, Beaufort. Submitted to National Park Service, Inter-agency Archaeological Services, Atlanta.

Loftfield, Thomas
1990 Ossuary Interments and Algonquian Expansion on the North Carolina Coast. Southeastern Archaeology 9:116-123.

MacCord, Howard A., Sr.
1966 The McLean Mound, Cumberland County, North Carolina. Southern Indian Studies 28:3-45.

Mathews, Thomas, Frank Stapor, Jr., Charles Richter, John Miglarese, Michael McKenzie, and Lee Barclay
1980 Ecological Characterization of the Sea Island Region of South Carolina and Georgia, volume 1. Office of Biological Services, United States Fish and Wildlife Service, Washington, D.C.

Michie, James L.
1979 The Bass Pond Dam Site: Intensive Archaeological Testing at a Formative Period Base Camp on Kiawah Island, South Carolina. Research Manuscript Series 154. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

1980 An Intensive Shoreline Survey of Archaeological Sites in Port Royal Sound and the Broad River Estuary, Beaufort County. Research Manuscript Series 167. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Milanich, Jerald T.
1971 The Deptford Phase: An Archaeological Reconstruction. Ph.D. dissertation, University of Florida. University Microfilms, Ann Arbor.

Milanich, Jerald T. and Charles H. Fairbanks
1980 Florida Archaeology. Academic Press, New York.

Miller, E.N., Jr.
1971 Soil Survey of Charleston County. U.S.D.A., Soil Conservation Service, Washington, D.C.

Moore, Clarence B.
1898 Certain Aboriginal Mounds of the Coast of South Carolina. Journal of the Philadelphia Academy of Natural Sciences 11:147-166.

Oliver, Billy L.
1981 The Piedmont Tradition: Refinement of the Savannah River Stemmed Point Type. Unpublished Master's thesis, Department of Anthropology, University of North Carolina, Chapel Hill.

Peabody, Charles
1910 The Exploration of Mounds in North Carolina. American Anthropologist 12:425-433.

Peterson, Drexel
1971 Time and Settlement in the Archaeology of Groton Plantation, South Carolina. Unpublished P.D. dissertation, Department of Anthropology, Harvard University, Cambridge.

Phelps, David S.
1983 Archaeology of the North Carolina Coast and Coastal Plain: Problems and Hypotheses. In The Prehistory of North Carolina: An Archaeological Symposium, edited by Mark A. Mathis and Jeffrey J. Crow, pp. 1-51. North Carolina Division of Archives and History, Raleigh.

1984 Archaeology of the Tillett Site: The First Fishing Community at Wanchese, Roanoke Island. Archaeological Research Report 6. East Carolina University, Greenville, North Carolina.

Poplin, Eric C.
1991 Excavations and Testing at the Buck Hall Site 38CH644, Wambaw Ranger District, Francis Marion National Forest, South Carolina. Management Summary. Brockington and Associates, Atlanta.

Rathbun, Ted A.
1982 Human Remains from 38BU19. In Preliminary Archaeological Investigations at the Callawassie Island Burial Mound (38BU19), Beaufort County, South Carolina, edited by Mark J. Brooks, Larry Lepionka, Ted A. Rathbun, and John Goldsborough, Jr., pp. 101-125. Research Manuscript Series 185. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

1989 South Carolina Human Remains as an Archaeological Resource: An Update. In Studies in South Carolina Archaeology, edited by Albert C. Goodyear and Glen T.

Hanson, pp. 1-18. Studies in Anthropology 9. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Roberts, Wayne D. and Olga M. Caballero
1988 Archaeological Test Excavations at Site 38BK984, Berkeley County, South Carolina. South Carolina Department of Highways and Public Transportation, Columbia.

Ryan, Thomas M.
1972 Archaeological Survey of the Columbia Zoological Park, Richland and Lexington Counties, South Carolina. Research Manuscript Series 37. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Sandifer, Paul A., John V. Miglarese, Dale R. Calder, John J. Manzi, and Lee A. Barclay
1980 Ecological Characterization of the Sea Island Coastal Region of South Carolina and Georgia, vol. 3. Office of Biological Services, Fish and Wildlife Service, Washington, DC.

Sassaman, Kenneth E., Jr.
1991 Economic and Social Contexts of Early Ceramic Technology in the American Southeast. Unpublished Ph.D. dissertation, Department of Anthropology, University of Massachusetts, Amherst.

Sassaman, Kenneth E., Mark J. Brooks, Glen T. Hanson, and David G. Anderson
1989 Technical Synthesis of Prehistoric Archaeological Investigations on the Savannah River Site, Aiken and Barnwell Counties, South Carolina. Draft ms. on file, Savannah River Archaeological Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Scurry, James and Mark Brooks
1980 An Intensive Archaeological Survey of the South Carolina State Ports Authority's Belleview Plantation, Charleston, South Carolina. Research Manuscript Series 157. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Simpkins, Dan and D. Scoville
1986 Isolation and Identification of Spanish Moss Fiber from a Sample of Stallings and Orange Series Ceramics. American Antiquity 51:102-117.

Smith, Richard L.
1974 The Archaic Period in the Central Savannah River Area: A Study of Cultural Continuity and Innovation. Ms. on file, Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

South, Stanley
1960 An Archaeological Survey of Southeastern North Carolina. Ms. on file, Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

1962 Exploratory Excavation of the McFayden Mound. Ms. on file, Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

Stoltman, James B.
1966 New Radiocarbon Dates for Southeastern Fiber-Tempered Pottery. American Antiquity 31:872-874.

1974 Groton Plantation: An Archaeological Study of a South Carolina Locality. Monographs of the Peabody Museum 1, Harvard University, Cambridge.

Stewart, T.D.
1966 Notes on the Human Bones Recovered from Burial in the McLean Mound, North Carolina. Southern Indian Studies 18:67-87.

Sutherland, Donald R.
1973 Preliminary Analysis of Ceramic Materials Recovered from the Spanish Mount site, Edisto Island, S.C. South Carolina Antiquities 5(2):46-50.

1974 Excavations at the Spanish Mount Shell Midden, Edisto Island, S.C. South Carolina Antiquities 6(1):25-36.

Thomas, David Hurst and Clark Spencer Larsen
1979 The Anthropology of St. Catherines Island 2. The Refuge-Deptford Mortuary Complex. Anthropological Papers 56(1). The American Museum of Natural History, New York.

Trinkley, Michael
1974 Report of Archaeological Testing at the Love Site ($SoC^{v}240$), South Carolina. Southern Indian Studies 25:1-18.

1976 Paleoethnobotanical Remains from Archaic-Woodland Transitional Middens Along the South Carolina Coast. Southeastern Archaeological Conference Bulletin 19:64-67.

1978 Archaeological Investigations in the Vicinity of the S-84 Bridge Replacement, Bamburg County, South Carolina. South Carolina Department of Highways and Public Transportation, Columbia.

1980a Investigation of the Woodland Period Along the South Carolina Coast. Ph.D. dissertation, University of North Carolina at Chapel Hill. University Microfilms, Ann Arbor.

1980b A Typology of Thom's Creek Pottery for the South Carolina Coast. South Carolina Antiquities 12(1):1-35.

1980c Additional Investigations at Site 38LX5. South Carolina Department of Highways and Public Transportation, Columbia.

1981a Archaeological Testing of the Walnut Grove Shell Midden (38CH260), Charleston County. U.S.D.A., Forest Service, Columbia.

1981b Studies of Three Woodland Period Sites in Beaufort County, South Carolina. South Carolina Department of Highways and Public Transportation, Columbia.

1982 A Summary Report of the Excavations at Alligator Creek, Charleston County, South Carolina. U.S.D.A., Forest Service, Columbia.

1983 Ceramics of the Central South Carolina Coast. South Carolina Antiquities 15:43-53.

1984 The Archaeology of Sol Legare Island, Charleston County, South Carolina. Research Series 1. Chicora Foundation, Inc., Columbia.

1985 The Form and Function of South Carolina's Early Woodland Shell Rings. In Structure and Process in Southeastern Archaeology, edited by Roy S. Dickens, Jr. and H. Trawick Ward, p. 102-118. University of Alabama Press, University, Alabama.

1990 The Second Phase of Archaeological Survey on Spring Island, Beaufort County, South Carolina: Investigation of Prehistoric and Historic Settlement Patterns on an Isolated Sea Island. Research Series 20. Chicora Foundation, Inc., Columbia.

Trinkley, Michael (editor)
1986 Indian and Freedmen Occupation at the Fish Haul Site (38BU805), Beaufort County, South Carolina. Research Series 7. Chicora Foundation, Inc., Columbia.

1991 Further Investigations of Prehistoric and Historic Lifeways on Callawassie and Spring Islands, Beaufort County, South Carolina. Research Series 23. Chicora Foundation, Inc., Columbia.

Ward, H. Trawick
1978 The Archaeology of Whites Creek, Marlboro County, South Carolina. Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

1983 Whites Creek: The Second Time Around. South Carolina Antiquities 15:63-66.

Watts, W.A.
1979 A Pollen-Analytical Study of White Pond, Elgin, Near Columbia. In An Archaeological Survey of the U.S. 151 Widening. Ms. on file, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Williams, G. Ishmael
1980 An Initial Investigation of the Archaeological and Historic Resources Which Would Be Affected by the Continued Operation and Maintenance of the Atlantic Intracoastal Waterway, Little River to Port Royal Sound, South Carolina. Soils Systems, Inc., Marietta, Georgia.

Williams, Stephen B. (editor)
1968 The Waring Papers: The Collected Works of Antonio J. Waring, Jr. Papers of the Peabody Museum of Archaeology and Ethnology 58.

Wilson, Homes Hogue
1982 An Analysis of Skeletal Material from Bw°67, Brunswick County, North Carolina. Unpublished Master's thesis, Department of Anthropology, University of North Carolina, Chapel Hill.

Wood, W. Dean (editor)
1986 Prehistory in the Richard B. Russell Reservoir: The Archaic and Woodland Periods of the Upper Savannah River. Southeastern Wildlife Services, Inc., Athens. Submitted to Interagency Archaeological Services, National Park Service, Atlanta.

Wright, H.E., Jr.
n.d. Environmental Change and the Origin of Agriculture in the Old and New Worlds. Ms. on file, Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.

Archaeological Investigations

Historical Research

Preservation

Education

Interpretation

Heritage Marketing

Museum Support Programs

Chicora Foundation, Inc.
PO Box 8664 ▪ 861 Arbutus Drive
Columbia, SC 29202-8664
Tel: 803-787-6910
Fax: 803-787-6910
www.chicora.org