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HISTORIC PERIOD INDIAN ARCHAEOLOGY OF THE GEORGIA COASTAL ZONE

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HISTORIC INDIAN PERIOD ARCHAEOLOGY OF THE GEORGIA COASTAL ZONE

By

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I. OBJECTIVE

This monograph attempts to synthesize what is known about the early period of European-Native American contact along the Georgia coast. Relevant data from both historical and archaeological sources are combined into a research design calculated to provide useful guidelines for the sensible management of cultural resources in this area. This monograph is one of three dozen operating plans for the State of Georgia, and conforms with the general policies set out by Crook (1985).

The first self-conscious use of the term "research design" in archaeology can be attributed to Lewis Binford. Published a quarter-century ago, Binford's "A Consideration of Archaeological Research Design" (1964) enunciated the basics of contemporary research strategy: a decidedly regional perspective, an emphasis on problem orientation, an explicit call for bounded, probabilistic approaches to sampling, an appreciation of collecting "ecofactual" (i.e., paleoenvironmental) data as a critical step in all archaeological research, and the recognition that on-going analysis must remain an integral part of all archaeological fieldwork.

Although Binford's seminal statement provided the baseline for contemporary research design, it remained for the Airlie House Report (McGimsey and Davis 1977) to translate and clarify the elements of solid research design into an explicit Cultural Resource Management context. The Airlie House conferees identified four key elements in the design of archaeological research:

- I. Statement of Perspective
- II. Synthesis of the Existing Data Base
- III. Research Domains and Their Rationale
- IV. The Research Strategy

Recent archaeological research in the American Southeast has, to some degree, followed this structure of inquiry, and the Airlie House guidelines will be taken as a point of departure here. Specifically, this assessment will attempt to demonstrate how these four objectives, properly implemented, can provide the initial steps for the enlightened management of the historic-period archaeological resources of coastal Georgia.

II. STATEMENT OF PERSPECTIVE

Although the overarching theoretical perspective behind this *Research Design* will not be elaborated here, our views are readily available in several substantive research monographs (esp. Thomas et al. 1978 and Thomas 1987) and three textbooks (Thomas 1974, 1979, and esp. 1989). We will not attempt to summarize the arguments presented in the 2000 plus pages referenced above. But we do think it important to reiterate four key points that reflect our theoretical bias:

Bias 1: Contemporary archaeology has three sequential and complementary objectives -- to construct cultural chronology, to reconstruct past lifeways, and to explicate cultural processes. Each objective requires a specific research strategy tailored to the immediate questions being asked.

Bias 2: The most critical step in any research strategy is to define workable linkages between contemporary theories of behavior and the archaeological record. Consideration of available "middle-range theory" is absolutely critical to enable a *Research Design* such as this to spell out precisely how general objectives are to be made operational in actual fieldwork.

Bias 3: Meaningful inquiry into extinct human lifeways must transcend a site-specific framework to operate at a regional scale. Moreover, such regional research must be conducted within a probabilistic framework. While hardly advocating universal rote "random sampling," we feel strongly that all operations must clearly specify the relationship between sample and target populations.

Bias 4: The only significant differences between historic-period and prehistoric archaeology exist at the tactical level; both fields follow identical research strategies.

Bias 5: Archaeologists must adopt an explicit and consistent conservation ethic toward the archaeological record -- even when archaeologists are the ones required to do the conserving.

Because these five principles permeate this discussion of the historic-period archaeology of coastal Georgia, each bias will be made specific at the outset.

BIAS I.

MODERN ARCHAEOLOGY PURSUES THREE HIERARCHICAL OBJECTIVES

Americanist archaeologists are a diverse lot. Whereas some earn their living as academics, most are now "applied archaeologists." Whereas many continue to excavate prehistoric sites, the rapidly expanding field of historical archaeology has now surpassed prehistoric archaeology in the scope and level of funding in parts of the country.

Despite this diversity, archaeologists in America share three fundamental, if widely misunderstood objectives. Archaeology's initial chronology-building -- the when and where of archaeology -- must proceed prior to more sophisticated inquiry about the past. But chronology is merely a stepping-stone toward more anthropologically relevant objectives; chronology cannot be viewed as an end in itself.

Archaeology's intermediate objective is to reconstruct extinct lifeways, to observe the anthropology of the dead. A lifeway encompasses all of the recoverable aspects of human existence: settlement pattern, population density, technology, economy, organization of domestic life, kinship, maintenance of law and order, social stratification, ritual, art, and religion. At the level of lifeway, the archaeologist's task is to reconstruct, as completely as possible, the human condition for a given culture at one point in time; this is paleoethnography.

Archaeology's ultimate objective is to elucidate the cultural processes that underlie human behavior, past and present. Investigating chronology and lifeway is a particularistic enterprise: particular artifacts from particular cultures that performed at particular times in particular places. The ultimate objective of archaeology is to expose underlying regularities that are both timeless and spaceless. Doing so requires that the archaeologist rise above the particulars of the past. Because these processes are unconnected to time or space, scholars seek all plausible scraps of relevant information -- be it archaeological or sociological or economic or whatever. Archaeologists operating at the processual level cannot be shackled to any single source of information, archaeological or otherwise. This is why the ultimate goal of all archaeologists must be to cease doing just archaeology.

BIAS 2. THE IMPORTANCE OF MIDDLE-RANGE RESEARCH

Archaeologists are increasingly aware of how little they know about how their sites were formed. A series of on-going research programs is attempting to fill this void. By conducting so-called middle-range research, archaeologists are generating the bridging arguments necessary to interpret the past -- through ethnoarchaeology, experimental archaeology, and historical documentation.

The "facts" of archaeology are incapable of speaking for themselves; it is therefore necessary for archaeologists to employ bridging arguments to breathe behavioral life into the objects of the past, which have actually existed in two discrete contexts. The artifacts, features, and residues without which archaeologists could not work were once related to an ongoing behavioral system; while these artifacts were being manufactured and used, they existed in their systemic contexts. But by the time they reach the hands of the archaeologist, the objects have ceased to participate in their behavior system and have passed into archaeological contexts.

The formation of archaeological sites involves four basic processes: cultural deposition, reclamation, disturbance, and reuse. Each process has certain regularities, but archaeologists are only beginning to understand the complex mechanisms involved. One way to supply these bridging arguments between archaeological and systemic contexts is to study first hand the workings of ongoing societies. As contradictory as it may seem, a number of archaeologists -- the ethnoarchaeologists -- spend their time studying living societies, observing artifacts, features, and residues while they still exist in their systemic contexts. To date, ethnoarchaeological studies have examined, among other things, the processes determining settlement pattern and intrasite patterning, the reality of the tool-kit concept, the mechanisms of artifact curation and reuse, and the social correlates of stone-tool manufacture and use. Ethnoarchaeologists are also examining the relationship of material culture to modern industrial society.

Archaeological formation processes are also currently being defined by experimental archaeologists. Although sharing a primary interest in middle-range theory, ethnoarchaeologists work within a functioning behavior system, whereas experimental

archaeologists attempt to derive relevant processes through experimental replication. Much of this initial experimental work has concentrated on the manufacture and use of stone tools, although archaeologists are currently experimenting on a wide range of problems including tool efficiency, processes of site destruction and preservation, and methods of ceramic manufacture. Thor Heyerdahl's epic trans-Atlantic and trans-Pacific voyages can even be considered to be a variety of experimental archaeology.

BIAS 3.

EFFECTIVE ARCHAEOLOGY MUST PROCEED AT THE REGIONAL LEVEL

The regional approach has become a major theme in American archaeology in the last four decades or so. Focusing on the relationships between people and the land, settlement pattern archaeology transcends the single site in order to determine the overarching relationships between the various contemporary site types employed by societies. The regional approach thus precludes the taking of single sites as somehow "typical" or "normal" for a culture. Instead, emphasis is upon variability between sites within the settlement pattern. Nonstratified -- "surface" and plowzone -- sites are often critical to the regional approach, and a number of probability-based sampling designs are currently being employed to minimize bias in recovering settlement pattern data.

BIAS 4.

THE PRIMARY DIFFERENCE BETWEEN HISTORIC-PERIOD AND PREHISTORIC ARCHAEOLOGY IS TACTICAL, NOT STRATEGIC

One source of contemporary confusion has been the relationship between the sometimes separate fields of historical archaeology and prehistoric archaeology. Despite its early beginnings, the discipline of historical archaeology did not gain formal status until the mid-1960s, when the field entered what some have called its "crisis of identity," vestiges of which remain visible today.

Americanist historic archaeology began in the 1940s and 1950s, with concerted efforts on a very few selected sites, particularly houses of the rich and famous, forts, and other military sites; Colonial Williamsburg served as a model for this early-stage historical archaeology. The initial research there was largely in the hands of architectural historians, with little attention paid to the middens and lesser structures. However, as historic documents were exhausted for clues to dating, historic archaeologists generally followed their prehistoric colleagues in developing independent, artifact-based methods for dating sites and components.

Today, most historical archaeologists follow an anthropological perspective. Viewed on this broader scale, historical archaeology has potential access to the entire range of human behavior: spoken word, written word, preserved behavior, and observed behavior (Schuyler 1977). There can be little doubt that historical archaeology is today viewed by most practitioners as a subdiscipline of anthropology (a good thing, since most contemporary historical archaeologists received the bulk of their training in Departments of Anthropology). But historic archaeology remains to some extent differentiated from its prehistoric counterpart because of the important alignment with non-anthropological disciplines, particularly history per se and architecture.

Although a profusion of definitions still exist, we follow Kathleen Deagan's (1982:153) succinct definition "[historical archaeology is] ... the study of human behavior through material remains, for which written history in some way affects its interpretation."

Mainstream historical archaeology tends to de-emphasize what Noël Hume (1969:10) termed a "Barnum and Bailey" emphasis on the "oldest," "largest," and "most historically significant" site, looking instead toward reconstructing lifeways in the entire social context, whether presently viewed as "historical" or not. This emphasis on "backyard archaeology" (Fairbanks 1977) has naturally led historical archaeologists into the anthropological camp, where they make basic contributions -- with their prehistoric archaeological colleagues -- toward an understanding of paleoethnography. One particularly important direction of the "reconstructionist" school has been the focus on so-called "historically disenfranchised groups" in our own culture, the so-called "archaeology of the inarticulate," attempting to uncover the archaeological roots of American Black culture, Asian-American culture, Native Americans during the historic period, and Hispanic-American Creoles.

One particularly effective thrust of processual research in historical archaeology has been the study of acculturation, emphasizing trading relations, religious conversion, and intermarriage. In one sense, historical archaeologists have an advantage here, since they can enhance their shovel work with documentary records: in many cases, the effects of ethnic affiliation, income, religion, occupation, family composition, economic network, and political restrictions can be taken as givens and need not be inferred directly from the archaeological record. In this *Research Design*, we will explore several cases in which historical archaeologists are pursuing such timeless, spaceless (processual) questions.

BIAS 5. ARCHAEOLOGY'S CONSERVATION ETHIC

When C. B. Moore worked on the Georgia coast in the late 19th century, he (and his colleagues) simply blasted away at their sites, leaving ruined ruins in their wake. To archaeologists in the mid-20th century, one of the greatest technological revolutions was the advent of the backhoe as a tool of excavation. Americanist archaeology today views its sites in a radically different manner.

Part of this new conservation ethic reflects the definition of archaeological remains as nonrenewable resources. But equally important has been the development of noninvasive technology for doing relatively nondestructive archaeology. Using the archaeological equivalents of CATSCAN and ultrasound, archaeologists can now map subsurface features in detail -- without ever excavating them. And, when it becomes necessary to recover samples, we can, like the orthopedic surgeon, execute pin-point excavations, minimizing damage to the rest of the site.

Generations of archaeologists have longed for some metaphysical method of peering beneath the earth's surface, a way of learning from archaeological sites without actually having to dig them. As Lewis Binford once put it: "ideally, we should have an X-ray machine which would allow us to locate and formally evaluate the range of variation manifest in cultural features" (1964:155).

Recently, Binford's elusive X-ray machine has been actualized in a series of increasingly sophisticated remote sensing contrivances. This new technology, when appropriately integrated with solid, traditional archaeological objectives, can indeed tell us -- prior to excavation -- where the sites are, what they contain, and how these parts are articulated.

The term "remote sensing" is, in its strictest usage, limited to various applications of photogrammetry, but in contemporary archaeology, remote sensing has come to embrace the

total array of techniques employed in geophysical observation: not only visual and infrared aerial sensing, but also a broad range of chemical and geophysical techniques -- especially magnetometry, resistivity, ground-penetrating radar, and even differential heat analysis (Benner and Brodkey 1984). Most of these techniques were designed initially to measure geophysical features on the scale of several yards or even miles. Yet to be most effective in archaeology, such operations must be scaled down to the order of inches and feet (Weymouth 1986:313; see also Weymouth and Huggins 1985; Thomas 1987).

Geophysical technology has, to date, been used mostly for defining structure within archaeological sites, being considered too costly and/or time consuming to help in the initial discovery of such sites. But today, thoughtful strategies of archaeological research can probably render geophysical prospection useful for site discovery as well.

The promise of remote sensing is awesome. But its full potential will be realized only as archaeologists transcend the seductive gadgetry to integrate this technology into mainstream archaeology in places like the Georgia coast.

III. THE COASTAL ZONE ENVIRONMENT

This account of coastal Georgia geology and ecology has been summarized from these sources: DePratter and Howard (1977, 1980) Emery et al. (1968), Griffin and Henry (1984), Hails and Hoyt (1969), Henry et al. (1973), Hoyt and Hails (1967), Hoyt et al. 1968; Teal and Teal (1964); Thomas et al. (1978).

The Georgia coast forms part of the Atlantic Coastal Plain Province (Thornbury 1965), which is defined by a series of short, relatively wide barrier islands separated by deep tidal inlets (figure 1). The climate of coastal Georgia is characterized by short, mild winters and warm, humid summers. The average temperature recorded on Sapelo Island is 66.2° F, with an average rainfall of 48 inches (National Climatic Center, 1977-1981). The barrier island interiors are forested primarily by oak, pine, and palmetto. Along inlet margins and the often wide sandy beaches, a variety of dune grasses and shrubs thrives, including sea oats (*Uniola paniculata*), sea croton (*Croton punctatus*), and salt meadow grass (*Spartina patens*). Marsh vegetation consists mainly of smooth cordgrass (*Spartina alterniflora*), ringed by black needlerush (*Juncus roemerianus*), spiked saltgrass (*Distichlis spicata*), and glassworts (*Salicornia sp.*) in the higher reaches. For a more detailed discussion of Georgia coastal ecology, the interested reader should consult Crook (1986), companion volume to the present monograph.

PHYSICAL GEOGRAPHY AND GEOLOGY

These Sea Islands -- commonly known as *Georgia's Golden Isles* -- are of diverse geological origins. Many of the forested islands are remnants of ancient barrier islands formed during a period of higher sea level, whereas others were separated from the larger islands by subsequent erosion. Some of the smaller islands were created by ballast dumped from ships. More recent channel dredging by the Corps of Engineers has also significantly changed the marshland configuration. Extensive shoal systems exist seaward of the inlets and the central island sectors.

Holocene dune ridges may exceed 40 feet in height, but the barrier islands are generally characterized by low elevations, ranging between 15-25 feet above mean sea level. A dune ridge typically runs parallel to the shoreline immediately landward of the high spring tide level. Storm surges tend to erode the seaward side of the dunes, removing irregularities; the landward side of the ridge is less regular, and may be characterized by washover fans behind breaches in the dune ridges. Multiple dune-ridges may occur, spaced at intervals ranging from a few to several hundred meters, each ridge recording the position of the shoreline during the time of formation.

Six of Georgia's eight major barrier islands are composites of a Pleistocene-age core of beach and dune deposits (created during a sea level still-stand), fronted by analogous deposits, which were created as the sea levels rose during Holocene times. These Pleistocene and Holocene dune formations are similar in texture, although in other respects they differ. Surficial Pleistocene deposits generally have well-developed podzols and humate zones containing coarse-grained sands. Shallow marine and estuarine fossils and sedimentary structures occur beneath the soil zone. On the other hand, sand deposited during Holocene times is light tan, unweathered, and composed mainly of fine, well-sorted, angular grains; shell deposits are abundant at mid-beach. A well-defined beach and dune-ridge complex lacking clear-cut soil zones also characterizes Holocene deposits.

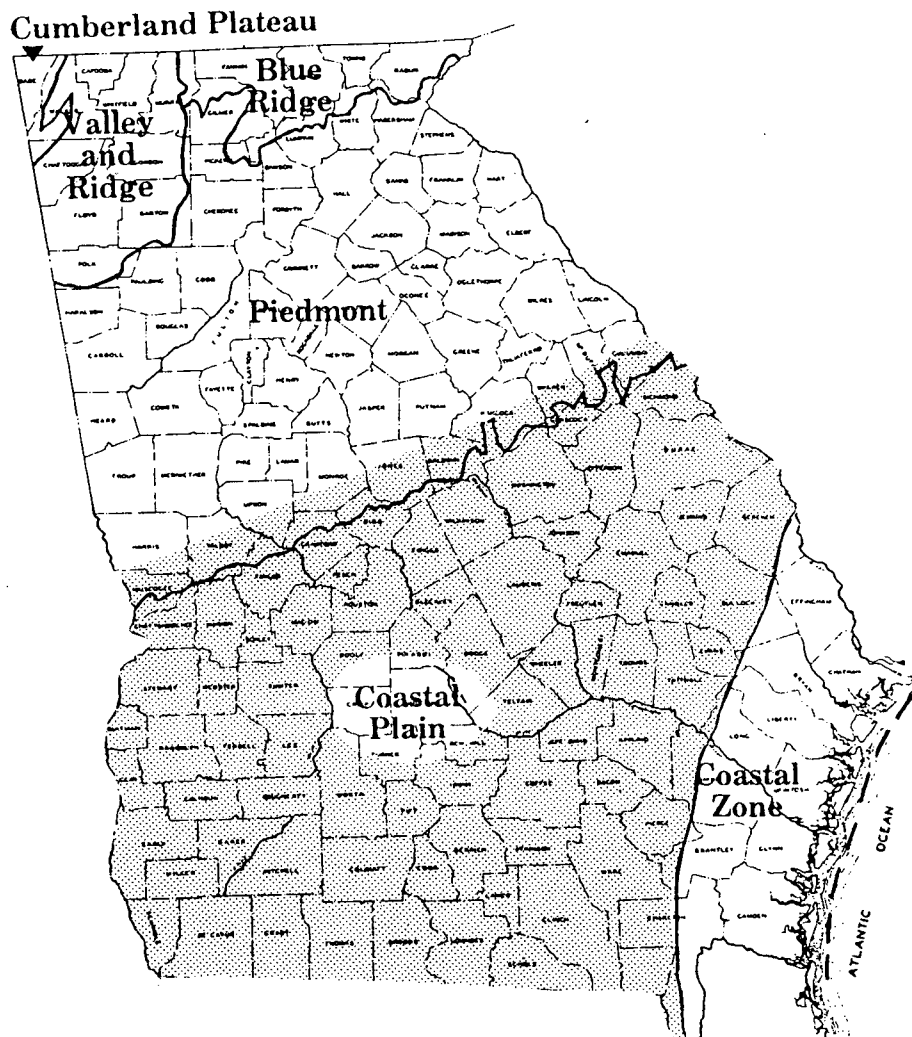


Figure 1. Physiographic divisions of Georgia.

In contrast to this general pattern, Tybee and Wassaw Islands are separated from Wilmington and Skidaway Islands, their respective Pleistocene counterparts, by earlier Holocene deltaic outbuilding of the Savannah River. A genetically similar, but smaller separation can be found immediately south of the Altamaha River, where Sea Island and Little St. Simons are the Holocene components of St. Simons Island. The Pleistocene-age salt marshes were reflooded during the Holocene rise in sea level, creating complicated systems involving tidal streams, creeks, and marshes separating the barrier islands from the mainland.

GEOLOGIC HISTORY

Roughly 50,000 B.P., the worldwide sea level was about 5 feet above present levels. The resulting waves, currents, and other depositional processes created a series of beaches along the eastern coast of the United States from Cape Cod to southern Florida. Behind the dunes, rising seas flooded a narrow strip of Coastal Plain creating a series of lagoons. Island formation began along the southeast coast when sand accumulations filled these lagoons. The term Silver Bluff designates the period during the Late Pleistocene when these barrier islands formed.

About 25,000 years ago, the growth of the Late Pleistocene continental glaciers resulted in a world-wide lowering of sea-level. During the next several thousand years, the Pleistocene islands, associated salt marshes, and about 80 miles of the continental shelf to the east were left high and dry as the sea retreated. Rivers extended their courses across this newly exposed shelf, creating deeply incised stream channels. The barrier islands and salt marsh deposits were exposed to subaerial weathering and erosion for the next 15,000 to 20,000 years. During the terminal phase of the Pleistocene, sea-levels stabilized some 340-400 feet below present levels.

The Holocene began about 18,000 years ago, characterized by the worldwide retreat of continental ice sheets. As the shorelines began to advance across the Pleistocene Coastal Plain, stream courses shortened, and gradients decreased. Flood plain and deltaic deposits covered extensive areas as streams lost their ability to carry large volumes. The sea inundated thousands of square miles of land, and mixed sediments of marine, estuarine, and terrestrial origin were deposited on the continental shelf.

About 5000 years ago, sea-levels ceased rising and Georgia's barrier islands were formed. The Holocene parts of these islands were created by the same processes responsible for the Pleistocene components, albeit at a slightly lower sea-level stand. Younger materials accumulated on, and slightly seaward of, the eroded remnants of the Pleistocene Islands and salt marshes, ultimately creating the Holocene barrier island system evident today.

IV. THE GUALE: ABORIGINAL PEOPLE OF THE GEORGIA COAST

The Guale were among the first indigenous peoples met by Europeans exploring north of Mexico. After brief contact with the Spanish in 1526, this Muskogean-speaking group later encountered the French in 1562-1563. Then, beginning in 1566, the Guale were exposed to a long and intensive period of Spanish colonization. By 1684, the gradual withdrawal of the Spanish to the south and the correlative expansion of the Carolina colony southward fostered relocation and reorganization of the vastly reduced Guale population. The most important sources addressing the nature of Guale coastal adaptations include Swanton (1922, 1946), Sturtevant (1962), Larson (1969, 1978, 1980), Jones (1978); see also Crook (1986), C. Jones (1873), Jones (1980), Crawford (1975), and Larsen (1982). What follows is a synthesis of the most important aspects of Guale Indian lifeways.

PATTERNS OF GUALE SUBSISTENCE

Guale settlements occurred mostly within Larson's (1980) Coastal Sector environmental zone. According to Larson's interpretation, aboriginal populations during the prehistoric period were concentrated almost entirely within the Lagoon and Marsh section. This area is characterized by a broad variety of floral and faunal resources, the most important of which, for aboriginal subsistence, included the hardwood forest (on high ground), molluscs and fish in the aquatic range, a variety of birds and, of course, the white-tailed deer. The Strand and Delta sections were thought to have insufficient resources to attract a large or stable aboriginal population. The interior Pine Barrens Sector was likewise considered to have little value to aboriginal populations beyond seasonal utilization of the floodplain for fishing and perhaps occasional agricultural exploitation.

The contact-period Guale Indians followed a similar settlement pattern, except that permanent populations were located along the banks of major rivers, these enclaves extending beyond the bounds of estuarine saline water and into the Pine Barrens Sector proper. Relatively little is known about specific locations of Guale communities, although the available evidence strongly suggests that such settlements occurred in a wide variety of microenvironments. Approximate boundaries of the various Guale chiefdoms suggest that due to the ecological variability evident within and between chiefdoms, considerable potential existed for exchange of resources, both wild and cultivated. Not only was this variability associated with the efficient distribution of communities across microenvironments, but the development of political institutions also served to redistribute important resources and products across various communities.

The Guale planted maize, beans, and varieties of squash and melons. Little is known about their agricultural technology or the specific distribution of planted fields relative to soil types or botanical features. Although the ethnohistorical sources are silent on the subject, investigators have long assumed that a form of swidden agriculture was employed, utilizing a series of fallow cycles. Clearly, production of maize was sufficient to last in storage from the late summer harvest through at least April, when planting began anew. One 17th century English account (Hilton 1911) suggested that more than one crop could be harvested each year.

Maize was parched and ground into flour. Both a drink and a form of flat, round cake were prepared from the flour (San Miguel 1902). How other crops were prepared is unknown. In the fall, the Guale gathered acorns, which were stored and ground into large

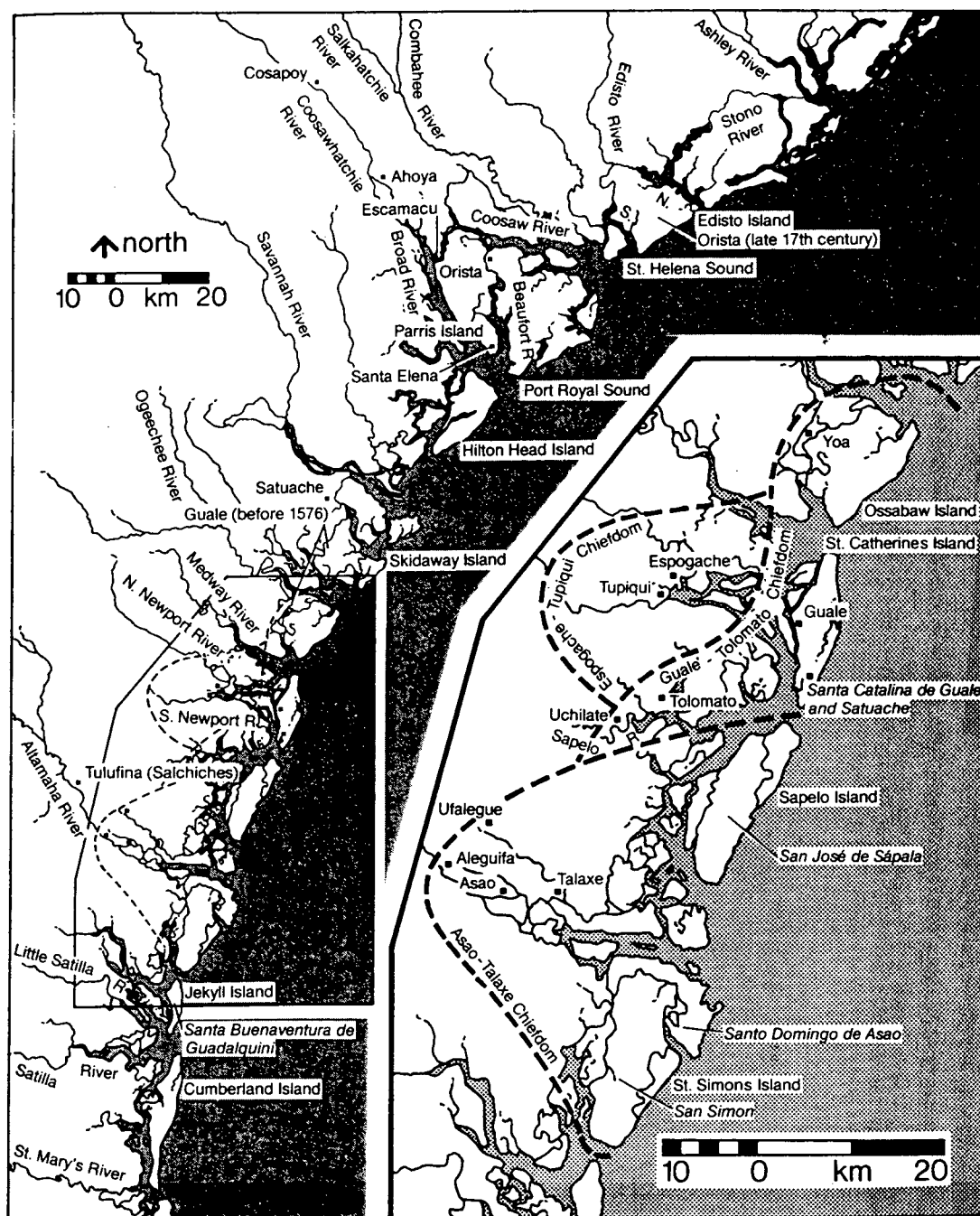


Figure 2. Approximate locations of Spanish period towns and settlements along the 16th/17th-century Gualé Coast. Dashed line denotes approximate boundaries of southern chiefdoms (after Jones 1978, figure 17).

flat cakes (similar to those made from maize). Later sources (Hilton 1911; Carteret 1911) report that "root cakes" were also prepared. Hickory nuts were also consumed.

Oyster beds occurred throughout Guale territory, and oysters seem to have been an important dietary item, particularly to offset failure of agricultural crops and wild foodstuffs. During the colonial period, shellfish collecting provided insurance against Spanish threats against maize supplies. Deer were commonly hunted, and their skins were important for clothing and trade. Bears and wild turkeys were also taken.

Reliable evidence regarding Guale settlement pattern is difficult to obtain from the documentary sources. Perhaps the following account of the town of Orista in 1666 can be applied to most Guale towns:

The Towne is scituate on the side or rather in the skirts of a faire forrest, in which at several distances are diverse fields of maiz with many little houses straglingly amongst them for the habitations of the particular families (Sandford 1911)

This and other accounts suggests a "dispersed town" settlement pattern, with horticultural plots and residences scattered in the vicinity of the town center.

Guale settlements were probably located mostly along the banks of rivers or tidal creeks, apparently situated along ecotone margins to enhance exploitation of multiple microenvironments. The maize plots would have been located behind the town center itself, opposite the river or creek banks. Local differences in productivity of shellfishing, hunting, and horticulture may also have fostered some degree of economic specialization, enhancing the need for an organized system of inter-community exchange. Although most Guale apparently maintained permanent residence in a single community, some Guale seem to have shifted their winter residence to be near areas for hunting, fishing, or shellfish collection. People were also temporarily absent from their communities while collecting wood, hunting, or fishing.

The Guale were thus town dwellers in a sense different from the modern one. Such "towns" were not so much specific places as a discrete group of people governed by consensus, fully capable of changing locality, building new shelters, and planting fields in one place after another. The town of Santa Catalina de Guale, the onetime capital of Guale Province, is a case in point. Bushnell (in press) has recently traced this town to at least seven known sites between 1564 and 1728.

SOCIOPOLITICAL ORGANIZATION

During the contact-period, the Guale were aligned into a number of well-organized, politically stratified chiefdoms. Although boundaries and membership of these chiefdoms shifted in response to changing external politics, three principal chiefdoms existed throughout the period between initial European contact and the early 17th century (figure 2). Each chiefdom had two principal towns in which the leader and some family members and retainers lived. The town centers included a large, round, community building in which periodic councils and inter-community feasts were held. The ritual chunky game, common to many Southeastern aboriginal groups, was performed with poles and a disk-shaped stone in a playing ground adjacent to the community buildings (San Miguel 1902; Sandford 1911; Hudson 1976).

Primary leadership of each chiefdom was rotated between the two principal towns. The principal leader of a chiefdom was known as the *mico*. Some Spanish reports define another office, the *mico mayor*, suggesting that these were two hierarchically related officers, each of whom lived in one of the two principal towns. A leadership council was comprised of the two primary individuals, plus a number of leaders of secondary importance (often termed *caciques* and *principales* in the Spanish sources). *Micos* were commonly accompanied by other important, titled leaders (variously termed *mandador*, *aliagita*, *tunaque*, and *heredero* [or heir to the *mico*]). The roles and duties of the latter are poorly known, although they may have also resided in the principal towns.

The principal leaders were probably the heads of clans, in which descent was traced matrilineally. Positions of authority were commonly inherited by one's younger brother, sister's son, or (in later years), by a sister's daughter. During the 17th century, female leaders became increasingly common, perhaps because of the effects of repeated epidemics, reduced participation of males in mission communities, and a Spanish policy requiring men to participate in extensive labor projects, in St. Augustine and elsewhere. At times, Franciscans opposed the principle of matrilineal succession, but their more vocal opposition centered on the common practice of polygyny. Male leaders often had multiple wives, each of whom resided in a separate house; the wives were sometimes sisters. The friars' attempt to abolish polygyny and disrupt traditional lines of succession were major factors in the revolt of 1597.

Because the Guale settlement pattern fostered some degree of economic specialization between communities, chiefdom organization became a primary means of integrating the regional economy. Chiefs served as collectors and redistributors of food and other products. The most common mode of redistribution was the periodic ritual feast, in which items such as maize, fish, oysters, and acorns were lavished on guests. The Early French sources suggest that chiefs either owned substantial agricultural land, or at least maintained authority to collect tribute of maize for their own use, as well as for future distribution in the community feasts (Laudonnière 1975). Chiefs also compensated their supporters in military activities with valued items such as deer skins, shell money, and metal tools received in exchange with Europeans. Moreover, the Indians did not have endless stores to offer the French and Spanish intruders. Running dangerously short of supplies, Laudonnière was forced to offer his Indian hosts something more valuable than mirrors and hawk bells. He had to put his military technology at their disposal, at times taking sides in their internecine wars.

Archaeological evidence suggests that the Guale participated in an active, long-distance trade network with inland peoples (Larson 1980). The exchange involved mostly elite or nonessential goods, indicating that the Guale political hierarchy may have played a central role in regional as well as local trade. Unfortunately, the implications of such long-distance exchange are largely unknown.

V. HISTORY OF EUROPEAN-NATIVE AMERICAN CONTACTS ON THE GEORGIA COAST

The early European-Native American contacts along the Georgia coast have been discussed in several important sources, including Barcia (1951), Barrientos (1965), Bennett (1975), Bolton (1921, 1925), Bolton and Ross (1925), Bushnell (in press), Chatelain (1941), Connor (1927), Deagan (1985), DePratter et al. (1983), Elvas (1907), Fairbanks (1985), Fernández (1851, 1956), Hoffman (1984), Hudson et al. (1985), Jones (1978), Lopez de Gomara (1552), Laudonnière (1975), Martyr (n.d., 1530), Ribault (1964), Sturtevant (1962), Vargas Ugarte (1935), and Wenhold (1959); see also documents translated in Connor (1925, 1930), Quinn (1979), and Zubillaga (1941, 1946). The sketch that follows is abstracted from these sources, plus personal communications from Chester DePratter and Paul Hoffman.

THE FIRST EUROPEAN SETTLEMENT IN THE UNITED STATES

The first datable contact between the Spaniards and North America occurred in 1513, when Juan Ponce de Leon made a landfall on the upper east coast of peninsular Florida, upon which he bestowed the name Pascua Florida. This discovery, and another of unknown date (ca. 1515) by Pedro de Salazar at a higher, but unknown latitude, provided the knowledge that led Francisco Gordillo and Pedro de Quejo to sail from the Bahama Islands to the Santee River-Winyah Bay area in 1521. Gordillo's patron was Lucas Vásquez de Ayllón, Judge (*Oidor*) of the Royal Audiencia of Santo Domingo. This Spanish expedition contacted the South Carolina coast in 1521 in its successful quest for slaves (Martyr n.d.; Fernández 1959). The landing point was probably in Siouan territory, to the north of Guale (Swanton 1922).

A man descended from a distinguished Mozarabic family from Toledo, a veteran of the political struggles of early Hispaniola, and a wealthy sugar planter, rancher, and slave trader, Ayllón quickly followed up on this "discovery," obtaining a contract to further explore and eventually settle the new land (1523). In accordance with his contract, Ayllón sponsored a voyage by Quejo along the southeastern coast of the present U.S. in 1525 and then personally attempted to plant a colony of as many as 600 persons (including women and black slaves) at some point along the coast (1526). Ayllón first landed at the Jordan River (Santee River), but abandoned that site when no Indians were found in the vicinity. Using information derived from two voyages made southward along the coast during the weeks spent on banks of the Jordan, Ayllón moved his colony to San Miguel de Gualdape early in September, 1526. Ayllón's death and internal dissention brought the colony to an end within two months of its creation.

Spanish materials introduced to the Guale by the Ayllón colony were carried far inland by Indian traders, and were discovered there by members of the 1540 de Soto expedition (Elvas 1907). The Ayllón colony probably introduced the devastating European diseases that had decimated some of the interior groups also encountered by de Soto (Varner and Varner 1951).

WHERE IS SAN MIGUEL DE GUALDAPE?

Ayllón's voyages have received relatively little attention, in part because their landfall is the subject of several vague and often conflicting statements in the 16th century

sources. Modern scholarship reflects this situation. Until the 19th century, Ayllón's activities were known only from Peter Martyr's *Decades* (1530), Francisco Lopez de Lopez's *History of the Indies* (1552), and Antonio de Herrera y Tordesillas' *History of the Indies* (1603). Martyr mentioned only one voyage in any detail, that of 1521, and said that it had been to the latitudes of southern Spain. Lopez and Herrera spoke of two, one in 1521 and one in 1524 or 1526. Lopez gave a geography for the voyages that suggested that Ayllón's colony of 1526 had been at 32° North, the latitude of the Savannah River. Herrera stated that Gualdape and Guale were the same place, putting the colony of 1526 at or near Sapelo Sound, the center of the Guale nation during the late 16th century.

In the 19th century this apparent confusion of information increased as scholars began to make use of two new sources. One was the complete text of Fernández's *History of the Indies* (1851). Fernández was vague about San Miguel's location (it was not on any map, he said) but stated that it lay 40-45 leagues to the southwest of the site of the 1521 landing. Fernández did provide the only known history of the colony's brief existence, along with important notes on its general surroundings. Also discovered during the 19th century was the text of a lawsuit of 1526 that showed where Ayllón's explorers had been in 1521 and that he had sent out an exploring party in 1525. This material was misread by John G. Shea (1884) in a way that seemed to support the idea that Ayllón's landing in 1526, at a river called Jordan, was at a different place from the landing of 1521, at a river Shea said had been named San Juan Baptista. In fact, the land discovered in 1521 was named for San Juan. No name was given to the river in the act of taking possession. Finally, modern scholars became aware that the 1525 party's report was incorporated into Juan Vespucci's 1526 map, although correlating that map's geography with the physical reality of the coast remained a speculative enterprise.

This was the extent of sources used until 1979, when Hoffman noted that a recently published rutter by Alonso de Chaves (ca. 1533) contained the report of 1525, with other data that had to be from 1526, in a form that allowed an unraveling of the mystery of Ayllón's voyages.

Since the 1880s scholars have agreed that the discovery of 1521 was at 33o 20' North, the latitude recorded in the lawsuit of 1526. This places the discovery at the Santee River-Winyah Bay area. The location of the 1526 colony remains in dispute, with the literature embracing two major schools of interpretation and Hoffman's thesis.

The oldest school of thought is based on the work of the great 19th century Spanish scholar Martin Fernandez de Navarrete. Paul Quattlebaum, Samuel E. Morison, and most recently, Morison's one-time student, John Gordon, have followed Navarrete in arguing that the landfall of 1526 was at the Cape Fear River, whence the colonists marched down the coastal strand to Winyah Bay, where they were stopped by the bay. San Miguel de Gualdape was built on the shore of Winyah Bay. (Shea followed a variation of this but had the colonists going NORTH, to the site of Jamestown!).

The second school of interpretation consists of John R. Swanton and Carl O. Sauer, who argue that the 1526 landing occurred at the Santee River (or Winyah Bay) but that Ayllón's colony was further south. Swanton believed it was on the Savannah, the river on which he also believed de Soto's Cofitachequi lay (at Silver Bluff). While at Cofitachequi in 1540, de Soto's men found Spanish artifacts that caused them to surmise that the river that ran in front of the town was one on which Ayllón had settled fourteen years earlier. Further, Lopez's statements supported a location on the Savannah River.

Hoffman's thesis is a variation of the Swanton-Sauer school but is based on Chaves' materials, as well as the other archival and narrative sources used by earlier scholars. Taking

the Santee River as Ayllón's Jordan River and the Spanish nautical league of the early 16th century as equivalent to 3.1998 modern nautical miles, Hoffman laid out Chaves's distance and direction information on a modern 1:1,200,000 coastal chart and found that the calculated locations of various named geographic features coincide, within a small margin of error, with features actually on the coast. On the same map, and using the same assumptions, he has laid down Fernández's distances. The resulting map strongly suggests that San Miguel de Gualdape was at Sapelo Sound, Georgia, where Herrera says it was and where the Indian group known to the Spaniards as the Guale lived later in the 16th century (see Hoffman 1984).

As will be discussed subsequently, there is now independent archaeological evidence suggesting that at the time of the Ayllón entrada, the so-called "Savannah corridor" -- between Port Royal Sound and St. Catherines Island -- was virtually uninhabited. This new interpretation is critical in pinning down the whereabouts of San Miguel because although Ayllón would surely have encountered Native Americans north of Port Royal, the area immediately to the south was an uninhabitable frontier. Because Ayllón intended to trade with the Indians and convert them with missionaries, he would have been seeking such a concentration of native peoples. Going south from Winyah Bay, the first place he would have encountered this sort of concentration was around Sapelo Sound, exactly where the Chaves, Fernández, and Herrera materials place San Miguel de Gualdape.

In sum, Hoffman's thesis is that the 1526 colony landed at the Santee River-Winyah Bay area but soon abandoned it for a location further south, most likely at Sapelo Sound, the location of the historic Guale People. Although not without some problems (for example, what route did Ayllón and the land party follow south from the Santee River to Sapelo Sound?), this thesis fits well with the available documentary and archaeological evidence and with the aims of the expedition of 1526. Too, the thesis avoids such illogical ideas as that found in Fernández de Navarrete's Cape Fear-Winyah Bay thesis, which has the same pilot who made the discovery in 1521, and returned to that "river" in 1525, but was unable to find it again in 1526.

One of greatest challenges posed by the archaeology of the Georgia coast is to search for the site of San Miguel. Concrete suggestions about how to look for San Miguel are explored in the final section of this *Research Design*.

JEAN RIBAUT

A group of French Huguenots under Jean Ribault established the colony of Charlesfort on Parris Island in Port Royal in 1562. They described several chiefdoms, among them Guale ("Oade" or "Ouade" in the French accounts), Orista (Audusta), and Escamacu (Maccous). Leaders of these groups, who presumably also had encountered Ayllón's colony, provided the Huguenots with large amounts of maize and beans, and helped them to build their houses (Lorant 1946; Ribault 1964; Laudonnière 1975). Abandoned in 1563, this colony was succeeded in 1564 by a second Huguenot colony built on the St. John's River in Timucuan territory to the south, and peaceful contact was established with the Port Royal chiefdoms. Inhabitants of this second colony, named Fort Caroline, were massacred under the orders of the Spanish *adelantado* Pedro Menéndez de Avilés in 1565. In that year Menéndez de Avilés founded the town of St. Augustine, initiating a lengthy period of Spanish control over much of the American Southeast.

During 1564, Manrique de Rojas destroyed what remained of Charlesfort at Port Royal and briefly contacted the Indians of Guale and Orista (Wenhold 1959). Further explorations of the Port Royal area and lands to the interior were conducted by Juan Pardo

in 1566 and 1567 (Ketcham 1954). Pedro Menéndez de Avilés himself met with several native chiefs in 1566, and boldly set about to establish Spanish colonial authority around Port Royal and south to Ossabaw Island (Barcia 1951; Barrientos 1965). At the town of Guale, where the head of the chiefdom of that name resided, Menéndez established the first Spanish garrison on the Guale coast. Although a town called Guale was founded later on St. Catherines Island, the early Guale probably was located on the inland side of Ossabaw Island.

Beyond the historical particulars, these documentary sources provide important information from which to construct patterns of aboriginal demography of the Georgia coast during the early contact period. Chester DePratter (1989b) has recently synthesized this evidence, and the following summarizes his thesis.

The French explorations contain the first good descriptions of the various harbors and aboriginal groups along the Georgia coastline. Records from Ribault's 1562 expedition provide detailed descriptions of many of the harbors between his landfall (in northeast Florida) and Port Royal Sound (South Carolina); but these accounts provide very little information about aboriginal demography (Connor 1927; Quinn 1979:285-294). The same is true of Laudonnière's expedition of 1564 (Bennett 1975).

However, Manrique de Rojas, a Spaniard sent to search for Charlesfort (Ribault's 1562 fortification at Port Royal), did provide a detailed description of both geography and the aboriginal groups encountered. Sailing north from Cuba in May 1564, Rojas reached the town of Guale (on St. Catherines Island?) on June 1. At Guale, he found a variety of European objects, but no sign of either Frenchmen or their fort. The chief of Guale reported that the French had indeed been there, but had "gone way northward up the coast" (Wenhold 1959:51). Rojas was also informed that 17 more Guale towns existed to the south (of Sapelo Sound), but the French had apparently not visited any of them.

From St. Catherines Island, Rojas traveled north along the coast, searching for signs of the Frenchmen and their fort. DePratter (1989b) traces his route northward through Ossabaw Sound, Wassaw Sound, the entrance to the Savannah River, and Calibogue Sound. Rojas consistently described each harbor as containing "neither French nor fort nor Indians nor houses" (Wenhold 1959:53). Instead, despite careful search, Rojas located only "traces of Indians in a pine grove" in one harbor and "two abandoned houses" in another (Wenhold 1959:53). Clearly this region did not contain aboriginal residences, although it could have been used occasionally for hunting or fishing.

Only after he reached St. Helena Sound, having bypassed Port Royal Sound, did Rojas find evidence of the French occupation. Here he discovered a variety of European trade items including iron axes, a mirror, some pieces of cloth, small bells, and knives. Rojas also encountered a young French boy who had been left behind when Charlesfort had been abandoned a year earlier.

The boy ultimately led the searchers to Charlesfort (located in Port Royal Sound). Although Rojas does not describe the location of Indian settlements within that harbor (Wenhold 1959:54-61), Ribault's account of his 1562 voyage through Port Royal Sound, makes it clear that no Indians lived within 10-12 leagues of the harbor entrance (Quinn 1979:293). Additional evidence from Charlesfort itself documents two further voyages southward to Guale during which the French apparently encountered no other Indians as they passed through the inland waterway (Bennett 1975:42).

After the arrival of Pedro Menéndez de Avilés, the sociopolitical situation changes along the frontier of Guale. Whereas in 1562-1563, the Guale were at peace with those

Indians living at Port Royal Sound, by 1566 Menéndez de Avilés found that war had broken out, and he became actively involved in re-establishing peace (Quinn 1979:492-493). As peacemaker, Menéndez shuttled back and forth between Guale and Port Royal Sound, but significantly, he never mentioned a single Indian town or group residing in the vast area between these two populated regions.

In other words, the French and Spanish accounts clearly establish the presence of a 40-mile long unoccupied zone stretching from the northern end of St. Catherines Island to Port Royal Sound (see also Swanton 1922:81 and Larson 1978:120). As discussed subsequently, the archaeological evidence from this same area confirms the abandonment of the northern Georgia coast, beginning about A.D. 1450.

FIRST MISSIONARIES ON THE GEORGIA COAST

Jesuit missionaries were first sent to the Guale coast in 1568 (Barcia 1951). Their efforts, centered around the garrison town of Santa Elena, were unrewarding in terms of harvesting souls. The Jesuits abandoned their missions in 1570, having alienated the native population by their association with the Spanish garrison, which demanded heavy payments by the Indians in cultivated foodstuffs. The missionaries also were blamed by the Guale for introducing a massive epidemic in 1569 and 1570 (Vargas Ugarte 1935; Zubillaga 1941, 1946).

Following the Jesuit failures, Franciscan missionaries began to preach on the Georgia coast in 1573, their expenses underwritten by Pedro Menéndez de Avilés. Although their initial efforts enjoyed some success, the Franciscans lost their patron in 1574 when Menéndez died, and they withdrew.

The Indians had also begun to resent meddling by the Franciscans in secular (particularly political) matters. Continued demands by the Spanish authorities for food-tribute payments and a general pattern of Spanish military harassment did much to harden Guale resistance to the mission effort. This resistance took the form of open rebellion against the town of Santa Elena in 1576. Anti-Spanish hostility continued through early 1579, when the Spanish retaliated by burning twenty towns, killing many Indians, and destroying much of the stored maize in Guale communities. That this destruction covered a coastal distance of 45 leagues indicates the widespread degree of native discontent. The missions were then abandoned by the Franciscans, and the rebellion intensified from 1580 through 1582. New cadres of Franciscan friars arrived in La Florida in 1584 and 1587, but none dared reestablish missions along the Guale Coast. In 1587, the Santa Elena garrison was withdrawn, and the Georgia coast was momentarily considered to be a lost cause (Lanning 1935; Geiger 1937; South 1980).

St. Catherines Island may not have been an important settlement during the earliest phase of European contact -- we simply are not certain. But we do know that an important Guale town existed there by at least 1576 (Jones 1978:203). The year 1584 found only four Franciscan friars stationed in all of La Florida, and they spent their time attending to Spanish needs at the sister cites of St. Augustine and Santa Elena, with little time for missionizing the Guale and Timucua (Sturtevant 1962:58).

Indian hostilities soon forced final abandonment of Santa Elena, and the northernmost Spanish headquarters along the eastern seaboard were shifted to Santa Catalina. In 1587 St. Catherines Island became the principal northern Spanish outpost on the Atlantic coast and remained so until the 1680s. In this strategic position, the island represented the northernmost extension of effective Spanish cultural influence along the western Atlantic.

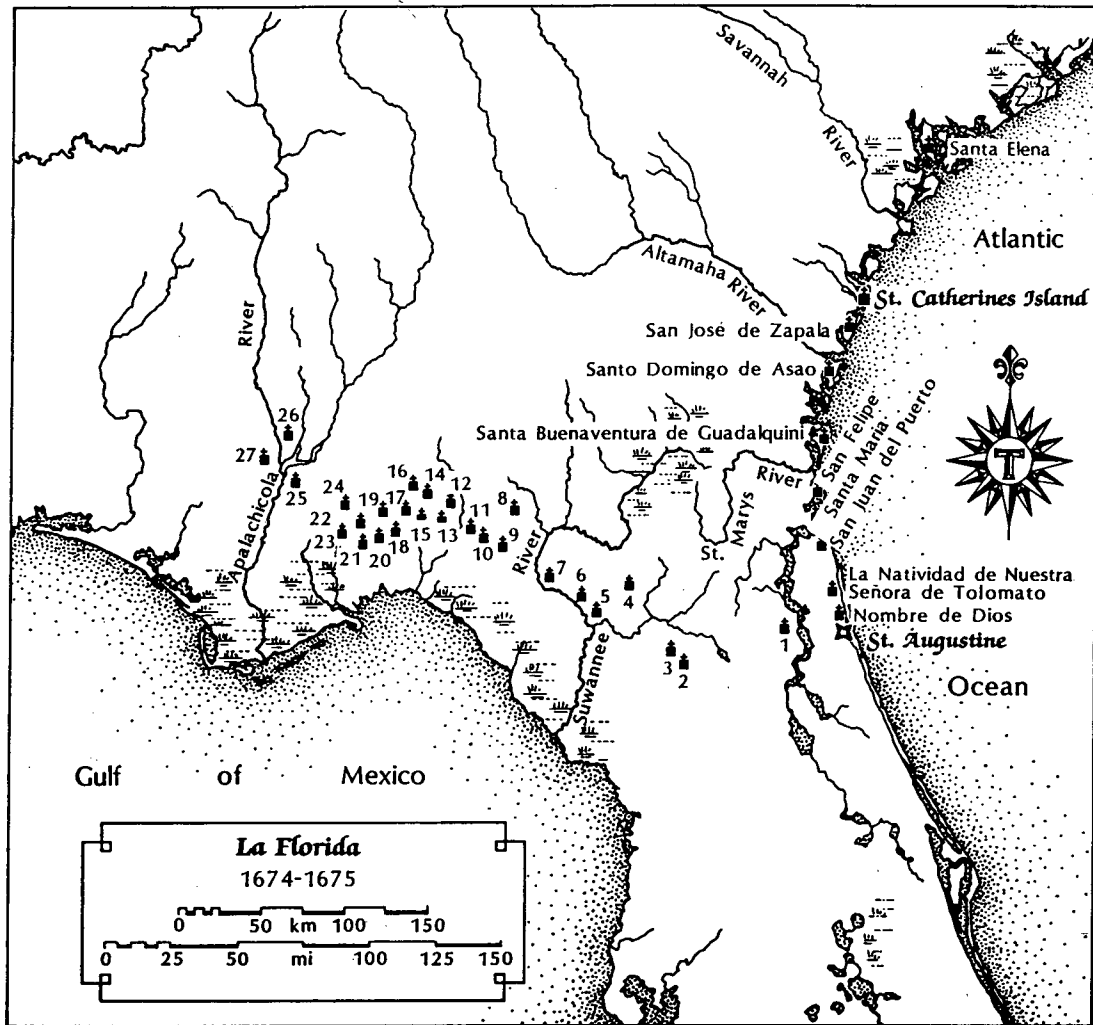


Figure 3. The mission system throughout La Florida at the time of Bishop Calderón's visitation, 1674-1675 (after Gannon 1965:64, facing). 1. San Diego de Salamototo; 2. San Francisco de Potano; 3. Santa Fé de Toloca; 4. Santa Catalina de Afuerica; 5. Santa Cruz de Ajohica; 6. Santa Cruz de Tarihica; 7. San Juan Guacara; 8. Santa Elena de Machaba; 9. San Pedro de Potohiriba; 10. San Mateo; 11. San Miguel de Asile; 12. San Lorenzo de Ivitachuco; 13. La Concepción de Ayubale; 14. San Francisco de Oconi; 15. San Juan de Aspalaga; 16. San José de Ocuya; 17. San Pedro de Patali; 18. San Antonio de Bacuqua; 19. San Damian de Cupahica (also called Escambi); 20. San Luis de Talimali; 21. San Martin de Tomoli; 22. La Purificación de Tama; 23. Santa Cruz de Capoli; 24. Asunción del Puerto; 25. La Encarnación a la Santa Cruz de Sábacola; 26. San Carlos; 27. San Nicolás.

But during this relatively late phase of conquest, no settlement was ever in isolation, and the spirit of rebellion among neighboring coastal groups, as well as those who resided on the island, lived on until a final uprising on the eve of removal (Barciá 1951). Guale resistance, in fact, remained alive among the mixed population of interior Yamassees for nearly four more decades (Jones 1978).

THE GUALE REBELLION OF 1597

The Franciscans redoubled their effort in 1595, extending their frontier as far north as St. Catherines Island. As before, their initial efforts met with some success. But in 1597, rebellion again resulted in the assassination of all but one of the resident friars. The single survivor was taken by the rebels to an interior community, where he was tortured and humiliated until his release the following year (Oré 1936; Geiger 1937). This massive revolt, which engulfed the entire Georgia coast, climaxed 27 years of nearly uninterrupted rebellion against excessive and repeated Spanish demands for food and continued military harrassment (San Miguel 1902; Sturtevant 1962). Detailed documentary evidence suggests that the revolt was conducted by a well-integrated federation of chiefdoms, but the strength of the rebel leaders was broken by a particularly vicious series of Spanish reprisals in 1598. By 1601, these leaders were in hiding, some distance inland, among Indian allies known as *Salchiches*. Under the leadership of the Spanish, the coastal chiefdoms led a massive attack upon the fugitive rebels. This attack, like the rebellion of 1597, demonstrates the existence of a federation of nearly all the Indians along the Guale coast.

While the uprising lasted, the Timucuans of San Pedro de Mocamo (on Cumberland Island) moved southward to the protection of San Juan. Governor Méndez de Canzo created a regional famine by destroying crops up and down the Georgia coast, and some authorities wanted to abandon Florida altogether. But the remaining friars advised the Crown to move the presidio from St. Augustine up to Guale, with its easy access to the interior, and its 1200 Christianized Indians (Arnade 1959).

RESTORING THE FRANCISCAN MISSIONS

Peaceful political reorganization of the Guale under Spanish authority began in 1603 (Serrano y Sanz 1912; Pearson 1974; Ross 1926). Franciscan missionaries, undaunted by their previous experiences, returned to the coast in 1605; soon they were joined by the Bishop of Cuba and La Florida, who set about exhorting the apparently repentant Guale to cooperate with the Church and State in establishing a peaceful frontier (Geiger 1937; Wenhold 1937). Governor Pedro de Ybarra directed the Indians of Asao (in the Altamaha drainage) to "erect crosses along their roads similar to the one they have at the landing place. The Cross is the perfect symbol of a Christian" (Geiger 1937:174-175).

The modern Franciscan historian Maynard Geiger regarded the following years as a "Golden Age" of Florida/Georgia history; at last, the Guale had been completely subdued (figure 3). But, in truth, the rest of the 17th century was for the Guale a tragic period of constant decline in numbers and sociopolitical autonomy (Jones 1978; Matter 1972).

Beginning in 1609, the remaining mainland settlements were urged by the missionaries to relocate onto the barrier islands; mission settlements within convents were established on Jekyll Island (*Guadalquini*), Sapelo Island (*San José de Sápala*), St. Simons Island (*Santo Domingo de Asao*), and St. Catherines Island (*Santa Catalina de Guale*). In most cases, single mission towns comprised remnants of several earlier towns. Population decline was steady throughout the 17th century, resulting from continuing epidemics,

removal of some population to St. Augustine for forced labor programs, increasing attacks against the coastal missions by English-supported interior Indians, and a steady trickle of Guale defectors to the interior (figure 4).

SPANISH-BRITISH CONFLICTS

Spanish hegemony remained relatively unchallenged here until 1670, when the English settled at Charles Town, South Carolina. The territory from there south to St. Augustine became a region of conflict and contention between England and Spain until 1763 and was regarded by historians Bolton and Ross as a "debatable land" (Bolton and Ross 1925).

Spanish missions on the barrier islands of coastal Georgia were the first victims of this basically European conflict. In 1670 the English and Spanish agreed, through the Treaty of Madrid, that Britain might forever hold the areas in America and the West Indies that were already regarded to be in her possession.

The Spanish intended to settle the problem of interpretation by sending an expedition to attack and destroy Charles Town. Although the expedition did destroy Port Royal, the Spanish fleet was disrupted by storms and forced to retreat southward without even threatening Charles Town.

In 1671, the Spanish governor ordered that a 25-man garrison be established on St. Catherines Island. But the detachment did not long remain at that level, falling to 13 in 1672 and nine by 1675 (Matter 1972:192-195). At this point, the border towns became uneasy (Bushnell in press), and numerous Indian groups took to the road. Many Yamassees took up residence in long-abandoned Timucua. Some remained in the Guale towns, speaking the Guale language and being considered relatives. Of fifty Indians sent from Guale to labor service at St. Augustine in 1673, fewer than ten were Christian (Matter 1972:273-274).

The year 1680 was a turning point as the English began a steady push down the coast and across the interior toward the Mississippi. "For a decade the English cloud hovered over Santa Catalina, guardian of the Guale border ... the Guale missions were a menace, and the neophytes would make good slaves on Carolina plantations" (Bolton and Ross 1925:35).

That year, a band of Chiscas, Creeks, and Cherokees armed by the English attacked Mission Santiago de Ocone (on Jekyll Island) and were thrown back. A few days later, they reappeared 300 strong at Santa Catalina. The lieutenant there was Captain Francisco de Fuentes, housed with his five soldiers in the convento. Five of the six Indian guards were killed. Fuentes organized a defense with the forty remaining warriors, sixteen of whom possessed firearms. Fighting all day, they held off the enemy, withstanding siege in the fortified mission church for more than a day (Bolton and Ross 1925:36; Bushnell in press).

The defense of Santa Catalina seems to have been well planned and its execution determined, Fuentes taking the almost unprecedented risk of placing firearms into the hands of Guale Indians (Lanning 1935:215-216). When Governor Salazar heard of this attack, he dispatched reinforcements from St. Augustine, but this force arrived after Santa Catalina had been abandoned.

The Guale of Santa Catalina had successfully held off the invaders, but they were horrified by the attack and abandoned Santa Catalina immediately and completely. Father Juan de Uzeda, priest of the Indian parish of San Joseph de Zápala (on Sapelo Island) gave a cool welcome to the refugees from Santa Catalina, and he was outraged when Fuentes



Figure 4. The Spanish mission system of coastal Georgia, as interpreted by John Tate Lanning (after Lanning 1935: foldout).

requisitioned his and the church's private stores of corn to ration those who began to build a fort there (Bushnell in press).

Considerable discussion ensued about how to get the people of Santa Catalina to return home, for the fields of St. Catherines had been considered to be the breadbasket of St. Augustine. For some time, St. Catherines Island continued to be called "the frontier with the enemy," but the title was empty since the Guale refused to live there. Although 100 Canary Island families were assigned to move to St. Catherines Island, they never appeared. Nor would the Yamassee Indians living on Amelia Island agree to defend and farm the Spanish frontier.

As English attacks along the coast increased, a plan to abandon the coast from Cumberland Island northward was set into action. In 1683, the mission towns had been evacuated; those Guale Indians who did not choose to defect to the Carolina settlements or to hostile interior native groups were deposited in communities on or near St. Marys Island. The Indians of Santa Catalina de Guale experienced peace at Santa Maria during the 1680s and 1690s, but they found neither the time nor resources to complete the stockade for their own protection (Bushnell 1986:6-11). In 1702, Santa Maria was overrun by a detachment of Carolinians, Indians, and Blacks from the invading army of James Moore. Captain Fuentes oversaw a second evacuation, ferrying church ornaments, women, and children over to San Juan del Puerto. But the Indians refused to stay with Fuentes, and those not fleeing into the woods eventually made their way to St. Augustine (Bushnell 1986). During this period, other Guale Indians were also moved to several settlements near St. Augustine, where they could be drawn upon as laborers.

DAWN OF GEORGIA'S ANGLO-AMERICAN PERIOD

Although no formal war had been declared between England and Spain, the English had cleared the Georgia coast of Spanish missions, military bases, and influence. With the fall of Santa Catalina, the Spaniards and the Guale began their inexorable retreat to the south; its fall became, in a real sense, the beginning of the end for the Spanish along the eastern seaboard (Spalding 1977:13).

Earlier, the fall of Santa Elena had been critical because it exposed Spain's inability to stake out by colonization the middle North American coast against the incursions of other nations (Lyon 1984:16). A century later, the failure of Santa Catalina underscored the inability of Spain to retain this same coast through missionization.

Although Spanish forces and authority no longer extended beyond Florida, they continued to claim the old Guale territory, with hopes of eventually reoccupying it (Coleman 1976:5). Disputes between English and Spanish continued and eventually spread from the coastal "debatable lands" across the Georgia interior, Florida, and the Gulf Coast. Even though the Georgia coast was left relatively undisturbed by the spread of this conflict, the war continued for many years until it was finally ended by the Treaty of Paris in 1763 (Coulter 1947:90). Known as Queen Anne's War, the conflict lasted nearly a century.

Some Englishmen, apparently still interpreting the Treaty of Madrid to mean that possession meant ownership, were hopeful of colonizing the lands of coastal Georgia which had been "liberated" from the Spanish. The idea was supported by the Carolinians, who desired a buffer colony between themselves, the Spanish in Florida, and the Indians in the interior.

Several colonization plans were proposed for this area, but only one came close to fruition and had an impact on the eventual settlement of Georgia. Scottish baronet Sir Robert Montgomery submitted a proposal to the Lords Proprietors of Carolina that he be permitted to settle a colony between the Savannah and Altamaha Rivers (Coleman 1976:8). The colony would, he argued, prevent Spanish invasions of Carolina and produce goods for the English markets.

In effect, Montgomery wished to recreate a Garden of Eden (which he called Margravate of Azilia), and he immediately set about gathering advertisers and promoters of the project (Jones 1883, vol. 1:70). Since the Golden Islands were the most accessible and a large portion of their surfaces needed little preparation for the plough, they were to be sold off and developed first. A stone fort was planned for St. Catherines Island to protect this first settlement in Montgomery's grand plan (Jenkins 1926:31).

But despite the best advertising efforts, the colony of Azilia failed due to a lack of sufficient funds and potential settlers. Although the Margravate of Azilia was never established, some of Montgomery's ideas were eventually accommodated in the actual settlement of Georgia. After the failure of this plan, coastal Georgia seemed to have been largely uninhabited for the next two decades (Durham and Thomas 1978:213).

NATIVE AMERICANS DURING GEORGIA'S COLONIAL PERIOD

In roughly 1700, while the Spanish were withdrawing from the coastal "debatable lands," a child was born who would eventually influence the direction of Georgia history. Coosaponakeesee was born to a Creek Indian mother at Coweta Town, near present-day Columbus. Her white father sent her to be educated at Ponpon (South Carolina), where she was baptized with the name Mary. She remained in South Carolina until the outbreak of the Yamassee War in 1715. Joining a raiding party, she returned to the dress and customs of the Creek (Jenkins 1926:36).

After marrying John Musgrove, son of a white trader, Mary Musgrove settled in South Carolina and lived there for seven years. In 1732, at the request of Creek Indians and with the consent of Governor Johnson of South Carolina, the Musgroves established a small trading post at Yamacraw, on a high bluff of the Savannah River (Jenkins 1926:36; Todd 1981:41). This trading post, called "The Cowpen" because of the cattle raised there, consisted of a large trading house, "a good house, 2 hutts, nearly fifty acres of cle'd land, part of it Pine land, part Oak and hickory" (McPherson 1962:308). The venture was successful and lucrative.

Meanwhile, a new colonizing effort had been established under the leadership of James Oglethorpe, who arrived in February 1733. Because of her background and obvious abilities, Mary Musgrove quickly assumed a significant role in the new colony, employing her influence with her Indian colleagues and promoting the settlement of the colony. Musgrove served as interpreter and helped arrange the ARTICLES OF FRIENDSHIP AND COMMERCE, May 1733, the treaty between colonists and Indians in which the Indians ceded to the Trustees of Georgia the territory between the Savannah and Altamaha Rivers, from the ocean to the headwaters. The only exceptions to this grant were the islands of Ossabaw, St. Catherines, and Sapelo along the coast, and a small tract of land near Savannah reserved for Indian use.

The barrier islands had apparently been sporadically reoccupied by this time. Traveling from St. Simons to Savannah in 1743, Edward Kimber stopped briefly at St. Catherines:

which is an Island reserved to the Indians by treaty. We found about eight or ten families upon it, who had several plantations of corn. It seemed to be a most fruitful soil, and to have larger tracts of open land than any I have observed, and to abound in all kinds of game, on which the good Indians regaled us, and for greens, boiled us the tops of China-Briars, which eat almost as well as Asparagus. When we departed, they gave us a young Bear which they had just kill'd, which prov'd fine eating (Kimber 1974).

While Oglethorpe was trying to establish, strengthen, and protect his infant colony, he was constantly pushing south along the coast and into the interior. Since Ossabaw, St. Catherines, and Sapelo islands were Indian possessions, they were not to be bothered. But Oglethorpe went on to establish another settlement on St. Simons Island, and even put a small force of men on Jekyll Island (Coleman 1976:50), which was unmistakably beyond the accepted southern boundary of the Altamaha River.

VI. ARCHAEOLOGY OF THE HISTORIC INDIAN PERIOD ON THE GEORGIA COAST

In this chapter, we summarize the current state of knowledge regarding the historic Indian period for the Georgia coast. We emphasize two important sources of information: the existing ceramic chronology for this period and the archaeological evidence for mission-period settlement pattern. This chapter will briefly summarize what is known about each, in the attempt to establish a baseline for the research domains set out in the next section (see also figure 5).

THE CERAMIC CHRONOLOGIES

As stated in Part II, this *Research Design* is predicated on several explicit biases. One of the key premises is that historic-period and prehistoric archaeology differ only in tactics, not strategy. Both kinds of archaeology rely heavily on the interpretation of ceramics as time-markers, and two distinctive chronologies are available: one based on imported ceramics and the others grounded in locally produced wares. Although the two sequences were developed independently, they can -- and should -- be used in complementary fashion.

Chronology Based on Imported Hispanic Ceramics

Historical archaeologists have been particularly clever in finding increasingly detailed ways to partition time on their sites: dating small fragments of tobacco pipe stems, evaluating evidence for time-markers in period paintings, extracting a mean occupation date by averaging ceramic dates of manufacture across entire assemblages. But despite such differences -- and the fine-grained results they produce -- the basic procedures and assumptions behind artifact classification differ little between historical archaeology and archeology in general.

We are fortunate that two excellent studies of Hispanic ceramics have recently appeared. The first relevant synthesis is Kathleen Deagan's incomparable *Artifacts of the Spanish Colonies of Florida and the Caribbean, 1550-1800. Vol. 1: Ceramics, Glassware and Beads* (Deagan 1987). This richly illustrated guide enables all archaeologists working along the coastal zone of Georgia to identify and date commonly found items of Hispanic material culture. A second important source is *Spanish Artifacts from Santa Elena* by Stanley South, Russell K. Skowronek, and Richard E. Johnson (1988). This mammoth volume classifies and describes the material culture recovered in twelve different archaeological projects conducted at the important site of the 16th century capital of Santa Elena, located in Port Royal Sound, South Carolina. Other relevant references dealing with the imported Hispanic ceramics recovered along the Georgia coast include Charlton (1968), Goggin (1960, 1968), Lister and Lister (1974, 1982).

Table 1 sets out primary temporal ranges for Hispanic ceramics relevant to historic-period archaeology of the Georgia coast; the type descriptions follow Deagan (1987; see also South, Skowronek, and Johnson 1988). Although further refinement can be expected in these date ranges -- particularly as they apply specifically to La Florida -- the framework is solid.

Table 1. Date ranges for Hispanic ceramics in Spanish colonial sites (after Deagan 1987: table 2).

I. Coarse Earthenware			
A. Unglazed Coarse Earthenware			
Olive Jar, early	1490-1570	Feldspar Inlaid, redware	1530-1600
Olive Jar, middle	1560-1800	Orange Micaceous	1550-1650
Olive Jar, late	1800-1900	Hidroceramo, tan or red paste	1700-1800
Bizcocho	1500-1550	Hidroceramo, greyware	1780-1820
Redware	1500-1750	Greyware	1750-1850
Storage Jar	1500-1800		
B. Burnished, Painted, or Slipped Coarse Earthenware			
Mexican Red Painted	1550-1750	Pisan slipware	1600-1650
Yucatán Colonial	1570-1650	Guadalajara Polychrome	1650-1800
C. Lead-Glazed Coarse Earthenware			
Melado	1490-1550	Black Lead-Glazed Coarse	
Green Bacín/Green Lebrillo	1490-1600	Earthenware	1700-1770
El Morro ware	1550-1770	Rey ware	1725-1825
II. Majolica			
A. Old World Majolica: Spanish			
1. Moorish-Influenced Spanish Majolica		Sevilla Blue on White	1530-1650
Lusterware	1490-1550	Sevilla Blue on Blue	1550-1630
Cuerda seca ware	1490-1550	4. Talaveran-Style Spanish Majolica	
2. "Morisco ware"		Talavera Polychrome	1550-1600
Isabela Polychrome	1490-1580	Talavera Blue on White	
Yayal Blue on White	1490-1625		1600-1650
Columbia Plain	1490-1650	Ichucknee Blue on White	
Santo Domingo Blue on White	1550-1630		1600-1650
3. Italianate Spanish Majolica		5. Catalanian Spanish Majolica	
Caparra Blue	1490-1600	Catalonia Blue on White	1760-1820
Sevilla White	1530-1650		
B. Old World Majolica: Italian			
Montelupo Polychrome	1500-1560	Faenza White	1550-1600
Ligurian Blue on Blue	1550-1600	Faenza Compendiario	1550-1600
C. New World Majolica: Mexico City			
1. Fine-grade wares		2. Common-grade wares	
Mexico City White	1580*-1650	Mexico City Blue on Cream	1600-1650
Fig Springs/San Juan Polychrome	1580*-1650	Mexico City Green on Cream	1600-1650
San Luis Blue on White	1580*-1650	Aucilla Polychrome	1650-1700
(*1575 in Mexico)		San Luis Polychrome	1650-1750
		Santa Maria Polychrome	1650-1760

D. New World Majolica: Puebla

Mt. Royal Polychrome	1630-85	Puebla Blue on White	1700-1850
Abó Polychrome	1650-1750	overall design format	1700-1750
Puebla Polychrome	1650-1725	wavy rim-band variant	1775-1825
Puaray Polychrome	1675-1700	green variant	1775-1825
Castillo Polychrome	1680-1710	San Elizario Polychrome	1750-1850
San Agustín Blue on White	1700-1730	Aranama Polychrome	1750-1800
Huejotzingo Blue on White	1700-1850		

E. New World Majolica: Nineteenth-Century Mexican Types

Nopaltepec Polychrome	1775-1825	Tumacacori II	1810-40
Orangeline Polychrome	1800-1850	Tumacacori III	1830-60
Tetepanta Black on White	1800-1850	Nineteenth-century complex	1800-1900
Tumacacori I	1780-1820		

F. New World Majolica: Panamanian

Panama Plain	1575-1650	Panama Blue on White	1600-1650
Panama Polychrome "A"	1600-1650	Panama Blue	1600-1650
Panama Polychrome "B"	1600-1650		

G. New World Majolica: Miscellaneous Utilitarian Types

Marine ware	1700-1775	Blue-Green Basin	1750-1820
Marine ware, decorated variant	1700-1750		

III. Porcelain in Spanish Colonial Sites

A. Chinese

1. Ming	1550-1644	2. K'ang Hsi	1662-1722
Kraakporcelain	1550-1640	"Chinese Imari"	1700-1750
variety 1	1550-70	monochrome brown porcelain	1700-1750
variety 2	1560-80	"powder blue" porcelain	1710-50
variety 3	1575-90	overglaze-enamel porcelain	1720-80
variety 4	1580-1610	3. Canton	1790-1835
variety 5	1600-1625		

B. Japanese "Old Imari"

Porcelain	1660-1753
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IV. Stoneware

Brown Cologne Stoneware, relief molded	1530-1600
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Chronology Based on Locally Produced Aboriginal Ceramics

This propitious situation does not hold for the considerably more common aboriginally produced wares. The earliest archaeological research along the Georgia coast proceeded without benefit of chronology, with most investigators seeking to recover artifacts for display or for personal collections (DePratter 1979:110). These early collectors made little attempt to establish time-space relationships between the various ceramic complexes encountered (e.g., Jones 1873; Moore 1897; Thomas 1891).

The earliest systematic work on the coastal Georgia ceramic chronology was undertaken by Preston Holder (1938), working in several village sites in Glynn County (see also Waring 1968 and DePratter 1979). Critical excavations were initiated soon thereafter in Chatham County at a series of mounds and stratified village sites (Caldwell 1939, 1943; Caldwell and McCann 1941; Caldwell and Waring 1939a, 1939b). These W.P.A.-sponsored excavations ultimately provided the stratigraphic control necessary to discriminate distinctive ceramic periods on the Georgia Coast. The basic Chatham County sequence has evolved significantly in the half-century following Caldwell's earliest work (e.g., Cook 1977, 1979; Cook and Snow 1983; Crook 1978a, 1986; Milanich 1977; DePratter 1975, 1977a, 1979, 1984, 1989b; DePratter and Howard 1977, 1980; Larson 1969, 1978, 1980a).

Table 2 presents the primary ceramic chronology currently employed on the Georgia coast (after DePratter 1979: table 30). Only the last two ceramic periods -- *Irene* and *Altamaha* -- are relevant to the current discussion; along the southern Georgia coast, the Irene phase-equivalent is termed *Pine Harbor*, and the Altamaha phase is termed *Sutherland Bluff* (Larson 1978, 1980a). A certain amount of disagreement exists about this chronology, and refinement of the specific time-markers should be a primary focus of future research (as discussed in Part VII).

MISSION-PERIOD ARCHAEOLOGY OF THE GEORGIA COAST

In this section, we summarize the relevant data relating to mission archaeology along the Georgia Coast (based largely on Thomas 1987). These settlements are important not only as evidence of early Hispanic involvement, but pin-pointing exact mission locations would enable ethnohistorians and archaeologists to apply the available documentary evidence from each mission to specific aboriginal groups.

Santa Buenaventura de Guadalquini

Mission Santa Buenaventura de Guadalquini is located on Jekyll Island, north of San Pedro. In 1675, 40 persons in addition to the missionary, Fray Pedro de Luna, lived at this site (Geiger 1940:129).

San Pedro de Mocamo

According to Lowery (1905:289) a small garrison was established on Cumberland Island in 1569. From 1587 until at least 1689, Cumberland was the site of one or more Franciscan missions (Deagan 1978:101). The first, Mission San Pedro de Mocamo, was established by Fray Balthazar Lopez (Geiger 1937: 55) at Tacatacuru village on the southwestern coast of Cumberland Island (Swanton 1946:187). It is also known as the Dungeness Wharf site, Ca 14 (Walker 1985:67), and is apparently the same location as the subsequent Mission San Felipe. Lanning (1935:8) notes the mission of San Pedro de Mocamo was rebuilt in 1603 between Old Tower and Abraham Point. It survived there during the entire Spanish period in Georgia, although its first church had been destroyed in the

Table 2. Ceramic sequence for the northern Georgia Coast (after DePratter 1979: table 30).

Periods	Phases	Ceramic Types	Dates ^a
Altamaha	Altamaha	Altamaha Line Block Altamaha Incised Altamaha Plain Altamaha Check Stamped Altamaha Red Filmed	A.D. 1700
	Irene II	Irene Incised Irene Complicated Stamped Irene Burnished Plain Irene Plain	A.D. 1550
Irene	Irene I	Irene Complicated Stamped Irene Burnished Plain Irene Plain	A.D. 1400
	Savannah III	Savannah Complicated Stamped Savannah Check Stamped Savannah Fine Cord Marked Savannah Burnished Plain Savannah Plain	A.D. 1300
Savannah	Savannah II	Savannah Check Stamped Savannah Fine Cord Marked Savannah Burnished Plain Savannah Plain	A.D. 1250
	Savannah I	Savannah Fine Cord Marked Savannah Burnished Plain Savannah Plain	A.D. 1200
St. Catherines	St. Catherines	St. Catherines Net Marked St. Catherines Fine Cord Marked St. Catherines Burnished Plain St. Catherines Plain	A.D. 1150
	Wilmington II	Wilmington Plain Wilmington Brushed Wilmington Heavy Cord Marked	A.D. 1000
Wilmington	Wilmington I	Wilmington Heavy Cord Marked Walthour Check Stamped Walthour Complicated Stamped Wilmington Plain	A.D. 600
	Deptford II	Deptford Complicated Stamped Deptford Cord Marked Deptford Check Stamped	A.D. 500

Periods	Phases	Ceramic Types	Dates ^a
Deptford		Refuge Simple Stamped Refuge Plain	A.D. 300
	Deptford I	Deptford Linear Check Stamped Deptford Cord Marked Deptford Check Stamped Refuge Simple Stamped Refuge Plain	
Refuge	Refuge III	Deptford Linear Check Stamped Deptford Check Stamped Refuge Plain Refuge Simple Stamped	400 B.C.
	Refuge II	Refuge Dentate Stamped Refuge Plain Refuge Simple Stamped	900 B.C.
	Refuge I	Refuge Simple Stamped Refuge Punctated Refuge Plain Refuge Incised	1000 B.C.
			1100 B.C.
	St. Simons II	St. Simons Incised and Punctated St. Simons Incised St. Simons Punctated St. Simons Plain	
St. Simons	St. Simons I	St. Simons Plain	1700 B.C.
			2200 B.C.

^aEstimated dates in uncorrected C¹⁴ years.

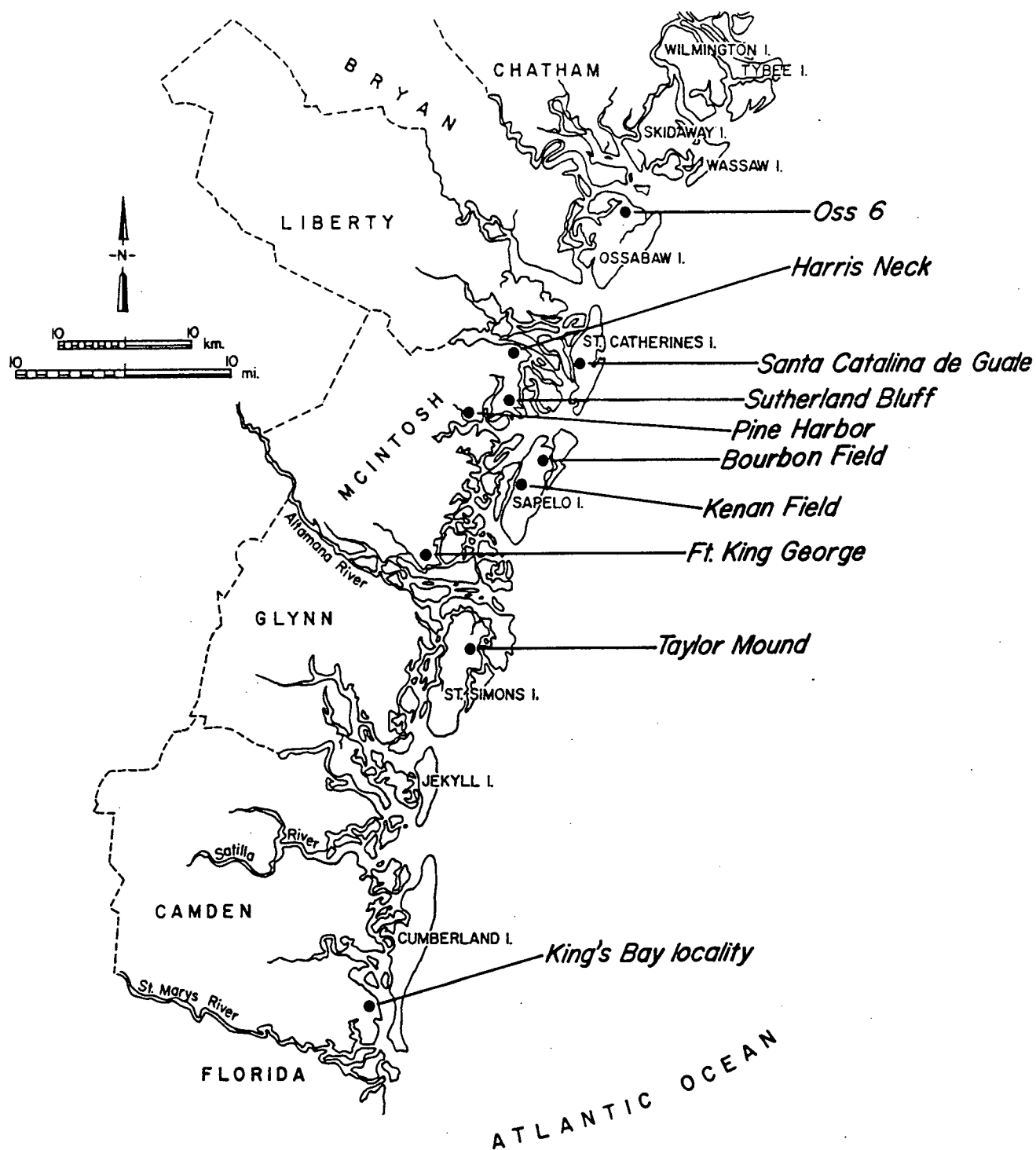


Figure 5. Location of selected Spanish period archaeological sites on the Georgia coast.

Juanillo Revolt of 1597. The rebuilt structure was ready for mass by March 10, 1603 (Geiger 1937:160-162). The Franciscan effort met such great success here that Lanning (1935:239) lists 18 aboriginal villages under the control of San Pedro by 1600; Deagan (1978:102) notes that 300 Christian Indians lived here by 1605. Mission San Pedro continued to be listed in Spanish records until 1659 (Deagan 1978:101), when the Tacatacuru moved south to San Juan del Puerto and St. Augustine.

Larson (1958a:16) located an olive jar fragment on his surface survey of the site. Milanich (1971, 1972) has also conducted surface reconnaissance at the presumed site of Tacatacuru village and San Pedro de Mocama mission. The town grid plan was apparently an elongated rectangle, with small, circular shell middens reflecting individual dwellings. To support his contention that this spot is indeed the site of a mission, he notes that it is near a serviceable waterway and remarks on the absence of Spanish deposits elsewhere on the island (Milanich 1972:289-290).

San Felipe de Athuluteca

This mission site has the same site number (Ca 14) as Mission San Pedro (Walker 1985:67). Deagan (1978:101) suggests that between 1650 and 1675, the Timucuan population of Cumberland Island had been relocated to the south, due to pressure from the Guale and Yamassee to the north. By 1675, a mission called San Felipe de Athuluteca was established on Cumberland Island (Swanton 1922), probably to accommodate the relocated Timucua population returning to Cumberland Island from the south. The old mission has also been listed as San Pedro de Athuluteca, suggesting that San Pedro and San Felipe are one and the same (Milanich 1972b:289, 291). This mission was probably active between 1675 and 1689, when it was last recorded by Compostela (Walker 1985:68-69; Deagan 1978:102).

By 1695, San Felipe mission was on Amelia Island, a mile or so from Santa Maria de los Yamassee (John Hann, personal communication), whereas at its first mention on the 1655 mission list it was 54 leagues from St. Augustine, four leagues farther away than the Santa Catalina mission. The 1665 Hita Salazar list places it further south, six leagues south from Guadalquini (Jekyll Island) and below the Bars of Guadalquini and Ballenas, and three leagues north of the Isle of Macama (Cumberland Island). San Felipe was eventually sandwiched between missions on Guadalquini and Santa Mariá (then on Cumberland Island) in 1675.

San Pedro y San Pablo de Puturibato

The mission site (Ca 7) was also known as the Bricklin Bluff Site (Walker 1985:67). Fr. Pedro Fernandez de Chozas had a chapel at the village of Puturibato on Cumberland Island in 1585. The site was eventually named Mission San Pedro y San Pablo de Puturibato, a doctrina (Lanning 1935:70-71, 80).

Fort San Pedro

This fort was established by Pedro Menéndez de Avilés in 1566 to assure control of the Guale Coast (Smith and Gottlob 1978:6). A Spanish garrison established on Cumberland Island was abandoned in 1670 (Lowery 1905:355).

Additional Historic-Period Sites on Cumberland Island

The Kings Bay locality is on the mainland across the channel from Cumberland Island. Several historic-period aboriginal sites have been found there containing Spanish trade goods. None of these sites can be firmly correlated with a mission. In fact, no missions have been reported from the mainland across from Cumberland, although a number of visitas have been mentioned (Deagan 1978:97).

In the bluff portion of the Kings Bay site (Ca 171A), a total of 161 olive jar sherds and 28 majolica sherds were distributed across the north and south blocks. In addition, 27 San Marcos red filmed sherds were recovered. A variety of aboriginal ceramics was present, but the Swift Creek variety comprised more than 50 per cent of the total (Saunders et al. 1985:243-246). Fig Springs Polychrome composed about 80 percent of the majolica sample. In addition, five San Luis Blue on White, and two Santo Domingo Blue on White sherds were recovered from this locality. One San Luis Polychrome, 10 Ichucknee Blue on White, and 12 Fig Springs fragments have been reported from the Kings Bay site proper (Saunders et al. 1985:248). In addition to the ceramics, the Kings Bay site also yielded Spanish artifacts in the form of two glass seed beads, and nine small yellow-green glass fragments (Saunders et al. 1985:250). Numerous red filmed ware sherds were also recovered in the artesian well.

In the marsh area of the Devils Walkingstick site (Ca 177D) 10 olive jar sherds were found, plus a sherd from an Orange Micaceous ware vessel (DesJean et al. 1985:96-97).

Santo Domingo de Asao

Historical Evidence: Sometime late in the mission period, the Guale towns of Asao and Talaxe were merged into a single pueblo on St. Simons Island, associated with a doctrina known both as Santo Domingo de Talaxe and Santo Domingo de Asao. The earlier villages of Asao and Talaxe must have been ("there is no doubt") on the lower Altamaha or one of its branches (Jones 1978:206; see also Garcia 1902:189-193; Lanning 1935:154). The date of their consolidation is uncertain.

Mission Santo Domingo was built just prior to Governor Ybarra's visit in late 1604 (Lanning 1935:4). The convent of St. Dominic (Talaxe) existed in 1610 (Geiger 1937:234), but it is unclear whether it was on St. Simons Island. Santo Domingo de Talaxe is mentioned in documents by 1659, and by 1675, it is definitely located on St. Simons Island (Jones 1978:207).

Archaeological Evidence: The archaeological picture is complicated by the relatively frequent mission moves throughout this area. As Larson (1980b:37-38) has noted, "undoubtedly, there was more than one mission in the McIntosh County area during most of the Spanish Period; in addition to the mission on Sapelo there must have been a mainland mission. The most logical site for the mainland mission would have been on [Darien] bluff at the place that was to be occupied by Fort King George."

Excavations have been conducted in this vicinity for nearly 50 years. The Darien Bluff site (McI 10) occurs at the confluence of Lower Bluff Creek and Black Island Creek at the mouth of the Altamaha River. In his M.A. thesis, Joseph Caldwell reports the discovery of coffins and the remains of 14 white men and historic Indians. One hundred olive jar sherds were also recovered. Structural remains were all attributed to aboriginal buildings (Caldwell 1943:27).

Caldwell (1943:30) states that, although the fort was not located, they did recover "...notable...quantities of fallen fired wall plaster from mud daub structures which had been

burned...." He believes the daub was from Guale structures, but admits they could also have been Spanish or later. The wall had been tempered with Spanish moss. Late style olive jar sherds (Goggin 1960:21) occurred with aboriginal ceramics in the upper surface of the floor and in the layer of wall plaster above it (Caldwell 1943:35).

Sheila Caldwell continued excavations at Darien Bluff in 1952. She found two kinds of houses (Caldwell 1953:31; 1954:13-16). Shallow wall trenches and small round post holes marked the positions of 15 houses. The earliest were interpreted as aboriginal mud-daubed constructions, without trace of European influence. The later houses were "more neatly laid out, the shape and distribution of roof supports indicating the use of ridge poles in roof construction." Some of the post holes formed "a larger frame building, 35 feet wide by 70 feet long, enclosed by a wall to which were attached two smaller buildings. Behind the central building and within the enclosure was a small Indian type house." Beside both kinds of houses were shallow pits in the ground "perhaps not dug especially for the storage of refuse, but filled with trash through the passage of time" (Caldwell 1954:15-16).

Figures reproduced in Thomas (1987, figs. 14 and 15) depict apparently Spanish period houses excavated by Sheila Caldwell and Lewis Larson (after Larson 1980b, figs. 3 and 5). Larson offers the following comments about these structures (and those excavated at the north end of Harris Neck; see below):

[these] are surely domestic structures, in all likelihood houses, from the 17th century. These Indian Buildings are not large and all provide unquestioned association of aboriginal sherds and Spanish sherds with the construction features The floor plans are characterized by walls that divide the interior space into rooms. Some of these walls partition off corners of the house into separate rooms, others cut across the center of the house creating two equal sized rooms. Entries were apparently located where short walls jut out from the exterior wall line of the house in order to form a covered passage. There do not appear to be any structures that contained interior hearths (Larson 1980b:40).

The post-holes and associated features contained only aboriginal and Spanish artifacts: red filmed bowls, cups, pitchers, and plates, 200 fragments of majolica that appear to date to the middle of the 17th century, several hundred olive jar sherds, and two whole olive jars.

Parts of the 18th century British cemetery at Fort King George were also excavated, as some of the graves intruded into the Spanish period building. No aboriginal burials were encountered.

S. K. Caldwell (1954:14-15) believes that the Spanish component at Fort King George represents the mission site of Santo Domingo de Talaxe. She attributes the total absence of religious paraphernalia, valuables, and personal ornaments to an "orderly evacuation"; there was no sign of burning.

Kelso (1968:14) reports on additional excavations and survey at the Ft. King George site, including the foundation of another building, a "temporary" structure which contained olive jar sherds, a Spanish iron knife and the buttplate of a heavy Spanish musket. Kelso (1968:6) suggests that the Caldwell (1954) excavation unearthed a "Spanish Mission building and several Indian structures" in the southwestern section of the site.

Some of the Spanish materials recovered from this site have been exhibited at the Fort King George Museum: two dozen majolica sherds, two nearly complete olive jars, a

sword hilt and blade fragment, a silver jingle, ten large glass beads, and a Spanish coin. In one case, Spanish ceramics and a human skull (catalogue no. FKG121) were labeled: "Artifacts evident of Spanish occupation include a Spanish olive jar and skull of whom many believe to be Father Pedro de Corpa, massacred at the Tolomato Mission by the Guale in September, 1597."

The following is a catalogue card entry in the files of the Fort King George Museum:

FKG.52-54.1.121 - human skull received 1952-54, donor, Mrs. Sheila K. Caldwell, archaeologist... human skull found on the bank of the river in what may have been the Guale Indian trash pile. The skull is believed to be that of the Franciscan priest, Father Corpa. Father Corpa was beheaded by the Indians in the 1590s. His head was placed on a stake in a trash pile and the rest of his body was fed to the dogs... Mediterranean type. Condition stable.

We have been unable to find additional confirmation relating to this potentially important find (see also Wyse 1985).

To date, no mission sites are known on St. Simons Island or the adjacent mainland, although Larson (1980b:38, fig. 1) reports Spanish period sites near the St. Simons lighthouse and at Cannon's Point. Additionally, a mortuary complex appears on that island which was in use during the earliest period of Spanish contact with the Guale.

At Couper Field (on St. Simons Island), an apparent charnel house from the "Savannah" period (in this dating, A.D. 1250 to A.D. 1540) contained the burial of a dog with a musket ball between its ribs (Wallace 1975:106). Milanich (1977:140) attributes the burial to the early 16th century (cf. Crook 1986:71). The Couper Field association is also an important link extending Savannah period ceramics into the historic period (see also Crook 1984; cf. DePratter 1979; Pearson 1977b:76).

The Taylor Mound (GN 55), located at the northern end of St. Simons Island, has also been assigned to the early historic period, between about A.D. 1500-1600 (Wallace 1975; Pearson 1977b:74-83). Thirteen burials were recovered in this late Savannah period mound; three intrusive burials were associated with an interesting array of historic artifacts. Associated with Burial 2 were 10 perforated pearls, 22 shell beads, 6 tubular glass beads (3 Nueva Cadiz Plain, 3 Nueva Cadiz Twisted; see also Smith and Good 1982:47). Burial 10 contained burial shroud stains, 9 copper maravades coins (dating to the 16th century) placed around the skull and spaced with Olivella beads, shell beads and perforated pearls around the wrist, an iron axe (celt form), a rectangular iron axe, an iron awl or punch, and an iron knife. Two iron spikes were found nearby, unassociated with the burial. Subsequent excavations at the Taylor Mound (Wallace 1975:58-59) turned up a brass spike, a round ship's spike, two nails, and another spike see also Fairbanks 1985:130-131).

The Kent Mound, on the south end of St. Simons Island (Pearson 1977:81), contained a chevron bead and an iron knife associated with San Marcos (protohistoric) vessels; Smith and Good (1982:47) also mention beads. Cook and Snow (1983:9) feel that the Latin cross element in the Southeastern Ceremonial complex, observed on a Kent Mound Irene period vessel, was inspired by European culture.

An unnamed Pine Harbor period (A.D. 1540-1625) ceremonial mound is attributed by Milanich (1977:140) to the early mission complex, based on the association of European coins, beads, and wrought iron spikes with the burials. Spikes were also found with a cache of ceremonial vessels that included Irene and San Marcos wares.

Milanich (1977:140) suggests that a Sutherland Bluff period (A.D. 1625 - 1680) village site on St. Simons Island was abandoned when the mission villages were being consolidated and, presumably, moved to the south end of the island.

San José de Zápala

Historical Evidence: Mission San José de Zápala was initially established by Fray Diego Delgado as a visita in 1605 (Lanning 1935:5). Fray Oré visited Sapelo Island in December 1616: "...we descended by a larger river than the Tagus, in canoes, to the people of the land of Guale. We visited the towns and the six priests in the convent of San José de Zápala where [the Indians] had martyred one of our five martyrs" (Geiger 1936:130; see also Larson 1980b:36). This river was almost certainly the Altamaha. Larson (1980b:36) notes that several visitas must have been established nearby, and that Oré's statement "offers a strong argument" that Sapelo was the site of a mission at the time of the rebellion of 1597. By 1675, the mission had about 50 persons (Larson 1980b:37). In the 1680s, after abandoning Santa Catalina de Guale to the north, Francisco Fuentes and his men retired to Zápala.

Archaeological Evidence: Larson (1952:2) chooses High Point on Sapelo Island as a "good candidate" for the location of Mission San José de Zápala, but evidence of Spanish period architecture is lacking; only ceramics are available to document the Spanish settlement here. Elsewhere (Larson 1953:7, 26) he notes the presence at High Point of glazed bricks or tiles, coated with a thick green glaze. Larson speculates that the tiles and associated sherds are of Spanish origin, and suggests that "Sapelo Island is perhaps the most promising area for the investigation of Spanish occupation on the Georgia coast" (Larson 1980b:45).

The West Georgia College survey of 1974-1979 found some limited concentrations of Spanish pottery, including olive jar sherds and very little majolica at Kenan Field, at Bourbon Field, north of the Shell Ring, and at High Point. The location of these sites coincides with the structural remains noted on the DeBrahm map of Sapelo dated 1760. Larson speculates that these were British settlements and that they were placed in areas that had been cleared earlier or were former Spanish fields (Larson 1980b:38); as noted below, a similar correspondence exists on the DeBrahm map of St. Catherines Island. DeBrahm also mapped an "oranges and limes garden" at the extreme northeastern corner of the [Sapelo] island at a point overlooking the marsh separating Sapelo from Blackbeard Island" (Larson 1980b:44).

At Kenan Field, massive architectural elements have been found, but they are associated with Irene ceramics and, although apparently constructed during the early Spanish period, do not seem attributable to Spanish activities (Larson 1980b:40). Crook (1980:94) describes these earthworks, with their "square post holes", and suggests that they are not of Spanish construction.

At Shell Ring no. II, Simpkins (1980:68) notes tin and lead glazed European ceramics, nails, and lead shot (?). The upper levels of the disturbed ring midden had a historic component consisting of tabby, nails, and olive jar and Irene sherds.

Nuestra Señora Guadalupe de Tolomato (1595-1658)

Historical Evidence: Pedro Ruíz established the Tolomato mission in 1595. The Juanillo Rebellion began at Tolomato, where Friar Pedro de Corpa was stationed, then spread to Tupiqui, where Fray Blás Rodríguez lived. Both missions were destroyed in the rebellion, and only Tolomato was rebuilt, by Fray Diego Delgado 10 years later (Lanning 1935:3). The 17th century Tolomato mission at Espogache served both villages: "As to the location of Espogache there can be no doubt. It overlooks the Bar of Espogue, now Doboy Sound" (Lanning 1935:4).

Swanton (1922:82) notes that in one account, Tolomato is two leagues from Guale and in another, on the mainland near the bar of Sapelo. Jones (1978:207) places the two principal Guale towns of Espogache and Tupiqui along the North or South Newport rivers.

Lanning places old Tupiqui mission in northeastern McIntosh County, directly inland from Oldnor Island and Cedar Hammock (1935:7). Jones (1978:205) places Tolomato on the Sapelo River, an undetermined distance upstream (see also Ross 1926:178, fn. 12); he goes on to suggest that "Floyd's analysis of these locations (1937:37-38) and others is not a dependable guide" (Jones 1978:205, fn. 88).

Archaeological Evidence: Relevant archaeological evidence comes from three major areas: Sutherland Bluff, Pine Harbor, and Harris Neck.

The Sutherland Bluff site, located on the bank of the Sapelo River between the White Chimney River and the Bororo River -- about three miles due south of Shellman Bluff settlement -- is the type site for the *Sutherland Bluff complex*, the archaeological manifestation of the mission period Guale (Larson 1978:121).

Although part of the Sutherland Bluff site had eroded into the channel, Larson found many postholes underlying the cultural layer (Larson 1953:11) containing charcoal, animal bone, lithics, and numerous aboriginal sherds and several Spanish sherds. An olive jar sherd was resting atop an Altamaha sherd in a post hole (Larson 1953:12). A Fig Spring Polychrome sherd was also reported. Larson (1953:30-31) thinks that Sutherland Bluff was probably a visita but "as to the mission which was located there, it was impossible even to hazard a guess."

Larson (1978:122) defined the Pine Harbor Complex based on evidence from Pine Harbor, a site that covers more than a mile of the high ground along the marshes bordering the northern bank of the Sapelo River near Pine Harbor. Since then, Cook (1980:38-40) reported intrusive burials in a log tomb associated with glass beads, nails, and several brass finger rings from the site; the beads are thought to date to the late 16th or early 17th centuries.

To the north, a variety of archaeological sites at Harris Neck have produced a wealth of Spanish period remains. Larson (1953, 1958a) reported on excavations at the Thomas Landing site (originally recorded as Mcl 52, then split into two sites, Mcl 41 and Mcl by Fryman et al., [1979:91] and Braley et al. [1986:18]). The Thomas Landing site, on the northeastern corner of Harris Neck is a huge site overlooking the South Newport River, but the Mississippian and contact period occupations are rather meager: "I wouldn't characterize the site as a village during either phase. At most the southeast portion of 41 functioned as a small hamlet during the Sutherland Bluff period. The Thomas Landing site is situated nearly a mile to the north" (Chad Braley, personal communication). Here, Larson (1958a:14)

recovered Fig Springs Polychrome, Ichucknee Blue on White (or possibly Blue on Blue), Columbia Plain, and olive jar sherds (see also Goggin 1968).

Larson's excavations at the Thomas Landing site revealed outlines of at least six aboriginal structures of the Sutherland Bluff period. These rectangular structures are aligned on a grid system approximately 10 degrees west of north (Larson 1980b:39; see also Fryman et al. 1979:91). Braley et al. (1986:18) compute a Mean Ceramic Date of 1614.8 for the small ceramic assemblage, suggesting that Thomas Landing may have been a key settlement in the Espogache-Tupiqui chiefdom, which Jones (1978: fig. 17; see also figure 1, this volume) thinks centered around the estuaries of the South Newport River.

C. B. Moore (1897) partially excavated two small mounds on the north end of Harris Neck, but precise location of his excavations is unknown. Braley et al. (1986:16), think that Moore's mounds might have been part of the Thomas Landing site (see also Fryman et al. 1979:41).

The Harris Neck Airfield site (originally reported by Larson [1953] as McI 512, subsequently changed to McI 41; see Fryman et al. 1979:41), contains an 88 ha scatter of oyster shell, aboriginal ceramics (Irene and Altamaha), plus Spanish pottery including olive jar sherds. (Fryman et al. 1979:89). Braley et al. (1986) also report the presence of Columbia Plain majolica, "honey colored ware," a Spanish spike, and a light blue glass bead. The overall extent of this site is somewhat misleading, since it combines one portion on the east side of the wildlife refuge fence, and includes the west portion as part of McI 41: "I would estimate the very diffuse Sutherland Bluff occupation covered an area of no more than 5 ha" (Chad Braley, personal communication).

McI 53 is a site slightly to the south of McI 52, between the marsh and the air strip on the eastern side of the northern end of Harris Neck; eight olive jar sherds were found here (Larson 1953:5).

At the Lebanon Plantation, 3 mi west of Harris Neck Airport on the South Newport River, is McI 83, a largely prehistoric site, but one Columbia Plain sherd was found there (Larson 1953:9). The nearby Gould Landing site was first recorded by Larson (1953:5-6) as McI 56, renumbered as McI 46, then grouped with McI 41 by Fryman et al. (1979:92). Presumably this designation also includes the excavations at McI 41 described by Braley et al. (1986:18-20). Drucker (1982) tested part of the protohistoric component of McI 41, recovering daub fragments, olive jar sherds, and an assortment of aboriginal materials. Cobb (1984) conducted further excavations here, directly leading to investigations by Braley et al. (1986). Several radiocarbon dates were obtained from these excavations.

A 1979 survey of McI 46, on the southern tip of McI 41, recovered three additional olive jar fragments (Fryman et al. 1979:89).

Site McI 43 (labeled McI 53 in the Georgia State files) is located on the eastern side of the tip of Belleville Point and contains a number of thick glazed sherds in association with Altamaha Complicated Stamped ware (Fryman et al. 1979:89, 92). Fryman et al. (1979:89) list eight green glazed Spanish sherds and a single olive jar sherd from this site. Braley (personal communication) thinks this site contains the most intensive Guale occupation on the north end of Harris Neck.

McI 59, on the northeastern part of Belleville Point, produced three Spanish olive jar sherds (Larson 1953:6); a burial mound roughly 10 m in diameter was in the immediate vicinity of the midden.

Southward, on the north end of Creighton Island is Mcl 81, originally excavated and described by Moore (1897:28-43). Although two associated mounds contained no historic period materials, village middens contained a San Luis Blue on White sherd (Goggin 1968, pp.77-78; see also Larson 1980b). Larson (1953:17-21) also lists Altamaha Complicated Stamped ware, red filmed Check Stamped sherds, undecorated red film ceramics, and Spanish pottery including Fig Springs Polychrome and olive jar sherds from this site.

Larson (1953:10; 1980b:38, fig. 1) also reports a Spanish period site on Wahoo Island, where three olive jar fragments were recovered.

To summarize these somewhat confusing data, it may be, as suggested by Jones (1978:205, fn. 88), that the Sutherland Bluff site (Mcl 55) correlates with Mission Tolomato; but no structural evidence of such a mission settlement has been noted so far, and at least today, the midden scatter is extremely thin, with many of the artifacts deriving from the 18th century British colonial occupation (Braley, personal communication).

Larson (1952) suggests that another, as yet unidentified mission was located on Harris Neck. If so, then the rectangular structures at Thomas Landing may be associated with the mission pueblo. Alternatively, the Harris Neck complex may comprise one of the principal aboriginal towns of the Espogache-Tupiqui chiefdom, which Jones (1978:207, fig. 17; see also figure 2, this volume) has placed nearby. On the other hand, it may be that the site on Creighton Island was a main town of the Tolomato-Guale chiefdom, which Jones (1978, fig. 17) had ascribed to the Sapelo Sound area (see also Braley et al. 1986:18).

Yoa

Historical Evidence: The northernmost Guale visita was located at Yoa, which Lanning (1935:13) plots on the mainland, about two leagues up the Medway River, across from St. Catherines Sound.

Archaeological Evidence: The Medway River today defines the boundary between Bryan and Liberty Counties. Setting aside the St. Catherines Island finds, two other occurrences of early Spanish materials are known from Liberty County, both of them on Colonel's Island. At Maxwellton Plantation (Li 9; previously recorded as Lb 1 and Lb 2), Larson (1952, 1953:10) recovered 11 majolica sherds. On the southeastern side of the same island, he found majolica in a shell concentration, designated as Li 391 (previously recorded as Lb 3).

No 16th/17th century Spanish materials have been reported from Bryan County.

Ossabaw Island

Historical Evidence: Lanning (1935) suggests that the Guale village of Asopo was situated toward the south end along the Bear River (on the western shore of Ossabaw Island). Jones believes that the town of Guale may have been initially on Ossabaw, then moved south to St. Catherines sometime within the following two decades.

Archaeological Evidence: No evidence of Spanish period architecture is known from Ossabaw Island; only ceramic evidence is available to document Spanish period settlement here.

DePratter (1974) summarized the available materials, noting that "since a mission once existed on Ossabaw, a large Spanish period site should be present somewhere on the island." But to date, only a single Altamaha period site (Oss 6) has been found. Oss 6,

located on a hammock adjacent to the junction of Burthead Creek and Cane Patch Creek, is a dense shell midden up to 0.5 m thick, covering the entire western third of the hammock. A collection belonging to Mrs. West contains a single Spanish olive jar sherd, plus ceramics spanning the Altamaha, Irene, and Wilmington periods.

Oss 19 is located in the South End Field adjacent to Newell Creek. This large site occupies a constantly eroding bluff, along which post holes and pits are visible. Limited testing unearthed early 19th century materials, as well as a Spanish olive jar and a variety of early prehistoric pottery.

Santa Catalina de Guale

Historic Evidence: In his review of early French and Spanish sources, John Swanton concluded (1922:50-55) that the principal town of Guale and its associated mission was initially established on St. Catherines Island by Pedro Menéndez de Avilés in the spring of 1566.

But in a recent assessment of the same evidence, Jones (1978:203) argues that prior to 1575, the town of Guale was not on St. Catherines Island, but rather to the north, either near Skidway Island or on Ossabaw. There is no question, however, that by 1587, both the Guale chiefdom and the associated Franciscan mission existed somewhere on St. Catherines Island (e.g., Bolton and Ross 1925; Ross 1926; Gannon 1965:39; Lyon 1976:154; Jones 1978:204).

Historian John Tate Lanning tried to pin down the location of Santa Catalina de Guale more precisely, based largely upon an account by Pedro de Ybarra, who visited Guale in 1604:

The Señor General and Father Fray Pedro Ruíz whom he had in his company came ashore and the said head of Guale and other chiefs and vassals of his came to the landing place to receive the Señor General and they saluted him as was their custom and kissed the hand of said Father Fray Pedro Ruíz. Then the Señor General marched with the infantry in order to the town of Guale which was a little more than half a league from the landing place and on arriving at the town, many Chiefs, Indian vassals of the said head, Don Bartolome came to salute the Señor General and all of them kissed the hand of Father Fray Pedro (translation from the notes of Mary Ross; see also Lanning 1935:143-144).

Assuming that Ybarra and Ruiz marched one-half league inland, Lanning speculated that Santa Catalina lay "half a mile inland, opposite Oldnor Island near the first stream of any size that breaks the island as one goes north from Sapelo Sound" (Lanning 1935:7, 143-144). Lanning therefore plotted the mission site near the extreme southern tip of St. Catherines Island.

A copy of the 1604 Ybarra account is also preserved in the Mary Letitia Ross Papers at the Georgia Department of Archives and History (from which the above translation was taken; see also Mendelson 1979). In the margin (at an unknown date), Mary Ross had written: "was landing at oyster footing factory? Is it 1/2 l. to main big house?" She was obviously referring to the dock and oyster boiler near South End Settlement (see Thomas et al. 1978:211). Assuming 1 league to be 2.5 mi (4.0 km) in length (e.g., Boyd, Smith, and Griffin 1951:11), the distance from this south end landing to the (now known) site of Santa Catalina is exactly 0.5 leagues.

That is, Mary Ross assumed (correctly, we now think), that the Ybarra account implied that the landing spot was near the oyster footing and that the 1604 expedition marched one-half league along the shore (rather than inland, as Lanning had assumed).

Marmaduke Floyd reached a similar conclusion in 1937, based on different evidence. Relying heavily on the Dunlop account (cited previously), Floyd argued that

on St. Catherines Island the "great settlement" mentioned by William Dunlop, who saw the abandoned place in 1687, was located on that part of the island now known as Persimmon Point. Upon many parts of the island there are evidences of large village sites and land much used by the Indians, but the most extensive sign of Indian occupation are on Persimmon point and vicinity The great Indian old fields on St. Catherines which were viewed by Dunlop in 1687 had probably been cultivated and kept open by the Indians for ages before; and the forest growth in the Indian old fields on this and other islands and the adjacent mainland on the coast can readily be distinguished from the primeval forest St. Catherines Island is mentioned here because of its use by the Spaniards as the Capitol of Guale for a long time, but no claims appear to have been made that ruins of Spanish missions are to be seen there (Floyd 1937:15, 46).

Finally, the DeBrahm map of St. Catherines Island, dated 1760, shows a structure (a "hous") near Wamassee Creek. Although it seems likely that these buildings were erected after Oglethorpe's founding of the Georgia colony, the positioning is precisely where we later found the ruins of Mission Santa Catalina de Guale (Thomas 1987).

A similar problem seems to exist on Sapelo Island. Larson (1980b:37) notes that structures on the DeBrahm map of Sapelo Island "are largely coincident" with the large sites known to contain Spanish ceramics. Larson suggests that post-1733 buildings might have been erected in areas of clearing or old fields.

Archaeological Evidence: In 1952, as part of the Georgia Historical Commission search for 16th/17th century Spanish missions sites along the Georgia Coast, Lewis Larson visited St. Catherines Island. Among the "good candidates for the location of a mission", Larson (1952:2; 1953:11, 31) lists "Wamassee Head on St. Catherines as the location of Santa Catherina de Guale", but he cautions that "no final and conclusive identification of a mission site can be made until adequate excavation ... has been undertaken". He also notes that its location, near Persimmon Point, agrees with Floyd's earlier (1937) suggestions about Santa Catalina.

Site form Li 13 (formerly Lb 8), prepared by Larson on August 12, 1952, reports "a series of shell mounds [that] ranged along the marsh edge [of Wamassee Head]. They are approximately 3' high and 50' in diameter." Larson notes recovery of Spanish and aboriginal sherds. To our knowledge, this is the first time geographic and historic conjecture was subjected to hands-on archaeological investigation.

Three years later, this site was "rediscovered" by Mr. John W. Bonner, Jr. and Ms. Carroll Hart, who had been retained in 1955 by Mr. Edward John Noble to prepare a historical overview of the island (Hart and Bonner 1956). Apparently unaware of Larson's research, Hart and Bonner became curious whether any signs of the mission could be found. Relying heavily on the 1687 Dunlop account, Bonner and Gaffney Blalock explored the coast southward from Persimmon Point. Although observing several archaeological sites in the area, they were particularly impressed with the quantity of historic period sherds washing out of the Wamassee Creek cut (John Bonner and Gaffney Blalock, personal

communication); they photographed and collected several olive jar and majolica fragments from the creek bed, correctly pinpointing Wamassee Creek as the general location of Santa Catalina de Guale.

Larson returned in 1959 to Wamassee Creek to conduct the first archaeological investigations in the vicinity of Mission Santa Catalina. The excavated sample contained evidence of a wide range of aboriginal occupations, but most of the sherds were aboriginal ceramics dating to the Spanish period. Larson also recovered sherds of the characteristic types of Spanish majolica ware that had been found on known Spanish mission sites in Florida; large fragments of Spanish olive jars were the most common evidence of Spanish occupation found in these tests. Although iron was not common, he found several hand wrought nails identical to the types found on the excavated sites of San Luis de Apalachee and La Concepción de Ayubali in Florida (cf. Griffin 1951; Morrell and Jones 1970). No structural evidence of Santa Catalina emerged in these limited tests.

Not long thereafter, in April 1965, at the request of Mr. Alger B. Chapman (Executor of the estate of Edward John Noble), John W. Griffin (then Staff Archaeologist, National Park Service) visited St. Catherines Island. Griffin had examined the artifacts and field notes resulting from Larson's excavations at Wamassee Head, and the primary purpose of his visit was to gather information regarding the eligibility of the site of Santa Catalina mission as a Registered National Historic Landmark. Griffin ultimately prepared two unpublished reports: a general overview of the potential for archaeological investigations on St. Catherines Island (Griffin 1965a), and a consideration of the specific whereabouts of Mission Santa Catalina (Griffin 1965b):

St. Catherines Island is richly endowed with archaeological resources.... The first need is for a detailed and systematic archeological survey which would pin-point all locations of human activity, test them to determine their depth and extent and cultural affiliation, and analyze the materials from surface collections and tests to establish a program of investigation of the most significant remains.... Further work on the site of Santa Catalina mission is in some respects of the highest priority... (Griffin 1965a:10-11).

It is not known at this time whether all of the mission settlements of the Spanish period were in the same location on the island. There is a possibility that the earlier, 16th century, location was toward the north end of the island, but this is not an established fact.

The location of Santa Catalina mission in the 17th century and at the time of its abandonment may, however, be fixed with assurance. The description of Captain Dunlop ... [cited above] is readily interpreted. The "ffurther point of that Isle" is Persimmon Point From that point southward along the inner side of the island for over a mile, to the area known as Wamassee Head, abundant shell midden refuse is found, dominated by Indian potsherds of the correct time period for the mission settlement....

Dunlop's description indicates an extensive settlement matching the present widespread midden deposits [near Wamassee Creek]. Given this condition and the perishable nature of the structures themselves -- they were of poles and thatch, not masonry -- it can readily be seen that extensive archeological work would be needed to pinpoint individual buildings of the settlement.

The location of the settlement is further indicated by negative evidence from elsewhere on the island. While many shell midden deposits from Indian times

are known on the island, only those in the area mentioned contain the concentration of Indian pottery of the correct time period for the mission. (Griffin 1965b:5-7)

Largely as a result of Griffin's report to the Noble Foundation, Joseph Caldwell and his students from the University of Georgia were permitted to conduct three seasons of archaeological fieldwork on St. Catherines Island. Although concentrating their efforts on mound excavations elsewhere on the island (as described in Larsen and Thomas 1982), Caldwell sank several test pits in the Wamassee Creek area. These limited soundings turned up, among other things, three Altamaha Line Block Stamped bell-shaped pots, plus olive jar, majolica, and Spanish iron fragments; water screening in the creek bed also recovered several dozen glass trade beads. In unpublished field notes, Caldwell speculated "There is no reason to believe, at present, that this is not the site of the mission of Santa Catalina. So far, however, our excavations have yielded little structural detail."

Such was the state of knowledge regarding the location of Mission Santa Catalina when the American Museum of Natural History began long-term fieldwork on St. Catherines Island in 1974. Seven years later, in 1981, the American Museum of Natural History discovered the ruins of the 16th/17th century mission of Santa Catalina de Guale, and full-scale excavations continue at that important site. Because distinct parallels exist between the previous successful search for Santa Catalina and the proposed search for San Miguel de Gualdape (discussed in Part VII), we present the details of that research, which have been recently published (Thomas 1987, 1988a and 1988b).

The American Museum of Natural History started looking for Santa Catalina in 1977 with an intensive reconnaissance and site evaluation of the whole of St. Catherines Island. This survey began with a 20 percent transect sample, obtained in a series of 31 east-west transects, each 100 m wide. The survey team -- 11 archaeologists spaced at 10 m intervals -- progressed at a constant rate across the island until an archaeological "site" was encountered. In the first survey phase, "site" was defined by the presence of oyster and/or clam shell. Although surface shell was readily observed, subsurface shell deposits could be detected only by systematic probing. To do this, each surveyor carried a 2 ft. steel probe and checked for subsurface shell at every third step. This initial survey disclosed the presence of approximately 135 archaeological sites, ranging from massive shell heaps to small, isolated shell scatters. Each "site" was then explored with two or more 1 m square test units; more than 400 such test pits were dug in this phase of excavation.

A second stage of regional sampling was necessary to control for sites not associated with shell deposits. To do this, in 1979, we began a series of systematic shovel tests on St. Catherines Island. Each shovel test was 50 cm in diameter and 1 m in depth, spaced at 50 m intervals along the southern margin of each 10 percent systematic transect.

The results of the 1000 test excavations on St. Catherines Island defined the distribution of Hispanic period artifacts across the entire island. With a single exception, all olive jar and majolica occurred in the Wamassee Creek drainage. And this is where Mission Santa Catalina was ultimately located (Thomas 1987, 1988a).

Site Structure at Santa Catalina: Before we found Santa Catalina, what little we knew about mission structure in Spanish Florida came mostly from excavations in the Apalachee Province. Another important clue came from a rare map surviving from the period (figure 6; see also Boyd, Smith, and Griffin 1951: plate 1; Manucy 1985:fig. 1). While not a map of the mission on St. Catherines Island, this plan view, dated 1691, depicts the fortified mission compound built on Amelia Island (then called Santa Maria) by refugees who had fled St. Catherines in the 1680s.

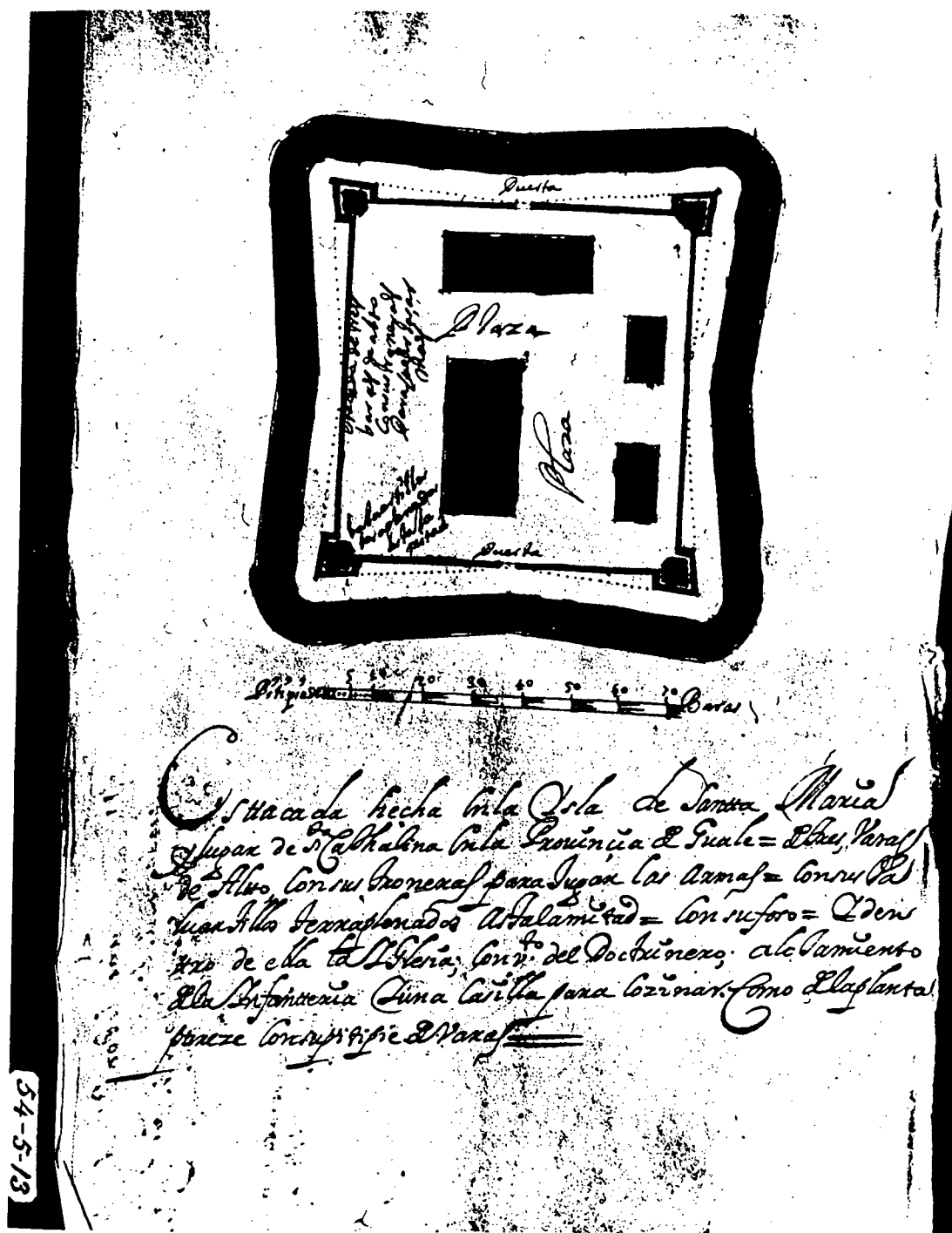


Figure 6. Plan view (1691) of Mission Santa Catalina de Guale, located on the Island of Santa Maria (after Thomas 1987, figure 7; courtesy of the P.K. Yonge Library of Florida History, University of Florida).

shell-lined postholes and spaced on 3.7 m centers. Although the facade wall is only about half the length of the lateral walls, these supportive uprights are more than twice the size of corresponding members employed elsewhere in the 17th century church. Either a pointed gable was elevated to support a steep thatch roof (as in Manucy 1985: fig. 5), or the facade had a false front projecting above the single-story construction of the nave. The public entryway was centered in the facade wall which, when fired, fell toward the southeast (outward across the churchyard).

The symbolic separation between nave and sanctuary was emphasized by a composite construction technique. The sanctuary (northwestern) end of the church, constructed entirely of wooden planking, was apparently elevated above the lateral wattle and daub walls of the nave.

A clearly demarcated sacristy, measuring 5 m wide by 3 m deep, was built on the Gospel side of the church (the left-hand side of the sanctuary as one faces the altar). This room was presumably used both for storage of vestments, linens, candles, processional materials, and other ritual paraphernalia essential to performance of the Mass. Both the placement and configuration conform to 16th/17th century structures in New Mexico where "the sacristy is invariably a modest room of which the function is indicated only by location and furniture" (Kubler 1940:71-72).

Inside the sacristy we found a cache of charred wheat kernels, an unusual find in Spanish Florida. We suspect that the wheat recovered from the sacristy at Santa Catalina was destined to be baked into the "host," flatbread used in the Eucharist. While wheat probably never had assumed great dietary importance to Spaniards living in La Florida, the wheat kernels cached in the sacristy underscore the effectiveness of the Franciscan Order in obtaining the supplies necessary for the proper conduct of Church ritual -- even on the most remote northern frontier of the Guala province.

Fronting the church at Santa Catalina is a square shell-covered subplaza, measuring about 15 m on a side. This churchyard (or *atrio*) was probably a low-walled enclosure demarcating the public entrance to the church. Ubiquitous features of New World religious architecture, churchyards served not only as a decorous entryway into the church, but also variously functioned as outdoor chapels, areas to contain overflow congregations, and sometimes as cemeteries (Kubler 1940:73-75; Montgomery, Smith, and Brew 1949:54).

The churchyard at Santa Catalina was constructed of water-rolled marine shell, available from naturally occurring deposits scattered along the intercoastal waterway; these massive shell bars, accessible only by watercraft, today continue to provide building aggregate. Low level aerial photography has disclosed a faint pathway leading across the atrio into the church doorway. This narrow line of crushed, compacted shell was created by hundreds of 17th century processions, neophytes moving single-file to attend services at Santa Catalina.

An important cemetery was also located beneath the church floor. Project physical anthropologist, Clark Spencer Larsen, has supervised the complete excavation of the cemetery; the last burial was removed in May 1986. Roughly one-third of the burials occurred in primary context, buried in a supine position with feet toward the altar and hands across the chest or (less commonly) across the abdomen. The remaining individuals were found as scattered, disarticulated bone in the upper grave fill -- a secondary zone of disturbance created as previous interments were disturbed by later interments.

The cemetery at Santa Catalina contained a truly astounding array of associated grave goods: four complete majolica vessels, several projectile points, a chunky stone, a rattlesnake

shell gorget, two complete glass cruets, twelve crosses of metal and wood, ten small glass and gold leaf cruciform ornaments, ten bronze religious medals, one gold medallion, one silver medallion, two mirrors, fifteen finger rings, two hawk bells, one rosary, eight shroud pins, two copper plaque fragments, one clay tablet (with depictions of saints on both sides), one large piece of shroud cloth, and glass trade beads numbering (at least) in the tens of thousands.

The Friary (Convento) Complex: Eastward across the plaza stood the convento and cocina complex. The convento (usually translated as monastery, convent, or friary) comprised one or more subsidiary buildings in which friars and lay brothers lived their cloistered lives, according to the rules of their order (Kubler 1940:72).

At least two superimposed conventos exist at Santa Catalina. The earlier structure was probably built in the late 1580s shortly after the Franciscans arrived. Second only in size to the church itself, it measured 16 m long, and roughly 7 m wide, the long axis running roughly northwest-southeast (at an angle of 310°). Construction was entirely of rough wattle and daub (considerably coarser than that employed in building the church).

The kitchen and refectory were housed inside the 16th century convento structure, the other rooms probably used for living quarters and storage. Kitchen debris, and table scraps were tossed out the backdoor, where a fringe of shell midden accumulated against the rear wall -- well out of sight from the church.

Although perhaps a minor nuisance to the barefoot friars living there, this backyard midden served a useful function. When torrential Georgia rains hit the convento -- driving gallons of rainwater off the thatched roof -- the midden dispersed and drained the runoff. A clearly-incised dripline demonstrates that the 16th century convento had eaves extending about 100 cm beyond the rear wall.

This early convento was destroyed by burning, probably by rebellious Guale in 1597. Temporarily abandoned, Mission Santa Catalina was re-settled in 1604. When Fray Ruiz supervised the reconstruction, he apparently separated sacred from secular, because a distinctive cocina was erected 20 m to the north of the new convento. The detached kitchen was also a common feature in urban St. Augustine (Deagan 1983:247). A barrel well was excavated between the two buildings, and a well-beaten path connected the well with a north-facing doorway of the friary.

The southeastern walls of both 16th and 17th century conventos were built on the same location. But the later structure was somewhat smaller, measuring only 12 m long, and 8 m wide. Moreover, the long axis of the 17th century convento is 325°; the 10° difference in orientation greatly facilitates separating the two buildings during excavation.

The later friary consists of four daub walls, three well-defined, and one less well, accompanied in all cases by in situ wall posts. Because excavation continues in the subsurface daub pits and wall trenches, it is difficult to assign specific functions to individual rooms in the friary. But at this point, it appears that the 17th century convento was subdivided into several small rooms arranged around a central enclosure. A slightly larger room defined the southern end of the friary. Perhaps a refectory or library, this evidently communal room was apparently heated by a circular charcoal brazier (cf. Manucy 1978:33). A doorway passed directly from this room to the outside.

The western wall was enclosed by a well-defined arcade, probably a colonnaded porch marking the eastern margin of the central plaza. At least three doorways faced the church to the west. This porch was exactly aligned with the western wall of the cocina.

Cooking for the friars was probably transferred to this new structure early in the 17th century. Although most kitchen debris was discarded some distance away (no doubt outside the walled mission compound), some midden accumulated in pits near the cocina, and occasional smaller pieces of garbage were tramped underfoot, being thus incorporated in the kitchen floor.

Although the 17th century convento was apparently kept considerably cleaner than its predecessor, a thin scatter of shell midden occurs near the doorways. This trash appears to be squatter debris, discarded after the building had been abandoned, but was still standing.

Such is the state of knowledge at Santa Catalina (pending the results from on-going excavations). We have gone into detail in order to dispel the once-prevalent notion that a few Hispanic sherds make up a mission along the Georgia coast. Although sherd scatters remain important in identifying a potential mission, it is only through a consideration of site structure that such positive identifications can be made. How to do this is the subject of the next section.

VII. KEY RESEARCH AND MANAGEMENT DOMAINS

RESEARCH DOMAIN I. THE CHRONOLOGY PROBLEM

In Part VI, we summarized the two relevant ceramic chronologies available for the Georgia Coast. Table 1 summarized the known temporal ranges for Hispanic imported ceramics and, although further refinement is desirable on this chronology, the basic framework is solid.

We also presented in Table 2, a generalized chronology for aboriginally produced ceramics on the Georgia coast (after DePratter 1979: table 30). While this table provides a convenient summary of the conventional wisdom, the temporal ranges of the late prehistoric and proto-historic ceramic complexes is still in dispute. Perhaps the most widely held position, and that employed here, is that the Irene ceramic complex developed initially during the 12th or 13th century (Table 1; see also DePratter 1979, 1984; DePratter and Howard 1980). Others take exception with this position, suggesting that Irene ceramics date no earlier than the 15th century (e.g., Crook 1978b; Milanich 1977, 1986; Larson 1978). Discussion has centered largely around the possible associations of contact period artifacts in terminal Savannah contexts. Several possible solutions exist: perhaps the associations are incorrect; perhaps Irene is older on the northern Georgia coast; perhaps a sacred-secular ceramic dichotomy on the southern coast obscures the temporal relationship (Milanich 1986:61). Resolution of this important issue remains an important research focus for late period archaeology on the Georgia coast.

Chronology: Some Basic Concepts

Resolution of the chronological issue will occur only if archaeologists are willing to pay close attention to the principles of classification and typology as practiced in American archaeology at large. An approach specific to the Georgia coast is no approach at all.

The first requirement is that all investigators agree on basic units. It is axiomatic in archaeology that the type is the basic unit of artifact analysis, an ideal construct that allows archaeologists to transcend individual artifacts to consider more generalized categories (Thomas 1989). The morphological type reflects the overall appearance of a set of artifacts, emphasizing broad similarities rather than focusing upon specific traits. Morphological types are descriptive, enabling the archaeologist to summarize large sets of individual artifacts into a few ideal categories.

The temporal type serves a more specific function, to monitor how artifacts change through time. Temporal types are best defined through stratigraphic analysis; acceptable temporal types cannot be defined on the basis of surface or plowzone associations.

Contemporary archaeologists are equipped with a powerful battery of techniques that can be used to date objects of the past. Radiocarbon dating, for instance, is a physiochemical technique monitoring radioactive emission from organic specimens; by determining the current rate of C-14 breakdown, one can estimate the length of elapsed time since the death of a plant or animal. Recently, physicists have discovered that the atmospheric level of radiocarbon has changed somewhat over the last several millennia; many archaeologists now "correct" their radiocarbon dates using an absolute chronology based on radiocarbon dating of bristlecone pine samples of known age. New advances in

accelerator-based radiocarbon methods permit archaeologists to use extremely small samples, vastly stretching the potential of the method.

But dating techniques, by themselves, tell us nothing about cultural activities. Radiocarbon dating, for example, can only estimate when a certain tree or a specific clam died. In each case, the event being dated must be demonstrated to be coeval with a behavioral (cultural) event of interest.

A number of basic archaeological units apply to the supra-artifact level of analysis. The archaeological component is a culturally homogeneous stratigraphic unit within a single site: components are thus site-specific. Similar components at different sites can be synthesized into phases which are archaeological units of internal homogeneity, limited in both time and space. In general, phases comprise the basic archaeological building-blocks for regional synthesis. On the Georgia coast, such ceramically defined phases are often combined into temporal periods.

To resolve the chronological problems on the Georgia coast, archaeologists must be willing to articulate the above general principles with well-designed fieldwork. Badly needed are carefully controlled stratigraphic excavations in primary contexts. Considerable research is likewise required before archaeologists can take full advantage of radiocarbon technology in the coastal setting. The difficulty remains in separating naturally occurring from cultural charcoal. Dating of marine shell is also problematical. Long-dead oyster shells are commonly incorporated into middens, and dates from these non-food items are misleading; clam dates seem better in this regard. Archaeologists also have yet to address the biased results obtained due to a "reservoir effect" along the Georgia Coast. Considerable methodological and substantive research remains to be conducted at the primary, chronological level.

RESEARCH DOMAIN II. THE ABANDONMENT HYPOTHESIS

A major change in thinking has occurred over the past decade, largely due to the integration of archaeological and ethnohistoric investigations. Both archaeological and historical evidence now suggests that at the time of de Soto's *entrada*, the mouth of the Savannah River, and a corridor between Port Royal Sound and St. Catherines Island were abandoned (see esp. DePratter 1989a; Hally et al. 1985; Anderson et al. 1986). Because of the importance of this evidence to our understanding of contact-period ecology and demographics, we address this question in some detail, relying heavily upon DePratter's (1989a, 1989b) recent arguments.

In Part VI, we considered the coastal Georgia ceramic sequence, and its relevance to the suggested contact-period abandonment of this area. Assuming that the Irene ceramic complex indeed dates to the prehistoric period along the central and northern Georgia coast, then this artifact level evidence can now be expanded to a regional level, in the attempt to sketch patterns of regional chronology and demography. Archaeological surveys along the northern Georgia coast dramatically confirm a pattern of intensive Irene period occupation, followed by an abandonment about A.D. 1450. South of the Savannah River, nearly 1000 archaeological sites have been identified in Chatham County alone, most of the sites located on the coastal islands (DePratter 1974, 1975, 1977a, 1978; 1989b; Pearson 1977a, 1979).

Archaeological surveys clearly confirm the presence of Irene period occupation in this area. A survey of Ossabaw Island recorded 160 sites, more than of 40 of which have components dating from the Irene period (DePratter 1974; Pearson, 1977, 1979). A similar reconnaissance on nearby Skidaway Island determined that 11 of the 68 recorded prehistoric

sites contain Irene period components. Moreover, analysis of the ceramic diagnostics -- range of stamped motifs, rim and lip treatments, and incising -- clearly demonstrates that on Ossabaw and Skidaway Islands the aboriginal occupations date from the early portion of the Irene period; both islands were apparently abandoned by about A.D. 1450.

Independently, Cook (1987) has synthesized the archaeological evidence for contact period aboriginal sites along the Georgia coast from the Altamaha River northward; the densest occupation clearly occurred in the Sapelo Sound area. No similar concentration of contact populations is known for any other location of the coast south of Winyah Bay.

This pattern can also be documented at the Irene type site, located just upstream from Savannah (Caldwell and McCann 1941). Here, an extensive Savannah period occupation is followed by a relatively brief Irene period episode. Although platform mound construction ceased during the Irene period, a burial mound continued to be used, a new mortuary was constructed, and a new rotunda (or council house) was built to serve as a center of religious and political activities (Crook 1986; DePratter 1989b). As noted previously, incised ceramics were rare at the Irene site, and these infrequent incised motifs were relatively simple, with only a small number of decorative elements employed. Like Ossabaw and Skidaway Islands, the Irene site was probably abandoned roughly A.D. 1450.

This sequence is also evident north of the Savannah River (DePratter 1989b). Hundreds of prehistoric and contact period sites have been recorded in archaeological surveys on Callawassie Island (Michie 1982), Daufuskie Island (Michie 1983), Pinckney Island (Braley 1982), and along the shoreline of Port Royal Sound (Michie 1980). But of all these sites, only 18 had components dating to the Irene period, and all were abandoned prior to A.D. 1450 (DePratter 1989b). Rim and lip treatments on the ceramics from these coastal South Carolina sites are identical to those employed at the Irene site, and collections from these 18 sites contained only a single Irene Incised sherd.

Aboriginal occupation from the late 15th and 16th centuries can be documented at only one site along the entire southern coast of South Carolina -- Santa Elena, the Spanish capital town on Port Royal Sound, known to have been occupied between A.D. 1566 and 1587 (Lyon 1984; South 1988). The recent analysis of this important collection has shown that the aboriginal ceramic assemblage is identical to the Irene and Pine Harbor materials from the Georgia Coast (DePratter 1989b).

The combined archaeological and documentary evidence strongly suggests that a 40 mile stretch -- from the southern end of Ossabaw Island (Georgia) to the northern end of Hilton Head Island (South Carolina) -- was effectively abandoned from about A.D. 1450 until the arrival in the 1680s of the Guale refugees fleeing northward. This coastal no man's land appears to be continuous with a much broader unoccupied buffer zone, thought to extend inland to the upper reaches of the Savannah River.

Is the apparent absence of late Irene materials in this corridor simply a product of insufficient and unsystematic archaeological survey? If the abandonment is real, did the area become uninhabited simultaneously or on a progressive basis? What processes account for the abandonment of this long stretch of previously desirable marshland? It is clear that additional systematic and problem-oriented research is required here. Simply digging holes and collecting sherds will not solve the problem.

RESEARCH DOMAIN III. WHERE IS SAN MIGUEL?

San Miguel de Gualdape was the first European settlement in what is now the United States (see discussion in Part V), and identifying the exact whereabouts of San Miguel assumes critical importance in future research on the Georgia coast. Beyond the intrinsic historic and public significance of this site, its exact placement would enable anthropologists and ethnohistorians to rethink the significance of the early 1521 and 1526 ethnographic observations. Up to now, uncertainty about the whereabouts of San Miguel has led scholars like Swanton (1922) and Jones (1978) to discount Martyr's important comments. But if Ayllón truly landed among the Guale, then the important data from the unidentified land of Gualdape can be applied to the aboriginal people of the Georgia coast.

Although finding San Miguel would be no easy task, recent independent developments in the fields of ethnohistory and archaeology surely raise the possibility. To briefly recap the discussion in Part V, historical research by Paul Hoffman suggests that San Miguel was located in Georgia, not in South Carolina (as many previous investigators had proposed). Hoffman's thesis holds that the 1526 colonists landed at the Santee River-Winyah Bay area but soon abandoned it for a location further south, most likely at Sapelo Sound, the location of the historic Guale People. As discussed earlier, this thesis fits well with the available documentary and archaeological evidence and with the aims of the expedition of 1526. We now think that archaeologists have an excellent chance of finding the remains of this key site.

But even if San Miguel is not found, the results of the search will greatly increase knowledge of the distribution of both contact period Native American sites and also 16th/17th century Spanish mission sites thought to exist in the Sapelo Sound area. Processes of demographic and cultural change in the Southeast growing from Native American contact with Europeans can thus be given a definite beginning point in space as well as in time.

If evidence survives, the San Miguel site should also allow a first look at how Spaniards tried to adapt their culture to the resources they found along the coastal strand, a fragile environment yielding abundant animal and fish proteins but few carbohydrates familiar to the Spaniards. In sum, the search for San Miguel de Gualdape may permit investigation of several themes of importance to the later history of the region, as well as the documentation of the location of the first European settlement in the United States.

Testing the Hoffman Thesis

Hoffman's historical research provides a critical new point of departure for understanding the contact period of the Georgia coast, and we suggest that the search for San Miguel be assigned high priority, with a focus on the St. Catherines/Sapelo Sound area. Below, we set out a search strategy that attempts to identify the major contact period Native American sites and early 16th century Spanish remains. Even if San Miguel is not discovered in the initial survey, knowledge of the locations of Native American sites will help narrow the range of possibilities.

We hope that a well-coordinated archaeological team can launch a comprehensive search for San Miguel. The best strategy would follow the basic tenets of modern archaeological scholarship, observing a distinctive conservation ethic, employing systematic and randomized principles of sampling, and non-invasive, non-destructive procedures wherever possible. Such research could proceed according to the following steps:

Phase I. Analyze Existing Relevant Archaeological Data: A considerable body of relevant archaeological material has already been collected, but the majority of these artifacts have not been analyzed. Although most of the Spanish materials are undoubtedly mission-related, we will begin looking for the San Miguel settlement in these already-available archaeological samples.

The search for San Miguel should focus on two important unanalyzed collections. From mid-1970 through 1984, DePratter has conducted an extensive site survey of Sapelo Sound. This research, funded mostly by NSF, was directed toward correlating archaeological site distributions with sea level changes during the last 4000 years (e.g., DePratter 1977b). Several of the smaller islands in Sapelo Sound were completely surveyed, and the larger islands received 10-15 percent coverage. At least 200 sites were located, mapped, and sampled, but the data are presently unavailable for use in the search for San Miguel de Gualdape.

The second important unanalyzed collection from Sapelo Sound was excavated in the mid-1950s by S. K. Caldwell at Ft. King George. A large sample of protohistoric aboriginal ceramics and Hispanic material was recovered in association with human skeletal remains. Caldwell thought she had located the mission of Santo Domingo de Talaxe, but this seems unlikely.

These unanalyzed collections should be studied using an explicit set of procedures, suitably standardized so as to be meaningful and accessible to other qualified researchers. One such strategy is sketched below; other research designs are also feasible.

We suggest employing procedures already developed for use on the huge collections recovered at Mission Santa Catalina. Aboriginal ceramics should be classified into the standardized categories of the north Georgia coastal sequence (see earlier discussion), with special emphasis on attribute-level analysis of rim and surface decoration. The Hispanic sherds should be classified according to Deagan's criteria (1987). Georgia State site forms should be filed for all sites not previously recorded into that system.

Artifact counts should be entered into a standardized database, such as that originally devised by the late Dr. Gary Shapiro at San Luis (Florida), and adapted for use at Santa Catalina. By employing one such standardized recording system and its terminology, investigators working anywhere in the American Southeast can have access to all Spanish period data in a systematic format. The Sapelo Sound assemblages can then be compared using appropriate statistical techniques and graphically arrayed using the commonly available computer packages (such as SAS, SPSS, and MINARK).

Analysis of extant collections should reveal three important kinds of information:

- (a) the distribution of early 16th-century Spanish ceramics (if any) in Sapelo Sound;
- (b) the distribution of late prehistoric and early protohistoric Guale village sites;
- (c) the probable locations of late 16th/17th-century Spanish mission sites in this area.

This database will also provide extremely useful data on ceramic and site distributions for the prehistoric archaeological record (although those distributions will not be studied as part of this proposal).

Phase II. Find San Miguel: On the basis of these newly generated data, the research team should be able to target the most likely locations in Sapelo Sound for field investigations. Only after this lengthy period of analysis and interpretation should archaeological fieldwork be attempted in the high probability areas. Once again, we suggest that the lessons learned in previous fieldwork at Mission Santa Catalina provide a useful guide in the search for San Miguel.

Because distinct parallels exist between the successful search for Santa Catalina and the proposed search for San Miguel de Gualdape, in Part VII, we presented some of details of that research.

If the probable site of San Miguel is found by such procedures, limited site sampling should be done to determine its general layout. But we urge investigators to undertake such excavations with care until adequate remote sensing studies can be planned and implemented. But if the site of San Miguel de Gualdape cannot be identified on the basis of this preliminary search, the focus should shift to the identification of contact-period Guale towns.

RESEARCH DOMAIN IV. WHERE ARE GEORGIA'S SPANISH MISSIONS?

A similar problem exists with regard to the whereabouts of Georgia's Spanish missions. Although dozens of 16th- and 17th-century Jesuit and Franciscan mission outposts were established along the Georgia Coast, only one site -- Santa Catalina de Guale -- has been definitely identified (see the summary of evidence in Part VI). Locating the exact archaeological sites associated with each mission settlement is critical not only because of the evidence forthcoming about the early Hispanic presence, but also because exact mission locations, once established, will provide ethnohistorians and archaeologists with the geographic framework necessary to apply the available documentary evidence from each mission to specific aboriginal groups.

RESEARCH DOMAIN V. WHERE ARE THE KEY ABORIGINAL TOWNS ON THE GEORGIA COAST?

The archaeological and documentary evidence marshaled above (in Research Domain II) strongly suggests that the coastal area from the southern end of Ossabaw Island to the northern end of Hilton Head Island was effectively abandoned between about A.D. 1450-1680. If this interpretation is correct, then the several aboriginal towns variously ascribed to this "no man's land" must have been incorrectly plotted (DePratter 1989b).

Both the French and Spanish accounts are too vague, for instance, to pin down the exact location of the main town of Guale. John Tate Lanning (1935:13) and Grant Jones (1978) have both suggested that a possible location could be along the inland waterway, to the west of Ossabaw or Skidaway islands. But recent archaeological surveys have failed to locate any potential sites in this area; only one small late Pine Harbor/Altamaha phase site has been found in the area behind Ossabaw Island (DePratter 1974), and sites dating from this interval are totally lacking on Skidaway Island. DePratter (1989b) argues that the town of Guale was always located on St. Catherines Island.

If true, then the abandonment hypothesis also casts doubt upon Jones' placement of the Guale town of Yoa inland to the west of Ossabaw Island (figure 2, this volume). The lack of archaeological evidence in this area (and sources cited in Swanton 1922:82) suggest a placement inland from St. Catherines Island. Similarly, whereas Jones (1978) suggests that Satuache existed on the mainland across from Wilmington Island (just south of the Savannah River), the combined documentary and archaeological evidence strongly suggest placement of Satuache north of Port Royal Sound, in the vicinity of the Edisto River (DePratter 1989b; Swanton 1922:61; Lanning 1935:203; Waddell 1980:105).

Finally, Swanton (1922: Place 1) plotted Escamacu on or near Hilton Head Island, to the south of Port Royal Sound; Waddell (1980: Endpiece) likewise places Escamacu between Port Royal Sound and the Savannah River. But the archaeological evidence and documents of the Pardo expedition suggest that Escamacu must have been in the upper reaches of Port Royal Sound (DePratter, Hudson, and Smith 1983; Jones 1978: figure 170; for an alternative reconstruction of Pardo's route see Larson 1990).

RESEARCH DOMAIN VI. THE GUALE PROBLEM

Paleoethnography of the Georgia Coast

As emphasized in Part II of this *Research Design*, contemporary archaeology has three sequential and complementary objectives. Whereas constructing chronology is indeed one of archaeology's goals -- and the five research domains set out above are indeed chronological -- this should be only an initial objective. Although some archaeologists have spent their entire careers working out the nuances of one regional sequence or another, chronology must not be allowed to become an end in itself. Rather, chronology is an absolutely necessary first step in setting up more sophisticated inquiries.

What are these "more sophisticated inquiries"? We subsume the various intermediate-level reconstructions under the general rubric of lifeway, a term describing the multitudinous aspects of human existence: population density, settlement pattern, cultural ecology, technology, economy, social organization, kinship, legal systems, social stratification, ritual, sanctity, art. Year by year, archaeologists are expanding the horizons of what is known as lifeway, and these new insights are particularly relevant to historical period archaeology on the Georgia coast.

The study of extinct lifeways, called paleoethnography proceeds quite differently from the construction of cultural chronologies. One shift is in field technique. When constructing chronology, one seeks the largest, deepest, most clearly stratified site. It does not really matter where the artifacts come from within a level, so long as the mixture between the levels is minimized. In the past, many archaeological sites have been mined for time-sensitive artifacts; in these cases, horizontal provenience was simply not relevant to the temporal objectives. But in so doing, data potentially important to future problems were lost forever.

This field strategy must change when one begins to reconstruct a lifeway. Archaeologists must pay close attention to where artifacts come from within the stratigraphic units, that is, to the contexts of the artifacts. A pottery vessel containing the bones of an infant tells us something quite different from a vessel containing corn meal.

Paleoethnography offers the archaeologist many chances to expand these paltry sources of information. The archaeologist concerned only with cultural chronology will view a fire hearth as a means of obtaining radiocarbon dates. But the fire hearth is a wealth of additional information to the paleoethnographer. Hearths often contain the remains of tiny seeds and hulls, which provide clues as to which wild or domestic crops were harvested. Burnt bones within a hearth can indicate not only which animals were eaten, but also which season the campsite was occupied. Even the structure of the charcoal itself can be important, telling the observant archaeologist where the people may have gathered their firewood and also something about past environments of the surrounding area.

These, and other theoretical and methodological considerations must be brought to bear on the pressing questions about aboriginal and Euro-Americans who lived along the Georgia coast during the 16th and 17th centuries.

Guale Lifeways

In Parts IV and V, we outlined the so-called historical facts -- and some of these remain in dispute. But even if one could get all these "facts" straight, the ethnographic and ethnohistorical meaning attributed to such "facts" is anything but clear. The Guale may be the best known of the the 16th- and 17th-century Muskogean groups, but even basic details of subsistence and social organization remain today in dispute. "The 'ethnohistoriographic' problems inherent in a study of the Guale are immense" (Jones 1978:242).

Transcending Swanton's (1922) all-encompassing synthesis, the first detailed reconstruction of Guale ecology was framed by Lewis Larson. In his pioneering analysis of environment and subsistence technology on the Georgia coast, Larson found the environmental potential for cultural and social development to be seriously constrained (Larson 1969, 1980a). Poor land resources were thought to have limited horticultural productivity to such an extent that only a highly dispersed, seasonally mobile population could have survived there (see also Crook 1986).

Contrasting the Guale with the considerably more sedentary groups of Apalachee Florida, Larson argued that Guale agriculturalists

[shifted] their cultivation as it became necessary to fallow a field. Because the soils suitable to agriculture occurred in small and widely scattered patches, it was necessary for them to shift their residences each time a new field was opened to cultivation and an old field allowed to lie fallow (1980a:221).

Larson (1978:122, 127, 137; see also Crook 1984:260, 1986:18-20) argued that whereas agriculture was indeed practiced in late prehistoric times, "its importance seems to have been slight.... The Guale were a coastal people whose economy was centered on the tidal waters where they derived a subsistence from fishing. Agriculture and hunting were of relatively minor importance" (1978:122, 137).

This interpretation relied heavily on then-available ethnohistoric and archaeological evidence. Particularly important was Father Rogel's 1570 account of Guale settlement pattern :

The Indians were so reluctant to receive the Catholic religion that no admonitions would curb their barbarity -- a barbarity based on liberty unrestrained by the yoke of reason, and made worse because they had not

been taught to live in the villages. They were scattered about the country for nine of the twelve months of the year, so that to influence them at all, one missionary was needed for each Indian (in Barcia 1951:152).

The Rogel account goes on to rationalize, after he returned from 11 months in Guale, the failure of the Jesuit efforts. According to Rogel, the problem was due first to the missionaries' inability to concentrate the Indians in permanent settlements because the soil of the region would not allow intensive agriculture, and secondarily to the disturbances caused by the Spanish garrisons' dependence on the Indians for food.

Another relevant source, a letter written from Guale on March 6, 1570 by Father Sedeño, described coastal Georgia and its landscape:

It is full of huge pines and barren forests; and this is the reason as I have written at other times to your excellency, that the few Indians that are there are so scattered; because as they do not have that with which to clear the trees for their fields they go where they find a small amount of land without forest in order to plant their maize; and as the land is so miserable they move with their households from time to time to seek other lands that they can bring to productivity (cited in Larson 1980a:208).

Reasoning from this evidence, Larson concluded:

The first missionaries in the Guale area complained bitterly about the fact that the Indians neglected agriculture in favor of hunting and fishing, which meant that permanent settlements were not the rule, for long seasonal junkets in pursuit of game mitigated against a settled populace (Larson 1978:122; see also 1969:293-297; 1980a:206-209).

More recently, Larson summarized this position as follows:

I have argued that Guale agricultural productivity was low; that Guale agricultural technology was swidden technology; that Guale subsistence depended not only on agriculture but also on hunting and gathering....

On the Georgia coast extensive areas of soil suitable for agriculture did not exist. The area is broken into small pockets of different kinds of soil, some are too poorly drained, some are too permeable, all are characterized by acidity and poor moisture retention. My understanding of the suitability of the Georgia coast for swidden cultivation bears out the Jesuit commentary on Guale agriculture. Without techniques to renew soil fertility I do not believe the Guale could cultivate a given acreage for many seasons, perhaps for no more than one, without fallowing for a long period, at least 10 years or longer. The small areas of drained (but not too permeable) land made it difficult to cultivate and fallow fields in sequence around a fixed house site let alone a sedentary village.

The priests in the post-Jesuit, Franciscan period seem to have brought about a marked change in Guale subsistence by introducing new cultigens and probably new techniques of manuring that allowed long term cultivation of fields. Perhaps more extensive areas could also be cultivated.... Pre-Franciscan Guale cultivation required other subsistence activity which in turn required that group to disperse at certain times of the year (e.g., in the fall to harvest mast)....

I would no longer characterize the Guale in the same manner as I did in the 1978 paper.... That paper was written almost 25 years before it was published and apparently circulated in a manuscript form for a number of years....I would no longer make the statement that "permanent settlements were not the rule" (1978:122), and I now feel that the Guale had large permanent towns but that swidden agriculture was the rule and that the populace did seasonally leave the towns to cultivate and exploit other seasonal resources (e.g., acorns). I did not characterize the Guale as a chiefdom in the 1978 paper because that terminology was not applied by Sahlins and Service until about 1958 or 1959 after Kirchoff's paper was finally published in 1955 and its significance began to be recognized. I did not use the term chiefdom in the dissertation or in the 1980 published version because I did not discuss Guale social organization. However in my own defense I would point out that the 1978 paper certainly discusses the Guale political structure in terms of titles, ranks, territorial jurisdiction, central leadership, etc. (Lewis Larson, personal communication; cited in Thomas 1987:60).

Aspects of Larson's views on Guale subsistence and settlement have been shared and amplified by a number of other investigators (e.g., Wallace 1975:265-271; Pearson 1977a:62-63; Crook 1978b:48-49, 280; 1984; 1986; Reitz and Scarry 1985:46; Reitz 1988).

An alternative model of late prehistoric ecology on the Georgia coast was initiated by the ethnohistorical research of Grant Jones (1978), and strongly reinforced by the rather controversial demographic evidence assembled by Henry Dobyns (1983; see also Fairbanks 1985).

In the Apalachee area, de Soto ran into what was clearly a chiefdom level organization in 1540. But later Spanish missionaries found little evidence of organization above the village level (Fairbanks 1985:133-134). Although some ritual patterns were retained, mound building and use had stopped by the arrival of missionaries; Southern cult paraphernalia are also totally lacking from these mission sites. The Indians' inability to maintain the elaborate ritual necessary for the smooth function of that polity is reflected in the cessation of mound building.

Dobyns (1983) and Fairbanks (1985) have argued that the Spanish *entrada* into Apalachee and elsewhere resulted in a massive reorganization of the culture and major population reduction. Dobyns (1983:292) estimates that levels of Timucuan-speaking populations dropped from more than 700,000 people to less than 175,000 people during the 15 years following 1515 -- and there is no reason to believe that such precipitous declines were restricted to the Timucuan-speakers.

Scattered villages encountered in Apalachee during the subsequent mission period apparently held migrants from the west and the north, probably refugees from similar depopulations. Combined with the loss of redistributive chiefdomship organization during the mid-16th and early 17th centuries, this change shattered traditional lifeways throughout the Southeast. In fact, Fairbanks attributes the failure of Spanish Florida to an underestimation of how depopulated the Southeast had become due to the excesses of the de Soto expedition (1985:139). It seems likely that historians, anthropologists, and archaeologists have also underestimated the full impact of the early Spanish *entrada*. Rethinking the period of earliest European contact in the Southeast has only just begun.

Specifically, ethnohistorian Grant Jones (1978) has proposed a "tentative and exploratory" model for the Georgia coast this way: "on the empirical level I believe that [the

conventional wisdom, outlined above] has led to an overstatement of the isolation of the Guale from the interior, the unproductivity of Guale horticulture, and the scattered quality of Guale settlements" (Jones 1978:189).

Reinterpreting the Jesuit accounts cited above, Jones argues instead:

Guale horticulture, I suggest, was sufficiently productive, in combination with other subsistence and productive activities, to account for the presence of permanent towns, a chiefdom level of social organization, temporary federations of chiefdoms under centralized leadership, and long distance trade networks. The chiefdoms were characterized by dual features of political organization and an emphasis on matrilineal succession.... I strongly suspect that the Guale inhabitants were scattering in order to avoid contact with the missionaries, whom they refused to listen to or accept. Significant factors in their resistance would have been the practice of forced tribute payment in maize to the Santa Elena garrison and the epidemic of 1569-1570, which was blamed on the priests. Sedeño's letter read as if they were intentionally exaggerating the "misery" of the land and the recalcitrance of the pagans, perhaps in order to procure a transfer. Rogel's letter is clearly an apology for his abandonment of the mission, placing the blame for his failure on the intransigent natives and the policies of the secular authorities....The Jesuit portrait of a highly mobile, dispersed population with insufficient maize to last the year and a weakly developed political system does not conform with the earlier French reports or with subsequent documentation....The Jesuit reports were exaggerated and misleading" (Jones 1978:179, 191).

Jones' reinterpretation suggests another way of viewing Guale subsistence, settlement pattern, and sociopolitical organization. Basic differences exist between the two interpretations; these differences cannot be dismissed as merely temporal or acculturative (e.g., Crook 1986:73).

We thus have a "Guale Problem" that addresses the basic nature of coastal subsistence prior to European contact (after Thomas 1987:60):

Do coastal environments -- in and of themselves -- seriously constrain potential for cultural and social development?

Was Guale population density low at contact, or did they suffer massive depopulation during the early 16th century?

Were the Guale part-time farmers, or were they sedentary horticulturalists?

Did they engage in endless seasonal junkets, or did they live in permanent towns?

To what extent did Spanish missionization reorient the prehistoric Guale subsistence and settlement systems?

Did the Guale achieve a chiefdom level of social organization, forming temporary federations with other chiefdoms under centralized leadership?

Were the Guale an isolated, backward people or did they routinely engage in long-distance trade networks?

These and related questions derive primarily from ecological, ethnographic, and historical concerns and, to date, the archaeological records has been only peripherally involved.

Fortunately, the "Guale Problem" is quite visible in the archaeological record. Lewis Larson conducted the primary research on the late prehistoric/protohistoric period of the Georgia coast; his doctoral dissertation was well ahead of its time, embodying a decidedly ecological focus (1969; see also 1978, 1980a).

Researching the "Guale Problem" is an exercise in paleoethnography and, as emphasized at the outset of this section (and also in Part II), doing the archaeology of past lifeways is a good deal more than doing chronologically oriented archaeology. It is critical that investigators keep the difference in mind.

From the solid foundation provided by Larson, Crook, and others, we must now propel further investigation of the Georgia coast into contemporary American archaeology. The critical archaeological complexes can readily be recognized in the ground. Resolution of the "Guale Problem" turns on new evidence regarding paleodemography, subsistence, settlement pattern, and paleopathology. We address each in order.

Subsistence

Archaeologists have a well-stocked arsenal of methods and techniques available for reconstructing the subsistence activities of the past. Faunal remains enable archaeologists to study past hunting and dietary practices. Bones also provide a way of reconstructing the environment in which people do their shopping. Analysis of plant macrofossils is another important tool by which archaeologists determine what wild and domesticated plant foods were utilized in the past. Palynology, for instance, is the study of the fossil pollen grains from archaeological sites. Not only does pollen analysis enable the archaeologist to reconstruct past vegetation, but several studies show how analysis of fossil pollen can directly contribute to the identification of past dietary practices. We also examine some additional, holistic approaches for reconstructing past diets, including computer simulation, analysis of stable isotopes contained within human bone, and various paleopathological indicators of "stress" in the human body (see discussion below).

The "Guale Problem" clearly requires that we know the relative importance of maize agriculture on the prehistoric Georgia coast. Although nobody seems prepared to argue that the Guale were sedentary, full-time horticulturalists, it does seem clear that the Guale did conduct maize agriculture to one degree or another in prehistoric times.

Having said this, the truth is that very little maize has actually been recovered, and from only a handful of sites (see Larsen 1981:490). Corn was recovered, for instance, from Irene period midden sites on Ossabaw Island (Pearson 1979), at Pine Harbor (Larson 1969), and from the Irene Mound proper (Caldwell and McCann 1941; see also Larson 1982:165-166). It was found in association with a burnt Irene period habitation structure at Red Bird Creek, and a cache of Irene period corn cobs was recovered at Seven Mile Bend (Cook 1971). At the Kent Mound on St. Simons Island, Cook (1978) reports finding domesticates (maize and mustard) in a pre-mound, Savannah-age midden. Maize, which has been attributed to the Irene/Pine Harbor period, is also currently on display at Fort King George

But given the large number of Irene/Pine Harbor sites tested over the years, maize remains relatively rare. Perhaps the scarcity is due to inadequate recovery procedures. Or it

may be that maize was actually a relatively unimportant item in the prehistoric diet. We lack adequate evidence to distinguish the reason at present.

Settlement Pattern

The focus must also shift from a single-site orientation to a regional orientation when reconstructing past lifeways. This regional approach has become a major theme in American archaeology in the last four decades or so. Focusing on the relationships between people and the land, settlement pattern archaeology transcends the single site in order to determine the overarching relationships between the various contemporary site-types employed by societies. The regional approach thus precludes the taking of single sites as somehow "typical" or "normal" for a culture. Instead, emphasis is upon variability between sites within the settlement pattern.

Archaeologists are also learning to transcend the "site" concept, viewing the archaeological record instead from a more regional perspective. For years, "sites" remained unchallenged as primary existential entities. But over the past couple of decades, several archaeologists have begun to question seriously whether the site is really a useful abstraction. So-called surface archaeology has become a respectable venture, and archaeologists have developed a powerful body of techniques to cope with this record. Archaeologists have also come to realize that plowzones can contain significant spatial information, even after repeated plowing. Combined with excavation-derived data, "surface" and "plowzone" materials can contribute to our understanding of changing land use patterns through time, dating components across entire regions, and determining intra-site relationships. This can be critical in a regional approach, and a number of probability-based sampling designs are currently being employed to minimize bias in recovering settlement pattern data. We urge that such insights be widely applied to the archaeological record of coastal Georgia.

The same caution applies to "living floor maps." In order to read behavioral meaning in the distributions of artifacts and ecofacts, certain fundamental (but rarely explicit) assumptions are often required:

1. ecofacts found on a given surface are sufficient to define season of occupation;
2. artifacts and ecofacts found on the same surface define synchronous events;
3. intrasite spatial patterning is sufficient to define specific activity sets.

Today, not one of these assumptions is acceptable in light of available middle-range research, and whenever such assumptions are implied, we must proceed with due caution.

One must, for instance, be careful of many indicators of seasonality. Many investigators are now wary of "presence-absence" inferences; and even if one could be certain that a particular bone had been introduced to a coastal site by humans, it seems more reasonable to require the presence of several different indicators as a basis for advancing a seasonality estimate.

Considerable progress has been made in analyzing seasonality by studying growth lines in marine shells (Coutts 1970, 1975; Coutts and Higham 1971; Koike 1975), and a number of these studies are now being applied to coastal sites of the Southeast (e.g., Clark 1979; Claassen 1986; Kennish 1980; Quitmyer et al. 1985; Russo 1988). Season of death can be estimated from thin-sections of teeth (e.g., Bourque, Morris, and Spiess 1978). Fish

remains are also highly sensitive seasonal indicators, especially the vertebrae, otoliths (ear bones), and scales (Casteel 1972, 1976).

But each technique can tell the archaeologist only when one or more animals died. The fact that some clams died on Georgia's Golden Isles in January or February is, by itself, archaeologically uninteresting. Archaeologists must be continually aware of the arguments involved to demonstrate that the death of a clam or a deer is somehow contemporaneous with (and relevant to) a specific behavioral event of interest. Without the demonstration of such relevance, the seasonal dates might tell us something about deer or clam archaeology, but nothing about people.

Over the past two decades, archaeologists have looked more closely at the tacit assumptions which underpin our reconstructions of issues such as seasonality. At one time, archaeologists assigned seasonal estimates based on the presence/absence of "diagnostic" elements. Today, few archaeologists would accept a seasonal estimate of winter simply because a fully developed deer antler was found there. To do so would ignore the formation processes involved. And how did such a seasonally specific ecofact end up in a site? Must humans have brought it in? Can we eliminate disturbances from raccoons and other factors? In short, we now require the necessary bridging argumentation that relates the shedding of a deer antler to human behavior.

Larson (1978:133) has mustered archaeological settlement pattern evidence to argue that the mission period Guale "became settled farmers, turning from their former dependence upon the surrounding tidal waters." This shift is seen as accounting for the general decrease in shell quantity in mission period (Sutherland Bluff) sites, and the more uniform distribution of midden deposits across the sites. According to this interpretation, not long after the Spanish arrived and introduced their agricultural system, shell heaps ceased being deposited.

... Not that shell was no longer present in the middens, rather the low moundlike heaps were not now built.... One also has the feeling that, quantitatively, the amount of shell on the sites is much smaller than that on Pine Harbor sites. This was the result of the Spanish policy of forcing the natives into a sedentary agricultural economy (Larson 1978:132).

There is little question that such a strategy was commonly employed by Spanish engaged in missionization. Keep people in place to promote Christianity, make allies, and generate stable supply lines (Milanich 1978:82).

Such nucleation may have been so successful that it changed primary economics (Larson 1978:132). If such modifications occurred, they stand in marked contrast to patterns to the south, where Deagan (1978:89, 113) found a remarkable continuity in Timucuan subsistence and settlement patterns -- despite Spanish encouragement of horticulture by introducing new techniques and European technology. It might also be that such shifts in Guale subsistence and settlement patterns, if real, readily reflect the radical depopulation of the Florida and Georgia coasts during the early historic period, as suggested above. If the decimation of Guale populations was in any way comparable to that documented for Timucuan-speakers (Dobyns 1983), the early historic period settlement pattern could have changed so radically that, four decades later, Father Rogel observed small Guale groups simply "scattered about the country."

Given appropriate and deliberate sampling strategies, the archaeological record of coastal Georgia can without doubt speak effectively to questions of ecological potential, economic change (particularly the relative importance of horticulture), degree of

transhumance, relative health and status, and changes in population size. But such answers will not arrive spontaneously from digging a couple of test pits or mapping some shell scatters.

Having said this, I should add new techniques and technology hold great promise for the archaeology of the Georgia coast. One extremely important way of learning about both wild and domesticated plants is through the analysis of microscopic plant opal phytoliths -- literally "plant stones." Phytoliths are formed when the silica ordinarily dissolved in ground water is carried through plant roots and deposited in mineral form inside the plant, in places where water is used or lost through transpiration. When dead plant material decays, the almost indestructible opal phytoliths are deposited in the ground. Phytoliths have been found in sediments older than 60 million years. Distinctive phytoliths occur in members of the grass family, and are also found in groups such as rushes, sedges, palm, conifers, and deciduous trees.

Consider the problem of whether Guale agriculture was intensive or swidden. Plant phytolith analysis is already assisting historical archaeologists in reconstructing the once-elaborate plantings of Thomas Jefferson. Among his other achievements, Jefferson was an avid and astute gardener, employing part of his Monticello (Virginia) plantation as a natural laboratory. One of Jefferson's objectives was to experiment with different kinds of livestock fodder -- grasses, clover, alfalfa, and so forth. But whereas Jefferson left numerous drawings, plans, and accounts of the decorative portions of his garden, only a single sketch survives showing these more mundane aspects of his garden. The Monticello Foundation has been reconstructing this 18th-century garden, and phytolith analysis has already provided important data independently confirming its configuration (Rovner 1988). Could similar techniques work on the 16th-century Guale gardens?

Paleopathology

Before 1970 or so it was rare for the archaeologist to invite the osteologists to the site, much less solicit advice about the best way to go about testing the site and removing the human burials.

But recently one branch of physical anthropology has indeed worked closely with field archaeologists for the express purpose of studying the prehistoric biological system. Called biocultural anthropology, this new subdiscipline recognizes the need for cooperation between archaeologist and biologist in working toward a common goal. Of particular interest in the past decade or so has been the study of prehistoric health and demography.

For years, the field of paleopathology plugged along as the stepchild of clinical orthopedics. But the tension between medicine and anthropology has lessened. Although paleopathologists must often be satisfied with identifying a "disease cluster" rather than naming a specific pathogen, the fact that research is limited to dry bony tissues has not precluded development of alternative strategies of inquiry (Buikstra and Cook 1980:435).

Mortuary samples from coastal Georgia strongly suggest that prehistoric populations adopted a mixed economy, based at least in part on maize agriculture. The evidence currently available likewise indicates that a maize diet exacts a physical toll (summarized in Larsen 1981, 1982, 1983, 1984, 1987; Cohen and Armelagos 1984; Ruff, Larsen, and Hayes 1984).

The impact of agriculture is marked. Skeletal infections increased dramatically. People -- especially women -- became shorter. Both deciduous and permanent teeth became

smaller. Bones became more fragile (capable of withstanding less bending and torsional stress). Teeth -- especially those of women -- started to decay. About the only improvement occurred at the joints; people suffered less degeneration of the elbow and knee, and of the upper and lower back.

To what degree these dramatic changes can be attributed to maize horticulture on the Georgia Coast remains unclear. But there is convincing evidence that such changes have affected other hunter-gatherer populations in the process of adopting an agricultural economy (e.g., Cohen and Armelagos 1984:594).

The mission period Guale Indians were, without question, subjected to a series of biological stresses, including (but not limited to) epidemics, food shortages, and military action by both Spanish and British forces. Some degree of increased sedentism and demographic nucleation, coupled with intensification of horticulture undoubtedly resulted in related disease and nutritional stresses. But the critical issue relative to the "Guale Problem" is to determine how such stress was caused by the conditions immediately prior to European contact.

From previous research on St. Catherines Island (and elsewhere), we already had a large and well-studied prehistoric population from the Georgia coast. But properly excavated and well-documented skeletal collections from the historic period were scarce when we began looking for Santa Catalina. Should such a population be located -- and systematically explored with these goals in mind -- one could investigate the impact and significance of such stress by analyzing demography, pathology, bone size modification, and the relationship of social status to resource access.

There is also significant research being conducted on reconstructing human diet through analysis of stable isotopes in bones. Over the past decade, researchers have established that due to differing photosynthetic pathways, some kinds of plants differentially absorb carbon isotopes. One such pathway converts atmospheric carbon dioxide into a compound with three carbon atoms; this so-called C-3 pathway is characteristic of sugar beet, radish, pea, and wheat. A second pathway converts carbon dioxide from the air into a complex compound with four carbon atoms; this C-4 pathway includes many plants from arid and semi-arid regions, such as maize, sorghum, and millet -- the cereal staples of the Americas and Africa. These findings proved to be critical for reconstructing past diets because we now know that human bone reflects the isotopic ratios of the various plants ingested. Thus, by determining the ratios of carbon (and sometimes nitrogen) isotopes contained in bone collagen, archaeologists can reconstruct the dietary importance of various kinds of plants and animals. Although this relatively new research tool remains in the developmental stage, stable isotope analysis has already revolutionized the way in which archaeologists approach the reconstruction of prehistoric diets. The significance to questions on the Georgia coast are obvious.

As with all other archaeological samples, the corpus of human skeletal materials available in the archaeological record contains great potential for understanding the past. But, by the same token, such skeletal populations carry with them several potential sources of biases. Extreme caution is required when skeletal populations are taken as representative of the behavioral populations from which they ultimately derive. One problem is the differential preservation of human skeletal samples. Older bones tend to be more badly decomposed. Earlier burials in cemeteries are often disturbed by later interments. Despite such distortions, important conclusions can be drawn about prehistoric population profiles, provided sufficient controls are realized (Buikstra and Konigsberg 1985).

RESEARCH DOMAIN VII. THE HISPANIC POVERTY PARADOX

Much work remains to be done on the nature of the little-known early Hispanic lifestyle in Georgia. Extensive documentation is available, for instance, to chronicle the subsistence practices in the towns of 16th-century Spanish Florida. Accounts from St. Augustine and elsewhere emphasize the chronic shortages of some traditional Iberian foods, and the substitution of less-valued New World resources (see Reitz and Scarry 1985).

But significant biases and gaps are known to exist in the documentary base. Many important records were lost to deterioration, fire, and storms at sea. Other letters are known to have deliberately exaggerated (or even falsified) the situation to elicit greater support from the Spanish crown, and contradictions in eyewitness accounts are not uncommon.

But the main problem with the historic record for Spanish Florida is that it rarely contains the mundane details which archaeologists need. Whereas the contemporary accounts leave little doubt that the Spanish were displeased with their new-found diet, there is simply no substitute for the physical evidence obtained through archaeological excavation. Reitz and Scarry (1985) have synthesized the floral and faunal evidence from food remains recovered in excavations at St. Augustine (Florida) and Santa Elena (South Carolina). These results amply demonstrate the importance of dietary reconstruction in historic archaeology.

As in many colonial situations, relying on traditional Old World subsistence practices did not work in the new environment. Many key Iberian foodstuffs failed miserably in the coastal Florida environment, and the Spanish settlers were forced to alter their husbandry techniques to incorporate foods that could prosper in the coastal setting.

Lacking any sophisticated ecological knowledge, the settlers had to pass through an early period of adjustment and experimentation. The earliest shipments of livestock to St. Augustine and Santa Elena reflected Iberian food preferences. There was an initial attempt to cater to the traditional preference for mutton, for instance, but sheep raising was unsuccessful in Spanish Florida, primarily because the sheep were unable to defend themselves against wild dogs and wolves, and because they would not reproduce freely. At first, several marine species, especially fishes, filled the gap left by mutton; however, eventually, the meat supply of Spanish Florida shifted to beef and especially pork.

Shortly after their arrival in the New World, the colonists of Spanish Florida also attempted to raise their favorite Old World crops, particularly wheat and grapes. But they were quick to note how successfully the Native Americans were growing their own indigenous crops, and soon the Spaniards began to supplement their harvests with maize, beans, and squash. Wild plants were never very important, presumably because the colonists rapidly substituted indigenous crops for traditional ones.

In effect, the Spanish strategy shifted toward an essentially aboriginal subsistence pattern, complemented by those European domesticates that could survive and prosper. Considerably more than half of the meat consumed in St. Augustine and Santa Elena by both Spanish settlers and aborigines derived from wild species, especially deer, sharks, sea catfishes, drums, and mullet. Spaniards also hunted and ate small mammals such as opossums, squirrels, and racoons --- which they disparagingly termed "the scum and vermin."

The subsistence pattern that emerged at St. Augustine reflected a fusion of the various elements available to the Spanish colonists. Whereas they continued to use Old World livestock, the dietary importance of the various animals shifted significantly. And while they

continued to raise some Old World cultigens, these were mostly fruits and vegetables that supplemented a diet based on domesticated New World plants. Despite adopting many aboriginal items, the St. Augustine diet contained distinctly Spanish features. Several Old World plants and animals were still maintained, some of them were even adopted by the Indians; and these food items were still processed through unmistakably Spanish institutions such as the slaughter house, and the market place. Occasionally, the rare supply ship from home would provide European delicacies such as olives, walnuts, and hazelnuts.

St. Augustine was established 70 years after the Spaniards began colonizing the New World, and some valuable lessons had been learned in this interval. Nevertheless, Reitz and Scarry found that significant dietary adaptations were still necessary to cope with the conditions of coastal Florida. These important dietary adjustments took place within the first 40 years of colonization of Spanish Florida. But once established, the balance remained virtually unchanged for the next two centuries.

The recent investigation by Reitz and Scarry emphasizes the important shifts in archaeological approaches to diet and subsistence in the past decade. Now that field strategies in historic archaeology routinely consider the details of screen size, volumetric sampling, water-screening, and flotation, investigators are generating an enormously valuable base of fine-grained subsistence data which allow detailed reconstruction of human adaptations to frontier environments.

But how were people living on the Spanish frontier, far removed from the towns of St. Augustine and Santa Elena? The documentary evidence, scanty as it is, suggests that life in Spanish Georgia was not easy. The priests and neophytes at missions such as Santa Catalina depended in large measure upon a subsidy from St. Augustine. Yet St. Augustine -- "a struggling, military outpost on the fringe of empire with few of the amenities of civilization" -- was considered hardship duty, where residents complained bitterly about the frontier conditions. In 1606, the visiting Bishop of Cuba encountered a modest wooden church so poor it lacked even a single candle. Fifteen years later, the same edifice was described as old and crumbling. The parish was so poor that in 1673, the sacristan-priest complained that Mass had to be cancelled for lack of hosts and wine. Fathers Pareja and Ruiz were reduced to fashioning a chalice from lead, charging that funds designated for the missions were being siphoned off by officials in St. Augustine "since it seems to them that the soldiers are the necessary ones [here], and that we are of no use."

Isn't it curious then, in light of such apparent poverty, that the ruins of Santa Catalina, presumably merely one of several destitute outposts, should contain such a rich mortuary inventory, such ample evidence of external trade, and foodbones indicating that the friars ate better than the St. Augustine townspeople. We are only beginning to write the paleoethnography of Georgia's missions; but if present evidence is any clue, that history may differ significantly from what we thought we knew from the historic documentation. Filling in the gaps about the Native American-Franciscan relationship may be the most exciting challenge facing historical archaeologists working on the Georgia coast.

MANAGEMENT CONSIDERATIONS

Over the past two centuries, historic-period archaeological sites of the historical period have been periodically created and systematically destroyed along Georgia's coast. Today, both sensitivity and experience are required to manage the remaining historical resources, which retain an enormous potential to our understanding for the past.

It is impossible to assess accurately either the density or the state of preservation of 16th- and 17th-century sites in the coastal zone because so little systematic reconnaissance has been undertaken. Although archaeological sites on the Sea Islands are considerably over-represented, the site samples are themselves unrepresentative of the behavior that produced them. Entire islands and large sections of the major river drainages are only poorly known; future research should emphasize the mainland components as well. Land managers should emphasize the generation of (1) systematic, (2) regional, and (3) randomized samples (as discussed in Part VI).

The site inventory process must proceed rapidly, because a variety of factors daily conspire to destroy the archaeological data base. Agriculture, of course, severely impacts historic-period archaeological sites; and even today, shell middens are still periodically recycled for construction fill. Tree-farming remains a particularly important economic activity on the Georgia coast and, like agriculture, timbering destroys mission and historic-period aboriginal sites. Resource managers must keep in mind that even secondary impacts like skidding logs, building ramps, and removing stumps can devastate important archaeological features and associations.

Managers should also pay ample attention to submarine resources associated with these contact period sites. Although none of the actual landing spots or piers have been found associated with the mission and aboriginal sites, they must surely still exist; an intensive program of underwater reconnaissance, for instance, was conducted in conjunction with the excavations at Mission Santa Catalina (St. Catherines Island). This subsurface survey and the associated remote sensing activities underscore the potential of underwater sites, but also point up the difficulties in finding such sites.

Such destructive practices should, of course, always be avoided, but the impact is particularly severe on historic-period sites, where the relevant material often exists only as a thin mantel overlying earlier (and often thicker) deposits. Even such seemingly jumbled contexts unquestionably retain important scientific information and, from a management standpoint, disturbed sites must never be "written off" without adequate archaeological testing.

While it is true that most historic period sites along Georgia's coast have been plowed at one time or another, resource managers should not assume disturbance without adequate investigation. Mission Santa Catalina, for instance, somehow escaped the plantation plow altogether, thereby preserving fragile intra-site and even intra-structure patterning. Pristine sites like this should be located and specifically protected.

With burgeoning commercial and residential development of Georgia's coast advances, we can expect to see more marinas and riverfront developments, additional roads and parking lots. Site destruction clearly accompanies increased land values. But one hopes that such development will be directed to take into account the historical significance of mission period sites known to exist in such settings.

Even at this relatively primitive stage of research, it is possible to identify three basic kinds of 16th- and 17th-century site in coastal Georgia: mission sites, non-mission habitation sites, and special-purpose sites. Assessing significance for this time period is a simple matter: Every site in each site-type has potential for contributing to our knowledge of this important period. Because so little is known about Hispanic-aboriginal interactions of this period, priority must not be assigned to any single category of site. The archaeology of Georgia's mission period has only just begun, individual sites have tremendous potential and must be protected.

On sites known to date from the 16th and 17th centuries, all management efforts should be aimed at avoiding any further disturbance. In many cases, these sites have already been considerably impacted, although generally, substantial archaeological information remains. The actual and potential historical significance of these sites make it imperative that nothing be done to cause further damage.

Whenever site mitigation is required, resource managers should keep in mind the variety of research domains discussed earlier in this chapter, and several additional research directions come to mind. Considerable potential exists in the 16th and 17th-century documents, which should enable qualified investigators to locate additional Hispanic and aboriginal sites of this period. Over the next couple of decades, it would be stimulating to explore the variability in exploitative strategies between the islands and the adjacent mainland. We also suspect that multiple mapping problems remain in the data summarized in Part VI, and a comprehensive site check would be timely -- not only to verify existing State site files, but also to update current land management practices and increase the sample size of surface-collected materials from these important sites. Refinements are sorely needed in our analytical methods for understanding surface and plow zone materials, and we further suggest that analysis of extant private collections may prove productive, particularly for the presence of Spanish and historic-period aboriginal ceramics. These data could be useful for reconstructing mission period settlement patterns.

Georgia's little-known mission period has received considerable national attention over the past decade -- from exhibits in the Smithsonian Institution to the pages of *National Geographic*, *The Atlanta Constitution*, and *The New York Times*, from international scientific symposia to network television coverage on the *Nightly News* and *Good Morning America*. It is to be hoped that such recent media and popular attention will serve to warn Georgians that their history did not begin with James Oglethorpe, and that a significant portion of Georgia's early history remains buried beneath the sandy soils of the Golden Isles and adjacent mainland. This rich resource can only be protected by an explicit policy of directed research and enlightened conservation.

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