SACRED SANDS: APPEARANCE AND ALTERATION OF COLORED SEDIMENTS IN ST. JOHNS SAND MOUNDS

By

MATTHEW H. MARINO

UNIVERSITY OF FLORIDA

2012

ABSTRACT

TITLE: Sacred Sands: Appearance and Alteration of Colored Sediments in St. Johns Sand Mounds

FACULTY ADVISOR: Kenneth E. Sassaman

The St. Johns River Valley was home to the people of the St. Johns culture for over two thousand years. The construction of sand mortuary mounds is characteristic of this culture, and was probably the most labor intensive architectural project that was carried out. New archaeological investigations and evidence gathered from primary literature brings to light common themes of construction among the mounds in the northern St. Johns region. Ethnographic and ethnohistoric work supports the data presented and suggests that colored sediments were specially selected for mound construction. Archaeological investigations at Silver Glen Run (8LA1/8MR3601) suggest that colored soils in the natural profile were altered and processed to create new colored sediments that are not found naturally.

TABLE OF CONTENTS

LIST OF TABLES

Table page

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

Introduction to Research

Archaeologists constantly encounter an array of colors, both natural and anthropogenic, which can help fill the gaps that riddle the archaeological record. The wide use of the Munsell color system, which gives dimensional order to hue, chroma, and value, highlights the importance of standardized and measured color terms in archaeological research. Indeed, the emphasis and effort that archaeologists place on defining color in the field can give rise to disagreements regarding which Munsell chip the soil best resembles. The system is not perfect, and these field discussions prove that there is still some level of subjectivity involved, but the use of the Munsell system has been an invaluable addition to archaeological research involving color.

Although much work is devoted to determining the Munsell designation of strata in profiles, little attempt has been made to interpret the meaning and significance of the colors. Pursell (2004:1) commented on the state of color research in the American Southeast, and noted that although investigations deal with color repeatedly, there is much to be said for regarding color symbolism in the region. Pursell's synthesis on geographic distribution of color in Mississippian mounds sought to draw together color research from a number of regions, and apply it to the American Southeast, and I will refer to much of this literature.

This thesis presents a review of literature from explorations of St. Johns period sand mounds in Northwest Florida by early antiquarians and archaeologists. The colored soils of these mounds are the subject of the study, and the primary literature is supplemented by published data on Mississippian mound colors. Finally, results of archaeological investigations of a mound at Silver Glen Run (8LA1/8MR3601) in northeast Florida are presented, offering new data of colored depositional sequences. Silver Glen Run, the venue of the St. Johns Archaeological Field School run by Dr. Kenneth Sassaman, houses at least one sand mound, which was investigated by C.B. Moore in 1894 (Sassaman et al. 2011:1; Moore 1894:176-177). The soil cores taken from this sand mound and the surrounding natural profile contribute to the record of color of mounds in the region, and suggest the use of heavily processed sand to produce hues that are not naturally occurring.

This thesis argues that the people of the St. Johns (2800-500 cal BP) culture in northeast Florida constructed burial mounds with anthropogenically altered and symbolically charged colored sediments, in order to add some further symbolic meaning to their mortuary practices. I will attempt to find the possible meanings behind these colored strata, and determine if it relates to the larger ritual practices of the whole region. In order to shed more light of St. Johns society and ritual practices, color and syntax of these stratigraphic sequences is of crucial importance.

Research Questions and Data Organization

A survey of mortuary sand mounds found in the northern St. Johns region of Florida has been conducted to gather data from mounds dating to the St. Johns period. The source of these data is the primary literature of early naturalists, antiquarians, and archaeologists such as Clarence Bloomfield Moore. The work of these early explorers, especially C.B. Moore, involved the leveling of entire mounds in order to collect artifacts. The object of my pursuit, however, is color, and its appearance in these mounds. Many problems are encountered in search of color data, and these will be discussed in a following subsection.

Mound investigations at Silver Glen Run are the main focus of this research, and represent the primary archaeological data. Several cores were extracted from this sand mound in order to record its colored stratigraphy. Off-mound soil cores were also extracted to describe soils in the local area in order to see what type of soils and natural colors are immediately available. These new data are essential to this research, as it will be the first systematic investigation of colored sediments in this mound. The mound database, however, is crucial in placing the Silver Glen mound data in a regional context.

The goal of this thesis is to provide a review of the literature on color symbolism in the American Southeast; compile the observations of mound colors in St. Johns region made by C.B. Moore and others; and describe the Silver Glen mound profiles and develop a sense of how the sands were mined and processed to achieve the effects we observe. With this information, I will attempt to find shared characteristics among mounds of the St. Johns region, thereby forming a model for burial mounds in the region.

St. Johns Region Defined

The research area of this project is defined by John Goggin (1952: 16) as subareas I and II in the St. Johns River Valley of northeastern Florida (Figure 1-1). This is a unique area with a rich cultural history going back more than 11,000 years. The area encompasses the outlet of the St. Johns River at Lake Harney at its southern extreme, and follows the river north to its discharge in the Atlantic Ocean.

The St. Johns River is the largest in Florida, spanning about 120 miles, and it flows north from Brevard County to Jacksonville, and empties into the Atlantic. Its southern section can be seen as a series of lakes connected by channels which flow

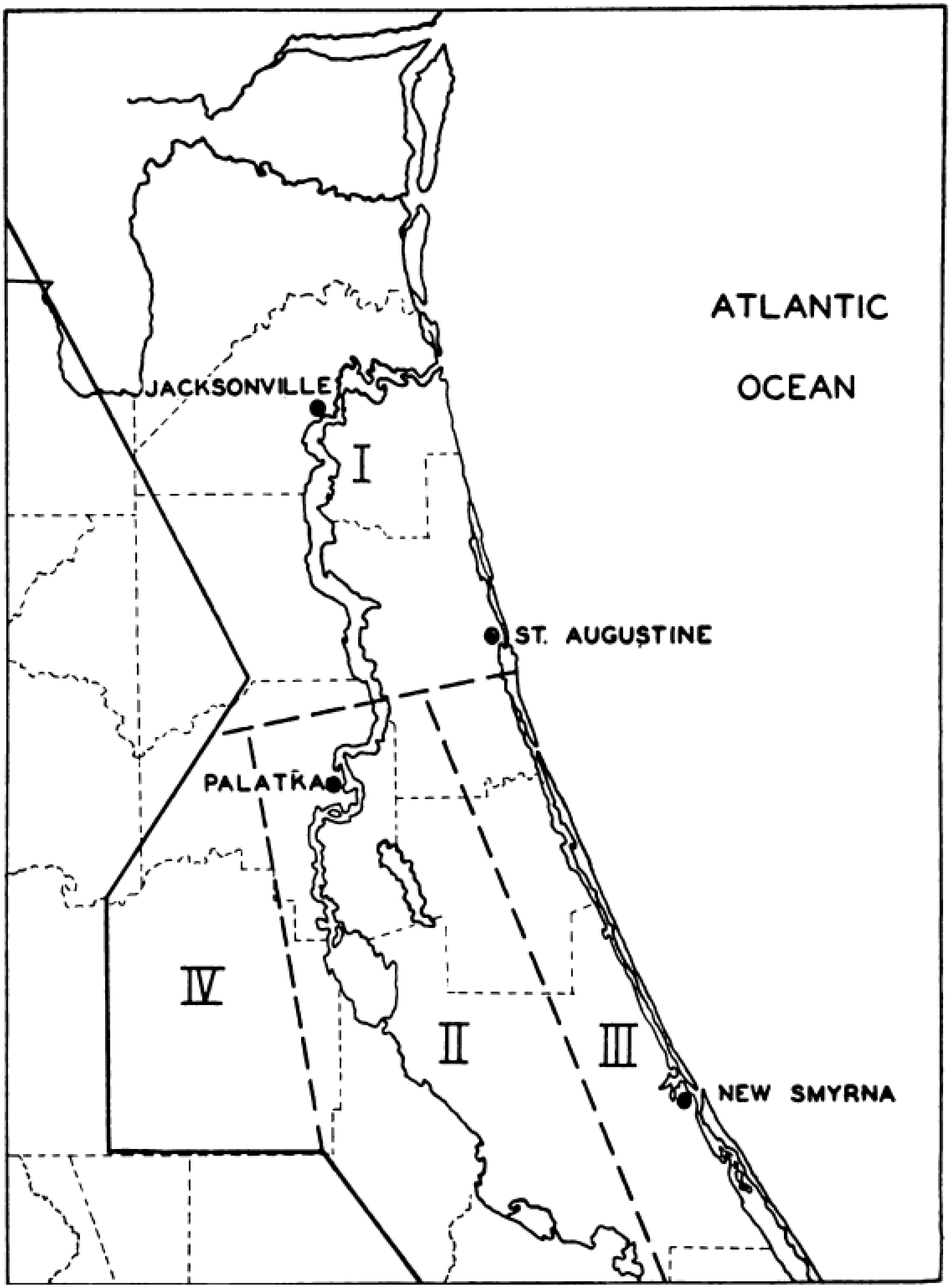

Figure 1-1. Map of subareas of the Northern St. Johns Areas (Goggin 1952:16).

slowly over a wide floodplain. The northern section of the river is much wider, and the average breadth of the whole river is about one mile. Despite its size, it is sensitive to even small fluctuations in sea level, owing to the shallow gradient of roughly 0.05 feet per mile which results in a drop of elevation of only about 20 feet from its headwaters to the outlet. But size trumps velocity in determining why the slow, mature flow of the St. Johns results in a discharge of over 8,300 cubic feet per second into the Atlantic Ocean (Miller 1998:28).

This region of Florida is notable for its springs which have attracted people for thousands of years. Florida's complex spring system is fed from the Floridan Aquifer, which lies under deep confining beds of sediments, exerting great pressure on the water source. When the capacity of the aquifer is exceeded by the water pressure, the water breaks the surface, and a spring is formed. This water source underlies all of Florida, and extends to Georgia, South Carolina, and Alabama, and is one of the most productive in the world (Miller 1998:66). These fresh water springs are a vital part of the local environment, and were likely essential to the early populations of Florida.

Silver Glen Run

Located in the Middle St. Johns River Basin (also referred to as the Offset), Silver Glen Spring is one of 33 first-magnitude springs in Florida, meaning it discharges over 100 cubic feet of water per second, the equivalent of about 64.6 million gallons per day. More accurately, it averages about 135 cubic feet per second of water discharge, which ranks as about the 27th largest spring in the state. This statistic is even more impressive given its single spring classification type (many more powerful springs are in fact spring groups) (Scott et al. 2004).

The land is now owned by the Juniper Hunt Club of Louisville, Kentucky. The property of the Juniper Club is bounded by Lake George to the east, Silver Glen Run to the north, Highway 19 to the west, and Juniper River to the south, and it is neighbored on all sides by land of the U.S. Government (Johnson 1993).

Silver Glen Spring, and its accompanying run and surroundings have been occupied by humans since at least the early Holocene, and multiple resources are available nearby. The spring run that flows into Lake George, the second largest lake in Florida, provides ample sources of freshwater fish and shellfish, water fowl, and even salt-water species such as blue crab and striped bass. Fauna that were important to human subsistence include turkey, white-tailed deer, opossum, black bear, raccoon, alligator, turtles, many fish species, and otter. Excavations have turned up various mollusks in enormous quantities, some of which were used to cap sites, or construct monuments. Present gastropods include *Viviparus georgianus* (banded mystery snail), *Pomacea paludosa* (Florida apple snail), *Elimia sp.* (rasp Elimia), and *Planorbella sp.* (rams horn and mesa-rams horn), and the bivalve *Unionidae* are also found in abundance (Sassaman et al. 2011:19-20). Others occur much less frequently, such as the carnivorous wolf snail (*Euglandina)*.

A number of examples of monumental architecture are present at Silver Glen Run (Figure 1-2). The earliest are shell ridges, which span about 200 meters along the banks of the run, and date to approximately 6300-5750 years ago (Sassaman et al. 2011:121) during the Mount Taylor period. The largest shell construction is a massive U-shaped deposit at the mouth of Silver Glen Run, where it meets Lake George. Jeffries Wyman described this feature in 1871, and declared it one of the largest of its kind on

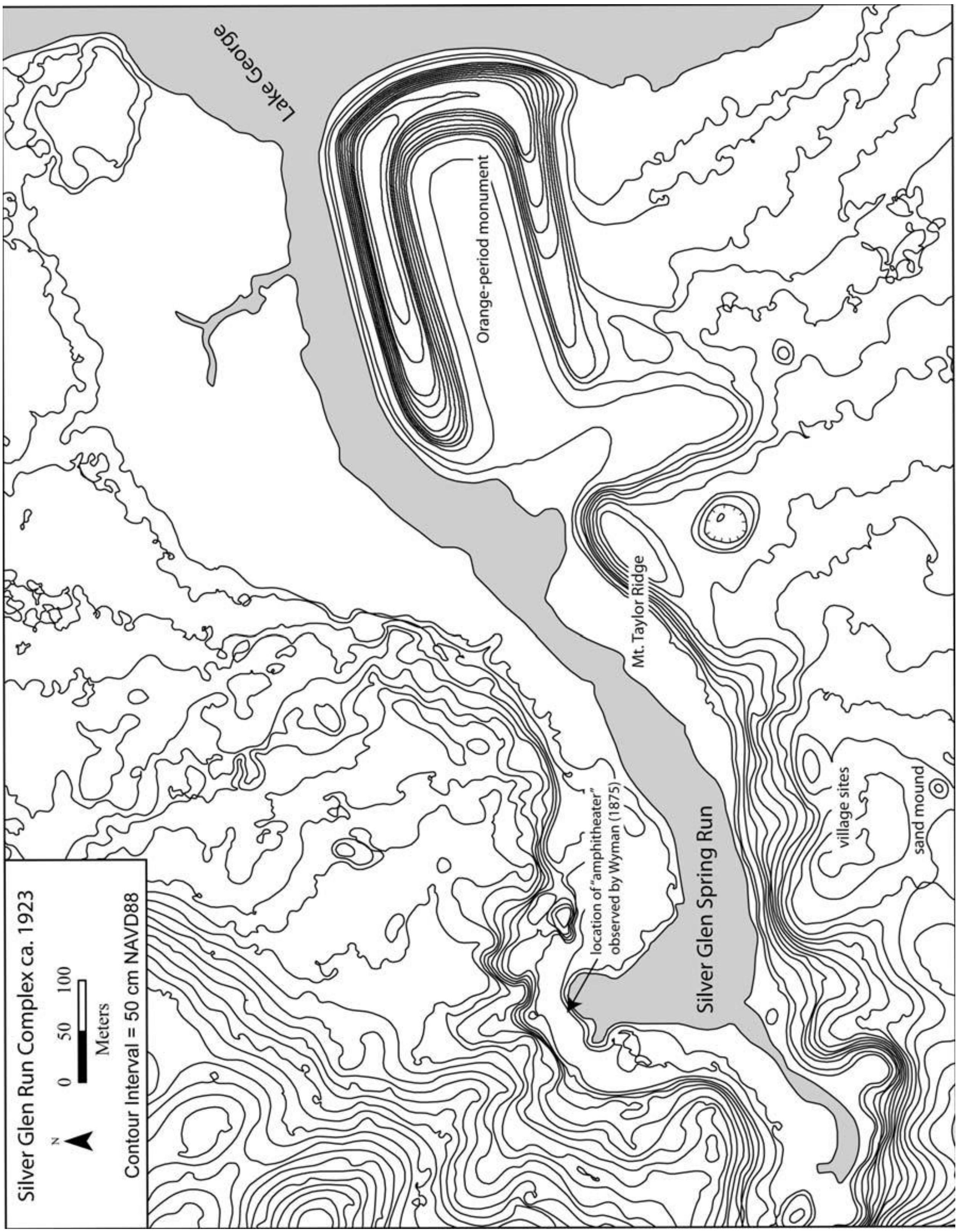

Figure 1-2. Pre-mining landscape of Silver Glen Run (Sassaman et al. 2011:2).

the St. Johns River. This massive deposit and other features of shell at Silver Glen Run were mined in 1923, an activity that also reshaped the shoreline of Silver Glen Run (Sassaman et al. 2011).

This research is concerned with the St. Johns cultural period, considered a continuation of the earlier Orange period separated only by the gradual appearance of the St. Johns plain pottery type after ca. 4400 cal B.P. Goggin separated St. Johns culture into two phases, again defined by changes in pottery rather than broad-scale changes in culture. St. Johns I (2800-1300 cal B.P.: 1600 years after onset of pottery) saw the popularization of St. Johns Plain pottery, and the practice of interring dead in sand burial mounds was common. Added to the material culture of the period were local Dunns Creek Red, and copies of nonlocal Deptford, Swift Creek, and Weeden Island pottery types. These are often found in mortuary contexts. St. Johns II (1300-500 cal B.P.) is defined by the introduction of check-stamped pottery, a design produced by impressing cross-hatched designs onto the clay with a carved wooden paddle (Goggin 1952:68-70).

Problems of Addressing Color in Archaeological Research

Symbols achieve their value through the social activities associated with them, such as construction of a mound, rather than just their appearance and presence. Owoc (2002: 128) indicates that categorization and recognition of color is arbitrary, and stressed the importance of focusing on the “practical *contexts* of color naming.” This approach “serves to shift one's attention towards the meaningful, deliberate, and contextual construction of color, and away from its more superficial appearance or common sense facility.” This presents another challenge, as we cannot know in what contexts colors were named, or what names were given, and what meanings were associated with those names. Ethnographic data will be used to try to answer some of these questions, but we cannot assume with absolute certainty that these populations are directly descended from St. Johns people, and represent concrete cultural continuity. Further consideration is given to problems with color in archaeological and ethnographic research in Chapter Two.

Exploring Future Research Possibilities

This research suggests a greater complexity in St. Johns mortuary practices than previously recognized, but still, much more can be said about color symbolism in burial mounds. The problem of sediment selection and availability is rarely addressed in archaeological research involving color. Plog (2003) discusses the problem of restricted access to colors for manufacturing ceramic vessels, and Pursell (2004) suggests an analogous relationship between pottery and sediment selection for mounds. Concerning sand colors, tans, browns, yellows, blacks, whites, grays, oranges, and reds are all available in the Southeast; however this does not necessarily mean that they are all easily accessible. Only some of these colors will be present in any one area, and some may only exist deep in the soil column, such as elluvial whites, or orange and red-bearing clays rich in iron. Even gathering soils from just one hundred yards to construct a mound is quite a feat considering that the mode of transportation was most likely individual basket loads.

Soils may have also been selected for other important characteristics, such as texture, density, and structure. In Mississippian platform mounds, colored clays were selected for both symbolic and functional values, as a capping material for structural support (Pursell 2004: 23). St. Johns peoples may have put similar value in soils with a certain texture or structure, possibly linking their place of deposit with their place of origin.

Tacon (1999:122) suggests that color plays a role in recording time among human societies, and particular events may be defined by the use of certain colors, or color-bearing natural materials. If one color is prominent during a certain time period, then this may be related to an event, or a new cultural motif spawned from an activity that cross-cut single village sites. A problem with this method is encountered, as much of the literature only places mounds in a certain cultural phase of the St. Johns period such as 1a or 2b, and few hard dates are given, so the data will have to be grouped according to these periods instead of placed in a true chronology. Pursuing research questions which require strict chronological organization of mounds is beyond this report, but future research on this topic can add a wealth of information to ritual monumental construction in the northern St. Johns region of Florida, and to the greater Southeast.

CHAPTER 2
COLOR SYMBOLISM

This chapter is a review of the relevant literature concerning color symbolism and its use in monumental architecture. Much attention has recently been given to color in earthworks and architecture (see Jones and MacGregor 2002), however, the American Southeast is still lacking a significant body of color research, which Pursell (2004) has attempted to remedy. Much of this review is concentrated in the American Southeast, while some spans all of North America; pertinent examples from Mississippian and Hopewell cultures will be examined. In addition, some European research will be cited, and although it does not directly relate to the practice of moundbuilding in the St. Johns region, it does contribute perspective. Also included in this chapter is a review of Clarence B. Moore's explorations and investigations of sand mounds in Northeast Florida and the colors he encountered on his multiple trips up the St. Johns River. Backed by ethnographic data on the Timucua, the contact period inhabitants of the St. Johns region, I hope to provide possible interpretations of the colored soils in mounds.

Ethnographic Data

Colored directional systems

Using a statistical approach, Roland B. Dixon (1899) attempts to find correlation and meaning behind colors assigned to cardinal points among Native American groups in North America. He found little agreement among color systems; however, important patterns emerged that can assist in the interpretation of certain colors.

Dixon (1899) based his color symbolism on geography, as opposed to Turner (1967), who later used the model of color as bodily fluids, in which red=blood, white=milk or semen, and yellow=bile. DeBoer (2005: 73) notes that most prehistoric groups probably had directional systems different than our cardinal points, and they were likely defined by the solstices. Although the parameters that delineated directions may have been consistent, some cultures defined color differently. It would be unlikely that all directional color systems match exactly, but colors may have been selected for using similar symbolic reasoning. For instance, one group might assign black to west, while another will assign blue, but these choices can both symbolize bodies of water. In fact, Dixon (1899:10) argues that blue=black in many instances, and “confusion” of the two is caused by different color nomenclature principles rather than a failure to recognize and distinguish hues. Furthermore, if two colors have similar symbolic meaning (red and yellow=sun), they may also be used interchangeably.

Regardless of symbolic meaning, Dixon first attempted to determine what colors were selected for each cardinal direction among people in North America. Of over 30 systems recognized, the most common groups of colors were white, yellow, red, blue and white, yellow, red, black. Following Dixon’s (1899:11) assumption that blue=black, these two groups coincide to represent about 30% of the total cardinal point systems. With these color systems defined, four factors involving color selection were identified: the rising and setting of the sun, the geographic location of the people in question, the climate of the region, and religion.

Sun cycles were associated with red, yellow, and white, and one would expect east to have been defined by one of these colors representing sunrise, while another would define sunset in the west. This is largely the case in North America, as about 90% of the systems associated east with sunrise. However, west does not follow suit:

only 50% of systems associated it with sunset (Dixon 1899:11). An explanation of this phenomenon can be derived from the next factor, geographic location.

When west was not a sunset color, this direction was dominated by black, blue, and green. This occurred most often in proximity to the coast, suggesting that these colors represent bodies of water, and providing further support for Dixon’s (1899:11-12) argument that blue=black. In the few instances where black, blue, or green marked the southern cardinal direction, there was a sea to the south.

The regional climate factor of symbolism discussed by Dixon (1899), in which changes in climate are manifested in color, can be applied to the colors associated with north and south. In just less than half of the systems, red is south, which Dixon (1899:12) equates with heat and fire. North was marked with black in more than one third of the cases, rather than the seemingly appropriate choice of white as snow and cold. It is suggested that north was more so associated with storm or bad luck than with snow or cold.

Religion may have been the most important factor of color selection, but Dixon gives it little consideration. His only remarks regard the infrequent association of black and west. Dixon (1899:13) noted that some Native American religions placed the “Land of the Dead” in the west, so black was a reasonable selection.

Weak correlation was found among all North American directional color systems; however after dividing occurrences into northern and southern groups, a much stronger pattern emerged. In northern groups, north=white, east=red, south=white (green), and west=red. Among southern groups, north=white, east=yellow, south=red, west=blue (1899:14). However, a reversal or a one-quarter rotation often resulted in full correlation of cardinal point colors. What is evident from Dixon’s data, notably the north colors listed above, is the underlying force of opposition, described by DeBoer (2005). DeBoer’s (2005:78) research, based on a larger dataset, confirms Dixon’s claim that north=white, but the remaining colors follow a less convincing pattern.

Opposition of red and white

In the Southwest, Native Americans placed a heavy emphasis on red and white to evoke opposition. Native American use of opposing colors deserves attention, but rather than the topic of color choice, the significance of opposition is crucial to understanding color symbolism. DeBoer (2005) demonstrated that Native American color symbolism, even within the same tribe, may be inconsistent; however, the underlying theme of opposition is always present. When color symbolism is concrete, it represents opposing forces: cardinal directions (North and South, East and West), war and peace, life and death, night and day. Cobb and Drake (2008:88) noted that this use of opposition creates a “balance from past, to present, to future." It is this balance that creates a cultural environment in which a communal ritual activity such as mound building can create memory. The act of continuously adding to a mound creates “renewed relationships connecting people to each other and to the mounds themselves” (Rodning 2010:60). This statement is further supported by the ethnohistoric research of Tamara Spike (2006) on the Timucua Indians. She portrays the mounds and burial practices in general as linking the living people to their ancestors, and to each other through communal mourning practices, and rituals of 'feeding' the dead.

Color was so ingrained in the worldview that it became a structuring principle in society (Lankford 1993). The “red: white dyad” was widespread, and Cobb and Drake (2008) demonstrated its use by Creek Indians at all scales to denote separations:

grades (red=juniors, white=seniors), organizations (red=warfare and external relations, white=peace and municipal order), and even towns were depicted as red or white, according to recent political and social relations with other nearby towns and villages.

Dual organization present in historic Muskogean and Cherokee societies arranged "war" and "peace" communities, which were referred to as red and white respectively (Hudson 1976:234-238). White communities forbade bloodshed, participated in cooperative organization with other communities, and were led by a white chief. Red communities on the other hand were actively raiding, warring, or otherwise competing with other communities, and were led by a red chief, from a different clan than a white chief. In addition to this pattern of organization, power was typically placed in two chiefs in one community, a red chief for times of war, and a white chief for time of peace (Hudson 1976:234-235).

The Cosmology of the Timucua

The Timucua, the contact period denizens of the St. Johns region, had a cosmology and worldview divided into three categories: purity, pollution, and impurity. Purity was linked to the sacred, and objects and symbols of purity included blood, fire, and black drink, among others, all of which were associated with the Upper World. These were used to reach a state of purity, such as purging after consuming the black drink, or clearing land with fire before ritual use, which in turn, allowed them to interact with the sacred, their ancestors, and gods (Spike 2006:9).

The state and symbols of pollution, however, brought a person closer to the Under World. Symbols included blood of menstruation and childbirth, dead bodies, and disease:

> Each of these states of being and collections of symbols were two different faces of the sacred. Both the Upper World and the Under World were sacred areas, associated with beings and ideas that were important in the scope of Timucuan cosmology: gods and ancestors, death and fertility. Thus…the concepts of purity and pollution are dyads interrelated to the sacred: sacred/pure, sacred/polluted (Spike 2006:10).

The third state of Timucuan cosmology, the impure, was associated with everyday life, which occurred in This World. Since both the sacred/pure and the sacred/polluted were required for physical and spiritual well-being, as well as interaction with ancestors and gods, the resulting Timucuan spiritualism was existence in the normal impure state (Spike 2006:10).

The worlds in which Timucuan cosmology existed, Upper World, Under World, and This World, also carried associated symbols and inhabitants. These are the names given by Hudson (1976), as the true Timucuan names for the worlds are unknown. This World represents the everyday existence of humans. The Upper World, or sky vault, represent harmony and order, and is associated with the gods, the sun, the moon, and birds. The Under World existed beneath the earth, and was chaotic, and associated with monsters, reptiles, and water (Hudson 1976:122-126, Spike 2006:10-11).

Death was associated with the Under World for Timucuans, as well as most native southeastern Indians. The three-world belief was common across the Southeast, as were three other fundamental attitudes regarding death: there is a soul after death, the living must show respect for that soul, and death rites reflect social stratification. Within Timucuan society, living family members "fed" the bones of their dead a small portion of the family's meal on a daily basis, which maintained a constant relationship with the sacred/pure (Spike 2006: 58). After a certain time, the bones were interred in mounds, and the house of the individual was burned down with all the belongings inside, which associates this behavior with the sacred/pure. Fire was used as a purifying agent in the former houses of the dead, and this practice may have carried over into the 'new' places of occupation for the dead. Many mounds in the region have been found with a base layer of dark sand and abundant charcoal, indicating a surface burn prior to mound construction.

It should be noted that ethnographic accounts of Timucua mortuary ritual are most likely accounts of the deaths of caciques, or chiefs, so some of these rituals may have been reserved solely for people with higher social status. For instance, a shaman would have been given special care, and buried inside his house, which was then burned down. In both of these cases, fire was used as a means of cleansing a space, and the objects within it. Spike (2006: 60) suggests that this practice confirms that goods followed high statues individuals into the realm of death. This supposition may explain why some mounds are abundant in artifacts, while others, although they are similar in size, lack any funerary goods. The transformative process of death united the Upper World, Lower World, and This World, and brought Timucuan mourners in contact with each world through rituals associated with objects representing the sacred/pure and the sacred/polluted.

Archaeological Data

Problems Concerning Archaeological Color Data

Color in archaeological research is often simply observed and rarely sufficiently addressed. However, recent research has highlighted the need for approaching colored sediments as material objects (see Cobb and Drake 2008; Pursell 2004; Sherwood and Kidder 2011). Since the creation of the Munsell color system, and its frequent use in archaeology, research has approached color in a more accessible fashion. However, most of the literature that I draw data from predates the early twentieth century and the inception of this system. As a result, early literature is burdened with heavily subjective interpretations of color and colored sediments. Different hues of red alone named by C.B. Moore (1894a, 1894b, 1895b, 1896a, 1896b, 1896c) include light and dark cherry, brick, ribbon, blood. In this case, they are all reds, but some may deserve the distinction of separate nomenclature. Care must be taken when dealing with and cross-referencing color data of this nature, as the mound builders may have seen significance in what Moore called “dark cherry red” that was not invoked upon the sight of “ribbon red.”

Colors in Archaeology

In pursuit of an "archaeology of color," we must consider colors in context and relevance to other colors, as well as color as a material object (Jones and MacGregor 2002). In this way, color can evoke difference or opposition, highlighted by DeBoer (2005:67) is his study on colors applied to cardinal directions or world quarters. DeBoer stressed that these colored directional systems were “an integral part of cosmos-building."

In order to draw the most information from archaeological investigations involving color, two aspects should be considered. The first, and more conspicuous of the two, is the material qualities of a colored object: its brilliance, sparkle, or shininess (Jones and MacGregor 2002:14). This can relate to unaltered objects such as bird feathers or mica, often found in burial mounds in the southeast. Saunders (1998, 1999) discussed this point in significance among peoples of contact period Mesoamerica. In exchanges between indigenous and colonial peoples, brilliance and shininess were held as the most important qualities among both parties. Although I do not deny the importance of this point, it can be fairly hard to apply to colored sediments, which rarely show any degree of shininess or sparkle. There are, however, certain instances of artifacts associated with earthworks which exhibit these properties (Pursell 2004), and they should not be overlooked.

The second aspect of color to consider is much more applicable to this study, and it relates to effect of color patterning as discussed by Gell (1998). The effect of any single color can be multiplied when contrasted with other colors, such as the juxtaposition of light and dark colors which is often seen in St. Johns mounds. Such is the case among colored directional systems. Although colors were not consistent across regions, the same themes of opposition were present, and defined their structure (DeBoer 2005). Therefore, it is important to consider colors in context and relevance to other colors. This is with regard to St. Johns mounds, in which multiple colors are represented in all mounds excluding those which are unstratified. Out of a sample 71 mounds, 22 mounds have distinct stratified layers, and of those 22, 21 mounds have multiple colors (the remaining mound contains two different shades of yellow). Such opposition is also present in Mississippian mounds, and Pursell (2004:59) suggests a trend representing day and night colors as one possible cause. In addition, a directional color system underlies this symbolism, and is often manifested in mounds in which colors are typically organized with red in the southeast and white in the southwest (Pursell 2004:59).

Sediment Selection and Alteration

Part of the challenge of interpreting the ritual significance of soils lies in their origin. Where were sediments obtained from, and what methods and processes were involved in their procurement and preparation? Pursell (2004:22-23) noted that most archaeological investigations do not address the problem of sediment sources, and although his research cannot address the problem, he suggests the labor theory of value (Marx 1930 from Arnold 1985) as a possible method of determining relative significance. Applying this principle, the distance traveled for a material is related to its degree of cultural importance. Another interesting question that may spawn from the availability of the information mentioned above involves the burials present within a mound. Will mounds constructed of non-local soils contain many burials (implying importance is proportional to number of burials)? Contrarily, based off of the ethnographic data presented previously, I would suggest that mounds with many burials are more frequently constructed with soils from the surrounding area. As Spike (2006) pointed out, mounds with few or on burial were likely the resting place of a cacique, and mounds with many burials were likely kept by families or clans. The interment of a cacique, or another individual or lineage of much social importance, may have been constructed with more exotic colored sediments, while that of a lower-level clan may lack sediments of color. Investigations at Silver Glen Run have addressed the availability of colored sediments in the immediate vicinity of the mound, and soils of pure white and light red were found, along with darker soils rich in organic matter, and transitional colors between these layers. The availability of these soils allowed for the construction of a mound with colored stratigraphy without having to travel for the construction material.

Color of Hopewellian Earthworks

Hopewellian monumental architecture as discussed by DeBoer (1997) is particularly relevant to this thesis due to the colors which are present, and the way in which they were applied in these structures. Some of the same themes are present, such as the opposition of red and white. The earthworks of the Ohio Hopewell are typified by geometric enclosures, which juxtapose circular and rectangular structures.

Colors commonly mentioned in regards to Hopewell architecture are red, white, black, and yellow (Greber 1997:246). These same colors dominate the spectrum of St. Johns mounds. In the Tremper Great House in the Lower Scioto Basin, opposite sides of the floor were colored black and yellow. Red and white were selected the colors that covered mica cutouts, although some unpainted mica cutouts and galena (white) were found in association with black obsidian and flint. The accompanying squares of Hopewell earthworks were built of red clay, such as at the Seip site, while the circle structure is dark colored. The squares seemingly represent the "new, untraditional, and foreign" element in the relationship, and in discussing the presence of red clay in these square structures, DeBoer (1997:234) associates the color red with war.

At Mound 17 of the Hopewell site, northern and southern alters are present beneath the mound. DeBoer (1997:235) notes an interesting pattern among the distribution of artifacts associated with these altars. All white colored objects, including mica and domestic implements, are associated with the northern altar, while the red copper and stone projectile points occur around the southern altar.

Mounds 3 and 4 at the Turner site express opposition parallel to that which was observed at mound 17 of the Hopewell site. Most of the white mica is found at the northeastern Mound 4, while southwestern Mound 3 yields the red copper and projectile points (DeBoer 1997:235). Again, as noted by Greber (1997:246) in her response to this article, opposition of red and white, and light and dark are the dominant themes.

Conclusions

Color is experienced in different regions at different times in different landscapes, and it can be interpreted as spatial and temporal characteristics of a particular culture (Jones and MacGregor 2002). One can experience different colors during the course of a day. Morning on a lakeshore would be represented cognitively by different colors than midday in a prairie or nighttime in a forest. Similarly, colors alter as seasons change over the course of a year. Spatially, color is associated with minerals, geologic formations, bodies of water, and plant and animal life. Furthermore, the power and significance of color is generated through manufacture of artifacts and architecture, close association with substances in nature, and through "phenomenal experience" (Jones and MacGregor 2002:10-12). The research presented in this chapter suggests a number of meanings behind ritual color use, but in terms of St. Johns burial mounds, there may be a simpler reasoning.

Spike's (2006:60) review of Timucua cosmology offers information that can be applied to interpretation of color symbolism within the St. Johns region. Color symbolism was associated with objects or substances that were then associated with states of being: sacred/pure and sacred/polluted. Another form of color symbolism delineated social institutions and marked towns and their chiefs as either warring or peaceful. This red and white opposition, I believe, was a system of color symbolism that was fundamentally different than what is observed in funerary rituals. We are lacking, however, any information regarding the structure and composition of burial mounds. Spike (2006:58-60) briefly mentions that mounds were constructed far from the settlement. But based on the ethnohistoric data compiled by her, and the research on color symbolism presented in this chapter, I expect colored mound sequences to represent these three worlds (Upper, Lower, and This World), and the symbolic objects and states of being (sacred/pure, sacred/polluted) associated with them.

Apart from this hypothesis, I hope to contribute to the interpretation and understanding of colors as they are found in the American Southwest. Some of the patterns and possible meanings included are generalities, and none will apply absolutely. Culture, and likewise, the color symbolism which a culture embraces, is not homogenous across time or the St. Johns region, and we must remember that one color may carry many connotative meanings.

CHAPTER 3
THE MOUND SAMPLE

The cosmology of the people inhabiting the American Southeast was steeped in rich color symbolism, and St. Johns mortuary sand mounds provide an opportunity to observe one aspect of this phenomenon. This chapter reviews certain examples from the set of mound data in order to highlight presence of color, and the syntax with which they were constructed. New archaeological data from the Silver Glen Mound is also presented, but first, brief consideration will be given to the natural characteristics of soil such as texture, density, and structure, as it is possible that these traits carried a certain ritual importance separate from color. Presence of similar depositional sequences begins to shed light on region-wide ritual beliefs, and a shared plan of burial practices. The patterns that have surfaced in St. Johns burial mounds include the coupling of red and white, the use of fire and presence of charcoal, and different shades of red sand in direct contact with artifacts and human remains.

Characteristics of Soil

Soils are composed of three particle types, which are referred to as textures, and are delineated by particle diameter: sand (2.0-0.05 mm), silt (0.05-0.002 mm), and clay (<0.002 mm). Most of northeast Florida's soil column is dominated by sands, while the presence of finer particles increases with depth. Generally, soils highest in the profile have a darker color, due to increased organic matter content, and these soils constitute the O horizon. The E horizon lies below the first mineral soil, and is a zone of eluviation, or exit of materials. The loss of materials generally gives the soil a light color, as minerals are translocated down with rain water. Lower layers are dominated by clays, with some sands and silts overlying the limestone bedrock. In Florida, these clay layers represent the Bt horizon. The B horizon is a zone of illuviation, or accumulation, of the minerals which were lost from above, and the t subordinate distinction denotes the occurrence of clay. Minerals are trapped above the water table in these clays due to high porosity and a very high specific surface area (around 3,000,000 cm^2/g compared to 30 cm^2/g of sand), resulting in great accumulations, but very slow movement of water and minerals. These clay-dominated Bt horizons usually accumulate iron, which oxidizes leaving an orange to red hue, but can also accumulate humus, giving it a darker color. In a Btg horizon, the g subordinate distinction represents a gleying environment, in which the water table rises into this layer and drops again, creating wet conditions with low oxygen and loss of iron particles, producing various colors from light orange and red, to pale grey.

These naturally appearing colors were a frequent occurrence in St. Johns burial mounds as observed by C.B. Moore (1895), but he also noted anthropogenically-altered soils of similar colors, products of combining soil with pulverized hematite. Byers (2004:112-119) suggests that different soils based on depth and color were selected for construction of different earthworks, and that these choices reflect local cosmology. Use of deep-lying clays may also, however, reflect a practical building strategy in addition to local knowledge of naturally occurring soils. For instance, a clay cap, which is common in Mississippian mounds, would withstand erosion and protect the mound better than a cap of coarse sand.

One would expect the unstratified mounds to hold less ritual and ceremonial significance than a mound with colored layers. This assumption is held to be true when the distance model (Arnold 1985) is applied to depth of soils. The St. Johns sand mounds are aptly named, as their texture is dominated by sand, although differences in texture may be observed within any given mound. All of the unstratified mounds (which are presented below) are constructed with coarse brown or yellowish sand, which often represents the soil of the surrounding A horizon, the closest material available one the layer of organic humus is stripped away. Alternatively, sand mounds that contain color have varying textures, as noted by C. B. Moore (1894a, 1894b, 1895b, 1896a, 1896b, 1896c), which suggests that soils were taken from different levels of the soil column. Once can assume that unstratified mounds consist of the 'closest' materials, while the color and its connotative symbolic meanings are imparted to materials of a greater distance, but my research cannot confirm this statement. However, the data from Silver Glen mound suggest a combination of the first two major zones in the natural soil profile, creating an artificial color, thereby increasing the symbolic potential of any natural layer of soil.

Review of Mound Sites

Stratified Mounds

Dunns Creek mound (8PU14)

Dunn's Creek mound in Putnam County was subject to some degree of desecration even before the 'systematic' investigation of C.B. Moore. The base of the mound was composed of pure white sand, and was noted to cease at the yellow sand of the natural soil profile. With a maximum thickness of about four feet, the top layer of the mound consisted of sand of a pinkish color, which Moore attributes to pulverized hematite. Between the white base and pink cap was yellowish sand which grew coarser and wetter with depth. Moore (1894a:7-15) recounted a notable trend in the burials of this mound, all were located in the pink sand layer, no more than three feet from the top surface of the mound.

North mound on Murphy Island (8PU20)

Murphy Island is on the east bank of the St. Johns, roughly ten miles south of Palatka, in Putnam County. The North mound was "one of the most symmetrical earthworks" Moore (1895b: 63) encountered in Florida. Whitish sand from the immediate area made up the body of the mound, although the marginal portions were dyed light pink. Pockets of pink and light chocolate sand were encountered, and Moore noted a certain "cohesiveness" of the mound, and he inferred that mixing a large quantity of clay with the sand of the surrounding territory took place (Moore 1894a:15, 1895b:63-75).

South mound on Murphy Island (8PU21)

The second mound Moore (1894a:15, 1895b:75-76) explored on Murphy Island stood about 200 yards south of the first. Below the ground surface was a layer of pure white sand, but Moore did not find the bottom of this, and the top of the normal soil profile. Atop this was a layer of black midden refuse one and a half feet thick, then a layer of sand artificially colored pink and bright cherry, possibly by the mixture of iron oxide, six inches in thick. Above was two feet ten inches of mottled sand with various colors, then a second layer of midden refuse with the same thickness as the first.

Ft. Florida mound (8VO49)

This sand mound near Fort Florida in Volusia County was constructed directly atop the natural dark brown sand, and is noteworthy for its alternating layers of white sand. The base of pure white sand was eight inches thick, and was surmounted by a seven-inch muck layer. Another white sand layer with a thickness of one foot eleven inches capped the muck, and terminated in four inch layer of brown sand, with mingled shells. Finally, the last white sand layer was one-foot thick, and the mound's cap was two and a half feet of black loamy sand. (Moore 1894a:83).

Ginn's Grove mound (8SE4)

Ginn's Grove Mound in Seminole County was constructed over a previously existing shell midden. Two distinct layers of white sand composed the base, which was free of shell. The layer above was brownish sand with moderate shell (Moore 1894a:84-87).

Lighthouse mound (8NA3)

Lighthouse mound in Nassau County contained well-defined strata. The layers were deposited over a cone of white sand, which formed the center of the mound. From the base (not including the white sand cone) to the apex, the mound consisted of light to yellow sand (2 feet thick), dark sand and shells (7 inches thick), yellow sand (5 feet 8 inches thick), pink sand mingled with white sand and shells (1 foot thick), dark sand with shells (1 foot thick), and dirty brown sand (2 feet six inches thick). Moore (1896c:24-29) also described pockets of sand artificially colored with hematite.

Grant mound (8DU14)

Grant mound in Duval County is located on the southern bank of the St. Johns. Its stratigraphy consisted of a base of yellow sand darkened by fire, and contained abundant charcoal. Above the base was a layer of cherry colored sand, 12 to 18 inches thick, followed by an irregular stratum of pure white sand, with an average thickness of two feet. Moore (1895a:30-45) described the bulk of the mound consisting of yellow sand, but pockets of white, brown, grey, and "sand dyed a beautiful cherry" were present throughout. Sand constituted the remaining layers, and contained pockets of red, pink, and cherry sand in direct contact with remains and artifacts (Moore 1894b:200-204,). He was struck by one portion of layered sand in western end of the mound:

> Above the shell base was a layer of sand black in color through admixture of loam, six inches in thickness. This was surmounted by a band of white sand about ten inches through, above which was a stratum of sand of a chocolate tint, about three-quarters of a foot in breadth. Next came a layer one foot in thickness of sand of stone color, which was surmounted by seven inches of sand tinged a bright cherry. Above these layers were masses of yellowish sand with occasional strata of brown sand and of blackish sand containing oyster shells.

Moore (1895a:31) clarified that this range of colors did not lie in contact with such defined stratigraphy anywhere else in the mound.

Broward mound (8DU20)

Broward mound in Duval County was constructed with a 6 to 14 inch thick layer of pure white sand on the ground surface. Comprising the rest of the mound was yellowish sand with streaks and pockets of white and cherry sand. Pieces of charcoal were present throughout. Moore (1895a: 52-53) placed this mound in "a certain class of sand mounds met with on the St. Johns." It was exceptional because of the large quantity of artifacts was disproportionate to the small number of burials. Spike's (2006:58-60) work on Timucua cosmology, which was discussed in Chapter Two, compared the burials of caciques, or chiefs, and commoners. Only those of high social status were buried with their material goods, possibly suggesting that these objects were taken into the Upper World, uniting the sacred/pure and the sacred/polluted.

Point La Vista mound (8DU37)

Point La Vista is a low mound located in Duval County, and it consisted of intermingled brown and white sand under a layer of cherry colored sand with an average thickness of about one foot. A notable trait of this mound is evidence of a prepared surface. Moore (1896a:10-11) observed "a stratum over one foot in thickness of sand blackened by fire, containing abundant particles of charcoal," which was present just above the ground surface.

Mandarin Point mound C (8DU50)

Of the three mounds encountered by Moore (1894b:195-196) on Mandarin Point in Duval County, only Mound C, the southernmost, was 'of any interest.' The base of the mound terminated below the original ground surface, and it was composed of a layer of "sand blackened by fire" with abundant charcoal. Above the base layer, yellowish sand stood about one foot thick, and above this was four feet of pink and bright cherry sand; again, Moore (1894b:195) credited the color to pulverized hematite.

Unstratified Mounds

Mound A near Duvall's on Blue Creek (8LA9)

This mound was constructed with the white sand of the surrounding soil column. It was unstratified, save for a layer of pinkish sand about 18 inches thick. In areas of direct association with artifacts, this pinkish layer turned to a dark, "brick-red," which is again ascribed to crushed hematite (Moore 1894a:36-37).

Mound in pine woods near Duval's (8LA11)

Much like Mound A near Duvall's, and just two miles away, this mound lacked stratified layers and consisted of pure white sand. Again, red sand was encountered, but only in pockets, and always surrounding artifacts (Moore1894a: 37-42).

Harrison's mound (8NA9)

Harrison's Mound in Nassau County was composed of yellowish sand with a layer of white sand that ran through the central portion below the surrounding ground surface.

This white sand layer was several inches thick, and white sand was present elsewhere in the mound, within pockets with the yellowish sand (Moore 1896c:22-23).

Low Mounds near Point La Vista (8DU38-40)

In addition to the mound previously discussed, Point La Vista also housed three intersecting mounds, consisting of unstratified yellowish-brown sand. Within these mounds, most of the artifacts and human remains laid in pockets of "scarlet" sand, a color that naturally occurs in the presence of iron oxide. Although the mound did not show distinct stratification, Moore (1896a:12-14) noted a seam of charcoal directly over a streak of red sand.

Gilbert mound (8DU11)

Gilbert mound, about one quarter mile east of Shields mound, was unstratified and stood about one quarter mile southeast of Shields mound. The majority of the mound was yellowish sand, but again, Moore (1895a:25-27) found pockets of red sand in contact with artifacts.

Monroe mound (8DU13)

This mound was constructed about one quarter mile southeast of Grant mound. It too was unstratified, however, Moore (1895a:27-29) recounted the initial construction of this mound, in which fire was used as a purifying agent prior to the deposition of any soil:

> First, a fire was built on the surface, possibly to destroy the underbrush. Next, a pit of the area of the intended mound was dug to a depth of about 3 feet. In a central portion of this pit was made a deposit of human remains with certain artifacts to be described later. Then the pit was filled with the sand previously thrown out, through which was plentifully mingled charcoal from the surface fire. During the process of filling, various relics, but no human remains, were deposited, and covered by the sand. When the pit was filled to the general level, a great fire was made over its entire area as was evidenced by a well marked stratum of sand discolored by fire and

> containing particles of charcoal, extending entirely through the mound at the level of the surrounding territory. Upon this the mound proper was constructed and various bunched burials and art relics introduced.

Silver Glen Mound Investigation (8LA1)

As stated previously, two sand mounds were located at the Silver Glen Run site at the time of C.B. Moore's arrival. One of these mounds was completely demolished in his pursuit of artifacts and human remains, and has since been lost. The surviving mound, however, was the subject of our investigations. Soil cores were extracted from both on and off the mound to determine the profiles of the natural soil column and the stratigraphy of the mound. The cores from the surrounding area prove the availability of at least two distinct colors that appear frequently in St. Johns sand mounds: white and orange to red. In addition to the white and red soils, darker soil rich in organic matter was present, as well as cream colored sand, and the transitional colors between these layers. Furthermore, the mound consists of three depositional sequences; two which appear to have been constructed from the white and red soils of the surrounding natural profile, and a middle layer of less conspicuous origin. It is hypothesized to be the result of significant processing, and appears to be a homogenous mixture of the white sand from above, and the red sand from below. Lab tests aim to demonstrate the anthropogenic origin of the intermediate sequence of soil.

Methods

The coring program resulted in a total of six cores taken from the Silver Glen site, obtained with a four-inch bucket auger. Three bulk samples were also taken from the natural soil column for use in experimentation with mixing soils of different colors (red, white, and cream). Cores 1, 4, 5, and 6 were all taken from the mound, while cores 2 and 3 were taken from the natural soil column away from the mound. Core 1 was taken from the summit of the mound, and core 6 was to its immediate southeast. Core 2 was about 15 meters east of the summit of the mound, and core 3 was roughly 35 north of the summit. Core 4 was about 8 meters north of core 1, and core 5 was about 5 meters west of the summit.

Due to natural compaction and aggregation over time, natural soil cores were extracted without diffculty, which cannot be said for the mound cores. The upper duff layer represents the first 5 cm of both the mound and natural profiles, and is characterized by Oe and Oa horizon distinctions, with moderately decomposed organic matter, and recognizable structure. In both natural soil profiles, the texture fines and particle size decreases with depth. Overall, this sequence can be briefly characterized as a coarse dark brown organic layer, and a coarse grey to white layer which grades in color and texture to fine orange to red sand.

The soil cores from the mound show similar colors, but are characteristically different. Changes in colors are marked by sharp contrasts, and very rarely show any gradation from one layer to the next. As previously noted, these cores were much more difficult to recover, as the soil was not compact enough in some place to remain in the auger for successful retrieval. This is a product of its own human origin- the construction of the mound involved removing soil that had undergone millennia of natural formation processes, thereby altering its structure and compaction.

Color and texture are the most crucial characteristics involved in determining the origin of the soils in the mound at Silver Glen Run. The natural soil profile grades from coarse to fine-grained sand. This sequence should not be present in the mound if it is anthropogenic. Additionally, color determination assists in confirming the processed nature of the middle layer of soil.

Field determinations of color and texture were made, and a number of samples were taken from different levels of each core in order to determine color and texture in a controlled lab setting. Color was assigned to the soils in both the field and the lab by using the Munsell soil color system.

Texture in the lab was determined by dry-sieving 100 g of each soil sample, after an air-dry state was reached (see Table 3-1). A series of numbered soil sieves of wire mesh corresponded to mesh size and particle type, and were stacked as follows: 2.00 mm (No. 10), very coarse sand; 600 µm (No. 35), coarse sand; 250 µm (No. 60), medium sand; 125 µm (No. 120), fine sand; 63 µm (No. 230), very fine sand; and finally, the bottom pan collects silt and clay particles. After one minute of horizontal sieving, each sieve with its contained soil fraction was weighed, and the difference of that was taken from the known weight of the empty sieve, resulting in the weight of a particular particle type. In order to avoid introducing bias, each sieve was re-weighed after every sample was tested to ensure all soil was removed, and it retained the original weight.

As stated previously, bulk samples of natural soil were collected to experiment with mixing to produce different colors. Samples of pure white and red sand were gathered, as well as a cream colored sand that we encountered in core three. The white sand came from roughly 30 to 70 cm below the surface in core two, and the red sand from about 150 to 190 cm, also in core two. The cream sand came from core three, at 200 to 220 cm below the surface. In order to prove that the color of the middle layer, which is not present in the natural soil column, was the result of mixing naturally

Core Number	Sample Depth	Color	Texture
Core 1	0-65 cm	10YR8/1	Coarse sand
	65 cm	10YR7/4	Medium sand
	150 cm	10YR8/2	Medium-fine sand
	162+ cm	7.5YR6/6	Medium-fine sand
Core 6	30 cm	10YR8/1	Medium sand
	80 cm	7.5YR6/6	Medium-coarse sand
	100 cm	10YR7/6	Coarse sand
	120-130 cm	10YR8/3	Medium sand
Core 4	30 cm	10YR8/1	Medium sand
	105 cm	10YR7/2	Medium sand
	175 cm	7.5YR5/8	Medium-fine sand
Core 5	15-20 cm	10YR6/1	Coarse sand
	35-40 cm	10YR5/6	Medium sand
	55-60 cm	10YR6/6	Medium sand
	75-80 cm	10YR7/4	Medium-fine sand
	90-95 cm	10YR7/3	Medium sand
	90-100 cm	10YR5/1	Medium sand
Core 2	25 cm	10YR7/1	Medium sand
	50 cm	10YR7/1	Coarse sand
	75 cm	10YR8/1	Coarse sand
	100 cm	10YR8/1	Medium sand
	115 cm	7.5YR5/6	Medium sand
	140 cm	7.5YR5/8	Medium sand
	165 cm	7.5YR5/6	Medium-fine sand
	190 cm	7.5YR6/6	Medium-fine sand
	210 cm	7.5YR6/6	Medium-fine sand
Core 3	30 cm	7.5YR8/1	Coarse sand
	70 cm	7.5YR5/6	Medium sand
	100 cm	7.5YR6/6	Medium sand
	150 cm	10YR6/6	Medium sand
	200 cm	10YR7/4	Medium sand

Table 3-1. Core Profiles

occurring soils, the red and white soil sample, and red and cream soil samples were combined and mixed in different ratios, each totaling 100 g. In the resulting spectrum of 21 soils, roughly half are very close, if not exact duplicates of the color of the intermediate layer of soil (see Appendix A).

Mound Composition

The construction of Silver Glen Mound was the result of significant planning, as demonstrated by three fairly consistent depositional sequences. The top layer is pure white, coarse sand, as seen just below the organic layer in the natural soil column. The base level of the mound is composed of fine orange to red sand, which naturally occurs below the meter-thick white sand layer. It is the middle layer of sediment that is apparently of human design. This layer is roughly one meter thick, and is composed of a mixture of the sands above and below. This mixture however, is not of natural origin. The color in the mound profile does not grade as it did in the natural profile, and the sand is not mottled, nor does it show patches of white or red sand. It is a homogenous, well-mixed, heavily processed layer, which represents a combination of the white and red sand.

The mound stratigraphy was fairly uniform, but not perfect. It is possible that this is simply the result of construction, but recent site formation processes may also be responsible. Gopher tortoise burrows and tree throws are an issue, as is recent activity from recreationists around the area. It is also likely that a previous investigation by C.B. Moore, in which a trench was dug through the mound, is responsible for the small depression across its center.

The source of the sediment is presumed to be local, as the two natural soil types found in the mound are available just off the mound, which is confirmed by the off-mound soil cores. If this assumption is true, than a borrow pit or some other feature should be present confirming this, but one was not located. However, the surrounding area is marked by a shallow depression encircling the mound. The sand may have been stripped away from a large area, rather than dug out from a pit, and this immediate area may be the source of the construction material, but further investigations would be required to test this theory.

In addition to this proposed source of soil, some of the white sand may have also been taken from the area below the mound. In the mound cores, the base was composed of red fine sand, and a buried horizon of white coarse sand, which marks the upper layer of the natural soil column, was not encountered. This could imply clearing and preparation of the ground surface below the planned mound. The natural organic and white sand layers may have been stripped away down to the red sand, and used as a construction material.

Sand Processing Results

Three colors of sand were combined in different ratios, resulting in 21 different colors of processed sand. First, red and white were combined, then red and cream. I was able to correlate all of the intermediate mound layer samples with a lab-processed sample, except for one sample. The sample from core one, taken from ~150 cm matched well with the lab sample of 70% white sand and 30% red sand. From core four, at ~105 cm, this was correlated with a sample of 60% white sand and 40% red sand. The samples from core five, taken from ~55 to 60 cm, ~75 to 80 cm, and ~90 to 95 cm and matched the following sample respectively: 100% red sand, 30% red sand 70% cream sand, and 20% red sand 80% cream sand. The ~35 to 40 cm sample from core five was the only mound sample that was not well-correlated with any lab sample. It had a deeper red hue than my sample of 100% red sand. This possibly indicates the presence of darker red sand in the area, or another form of processing to reach the result. From core six, samples from ~80 cm, ~100 cm, and ~120-130 cm matched with 100% red sand, 60% red sand and 40% cream sand, and 10% red sand and 90% cream sand, respectively.

Conclusions

Sand of various red hues played important roles in the burial rituals of the St. Johns peoples. Even if red soil was not present as a whole stratum in a mound, pockets of the color were common. Many mounds had human remains and artifacts in direct contact with these red layers or pockets. Of the mounds listed above, the mound in pine woods near Duval's (8LA11), Gilbert mound (8DU11), the low mounds near Point La Vista (8DU38-40), Mound A near Duvall's on Blue Creek (8LA9), and Grant mound (8DU14) all shared this trait. Furthermore, the burials in Dunn's Creek Mound (8PU14) were all concentrated in a layer of pink sand.

The significance of the red:white dyad in St. Johns society was manifested in moundbuilding. Of the thirteen mounds that contained red sand, all but three were also constructed with white sand. In two of these mounds in which white was absent in the presence of red, Gilbert Mound and Mound B near Point La Vista, the red sand only occurred in pockets in association with artifacts, not as a whole strata. In the third mound, Mandarin Point Mound C, the red layer was in direct contact with a layer of yellow sterile sand. It may have been an attempt to mimic the same dichotomy of light and dark which was present in mounds with alternating red and white layers. Furthermore, only two unstratified mounds were built of white sand- the remaining were composed of yellow or brown soils.

Out of the entire mound sample (with no color counted over if represented in separate layers in one mound), red was present in 13 mounds, yellow in 16 mounds, brown in 17 mounds, and white in 18 mounds. In mounds that exhibited distinct stratification, yellow was present 7 times, red 11 times, and white and brown both 17 times.

The second phase of the Timucua mortuary ritual occurred after the body had been purified by fire, and symbols that dominate this phase "revolved around releasing the soul, including the bodily destruction by fire to produce a sacred/pure ancestor" (Spike 2006:56). Twenty-two of the 71 mounds in the sample had charcoal present, and of those, Grant Mound, Broward Mound, low mound B at Alicia, Point La Vista Mound, and Mandarin Point Mound C, had a distinct layer of charcoal at the base and on the ground surface, indicating the purification of the ground surface before mound construction began.

Mounds that did not show distinct stratification are included in this chapter to follow up on what was mentioned previously regarding the distance theory as applied to soil depth. Recall that the labor theory of value (Arnold 1985) states that the distance traveled for a material is related to its degree of cultural importance. I suggested that this principle would hold true in regards to unstratified mounds- they would consist of the closest material available. All of the unstratified mounds listed in this chapter consisted of white, brown, or yellowish sand. C.B. Moore observed that all of these mounds were constructed from the sand of the immediate surrounding area.

Deetz (1977:357) defined material culture as the “sector of our physical environment that we modify through culturally determined behavior,” a distinction that can be extended to soils, stone, and even bodies of water. It is difficult to say how soils were interacted with, and to what extent they were modified, but the results of laboratory analysis of the soil samples from Silver Glen Mound support the argument that significant processing of soil occurred before it was deposited to construct the mound. Furthermore, texture determinations confirm human origin of the mound, as previously thought. The natural soil cores graded in texture from coarse to medium to medium-fine sand, while texture in the mound cores did not show any pattern of fining with depth.

I suggest that processing sediments prior to deposition was a method of altering the natural world and manipulating states of being (Spike 2006:10). Ordinary soil could be made extraordinary and ritually significant through purification with fire, or mixing in pulverized hematite or clay to alter color, texture, and structure. In addition to Silver Glen Mound, the north mound on Murphy Island is a good example of this, as some of the soil was dyed pink. Also, the structure of the soil was unique, which Moore (1895b:63-75) hypothesized was the result of combining a significant amount of clay with the soil of the whole mound.

It cannot be said with absolute certainty, but it is possible that the builders of Silver Glen Mound gathered larger amounts of the white, red, and cream sands, and then proceeded to create other colors of soil by mixing the white and red soils, and the cream and red in very precise ratios. The result was a mound with three distinct depositional units, which I believe represented the three worlds of Timucuan cosmology: white represented the sacred/pure Upper World, and red symbolized the sacred/polluted Under World. The processed layer signified the combination of both the Upper and Under Worlds. As Spike (2006:10) described, it was through the interaction with the sacred/pure and sacred/polluted that one reached the impure, or normative state of This World, made manifest in the processed middle layer of Sliver Glen Mound.

CHAPTER 4
CONCLUSIONS

My research demonstrates that colored depositional sequences occur in St. Johns burial mounds fairly frequently. Examples from the mound sample reviewed in the previous chapter highlight the importance of certain colors, and the syntax in which they were deposited. This chapter offers my final conclusions, with special attention paid to Silver Glen Mound.

As discussed in chapter two, red and white are of great importance to the cosmologies of the ancient Southeast. Examples of both Mississippian and St. Johns mounds exhibit a juxtaposition of red and white, and post-contact ethnographic research has also confirmed its role in delineating certain institutions and factions. Within the St. Johns region, red and white are the two most abundant colors represented in mounds exhibiting stratification. In a total sample of 71 mounds, 22 show distinct stratification with two or more colors. Within these 22 mounds, red is present 14 times, and white 15 times. The next most frequently occurring color is brown with 11 appearances.

Colors of the Cosmos

Spike (2006:10) contends that Timucuans "manipulated the three states/worlds of the cosmos," and I believe moundbuilding is an extension of this manipulation. In the case of Silver Glen Run, the mound can be seen as an extension of the natural world. The depositional sequences mimic the natural soil profile of the area -an upper layer of pure white sand and a base layer of fine red sand. The intermediate layer of mixed red, white and cream sands represents the manipulation discussed by Spike (2006), and illustrates her proposed idea of linking the Upper and Lower Worlds with This World.

I cannot say weather this three-world system is the underlying blueprint that dictates the construction of all St. Johns sand mounds. I do believe it is the symbolic driver behind the construction of Silver Glen Mound, but the rest of the mounds in the sample did not exhibit such construction tactics. Still, Spike's (2006) symbolic colors associated with sacred/pure and sacred/polluted can explain the use of many colors, such as the association of red with remains and artifacts. Furthermore, the significance of fire as an agent of purification has been demonstrated across the region. Either present in distinct basal layers or scattered throughout the mound, charcoal is the most common unifying characteristic, present in at least 31% of the mounds.

The red:white dyad was also fairly salient among St. Johns sand mounds, as well as in Mississippian and Hopewell earthworks (DeBoer 2005, Pursell 2004). Roughly 15% of mounds in this sample exhibited red and white layers. As I noted previously, the few mounds that contained red sand but lacked white sand, had a distinct layer of yellow sand, possibly in an attempt to mimic the juxtaposition of light and dark, which is present in red and white colored layers. Aside from the contrast of red and white, the opposition of light and dark colors was present in almost every sand mound that exhibited distinct stratified layers.

There is still a great deal of work to be done in order to understand the complexity of St. Johns sand mounds, and mortuary practices in general. However, it is clear to me that the use and processing of colored sediments, and the syntax in which they appeared, was a method of manipulating the natural environment, thereby adding to the ritual significance of the soils.

Future Research Possibilities

Although this work contributes to the study of color symbolism in the St. Johns River Valley, and the greater southeastern United States, there are still important questions to be answered. Assessing the localities of the sediments that constitute the sand mounds can underscore the ritual significance of each mound individually. At Silver Glen Run, two of the three distinct layers of colored soils present in the mound were also present in the immediate area, and the third was attained through a mixing of the local soils. Still, it is possible that the soils for some of the mounds in the St. Johns region were gathered away from the mound site.

Diachronic analyses of the mounds in question may also shed light on changing moundbuilding practices through time. Dates from each mound must be gathered, but that is beyond the scope of this report. It is possible that some patterns observed in these mounds appeared at different times, perhaps in response to certain events which occurred in the natural or cultural world.

A more intensive investigation of mound sediments from the literature is also called for. USDA soil surveys of the mounds should be examined to determine what is available nearby, and if some colors of the mounds were fabricated, as seen at Silver Glen mound. Only then can it be determined if sediment alteration is a region-wide practice. Whatever the case may be, it is clear that the mounds of the St. Johns are ritually complex, and symbolically charged.

APPENDIX A

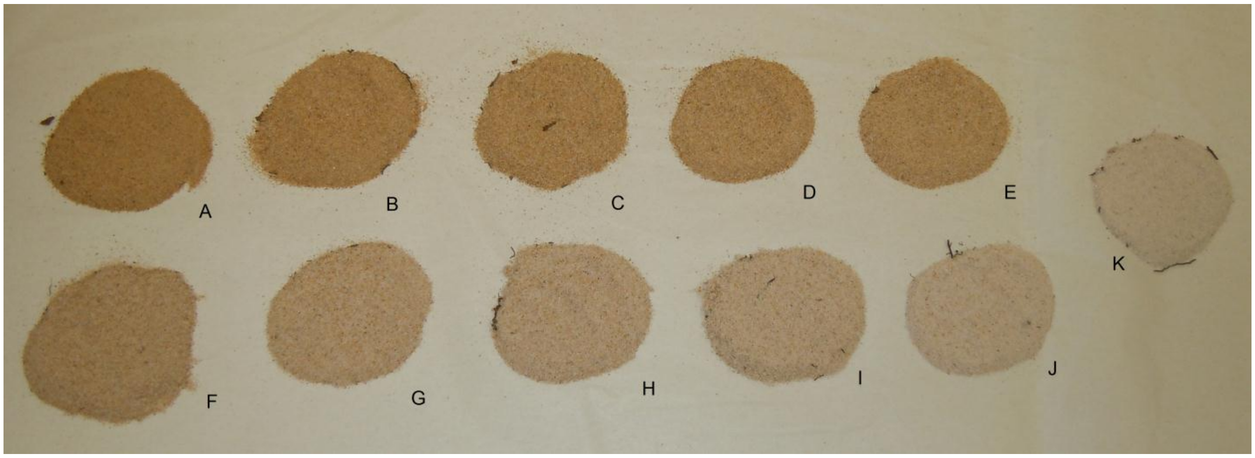

Figure A-1. Resulting sand colors of mixing red and white sands. Ratios are listed in the following table.

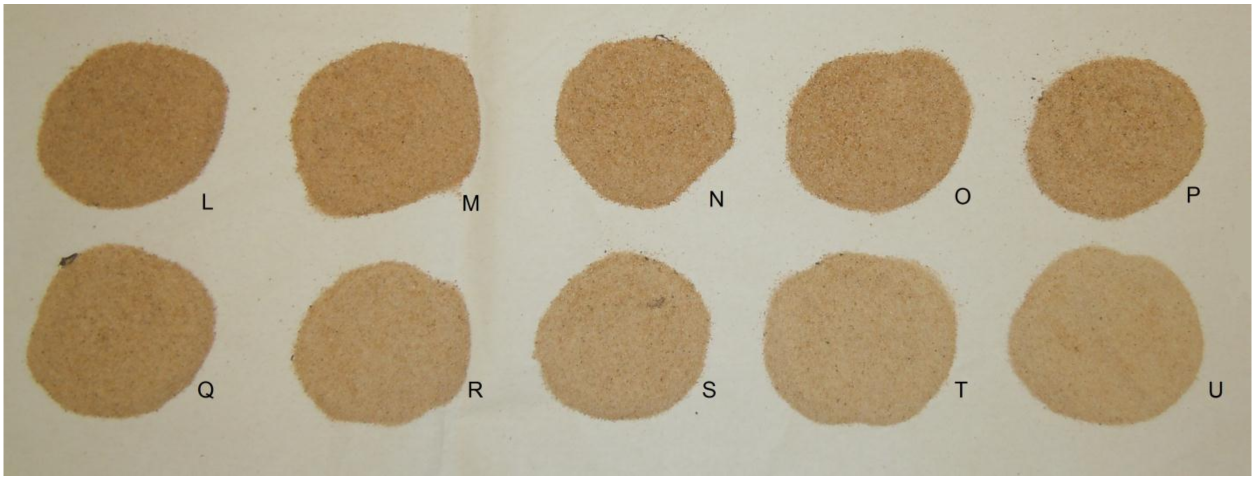

Figure A-2. Resulting sand colors of mixing red and cream sands. Ratios are listed in the following table.

Sample	Amount A	Amount B	Color
A	0 g white	100 g red	7.5YR5/8
B	10 g white	90 g red	7.5YR5/6
C	20 g white	80 g red	7.5YR5/6
D	30 g white	70 g red	7.5YR6/8
E	40 g white	60 g red	7.5YR6/6
F	50 g white	50 g red	7.5YR7/6
G	60 g white	40 g red	7.5YR7/4
H	70 g white	30 g red	7.5YR7/3
I	80 g white	20 g red	7.5YR8/2
J	90 g white	10 g red	7.5YR8/1
K	100 g white	0 g red	10YR8/2
L	10 cream	90 g red	7.5YR6/8
M	20 g cream	80 g red	7.5YR6/6
N	30 g cream	70 g red	7.5YR7/6
O	40 g cream	60 g red	10YR6/6
P	50 g cream	50 g red	10YR7/8
Q	60 g cream	40 g red	10YR7/6
R	70 g cream	30 g red	10YR7/4
S	80 g cream	20 g red	10YR7/3
T	90 g cream	10 g red	10YR8/3
U	100 g cream	0 g red	10YR8/3

Table A-1. Mix ratios of red, white, and cream sands.

APPENDIX B

SITE NO.	NAME	COMPONENTS	FORM	HEIGHT	SIZE (CIRCUMFERENCE OR DIAMETER)
8PU2	RICE CREEK MOUND	ST. JOHNS II		2' 10"	D= 44'
8PU6	EAST PALATKA MOUND	ST. JOHNS II		5' 7"	D= 61'
8PU9	ST. JOHNS LANDING MOUND 1	ST. JOHNS IB		9' 7"	D= 62'
8PU14	DUNNS CREEK MOUND	ST. JOHNS II, IIA	TRUNCATED CONE	10'	C= 210'
8PU16	CRESCENT CITY MOUND	ST. JOHNS II			
8PU20	NORTH MOUND ON MURPHY ISLAND	ST. JOHNS IA, IIC, INTRUSIVE	TRUNCATED CONE	11' 9"	BASE D=80', SUMMIT PLATEAU D=21'
8PU21	SOUTH MOUND ON MURPHY ISLAND	ST. JOHNS IIA	TRUNCATED CONE	10'	D= 70'
8PU38	NORWALK LANDING MOUND	ST. JOHNS	UNSYMMETRICAL	3 '8"	C= 132'
8PU42	LOUIS' PLACE MOUND	ST. JOHNS			
8LA3	MOUND A NEAR SILVER GLEN SPRING			2'	35'
8LA4	SILVER GLEN MOUND		TRUNCATED CONE		
8LA6	JUNIPER CREEK MOUND	ST. JOHNS 1		5.5'	D= 40'
8LA9	MOUND A NEAR DUVALL'S (ON BLUE CREEK)	ST. JOHNS II		5 '6"	C= 165'
8LA11	MOUND IN PINE WOODS NEAR DUVAL'S	ST. JOHNS II	SYMMETRICAL TRUNCATED CONE	4 '4"	C= 180'
8LA12-15	FOUR MOUNDS IN SWAMP	ST. JOHNS I			
8LA24	BARTRAMS MOUND (LITTLE ORANGE MOUND)	ST. JOHNS II			

SITE NO.	NAME	COMPONENTS	FORM	HEIGHT	SIZE (CIRCUMFERENCE OR DIAMETER)
8LA25	OLD FORD MOUND	ST. JOHNS IA			
8LA42	MOUND NEAR BLACKWATER	ST. JOHNS II			
8VO5	HITCHENS CREEK MOUND	ST. JOHNS		3 '8"	C=243'
8VO14-18	FOUR LOW MOUNDS NEAR VOLUSIA	ST. JOHNS I		3 '3" TO 1' 9"	
8VO25	TICK ISLAND MOUND	ST. JOHNS IA	CONICAL, WITH CAUSEWAY EXTENDING FROM EAST PORTION	17'	
8VO32	MOUND ONE MILE NORTH OF BRIDGE AT CROWS BLUFF	ST. JOHNS II			
8VO34	ZIEGLER MOUND	ST. JOHNS II			
8VO36	THURSBY MOUND	ST. JOHNS I, IIA, IIB, IIC	SYMMETRICAL TRUNCATED CONE	11 '	C= 300'
8VO39	STARKS GROVE MOUND	ST. JOHNS II		8'	C= 370'
8VO49	FT. FLORIDA MOUND	ST. JOHNS IIC		6' 6"	C= 240'
8VO50	MOUND NEAR FT. FLORIDA	ST. JOHNS II			
8SE4	GINNS GROVE MOUND	ST. JOHNS IB, IIC	OVAL	10'	BASE C= 300', PLATEAU C=140'
8SE13	COOKS FERRY/KING PHILLIPS TOWN MOUND	ST. JOHNS II, IIC	TRUNCATED CONE	11' 8"	C= 245'
8CN1	RED ANT MOUND	ST. JOHNS II			
8CN2	WHOOPING CRANE MOUND	ST. JOHNS IA, LATE			
8CN3	BUZZARD MOUND	ST. JOHNS IB			

SITE NO.	NAME	COMPONENTS	FORM	HEIGHT	SIZE (CIRCUMFERENCE OR DIAMETER)
8WR1	MOUND ON BUG-A-BOO ISLAND	ST. JOHNS IB			
8NA3	LIGHTHOUSE MOUND	ST. JOHNS, ST. JOHNS II		12'	D= 75'
8NA9	HARRISONS MOUND	ST. JOHNS II		1' 6"	D= 30'
8DU10	JOHNSON MOUND	ST. JOHNS IB	SYMMETRICAL	7' 4"	D= 65'
8DU11	GILBERT MOUND	ST. JOHNS IA	OVAL	4' 9"	86'x53'
8DU13	MONROE MOUND	ST. JOHNS I	IRREGULAR	3' 2"	63'x5'
8DU14	GRANT MOUND	ST. JOHNS IA, IB	TRUNCATED CONE	26' 8"	D= 216'
8DU15	LOW MOUND A	ST. JOHNS IA	IRREGULAR, IN CONTACT WITH B	4'	D= 36'
8DU16	LOW MOUND B	ST. JOHNS II	IRREGULAR, IN CONTACT WITH A	2'	D= 28'
8DU20	BROWARD MOUND	ST. JOHNS I	SYMMETRICAL	8'	D= 60'
8DU21	HORSESHOE LANDING MOUND A	ST. JOHNS I	IRREGULAR	3' 7"	D= 50'
8DU24	DENTON MOUND	ST. JOHNS I	IRREGULAR RIDGE	2' 5"	77'x30'
8DU25	REDDIE POINT MOUND A	ST. JOHNS IA, IB			D= 80'
8DU27	DANIELS LANDING MOUND	ST. JOHNS		2' 5"	D= 60'
8DU30	LOW MOUND A, ALICIA	ST. JOHNS, ST. JOHNS I		3' 5"	D= 45'
8DU31	LOW MOUND B, ALICIA	ST. JOHNS IA		~3-4'	D= 86'

SITE NO.	NAME	COMPONENTS	FORM	HEIGHT	SIZE (CIRCUMFERENCE OR DIAMETER)
8DU32	FLORAL BLUFF MOUND	ST. JOHNS I	V-SHAPED RIDGE	4' 5"	WEST ARM 170' EAST ARM 140'
8SJ27	COCO MOUND	ST. JOHNS II			
8DU33	ARLINGTON MOUND	ST. JOHNS I	IRREGULAR	2'	57'x36'
8DU35	LOW MOUND A, SOUTH JACKSONVILLE	ST. JOHNS I	CIRCULAR	1' 8"	D= 52'
8DU36	LOW MOUND B, SOUTH JACKSONVILLE	ST. JOHNS IB	IRREGULAR	3' 3"	72'x50'
8DU37	POINT LA VISTA MOUND	ST. JOHNS II		2' 4"	D= 55'
8DU38	LOW MOUND A NEAR POINT LA VISTA	ST. JOHNS I	INTERSECTING	2' 5"	D= 29'
8DU39	LOW MOUND B NEAR POINT LA VISTA	ST. JOHNS I, II	INTERSECTING	2' 1"	D= 52'
8DU40	LOW MOUND C NEAR POINT LA VISTA	ST. JOHNS IB	INTERSECTING	2' 2"	D= 58'
8DU42	MULBERRY GROVE MOUND	ST. JOHNS I		2'	D= 46'
8DU43	LARGE MOUND AT BEAUCLERC	ST. JOHNS 1B	LOW, UNUSUAL	6'	
8CL3	PEORIA MOUND	ST. JOHNS II		4' 2"	D= 75'
8CL6	MOUND NEAR PETERS CREEK	ST. JOHNS	PREVIOUSLY LEVELED	4'	D= 60'
8DU48	MANDARIN POINT MOUND A (NORTHERNMOST)	ST. JOHNS II?		4'	D= 55'
8DU49	MANDARIN POINT MOUND B (0.25MI EAST OF MOUND A)	ST. JOHNS II?		3' 7"	D= 58'
8DU50	MANDARIN POINT MOUND C (SOUTHERNMOST)	ST. JOHNS II?		5'	D= 47'

SITE NO.	NAME	COMPONENTS	FORM	HEIGHT	SIZE (CIRCUMFERENCE OR DIAMETER)
8SJ2	SAN DIEGO MOUND	ST. JOHNS II			
8SJ8	DIEGO MOUND	ST. JOHNS II			
8SJ8	JENKS MOUND	ST. JOHNS II			
8SJ11	FITZPATRICK MOUND	ST. JOHNS II			
8SJ21	ORANGEDALE MOUND	ST. JOHNS I,II	SYMMETRICAL	6'	D= 36'
8SJ24	MOUND NEAR ST. AUGUSTINE ROAD	ST. JOHNS II		5'	D= 37'
8SJ25	RACEY POINT MOUND	ST. JOHNS IB, II		6'	D= 60'

SITE NO.	NAME	STRATIGRAPHY (BASE TO APEX)
8PU2	RICE CREEK MOUND	UNSTRATIFIED YELLOW SAND
8PU6	EAST PALATKA MOUND	BASE LAYER OF SAND WITH CHARCOAL. REMAINDER OF MOUND IS UNSTRATIFIED WHITEISH SAND WITH BITS OF CHARCOAL. TOWARD THE CENTER OF THE MOUND WAS DARK LAYER OF SAND NEAR THE BASE 1 FOOT THICK.
8PU9	ST. JOHNS LANDING MOUND 1	UNSTRATIFIED WITH A DISTINCT LAYER OF SAND WITH CHARCOAL (3-6")
8PU14	DUNNS CREEK MOUND	1. YELLOW STERILE SAND 2. PURE WHITE COARSE AND MOIST SAND, MAX THICKNESS OF 4''. 3. FINE YELLOWISH DRY SAND 4. PINKISH SAND- ADMIXTURE OF PULVERIZED HEMATITE, MAX THICKNESS 4'
8PU16	CRESCENT CITY MOUND	
8PU20	NORTH MOUND ON MURPHY ISLAND	WHITISH SAND OF SURROUNDING TERRITORY WITH ADMIXTURE OF CLAY, WITH PORTIONS OF SAND DYED LIGHT PINK FROM IRON OXIDE, AND LIGHT CHOCOLATE COLORED SAND
8PU21	SOUTH MOUND ON MURPHY ISLAND	BROWNISH SAND (7'), MIDDEN REFUSE OF BLACK LOAM (1' 6"), MOTTLED SAND (2' 10"), CHERRY COLORED SAND (6"), BLACK LOAM, SOLIDLY PACKED, WITH MIDDEN REFUSE, CHARCOAL, OCCASIONAL SHELL (1' 6"), MOTTLED SAND, PINK, WHITE, AND GREY AT PLACES (4')
8PU38	NORWALK LANDING MOUND	UNSTRATIFIED, WHITE SAND
8PU42	LOUIS' PLACE MOUND	
8LA3	MOUND A NEAR SILVER GLEN SPRING	
8LA4	SILVER GLEN MOUND	WHITE SAND, MIX OF UPPER AND LOWER LAYERS, ORANGE SAND
8LA6	JUNIPER CREEK MOUND	NONE
8LA9	MOUND A NEAR DUVALL'S (ON BLUE CREEK)	COMPOSED OF WHITE SAND FROM SURROUNDING TERRITORY, WITH A LAYER OF PINKISH SAND ONE FOOT BENEATH THE SURFACE WITH A THICKNESS OF 18" (PULVERIZED HEMATITE). BRICK RED HUE PRESENT IN SOME AREAS.
8LA11	MOUND IN PINE WOODS NEAR DUVAL'S	UNSTRATIFIED PURE WHITE SAND WITH OCCASIONAL POCKETS OF RED SAND SURROUNDING ARTIFACTS
8LA12-15	FOUR MOUNDS IN SWAMP	
8LA24	BARTRAMS MOUND (LITTLE ORANGE MOUND)	

SITE NO.	NAME	STRATIGRAPHY (BASE TO APEX)
8LA25	OLD FORD MOUND	
8LA42	MOUND NEAR BLACKWATER	
8VO5	HITCHENS CREEK MOUND	UNSTRATIFIED, BROWN "LOAMY" SAND
8VO14-18	FOUR LOW MOUNDS NEAR VOLUSIA	UNSTRATIFIED, CONSISTING OF SURROUNDING BROWN SAND
8VO25	TICK ISLAND MOUND	BASE OF SHELL (5' 5"), PURE WHITE SAND ACROSS CENTER OF SHELL BASE RUNNING NORTH TO SOUTH (5' 8" THICK), DARK BROWN LOAMY SAND, BROWN SAND (6' 2" THICK).
8VO32	MOUND ONE MILE NORTH OF BRIDGE AT CROWS BLUFF	
8VO34	ZIEGLER MOUND	
8VO36	THURSBY MOUND	DEPOSIT OF SHELL AT BASE, DARK BROWN SAND (6" THICK), PURE WHITE SAND, SHELL LAYER, BROWN SAND (4-5" THICK), WHITE SAND (3' THICK)
8VO39	STARKS GROVE MOUND	VARIOUS STRATA INCLUDING SHELL
8VO49	FT. FLORIDA MOUND	WHITE SAND (8"), MUCK (7"), WHITE SAND (1' 11"), SHELL AND BROWN SAND (4"), WHITE SAND (1'), BLACK LOAMY SAND (2' 5")
8VO50	MOUND NEAR FT. FLORIDA	
8SE4	GINNS GROVE MOUND	BUILT UPON SHELL DEPOSIT, BASE LAYER IS PURE WHITE SAND FREE OF SHELL, BROWNISH SAND WITH SHELLS
8SE13	COOKS FERRY/KING PHILLIPS TOWN MOUND	BROWN SAND WITH MIXED SHELL THROUGHOUT, MOTTLED LAYER COMPOSED OF MIXED WHITE AND BROWN SAND RISING FROM BASE LEVEL.
8CN1	RED ANT MOUND	
8CN2	WHOOPING CRANE MOUND	
8CN3	BUZZARD MOUND	

SITE NO.	NAME	STRATIGRAPHY (BASE TO APEX)
8WR1	MOUND ON BUG-A-BOO ISLAND	
8NA3	LIGHTHOUSE MOUND	LIGHT TO YELLOW SAND AT BASE (2'), DARK SAND AND OYSTER (7"), YELLOW SAND (5' 8"), PINK SAND WITH FEW OYSTER AND WHITE SAND (1'), DARK SAND WITH OYSTER (1'), DIRTY BROWN SAND (2' 6"). CONE OF WHITE SAND IN CENTER SURMOUNTED BY MOUND STRATA
8NA9	HARRISONS MOUND	WHITE SAND (SEVERAL INCHES), YELLOWISH SAND WITH POCKETS OF WHITE SAND
8DU10	JOHNSON MOUND	"PECULIARLY" DRY LIGHT YELLOW SAND, SCATTERED CHARCOAL
8DU11	GILBERT MOUND	UNSTRATIFIED YELLOWISH SAND WITH POCKETS OF RED SAND IN ASSOCIATION OF ARTIFACTS
8DU13	MONROE MOUND	FIRE CLEARED GROUND SURFACE, PIT WAS DUG ~3' IN DEPTH, HUMAN REMAINS DEPOSITED IN THE CENTER, PIT WAS REFILLED WITH SAME SAND, MOUND BUILT ABOVE WITH MORE BURIALS
8DU14	GRANT MOUND	STRATIFICATION NOT UNIFORM: BLACK LOAMY SAND WITH SHELL AND CHARCOAL BASE, CHERRY COLOR SAND FROM HEMATITE (12-18"), IRREGULAR STRATUM OF PURE WHITE SAND (~2' MAX), RICH BROWN LOAM (2-3')
8DU15	LOW MOUND A	
8DU16	LOW MOUND B	CHARCOAL
8DU20	BROWARD MOUND	IRREGULAR LAYER OF PURE WHITE SAND WITH CHARCOAL (6-14"),YELLOWISH SAND WITH POCKETS OF WHITE SAND AND SEVERAL SEAMS OF CHERRY COLORED SAND
8DU21	HORSESHOE LANDING MOUND A	
8DU24	DENTON MOUND	YELLOW SAND AND CHARCOAL
8DU25	REDDIE POINT MOUND A	UNSTRATIFIED YELLOW SAND, CHARCOAL
8DU27	DANIELS LANDING MOUND	
8DU30	LOW MOUND A, ALICIA	
8DU31	LOW MOUND B, ALICIA	DARK LAYER WITH ABUNDANT CHARCOAL AT BASE, BROWNISH SAND INTERMINGLED WITH CHARCOAL

SITE NO.	NAME	STRATIGRAPHY (BASE TO APEX)
8DU32	FLORAL BLUFF MOUND	
8SJ27	COCO MOUND	
8DU33	ARLINGTON MOUND	YELLOW SAND WITH CHARCOAL
8DU35	LOW MOUND A, SOUTH JACKSONVILLE	
8DU36	LOW MOUND B, SOUTH JACKSONVILLE	
8DU37	POINT LA VISTA MOUND	DARK SAND ABUNDANT IN CHARCOAL (1'+) BELOW MOUND, INTERMINGLED BROWN AND WHITE SAND, CHERRY COLORED SAND FROM HEMATITE (1' AVG) .
8DU38	LOW MOUND A NEAR POINT LA VISTA	UNSTRATIFIED, YELLOWISH-BROWN SAND, CHARCOAL
8DU39	LOW MOUND B NEAR POINT LA VISTA	UNSTRATIFIED, YELLOWISH-BROWN SAND, CHARCOAL, ARTIFACTS ASSOCIATED WITH SCARLET SAND FROM IRON OXIDE
8DU40	LOW MOUND C NEAR POINT LA VISTA	UNSTRATIFIED, YELLOWISH-BROWN SAND, CHARCOAL
8DU42	MULBERRY GROVE MOUND	UNSTRATIFIED BROWN SAND WITH CHARCOAL
8DU43	LARGE MOUND AT BEAUCLERC	BRIGHT YELLOW SAND, YELLOW SAND WITH CHARCOAL
8CL3	PEORIA MOUND	UNSTRATIFIED, BROWNISH SAND, CHARCOAL, THIN IRREGULAR LAYER OF DARK SAND AND CHARCOAL 5' FROM SUMMIT
8CL6	MOUND NEAR PETERS CREEK	NONE
8DU48	MANDARIN POINT MOUND A (NORTHERNMOST)	
8DU49	MANDARIN POINT MOUND B (0.25MI EAST OF MOUND A)	
8DU50	MANDARIN POINT MOUND C (SOUTHERNMOST)	DARK SAND LAYER WITH CHARCOAL AND SHELL (1-2'), YELLOWISH SAND (1'), PINK/BRIGHT CHERRY SAND MIXED WITH HEMATITE (4')

SITE NO.	NAME	STRATIGRAPHY (BASE TO APEX)
8SJ2	SAN DIEGO MOUND	
8SJ8	DIEGO MOUND	
8SJ8	JENKS MOUND	
8SJ11	FITZPATRICK MOUND	
8SJ21	ORANGEDALE MOUND	LIGHT YELLOW SAND WITH OCCASIONAL CHARCOAL, SAND OF LIGHTER SHADE AT BASE
8SJ24	MOUND NEAR ST. AUGUSTINE ROAD	UNSTRATIFIED WITH CHARCOAL
8SJ25	RACEY POINT MOUND	BROWN SAND SCATTERED WITH CHARCOAL, BITUMEN LAYER PRESENT IN CENTER, 4' FROM SURFACE, 2'x1.5' BROAD, 3" THICK

SITE NO.	NAME	BURIALS	BURIAL TYPES	CITATION
8PU2	RICE CREEK MOUND	FEW	FRAGMENTS	MOORE 1894B: 181
8PU6	EAST PALATKA MOUND	6 TO 7		MOORE 1894B: 178
8PU9	ST. JOHNS LANDING MOUND 1	<2		MOORE 1894B: 174
8PU14	DUNNS CREEK MOUND	LAYER 4 ONLY		MOORE 1894A: 7-15
8PU16	CRESCENT CITY MOUND			
8PU20	NORTH MOUND ON MURPHY ISLAND	NUMEROUS	BUNDLED	MOORE 1894A: 15; MOORE 1895B: 63-75
8PU21	SOUTH MOUND ON MURPHY ISLAND	7	BUNDLED	MOORE 1894A: 15; MOORE 1895B: 75-76
8PU38	NORWALK LANDING MOUND	25	BUNDLED	MOORE 1894A: 15-16
8PU42	LOUIS' PLACE MOUND			
8LA3	MOUND A NEAR SILVER GLEN SPRING	0	N/A	MOORE 1894B: 176
8LA4	SILVER GLEN MOUND			MOORE 1894B: 176-177
8LA6	JUNIPER CREEK MOUND	YES	SUPERFICIAL	MOORE 1894B: 177
8LA9	MOUND A NEAR DUVALL'S (ON BLUE CREEK)	ALL UNDER THE PINK LAYER, ON OR BELOW THE BASE.		MOORE 1894A: 36-37
8LA11	MOUND IN PINE WOODS NEAR DUVAL'S	~30	BUNDLED	MOORE 1894A: 37-42
8LA12-15	FOUR MOUNDS IN SWAMP			
8LA24	BARTRAMS MOUND (LITTLE ORANGE MOUND)			

SITE NO.	NAME	BURIALS	BURIAL TYPES	CITATION
8LA25	OLD FORD MOUND			
8LA42	MOUND NEAR BLACKWATER			
8VO5	HITCHENS CREEK MOUND	YES	BUNDLED	MOORE 1894A: 35-36, MOORE 1894B: 148
8VO14-18	FOUR LOW MOUNDS NEAR VOLUSIA		BUNDLED	MOORE 1894A: 42-44
8VO25	TICK ISLAND MOUND	FREQUENT SUPERFICIAL AND IN BROWN SAND, INFREQUENT IN WHITE SAND, EXTENDING TO SHELL LAYER.	ANATOMICAL AND BUNDLED	MOORE 1894A: 48-63
8VO32	MOUND ONE MILE NORTH OF BRIDGE AT CROWS BLUFF			
8VO34	ZIEGLER MOUND			
8VO36	THURSBY MOUND		ANATOMICAL	MOORE 1894A: 64-82
8VO39	STARKS GROVE MOUND	ONE IS CAPPED BY 9" SHELL LAYER		MOORE 1894A: 82
8VO49	FT. FLORIDA MOUND	CENTER OF MOUND, DISTURBED BY PREVIOUS INVESTIGATION		MOORE 1894A: 83
8VO50	MOUND NEAR FT. FLORIDA			
8SE4	GINNS GROVE MOUND	SOME IN SHELL BELOW MOUND, SOME IN PURE WHITE SAND	MOST ALONG THE BASE ARE BUNDLED, FEW ELSEWHERE ARE ANATOMICAL	MOORE 1894A: 84-87
8SE13	COOKS FERRY/KING PHILLIPS TOWN MOUND	SUPERFICIAL AND AT BASE		MOORE 1894A: 89-90
8CN1	RED ANT MOUND			
8CN2	WHOOPING CRANE MOUND			

SITE NO.	NAME	BURIALS	BURIAL TYPES	CITATION
8CN3	BUZZARD MOUND			
8WR1	MOUND ON BUG-A-BOO ISLAND			
8NA3	LIGHTHOUSE MOUND	>74	ANATOMICAL	MOORE 1896C: 24-29
8NA9	HARRISONS MOUND	12	BUNDLED AND ANATOMICAL	MOORE 1896C: 22-23
8DU10	JOHNSON MOUND	YES	1 ANATOMICAL, REMAINING BUNDLED	MOORE 1895A: 8-9
8DU11	GILBERT MOUND	YES	BUNDLED	MOORE 1895A: 25-27
8DU13	MONROE MOUND	11	BUNCHED	MOORE 1895A: 27-29
8DU14	GRANT MOUND	>4	BUNDLED AND ANATOMICAL	MOORE 1894B: 200-204, MOORE 1895A: 30-45
8DU15	LOW MOUND A	2	BUNDLED	MOORE 1895A: 45-46
8DU16	LOW MOUND B			MOORE 1895A: 46
8DU20	BROWARD MOUND	<12	BUNDLED	MOORE 1895A: 52-53
8DU21	HORSESHOE LANDING MOUND A	4		MOORE 1895A: 51-52
8DU24	DENTON MOUND	YES	FRAGMENTS	MOORE 1895A: 57-58
8DU25	REDDIE POINT MOUND A	YES	FRAGMENTS	MOORE 1895A: 54-55
8DU27	DANIELS LANDING MOUND	YES	FRAGMENTS	MOORE 1895A: 55
8DU30	LOW MOUND A, ALICIA	YES	FRAGMENTS	MOORE 1895A: 55-56

SITE NO.	NAME	BURIALS	BURIAL TYPES	CITATION
8DU31	LOW MOUND B, ALICIA	YES	FRAGMENTS	MOORE 1895A: 56-57
8DU32	FLORAL BLUFF MOUND	YES	FRAGMENTS	MOORE 1895A: 59
8SJ27	COCO MOUND			
8DU33	ARLINGTON MOUND	YES		MOORE 1896A: 7-9
8DU35	LOW MOUND A, SOUTH JACKSONVILLE	YES	FRAGMENTS	MOORE 1896A: 9
8DU36	LOW MOUND B, SOUTH JACKSONVILLE	>1		MOORE 1896A: 9-10
8DU37	POINT LA VISTA MOUND	30-40	ANATOMICAL	MOORE 1896A: 10-11
8DU38	LOW MOUND A NEAR POINT LA VISTA	YES	FRAGMENTS	MOORE 1896A: 11-12
8DU39	LOW MOUND B NEAR POINT LA VISTA	YES	FRAGMENTS	MOORE 1896A: 12-13
8DU40	LOW MOUND C NEAR POINT LA VISTA	YES	FRAGMENTS	MOORE 1896A: 13-14
8DU42	MULBERRY GROVE MOUND	YES	ANATOMICAL	MOORE 1896A: 14-15
8DU43	LARGE MOUND AT BEAUCLERC			MOORE 1894B: 197-200
8CL3	PEORIA MOUND	<12	FRAGMENTS	MOORE 1896A: 16-17
8CL6	MOUND NEAR PETERS CREEK	YES		MOORE 1894B: 190-191
8DU48	MANDARIN POINT MOUND A (NORTHERNMOST)			MOORE 1894B: 194
8DU49	MANDARIN POINT MOUND B (0.25MI EAST OF MOUND A)	NO		MOORE 1894B: 194

SITE NO.	NAME	BURIALS	BURIAL TYPES	CITATION
8DU50	MANDARIN POINT MOUND C (SOUTHERNMOST)	YES		MOORE 1894B: 195-196
8SJ2	SAN DIEGO MOUND			
8SJ8	DIEGO MOUND			
8SJ8	JENKS MOUND			
8SJ11	FITZPATRICK MOUND			
8SJ21	ORANGEDALE MOUND	NUMEROUS	BUNDLED	MOORE 1894B: 189-190
8SJ24	MOUND NEAR ST. AUGUSTINE ROAD		BUNDLED	MOORE 1894B: 186
8SJ25	RACEY POINT MOUND	<4	BUNDLED	MOORE 1894B: 182

REFERENCES CITED

Arnold, D. E. (1985). *Ceramic theory and cultural process*. Cambridge Cambridgeshire; New York: Cambridge University Press.

Byers, A. M. (2004). *The Ohio Hopewell episode : Paradigm lost and paradigm gained* (1st ed. ed.). Akron, Ohio: University of Akron Press.

Cobb, C. R., & Drake, E. (2008). The colour of time: Head pots and temporal convergences. *Cambridge Archaeological Journal, 18*(01), 85.

DeBoer, W. R. (1997). Ceremonial centres from the Cayapas (Esmeraldas, Ecuador) to Chillicothe (Ohio, USA). *Cambridge Archaeological Journal, 7*(02), 225-253.

DeBoer, W. R. (2005). Colors for a north american past. *World Archaeology, 37*(1, Archaeology in North America), pp. 66-91.

Deetz, J. J. F. (1977). *In small things forgotten: The archaeology of early American life* (1st ed. ed.). Garden City, N.Y: Anchor Press/Doubleday.

Dixon, R. B. (1899). The color-symbolism of the cardinal points. *American Folklore Society, 12*(44), 10-16.

Gell, A. (1998). *Art and agency : An anthropological theory*. Oxford ; New York: Clarendon Press.

Goggin, J. M. (1952). *Space and time perspective in northern St. Johns archeology, Florida*. Gainesville: University Press of Florida.

Greber, N. (1997). Comments on DeBoer, warren R, ceremonial centres from the Cayapas (Esmeraldas, Ecuador) to Chillicothe (Ohio, USA). *Cambridge Archaeological Journal, 7*, 225-253.

Hudson, C. M. (1976). *The southeastern Indians.* Knoxville: University of Tennessee

Johnson, K. B., & Juniper Club History and Tradition Committee. (1993). *Juniper that's me! : The history of the juniper club: 1909-1993*.

Jones, A., & MacGregor, G. (Eds.). (2002). *Colouring the past: The significance of colour in archaeological research*. Oxford, UK; New York: Berg.

Lankford, G. E. (1993). Red and white: Some reflections on southeastern symbolism. *Southern Folklore, 50*(1), 53-80.

Miller, J. J. (1998). *An environmental history of northeast Florida.* Gainesville: University Press of Florida.

Moore, C. B. (1894a). *Certain sand mounds of the St. John's River, Florida*. Philadelphia: The Levytype company.

Moore, C. B. (1894b). *Certain sand mounds of the St. John's River, Florida*. Philadelphia: The Levytype company.

Moore, C. B. (1895b). *Two sand mounds on Murphy Island, Florida*. Philadelphia: The Levytype Co.

Moore, C. B. (1896a). *Additional mounds of Duval and of Clay counties, Florida*. Philadelphia: The Levytype Co.

Moore, C. B. (1896b). *Mound investigation on the east coast of Florida*. Philadelphia: The Levytype Co.

Moore, C. B. (1896c). *Certain Florida coast mounds north of the St. Johns River*. Philadelphia: The Levytype Co.

Owoc, M. A. (2002). Munselling the mound: The use of soil colour as metaphor in British Bronze Age funerary ritual. In G. M. Andrew Jones (Ed.), *Colouring the past: The significance of colour in archaeological research* (pp. 127-140). Oxford, UK; New York: Berg.

Plog, S. (2003). Exploring the ubiquitous through the unusual: Color symbolism in pueblo black-on-white pottery. *American Antiquity, 68*(4), pp. 665-695.

Pursell, C. C. (2004). *Geographic distribution and symbolism of colored mound architecture in the Mississippian southeast.* Unpublished M.A., Southern Illinois University Carbondale,

Rodning, C. B. (2010). Architectural symbolism and Cherokee townhouses. *Southeastern Archaeology, 29*(1), 59-79.

Roland B. Dixon. (1899). The color-symbolism of the cardinal points. *The Journal of American Folklore, 12*(44), pp. 10-16.

Sassaman, K. E., Gilmore, Z. I., & Randall, A. R. (2011). *St. Johns archaeological field school 2007-2010: Silver glen run (8LA1)* Technical Report 12. Gainesville: Laboratory of Southeastern Archaeology, Department of Anthropology, University of Florida.

Saunders, N. J. (1998). Stealers of light, traders in brilliance: Amerindian metaphysics in the mirror of conquest. *RES: Anthropology and Aesthetics, 33*(1), 225-252.

Saunders, N. J. (1999). Biographies of brilliance: Pearls, transformations of matter and being, c. AD 1492. *World Archaeology, 31*(2), 243-257.

Sherwood, S. C., & Kidder, T. R. (2011). The DaVincis of dirt: Geoarchaeological perspectives on Native American mound building in the Mississippi river basin. *Journal of Anthropological Archaeology, 30*(1), 69-87.

Spike, T. (2006). *To make graver this sin: Conceptions of purity and pollution among the Timucua of Spanish Florida.* Unpublished Ph.D., Florida State University, Tallahassee.

Taçon, P. S. C. (1999). All things bright and beautiful: The role and meaning of colour in human development. *Cambridge Archaeological Journal, 9*(1), 120.

Turner, V. W. (1967). *The forest of symbols; aspects of ndembu ritual*. Ithaca, N.Y.: Cornell University Press.