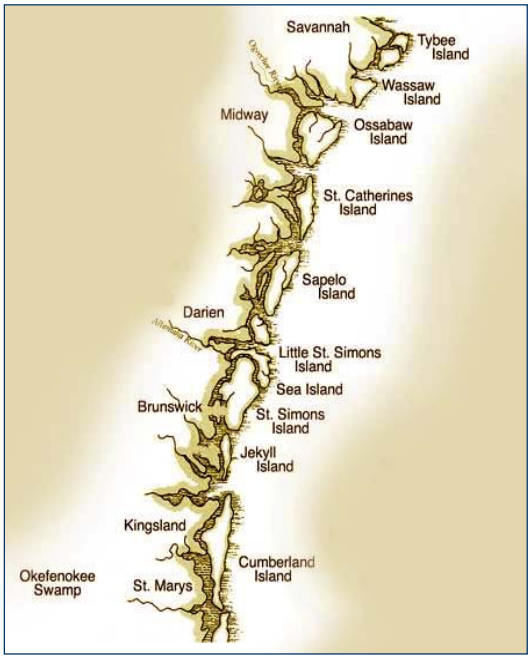
Ecology as History in the Sapelo Island National Estuarine Research Reserve

BY BUDDY SULLIVAN

From Charleston to the Florida-Georgia border, the south Atlantic tidewater is fringed by low-lying sea islands in a section unique to the American landscape—both ecologically and agriculturally. The islands are typified by dense sub-tropical vegetation dominated by maritime forests principally comprised of live oak, longleaf pine and red cedar, anchored by thick understories of palmetto and myrtle. Between the islands and mainland are belts of salt marshes, chiefly the cordgrass *Spartina alterniflora,* penetrated by tidal creeks and rivers. These flow into estuaries created by fresh water streams entering the sounds and embayments between the islands.[1] One of these estuaries, providing the focus of this paper, comprises the Sapelo Island National Estuarine Research Reserve off the Georgia coast near the mouth of the Altamaha River.

Few places on the American eastern seaboard better exemplify the economic and societal utilization of a local ecosystem by human populations than the tidewater sections of the Carolinas and Georgia. For four centuries Euro-and-Afro-centric cultures have resourcefully adapted to the conditions of their particular environmental circumstances—salt marsh ecosystem, alluvial soils, meteorological and hydrological considerations—to effectuate the enhancement of lifestyles and lifeways.

An antebellum agrarian economy, interwoven with a distinct maritime culture—all linked to the land and water resources of the region and their human utilization—spanned more than two centuries and was set against the fascinating backdrop of coastal Georgia history. This history resonates with a recurrent theme which historian Mart Stewart appropriately labels *Life, Labor and Landscape.* It blends the natural dynamics of the local environment with human pursuits of rice cultivation, waterborne commerce and scientific investigation, all impelled amidst a diverse array of peoples, from Franciscan



Barrier Islands of Georgia.

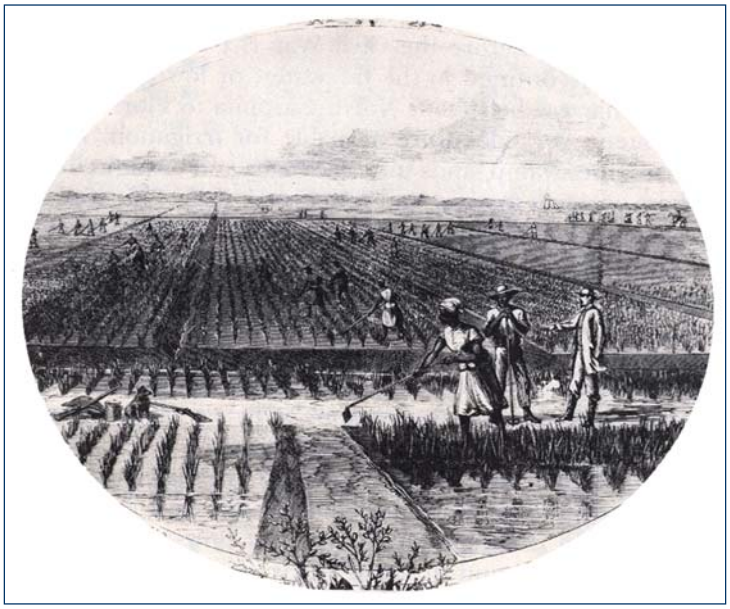
friars to colonial traders, African slaves, tidewater rice planters, postbellum timber cutters, Northern industrialists, shrimp fishermen, historical archaeologists and estuarine biologists. It all makes for a rich tapestry.

Tideflow Rice Cultivation

The porous soils, temperate climates, tidal influences and saline atmosphere of the sea islands and adjoining salt marshes of South Carolina and Georgia proved to be ideal for the cultivation of rice and black seed, long-staple (Sea Island) cotton in the period between the American Revolution and the turn of the twentieth century. The concurrent development of mechanized threshing and pounding machinery for rice processing, and mechanized roller gins for cotton fueled an agricultural economy along the southern

tidewater unmatched by any other period in American history.[2]

The cultivation of rice was typically centered in the fertile bottomlands of freshwater river systems, which benefited from an infusion of nutrient-rich soils from the uplands of the Georgia piedmont. Rice cultivation in these areas made effective use of tideflow irrigation amid freshwater marsh systems for the alternating cycles of flooding and draining fields. On the larger tidewater plantations of the eighteenth and nineteenth centuries, a skill originally perfected by West African farmers was adopted in South Carolina and, later, in Georgia, by which tidal flows and salt water-fresh water interaction filtered through freshwater marshes were utilized to achieve high productivity levels on the floodplains of the principal rivers of the section. For example, one of the largest of the rice plantations, that at Butler's Island in the Altamaha River delta, was managed on the basis of the tideflow process of freshwater flow and freshwater marshes, a practice followed by the larger planters on the river plantations of the southeastern coast. The process resulted in greater rice productivity and higher yields per acre cultivated.[3]



Tideflow Rice Cultivation, Antebellum Georgia.

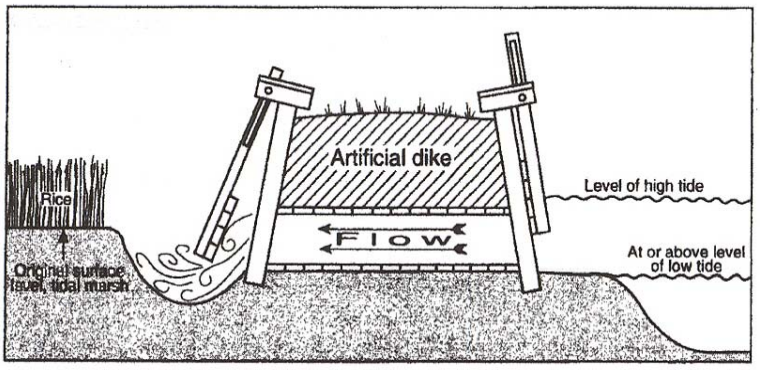
Writing in the *Southern Agriculturist* in 1828, Roswell King, Jr., manager of the Butler's Island rice plantation, noted that "…it is easier to ditch eight hundred cubic feet of marsh, than four hundred feet of rooty river swamp…"—But the cultivation system of river bottomlands was contingent upon the abilities of (prior to 1865) the slave bondsman—"In harvesting a crop of Rice, some acres are heavier, or further off, than others, some hands are quicker, or more able, than others," King commented.[4]

Rice planting began in late March and early April following plowing and other tasks associated with field preparation. Cultivation on the tideflow plantations required staggered plantings so that the various facets of tending the crop could be spaced at different intervals. Fields were laid out as a series of squares of eighteen to twenty-five acres each, penetrated by a grid of drainage ditches to facilitate the flow of water. Embankments separated the squares and provided foot access for workers tending the fields. The largest levees were those along the riverbanks of the tideflow plantations. Tidegates built at intervals in the river levee facilitated the introduction or removal of water from the fields. Proper irrigation required regular ditching by the workforce to prevent the buildup of silt resulting from the flooding and drainage of the rice squares. The grid-like layout of a rice plantation thus represented a complex system of hydraulics, all predicated on the proper balance of a multiplicity of environmental factors, including landscape, soils, marshes, water, tides and, not least, an assortment of weather conditions.

From 1819 to 1861, Butler's Island often had up to nine hundred acres per year under cultivation. In aggregate, the island comprised 1,500 acres of Altamaha delta bottomland—acreage that was originally brackish river swamp thick with cypress, gum and maple trees. The preparation of the island for rice planting required inordinate amounts of labor to expedite the difficult work of removing the

timber, undergrowth and clearing stumps, followed by the building of embankments around and within the island, and the construction of the heavy, wooden tidegates (or trunks, see diagram below) for the management of the water flow. The soils of the Altamaha delta were extremely fertile, both for the culture of cotton and sugar cane, but most especially so for that of rice.

The seasonal yield of the rice crop usually depended on the techniques employed by the planter, as well as conditions over which the planter often had little or no control—saltwater intrusion, insect infestation, and the vagaries of weather. Efficient management was essential. James H. Couper planted his first rice crop at Hopeton-on-the-Altamaha in 1821 with a consequent steady increase in his yields-per-acre into the 1840s. In 1827, Couper's crop produced a yield of 17,571 bushels of rice on 351½ acres planted, an average of about 49 bushels per acre. By 1839, Couper was producing slightly more than 60 bushels of rice per acre on 684 acres "under bank."[5]



Cross section of tidewater rice trunk.

Like rice, the management of long-staple Sea Island cotton was labor intensive and required considerable investment by the planter. Unlike rice, however, cotton was a dry-culture crop. Excessive moisture in the soil generally caused deterioration of the roots of the cotton plants. Paradoxically, considerable amounts of Sea Island cotton were grown for a number of years at Butler's Island, the low-lying rice tract, the damp bottomlands of which were often below the level of the river.

The production of the cotton staple required a high degree of fertilization, chiefly a variety of manures. The utilization of tidal salt marsh was frequently the preferred method of infusing nutrients into the soils upon which cotton was cultivated. Thus, as in rice cultivation, many southern tidewater planters effectively utilized the local ecology in respect to producing their cotton, depending on both natural marsh grass and marsh mud for fertilizing purposes. The routine task work of coastal plantation slaves regularly included carting salt marsh cuttings and mud for spreading in the cotton fields, both on the large island plantations as well as on the mainland tracts.[6]

A typical crop yield at Butler's Island was two hundred pounds of cotton and three barrels of rice to the acre. According to Roswell King, Jr., a neighboring cotton plantation, Hampton, on St. Simons Island (a dry, upland property), rarely yielded more than 250 pounds of cotton to the acre—which makes the Butler's Island yield even more impressive considering its dampness. For a time, cotton and rice were planted simultaneously on Butler's Island, as evidenced in the crop reports of the Butler Estate in the 1830s.[7]

Rice continued to be cultivated as a primary staple crop in the Altamaha delta after the Civil War, despite the obvious difficulties associated with changing labor conditions, and the gradual shift in emphasis on U.S. domestic rice production from the Atlantic seaboard to Louisiana. A series of hurricanes in the 1890s, the last being a particularly destructive storm in October 1898, proved to be the final blow to the continued profitability of the Atlantic rice industry. No rice was grown commercially in the Altamaha district after 1910.[8]

Another environmental consideration with direct parallels to tidewater agriculture in general, and the rice industry in particular, is that of the prevalence of yellow fever, malaria, and other tropical diseases, and their

Pounding the Rice, Sapelo Island, ca 1920.

connectivity with tidal marshes, mud and water attendant to the breeding of mosquitoes. There is ample documentation in support of the thesis that the mosquito, species of the family *Culicidae* and specifically referred to here as within the genera *Anopheles,* has been prevalent in the Altamaha River delta, including the immediate environs of the town of Darien, since at least the early eighteenth century.

The earliest English settlement of the region was in the summer of 1721 when South Carolina Rangers under John Barnwell built Fort King George on the north branch of the Altamaha River, one mile east of the later site of Darien. Barnwell kept a journal in which he frequently alluded to the difficult conditions of building the fort. The local mosquito came in for particular note—for example, on July 13, 1721, Barnwell reports: "The men found thick, nasty, water [while digging in the sand to lay foundations for the fort]…[Conditions were so difficult] the men have been in a Mutiny about their work…The Cypruss can't be got out of the Swamp without wading naked up to the waist or Sometimes to the neck, which is a Terrible Slavery, and Especially now in the dog days *when Musketos are in their Vigour*…"[9]

In her documented account of the establishment of Fort King George, local historian Bessie Mary Lewis, who utilized Barnwell's Journals as her primary source, noted: "The heat was nigh unbearable. The mosquitoes, Satan's army with swords of fire and poison, were in swarms…Small wonder the men mutinied…"

Three years after the founding of the Georgia colony in 1733 by James Edward Oglethorpe and the Trustees, the town of New Inverness (later Darien) was established by Scottish Highlanders. A contemporary journalist, Edward Kimber of London, visited Darien and the Altamaha River region soon after. Writing of his experiences in the *London Magazine* in 1744, Kimber reported that his party traveled in an "open, fixed-oar'd Boat…and slept and watched by Turns, finding, from being frequently inured to it, no more Incommodity in this method of traveling and *Muskettos,* and other Vermin that, like a Swarm of Locusts, infest the hot months in these Countries…"[10]

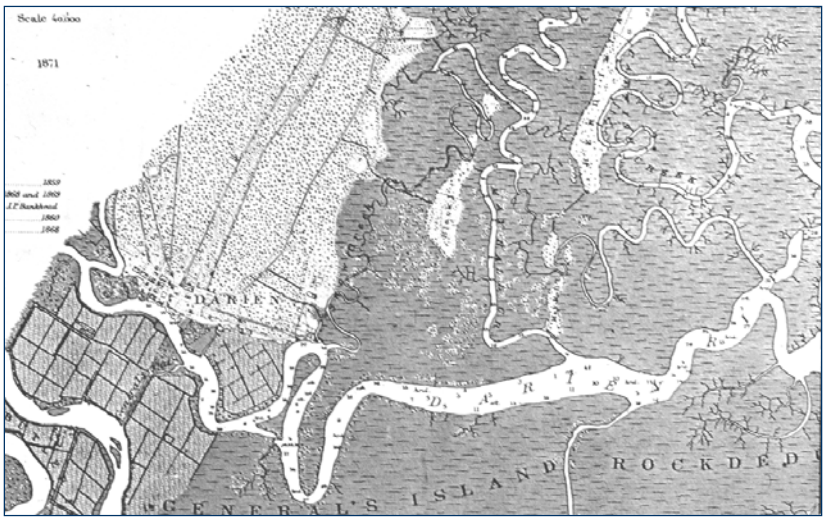
Prior to the Civil War, the fertile delta bottomlands of the lower Altamaha basin were cleared, drained, banked and irrigated for the cultivation of rice, the primary staple crop of the Georgia and South Carolina tidewater section. The developing rice industry was thus the direct consequence of "engineering the tidewater" and it was built upon the labor of African slaves imported into the Altamaha district. Just how financially lucrative this activity was is demonstrated by over 12 million pounds of clean (hulled) rice being produced annually in the Altamaha delta in the peak decade of the 1850s.[11]

The continual physical modifications of the landscape effected a gradual change in the ecological dynamic of the region. Recent scholarship has determined that flooding of rice fields and the impoundment of water on the fields through the utilization of wooden rice trunks were factors which led to a greater occurrence of local mosquito infestation with

a consequent rise in the incidence of mosquito-borne tropical diseases.

Anopheles was the primary transmitter of malaria in the Altamaha. Plantation records and contemporary newspaper accounts are rife with instances of malaria breakouts in Darien and the surrounding plantations of the Altamaha section. "Mosquitoes travel no more than three or four miles away from their habitat, so human hosts must also live in sufficient density in an area to nurture mosquito-borne diseases. Malaria and yellow fever were, therefore, diseases of plantations and towns rather than of the frontier. By the early nineteenth century much of the low-lying coast had dug itself into plantation districts, and yellow fever threatened towns in the low country…" notes historian Mart Stewart.

In the entire complexity of the Southern plantation system labor conditions on the lowcountry rice tracts were the most difficult. Slaves had toiled in the wet, marshy rice fields under harsh, demanding conditions since the early 1700s in South Carolina and, after 1750, in Georgia. Captain Basil Hall, an English travel writer who visited the Altamaha district in 1828, observed that the growing of rice was "the most unhealthy work in which the slaves were employed, and that in spite of every care, they sank under it in great numbers. The causes of this dreadful mortality are the constant moisture and heat of the atmosphere, together with the alternating flooding and drying of the fields on which the Negroes are perpetually at work, often ankle deep in mud, with their bare heads exposed to the fierce rays of the sun." The poor sanitary conditions on rice plantations debilitated the slaves and reduced their resistance to ward off infections. Conversely, the slaves were not nearly as affected by mosquito-borne illnesses such as malaria and yellow fever, as were their white owners. This explains the migration of white plantation families from the Altamaha district to the drier uplands of Georgia during the summer and early fall—coincident to the season of greatest mosquito infestation. In the spring of 1903, James Troup Dent of Hofwyl plantation screened the porches and windows of his home on the mosquito-infested banks of the Altamaha and remained there with his family throughout the malaria season. Dent suspected that the heavy prevalence of mosquitoes in the Altamaha caused the transmission of malaria and that by reducing their exposure to the insects he and his family would be protected from the summer diseases. The Dents suffered no ill effects and families throughout the section adopted his screening methods in future years.[12]



River Approaches and Rice Marshes Around Darien, ca. 1875.

In plantation days, and for many years afterwards, the connection was not made between the incidence of disease and the prevalence of mosquitoes in the Altamaha. Instead, a far more radical theory prevailed, as described by Albert Virgil House of Columbia University: "In keeping with the usual custom on the Georgia coast [plantation families] removed to a camp or summer house far enough back from the coast so that the smell of salt water was no longer in the air. This reflected the contemporary belief that some sort of miasma or disease-breeding fog was given off by the marshes after sundown,

which spelled fever and possibly death to white men. Modern science has shown that this 'fog' was malaria-bearing mosquitoes. The black slave population had a large degree of immunity from the bite of the Anopheles species of mosquitoes and could thus remain in the area at all times…" In his plantation account book, Altamaha River rice planter Hugh Fraser Grant noted on May 5, 1840, "Left Elizafield for the Summer by paying a visit to the Island [St. Simons] for a few days & then to the Sand Hills."[13]

Malcolm Bell, Jr., biographer of Major Pierce Butler, owner of the largest rice plantation in the Altamaha delta, based much of his research on slave conditions, some of which was concerned with mosquito infestation in the region around Darien. "Working as they did in the natural habitat of the Anopheles mosquito, the rice slave was subject to the dreadful malarial fever but fortunately was able to generate an immunity that helped to withstand the onslaught of that treacherous disease," Bell observed. He continued, "Unfortunately, the immunity that was welcomed by the slaves and their owners had a side effect not recognized until generations later. It is the devastating sickle cell anemia that is believed by scientists to have been generated by that same malarial immunity…"[14]

Yellow fever epidemics were prevalent in the southeastern coastal areas of the United States for several hundred years after the European settlement of the western hemisphere. Before the discovery of the cause and cure of yellow fever in 1900, coastal towns were often subject to the ravages of the dreaded disease. Little was known about yellow fever in the 1800s other than it had a short incubation phase, was almost always fatal (usually an 80 per cent mortality rate), that it was associated with coastal cities, incoming ships and hot weather, and that it disappeared with the first frost of the year, usually by late October. Coastal residents of the Altamaha River region, like everyone else, assumed yellow fever was caused by the "miasma," a noxious effluvium that supposedly emanated from putrescent matter in the swamps and tidal salt marshes, and thought to float in the night air, especially in the night mists as a fog. Armed with these beliefs, people sat in closed, unventilated rooms during the stifling, humid summer months in their efforts to escape the "miasma", a situation that undoubtedly led to additional health issues. The alternative, as noted, particularly for the planters of the Altamaha basin, was to depart the coastal region during the summer and early fall.[15]

The evidence of mosquito infestation in the Darien region is made compellingly clear in the observations of Dr. James Holmes, Darien's local physician before and after the Civil War. "I have been repeatedly asked how it was that people would now live in Darien the year round and enjoy good health," reported Holmes in 1877. "In times gone by it was considered hazardous to health, and life even, to remain here after the twentieth of June or, at the latest, July one…The fever of those days in and around Darien was of a highly contagious, bilious type, which prostrated the patient from the start. With strangers the fever was almost always fatal, particularly during the latter part of August and September. Meanwhile, the acclimated and older residents scrupulously avoided the night air. The Ridge and Baisden's Bluff refugees always left town by the setting of the sun and returned to their business in the morning…Savannah had its yearly malarial fever before the introduction of the dry-culture system of growing rice. Dry culture of the rice fields and lowlands surrounding Darien, however, has never been attempted. Up to 1820 and long after that time, every available acre was planted in rice and fresh clearings were made nearly opposite the town…The great Harrison freshet of 1841 swept away vast quantities of filth from our lowlands and river banks. The town itself was cleansed of the accumulation of a half-century's decay by the war fire [1863]. The conclusion is thus irresistible that the health of Darien has progressed in ratio to the number of acres of surrounding lowland cultivated. *For it is the turning up of the soil and exposing the decayed vegetable matter that exhumes the poisonous malaria…*"[16]

Holmes elucidates the opinions, although inaccurate as we now know, regarding the cause of malaria and transmission of malaria

and yellow fever *before* the determination was made in 1900 by U.S. Army physician Walter Reed and others that the Anopheles mosquito was determined to be the chief transmitter. However, the important thing to understand here is that Holmes, a trained medical professional of the 1860s and 1870s, was, in the foregoing observations, unknowingly moving toward a conclusion that would correctly identify the source and transmission of the fevers.

There is evidence to support the conclusion that coastal municipalities bordered by wetlands managed for the cultivation of rice were among the unhealthiest places to live in the United States in the 1800s. Savannah is a good case in point with major yellow fever epidemics in 1820, 1854 and 1876. It did not help of course that basic health and sanitation standards were practically non-existent in the urban centers through most of the century. Vessels arriving in coastal seaports carrying yellow fever contagion among their crews often created local epidemics through the transmission of the disease by mosquitoes. The outbreaks of yellow fever in Savannah in 1854 and 1876 resulted in the deaths of over a thousand persons each.

Of greater salience to the present study is the fact that Savannah's 1854 epidemic spread to Darien, center of some of the most extensive rice cultivation on the southeastern tidewater. The 1854 outbreak was Darien's worst experience with yellow fever.[17]

It is not clear how many Darien citizens died of the disease since there was no local newspaper at the time, but apparently it was a goodly number. Town doctor Holmes noted, "My notes are full of the deaths from yellow fever in 1854—of many personal friends and daily acquaintances…I might fill pages with the history of that terrible scourge…I will only add the remarkable fact that out of our large colored population, there were but few cases of yellow fever and no deaths…"[18] In another account, written while the fever was raging in Darien, Holmes advised that "none of you return until informed by friends at home *of a frost and settled cool weather…*"[19] Again, Holmes is referring to the understood fact that the incidence and recurrence of tropical diseases in Darien and other tidewater locales subsided with the onset of the first frost of the fall. Oddly, Holmes and his contemporaries, as tantalizing as it must have been, never made the connection that the first frost also happened to coincide with the end of the mosquito infestation, with its attendant reduction in the incidence of tropical disease.

When the 1876 yellow fever epidemic caused the deaths of 1,066 people in Savannah and another 112 in Brunswick, the federal government established quarantine stations along the Georgia coast for the requisite inspection of cargo vessels approaching local ports from tropical waters, including the Caribbean and South America. One of the largest of these facilities was the South Atlantic Quarantine on federally owned Blackbeard Island, near Darien.[20] It operated from 1880 to 1909, by which time the incidence of yellow fever was almost non-existent in the United States, following the conclusions made by Reed between the disease and its transmission by mosquito a few years before.

An illuminating contemporary observation relating to mosquitoes in the Altamaha delta was made during the Civil War by Samuel Pellman Boyer, naval surgeon serving aboard the barkentine USS *Fernandina* on blockade station in Doboy Sound. The following extract from Boyer's diary is typical. It was composed in the summer of 1863 during the tedious days of patrol around Sapelo and the Altamaha rice islands. Boyer practically equates Darien's mosquitoes as a portion of the penance to be paid for the sins of the squadron:

"…By the time that I was falling asleep, a mosquito had the audacity to intrude upon my private quarters and commence his serenading prior to relieving me of some of my crimson fluid. I immediately declared war, commenced battling, and in about 15 minutes I had the satisfaction of knowing and seeing that my enemy, the mosquito, had laid down his guns and bit the dust…

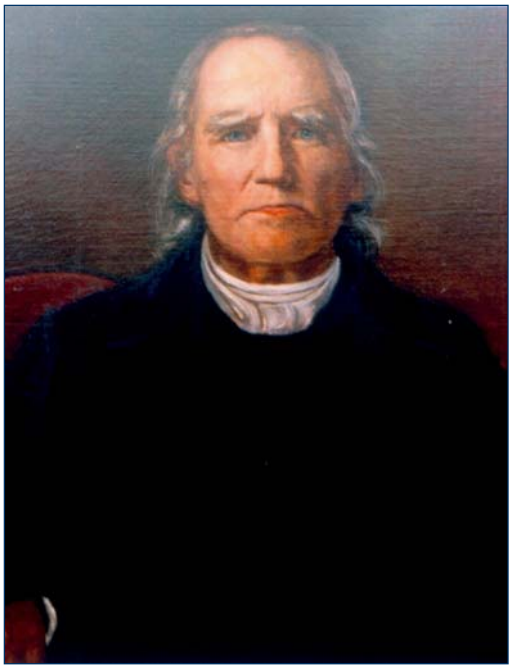
"The weather today is somewhat cooler than what it was yesterday. Quite a breeze is blowing. The change in the weather has caused one of the greatest torments that was ever sent to afflict man for iniquities in this world, the mosquito, to skedaddle. This tribe of tormentors begins to swarm with the returning heat of the season in April and continues their annoyance till

they are stiffened and benumbed by the cold of November. As soon as the evening shades begin to prevail, the air is thickened by swarming myriads of these venomous insects that arise in clouds from the marshes like volumes of dust in the deserts of Arabia. Their murmuring, tinkling singing is so strongly associated in the mind with the disagreeable sensation of their bite that their noise is rendered far more unpleasant than the pealing thunder or the rattling storm. Blood is their cry! Nothing but blood will quench their thirst and satisfy their sanguinary appetites. Compared with them, the mosquitoes of the Northern States are mere gnats. Furnished with a bill like iron, they perforate the toughest hide and drink the crimson stream of man and beast. Without a good mosquito bar or screening curtain to defend yourself from the unremitting intrusion of these active attendants upon man's sleeping moments, you might as well endeavor to seek repose upon a bed of thorns."[21]

Thomas Spalding & Antebellum Georgia

In 1786, several planters cultivated the first Sea Island cotton in the United States—not, however, by Thomas Spalding as many accounts have erroneously claimed. Spalding was only twelve in 1786 when his father, James Spalding, was among the first to cultivate the staple. Parenthetically, it is noted that Joseph Eve actually invented a working cotton gin in 1785, eight years before the more famous gin made by Eli Whitney at Mulberry Grove plantation near Savannah. Eve's "roller gin" was developed in the Bahamas, and was designed to process the more delicate strands of Sea Island cotton fibers, while the Whitney gin revolutionized the upland cotton economy of the South.[22]

Thomas Spalding, noted antebellum planter of Sapelo Island, was one of the most influential agriculturists of his day in Georgia. Spalding devoted his professional energies to the management of his Sapelo Island plantation where he cultivated cotton, introduced the manufacture of sugar to Georgia, and promoted Darien and the coastal section as the economic center of the state.[23] Spalding was born the only son of James and Margery Spalding on St. Simons Island in 1774, being descended from the Spaldings of Perthshire, Scotland who held

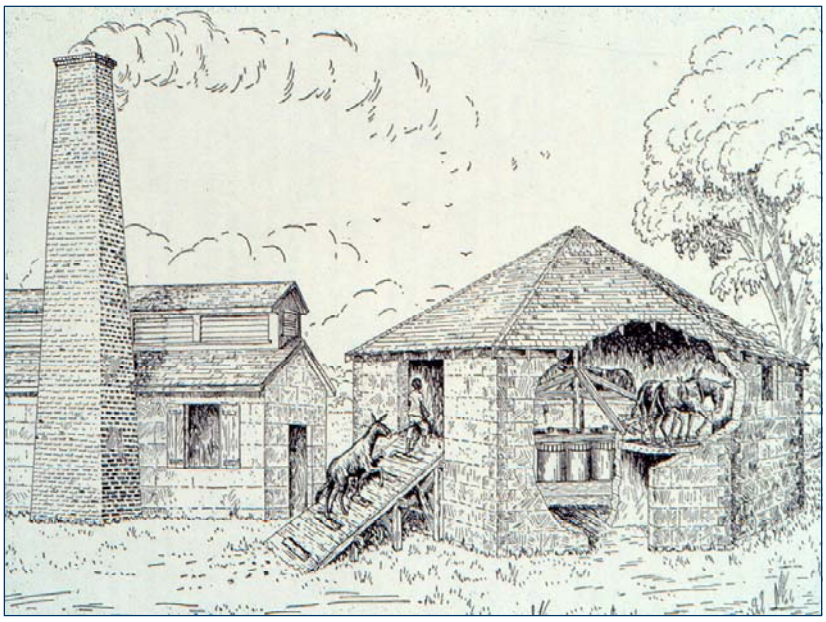


Thomas Spalding of Sapelo (1774-1851).

title to the Barony of Ashantilly. His mother, Margery McIntosh Spalding, was the granddaughter of John Mohr McIntosh, leader of the Highland Scots who first settled Darien in 1736.

Spalding received his early education in British East Florida and New England and was admitted to the Georgia bar in 1795. The same year, he married Sarah Leake, only child of Sir Richard Leake, a prominent cotton planter, first on Jekyll Island then later at Belleville plantation in McIntosh County. In 1802, Leake died unexpectedly after beginning negotiations for the acquisition of property on Sapelo Island. Spalding completed the transaction and acquired 5,000 acres on the south end of Sapelo, a purchase partly financed by the sale to William Page of his late father's St. Simons plantation, Orange Grove (which became Page's Retreat plantation). Spalding was a remarkable man. Like most of his coastal planting contemporaries, he possessed keen sensibilities and awareness of his environment. But to a greater degree than most, Spalding's sense of "place", and the permanency of place, endowed him with the necessary additional insights and perception to make the ecological characteristics of the

tidewater work for him. For example, he was possessed of unusual understanding of local weather phenomena. As reflected in the efficacy of his sensitivity to fluctuations of seasonal temperatures, Spalding was enabled of correctly anticipating the first and last freezes of the growing season and, ipso facto, to make the necessary distinction between tropical storms, northeasters and hurricanes. His innate ability to "sense" humidity and air pressure was certainly a useful quality in the efficient management of his crops. Spalding was thus the consummate "scientific farmer". He experimented with a multiplicity of agricultural procedures, including crop rotation and diversification, and the planting of sugar cane. His innovative use of tabby for the construction of his sugar mill set a standard emulated by his contemporaries. Spalding successfully manufactured sugar for three decades. Utilizing slave labor, he cleared large portions of Sapelo Island (selling his oak to northern ship fitters) and eventually became the leading planter of Sea Island cotton in Georgia.



Conceptual Sketch of Thomas Spalding's Tabby Sugar Mill, Built 1809.

Spalding pursued an agrarian philosophy predicated not only on the methodology imbued in the cultivation of his staples—cotton and sugar cane on Sapelo and rice in the Altamaha—but also on the secondary, or provision, crops by which he sustained his labor force and livestock. An extension of these attitudes is associative to his frequent contributions to the farm journals of his day, chiefly the *Southern Agriculturist* and the *Southern Cultivator,* in which he freely shared his ideas and farming techniques with his contemporaries. With his fellow planters in Glynn and McIntosh counties, Spalding organized the Union Agricultural Society in 1824 through which the improvement and progress of the local planting establishment could be advanced through a free exchange of ideas. Spalding was closely aligned with other local planters such as Pierce Butler, Jacob Wood, and most especially, his fellow Scotsmen, John Couper of St. Simons and his son, James Hamilton Couper of Hopeton-on-the-Altamaha.

It is no exaggeration to say that Spalding was a philosopher, argues his biographer, Professor Coulter. Spalding, says Coulter, "had a pattern for living, and the fundamental elements in that pattern were permanence and unity…his great common denominators were localism, regionalism, state rights…he never talked in generalities—he read his philosophy of life into everything he was doing…" Spalding's philosophy, not unlike that of the ancient Greeks, was embodied in his understanding, and the encouragement of his fellow planters to partake of that understanding, of the profitability consonant with their environment—that is to say, the benefits to be realized from their sub-tropical weather, coastal soils, tides, river hydrology, what grew and what didn't. The outstanding surviving expression of Spalding's acute sense of place and his ecological perception was elucidated

on the 13th of May, 1824 in an address before the Union Agricultural Society in Darien. Spalding, employing his keen knowledge of the classics of antiquity, makes the effective parallel between the tidewater region of Georgia with the ancient agricultural kingdoms of the Mediterranean and Mesopotamia: "Gentlemen, we are in the climate of Chaldea and of Egypt, of Greece, of Tyre, and of Carthage. We are in a land where rice, wheat and cane, indigo, cotton and silk, where the olive and the vine not only grow but will find their favorite home if man will only lend his aid...Let us turn with renovated energy, let us turn with renewed exertions, to the repairing of the past, and the improvement of the future, remembering, that when God abandoned man in paradise, to save him from despair, he plucked from Eden's bower one Flower and planted it in his bosom; watered by love divine, it grew, and grows there still. It is Hope…"

Julius Bailey and His Ox Cart on the Road to Raccoon Bluff, Sapelo Island.

Perhaps the profoundest exemplification of Spalding's approach toward the practicalities embodied in his sense of permanence and place, with a concomitant awareness of his environment, lies in his perfection of the use of *tabby* as a natural building material for his plantation structures. His philosophy of permanence is demonstrated through a desire for his buildings to last for more than one generation, which meant they could not be built of wood, which tended to decay in the damp coastal environment. No, they must embrace *permanence* through strength and solidity. Thus is explained Spalding's adoption of tabby for his structures—it is the clearest expression of his passion for order and stability. Remains of his tabbies are in abundance on Sapelo and on the mainland. Some of these include the ruins at Chocolate on Sapelo's North End, and those of two sugar mills, one on Sapelo, the other at the Thicket on the McIntosh County mainland. All of these attest to the influence Spalding exhibited in the development and refinement of tabby. Spalding also built his Sapelo residence, South End, of tabby, from 1807-1810. "My house at Sapelo is one story," Spalding wrote in 1844. "It is 90 feet by 65 feet in depth, besides the Wings. The Roof is of Tar and Sand…The house is of the Ionic order [and was] built by six men, 2 boys and two mules (one White Man Superintending) in two years"[24]

Spalding commenced construction of his tabby sugar works on the banks of Sapelo's Barn Creek in 1809. This facility comprised an octagonal cane press building and a separate boiling and curing house. These structures were built to Spalding's own design and specifications, and became the prototype for similar mill establishments fashioned by his coastal planter contemporaries. "The mill house I have erected," Spalding wrote, "is forty-one feet in diameter of tabby, and octagonal in its form…the danger of fire, the superior durability, and the better appearance of the buildings, should make us prefer either tabby or brick…the outer walls of the building are sixteen feet…Within about seven feet distance from the outer wall, is a circular inner wall which rises ten feet; and from this wall to

the outer one is a strong joint work, which is covered with two inch Planks for a *Tread* for the Mules, Horses, or Oxen that work the Mill…" Spalding's use of tabby is thus amply documented through his prolific contributions to the *Southern Agriculturist* and other journals. He noted that his preferred use of tabby was "a mixture of shells, lime and sand in equal proportions by measure and not weight, and makes the best and cheapest buildings, where the materials are at hand, I have ever seen; and when rough cast, equals in beauty stone…The drift shells, after the oyster is dead, thrown up along the shores of our rivers, are also used, but the salt should be washed out…In my immediate neighborhood, from following my example, there are more tabby buildings than all of Georgia besides…"[25]

Spalding's contemporaries frequently emulated his sugar mill designs, often with his direct involvement. The mill ruins at the Thicket on the mainland five miles north of Darien are the outstanding example of this. In concert with Spalding, William Carnochan of Savannah constructed a tabby sugar mill and rum distillery in 1816 that, according to the Savannah *Columbian Museum* of February 10, 1817, would produce "4th proof Georgia Rum equal in flavor and quality to Jamaica…" for marketing from Carnochan's warehouse in Darien. The mill and distillery was built on Carnochan Creek at the Thicket, overlooking Doboy Sound and Sapelo. These sugar works were built to specifications almost identical to those of the Spalding mill on Sapelo, evidence of Spalding's involvement in the project. There was a vertical roller sugar mill and the tabby of the octagonal cane press was made from the oyster shells of nearby Indian middens. The boiling and curing house was actually two buildings set together in the form of the letter "T" as recommended by Spalding. North of the curing house are the tabby remains of Georgia's first rum distillery, a structure originally seventy four feet in length and nearly thirty feet in width. A 1937 archaeological survey reported scattered remains of porous dark brown brick commonly used around Savannah during the antebellum period. It is known that T.P. Pease, owner of the Thicket from ca. 1840 until his death in 1878 gave away or sold brick to freedmen building homes at the nearby settlement of Carnigan (a corruption of Carnochan). Portions of the sugar works and distillery have fallen into Carnochan (Crum) Creek due to bank erosion. Marmaduke Floyd, in his tract on tabby in written in the mid-1930s, argues that Carnochan Creek was "perhaps more than" fifty yards east of its present banks when Carnochan and Spalding first erected their buildings in 1816. Scattered oyster shell are visible in the marsh and mud flats of the creek—some of the shell is known to have been brought in by lighter in the mid-nineteenth century by T.P. Pease to retard erosion of the bluff, a fact substantiated by the recollections of Pompey Grant, born a slave at the Thicket in 1855 and interviewed by Floyd in the 1930s. This confirms that the mill establishment was originally much further from the creek banks. Trees and portions of tabby from the mill are also embedded in the mudflats and are visible at low tide. In September 1824 a hurricane of exceedingly destructive force swept the lower Georgia coast and destroyed most of Carnochan's operation. "Mr. Carnochan, at the Thicket, lost all his buildings, crops &c., and one Negro drowned," notes one contemporary account.[26]

Spalding's tabby methods were unique to coastal Georgia. His Sapelo sugar works provided the model for similar manufactories built by Altamaha planters Jacob Wood (Potosi), James H. Couper (Hopeton), and Robert Grant (Elizafield). Spalding cultivated cane and produced quality sugar until the early 1830s. The center of his activities was at Long Tabby, at which were located the sugar mill, cotton barn, gin and grist mill, and docks associated with his agricultural operations. Another outstanding example of Spalding tabby is at Chocolate where plantation ruins, including a main house, detached kitchen, barn, cotton house, mill works and two rows of slave quarters, separated by the typical "plantation street," are in evidence. Chocolate is an interesting, and intriguing, story.

Managed in the 1850s by Randolph Spalding, youngest son of Thomas and Sarah, it was one of the more productive of the antebellum Sea Island cotton plantations. The

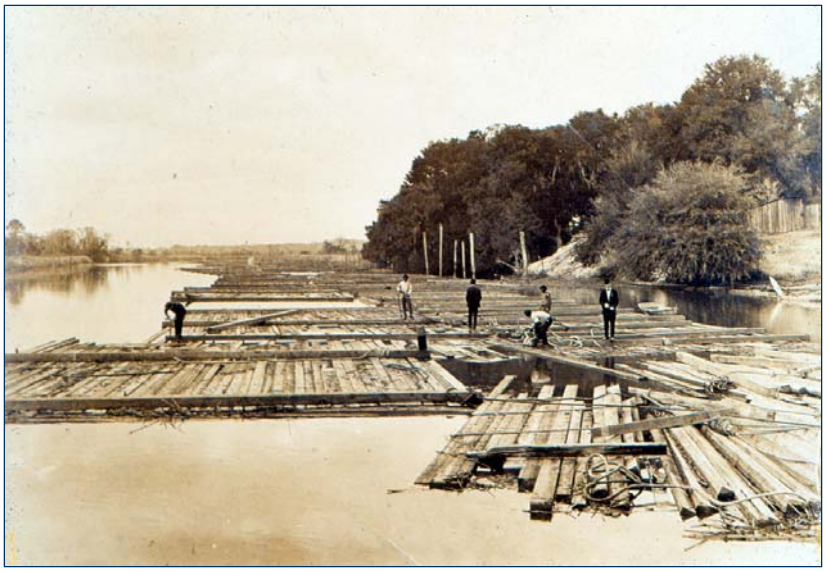
unique name of the site apparently comes from a pre-Columbian Guale village on Sapelo that, according to Spanish records, was called *Chucalat*. Royalists fleeing the Revolution in France in 1789 formed the Sapelo Company and bought the island, among other coastal Georgia properties. One of the tracts on the North End of the island they named *Chocolate,* from the Guale village on the island three hundred years earlier.[27] Edward Swarbreck, coastal freighter, slave trader and associate of the French owners of Sapelo, purchased Chocolate for the cultivation of cotton and various provision crops. Swarbreck's neighbor on the South End, Spalding, shared his tabby expertise and, from 1815 to 1820, assisted him in the design and construction of the complex at Chocolate. In 1831, the plantation was sold to Charles W. Rogers of Liberty County, who subsequently built the existing barn. The tabby barn does not reflect the Spalding method, as do the other buildings on the site. Howard E. Coffin restored the barn in 1927 and subsequent island owner Richard J. Reynolds, Jr. added additional modifications. Spalding himself acquired Chocolate (and most of the North End) in 1843 from Rogers and established his son, Randolph, there to oversee farm operations. About 70 slaves worked the cotton fields at Chocolate until 1861. The Chocolate "big house" burned in 1853 and was never rebuilt. The ruins of the tabbies at Chocolate provide Sapelo with a unique cultural legacy, and remain a tangible testament to antebellum plantation management, slave life and tidewater agriculture. An 1857 U.S. Coast Survey topographical map of Sapelo Island delineates the Chocolate buildings, including the residence, barn and the two rows of slave houses. The remains of the structures are indicative of the prodigious amount of agricultural activity associated with the upper portion of Sapelo Island. Coasting vessels regularly docked at High Point on the North End to load Sea Island cotton ginned and baled at Chocolate. Cotton continued to be grown on the site for a short period after the Civil War, after the property had passed out of Spalding ownership.[28]

Attesting to the durability of tabby, some of the Sapelo structures continued to be used long after their original purposes had ended. In the 1870s and 1880s, descendants of Thomas Spalding utilized the former Long Tabby sugar mill on the South End as living quarters; tabbies at Kenan Field (Hanging Bull) were converted by freedmen for use as a church and school; and the restored Sapelo main house is built on the tabby walls of the original house built by Spalding 200 years ago.[29]

Despite his ownership of over 350 bondsmen, Spalding had considerable misgivings about slavery, exemplified by his reputation as a liberal and humane slave owner. His benevolent attitudes regarding chattel bondage and its applications toward effective plantation management, is reflected in his utilization of the task system of labor. Workers were assigned "tasks" commensurate with their age and physical ability. They were thus enabled to have free time for personal pursuits after the completion of their work. This concept contributed toward Sapelo achieving the reputation as one of the most efficiently managed farms in the region. Also unique to Spalding was that slave supervision at Sapelo was not under the typical white overseer, but rather black managers, the most prominent of whom was Bilali, a Mohammedan, Spalding's head driver.

Despite financial setbacks occasioned by the 1824 hurricane, Spalding recovered and continued his successful agricultural operations on Sapelo. He eventually came to own almost all the 16,500-acre island, excepting 600 acres at what became the postbellum African-American Raccoon Bluff settlement. He acquired a 1,500-acre tract on the Duplin River, which he awarded to his daughter Catherine and her husband, Michael J. Kenan of Baldwin County, as a wedding gift, and as noted, purchased most of the North End in 1843. Until the early 1850s, Spalding cultivated rice on his Cambers Island property in the Altamaha River delta, just upriver from Butler's Island. Another of Spalding's sons, Charles Harris Spalding, managed the mainland rice operation, as well as the Thicket where the tabby ruins of slave cabins and sugar mill, previously discussed,

still remain. Two Spalding sons-in-law cultivated cotton on properties close to Sapelo Island— Daniel Heyward Brailsford at Sutherland's Bluff on the Sapelo River, and William Cooke at Shellman and on Creighton Island. There are tabby ruins on the north end of Creighton, doubtlessly influenced by Spalding. Spalding kept cattle on Black Island, near Darien and, in the 1820s, owned Hutchinson's Island at Savannah, on which he cultivated rice and cane. Not surprisingly, Spalding was prominent in local and state business affairs. He was a founder and organizer of the Bank of Darien (1818), and inculcated transportation improvements in Georgia through his promotion of railroad and canal development. As McIntosh County's most prominent citizen, Spalding was an influence in the local and state Democratic Party. His visionary approach was such that he actively sought to establish Darien as a commercial seaport to rival Savannah and Charleston, plans which failed to materialize due to the poor navigability of the town's harbor approaches and later the national financial Panic of 1837.[30] One achievement toward this goal, however, was his successful effort for the establishment of a federal lighthouse on Sapelo's South End in 1820, an aid to navigation that, in tandem with the range beacon on Wolf Island across the entrance to Doboy Sound, guided vessels into Darien until 1898. Paradoxically perhaps, particularly when considering his success as a Southern agrarian and the fervent secessionist sentiment among his contemporaries, Spalding was an unyielding pro-Union advocate. As the sectional crisis worsened in the late 1840s, he was instrumental in ensuring the support of Georgia for the Compromise of 1850. He gave his most memorable public address to the assembled state legislators in support of the Compromise—and the Union—in December 1850 at the capitol in Milledgeville. Having outlived five of his seven sons and his wife Sarah (d. 1843), Spalding died at the age of 76 at his mainland home, Ashantilly, near Darien on January 4, 1851. He was buried in the Spalding family plot at Ashantilly. Later that year, the Georgia general assembly honored Spalding's contributions by naming the newly created Spalding County after him.



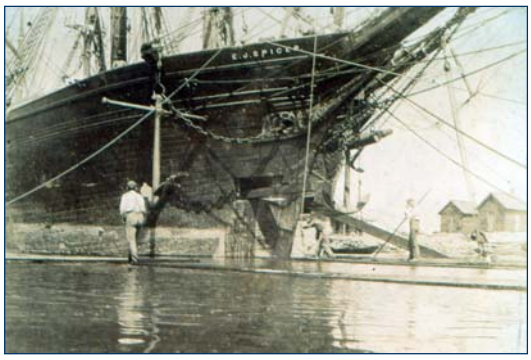
Rafts of Yellow Timber, Altamaha River, Darien, ca. 1895.

Maritime Culture

Coastal Georgia was an important source of live oak timber for northern shipbuilding interests. The frames and hull planking of early United States naval vessels were largely built of live oak hardwood from Cumberland, St.. Simons and Ossabaw islands. The USS *Constitution* and her sister ships of the 44-gun class of frigates designed by Joshua Humphreys of Philadelphia were the most sophisticated and technologically advanced warships of their type in the world. The emergence of tidewater Georgia as an influence on the development of the Navy of the early Republic in the late eighteenth and early nineteenth centuries provides substantive credence for the presence of a maritime heritage for the region. While not as high in the national maritime awareness as

such regions as Chesapeake Bay and New England, coastal Georgia nonetheless has its own distinct legacy. The natural waterway known as the "Inland Passage" became a commercial transportation route from the earliest days of European settlement. The coastal islands were an ideal buffer against the effects of bad weather often encountered in the rough outside Atlantic waters. The tidal rivers and creeks inside the islands thus provided a protected passage for waterborne traffic. Georgia was among the leading producers of rice and Sea Island cotton prior to 1861 and a maritime culture evolved around the transport of these commodities in shallow-draft sloops and schooners from the river plantations and the saltwater islands to the markets in Savannah and Charleston. After the Civil War, the maritime focus shifted to a lucrative commercial timber industry. Rafts of yellow pine timber were floated from the interior down the Savannah, Oconee, Ocmulgee, Ohoopee and Altamaha rivers to the sawmills on the coast. Ships from Europe and the Northeast proliferated local harbors to load cargoes of lumber. Evidence of this activity can be seen today in ballast rock deposits in the marsh along the rivers and sounds and the rotting pilings of loading docks near the former sawmills. Darien became an international timber market— the port was a leading Atlantic exporter of pine from 1870 to just after 1900. Timber cutting and lumber production were the economic engines of coastal Georgia, and people found livelihoods in vocations associated with a maritime culture—boatbuilders, bar pilots to lead timber ships to anchorages from the open sea and stevedores to load timber into the vessels.

The period 1870-1900 saw the transition of the old coastal agricultural economy into one based on timber, lumber processing and turpentine production. The coast's maritime culture came to full flower around Darien, Doboy Sound and Sapelo Sound, centered around sawmills and the traffic in vessels loading cargoes of Georgia pine products. The enterprising Joseph Hilton of the Darien-based Hilton-Dodge Lumber Co. was, for about thirty years, the leading timber broker on the Atlantic seaboard with branches in



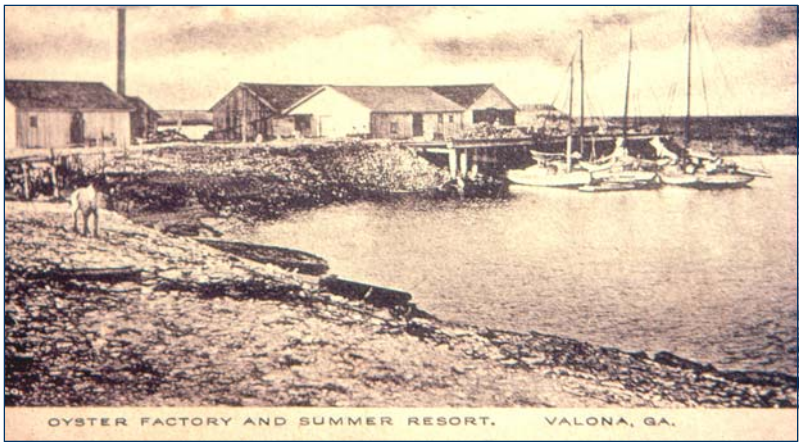
Loading Timber, Hazzard's Island, Front River, ca. 1900.

New York and Boston. The maritime traffic required large numbers of bar pilots to assist foreign vessels in navigating the often-treacherous offshore shoals and the shallow mudflats and estuaries; ballast islands sprang up along the tidal rivers as European ships unloaded ballast in exchange for cargoes of timber—examples of these are in evidence around Sapelo Sound (Hazzard's Island, Front River, Julianton River), Doboy Sound (Doboy, Rock and Commodore islands), North River (Hird and Union islands), Darien's Lower Bluff and the Long Reach of the Darien River.[31]

The importance of the Altamaha River, particularly in regard to Darien's booming postbellum timber industry, was not lost on Richard Grubb, editor of the town's weekly newspaper, the famous *Darien Timber Gazette*. In the spring of 1874, Grubb penned one of his more memorable editorials, in which he compared the vagaries of the Altamaha in circumspect, if somewhat unusual, terms—"The Nile is said to be everything to Egypt," Grubb wrote. "In fact, without the Nile there would be no Egypt...To a certain extent, the same may truly be said of the Altamaha River and Darien. Without the Altamaha there would be no timber trade and no rice planting, and without these there would be no Darien...For the presiding deity of the former stream, duly regarding his venerable reputation, regulates the movements of the waters under his control...The Jolly God of the Altamaha has lately been cutting such antics [flooding] to the discomfiture of timber cutters as to arouse a grave suspicion that he exacts a toll of Darien whiskey from the bottle of every raftsman who ventures to return home by the *Daisy* steamer. Under these

circumstances, we have determined on the interests of our friends...to keep a close watch on the movements of his godship, and to report promptly any future attempt of his to raise a flood...But to do this effectually we must secure cooperation. This consists in every timber cutter and buyer and all of their friends, subscribing immediately to the *Gazette*. When that is done, they must read it occasionally, at least…"

Further testimony to the maritime influence was the yellow fever epidemic centered on Savannah and Brunswick in 1876, leading to the establishment of the South Atlantic quarantine and hospital on Blackbeard Island (Sapelo Sound) in 1880. There was considerable steamboat traffic on the inland waterway between Charleston and the St. John's River. In the early 1890s, the Army Corps of Engineers began the systematic dredging and maintenance of the Atlantic Intracoastal Waterway (AICW). A project depth of 12 feet was adopted in 1905, and an important new cut, Skidaway Narrows, replaced Romerly Marsh near Savannah as a transit linking Wassaw and Ossabaw sounds. These developments directly affected the navigation of vessels in the waters proximal to Sapelo Island and McIntosh County in general.[32] Meanwhile, Savannah and Brunswick emerged as the leading naval stores markets in the world from 1890 to the late 1930s, spurred by increased production of rosin and turpentine in the southeast Georgia pine barrens. The AICW facilitated the shipment of these products to East Coast ports. Arguably the most striking expression of the adaptation of the local ecosystem to historic human endeavor was in the development of the marine fishery in the first half of the twentieth century. When the timber industry declined because of the over-cutting of the upriver forests, a new chapter in Georgia's maritime legacy emerged. Field investigations conducted by J.C. Drake on behalf of the U.S. Coast and Geodetic Survey in 1889 revealed extensive oyster beds along the Georgia coast, particularly in the McIntosh County waters and marshes amid what is now the Sapelo Island National Estuarine Research Reserve. In his survey, Drake identified oyster grounds in the North River near Doboy Island, the Carneghan River near Meridian, Julianton River, Wahoo River, the lower South Newport River, and in the immediate environs of the Reserve—specifically, Old Teakettle Creek, Duplin River, Mud River and Sapelo River. Georgia's inshore waters and tidal mudflats were the repository of the most harvestable oyster grounds on the east coast south of Chesapeake Bay. By 1905, numbers of wooden oyster sloops and bateaux were proliferating local waters during the winter harvesting season. Oyster canneries developed with some of them becoming large-scale operations. The most prominent were at



Oyster Boats and Cannery, Shellbluff Creek, Valona, 1906.

Habersham Mongin Rowing in General's Cut 1915.

St. Catherines Island, Thunderbolt, Wilmington Island, and in McIntosh County at Valona, Cedar Point, Sapelo Island, Darien and Harris Neck. Coastal Georgia was a leader in the processing of oysters in the first two decades of the twentieth century before over-harvesting resulted in a decline. On Sapelo Island, within the present-day Research Reserve, Howard E. Coffin had an oyster and shrimp cannery on the north extension of Barn (Factory) Creek in the mid-1920s, operated by island blacks. The resourceful Coffin also had a boat-building yard and marine railway on the South End at the present day Marine Institute complex.[33]

By 1920, the shrimp fishery had begun to develop, energized by the growing involvement of local blacks and Portuguese migrants from Fernandina. Darien and Brunswick evolved from their roles as timber and naval stores centers into commercial seafood markets. In the 1940s, the Georgia shrimping industry emerged as a significant force in the coastal economy, for both blacks and whites alike. After World War II, the fishery further expanded through technological advances and improved techniques in trawler construction.

The 1950s and 1960s were known as the "gold rush" days as peak shrimp harvests were realized in Georgia nearshore waters. McIntosh County was the leader of the Georgia fishery as it led the region in the annual numbers of trawler registrations for a number of years. Local boat captains frequently wintered in the warmer waters of the Florida east coast and the Gulf of Mexico, returning to Georgia in the spring, thus enabling year-around profits. By 1960, the trawlers had evolved into bigger, "blue water" boats with powerful diesel engines and double-outriggers. Ice-making technology enabled vessels to preserve their catches and thus fish the offshore waters for longer periods. Large shrimp boat fleets at Valona, Cedar Point and Darien made those small communities the centers of the local shrimping culture.

By 1980, second and third-generation operators had assumed the management of harvesting and processing operations. In the late 1970s and early 80s, the Georgia shrimping economy suffered a series of setbacks. Consequent upon the over-trawling of coastal sounds prior to the implementation of state controls in the late 1960s, the shrimp resource was seriously depleted. Ecological research from 1953 to 1968, largely conducted by scientists at the University of Georgia Marine Institute on Sapelo Island, had demonstrated that juvenile shrimp migrate from spawning in the open sea to the inshore sounds and rivers to mature. These were areas scoured of young shrimp by commercial trawling precedent to arriving at this understanding. Combined with rising operating costs, chiefly the expense of fuel and marine insurance precipitated by the Arab oil embargoes of the mid-1970s, along with increasing pressures from the importation of foreign-produced shrimp, the Georgia fishery was only a shell of its former self by the mid-1990s.[34]

Along the tidal steams of the present-day Sapelo Island National Estuarine Research Reserve, plantation slaves and, subsequently, freedmen, built boats throughout the nineteenth century for purposes of subsistence fishing and transportation. Wooden bateaux and dugout canoes were the means of travel to and from the mainland and to the commercial centers via the inland waterway. Small wind driven coasting freighters navigating the inland waterway made regular stops at Sapelo to load cotton and tierces of raw sugar and molasses manufactured at the Spalding sugar mill. These boats transited Barn Creek from Duplin River to load at the South End (Long Tabby). Sailing vessels, and later steamboats,

stopped at High Point on the North End to load farm goods from Bourbon and Chocolate plantations. Inland waterway steamers—the *Lizzie Baker, Starlight, Nick King* and *David Clark* were the most popular—stopped regularly at High Point, Doboy and Darien. The journal of Archibald McKinley, written on Sapelo Island during the 1870s, refers to small, durable sailboats being built on Sapelo for use by the Spalding family members in pursuit of their cattle business and agricultural activities on the island. These sturdy vessels were built to withstand the rigors of navigating the frequently turbulent waters of Doboy and Sapelo sounds on either end of the island. They were true Georgia "tidecraft" and were the mainstay of life on the coastal islands in the days before railroads, the automobile and the ubiquitous causeways linking the islands to the main. Author Rusty Fleetwood observes appropriately, "To tell the story of this region it is necessary to tell of boats. Not necessarily fancy or large craft, just plain, get-from-here-to there boats that could live with the mud, the oyster rakes, the narrow tidal creeks, and the short, choppy seas of the sounds, and would be simple and cheap to build and operate…"[35]

McKinley's journal provides numerous instances of the environmental awareness of, and interaction with, the local ecosystem by the human occupants of Sapelo—how, for instance, McKinley and his brothers-in-law employed the wind and tide to facilitate their frequent sailboat runs across Doboy Sound to Darien from Sapelo twelve miles away. Like the coastal planters a generation earlier, they were acute weather observers, understanding the portent of hydrological conditions occasioned by fall and winter northeasters and the summer southeast trade winds off the Atlantic. The environmental balance during the late postbellum period was temporarily altered by the circumstances created by the hurricane and "tidal wave" of October 1898 in which Sapelo and its environs were directly impacted by the last really serious tropical cyclone to make landfall on the Georgia coast.[36]

During Howard Coffin's island ownership, as earlier noted, there was a boatyard at the South End of Sapelo where small fishing craft

Marsh Biologist John Teal, UGA Marine Institute, Sapelo Island. 1962.

were built in the 1920s and a marine railway installed to service the boats. During the R.J. Reynolds era (1934-1964), boat construction continued, primarily by island blacks. The best-known boat to be built on Sapelo was the *Kit Jones,* a 40-foot motorized wooden vessel built in 1939. It served as a ferry, utility boat and research vessel for the island until the late1960s. The most significant contribution by Reynolds locally was his facilitation of what precipitated the expanded scientific understanding of the coastal ecosystem. In 1953, Reynolds provided infrastructure and marshlands on Sapelo to the University of Georgia for a marine biological research station. This had important ramifications over the next half-century relevant to the growth of academic disciplines associated with the chemical and biological processes of the salt marshes and the tidal estuary.

There thus evolved a direct corollary between estuarine science and maritime culture as inculcated through the field investigations of some of the world's preeminent ecologists at Sapelo's Marine Institute. Eugene Odum, acknowledged in the academic community as the "father of modern ecology", along with Lawrence Pomeroy, Theodore Starr, John Teal and Donald Kinsey, among others, set the early parameters for establishing the conduit between the "life and death" of the salt marsh and the biological life cycle of marine organisms that habituated the ecosystem, chiefly shellfish—oysters, shrimp and the Atlantic blue crab. It was the criticality of this ecological research that in 1976 occasioned

the creation of the Sapelo Island National Estuarine Sanctuary, now Research Reserve, through a cooperative agreement between the State of Georgia and the National Oceanic and Atmospheric Administration, thus ensuring the continued integrity of Sapelo South End as a platform for scientific investigation.[37]

Ecology and Historical Archaeology

A direct consequence of the association between the local environment and its historical implications may be read in the study of the tangible fragments from the past. This aspect of the connectivity between "man and the landscape" is often at one with the soil of that landscape, either surficial or substrative—that is, the interpretation and analysis of the artifacts and detritus of past eras of human occupation and activity.

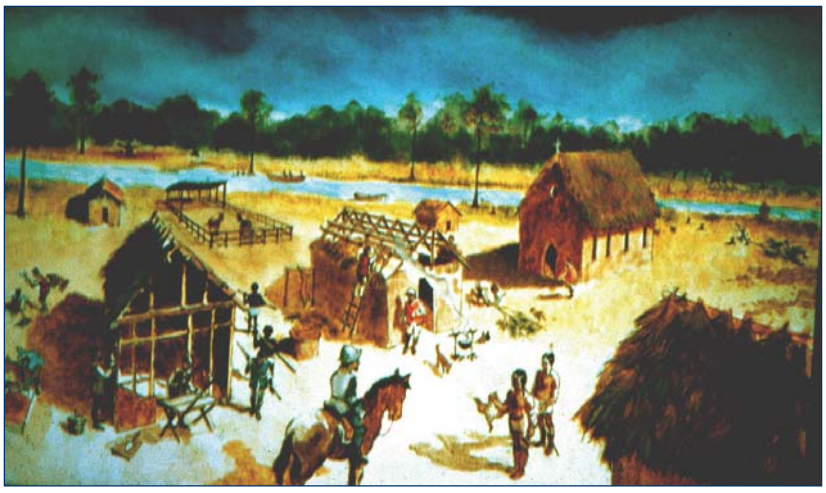
This is archaeology, of course.

Of greater salience in this regard is the melding of the conclusions drawn from the written record—history—with that of the analytical study of the tangible evidence—artifacts—to produce that happy marriage known as historical archaeology. This concatenation of academic and research disciplines has resulted in the exponential expansion of knowledge and understanding of how people lived on the Georgia coast the last four hundred years and, for the purposes of our discussion, how they facilitated the local environment in virtually every aspect of their lives.

Early Spanish Map of America Showing "Tierra De Ayllon", 1529.

Lower Creek peoples—Guale, Yamacraw, Timucuan—were established long before Europeans arrived on the scene. Indian shell formations on Ossabaw and Sapelo Islands, some dating at least 4,500 years B.P., were the foci of systematic archaeological investigation by Clarence B. Moore as early as 1896, work amplified by the research of Antonio J. Waring (1930s to 1950s). The detailed reports that accompanied their fieldwork provide a unique window into Native American life and culture on the coast.

"The Two Forgotten Centuries" is an appropriately descriptive appellation of the nearly 200 years of the Spanish interregnum on the Georgia coast. It began in 1526, when Lucas Vasquez de Ayllon, a sugar planter and magistrate from Hispaniola, attempted a short-lived Spanish colony in what became Georgia, quite possibly in the region of Sapelo Sound. This unsuccess-ful colony in what came to be known as "Tierra de Ayllon"—Land of Ayllon—was the first true



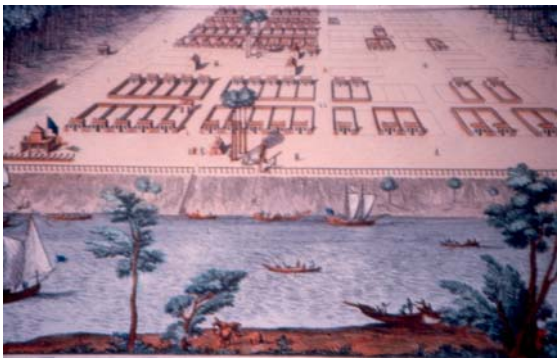
Conceptual Sketch of 17th Century Mission de Santa Catalina de Guale.

European settlement in what became the continental United States.[38] It seems odd that the protracted Spanish influence on coastal history in the 16th and 17th centuries has only recently begun to be seriously investigated by the academic community. Perhaps one explanation is the prevalent attitude for many years that "nothing much happened" in coastal Georgia before the arrival of Oglethorpe, testimony to the "Anglicization" of early Georgia history from 1733 onward.

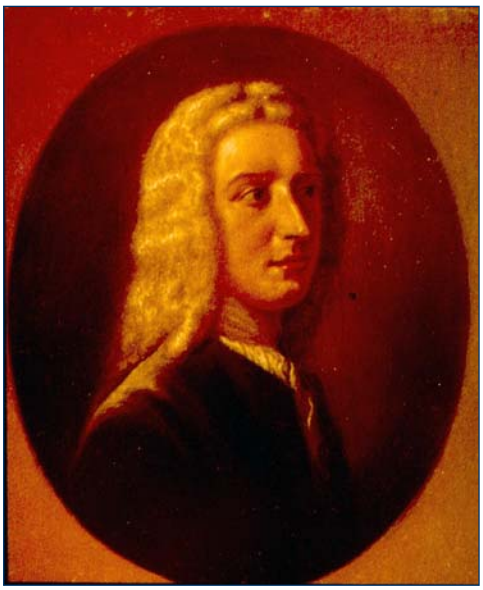
Some of the numbers provide clarity to the "two lost centuries". Ayllon's colony, San Miguel de Gualdape, predated the first permanent Spanish settlement at St. Augustine (1565) by 39 years; it came 81 years before the first permanent English settlement at Jamestown, and fully 207 years before the founding of Savannah. Conversely, San Miguel was settled a mere 34 years after Cristoforo Colon (Columbus) accidentally stumbled upon the Western Hemisphere.

The discovery of the lost site of Mission Santa Catalina de Guale at St. Catherines Island in investigations led by David Hurst Thomas in 1974, and the subsequent documentation and recovery of artifacts there, represent what is arguably the most significant archaeological field project in the history of coastal Georgia. Missions at St. Catherines, Sapelo, St. Simons, Cumberland and Amelia islands flourished from ca. 1570 to 1686, and have been researched recently by Thomas, John Worth, and others. Their authoritative writings on this subject are detailed and definitive.[39]

Events precedent to the creation of Georgia, and certainly consequential to it later,



Contemporary Savannah Town Plan, Peter Gordon, 1734.



James Edward Oglethorpe, Founder of Georgia, 1733.

occurred in 1670 with the establishment of Charles Town and South Carolina. These developments drastically altered the stability of the Spanish strategic position in Guale, and the inevitable incursions by the English gradually pushed the Spanish southward into Florida. By 1686 the missions north of Amelia Island were abandoned and for 35 years the so-called Guale coast lay unoccupied and uncontested by Europeans, a "Debatable Land".

The original concept for Georgia was philanthropic in nature, as James E. Oglethorpe, John Percival and their colleagues in Parliament originally envisioned a proprietary colony to assuage the problem of debtors in English prisons. But increasingly, the Georgia Trustees, established in London to oversee the affairs of the colony, entrusted Oglethorpe, with his acute military sensibilities, with the protection of the mercantile affairs of South Carolina against the increasingly resentful Spanish in Florida.

Military considerations notwithstanding, Oglethorpe had opportunity to implement in 1733 his formalized eighteenth century Savannah town plan (from the London model), based on a rigorous, preconceived layout of wards, squares and lots, the concept of which is very much in evidence today in the Savannah National Landmark Historic District.[40]

In 1734, Peter Gordon, colonial surveyor to Oglethorpe, produced a detailed survey of the new town of Savannah a year after its founding. This unique document is perfectly illustrative of the relationship between the written manuscript record and the evidence yielded from the ground—historical archaeology. Archaeologists can utilize the written record to determine with greater precision the provenance of their artifact discoveries. Conversely, the historian can learn a great deal about the people he is researching by the tangible evidence of their times, the surviving fragments of their lives.

Similar precepts may certainly be applied to our present case study, that of the historical ecology of the Sapelo Island National Estuarine Research Reserve. The evidence from archaeological research conducted within the Reserve and its immediate environs, particularly since 1975, has resulted in a rich yield of useful data, from all eras of the human occupation of the coast, pre-Columbian and historical. Archaeologists have surveyed former African American occupational sites at Bush Camp field, Long Tabby, Hanging Bull, Chocolate and High Point. Also investigated have been a substantial number of prehistoric sites, particularly at Kenan, Bourbon, Dumoussay and the Shell Ring—areas that have received scrutiny since the original investigations conducted by William McKinley (1872) and C.B. Moore (1896). Little Sapelo Island, the marsh, and Mary, Jack and Pumpkin hammocks, all within the Reserve, have not been surveyed for archaeological resources.[41]

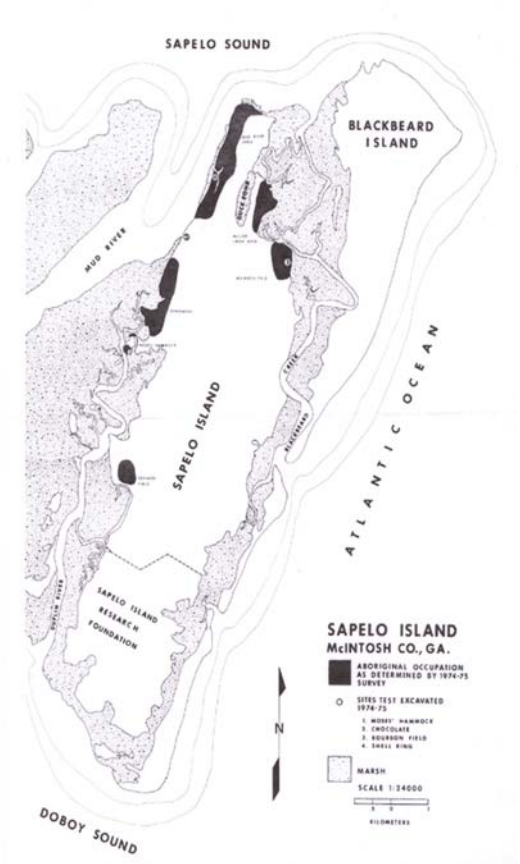
Concurrent with ongoing efforts to preserve Sapelo's historic tabby resources which, it should be remembered, directly evolved from the use of the local ecosystem through the ingenuity of the island's human occupants, comes the systematic study of the resources for the greater understanding—chiefly through the discipline of scientific archaeological analysis, enhanced by modern technological methodologies. A case in point is Kenan Field, site of a 150-acre prehistoric Guale village, featuring evidence of over 500 shell middens, two earth mounds, and at least two complex community structures. The site provides an outstanding example of a Savannah Phase aboriginal site and will be a point of comparison with similar sites that may be uncovered elsewhere. Since Kenan Field had considerable agricultural use in the period of private ownership of Sapelo, archaeological evidence in the surface layers has been disturbed. Excavations conducted at Kenan Field in 1976 and 1977 documented the presence of several buildings that once stood in an Indian village on the site, as well as kitchen middens and burial mounds. Kenan Field is situated on an extension of land that juts out from the western side of the Sapelo Reserve and fronts on the Duplin River. The site was mapped and extensively tested during the 1976 West Georgia College Archaeology Field School under the direction of the state archaeologist, Lewis Larson.

Kenan's most prominent feature is a large mound (Mound A), near the center of the site, with another smaller mound at the southern edge of the field near the north bank of Barn Creek. There is a long, low earthen embankment that extends west to east across Kenan Field about 500 feet south of Mound A. The remains of middens (refuse heaps) are quite numerous. These are recognized as low rises comprised principally of oyster shell. These extensive refuse piles are scattered over the village and they provide an important source of information about the diet of the Guale Indians. The village is thought to have been occupied by the Guale between 1000 A.D. and 1600.

The Sapelo Shell Ring complex received substantial archaeological investigation from 2002-07. The Shell Ring is a mile and a half north of the upper boundary of the Sapelo Island NERR, overlooking Mud River toward the mainland. The findings from this work established evidentiary proof of the presence of at least three distinct large ring-shaped shell mounds on the site, as well as numerous smaller amorphous shell middens, whereas the earlier literature had consistently referenced only one large, predominant, shell ring.

The complex entails three distinct circular shell mounds, one of which is quite large. Shell analysis and dating conducted from the 1950s onward determined that the use and construction of the Shell Ring complex dates

to the Late Archaic Period, approximately 4,500-3,000 years B.P. Later groups utilized the North End site during the Mississippian Period, as documented through investigations by Antonio Waring and Lewis Larson in the early 1950s. Waring and Larson excavated sections of the largest of the three Shell Rings, with Larson continuing similar work at the site over the next three decades.



Archaeological Research sites (in darkened areas), 1975.

More recently, archaeological fieldwork at the site has yielded considerable data amplifying the understanding of Native American activity on Sapelo during both the pre-Columbian period and the Spanish interregnum. Of equal significance is the demonstration of a Spanish presence at the Shell Ring site, thereby attenuating the scholarly uncertainty as to the precise locale of Mission San Jose de Zapala in the seventeenth century. Artifact analysis seems to confirm intensive Spanish activity, possibilities further substantiated by the delineation on the 1760 DeBrahm survey of Sapelo Island of "Spanish Fort" on the site of the Shell Ring, in addition to olive and citrus trees on the North End. A century later, the 1857 U.S. Coast Survey topographical map of Sapelo Island delineates the Shell Ring site as "Old Fort."

Geophysical survey data were used to investigate the spatial distribution of the site's archaeological deposits and to evaluate appropriate geophysical techniques for utilization on shell-bearing sites. Recent published reports divulge that the research at the Shell Ring "has the potential to provide unique information on coastal hunter-gatherer community organization…remote sensing becomes not just a way to find buried deposits, but another line of data to examine the behavior and social processes [relevant to Guale and Spanish inhabitants of the island]…"[42]

In 2006 and 2007, archaeological fieldwork was conducted at two other North End sites, Chocolate and High Point, both significant venues of antebellum activity. The importance of Chocolate has been previously referenced in this paper in some detail. The High Point site, meanwhile, has a direct correlation to Chocolate, particularly as regards the French era on Sapelo Island in the late eighteenth century. Based on the dearth of materials found (to date) at the High Point tabby foundational remains that can conclusively be associated with the abbreviated (1790-95) French presence on Sapelo, the argument for a postbellum provenance of the structure may be closer to substantiation. This paucity of antebellum artifact density at the High Point tabby may be attributable to the fact that the Frenchman John Montalet (son-in-law of Picot Boisfeuillet of Sapelo Bourbon) lived there only a short time, perhaps less than five years, before his premature death in 1814. John L. Hopkins, who came a short time later, was also there only briefly—probably not long enough to deposit much in the way of residue and detritus.

The archaeological evidence uncovered at High Point thus far is not entirely consistent with the historical record, however. Montalet, according to his obituary in the Savannah *Columbian Museum,* was a Sapelo resident at the time of his death. French documents report

the award of 456 acres at High Point to Montalet by Boisfeuillet. This scenario—suitably reflective of the aura of intrigue that thoroughly permeates the French sojourn on Sapelo—may be appended by noting that Montalet was closely allied with his neighbor Thomas Spalding, owner of Sapelo South End since 1802. Possessed of this knowledge then, the conclusion may easily be inferred that the tabby remains at High Point are those of Montalet's house built with the almost certain beneficence of Spalding's expertise in tabby. There is no known pre-Spalding tabby on Sapelo. The French, who were gone by 1795 (with the exception of Boisfeuillet) were not known, based on surviving accounts, to have used tabby. Spalding's utilization of tabby on Sapelo begins in 1807, shortly precedent to the time that Montalet constructed his High Point residence overlooking Sapelo Sound.

There was a good deal of activity at High Point, both antebellum and postbellum, based on the site's convenience and deep water access to Sapelo Sound and the inland passage to the coastal agricultural markets. In his journal, A.C. McKinley frequently alludes to High Point being the steamboat landing for Sapelo Island, vessels calling there on their regular inland waterway routes from ca. 1845 to about 1890. Thus the presence of a postbellum well (artesian?) at High Point as referenced in preliminary archaeological reports in 2007 would certainly make sense. Water would be a necessary commodity for steamboat crews and their passengers, as well as island stevedores loading and unloading freight and farm commodities. An argument could be made that North End owner John A. Griswold (or his agents) emplaced the well, or possibly Amos Sawyer, a North End owner subsequent to Griswold.[43]

Griswold, an absentee owner from New York, was not long on the scene—only from 1866, the year of his acquisition of the tract from the Spalding heirs, until 1873—as he realized the financial futility of attempting to resurrect the kind of cotton empire as that of Spalding, who had the benefit of a free supply of labor. Griswold lost interest and his ambitions quickly faded. Griswold himself actually spent very little time on the island, thus the High Point dwelling with the tabby foundations could be associated with Griswold's resident manager, regardless of the age of the structure—meaning the original may indeed go back to Montalet's time. Alternatively, Griswold could have contracted Sapelo's freedmen to construct the house—the freedmen would certainly have had the requisite skills in tabby-making based on their recent Spalding plantation experience. This might explain the difference in the consistency (or "recipe") of the High Point tabby as opposed to that at Chocolate and the South End. The High Point dwelling, whether built or the refurbishment of an earlier structure, may with certitude be attributed to a fair amount of subsequent utilization immediately after Griswold's departure. A.C. McKinley's journal entry of November 3, 1870 reports that he "rode up to the extreme North End of Sapelo to look at the house which Mr. Griswold offers to rent me. Very much pleased with it. The view is truly magnificent overlooking Sapelo Sound…"[44] Unfortunately, McKinley sheds no light on the provenance of the structure, nor does the 1857 Coast Survey map help in identifying any built structures at High Point—certainly not to the degree of the detail shown at Chocolate a short distance away, with the unmistakable delineation of barn, rows of slave quarters and the main house there.

Postscript: The First Conservationists

The great historical paradox of coastal Georgia—at least to some and thus precipitant, perhaps, upon an ignorance of the facts—is the responsible stewardship of the coast by the so-called "robber barons" of America's late nineteenth century Gilded Age. In the fifty years following the Civil War there was a concomitant acquisition of coastal properties by wealthy Northern interests. Herein lay the genesis of the coast's first true conservation movement, the impetus toward the protection of islands and mainland areas that evolved in the twentieth century. Some of the names are obscure and forgotten, while some will be readily familiar. They are nonetheless essential to an understanding of the current conservation vs. development conflict in coastal Georgia. They include:

Sapelo—Howard E. Coffin of Detroit (1912, executive of the Hudson Motorcar Company) and tobacco heir Richard J. Reynolds, Jr. (1934) were the last two private owners before the State of Georgia acquired the island in two separate purchases in 1969 (North End) and 1976 (South End, including the present Sapelo Island NERR).

Jekyll—Newton Finney and John Eugene duBignon sold the island to wealthy New York City investors who created the Jekyll Island Club in 1886. It served as the "Southern Newport" to America's industrial elite from 1887 to 1941.

Cumberland—Thomas Carnegie of Pittsburgh (brother of Andrew) acquired much of the island in 1881, while Atlanta's Asa Candler (Coca-Cola) had lands on the North End.

St. Catherines—Rauers, Keys, Coffin, Noble (Life Savers candy company).

Ossabaw—Waterbury, Wannamaker (Philadelphia department store chain), and the H.N. Torrey family of Detroit and Ford Motor Company (1924).

Richmond Hill—Automotive pioneer Henry Ford (1925-1951).

These industrialists were almost universally sensitive to the ecological and cultural uniqueness of their properties. Their enduring legacy is the fact that they, and their heirs, ultimately enabled the preponderance of their lands to come under the protective aegis of federal, state or private stewardship. To varying degrees some of these families still have a presence on the Georgia coast. Coffin and his young cousin, Alfred W. Jones, Sr., developed the Sea Island Company with the famous Cloister Hotel opening in 1928 as coastal Georgia's first "Palm Beach style" resort. Of parallel interest during this period was the Detroit, Michigan connection of Coffin, Torrey and Ford. The three men and their families were close friends and all shared a similar vision for the natural and historic preservation of the coast.[45]

In addition to Sapelo, other coastal islands became public lands in the 1960s and 70s. The National Park Service designated much of Cumberland Island as a National Seashore in 1972; in 1978, the state acquired Ossabaw Island; Jekyll came under the management of the state Jekyll Island Authority; and Harris Neck, and Wassaw, Wolf and Blackbeard islands came under federal management as Fish and Wildlife Refuges (Department of the Interior). Privately protected islands include St. Catherines, Little St. Simons and Little Cumberland. The protection of these islands fueled the growth, starting in the 1950s, of scientific estuarine research, the outgrowth of which greatly expanded the awareness of biological processes in the salt marshes and tidal estuaries, as well as serving as valuable platforms for the projection of ecological education and coastal resource management.

NOTES

[1] Sydney Johnson, Hilburn O. Hillestad, eds., *An Ecological Survey of the Coastal Region of Georgia* (National Park Service Scientific Monograph Series 3, 1974) provides an excellent comprehensive overview of the ecological characteristics of the Georgia coast; for Sapelo Island and its immediate environs see *The Ecology of the Sapelo Island National Estuarine Research Reserve* (Sapelo Island NERR and National Oceanic and Atmospheric Administration, 1997), and Management Plan (Revised), Sapelo Island National Estuarine Research Reserve, 2008-2013 online at www.sapeloislandnerr.org

[2] Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860* (Washington, D.C., 1933); "The Beginning of Cotton Cultivation in Georgia," *Georgia Historical Quarterly* (1:1), March 1917.

[3] The leading scholarly treatments of rice production and plantation management on the south Atlantic coast are Mart A. Stewart, *"What Nature Suffers to Groe," Life, Labor and Landscape on the Georgia Coast, 1680-1920* (Athens, Ga., 1996); Julia Floyd Smith, *Slavery and Rice Culture in Lowcountry Georgia, 1750-1860* (Knoxville, Tenn., 1985); James M. Clifton, *Life and Labor on Argyle Island: Letters and Documents of a Savannah River Rice Plantation, 1833-1867* (Savannah, Ga., 1978); Albert Virgil House, *Planter Management and Capitalism in Antebellum Georgia* (New York, 1954); James Bagwell, *Rice Gold, James Hamilton Couper and Plantation Life on the Georgia Coast* (Macon, Ga.,

2000); Buddy Sullivan, *"All Under Bank," Roswell King, Jr. and Plantation Management in Tidewater Georgia, 1819-1854* (Darien, Ga., 2003); and Sullivan, *The Darien Journal of John Girardeau Legare, Ricegrower* (Darien, Ga., 1997).

[4] Roswell King, Jr., "On the Management of the Butler Estate and the Cultivation of the Sugar Cane," Letter to the Editor, *Southern Agriculturist* (1) December 1828.

[5] James Hamilton Couper Plantation Records, 1818-1854, Southern Historical Collection, Univ. of North Carolina, Chapel Hill, in House, *Planter Management and Capitalism in Antebellum Georgia,* and Sullivan, *"All Under Bank"*.

[6] Guion Griffis Johnson, *A Social History of the Sea Islands with Special Reference to St. Helena Island, South Carolina* (Chapel Hill, N.C., 1930), 55-59.

[7] Plantation Account Book, Estate of John and Pierce Butler, Cate Collection, Georgia Historical Society, Savannah. See also Hugh Fraser Grant Plantation Account Book, in House, *Planter Management and Capitalism in Antebellum Georgia*. Sullivan, *"All Under Bank"*, details the management of the Butler's Island rice plantation, see particularly pp. 11-20 and 25-33. Useful too is Dale Evans Swan, "The Structure and Profitability of the Antebellum Rice Industry: 1859," Ph.D. dissertation, Univ. of North Carolina, 1972. The standard account of the Butler family is Malcolm Bell, Jr., *Major Butler's Legacy: Five Generations of a Slaveholding Family* (Athens, Ga., 1987).

[8] United States Census, Georgia, McIntosh County, 1900, 1910, Agricultural Schedules; Sullivan, *Darien Journal of John Girardeau Legare,* 12-14. For the 1898 hurricane see Buddy Sullivan, *Early Days on the Georgia Tidewater: The Story of McIntosh County & Sapelo* (Darien, Ga., 6th edition, 2001), 511-14, 820, and Sullivan, *Darien Journal of John Girardeau Legare,* 53-55, 134.

[9] Journal of Colonel John Barnwell, entry of July 13, 1721, *South Carolina Historical & Genealogical Magazine,* XXVII, October 1926.

[10] Edward Kimber, *Itinerant Observations in America,* Kevin J. Hayes, ed. (London, 1998), 31.

[11] United States Census, Georgia, McIntosh County, 1860, Agricultural Schedules.

[12] See Ophelia Troup Dent, *Memoirs,* unpub. ms., copy on file at Hofwyl-Broadfield Plantation State Historic Site, Brunswick, Ga..

[13] House, *Planter Management and Capitalism in Antebellum Georgia,* 10-11.

[14] Malcolm Bell, Jr., paper presented at the Seminar for Lowcountry Studies, Savannah, Ga., November 1, 1986; see also Sullivan, *"All Under Bank"* Introduction.

[15] Sullivan, *Early Days on the Georgia Tidewater,* 163.

[16] James Holmes, "Dr. Bullie's Notes," *Darien Timber Gazette,* October 19, 1877.

[17] Sullivan, *Early Days on the Georgia Tidewater,* 162-64.

[18] James Holmes, "Dr. Bullie's Notes, *Darien Timber Gazette,* September 3, 1875. The population of Darien in the decade of the 1850s was about 500 residents, about a third of which were black.

[19] James Holmes, Letter to the Editor, *Savannah Daily Morning News,* October 17, 1854.

[20] See Sullivan, *Early Days on the Georgia Tidewater,* 474-88, for details on the operation of the Blackbeard Island federal quarantine station and its connection with yellow fever. There was also a "quarantine ground" on the beach of Queen's Island immediately south of Sapelo Island and near the Wolf Island range beacon. This was utilized in the 1860s and 1870s for the treatment of yellow fever cases from timber ships entering the Doboy Sound harbor. For example, see the *Darien Timber Gazette,* September 29, 1876.

[21] Samuel Pellman Boyer, *Naval Surgeon: Blockading the South, 1862-1866,* Elinor and James A. Barnes, eds. (Indianapolis, Ind., 1963), 128. Three days after recording these observations, Boyer participated in the Union naval raid on Darien, June 11, 1863, which resulted in the undefended and unoccupied town being looted and vandalized, then much of it burned (Sullivan, *Early Days on the Georgia Tidewater,* 294-309).

[22] "The Beginning of Cotton Cultivation in Georgia," *Georgia Historical Quarterly* (1:1), March 1917.

[23] The standard biography of Spalding is E. Merton Coulter, *Thomas Spalding of Sapelo* (Baton Rouge, La., 1940); see also Sullivan,

Early Days on the Georgia Tidewater, 95-137, 766-69, 824-26.

[24] The most authoritative account of Spalding and tabby remains Marmaduke Floyd, "Certain Tabby Ruins on the Georgia Coast," in *Georgia's Disputed Ruins* (Chapel Hill, N.C., 1937). For a more recent account see Buddy Sullivan, *Tabby: A Historical Perspective of an Antebellum Building Material in McIntosh County, Georgia* (Darien, Ga., 1998). Spalding's remarks on tabby as quoted are extracted from Floyd, 72-76, Thomas Spalding to N.C. Whiting, July 29, 1844. Certainly the most detailed account by Spalding himself regarding his use of tabby and its correlation to the cultivation of sugar cane for commercial purposes is his paper, *Observations on the Method of Planting and Cultivating the Sugar-Cane in Georgia and South Carolina,* (Charleston, S.C., 1816). The "White Man superintending" alluded to by Spalding was Roswell King, a building contractor otherwise in the employ of Major Pierce Butler of Philadelphia as the manager of his two Georgia plantations.

[25] Spalding, *Observations,* cited above; Spalding, "On the Culture of Sugar Cane, *Southern Agriculturist* (I), 1828, 552-56; Spalding, "On the Cultivation of Sugar Cane, erecting of proper buildings, and manufacturing of Sugar," *Southern Agriculturist* (II), 1829, 55-63; Spalding, "On the Mode of Construction of Tabby Buildings, and the Propriety of Improving Our Plantations in a Permanent Manner," *Southern Agriculturist* (III), 1830), 617-21; Spalding, "On the Construction of Sugar Mills," *Southern Agriculturist* (V), 1832, 281-85.

[26] Floyd, "Certain Tabby Ruins on the Georgia Coast," 120-26; Sullivan, *Early Days on the Georgia Tidewater,* 101-07, 157-59. Portions of the preceding are extracted from the writer's *Tabby: A Historical Perspective of an Antebellum Building Material in McIntosh County, Georgia,* 5-7. William Carnochan died in 1825 and is buried in Darien's Upper Mill Cemetery.

[27] Kenneth H. Thomas, "The Sapelo Company: Five Frenchmen on the Georgia Coast, 1789-1794," in *Proceedings and Papers of the Georgia Association of Historians,* 1989; Sullivan, *Early Days on the Georgia Tidewater,* 85-89, 132, 135. *Chocolate,* contrary to earlier published accounts, is *not* a slave corruption of the house known as *Le Chatelet.* The latter was actually the property of another Frenchman, John Montalet, at High Point, two miles north of Chocolate. This is verified by letters written from Sapelo to France by the original French owners of Chocolate as early as 1790, before the arrival of African slaves on the island. These documents reference "Chocolate" as being the name of that portion of the island.

[28] Thomas, "Sapelo Company." Randolph Spalding's widow, Mary Bass Spalding, sold 7,000 acres of the North End, including Chocolate and High Point, to John W. Griswold of New York City in 1866. The tract was subsequently owned by James S. Townsend (1873) and Amos Sawyer (1881) precedent to its 1912 acquisition by H.E. Coffin. McIntosh County deed records, Book K, 172-75, 1912.

[29] Archibald McKinley Journal, 1869-1876, selected, annotated, extracts in Sullivan, *Early Days on the Georgia Tidewater,* 372-99. In 1922, during the Coffin Sapelo ownership, the tabby ruins of the Long Tabby sugar cane boiling house were restored as a guest residence. The building, with its original tabby walls dating to 1809, functions today as the administrative offices of the Sapelo Island National Estuarine Research Reserve, while also serving as the Sapelo Island post office.

[30] Spalding Family Papers, Collection 750, Georgia Historical Society, Savannah, contains correspondence and financial records of Spalding and his descendants reflecting their business ties with the ports of Darien and Savannah. For an overview of antebellum Darien as a port, see Buddy Sullivan, *Cotton Port on the Altamaha: A Historical and Archaeological Perspective of the Darien, Georgia, Waterfront* (Darien, Ga., 1999), and Sullivan, *Early Days on the Georgia Tidewater,* 128-71.

[31] Thomas Hilton, *High Water on the Bar,* privately published 1952; the legacy of the Darien timber market, the sawmill industry and its attendant shipping activities in Doboy and Sapelo Sounds is elucidated in Sullivan, *Early Days on the Georgia Tidewater,* 347-51, 440-57, 467-71, 489-97, 535-44; see also the microfilm collection of the *Darien Timber Gazette* and *Darien Gazette,* edited by Richard W. Grubb, 1874-1913, Hargrett Research

Library, Univ. of Georgia, Athens; a related secondary account of the Hiltons and their business activity is in Sullivan, *From Beautiful Zion to Red Bird Creek: A History of Bryan County, Georgia* (Pembroke, Ga., 2000), 215-20, 265-67, 277-79.

[32] In 1908 the U.S. Army Corps of Engineers dredged a new channel immediately east of Creighton Island in McIntosh County, thus providing for the first time a 12-foot project depth from Sapelo Sound to Old Teakettle Creek (Creighton Narrows) as part of the Atlantic Intracoastal Waterway. The waterway forms a portion of the western boundary of the Sapelo Island National Estuarine Research Reserve through Old Teakettle Creek and Doboy Sound. Sullivan, *Early Days on the Georgia Tidewater,* 738-44.

[33] J.C. Drake, "On the Sounds and Estuaries of Georgia with Reference to Oyster Culture," Bulletin 19, March 1890, U.S. Coast and Geodetic Survey, Washington, D.C. A further scientific survey conducted in McIntosh County waters forty years later (1930) by Galtsoff and Luce amplified Drake's conclusions. The H.E. Coffin era on Sapelo Island, including details on oystering and boatbuilding activities on the South End of the present-day Sapelo Island NERR, is covered in Sullivan, *Early Days on the Georgia Tidewater,* 599-663. For related activities associated with timber harvesting on Sapelo Island during both the Coffin and Richard J. Reynolds, Jr. periods of ownership, 1912-1964, see Management Plan (Revised), 2008-2013, Sapelo Island National Estuarine Research Reserve, online at www.sapeloislandnerr.org.

[34] The McIntosh County oyster and shrimp fisheries for the period 1900-1975 are examined in Sullivan, *Early Days on the Georgia Tidewater*, 686-714.

[35] Maritime developments in coastal Georgia, 1750-1950, are most thoroughly reviewed in Rusty Fleetwood, *Tidecraft: The Boats of Georgia, South Carolina and North Florida* (Savannah, Ga., 1992); Sullivan, *Early Days on the Georgia Tidewater,* examines coastal maritime culture from several perspectives—agriculture, timber industry and commercial fishery, with McIntosh County serving as the case study for the years 1800 to 1975.

[36] Archibald McKinley Journal, 1869-1876; *Darien Gazette,* Oct. 8, 1898; Sullivan, *Early Days on the Georgia Tidewater,* 372-99, 511-14; Sullivan, *Darien Journal of John G. Legare,* 53-55, 134; Spalding Family Papers, Manuscript Collection 750, Georgia Historical Society, Savannah, is the repository for various correspondence and business papers related to cattle raising and steamboat operations on Sapelo Island for the period 1870-1885 in which McKinley and his brothers-in-law Thomas Bourke Spalding and Thomas Spalding (II) engaged.

[37] The findings of the ecological research conducted at Sapelo Island by the University of Georgia Marine Institute, while largely technical, is nonetheless best covered in the Institute's *Collected Reprints,* 28 vols. to date, 1962-2003; see also *The Ecology of the Sapelo Island National Estuarine Research Reserve* (Sapelo Island, Ga., 1997). The most reliable, and readable, overview of the natural history of Sapelo Island remains John Teal and Mildred Teal, *Portrait of an Island* (New York, 1964, repr., Athens, Ga., 1981).

[38] Paul Hoffman, *A New Andalucia and a Way to the Orient* (Baton Rouge, La., 1990). This is the first serious study of Ayllon's attempt at colonization on the Georgia coast. Utilizing contemporary Spanish navigational reports and other archival records, Hoffman persuasively argues for the location of the "lost" settlement of San Miguel de Gualdape as being at or near Sapelo Sound. Whatever the locale, Ayllon and the majority of his 500 colonists did not survive, succumbing to disease and starvation within two years, with the remnants of the colony returning to Hispaniola in 1527.

[39] See David Hurst Thomas, *The Archaeology of Mission Santa Catalina de Guale: 1. Search and Discovery.* (New York, 1987); Thomas, with Grant D. Jones, Roger S. Durham and Clark Spencer Larsen, *The Anthropology of St. Catherines Island: Vol. 1, Natural and Cultural History* (New York, 1978); John E. Worth, *The Struggle for the Georgia Coast: An Eighteenth Century Spanish Retrospective on Guale and Mocama* (New York, 1995).

[40] The published *Collections of the Georgia Historical Society,* 21 volumes, 1840 to 1989, contain period manuscripts, account books,

letters, documents and plans which detail the early years of the Georgia colony, including the development of Savannah.

[41] The literature and documentation relating to archaeological investigations on Sapelo Island the last thirty years is remarkably extensive. For instance, see Clarence Bloomfield Moore, *Certain Aboriginal Mounds on the Georgia Coast* (Philadelphia, 1897, repr. Tuscaloosa, Ala., 1998); William McKinley, "Mounds in Georgia," in Smithsonian Institution Annual Report, Washington, D.C., 1873; Antonio J. Waring, Jr., *The Waring Papers,* Stephen Williams, ed. (Cambridge, Mass., 1968); D.P. Juengst, et. al., *Sapelo Papers: Researches in the History and Prehistory of Sapelo Island, Georgia* (Carrollton, Ga., 1980); and Morgan R. Crook, Jr., "Place, Time and Subsistence at Bourbon Field," in National Geographic Society Research Reports, n.d. but about 1985). Helpful in this regard to pre-English settlement at Sapelo, from a cartographic perspective, is William G. DeBrahm and Henry Yonge, "A Plan of the Islands of Sappola and Blackbeard, 1760", being the first formal survey of the island by the British Colonial Office.

[42] Richard W. Jefferies and Victor D. Thompson, "Mission Period Native American Settlement and Interaction on Sapelo Island, Georgia (Paper presented at the 62nd Annual Meeting of the Southeastern Archaeological Conference, 2005); Victor D. Thompson, Matthew D. Reynolds, Bryan Haley, Richard Jefferies, Jay K. Johnson and Laura Humphries, "The Sapelo Shell Ring Complex: Shallow Geophysics on a Georgia Sea Island," in *Southeastern Archaeology* (23:2), Winter 2004. For an overview of the Spanish on Sapelo, see Sullivan, *Early Days on the Georgia Tidewater,* 7-9, 48-51, 104-07, 388-89, 791, 822; and the 1760 DeBrahm survey cited above.

[43] McIntosh County deed records, Book A, 196-99 (1873); Joseph W. Smith, *Visits to Brunswick, Georgia and Travels South* (Boston, 1907); Archibald McKinley Journal 1869-1876, see for example, entry of July 9, 1874.

[44] McKinley Journal, cited in Sullivan, *Early Days on the Georgia Tidewater,* 376. McKinley and his wife, Sarah Spalding McKinley, lived at High Point only a short time before moving to Riverside (Long Tabby) where they built a home, still in use, on Post Office Creek. The author has done extensive research on the Sapelo sojourn of the McKinleys. McKinley's journal is a remarkable document. It is the outstanding first-hand resource for life on Sapelo Island during Reconstruction and early postbellum. The McKinleys were the only Spalding family members still living on Sapelo when Howard Coffin acquired the island in 1912. Sarah McKinley was a granddaughter of Thomas Spalding and was the first postmaster for Sapelo, serving from 1891 until her death in 1916. Prior to that the postal service for Sapelo was on nearby Doboy Island, scene of lumbering operations and site of a store, sawmill and chandlery. McKinley recorded, as an addendum to his 1869-76 journal, his impressions of the 1886 earthquake and the October 1898 hurricane and tidal wave, both of which affected Sapelo and the Darien area. Professor Nicholas Honerkamp of the University of Tennessee at Chattanooga was the principal investigator for the 2007 archaeological work at High Point.

[45] Sea Island and the Cloister have continued to prosper under succeeding generations of the Jones family. The activities of Coffin, Ford, Reynolds and Alfred W. Jones, Sr. are covered in the present writer's books surveying the histories of McIntosh and Bryan counties, both cited above; June Hall McCash has written extensively on the Club era at Jekyll Island, 1886-1942; and Mary R. Bullard has covered 19th and 20th century developments on Cumberland Island in *Cumberland Island: A History* (Athens, 2003).

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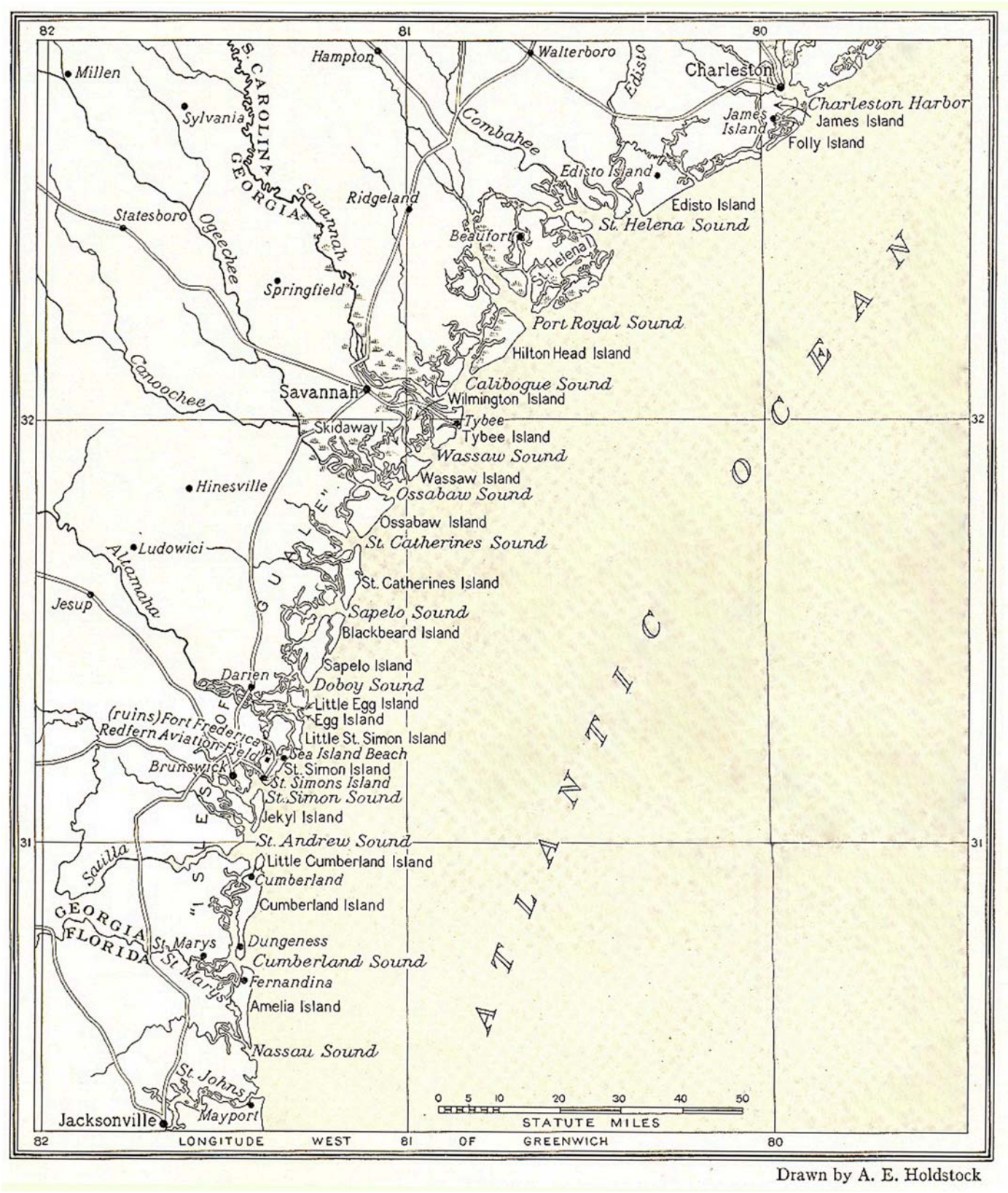
The author wishes to thank Aimee Gaddis for the graphics, composition and layout of this document, and the following for use of illustrations: Georgia Historical Society, Sea Island Company, University of Georgia Marine Institute.



Map of Coastal Georgia from February 1934 issue of National Geographic Magazine