PRESENTING THE FIRST CHRONOMETRIC DATES FROM BIG MOUND CITY, FLORIDA

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The Belle Glade archaeological culture, situated within the Kissimmee-Okeechobee-Everglades (KOE) watershed, is a notably understudied cultural manifestation (Griffin 2002:140; Johnson 1991:1-3; Milanich 1994:281; Milanich and Fairbanks 1980:181). While numerous cultural resource management projects have been conducted in the region – primarily led by Robert S. Carr (Archaeological and Historical Conservancy) and the archaeologists working for the Seminole Tribe of Florida's Tribal Historic Preservation Office – the majority of our knowledge-base is drawn from two major archaeological projects and several important theses and dissertations.

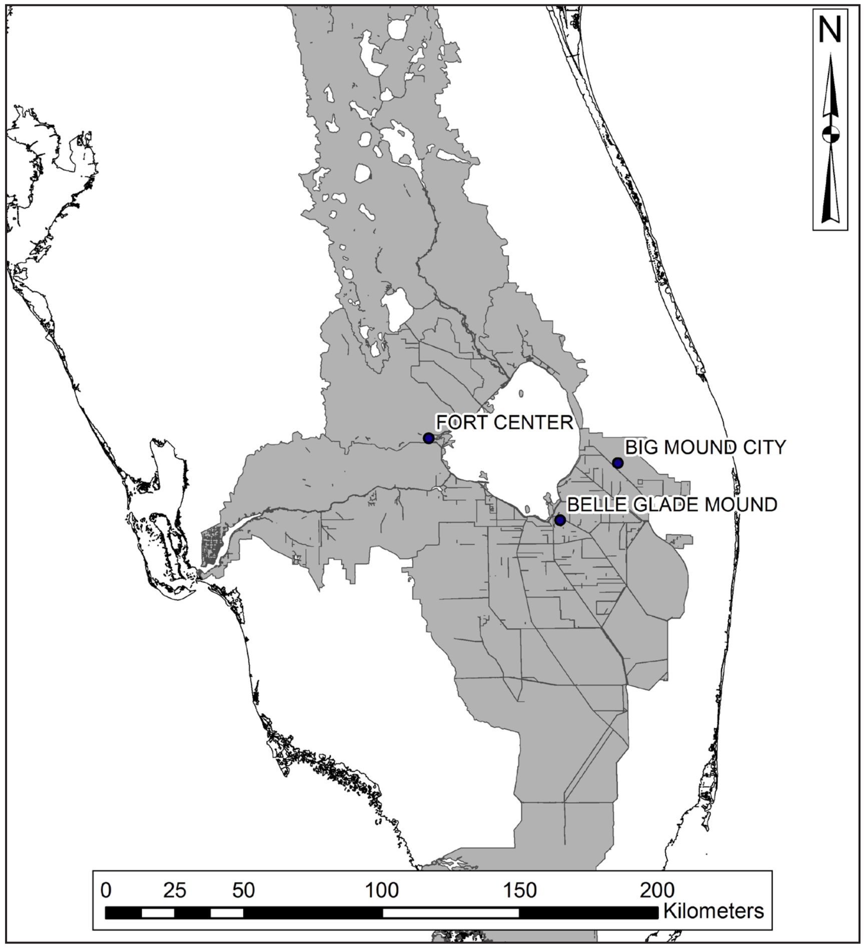

Figure 1. Map detailing the Kissimmee-Okeechobee-Everglades (KOE) watershed (shaded area) and the sites mentioned in the text.

The first is Matthew Stirling's work at the Belle Glade and Big Mound City sites during the early portion of the 1930s (Stirling 1935) (Figure 1). This work, however, was not widely available until Gordon Willey's publication of *Excavations in Southeast Florida* (1949). These detailed excavations predated the radiocarbon revolution, leading Willey to create the initial two-period cultural chronology of the region based entirely on the seriation derived from the Belle Glade site. However, the majority of the Big Mound City materials had been misplaced, which severely limited Willey's interpretation of the site and obscured his ability to definitively align this important monumental site to his Belle Glade chronology (Willey 1949:73-77).

William Sears' (1982) work at the Fort Center site during the 1960s provides the other major source of information regarding this enigmatic archaeological culture. This important work refined Willey's initial chronology with the addition of a large dataset and a series of chronometric dates. Drawing on the data he collected, Sears was able to create a four-period chronology based on a tight-knit seriation of ceramic materials, settlement patterns, the incorporation of imported materials into the cultural repertoire, and construction activities. This chronology has become the primary reference point for the regional culture history. We view this as problematic because a regional chronology extrapolated from a single archaeological site masks variation, which ultimately leads to a biased view of social and cultural change. This is troublesome because the rates of change may vary dramatically from site to site. Two things are needed to unmask the presence of variation. First, a regional, rather than site-based or microscalar, perspective is integral to achieving this goal. Second, chronometric data from multiple sites throughout the region are needed to verify Sears' chronology at the regional scale. As discussed further below, our objective is to begin evaluating this chronology from a regional perspective by collecting regional chronometric data.

It is important to note that subsequent to Sears' (1982) work at Fort Center, several archaeologists have already begun addressing the Belle Glade archaeological culture from a regional perspective. First, Steven Hale (1984,

1989) and Scott Mitchell (1996) evaluated Belle Glade subsistence patterns based on data obtained from several sites throughout the Kissimmee-Okeechobee-Everglades watershed. Second, William Johnson (1991, 1996) assessed monumental constructions throughout the region by drawing on the chronometric data from Fort Center as well as artifact associations from monumental features. Additionally, Johnson (1990, 1991) reevaluated the evidence for maize agriculture through sedimentological analysis at Fort Center, bringing Sear's (1982) interpretations into question. Sears (1982:178) hypothesized that the Great Circle Complex - a series of circular ditch features - of Fort Center functioned as a drained field agricultural system. This system required the ditch to maintain water flow to drain the interior field, which would have required periodic cleaning of the ditch itself to maintain flow and the materials removed to be used as fertilizer for the field. Johnson's (1991:62-72) analysis demonstrates that Sears was correct in noting the need for the spodosols of the interior to require fertilizer for agriculture, but his sedimentological analysis shows that the ditch was never cleaned and thus could not have maintained flow and drainage. Thompson et al.'s (2013) recent work has further brought the agricultural interpretation into question. Third, Robert Austin (1997) considered lithic use behaviors in terms of economic perspectives, showing that the Belle Glade peoples used lithic materials in very strategic ways to maximize the use of a scarce material (see also Butler and Lawres 2014). Austin (1996) also further extended the Belle Glade cultural chronology, along with its ceramic sequence, into the Kissimmee River Basin, effectively demonstrating strong enough affiliations in material culture to tie the two basins together archaeologically. While these studies have been essential for elucidating our understanding of the Belle Glade peoples by drawing on the chronological data from a single site, they have also led to a limited view of changes in culture, landscape use, and architectural construction because, with the exception of Austin (1996), they relied solely on Sears' chronometric data and extrapolated his chronology to the entire region rather than attempting to refine his chronology with new dates.

Following these important regional studies, very few archaeologists have ventured back into the Kissimmee-Okeechobee-Everglades watershed outside of the context of cultural resource management surveys. It is only in the past decade that academic archaeologists have returned to the region to re-ignite work aimed at gaining a more thorough understanding of this archaeological culture. However, with the exception of Carr et al. (1995), they too have focused on Fort Center (Austin 2015; Thompson 2015; Pluckhahn and Thompson 2012; Thompson and Pluckhahn 2012, 2014; Thompson et al. 2013). This work has contributed to shifting our understandings of Fort Center by elucidating the subtleties of cultural change, illuminating the role of political and ritual economy, and by casting further doubt on the role of maize agriculture at this important site. These fresh perspectives have been long overdue, but they have also had the concomitant effect of further establishing a regional chronology based on chronometric understandings of a single site: Fort Center. This is problematic if we have as our goal to understand a regional population in the archaeological past. This, however, has started to change, with chronometric dates from several sites in the Kissimmee River Basin becoming available (Austin 1996; Butler and Lawres 2014; Wilder et al. 2007), and with the occupational chronology of the Everglades tree island hammocks to the South being reported (Schwadron 2006, 2010). While the latter are not directly related to the Belle Glade archaeological culture, they can aid in understanding the early development and occupation of landscape features that also are present in the Belle Glade region (see also Bernhardt 2011). Yet, the Okeechobee Basin has continued to wallow in a dearth of chronometric assessment, with the only other reported chronometric data available being from themoluminescence dates on sand-tempered plain pottery with very high error ranges (Backhouse et al. 2014).

A second problem with the chronology of the region is that Sears' (1982) chronological categories place a greater amount of weight on ceramics than on other variables. Specifically, they rely heavily on the variability of frequencies in diagnostic, extra-local ceramic types and changes in Belle Glade plain wares (Griffin 2002; Johnson 1991; Milanich 1994; Sears 1982) that would be considered microvariables (*sensu* Hill 1977), such as shifts in lip shape and the thickness ratio of rims to lips (Cordell 1992, 2013; Porter 1951; Sears 1982). This makes it difficult to assess the temporal relationship of many of the smaller sites in the region, which often have miniscule ceramic assemblages, if any at all. There are, however, more visible aspects of Belle Glade culture that have been argued to have strict temporal associations.

Specifically, Johnson (1991, 1996) has proposed a chronology and typology of monumental constructions for the region. He divides the architecture of the region into four primary types, each associated with one of the Belle Glade culture-historical periods. During the Belle Glade I period, which spans cal 1000 BC – AD 200 (Johnson 1991, 1996; Thompson and Pluckhahn 2012), circular ditches emerged as the prevalent monumental construction type. Based on chronometric data from Fort Center, these were being built by 750-800 BC and possibly as early 1000 BC (Johnson 1991, 1996; Thompson and Pluckhahn 2012). The Belle Glade II period, spanning cal. AD 200 – 1000 (Johnson 1991, 1996; Thompson and Pluckhahn 2012, 2014), witnessed the emergence of the Type A circular-linear earthworks. These architectural features exhibit a midden-mound partially enclosed by a semi-circular embankment, and from that semi-circle a linear embankment, comprised of two parallel ridges, projects outwards to terminate in a conical mound surrounded on one side by a smaller semi-circular embankment (Figure 2a) (Johnson 1991, 1996). The Belle Glade III period, enduring from cal. AD 1000 – 1513, exhibits a transformation of the Type A circular-linear earthworks. What emerges is the Type B circular-linear earthwork (Figure 2b), which exhibits the same features as the Type A earthworks described above, but with additional linear embankments – comprised of both single and dual ridges – projecting outwards in a radial fashion (Johnson 1991, 1996). These radiating linear embankments terminate in

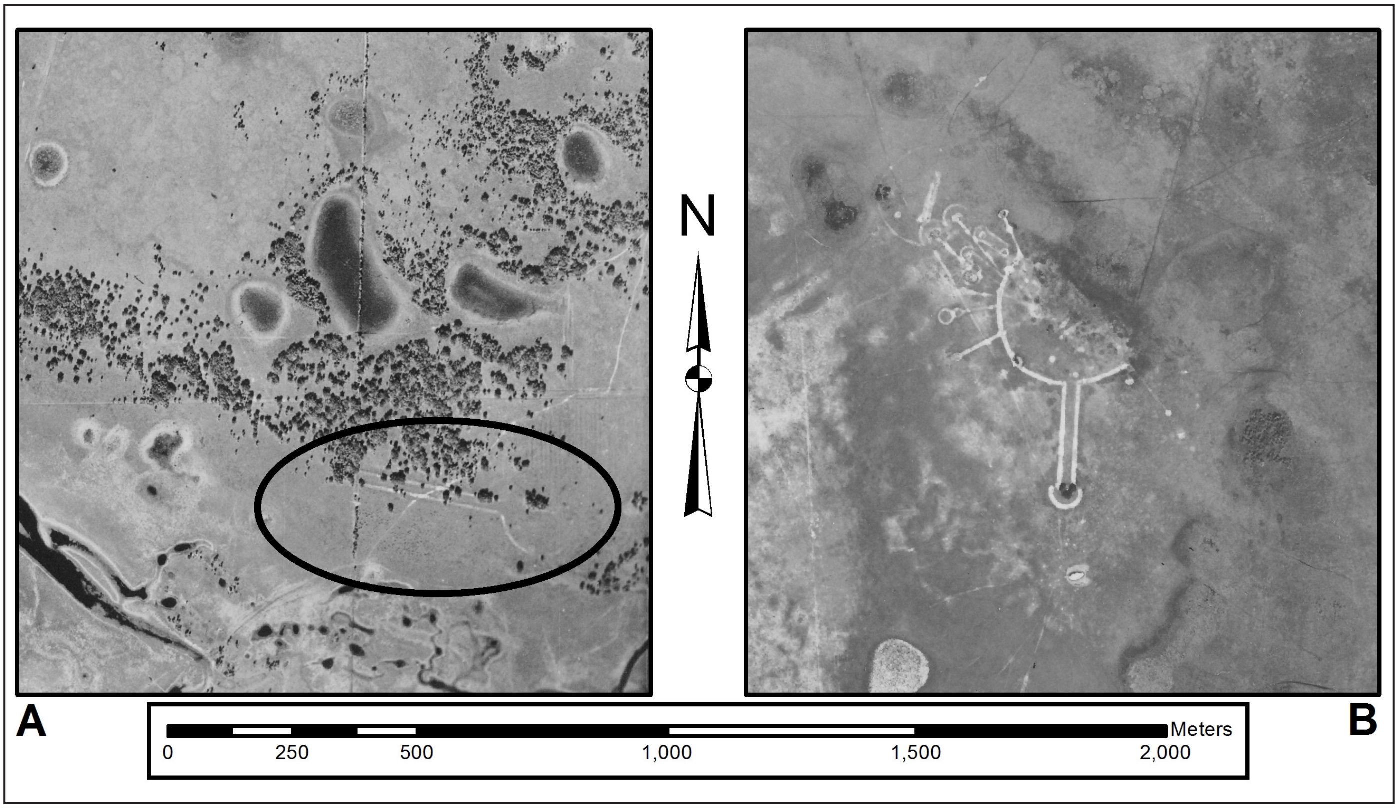

Figure 2. Type A and B circular-linear earthworks. A) Lakeport Earthworks (8GL26) (USDA 1948); B) Tony's Mound (8HN3) (USDA 1957).

conical earthen mounds (what we refer to as terminal mounds), and some of them are surrounded by additional, smaller semi-circular embankments. Johnson (1991:172, 1996:258) argues that the additional embankments were amendments of previously built Type A earthworks and were intended to accommodate growing populations. This was based on the assumption that the terminal mounds of the embankments were inhabited from the onset of construction. However, Sears' (1982:133) data refer to sixteenth and seventeenth century occupations of these features, placing occupation well after the period of construction. Further, the evidence from excavations at other Type B earthworks suggests these terminal mound features were largely sterile, with only some of the excavated features revealing very minimal deposits (i.e., less than 10 sherds) or small surface scatters (Carr et al. 1995:9-11; Carr and Steele 1994:8-10; Sears 1982:130-133, 136-137; Willey 1949:74-76). Finally, the Belle Glade IV period, restricted to the Historic Period of cal. AD 1513 – 1763 (Johnson 1991, 1996; Thompson and Pluckhahn 2012), is associated with the construction of linear embankments terminating in conical mounds but that are not attached to semi-circular embankments (Johnson 1991, 1996).

If Johnson's (1991, 1996) chronology is correct then monumental architectural features offer highly visible cultural practices that can provide an easily accessible way to provide relative dates for sites that in many cases are visible on historic aerial photographs but no longer present for archaeological investigation. However, his chronology is based entirely on the chronometric data from Fort Center. Thus, it is pertinent for us to start collecting chronometric data associated with these architectural features to help ascertain the accuracy of his construction chronology. This is especially germane because many of the monumental architectural sites have been destroyed in the wake of agricultural practices along the periphery of Lake Okeechobee.

The KORES Project

In an effort to mitigate the issues surrounding the establishment of a regional chronology based on a single site we established the Kissimmee-Okeechobee Regional Earthwork Survey, or KORES for short. Our primary objective with this project is to take a regional approach to understanding monumentality in the Kissimmee-Okeechobee-Everglades watershed by answering several primary research questions regarding the temporality of monumental practice in the region, such as: How do the monumental architectural constructions of the region relate to each other temporally? Do they conform to the temporal patterns exhibited at Fort Center? Are there any temporal disjunctures in the construction of multifaceted monumental features (i.e., Type A and Type B circular-linear earthworks) or were they constructed as a singular event? The answers to these questions, while culture-historic in nature, will provide the basis for answering broader questions of anthropological significance in the future.

Our approach to this regional survey is to be as minimally invasive as possible. As such, our methods are designed to target the acquisition of carbonaceous materials for AMS dating with little stratigraphic disturbance. To achieve this goal, we use a JMC PN425 Environmentalist's Sub-Soil Probe (ESP-Plus), which extracts 1-meter lengths of soil in a 1.2-inch diameter polyurethane sleeve. For larger features it is possible to attach additional lengths of coring tubes for depths up to four meters. Upon the extraction of each core the strata are examined in order to identify any carbon-rich deposits. When such deposits are identified a 50 x 50 cm shovel test is excavated adjacent to the core extraction point. Shovel tests are excavated in a controlled manner by working in 10 cm arbitrary levels within natural strata in order to maximize contextual control. This has the dual purpose of further exposing the stratification witnessed in the cores, identifying possible diagnostic cultural materials, and recovering carbonaceous materials from a controlled context.

The ultimate goal of this project is to create a regional database of chronometric data obtained from as many of the still-existing Belle Glade monumental architectural features as possible. In true collaborative fashion this database (www.kores-archaeology.com) will be freely available to archaeologists and researchers from other disciplines. Further, it will be available for others to add their data to it. In May 2015 we made our first foray towards achieving this goal, targeting the Big Mound City and Big Gopher Mound sites. The remainder of this report focuses in on our initial results from the Big Mound City site (8PB48).

Big Mound City

Big Mound City (Figure 3) is located on the J.W. Corbett Wildlife Management Area property in Palm Beach County. The site itself is characteristic of what Johnson (1991, 1996) labels Type B circular-linear earthworks. It contains a large, oblong midden-mound that is partially enclosed by a semi-circular embankment, from which there are multiple linear embankments projecting outwards in a radial fashion. In total there are 39 known architectural features at Big Mound City (Rochelo et al. 2015), the majority of which were first mapped by Gene Stirling in 1933-1934 as part of the Federal Relief program (Rochelo et al. 2015; Stirling 1935; Willey 1949). This includes 28 earthen mounds (including the midden-mound), the semi-circular embankment, and 10 linear embankments. All of these embankments terminate in one of the mounds listed in the above count. The largest of these embankments is what Johnson (1991, 1996) would consider part of the Type A portion of the site. This linear feature consists of two parallel embankments of ridges with an average height of approximately three meters (Willey 1949:73), giving them the status of the largest embankments in the region in terms of verticality. Of the known Type B earthworks, this is the largest, with a basal architectural footprint of 81,884 m^2 (8.18 ha).

Stirling's 1933-1934 excavations were the first at this monumental site. He targeted eleven mounds of the architectural complex for excavation. Throughout the course of excavations, it was noted that only one of these mounds included the refuse of daily activities, which was the midden-mound (Mound 4 in Stirling's map; see Figure 3) (Willey 1949:73-77). In contrast to the midden-mound, the majority of the excavated mounds were sterile or contained only a handful of pottery sherds, leading Willey (1949:76) to state that the complex was intentionally built according to a specific layout or site plan, rather than through the accumulation of daily refuse.

Unfortunately, all that is left of these excavations are the field notes of Stirling's field foreman, a Mr. Garner, and the small amount of materials recovered from Mound 9 (Willey 1949:73, 76), which has limited our understanding of Big Mound City. Further, and as mentioned above, this work was conducted prior to the radiocarbon revolution. Willey did attempt to date Big Mound City relative to his chronology of the Belle Glade site based on the remaining materials recovered from Mound 9, but he noted the inconclusiveness of his assessment (Willey 1949:77). To further supplement the problems with our understandings of the site there have been no archaeological investigations of Big Mound City, other than surface survey, since Stirling's work in the 1930s. Thus, our initial investigations at Big Mound City in May 2015 provided us with the opportunity to be the first archaeologists to put shovels in the ground here since 1934.

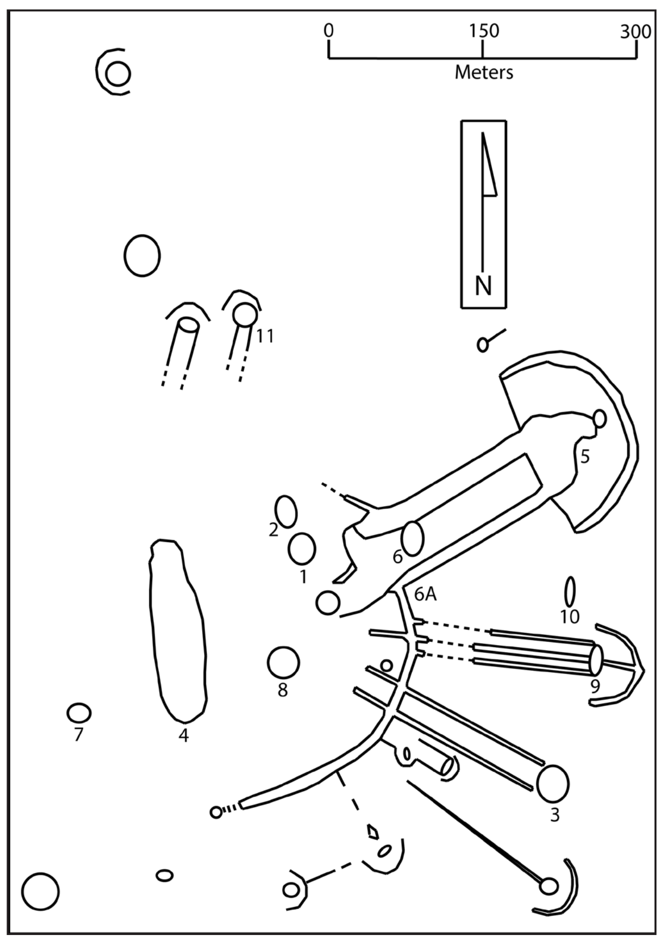

Figure 3. Stirling's map of Big Mound City (Modified from Willey 1949:74, Figure 8).

Methods

Our initial survey of the site was limited to a single day. During our limited time we focused our efforts primarily on the midden-mound, and the space within the confines of the semi-circular embankment. We extracted a total of six cores using the JMC PN425. In several cases additional sections were added to the coring tube (each a 1-meter length) to reach the base of the architectural features. The bases were identified on the basis of known elevations – derived from LiDAR data obtained from the Florida Division of Emergency Management (FDEM 2007) – and the presence of underlying peat-bearing strata matching the surrounding environs. These cores were extracted from the following contexts: midden-mound (Mound 4) summit and foot slope, the open space within the semi-circle, and the summit, shoulder, and toe slope of Mound 8 (see Figure 3).

Additionally, four 50 x 50 cm shovel tests were excavated. Each of these shovel tests was excavated adjacent to core extraction locations in order to verify stratigraphic sequences for lab analysis and to recover carbonaceous materials from more controlled contexts. The shovel tests were excavated in 10 cm arbitrary levels within natural strata, with sediments sieved through 3.18 mm (1/8-inch) hardware mesh. All recovered materials are being curated and analyzed at the University of Georgia's Center for Archaeological Sciences until completion of the project, whereupon all materials will be transferred to the Florida Bureau of Archaeological Research's facilities for final curation. Samples of carbonaceous materials were submitted to the University of Georgia's Center for Applied Isotope Studies for AMS dating.

Results

The cores and shovel tests from the midden-mound context produced a large amount of carbonaceous materials suitable for AMS dating. Specifically, the shovel test in the midden-mound summit context exhibited four strata, each with suitable materials and associated artifacts. Further, because we excavated in arbitrary levels within individual strata, we established enough vertical control to separate materials by associated depth as well as strata. This led to the selection of four stratified samples (UGAMS# 24517 – 24520) for AMS dating ranging in depth from 45 to 95 cm below surface (Table 1; Figure 4). These samples were selected because of both their stratigraphic context and their association with cultural materials. Two additional samples were selected from a sediment core extracted adjacent to the shovel test location. The samples from this core were selected from Section 3, Stratum 8 (UGAMS# 26599 – 26600) (Figure 5) in order to provide a better idea of the temporal range of occupation on the mound.

Table 1. Provenience information for samples from Shovel Test No. 3 in the midden-mound.

Field Specimen No.	Shovel Test No.	Level	Depth (cmbs)	Stratum
17	3	6	45-50	II
18	3	7	50-60	III
21	3	10	75-85	IV
22	3	11	85-95	IV

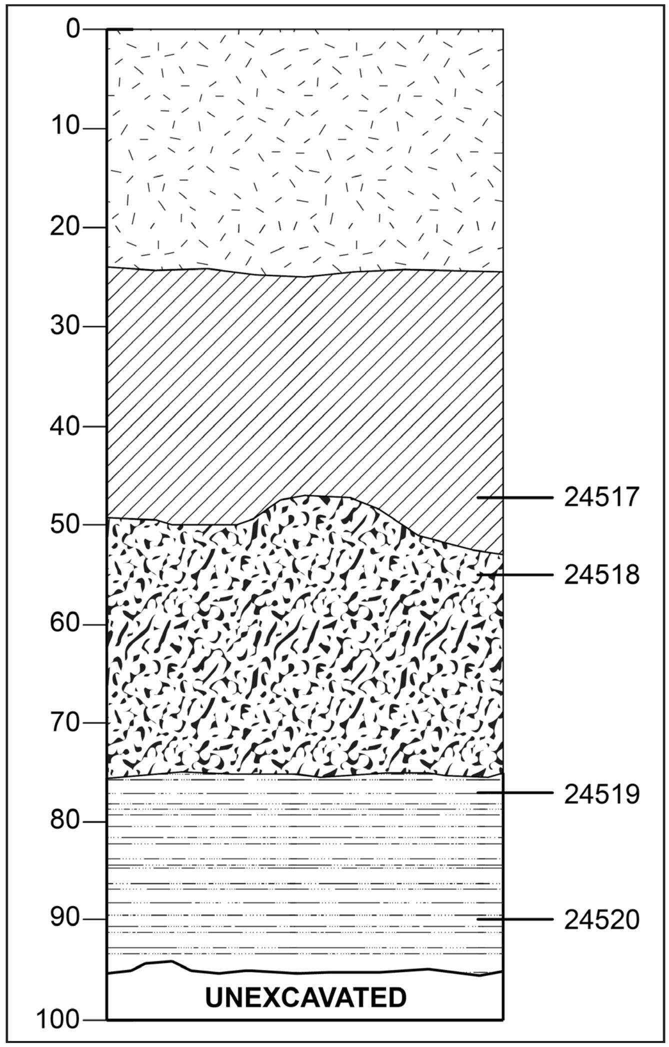

Figure 4. Stratigraphic profile of Shovel Test #3's North wall showing depths where samples were collected from.

The results of the AMS analyses (Table 2) suggest a tight chronological grouping for three of the distinct strata from the shovel test. The sample selected from Level 6 (Stratum II, 45-50 cmbs) produced an uncalibrated age of 1850 ± 25 (UGAMS# 24517, wood charcoal, ^{13}C = -26.2‰), the sample from Level 10 (Stratum IV, 75-85 cmbs) produced an age of 1880 ± 25 (UGAMS# 24519, wood charcoal, ^{13}C = -25.6‰), and the sample from Level 11 (Stratum IV, 85-95 cmbs) produced an age of 1860 ± 25 (UGAMS# 24520, wood charcoal, ^{13}C = -25.6‰). However, the sample from Level 7 (Stratum III, 50-60 cmbs) produced a much younger age of 1380 ± 25 (UGAMS#24518, wood charcoal, 13C = -26.3‰). This younger age is likely due to either bioturbation or the sample having fallen in from the wall of a shallower stratum. In either case, we view this age as a likely outlier for

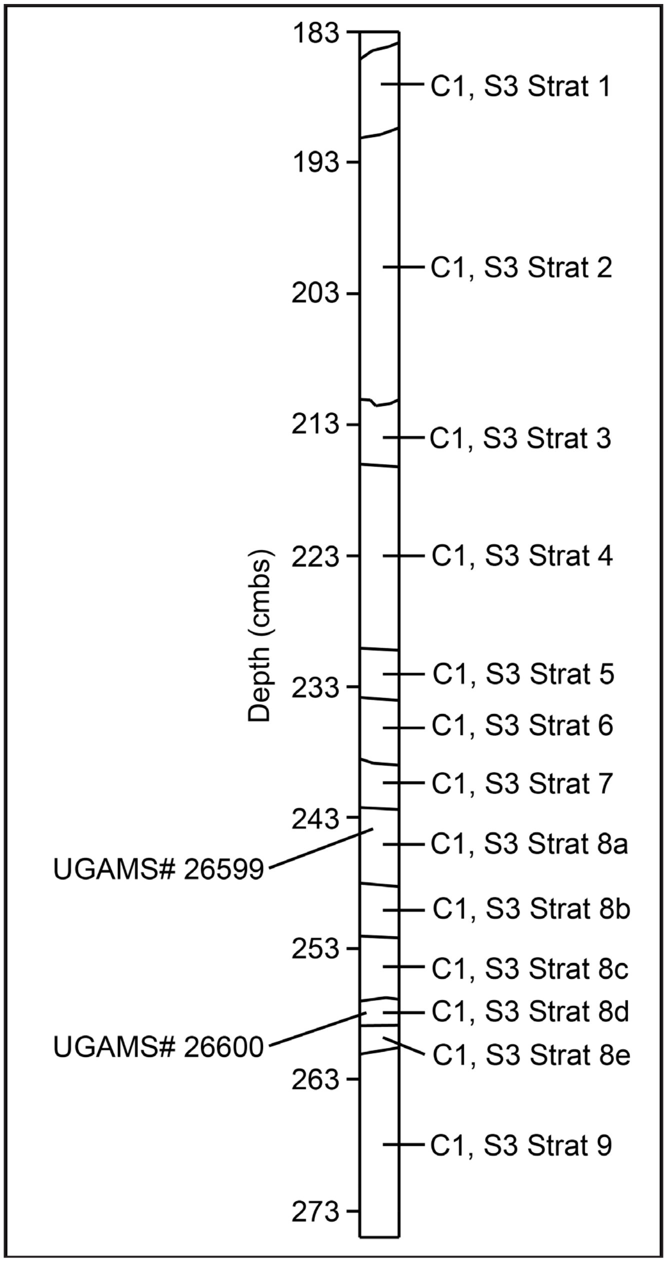

Figure 5. Stratigraphic profile of Core 1 (C1), Section 3 (S3) showing depths where samples were collected from.

the context the sample was recovered from. While this is an argument for this date as an outlier, there also is the possibility that midden deposits from other areas or even other sites, of varying ages, were redeposited during the construction of the midden-mound, such as what has recently been reported for Mound Key (Thompson et al. 2016).

The samples selected from the core contexts were from Core 1, Section 3, Stratum 8 (top and middle substrata). The sample from the top of Section 3 Stratum 8a (242.5 - 248 cmbs) produced an uncalibrated age of 2160 ± 25 (UGAMS# 26599, wood charcoal, ^{13}C = -24.8‰), while the sample from the middle of Section 3 Stratum 8d (257 - 261 cmbs) produced a much younger uncalibrated age of 1730 ± 20 (UGAMS#26600, wood charcoal, ^{13}C = -26.9‰). The latter age is likely the result of bioturbation, but it is also possible that it is the result of younger materials being forced downward during the process of driving the core into the mound. Bioturbation is the most likely process involved in this, however. In the core profile a possible krotovina (filled animal burrow) is visible in the stratum above (Section 3 Stratum 8c), and a small root is visible in the stratum below (Section 3 Stratum 8e). Because of this, this age is also considered an outlier and as invalid for its context.

These radiocarbon ages were calibrated with the OxCal v.4.2.4 (http://c14.arch.ox.ac.uk/oxcal.html; Bronk Ramsey 2001) software using the IntCal13 calibration curve (Reimer et al. 2013). The calibrated ages (Figure 6) suggest that the upper portion of the midden-mound is associated with activities ranging from cal AD 75 – 214 (1 sigma) or cal AD 70 – 235 (2 sigma) (combined calibrated ages from UGAMS# 24517, 24519, 24520; please refer to Table 2 for individual calibrated ages). Additionally, the age noted above as being the result of bioturbation (UGAMS# 24518) suggests, when calibrated, that a portion of the upper 45 cm of the midden-mound is associated with activities ranging from cal AD 641 – 665 (1 sigma) or cal AD 614 – 674 (2 sigma). The calibrated age of the top of Section 3 Stratum 8 provides an earlier age range of cal 350 – 310 BC or 209 – 170 BC (1 sigma) and cal 356 – 284 BC, 256 – 249 BC, 235 – 148 BC, or 141 – 112 BC (2 sigma).

Discussion and Concluding Remarks

These newly produced dates provide an initial basis for starting to reevaluate Johnson's (1991, 1996) chronology for Belle Glade monumental architecture. Johnson (1991, 1996) argues that the Type B earthworks became prevalent after cal. AD 1000 when populations were increasing, but he also argues that the Type B earthworks are elaborations of Type A earthworks that were initially built between cal. AD 200 – 1000. The dates we present here do not necessarily conflict with his latter argument, but simply suggest that if his argument is correct regarding the relationship between the Type A and B earthworks, then the Type A earthworks were being built earlier than he suggested.

There is a caveat to this, however. Four of the samples we collected for AMS analysis were from contexts ranging from 45 – 95 cm below the modern ground surface. This accounts for only a portion of this architectural feature, and it is a portion associated with a time frame later than the lower occupational layers ranging cal 356 – 112 BC. As such, dates obtained from samples associated with both deeper and shallower contexts of the midden-mound are necessary to evaluate the full range of temporality involved in the construction of this massive architectural feature. At this juncture in our research the possibility remains open that the beginnings of construction may be much earlier than expected. In fact, we hypothesize this is the case. Specifically, we posit that the midden-mounds themselves predate the construction of the rest of the architectural features, and that they represent important, persistent places on the landscape (*sensu* Schlanger 1992) that were inhabited for generations

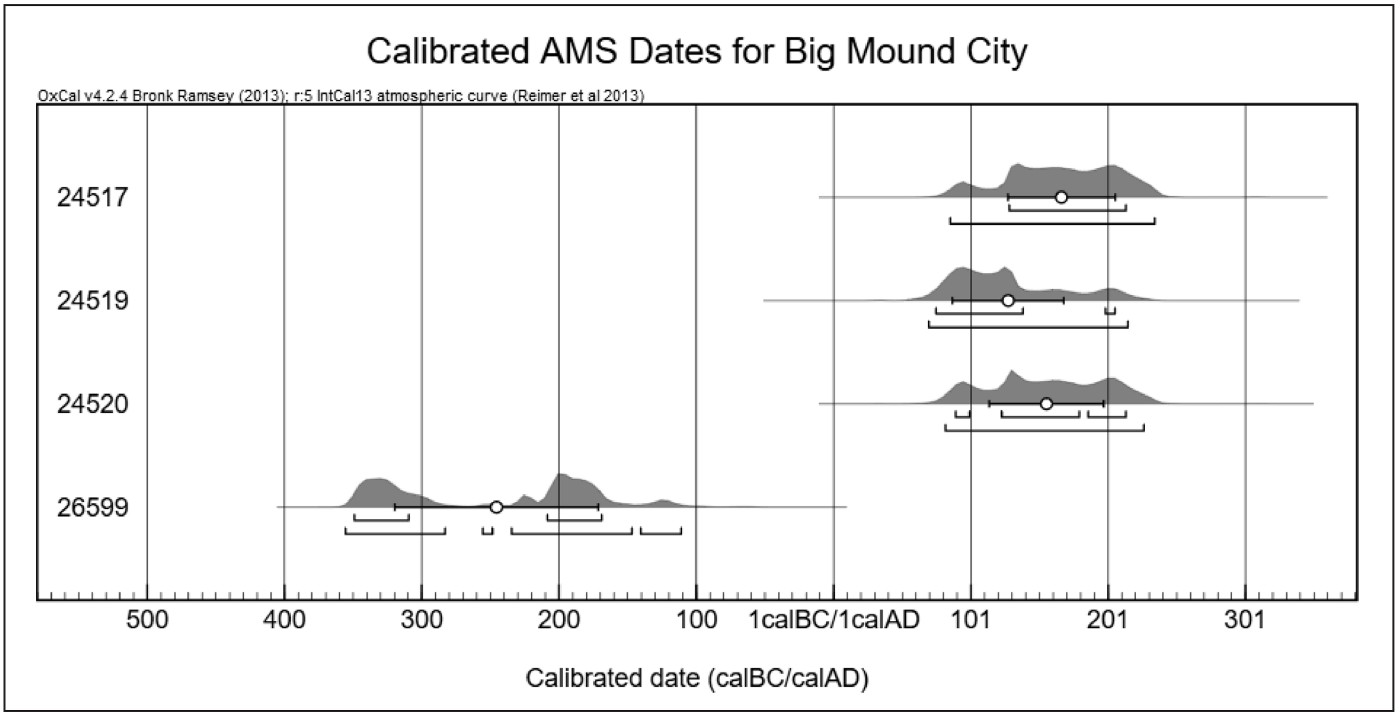

Figure 6. Calibrated AMS dates for the midden-mound at Big Mound City. The two ages resulting from bioturbation are not displayed due to the lack of confident contextual knowledge.

prior to major construction events leading to the Type A and B earthworks. This, of course, will require additional data to test, including dates for embankment construction and additional dates from midden-mounds. These lines of data will help reveal the temporality of persistence (i.e., continual occupation or seasonal occupation) and the relationship between the midden-mounds and other architectural features. Yet, to elucidate the importance of place and whether that importance preceded or followed persistence, larger-scale excavations will be needed to understand what activities were taking place on the midden-mound (i.e., ritual, daily, etc.). However, we acknowledge that monumentalization itself is a testament to the importance of place.

A second aspect worth noting is the tight temporal grouping over a 50 cm vertical spread covering multiple distinct strata. This suggests these upper individual strata observed in the course of our survey are likely associated with a single construction event or multiple events over a very short temporal spread rather than the simple accumulation of daily refuse. While we do not rule out the latter possibility, our current data are suggestive of the former. However, it should be noted that because the material composition of the mound

Table 2. AMS dates from the shovel test and core in the midden-mound.

Sample ID	Material	Provenience	14C Age	σ 13C, ‰	Calibration Method	1 Sigma Calibrated Results	2 Sigma Calibrated Results
UGAMS# 24517	charcoal	ST3 Lvl 6, 45-50 cmbs	1850 ± 25	-26.2	INTCAL13 (Reimer et al. 2013)	AD 129-214	AD 86-235
UGAMS# 24518	charcoal	ST3 Lvl 7, 50-60 cmbs	1380 ± 25	-26.3	INTCAL13 (Reimer et al. 2013)	AD 641-665	AD 614-674
UGAMS# 24519	charcoal	ST3 Lvl 10, 75-85 cmbs	1880 ± 25	-25.6	INTCAL13 (Reimer et al. 2013)	AD 75-139, AD 199-206	AD 70-215
UGAMS# 24520	charcoal	ST3 Lvl 11, 85-95 cmbs	1860 ± 25	-25.6	INTCAL13 (Reimer et al. 2013)	AD 90-100, AD 123-180, AD 186-214	AD 82-227
UGAMS# 26599	charcoal	Core 1, Section 3 (top)	2160 ± 25	-24.8	INTCAL13 (Reimer et al. 2013)	350-310 BC, 209-170 BC	356-284 BC, 256-249 BC, 235-148 BC, 141-112 BC
UGAMS# 26600	charcoal	Core 1, Section 3 (middle)	1730 ± 20	-26.9	INTCAL13 (Reimer et al. 2013)	AD 255-301, AD 316-344	AD 250-381

is primarily midden materials, the possibility also exists for an association with large-scale feasting events involving a very large population – likely regional in scale – that led to large depositional events in short succession. However, a full range of AMS dates from each stratigraphic layer are needed to evaluate the rate of deposition for each stratum. This, however, is not achievable without larger-scale excavations or a more intensive survey like the one presented here. Additionally, this only accounts for the strata sampled from the shovel test. Given that the strata sampled from the extracted core are much older than those from the shovel test it is necessary to obtain dates from the strata in between, as it is possible there are groupings of strata exhibiting similar temporal trends (i.e., multiple short-term construction events spaced out over centuries). It also is possible that early use of the midden-mound location stemmed from different construction practices, intentional or otherwise, that created an elevated space used by subsequent generations as a platform for intentional construction. At the moment, however, these are just possibilities that need to be evaluated with additional chronometric data.

The dates presented here also bring up several questions about the temporality of Belle Glade monumental construction that we hope to address as we progress with the KORES project. Some of these questions include: When were the midden-mounds first constructed and were they constructed intentionally, as the unintentional result of the residues of daily activities, or the result of many large feasting events? If the midden-mounds were intentional constructions, do they represent a single construction event or is there evidence suggestive of multiple construction events over a longer span of time? What is the temporal relationship between the midden-mounds and other architectural features of both Type A and Type B circular-linear earthworks throughout the region? As briefly mentioned above, the answers to these questions will provide the basis for addressing larger issues of interest in the future. At present, we still have a limited understanding of the Belle Glade archaeological culture and the peoples that produced it. The answers to the culture-historical questions and to the questions of the timing of architectural construction can provide the framework for addressing questions related to the labor force involved in construction (e.g., architectural energetics, *sensu* Abrams 1994) and how that labor force related to either local or regional populations. Additionally, they can help to reveal the relationships between these architectural features and environmental and climatic changes; long-term social changes; and the long-term dynamics of the Belle Glade relationship with the Calusa, which has been posited to have heterarchical beginnings before shifting towards patron/client and then hegemonic rule by the Calusa (Marquardt 2014).

These questions, and many more, can only be answered with additional field research and the collection of more data. As we progress with the KORES project, we will undoubtedly be collecting more carbonaceous materials for AMS analyses, but we also look to expand into additional methods of producing chronometric data. Optically stimulated luminescence dating (OSL), while not completely devoid of negative results (see Pluckhahn et al. 2015), has great potential to add to this chronometric database and has seen fruitful use in other areas of the Southeast (Bush 2008; Bush and Feathers 2003; Feathers 1997). This method has the strongest potential for revealing the initial construction event because it can provide an age range for the original ground surface beneath the architecture. Thus, for architectural features devoid of carbonaceous materials this alternative method can provide very useful data.

Nevertheless, this single foray into the uncharted territory of the temporality of Belle Glade monumentality gives us hope that the KORES project will provide a longstanding contribution to not only our knowledge-base of this enigmatic archaeological culture, but to the discipline of anthropological archaeology as a whole. However, we have a long way to go if we are to achieve the database needed to establish a truly regional chronology in lieu of the current microscalar chronology.

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