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A Secondary Burial from the Rolling Hills Subdivision in Starkville, Mississippi: Osteological and Archaeological Interpretations

S. Humes Hogue, April Boyd, and Jodi Jacobson

Construction of a new subdivision, known as Rolling Hills, located in the northern section of Starkville, Mississippi led to the discovery of a concentration of archaeological sites in the early 1970s. In 1983 a secondary mass burial was recovered from the area by Mississippi State University archaeologists. Analysis of the excavated skeletal remains provided a radiocarbon date ranging from around AD 1650 to 1675 for the site. Osteological investigations indicated the presence of at least eight individuals, including five males, one female, one adult of indeterminate sex, and one subadult. The frequencies of certain skeletal diseases were similar to those observed in maize agriculturalists from archaeological sites generally identified as low-density settlements. Evidence for increased maize dependency of the inhabitants was determined using carbon isotope analysis of bone collagen. It is suggested that the individuals present in the 1983 mass secondary burial represent a migration into the area by a new cultural group.

Introduction

The Rolling Hills archaeological locality is identified as a concentration of sites located in the northern quadrant of Starkville, Mississippi in Oktibbeha County. The sites were discovered in the 1970s during the construction of a new Starkville subdivision designated as Rolling Hills. Atkinson’s 1979 publication provides a description of the material culture represented at Rolling Hills and interpretations of cultural affinity. European artifacts were found in association with several aboriginal features, leading Atkinson to depict a historic occupation of the area (Atkinson 1979). According to historical records the Chuchuma may have occupied the general locality at least from 1697 but beginning no later than 1718 (Adair 1968; Atkinson 1979:69).

Construction of the Rolling Hills subdivision led to the disturbance of numerous primary and secondary burials. Using human skeletal remains present at the Cobb Institute of Archaeology, available field notes, one publication, and discussions with archaeologists, an inventory of the excavated burials was compiled (Table 1). During the 1970s and 1980s at least 45 individuals were discovered in the Rolling Hills vicinity. These individuals were represented in six mass secondary burials, six primary
burials, and three urn burials. Of the burials recorded, approximately 40 individuals were removed and housed at the Cobb Institute of Archaeology, Mississippi State University. No definite patterns in the placement and proximity of these burials to each other are evident at this time. European trade goods were found in three mass secondary burials (Atkinson 1979) and one primary burial, indicating a historic association. Two hourglass-shaped columella beads are associated with the 1976 Mass Burial excavated by Adams and Hawkins. Three urn burials, two farmstead burials, and a mass burial salvaged in 1983 contained no grave goods. No additional information was available for the remaining burials, although two may be the primary burials referenced by Atkinson (1979:64) that contained no grave goods. The absence of European trade goods with the latter burials may indicate their affiliation with an earlier prehistoric or protohistoric occupation of the area.

Since the recovery of the burials from the Rolling Hills area, no attempt has been made to study the skeletal series systematically or to address questions related to chronology, demographic and health patterns, or diet. An important first step in this study is to determine the chronological

<table>
<thead>
<tr>
<th>Year Excavated</th>
<th>Number of Individuals</th>
<th>Burial Type</th>
<th>Archaeologist/Excavator</th>
<th>Grave Goods</th>
<th>Radiocarbon Date</th>
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<tbody>
<tr>
<td>1974</td>
<td>2</td>
<td>Primary</td>
<td>Walls</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>1</td>
<td>Primary</td>
<td>Atkinson?</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Urn</td>
<td>Atkinson</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3?</td>
<td>Mass</td>
<td>Atkinson</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>2</td>
<td>Primary?</td>
<td>Blakeman</td>
<td>None</td>
<td>1640/1660</td>
</tr>
<tr>
<td></td>
<td>4?</td>
<td>Mass</td>
<td>Adams/Atkinson</td>
<td>Shell Beads</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Primary</td>
<td>Atkinson</td>
<td>European</td>
<td></td>
</tr>
<tr>
<td>1983</td>
<td>6?</td>
<td>Mass</td>
<td>Wynn</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Urn</td>
<td>Contractors</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Mass</td>
<td>Rafferty/O’Hear</td>
<td>None</td>
<td>1655/1670</td>
</tr>
</tbody>
</table>

*Hogue and Reed 1995.

relationships among the burials. Are the three recognized burial patterns contemporaneous or do they reflect culture change? Do burials recovered with European trade goods represent later contact period burials, as Atkinson suggests (Atkinson 1979), or do they reflect different social status within the community? Osteological investigations can provide additional information about burial patterns. What are the age and sex parameters of the individuals present in the burials? Are burial patterns associated with a particular sex and/or age group? Finally, questions related to diet can be addressed using stable isotope analysis of human bone to detect the relative contribution of maize. Do individuals associated with certain burial types vary with regard to maize dependency? If so, are differences due to status, settlement type, or both? This research attempts to address these preliminary questions, beginning with the analysis of the mass secondary burial recovered in 1983 by archaeologists at Mississippi State University. Since the burial was not given a site number, it will be referred to here as the 1983 Mass Burial. The date of the burial was determined using radiocarbon analysis of two human bone samples. Osteological analysis revealed information on the number of individuals present, the age of the individuals at death, the sex of adults, and the presence of bone pathologies. Finally, the question of diet was assessed using stable isotope ratios of $^{13}C$ in bone collagen.

For comparative purposes, information on two farmstead settlements excavated in the area will be included. These are 22-Oak-534, a Middle to Late Mississippian farmstead excavated in 1975 (Hogue and Peacock in press), and 22-Oak-595, a farmstead located in the Rolling Hills area that dates to around AD 1650 (Hogue and Reed n.d.).

**Site Description**

The excavation of the mass burial was completed in April 1983 by Janet Rafferty and John O’Hear. The feature was observed as an oblong or rectangular pit containing numerous human skeletal remains (Figure 1). The southern half of the burial had been disturbed by bulldozing and local children, who, in their desire to collect human teeth, had fractured and displaced the bones. Four skulls, numbers five through eight, were identified in this area and excavated as individual units. The postcranial remains were then exhumed as a single element, since the determination of which skeletal elements belonged with each skull was impossible (Rafferty, pers. comm.).

The remaining half of the feature was less disturbed and contained four discernable bundle burials, labeled one through four, each removed as a separate unit. Each “bundle” consisted of long bones stacked parallel to one another with the skull placed at one end. The burials were oriented
along the east-west axis, with a pattern of skull placement either in the east or west (Figure 1).

No grave goods were recovered from the burial. The fill, however, contained several fossil shell tempered sherds and fewer of the sand tempered variety (Rafferty, pers. comm.). Fossil shell tempered pottery has been associated with later occupations in the Starkville area and elsewhere in northeast Mississippi (Lolley 1992; Peacock 1995). Since portions of the burial pit had been disturbed, it is uncertain whether the sherds were part of the original burial fill or the result of mixture with dirt from the surrounding area (Rafferty, pers. comm.).

Chronology

Since no undisturbed diagnostic artifacts were present in the burial to provide information on age, two samples of human bone from two different individuals were submitted to BetaAnalytic, Inc. for radiocarbon dating. The intercept of radiocarbon age with calibration curve was AD 1655 for the first sample (Beta-77866; 210 +/- 70 BP) and AD 1670 for the second (Beta-77865; 250 +/- 60 BP). The range of overlap for the two dates using one sigma is AD 1650–1675.

The late date for the 1983 Mass Burial places it well within the time period associated with European contact. Atkinson (1979) proposes that historical data definitely place a group known as the Chakchiuma in the general area of Starkville by 1697 (Atkinson 1979:69). Whether the individuals present in this mass burial represent an earlier occupation of this group in the area, or habitation by some other group, remains to be investigated.

Osteological Investigations

Osteological investigations included the determination of the minimum number of individuals present in the mass burial, whether the individuals were adults or subadults, the age of the individuals at death, the sex of the adults, and pathology data. The overall preservation of the skeletal remains varied from extremely poor (bone is fragmented and/or periosteal bone highly eroded) to excellent (bone element is complete). Many long bones were in fair to good condition, and in many cases reconstruction was possible. The majority of the information in this study was gathered from the analysis of the long bones.

The first step in the analysis of the skeletal remains from the 1983 Mass Burial was to determine the minimum number of individuals present in the feature. This was accomplished by a detailed inventory of each bone, the proportion preserved, and the side if applicable (see Ubelaker 1974 for description of the method). Bone elements were included when at least one-half of the bone (preferably more) was preserved. In general larger,
Table 2. Minimum number of adult individuals from 1983 Rolling Hills site.

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<tr>
<th>Bone Element</th>
<th>Right</th>
<th>Left</th>
<th>Single</th>
<th>Total MNI</th>
<th>% Ind. Represented</th>
<th>% Ind. Absent</th>
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</thead>
<tbody>
<tr>
<td>Femur</td>
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<td>6</td>
<td>6</td>
<td>6</td>
<td>100</td>
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<td>6</td>
<td>6</td>
<td>6</td>
<td>100</td>
<td>0</td>
</tr>
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<td>6</td>
<td>6</td>
<td>6</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
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<td>6</td>
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<td>Max C</td>
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<td>67</td>
<td>33</td>
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<td>2</td>
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Table 2 continued.

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<th>Bone Element</th>
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<th>Total MNI</th>
<th>% Ind. Represented</th>
<th>% Ind. Absent</th>
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<td>1</td>
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<td>0</td>
<td>1</td>
<td>17</td>
<td>83</td>
</tr>
</tbody>
</table>

more dense bones, such as long bones and dentition, were better preserved.

Determination of the minimum number of individuals was completed separately for adult and subadult bone elements. At least six adults (Table 2) are represented in the burial sample represented by numerous bone elements, specifically dense long bones (femur, humerus, and proximal ulna), and dentition (mandibular first and second molars, maxillary first molars, and maxillary first premolars). As expected, hand and foot bone elements, along with smaller dentition such as mandibular incisors, were either missing or minimally represented by one occurrence. Secondary burials, such as the bundle burial pattern observed at this site, are by nature subject to differential bone representation and preservation.
Table 3. Minimum number of subadults from the 1983 Rolling Hills site.

<table>
<thead>
<tr>
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<th>Left</th>
<th>Single</th>
<th>MNI</th>
</tr>
</thead>
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<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>Max P2</td>
<td>0</td>
<td>1</td>
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<td>Frontal</td>
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Smaller, less dense bone elements are more likely to be lost during the general decomposition process and subsequent recovery and final interment of the individuals. Additional loss of skeletal remains due to site destruction, as was present in this case, and due to archaeological recovery must also be considered as factors influencing bone representation.

The above procedure provides the most accurate account of the minimum number of adults, but a second approach was also used to estimate the number of adults represented by the skeletal remains. This approach is based on the degree of sexual dimorphism present within a population. In no human society has the average female height exceeded that for males, although the degree of sexual dimorphism does vary (Gray and Wolfe 1980:455). By comparing right and left femurs by size, sex, and general morphology, it appears that seven adults may be present in the skeletal series. The disturbed area contained four male adults, all with both femurs represented. Two adults, one male represented by a left femur and one individual of unknown sex represented by both the right and left femurs, are associated with the area of Skulls 1 and 2. The seventh adult, a female, was represented by a right femur recovered from the section labeled Skull 3.

The skeletal remains associated with Skull 4 belonged to a subadult (Table 3). This individual was identified by deciduous and developing permanent dentition, tibias, right femur, and fragmented frontal and parietal bones. With the addition of the subadult, it is estimated that at least eight individuals were present in the pit.

**Male or Female?**

Due to the poor preservation of cranial and innominate remains, sex determination was based on metrical analysis of the femurs and humeri. Black's (1978) method for determining the sex using the femur midshaft circumference indicated that at least five males and one female were present in the sample. In general, the sizes of femurs found to be male using Black's procedure are larger and more robust than the one female. Additional measurements on the postcranial remains provided supportive evidence for the assessment of sex. These measurements included the diameter of the femur and humerus heads (Bass 1987:151, 219), diaphyseal measurements of the humerus (Bass 1987:153–154), and the circumference of the tibial nutrient foramen (Bass 1987:238).

**Age**

Age determination was difficult given the fragmented and disturbed nature of most of the remains. At least seven of the individuals were adults. Comparing the molar attrition with individuals aged from Mississippian sites (Hogue and Erwin 1993; Powell 1991), the ages range from 25 to over 40. Four of the individuals were between 25 and 40, while two were over 40 years old at the time of death. The individuals identified as Skulls 1, 2, and 5 were aged between 25 and 40. Using dentition from the disturbed area, two of the individuals were aged over forty, while one was aged from 25 to 40. Unfortunately, no dental remains were recovered with Skull 3 to help age the one possible female present in the burial. The one subadult could be aged more accurately using dental calcification and eruption (Ubelaker 1989). The age of death for this individual is estimated to be 8 ± 2 years.

**Pathology Data**

Studies indicate that certain skeletal pathologies may be associated with specific subsistence strategies on a regional basis. For example, in Alabama, Georgia, and the Lower and Central Mississippi Valley, researchers have demonstrated that hunter-gatherer groups had higher frequencies of degenerative disease when compared to prehistoric agricultural populations (Armelagos and Hill 1990; Hill 1987; Larsen 1984; Rose et al. 1984). For other areas, the frequency of degenerative diseases increased with the transition to maize agriculture (Goodman et al. 1984). A similarly inconsistent pattern is seen in the episodes of traumatic injuries and the adoption of agriculture. In Alabama, traumatic injuries decrease in frequency (Armelagos and Hill 1990; Hill 1987; Powell 1983), while in many areas of the Eastern Woodlands traumatic injuries appear...
more often in agricultural societies (Goodman et al. 1984; Cassidy 1984; Perzigian et al. 1984). Generally in the Southeast, however, the percentage of populations affected by dental caries, infectious diseases, and anemia-related diseases rises with the onset of maize agriculture (Allison 1984; Armelagos and Hill 1990; Buikstra 1984; Cook 1984; Eisenberg 1991; Goodman et al. 1980; Goodman et al. 1984; Hill 1981; Hogue and Erwin 1993; Martin et al. 1984; Powell 1985, 1988, 1991; Rose et al. 1984). Comparisons of the disease frequencies observed in Early and Middle Mississippian skeletal series recovered from nearby sites in Mississippi and Alabama indicate an increase in the frequency of degenerative and anemia-related diseases, with a decrease in the frequency of trauma-related pathologies (Hogue and Peacock in press).

Due to the late date for the 1983 Mass Burial skeletal series, coupled with a subsistence pattern based on maize agriculture (see below), it was predicted that degenerative, infectious, anemia-related, and dental diseases would be seen in greater frequencies than traumatic injuries. Each bone element recovered was observed for the presence of non-specific diseases (osteomyelitis and periostitis), anemia-related diseases (porotic hyperostosis and cribra orbitalia), degenerative diseases (osteoarthritis and osteoporosis), traumas (breaks, cuts, and crushing injuries), and dental pathologies (caries, calculus, periodontal disease). Unfortunately, the exact number of individuals in the skeletal series who were affected by a disease cannot be determined since one half of the bundle burials were disturbed. In order to quantify the results of this analysis, the total number of bone elements affected by a pathology was used to calculate the percentage of each disease group represented (Figure 2).

Information obtained from skeletal remains other than dentition will be discussed first. Four instances of non-specific disease were recorded. Two femurs and one humerus recovered from the disturbed area of the site all displayed mild cases of periostitis (27% of total non-dental pathologies). The size of these skeletal elements suggests that they belong to the same adult male. One case of osteomyelitis was recorded on the third proximal digit of a right foot (9%). This bone element was also recovered from the disturbed area. Degenerative disease was the most common pathology observed in the non-dental skeletal remains (54%). Six instances of degenerative lipping were noted. Five of these instances occurred on foot bones as stage 1 or mild lipping. A right humerus from the disturbed area exhibited stage 3 or moderate lipping on the trochlea. Luxation or the dislocation of the elbow joint could have caused this condition, but given the lack of additional evidence from articulating skeletal elements, this condition will be treated as degenerative in nature. A possible healed fracture was present on a left ulna recovered from disturbed context (9%). No evidence of anemia-related diseases was observed in the skeletal series. Researchers have suggested that anemia-related diseases may be a direct result of increased population density of maize agriculturalists rather than of the diet itself (Buikstra 1992; Cook 1984; Hogue and Peacock in press; Sims et al. 1992). As expected, degenerative and infectious diseases were observed frequently on bone elements, while traumatic injuries were observed only once.

Dental caries were identified on 19% (22/113) of the adult teeth and on three deciduous teeth of the subadult. Mild calculus deposits (recorded as isolated occurrences) were present on 84% (95/113) of the permanent dentition (Figure 3). Two preserved right maxilla fragments showed evidence for mild periodontal disease where the distance between the alveolar bone and cemento-enamel junction measured one to three millimeters. As mentioned earlier, higher frequencies of dental caries, calculus deposits, and periodontal disease are usually associated with maize agriculture (Hogue and Erwin 1993; Larsen 1983; Powell 1983, 1991; Rose et al. 1991), so the inordinate presence of these dental pathologies in the skeletal series was anticipated.

The small population sample studied here limits interpretations of the pathology data. For now, the only pattern observed here is that the
frequency of pathologies observed in the skeletal series is similar to Mississippian populations known to occupy low density settlements such as farmsteads.

**Diet**

Stable isotope analysis of $^{13}$C/$^{12}$C ratios in bone collagen indicates the presence of certain plant components in the diet. Carbon isotopes discriminate between two terrestrial plant classes known as C3 and C4 plants. C3 plants include temperate grasses such as wheat and rice, in addition to nuts, fruits, and root crops. Tropical grasses including maize, chenopodium, amaranth, sugarcane, and sorghum are classified as C4 plants (Ambrose 1987:94-95). Extracted from collagen, $^{13}$C values for human bone should range from -21.5 to -7.5 parts per million ($^\circ$/oo) (Chisolm 1989:34). Studies have shown that $^{13}$C values of human collagen from preagricultural groups fall below -19 $^\circ$/oo while values above -19 $^\circ$/oo indicate a diet that includes C4 plants such as maize. Diets that contain more C4 plants will be reflected in less negative $^{13}$C values in human collagen. For example, a $-10$ $^\circ$/oo value indicates more C4 plants in the diet than a value of $-12$ $^\circ$/oo (Buikstra 1992; Buikstra and Milner 1991; Lynott et al. 1986; Rose et al. 1991).

There are several complicating factors related to using $^{13}$C values in reconstructing the diet. Marine resources are $^{13}$C enriched and can elevate $^{13}$C values in human collagen (Chisholm 1989; Price 1989; Schoeninger 1989; Schoeninger et al. 1990). However, the relative contribution of marine resources in the diet can be established through the investigation of nitrogen isotope ratios in conjunction with carbon isotope analysis (Price 1989; Schoeninger et al. 1990). For the 1983 Mass Burial, the inland location of Rolling Hills area presumably negates the effects of marine resources on the carbon levels in the diet. Since it is unlikely that this population migrated into the area following an extended coastal habitation, nitrogen isotope analyses were not considered necessary for this study. A second complicating factor affecting $^{13}$C values is the consumption of some herbivores, especially bison. The estimated $^{13}$C value for bison bone is -13.2 $^\circ$/oo, a level that could elevate carbon ratios in humans (Schoeninger 1989). Schoeninger (1989) suggests that unusually high $^{13}$C values in the prehistoric Pecos Pueblo population in New Mexico could have resulted from a more localized use of bison over deer (10% of the total calories) in addition to a diet still relatively dependent on maize (80% of the total calories) (Schoeninger 1989:56-57). Bison bones have been recovered from archaeological sites in Mississippi, but they represent a relatively small proportion, 2.4 to 18.2% by weight, of the total faunal assemblage (Johnson et al. 1994:170). Due to the small frequency in the faunal assemblage it is unlikely that bison consumption in Mississippi would have contributed enough to the diet to alter $^{13}$C values significantly. The only important C4 plant recovered from archaeological sites south of Tennessee is maize (Rafferty 1994:421). Therefore, in Mississippi, C4 species of amaranth and chenopod would not have affected $^{13}$C levels found in human collagen. Since it is improbable that the aboriginal populations used in this study consumed a diet high in marine resources, bison meat, amaranth, and/or chenopod, it is presumed that the $^{13}$C values calculated for the skeletal samples are the direct consequence of maize consumption.

The results of the carbon isotope analysis of the 1983 Mass Burial demonstrates that maize was a very important dietary component. Two samples of postcranial bone were submitted for testing. One sample associated with Skulls 1 and 2, probably a male, measured $-12.2$ $^\circ$/oo and the other, identified with Skulls 3 and 4, a female, measured $-10.4$ $^\circ$/oo for $^{13}$C values. The $^{13}$C values obtained from the two samples compare favorably with values associated with intensive maize horticulture and high levels of maize dependency observed in village and ceremonial sites located in the Southeast (Buikstra 1992; Lynott et al. 1986:61).

Comparing $^{13}$C values among sites located in Oktibbeha County, Mississippi, yielded interesting results. Data from two farmstead sites, 22-Ok-534 and 22-Ok-595, were compared with the 1983 Mass Burial results (Figure 4). 22-Ok-534 has a radiocarbon date of AD 1390/1410, placing it at the Middle Mississippian/Late Mississippian transition (Hogue and Peacock in press). The $^{13}$C values, ranging from $-13.8$ $^\circ$/oo to $-16.5$ $^\circ$/oo, led Hogue and Peacock to conclude that the inhabitants of
this farmstead enjoyed a rather diverse diet not dependent on maize. A similar pattern was found by Hogue and Reed for 22-Ok-595, a farmstead dating between AD 1640 and 1660, a burial from which yielded a $\delta^{13}C$ value of $-15.4^{0/00}$ (Hogue and Reed n.d.).

The percentage of dietary carbon originating from C4 plants was computed for the three sites using the following formula devised by Schwarcz et al.:

$$\text{PC4} = \frac{(\delta_c - \delta_3 + \Delta_{dc}) \times 100}{\delta_4 - \delta_3}$$

where PC4 is the percentage of the C4 plants in the diet, $\delta_c$ and $\delta_4$ are the assumed values for the isotopic compositions of the C3 and C4 plants ($C3 = -26^{0/00}$; $C4 = -9^{0/00}$), $\delta_3$ is the measured $\delta^{13}C$ value, and $\Delta_{dc}$ is a carbon index of $-5^{0/00}$ (Schwarcz et al. 1985:189 and 195). For the two farmstead sites, approximately 34% of the carbon in the diet was due to C4 plants. A considerable increase in maize dependency is apparent in the 1983 Mass Burial, where 58% of dietary carbon originated in C4 plants (Figure 5). One possible explanation for the differences in the presence of C4 plants in the diets is that the farmstead, with fewer occupants, continued to rely more heavily on natural food resources through time. In contrast, habitation areas with larger or denser populations, possibly represented here by the 1983 Mass Burial, may have relied more on cultigens for the bulk of their diet. The association of increased maize dependency with sedentary villages and major ceremonial centers has been demonstrated elsewhere in the Southeast (Buikstra 1992; Lynott et al. 1986; Schwarcz et al. 1985).

Summary and Conclusions

Several observations can be made based on the results of this study. Radiocarbon dates obtained for the 1983 Mass Burial provide a date of occupation ranging from AD 1655 to 1770. This date precedes the 1697 to 1718 date established for the possible settlement of the Chakchiuma in the area. Comparison with the radiocarbon dates established for 22-Ok-595, a farmstead located in the area, supports the notion that the farmstead settlement is possibly earlier. However, it is equally feasible that the two sites coexisted, given the range and overlap of their radiocarbon dates.

No definite pattern of placement in the burial by age or sex was observed. Five of the seven adults were male and one was female. Only one subadult, aged 8 ± 2 years, was present. The presence of one subadult and absence of infants may indicate differential burial treatment for members of these age groups, an idea proposed by Atkinson (1979). The high frequency of males relative to females raises some interesting questions. Are more males dying due to new environmental stresses related to European contact, such as increased exposure to disease and/or warfare? Does this mass secondary burial reflect the differential placement of certain members of a family or kin group? For example in his description
of the Chocaw burial practice, Adair notes "and there they deposit their kinsman's bones to lie alongside of his kindred-bones" (Adair 1968:183).

Carbon isotope analysis of δ¹³C values obtained from the mass burial point to a more focal use of maize in the diet. When δ¹³C values from the mass burial are compared to values obtained from a nearby farmstead from the same time period, 22-Ok-595, the differences indicate that the farmstead inhabitants were not as dependent on maize as the individuals represented in the 1983 Mass Burial.

Johnson and others proposed that the farmstead habitation of the upland regions during the protohistoric period in northeast Mississippi was due to a renewed emphasis on deer hunting. The possible introduction of bison into the Black Prairie region of Mississippi may have provided an additional incentive for settlement in the area for the purpose of hunting. (Johnson and Sparks 1986; Johnson et al. 1994:175). If the model presented by Johnson and others were applied here, it is expected that the δ¹³C values would be more negative for the later Rolling Hills sample, a pattern not observed. The data presented here support the interpretation that the inhabitants continued to rely on maize, at least from AD 1400 (Middle/Late Mississippian transition) to AD 1650 (protohistoric/historic period).

The importance of integrating stable isotope analysis in reconstructing subsistence strategies and their influence on settlement patterns, especially when C₄ plants are involved, cannot be emphasized enough. As mentioned earlier, increased maize dependency is most often associated with sedentary villages (Buikstra 1992; Lynott et al. 1986; Schvarcz et al. 1985). One way to explain the difference in isotope values between the farmstead burials and the Mass Burial is to examine the different kinds of settlements they may have come from. Atkinson describes the Rolling Hills occupation as a dispersed settlement characterized by houses scattered predominantly on ridges, although he also suggests the possibility of "compact" village occupations, especially on the "broader, generally flat hilltops that occasionally occur" (1979:62). Historical references to the Chakchua describe them as living in village settlements (Atkinson 1979:67–68). Although there is no evidence for secondary burial practices by the Chakchua, ethnohistorical references to the Chocaw (Adair 1968; Halbert 1900; Johnson, Yearous, and Ross-Stallings 1994; Romans 1961) and other groups that engaged in secondary burial practices (Griffing 1904; Lawson 1967; Thwaites 1896–1901; White 1959) describe them as occupying villages. Using ethnohistorical references, it appears that the presence of a secondary Mass Burial may be indicative of village settlement.

Integrating the pathology data with the stable isotope analysis provides somewhat conflicting results. The absence of anemia-related dis-

Eases in the skeletal sample suggests low population density. The differing degree of maize dependency identified using carbon isotope analysis between the farmstead site, 22-Ok-595, and the Mass Burial supports the notion that the latter may be associated with a "village settlement." Using the data presented in this study, one possible scenario is that the Rolling Hills area was occupied by scattered farmsteads until around AD 1650, when a larger population moved into the area and settled in small compact villages, bringing with them a subsistence pattern considerably more dependent on maize agriculture and a different system for the disposal of their dead. Until research on the skeletal series recovered from Rolling Hills is completed, little more can be said about the occupation of the Rolling Hills area. Hopefully, additional archaeological research can be integrated into this research agenda to provide more conclusive answers to many of the questions raised in this study.

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Collections

1983 Mass Burial materials are stored at the Cobb Institute of Archaeology Curation Laboratory at Mississippi State University, Mississippi State, MS.

S. Homes Hogue is an assistant professor of anthropology at Mississippi State University. April Boyd and Jodi Jacobson are students at Mississippi State University.

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Fort Maurepas and Vieux Biloxi: Search and Research

John H. Blitz, C. Baxter Mann, and Ray L. Bellande

One hundred years of sporadic historical and archaeological efforts to confirm the exact location of Fort Maurepas (1699–1702) and Vieux Biloxi (1719–1721) are reviewed. New archival, cartographic, and artifact evidence concerning the locations of these two important French colonial settlements is presented. Previous identifications of 22-Ja-534 as the site of Vieux Biloxi are strengthened, but the location of the Fort Maurepas site remains unknown.

Where were Fort Maurepas and Vieux Biloxi located?

In the founding of the first settlement in Mississippi and one of the first on the Gulf of Mexico, the building of the fort around which it grew is a matter of much interest, especially since the site is today to Mississippi what Jamestown is to Virginia and Plymouth Rock is to Massachusetts (Rowland 1925:149).

This report presents an overview of the historical and archaeological research on two important French colonial sites in Mississippi: Fort Maurepas (1699–1702), initial capital of the French Louisiana Colony, or “Louisiane,” the first European colony in Mississippi; and Vieux Biloxi (1719–1721), capital of French Louisiana for a brief period. We are concerned here with synthesizing archival, cartographic, and archaeological information relevant to documenting the location of these two important sites. These sources provide conflicting evidence as to whether the remains of Fort Maurepas and Vieux Biloxi occupy the same or different sites. The search for these early French settlements has been pursued for almost 100 years. Despite these past efforts, however, Fort Maurepas and Vieux Biloxi have not received the sustained archaeological attention that they merit. For as the initial seeds of a Franco-American legacy in the Gulf South, these tiny settlements generated an enduring cultural heritage which sustained the empire that founded Mobile, New Orleans, and Natchez.

While the general location of the two settlements, within the present city limits of Ocean Springs, Jackson County, is established historically, the precise location and extent of Fort Maurepas and Vieux Biloxi have not been confirmed archaeologically. Toward this end, archival research, interviews, limited archaeological survey, and collections research were conducted in 1992.
Because access restrictions at the probable site of Fort Maurepas—Vieux Biloxi constrain archaeological investigations for the foreseeable future, analysis of extant (but previously undocumented) artifact collections was an important focus of our efforts. Artifacts in the possession of Mrs. D. L. Connor, Mrs. Bobbie Davidson Smith, and Mr. J. K. Lemon were recorded and photographed. Artifact collections from the Fort Point locale, presently housed at the Tullis—Toledano Manor in Biloxi, were recorded and photographed courtesy of Mr. Edmond Boudreaux.

Most important of all, the Poitevent Collection at Tulane University, New Orleans, was analyzed, recorded, and photographed courtesy of Dr. T. R. Kidder. This collection is a portion of materials assembled by Schuyler Poitevent (d. 1936) over many years from the Fort Point area in Ocean Springs. Artifacts were numbered and cataloged by Poitevent, and he cross-referenced the artifacts with record books and maps of find-spots. Early eighteenth-century French ceramics, buttons, metal tools, tiles, bricks, and other small artifacts were recorded by Poitevent. In short, the artifact collections provide a well-documented source of new information on the Fort Maurepas—Vieux Biloxi occupation.

Various sources of evidence, reviewed below, unequivocally establish the precise location of Vieux Biloxi, but the site of Fort Maurepas remains uncertain. Two competing Ocean Springs locations for the site of Fort Maurepas exist: the Vieux Biloxi—Lover’s Lane locale, located along Lover’s Lane on Fort Point peninsula (22-Ja-534); and the Stone Marker locale (no state site number), situated southeast of Plummer’s Point along Beach Drive. We will refer to the competing arguments for locating Fort Maurepas at these two places as the Vieux Biloxi—Lover’s Lane hypothesis and the Stone Marker hypothesis (Figure 1).

**Historical sketch**

Because the chronicle of France’s adventures in establishing her short-lived empire of Louisiane is so readily accessible and well-told elsewhere (Giraud 1974; Higginbotham 1968, 1977; McWilliams 1981), it is inappropriate for us to attempt a narrative history here. But for those unfamiliar with the saga, the briefest summary of the circumstances surrounding the founding of the first French settlements is in order. Drawing from the sources mentioned above, the essential facts are these.

On April 8, 1699, an expeditionary force of French soldiers, sailors, and laborers, together with their French Canadian cohorts, commenced construction of Fort Maurepas and initiated an era (1699–1763) in which the French controlled the mid-continent from the Great Lakes to Mobile Bay. These adventurers were led by a French Canadian, Pierre LeMoine d'Iberville (1661–1706). Iberville’s mission was to locate the mouth of the Mississippi River and establish a French presence on the Gulf of Mexico.
coast to discourage Spanish and English incursions into the area claimed by France. Some French strategists feared that if the English gained control of the great river’s mouth, France’s holdings and commercial enterprises, including participation in the lucrative North American fur trade, were doomed.

A small fort was built on the east side of Biloxi Bay within the present day limits of Ocean Springs, Mississippi. Iberville designated this French colonial outpost Fort Maurepas, named to honor the French Minister of the Marine, Jérôme Phélypeaux de Maurepas, Comte de Pontchartrain. The Fort Maurepas settlement came to be called Biloxi after the local Siouan-speaking people who inhabited the area.

Fort Maurepas was designed by Rémy Reno (Anonymous 1699), Iberville’s draftsman, utilizing the system of military fortification developed by Sébastien Le Prestre de Vauban (1633–1707) (Figure 2). Iberville’s men utilized available materials for the fort’s construction, which upon completion covered an area of one-half acre. Bastions, palisades, living quarters, warehouses, and other structures were fabricated from indigenous trees (oak, hickory, and pine). Fort Maurepas was armed with at least twelve cannon (possibly eight-pounders) taken from the French frigates La Bédine and Le Marin.

When Iberville departed for France in May 1699, he left a garrison of seventy-six men and ten officers. They were given cows, hogs, a bull, seed (peas, corn, and beans), and ship’s stores on which to survive until his anticipated return in 1700. The crops planted failed due to a severe drought, but the garrison was resupplied from the French base at St. Domingue (Haiti). Monsieur Sauvole was left in command, with Jean Baptiste LeMoyne de Bienville (1680–1768), younger brother of Iberville, second in command.

Under Commandant Sauvole, the French continued good relations with the local Indians in the vicinity of Fort Maurepas, exchanging European goods for food and animal skins. Conditions at Fort Maurepas, however, were generally miserable due to insects, snakes, disease (especially yellow fever), and the paucity of drinking water. Morale was low as the Canadians, long accustomed to trapping and voyaging, refused to farm.

By 1701, Iberville decided to move the garrison to a site on the Mobile River at Twenty-Seven Mile Bluff. This settlement, called La Mobile (Fort Louis de la Louisiane) after the local Indians, was established in the spring of 1702. Locating there allowed the French to be nearer the Spanish settlement at Pensacola. France and Spain had recently become allied and had initiated a conflict with England, Queen Anne’s War (1702–1713).

Fort Maurepas was abandoned in the early months of 1702. It is generally believed that the structure was burned or dismantled to prevent
reuse by an enemy of France. The French returned their capital to the area of the “Old Fort” in 1719. This reestablished settlement was known as Vieux Biloxi (Old Biloxi), which flourished briefly (1719–1721) while a post was established at Nouveau Biloxi (New Biloxi) in 1720. Still later, the French colonial capital was moved to New Orleans in 1723.

Overview of Previous Research on French Colonial Sites in the Ocean Springs Area

_Antiquarians, Archivists, and Archaeologists_  

In the United States, historical interest in French colonial Louisiane accelerated in the latter nineteenth century with publication and translation into English of original journals and documents from the early days of colonization (French 1869; Gayarré 1885). Nevertheless, at the turn of the twentieth century, most of the educated public erroneously believed that the site of Iberville’s colony—the first European settlement in the state of Mississippi—was at the city of Biloxi.

In 1896, Schuyler Poitevent, a young resident of Ocean Springs, read a report to the Louisiana Historical Society in which he argued that the first French settlement was in Ocean Springs. He argued from the genealogy of the natives of this area; from the relics which he unearthed on his own property on Lover’s Lane and the Bay; from the discovery of sunken remains of several small armed craft; and finally he cited three old maps which indicate the exact location (Schmidt 1957).

An eighteenth-century shipwreck, located just offshore of the Vieux Biloxi–Lover’s Lane locale in Biloxi Bay, further stimulated interest in the French colonial history of the area. In the summer of 1892, an oysterman, Eugene Tiblier, Jr. (1866–1936) was rowing a skiff across Biloxi Bay. When he was in six feet of water, one-quarter mile southwest of the Sheldon Estate (now Conamore) on Fort Point peninsula, Tiblier observed the outline of a sunken vessel below him. Excitedly, young Tiblier related the discovery to his father, Eugene Tiblier, Sr. With Captain Joseph Suarez of the schooner _Maggie_, they located the shipwreck and salvaged many French colonial artifacts from the derelict (Daily Picayune 1892; Daily Herald 1936b).

Some of the materials recovered from the shipwreck were reported in the Scranton (now Pascagoula) _Democrat Star_ as follows:

A great amount of stones and boulders, foreign to this section, have been taken out, which evidently was part of the ballast of the vessel. Also some fire brick, much different from that now used, as it is about 13/8 inches thick, 8 inches long and 4 inches wide.

A great number of iron braces have been taken out about 12 feet long, 2 inches wide and inch thick. Every part of the wood shows that the putting together was done by wooden pins and where a bolt was used in iron work, it was of copper.

A rather singular find is a quantity of gunpowder in chunks, and which retains its particular smell to this late date.

A bung stopper of one of the water casks, made of several thicknesses of wooden cloth, is also a curiosity. The scabbard of an officer’s sword retains enough of its original form to show its former use. Muskets apparently capable of cutting an ounce ball with very old fashion locks, the nipple and the vent perfect, and many other curios are being taken out daily (cited in Hines 1991:23–24).

Many cannon, cannonballs, and cut glass were also recovered from the Tiblier shipwreck. Rowland (1925:207) illustrates some of the cannon, several of which can be seen today in a concrete monument located in front of the Santa Maria del Mar retirement building on U.S. 90 in Biloxi (WPA 1949:291). The whereabouts of the other Tiblier artifacts are unknown, but it is generally believed by members of the Tiblier family that they were given away to people in the community as gifts. Hudson (1973) citing La Harpe as a source, suggests that this wreck is the French store ship lost near Old Biloxi in the hurricane of 1722. Certain characteristics of the cannon suggest a manufacture date prior to 1700 (Hudson 1973:3). The WPA Guide to the Mississippi Gulf Coast (1949:291) mentions a second, smaller wreck 40 feet astern of the larger ship.

From the late 1880s until his death in 1936, Schuyler Poitevent amassed an extensive collection of artifacts from his own and surrounding properties at the Vieux Biloxi–Lover’s Lane locale (22-Ja-534). Poitevent (n.d., 1933) produced several unpublished manuscripts that document his finds. These manuscripts are now at the Mississippi Department of Archives and History (MDAH). Poitevent kept three “relic lists,” books in which he cataloged his numbered artifacts and noted the location of find-spots. He even keyed his finds to specific areas identified in a sketch map. His valuable records and artifact discoveries are of major importance in documenting the location of Vieux Biloxi and Fort Maurepas.

In 1905, Dunbar Rowland, for many years head of MDAH and the most prominent historian in the State of Mississippi, announced to the press that he had located “to his own satisfaction, the Old Fort Maurepas” in Ocean Springs (_Biloxi Herald_ 1905). This description is not specific as to location, nor does Rowland’s _History of Mississippi_ (1925) specify the fort’s location, but a 1929 letter from Rowland to Poitevent leaves no doubt that Rowland had been persuaded by Poitevent to accept the Vieux Biloxi–Lover’s Lane locale (22-Ja-534) as the site of Fort Maurepas (Rowland 1929).

Poitevent’s artifact discoveries also influenced other historians, such as Peter J. Hamilton (1976:45 [original 1910]): “On that bluff behind the
Louisville and Nashville railroad bridge Mr. Portevent [sic], under his beautiful oaks, commanding so peaceful a prospect over the water, still digs up hatchets, cannon-balls, and even iron shoes of tent or flag poles. 

But before long, additional artifact finds were to complicate matters. In 1909, Robert Rupp, a caretaker of the W. D. Schmidt estate in Ocean Springs, found a piece of marble bearing the following inscription:

\[ \text{COLONIE}^2 \\
\text{FRANCOISES} \\
1699 \\
\text{Pe. L" MOYNE} \\
\text{S:\ de-LbVle} \\
\text{L.P.} \quad \text{P.L.} \]

This stone marker is a rough rectangle, about nine inches by eleven or twelve inches and about two inches thick (Figure 3). Also found in association with the inscribed stone were several bricks.

Captain Fredrick Schrieber, Rupp’s son-in-law, kept the stone until 1937, when it came to the attention of James Fortier, curator of the Cabildo in New Orleans. That same year Fortier transported the stone marker to the Louisiana State Museum in New Orleans, where it has resided ever since, much to the consternation of many older residents of Ocean Springs, who continue to regard the state of Louisiana’s acquisition of the stone as an act of larceny. A summary of these events concluded that “the Colonization Plaque, or cornerstone of Fort Maurepas” had marked the location of Fort Maurepas (Caraway 1951:104).

Although the placement of marker stones was an established practice by the eighteenth-century French, recent scholars have been more skeptical about the stone’s authenticity, observing that the stone inscription matches French coins of the era, a possible source for forgery (Moran 1989). Even if genuine, the portable nature of such an object does not permit one to conclude that the find-spot was the original place of deposition or that this is the Fort Maurepas location (Higginbotham 1968:76).

Poitevent, familiar with the circumstances of the find, was convinced that the stone was a genuine French artifact but that it did not mark the site of Fort Maurepas. Instead he interpreted the stone as a commemorative marker placed at the site of a French battery established at the time of the first colony (Poitevent n.d.). However, majority public opinion in Ocean Springs continues to regard the Stone Marker locale as the site of Fort Maurepas. The city erected a monument at the find-spot in 1952. Local interest in Fort Maurepas increased in 1967, when Colonel Rudolf Fink and J. K. Lemon began collecting maps and charts from the Bibliothèque Nationale in Paris. This activity kindled enthusiasm for uncovering the remains of Fort Maurepas.

In 1968 Jay Higginbotham published Fort Maurepas, The Birth of Louisiana, certainly the most detailed and readable account of the first years of the Louisiana colony. Higginbotham included an appendix in which he outlined the available evidence for the precise location of Fort Maurepas. Higginbotham (1968:74-80) favored the Vieux Biloxi–Lover’s Lane hypothesis, in support for which he marshalled the following observations:

1. the artifact discoveries at Poitevent’s property;
2. the Jousset map (discussed below);
3. the Vieux Biloxi–Lover’s Lane locale affords protection and strategic location while the stone marker locale does not;
4. distance from the deep-water channel accessible to the French ships and land is much less at the Vieux Biloxi–Lover’s Lane locale than at the Stone Marker locale;
5. Penicaud described the fort as being “at the head of the bay”;
(6) the eyewitness description of the fort's physical setting left by Iberville and Sauvole are consistent with the Vieux Biloxi–Lover's Lane locale;
(7) the Minutes of the Council of Commerce of Louisiana in 1719 and 1720 chronicle the reestablishment of the Louisiana capital at "the old fort of Biloxi" (discussed below);
(8) Le Blond de la Tour's map of 1722, showing Vieux Biloxi at or close to Poitevent's property (discussed below), and finally;
(9) the present names of Fort Point and Old Fort Bayou coincide with the Vieux Biloxi–Lover's Lane locale.

All of Higginbotham’s points of argument are strong except for number 6. The eyewitness accounts present vague descriptions of a high place close to water with low places, ravines, or marshes immediately around it. Examination of the map “U.S. Coast Survey Map of the Harbor and Back Bay of Biloxi, Topographic Survey of May and June 1851,” drawn prior to modern land-filling and alteration of the coastline, reveals that either suspected locale matches such general descriptions. All told, Higginbotham presents a persuasive argument in favor of the Vieux Biloxi–Lover’s Lane hypothesis. Higginbotham (1968:89) provides a map on which he correlates Vieux Biloxi with the Lover’s Lane locale and on which he places the Fort Maurepas site at the Poitevent property. Although aware of Poitevent’s artifact discoveries, Higginbotham did not emphasize archaeological evidence. But soon the focus on Fort Maurepas was to shift from archival to archaeological efforts.

In March 1971, a group of Ocean Springs citizens organized the “1699 Historical Committee” to promote an interest in Ocean Springs history. The 1699 Historical Committee is responsible for the annual Iberville Landing Commemoration (April), seeks to have the Fort Maurepas marker returned from the Cabildo, and was instrumental in the Fort Maurepas replication project. In 1973, the 1699 Historical Committee, State Representative Marby R. Penton, and Mississippi Secretary of State Heber Ladner saw their years of work come to fruition when the Mississippi Legislature passed House Bill No. 1361, which appropriated a large sum of money to acquire land for a Fort Maurepas historical site, provided that the site was entered in the National Register of Historic Places.

Thus stimulated, archaeologists from the MDAH conducted a survey and excavation project to find the location of Fort Maurepas. Efforts were concentrated just south of the shaded area labeled the Vieux Biloxi–Lover’s Lane locale in Figure 1. Much of the area is designated 22-Ja-534 in the state site files, although site boundaries are undefined. Limited excavations uncovered some eighteenth-century artifacts, but no definite structural remains of the fort were found.

The MDAH report (1973) concluded:

it was recognized that there was a strong possibility of the fort site having eroded into the bay. On the basis of the evidence examined to date, this seems to be the most likely possibility. Several factors contribute to this conclusion. Long time residents of the area tell of up to seventy feet of shoreline being eroded within approximately that many years. There was formerly an oyster shell road along the beach which vanished many years ago. Perhaps the strongest suggestion of the erosion theory is the absence of the prominence of land on which Old Biloxi was apparently built. As stated before, this area does not appear on any coast maps as far back as 1855 and since it is depicted on three different maps, it must have existed. If Old Biloxi or substantial parts thereof eroded away, it seems entirely possible that so did the remains of Fort Maurepas. The fact that the French artifacts found on the Connor property seem to cluster near the bay is suggestive that perhaps most of the French settlement is in the bay and that excavations moved from the east westward to what was perhaps the rear of the fort. The possibility cannot yet be ruled out that the fort site is on the land, however, since it could be buried under some unexcavated portion of the area. Permission was sought for excavation of the nine lots along the stretch of beach front where the maps seemed to indicate the fort location...Five of the nine landowners did not grant permission for excavation.

The fact that few French artifacts were found (brick, gun flints, faience sherds) also suggested to others that the fort site had not been located (Hudson 1973). The French artifacts, observes Elliott (1989a:19), “could conceivably have come from either the fort or from Vieux Biloxi.” Nevertheless, the MDAH project clearly identified a French colonial presence on Fort Point peninsula. An easily accessible summary of this work is found in Connaway (1981).

The northernmost private holdings identified by MDAH as high probability areas (Lemon, Taquino, and Poitevent properties) were not tested by the archaeological team. Unfortunately, this is precisely the area where both Poitevent and Higginbotham argued that Vieux Biloxi and Fort Maurepas were located (Figure 1, shaded area). That same year, a preliminary magnetometer survey to locate historic shipwrecks in Biloxi Bay proved inconclusive (Hudson 1973). Denied permission to examine the high-probability areas of the Vieux Biloxi–Lover’s Lane locale (22-Ja-534), archaeological efforts stalled. Regardless, local fort enthusiasts advanced their plans to construct a replica of Fort Maurepas in Ocean Springs.

**Politicians and Palisades**

The Gulf Regional Planning Commission (1973) released a study of the costs to acquire land and build an historically-accurate Fort Maurepas replica. By 1975, Fort Maurepas enthusiasts saw the Mississippi Legislature apportion $250,000 to the State Building Commission for a site to be administered by the MDAH on Beach Drive in Ocean Springs. With this
money, two tracts of land were purchased in February and March of 1976 by the State of Mississippi.

In 1979, the State Legislature appropriated $350,000 for the construction of the Fort Maurepas replica. The first phase of construction was completed in August or September of 1981. The replica fort was now located on neither the Vieux Biloxi-Lover’s Lane locale nor the Stone Marker locale. In 1991, the State of Mississippi transferred the title of replica Fort Maurepas to the City of Ocean Springs. As of 1994, construction of the replica fort remained unfinished.

In 1987, a newspaper article reported the discovery of a hewn timber near the Vieux Biloxi-Lover’s Lane locale by members of the South Mississippi Archaeological Research Group (SMARG), a local group of artifact collectors. The article described the timber as “about 20 feet long, 18 inches wide and 11 inches thick. It is handmade of cypress and has four heart-of-pine pegs. Today only one peg can be seen coming out of the timber” (Ruddiman 1987). MDAH historical archaeologist Jack Elliott (1989b) concluded that while the artifact appeared similar to a palisade timber of the colonial era, it was not possible to determine if the timber was an original part of Fort Maurepas because the find-spot was never revealed in the newspaper article. The newspaper article also claimed that SMARG members have

spent years carefully digging in an area...described as the peninsula north of the old Biloxi-Ocean Springs Bridge. So far they have tentatively identified four structures that were in a second settlement which dated 1717–1719. The group has many colonial artifacts they uncovered in the area... (Ruddiman 1987).

Because SMARG members have failed to publish documentation in support of such claims, we are forced to treat the claims as anecdotal.

Old Maps and Cannonballs

If we wish to locate where a historic-era settlement is (or was), we look at maps. But such a seemingly straightforward exercise is decidedly more complicated when examining old maps that inaccurately depict physical features, replicate secondhand references, or intentionally misrepresent landmarks to serve hidden agendas. What follows is a highly-selective scanning of easily-accessible maps and documents relevant to the question: where were Fort Maurepas and Vieux Biloxi located?

The specific location of Vieux Biloxi (1719–1721) is not in doubt. The maps of Le Blond de la Tour (1721, 1722) delineate the shore of Biloxi Bay with sufficient accuracy to remove all ambiguity. On these maps, the Vieux Biloxi colony occupies the Lover’s Lane locale, on Fort Point peninsula north of Plummer’s Point and the present railway line. All those who have seriously examined the issue unanimously agree that the Vieux Biloxi...
settlement was here (Poitevent n.d.; Higginbotham 1968:75; MDAH 1973; Elliott 1989a, b). Le Blond de La Tour’s (1721) map renders the physiographic setting of Vieux Biloxi in great detail, labels various buildings (the map’s legend is translated in Higginbotham 1968), and provides a scale (Figure 4). Comparison of Le Blond de La Tour’s map with a modern topographic map of the Lover’s Lane locale reveals that both maps depict a flat high peninsula of land oriented north-south and bounded by low, wet areas to the north, east, and south. Careful comparison of Le Blond de La Tour’s (1721) map with the modern topography by Bellande (1993) indicates that some filling of wet areas has taken place through the decades, but the scale provided by Le Blond de La Tour makes it clear that the Lover’s Lane locale matches the Le Blond de La Tour map quite well. Le Blond de La Tour’s (1722) map also shows Vieux Biloxi well above Plummer’s Point in the Lover’s Lane locale on Fort Point peninsula (Figure 5).

With no basis—archaeological, cartographic, or archival—to doubt that the Lover’s Lane locale is Vieux Biloxi, the question then becomes, “was Old Biloxi built on the site of Fort Maurepas?” (Higginbotham 1968:75). Primary written documentation that the site of Fort Maurepas and Vieux Biloxi are one and the same is contained in several statements recorded in the Minutes of the Council of Commerce of Louisiana, convening at Dauphin Island to discuss the movement of the French colony’s capital to Vieux Biloxi: “the Council...has decided that warehouses should be built immediately at the old fort of Biloxi...” (Rowland and Sanders 1932:265). The “old fort of Biloxi” mentioned several times is, of course, Fort Maurepas.

In short, there is nothing in the primary documents to suggest that Vieux Biloxi was located anywhere other than “immediately” at the site of the 1699–1702 fort. When we turn to the cartographic evidence for the location of Fort Maurepas, however, contradictions arise. The earliest maps are in agreement with the archival evidence and support the Vieux Biloxi—Lover’s Lane hypothesis. The oldest known map showing the site of Fort Maurepas is one drawn by Joussette (1722) and depicted in Hamilton (1976) (Figure 6). The coastline is represented inaccurately, and yet the fort, marked with the letter A on the original map, seems to be situated north of what appears to be Plummer’s Point, a place Higginbotham (1968), MDAH (1973), and Elliott (1989a, b) all have interpreted as closest to the Vieux Biloxi—Lover’s Lane locale. Also on the Joussette map, the letter L is placed on or close to Plummer’s Point and keyed to a legend which Rowland (1925:147) translated as “Battery proposed to be made in case the court orders the establishment of the colony, which will serve to defend part of the roadstead and the entrance to the bay.” This proposed battery is very close to the Stone Marker locale. The primary documents reveal nothing about this battery, and Hamilton (1976:46) expressed doubt that it was ever constructed. The significance of this battery to the question of the fort’s position is addressed below.

Subsequent eighteenth-century and early nineteenth-century maps continued to replicate the name “Vieux Biloxi,” “Old Biloxi,” or “Old
French Fort” and, when sufficiently detailed, these places coincide with the Fort Point peninsula north of Plummer’s Point (for example, Anonymous 1803). Maps of this era reinforce the interpretation that both Fort Maurepas and Vieux Biloxi were at the Lover’s Lane locale. Of course these depictions are a legacy effect, rendered long after the place ceased to be commercially or politically important. However, soon after the State of Mississippi was formed in 1817, map locations of the “Old Fort” are inexplicably placed at or just south of Plummer’s Point. A series of nineteenth-century land plats and state and federal documents provide support for the Stone Marker locale as the site of Fort Maurepas, a contention that cannot be lightly dismissed.

Several land plats, copied originals from the Jackson Land Office, depict the 1821 survey establishing Township, Range, and Sections in the Biloxi Bay area. Township 7S, Range 9W, Section 24 includes the Vieux Biloxi–Lover’s Lane locale north of the present railway line. The irregular Section 25 includes Plummer’s Point and the Stone Marker locale. On the 1821 plats, “Old Fort” is marked in the precise location of the Stone Marker locale, and because of the fine scale and section lines, this placement is not ambiguous. Section 25 is vacant of settlement, but just to the east, in Township 7S, Range 8W, Section 37 is a land holding labeled “Widow La Fontaine” (Figures 7, 8).

As recorded in the American State Papers (1834), on March 14, 1826, the nineteenth Congress of the United States reported in the 1st session of the Senate, No. 486 “Land Claim in Mississippi,” a communication from the Jackson Land Office entitled “an act for the relief of Woodsen Wren.” From this document we learn that one Woodsen Wren claimed “a tract of land situated on the east side of the bay of Biloxi, between Belle Fountain point and the Old French fort, claimed by the virtue of a purchase from Littlepage Robertson…” (American State Papers 1834:511). Three documents were filed with the Jackson Land Office in July, 1823 in support of Wren’s claim: (1) A permission of settlement granted to Littlepage Robertson by the Spanish Governor of Mobile for the area in question, dated June 9, 1782; (2) a deed of conveyance from Robertson to Wren for the property,
support for the Stone Marker hypothesis (Mrs. B. D. Smith, pers. comm., 1992).

Recently, a local researcher produced a composite map reconstructed from some of the plats mentioned above (Fayard 1986). According to this document, a survey plat of the Widow La Fontaine’s land, dated June 26, 1824, shows a “mound” very close to the Stone Marker locale. Fayard (1986) states that “this mound may be where the French had their Cannon Battery. Based on the maps of 1699 and 1721.” Fayard also cites three 1837 plats of the Woodsen Wren property that show “the site of the Old French Fort marked on them. These diagrams verify the site of the Old French Fort.” On his map, Fayard identifies the Stone Marker find-spot as the location of Fort Maurepas (Fayard 1986). We do not illustrate Fayard’s map in this report because it is copyrighted and permission could not be obtained.

The Stone Marker hypothesis is supported further by yet another document, called to our attention by Tommy Wixon, a law approved on February 25, 1833 in the Mississippi State Legislature affirming “that the dividing line between the counties of Jackson and Hancock shall be as follows, to wit: beginning at the point or place called the Old French Fort on the bay of Biloxie [sic], where the line that divides the eighth and ninth ranges strikes the same...” (Laws of Mississippi 1833:439).

So what are we to make of this? To review, the location of Vieux Biloxi is well-established through archival and cartographic evidence dating to the time the colony was established. Such is not the case with Fort Maurepas, for there is conflicting evidence: the eighteenth-century documents and maps favor placement of Fort Maurepas at the Vieux Biloxi-Lover’s Lane locale, while the nineteenth-century documents and maps identify an “Old Fort” at the Stone Marker locale. The weight of the historical evidence, as previously outlined by Higginbotham and others, favors the Vieux Biloxi-Lover’s Lane hypothesis as the fort location. Before the Stone Marker hypothesis can be dismissed, however, additional factors must be discussed.

Nineteenth-century surveyors may have incorrectly identified the “mound” (constructed by American Indians?) placed adjacent to the Stone Marker locale as the Fort Maurepas location. However, this scenario is unlikely because “mound” and “Old Fort” are differentiated in the old plats by placement on opposite sides of the north-south range line separating Widow La Fontaine’s property from Wren’s property. We base this observation on the plats illustrated in Figures 7, 8 and 9 and Fayard’s statement that the “mound” is marked on the 1824 survey plat of the Widow La Fontaine property (we have not examined the 1824 plat).

Besides the Stone Marker, bricks and cannonballs are the major artifact categories the site has produced. The bricks recovered by Rupp have been dated 1812; and (3) the affidavits of Pierre Carco and Susan Fayar, recorded at the Jackson Land Office in August 1820, “proving that Littlepage Robertson settled with his family on the place now claimed by Woodsen Wren, situate on the northeast side of the bay of Biloxi, adjoining Vieu Fort, about two or three years after the capture and occupation of Mobile by the Spaniards, and that the said Littlepage Robertson continued to inhabit and cultivate the said place for many years, until he raised his children to manhood” (American State Papers 1834: 511, emphasis in original).

Included in the Woodsen Wren file from the Jackson Land Office is a plat showing that Wren’s claim encompasses Sections 24 and 25, and again the “Old Fort” is shown at the location of the Stone Marker find (Figure 9). These documents lend credence to the 1699 Historical Committee’s
identified as eighteenth-century forms by experts (Moran 1989). This raises the possibility that the “Old Fort” marked at the Stone Marker locale is the remains of a colonial era brickworks. Dr. Mireille Pastoreau of the Bibliothèque Nationale in Paris has located a letter from Iberville dated 1703 that mentions a brick factory at the Biloxi settlement (Moran 1989). A brickworks (“briquetière”) is marked on Le Blond de La Tour’s 1722 map at or near the Stone Marker locale. The Stone Marker locale is marked “Brick Yard Wharf” on the previously-mentioned 1851 map, indicating that this place was associated with brick-making into the mid-nineteenth century.

However, there are reasons to suspect that the “Old Fort” labels at the Stone Marker location on the early maps does indeed mark a fortification, either a French-era battery or a later eighteenth-century garrison, perhaps one constructed by the Spanish. Poitevent favored the former identity, for around 1900 Rupp recovered cannonballs at the Stone Marker site that Poitevent records as matching those from the Vieux Biloxi–Lover’s Lane locale. Possibly the cannonballs mark the “Spanish Camp” thought to be associated with this area in the latter eighteenth century, although both Poitevent (n.d.) and Higginbottom (1968:75) place “Spanish Camp” at the Vieux Biloxi–Lover’s Lane locale. Certainly an examination of the Spanish maps and documents might prove informative, but we have made no such effort. Perhaps the most persuasive line of argument against the Stone Marker hypothesis is the fact that the site has not produced the quantity of eighteenth-century artifacts we would expect to be associated with Fort Maurepas, despite careful searching of the eroding bluff-face by the indefatigable Poitevent. Local lore about the Stone Marker locale refers to additional artifact finds, but none were available for examination.

Additional artifacts from Vieux Biloxi–Lover’s Lane

Our investigations in 1992 were limited to collections research and small surface collections. No excavations were conducted due to denial of permission by the landowners of critical properties. Our efforts focused on the following:

1. evaluation of Schuyler Poitevent’s artifact catalogs (his “relic lists”) and the plotting of his find-spots on a working map of the Vieux Biloxi–Lover’s Lane locale (22-Ja-534);
2. searching for Poitevent’s artifact collection;
3. recording the extant Poitevent collection housed at Tulane University;
4. recording artifacts from the Vieux Biloxi–Lover’s Lane locale (22-Ja-534) housed at the Tulis–Toledano Manor in Biloxi;
5. collecting and recording an artifact sample from the J. K. Lemon property.

Schuyler Poitevent and Fort Maurepas: Living with French Colonial history

The notes and artifact collections amassed by Schuyler Poitevent (1875–1936) provide crucial locational information about the early French and Native American occupation in Ocean Springs. As a young man, Poitevent began to discover evidence of the French colonial occupation in the yard of his Lover’s Lane residence, “Bay Home,” located on Fort Point peninsula, Ocean Springs. He came to believe that Iberville’s Fort Maurepas was located in the immediate vicinity of “Bay Home” (Daily Herald 1936a).

Figure 10. “Coleridge” Oak, 1992, J.K. Lemon property (formerly Lindsay property).

In July 1981, Virginia Favre Poitevent (1912–1990), Schuyler’s daughter-in-law, donated his unpublished historical research to MDAH at Jackson. She gave the Musée du Nouveau Monde at La Rochelle, France, 128 stone projectile points, and other Native American stone objects. The Tulane University Center for Archaeology also received a collection of artifacts from Mrs. Poitevent, as did the Louvre Museum in Paris.

Any serious scholar concerned with the history and location of Fort Maurepas must read “Broken Pot” (Poitevent 1933). In Chapter Eleven, entitled “Old Fort Maurepas,” Schuyler Poitevent presents his interpretation of the colony’s history from archaeological evidence. He utilizes four landmarks in the immediate vicinity of “Bay Home” to describe the
based on Poitevent’s written descriptions and a sketch map he prepared. Of these four markers, only “Coleridge” still exists (Figure 10).

A large-scale map has been prepared, on which have been plotted Poitevent’s provenience data and interpretations (Figure 11). Table 1 correlates Poitevent’s interpretation of the French colonial structure locations and the basis for his identification.

Since the most elusive objective is to locate Fort Maurepas, all investigators should understand Poitevent’s rationale for placing this historic feature in the Back Bay of Biloxi at the “end of the Leavell Wharf” (Poitevent 1933). There appear to be two reasons for this interpretation. For one, Poitevent never reported in his writings the discovery of large timbers, palisades, or other features related to a Vauban-style structure. Secondly, he commented often about the erosion of the high bluff which bounds the west side of the Fort Point peninsula. Particularly in “Broken Pot,” he gives examples of the extensive deterioration of his property through time by hurricanes and storms.

To quote Poitevent from “Broken Pot” (1933):

Old man Catchot (Tony’s father) [Poitevent refers to Joseph Catchot (1824–1900)] once told me when I was a boy that the beach where he first knew it was out as far as our bath house then was. I did not believe him. But he was right. Since I was a boy, the bluff has caved a vast amount. The cedars growing in 1900 on the edge of the bluff is now a stump washed by the waves; and the distance from it to the present bluff edge is eighty-five feet. Moreover, my grandmother used to give me the water from “Mineral Springs.” I have gotten many a drink out of it. Between Mineral Springs and the water’s edge in those days grew big cedars, magnolias, and pine trees. There must have been fifty feet, or more, between the spring and the water’s edge at that time; and it was
at that time about 1892, that I found the evidence of which would indicate the location of the Barracks [brackets and emphasis added].

A sampling of twentieth-century newspaper accounts corroborate hurricane erosion on the Bay at Ocean Springs:

Beginning at East Beach and extending clear to Breezy Point (Fort Point) from five to thirty feet of land has disappeared... (Ocean Springs News, 1909).

The East Beach road is completely demolished and the bite of the waves swept away thirty to forty feet in front of the New Beach Hotel... (Ocean Springs News, October 7, 1915).

Is it possible that as much as two hundred feet of land has been eroded from the western shoreline of the Fort Point peninsula in the almost three hundred years since the founding of Iberville's colony? Those who have lived in the area for decades would certainly attest to this, and the destructive regularity of tropical storms is a well-documented fact of life on the coast (Sullivan 1987). Bellande's (1993) comparison of Le Blond de La Tour's 1721 map with the modern shoreline suggests extensive erosion. Poitevent, who witnessed many storms and several hurricanes during his lifetime, was convinced enough to believe that the site of Fort Maurepas had long ago been a victim of these erosional processes. Indeed, Poitevent’s major method of artifact collection was to retrieve artifacts exposed along the ever-eroding bluff face or redeposited on the beach front. Today, along the bay shoreline, breakwater and bulkhead construction as well as land-filling is an ongoing process deemed necessary to impede the relentless erosion.

We conclude that there is a high probability that most or all of the fort site has eroded into the bay. Others have reached the opposite conclusion. Based on examination of the Poitevent property and Le Blond de La Tour's (1721) map, Elliott (1989b:1-4) places the Fort Maurepas site on the Poitevent property, considers this location to be “a depositional or stable geomorphical environment” with little apparent erosion, and suggests “the site might still survive.”

The artifact collections

Three separate collections of artifacts from the Vieux Biloxi–Lover's Lane locale (22-Ja-534) were inventoried and photographed: the Poitevent collection at Tulane University (Table 2); a small artifact collection from the J. K. Lemon property, housed at the Tullis-Toledano Manor, Biloxi (Table 3); and artifacts surface collected at the J. K. Lemon property (Table 4).

Most artifacts in the Tulane Poitevent collection are labeled with Poitevent’s numbering system and therefore can be keyed to the catalog and provenience information in his “relic lists.” The most disappointing
aspect of the Tulane Poitevent collection is its incompleteness. The majority of artifacts identified in the Poitevent “relic lists” are not present in this collection. Therefore, the location of a significant portion of the artifacts Poitevent amassed during his lifetime and documented in the “relic lists” is now unknown. Some of the artifacts recorded in the “relic lists” and described in “Broken Pot” but which can no longer be located include: a flagstaff point, French and Spanish (Mexican) coins, silver and bone buttons, musket parts, Native American pottery, trade beads, and large quantities of gun flints. Few of the many cannonballs and iron shot are accounted for, but a pile of cannonballs may still be seen on the Poitevent property.

Table 3 documents a small collection of artifacts gathered from the J. K. Lemon property, but no further information on the provenience of the finds is available. During a 1992 visit to the J. K. Lemon property, additional artifacts of probable French colonial origin were surface collected from the eroding bluff and redeposited beach matrix (Table 4). Poitevent frequently found objects eroding from the bluff along this portion of the shoreline. At low tide, artifacts may be observed to extend far out into the bay.

Without an excavated context, the artifacts in Tables 2, 3, and 4 are useful primarily as confirmation of a French presence at the site and as chronological markers. While many artifacts are clearly from the French colonial era, most items do not permit chronological distinctions finer than early to mid-eighteenth century. Thus many artifacts could be from either the Vieux Biloxi or Fort Maurepas occupations. Axe heads, small tools, and miscellaneous small artifacts are illustrated in Figures 12, 13, and 14.

The Old Mobile site (1Mb94) occupied from 1702-1711, has produced an artifact assemblage similar to what we might expect to find at the site of Fort Maurepas (Waselkov 1991). Both French faience and Mexican majolica are present at Old Mobile. Most of the tin-glazed earthenwares in the 22-Ja-534 collections are plain white and appear to conform to “faïence blanche” characteristics of paste and glaze (Brain 1979:34;
Table 2. Historic Artifacts, Tulane Collection, 22-Ja-534.

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</tr>
<tr>
<td>021-32</td>
<td></td>
<td>rosehead nails</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>101-14/15</td>
<td>?</td>
<td>axe head fragment</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>101-16</td>
<td>?</td>
<td>axe head fragment</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>048-1</td>
<td>73</td>
<td>lance/pike fragment</td>
<td>1</td>
<td>Figure 13</td>
</tr>
<tr>
<td>021-25</td>
<td>146</td>
<td>knife blade—small</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>021-27</td>
<td>145</td>
<td>knife blade—small</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>021-26</td>
<td>147</td>
<td>razor blade</td>
<td>1</td>
<td>Figure 13</td>
</tr>
<tr>
<td>021-31</td>
<td>230</td>
<td>solid round shot</td>
<td>1</td>
<td>4.9 cm. diam.</td>
</tr>
<tr>
<td>010-24</td>
<td>102</td>
<td>grape shot</td>
<td>1</td>
<td>3.2 cm. diam.</td>
</tr>
<tr>
<td>045-1</td>
<td>161</td>
<td>cannonball fragment</td>
<td>1</td>
<td>10 cm. diam.</td>
</tr>
<tr>
<td>103</td>
<td></td>
<td>cannonball fragment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>048</td>
<td>73</td>
<td>cannonball fragment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>021-29</td>
<td>74</td>
<td>weight, stamped w/fleur de lys</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>021-28</td>
<td>75</td>
<td>weight, inscribed &quot;1719&quot;</td>
<td>1</td>
<td>Figure 15</td>
</tr>
<tr>
<td>021-4</td>
<td>232</td>
<td>sheet lead</td>
<td>1</td>
<td>1 lb.</td>
</tr>
<tr>
<td>021-5</td>
<td>70</td>
<td>sheet lead</td>
<td>1</td>
<td>½ lb.</td>
</tr>
<tr>
<td>021-6</td>
<td>70</td>
<td>sheet lead</td>
<td>1</td>
<td>1 lb.</td>
</tr>
<tr>
<td>021-16</td>
<td>69</td>
<td>sheet lead</td>
<td>1</td>
<td>¾ lb.</td>
</tr>
<tr>
<td>021-22</td>
<td>233</td>
<td>sheet lead</td>
<td>1</td>
<td>3 lb.</td>
</tr>
<tr>
<td>021-21</td>
<td>72</td>
<td>sheet lead</td>
<td>1</td>
<td>1 lb.</td>
</tr>
<tr>
<td>044-1</td>
<td>98</td>
<td>sheet lead</td>
<td>1</td>
<td>½ lb.</td>
</tr>
<tr>
<td>047-1</td>
<td>2099</td>
<td>sheet lead</td>
<td>1</td>
<td>0 oz.</td>
</tr>
<tr>
<td>091-138</td>
<td>“Fort”</td>
<td>sheet lead</td>
<td>1</td>
<td>¼ lb.</td>
</tr>
<tr>
<td>021-13</td>
<td>68</td>
<td>bar level</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>085-3</td>
<td>“Fort” Maurepas</td>
<td>musket ball</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>085-4</td>
<td>“Fort” Maurepas</td>
<td>musket ball</td>
<td>1</td>
<td></td>
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</table>

Table 2 continued.

<table>
<thead>
<tr>
<th>Tulane I.D.</th>
<th>Poitevent I.D.</th>
<th>Artifacts</th>
<th>Count</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>086-9</td>
<td>3035</td>
<td>musket ball</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>102/1-28</td>
<td>3164</td>
<td>musket balls</td>
<td>28</td>
<td>1.4 cm.</td>
</tr>
</tbody>
</table>

BRASS

| 094-2      |                | cut object                 | 1     | Figure 14 |
| 094-3      |                | buckle-shoe                | 1     | Figure 14 |

TIN-GLAZED EARTHENWARE

| 022-28     | 3064(a)        | plain white                | 1     |         |
| 022-4      | 3066           | blue on light blue         | 1     |         |
| 022-7      | 3065           | plain white                | 1     |         |
| 022-2      | 3065           | plain white                | 1     |         |
| 022-31     | 3068           | plain white                | 1     |         |
| 022-34     | 3068           | blue on light blue         | 1     |         |
| 022-35     | 3068           | blue on light blue         | 1     |         |
| 091-81     | “Fort”         | eroded glaze               | 1     | pink paste |
| 051-2      | “Beach”        | eroded glaze               | 1     | tan paste |

LEAD-GLAZED EARTHENWARE

| 022-19     | 3254           | dk green, Type A           | 1     | grater |
| 022-21     | 1074           | lt. green exterior/clean glaze interior | 1 | salmon paste |
| 091-137    | “Fort”         | bright yellow-green interior/ exterior eroded | 1 | orange paste |
| 091-120    | “Fort”         | lt. yellow-green interior/ exterior eroded | 1 | orange paste |
| 086-4      | “Fort”         | bright green exterior/ yellow interior | 1 | grey paste |

STONEWARE

| 091-154    |                | lt. grey exterior/dk. brown interior | 1 | gres |

OLIVE JAR

| 054-1      | 3047           | unglazed orange paste, flat base | 1 | middle-late conical style |
| 054-2      | 3333           | unglazed orange paste, ring base | 1 | middle-late conical style |

GLASS FRAGMENTS

| 022-2      | 3255           | dk. olive green             | 1 | bottle |
| 022-11     | 3255           | dk. olive green             | 1 | bottle |
Table 2 continued.

<table>
<thead>
<tr>
<th>Tulane I.D.</th>
<th>Poitevent I.D.</th>
<th>Artifacts</th>
<th>Count</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>022-12</td>
<td>3070</td>
<td>dk. olive green</td>
<td>1</td>
<td>bottle</td>
</tr>
<tr>
<td>022-24</td>
<td>3071</td>
<td>lt. blue-green</td>
<td>1</td>
<td>sq. bottle</td>
</tr>
<tr>
<td>022-45</td>
<td>3072</td>
<td>lt. blue-green</td>
<td>1</td>
<td>sq. bottle</td>
</tr>
<tr>
<td>022-33</td>
<td>3069</td>
<td>dk. olive green</td>
<td>1</td>
<td>sq. bottle</td>
</tr>
<tr>
<td>022-30</td>
<td>3069</td>
<td>lt. green</td>
<td>1</td>
<td>sq. bottle</td>
</tr>
<tr>
<td>051-83</td>
<td>“Beach”</td>
<td>lt. blue-green</td>
<td>1</td>
<td>sq. bottle</td>
</tr>
<tr>
<td>089-1</td>
<td>3287</td>
<td>burned glass</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>089-2</td>
<td>3288</td>
<td>burned glass</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

BRICK/SLATE

| 022-5       | 3062A          | brick              |       |             |
| 022-59      | 3197           | brick              | 2     |             |
| 083-19/20   | ?              | brick fragment     | 2     |             |
| 084-1/2     | ?              | brick fragment     | 2     |             |
| 091-138     | ?              | slate tile fragment| 1     |             |
| 091-138/10  | ?              | brick              | 1     |             |
| 046-1       | 3204           | brick fragment     | 1     |             |
| 046-2       | 3203           | brick fragment     | 1     |             |
| 050-3       | 3335           | brick              | 1     |             |
| 050-5       | 3337           | brick              | 1     |             |
| 050-6       | 3338           | brick              | 1     |             |
| 050-4       | 3336           | brick              | 1     |             |
| 050-2       | 3334           | brick              | 1     |             |
| 051-167     | ?              | brick fragment     | 1     |             |
| 051-162     | ?              | brick fragment     | 1     |             |
| 051-7/65    | ?              | brick fragment     | 2     |             |
| 056-6       | 3148           | brick              | 1     |             |
| 056-7       | 3150           | brick              | 1     |             |
| 056-5       | 3149           | brick              | 1     |             |
| 083-1/25    | ?              | brick              | 22    |             |

MISCELLANEOUS

| 010-24      | ?              | ceramic marble     | 1     | 1.3 cm. dia.|
| 042-1/4     | 3014           | ceramic marble     | 4     |             |
| 1.3 cm. dia.|                |                    |       |             |
| 021-14      | 131            | ceramic smoking pipe bowl | 1 | fragment |
| 022-22/23   | 3063A          | ceramic smoking pipe stem | 2 |         |
| 086-2       | ?              | catininite pendant | 1     | Figure 14   |

Walthall 1991:84–86). Three decorated tin-glazed sherds from 22-Ja-534 have dark blue against a light blue background (Table 2: 022-4, 022-34, 022-35) and three sherds are dark blue against a white background (Table 3). These sherds may be either faience or majolica, both of which have temporally diagnostic styles, but the small size prevents identification at this time. The “faience brune” in Tables 3 and 4 must postdate both Fort Maurepas and Vieux Biloxi, for it was not available in North America prior to 1720 and rare before the 1750s in French Louisiana (Blanchette 1981:23, 47, 54). The stone pendant in Figure 14c may indicate an early French presence at 22-Ja-534 for considerable quantities of red pipestone were found at Old Mobile and very little at later sites (G. Waselkov, pers. comm. 1995).

Perhaps the most interesting artifact in the Tulane Poitevent collection is a lead disk-shaped object with the date 1719 inscribed in the soft lead (Figure 15). The object tapers to the opposite side, on which are stamped.

Figure 15. Lead weight inscribed “1719” and stamped on reverse side with fleur de lus, Tulane Poitevent collection, 22-Ja-534. Diameter at widest, 4.8 cm; thickness = 2.5 cm.

Table 3. Historic Artifacts, Tullis Collection, 22-Ja-534.

<table>
<thead>
<tr>
<th>Count</th>
<th>Artifact</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>tin-glazed earthenware (white)</td>
</tr>
<tr>
<td>3</td>
<td>tin-glazed earthenware (blue on white)</td>
</tr>
<tr>
<td>2</td>
<td>faience brune</td>
</tr>
<tr>
<td>1</td>
<td>lead-glazed earthenware (dark green exterior, salmon paste)</td>
</tr>
<tr>
<td>2</td>
<td>glass beads (white)</td>
</tr>
<tr>
<td>1</td>
<td>glass (olive green)</td>
</tr>
<tr>
<td>3</td>
<td>unglazed earthenware</td>
</tr>
<tr>
<td>1</td>
<td>brass button (figure 14)</td>
</tr>
<tr>
<td>8</td>
<td>brick fragments</td>
</tr>
</tbody>
</table>
two fleurs de lys. A second lead disk-shaped object, uninscribed and smaller (top diameter = 3.5 cm), is nearly identical to the first object except that the bottom is stamped with a single fleur de lys, bearing the letters SP. Poitevent identified the objects as "livres" or standardized weights. Similar lead weights have been recovered at Old Mobile.

**Vieux Biloxi—Fort de Maurepas, n’est-ce pas?**

**Summary: Archival and cartographic evidence**

The settlement of Vieux Biloxi (1719–1721) was situated on the high ground along Lover’s Lane (22-Ja-534) on Fort Point peninsula in Ocean Springs. In addition to primary archival sources that date to this era, the maps of Le Blond de La Tour may be fitted to modern topographic readings of the Lover’s Lane locale with a high probability of accuracy (Bellande 1993). In this interpretation of the Vieux Biloxi location, we concur with previous researchers, although the Bellande cartographic reconstruction provides a more detailed documentation than earlier efforts.

Archival and cartographic evidence for the location of Fort Maurepas (1699–1702) is highly ambiguous and limited. As others have pointed out, the contemporary archival records correlate Fort Maurepas with the site of Vieux Biloxi (22-Ja-534). However, the cartographic detail necessary to place the fort at this spot is lacking. Moreover, later nineteenth-century maps and legal documents provide support for the Stone Marker hypothesis. We suspect the Stone Marker hypothesis is a "red herring" but submit additional documentation that this locale is a colonial-era site. Rejection of either the Vieux Biloxi—Lover’s Lane hypothesis or the Stone Marker hypothesis cannot be accomplished by archival or cartographic evidence alone. Archaeological evidence of the fort’s structural remains must be the ultimate arbiter of this issue, if indeed it can be resolved.

**Summary: Archaeological evidence**

Our archaeological investigations were confined to collections research. No archaeological excavations were conducted. The Vieux Biloxi—Lover’s Lane locale (22-Ja-534) has produced a quantity and diversity of eighteenth-century artifacts that far exceeds those found at the Stone Marker site (or elsewhere in Ocean Springs).

Poitevent’s original research has been ignored or underutilized by previous investigators. From Poitevent’s documents we have constructed an artifact distribution map that provides a parallel set of new evidence that complements the archival and cartographic sources. In addition, we have located and examined his known extant artifact collection (except for materials now in France) and confirmed that most of these artifacts are French colonial in origin. Our synthesis of Poitevent’s research materials provides further confirmation that the Vieux Biloxi site is at the Lover’s Lane locale.

Our research does not permit confirmation of the Fort Maurepas location. The artifact collections alone do not have the chronological resolution that permit separation of Fort Maurepas artifacts from those of Vieux Biloxi, if indeed artifacts from both settlements are mixed in the collections. Like some others (Poitevent n.d.; Higginbotham 1968; MDAH 1973), we believe the available archival, cartographic, and archaeological evidence favors the Vieux Biloxi—Lover’s Lane hypothesis and stress the high probability that some or all of the site of Fort Maurepas has eroded into Biloxi Bay. The evidence is equivocal, however, and the possibility that a portion of the fort site remains intact cannot be rejected at this time (Elliott 1989b).

Like the 1973 archaeological team, we were denied permission to excavate in the high-probability areas of the Lover’s Lane locale. These beautiful homes and gardens provide the owners with an enviable retreat, a refuge they are quite understandably reluctant to have disturbed. Until such investigations take place, however, the search for Iberville’s Fort Maurepas—the first capital of French Louisiana—will continue.

**Acknowledgements**

Funding was provided through an MDAH Certified Local Government Grant awarded to the City of Ocean Springs. We take this opportunity to thank those persons who aided us in our research: Oliver Bass, Elizabeth Belsey, Edmond Boudreaux, Billie Brown, Mrs. D. L. Connor, Wilson Duvall, Shirley Dye, Mrs. A. Fayard, T. R. Kidder, J. K. Lemon, Anne Mann, Muirella Powell, “Bobbie” Davidson Smith, Andrew Wagoner, Gregory Waselkov, Tommy Wixson, and Mary Zala.
John Blitz is Visiting Assistant Professor of Anthropology at Bowdoin College in Brunswick, Maine. C. Baxter Mann, Jr. is a consulting archaeologist in Bay St. Louis. Ray L. Bellande is a consulting petroleum geologist who writes for the Ocean Springs Record.

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Book Reviews


Reviewed by Ian W. Brown

The Hardman site is located in southwest Arkansas along the banks of Saline Bayou, a tributary to the Ouachita River. As suggested by its provenience, the residents of Hardman were heavily involved in salt-making. For approximately three centuries between A.D. 1400-1700 the Caddoan tradition occupants of Hardman lived, ate, built permanent structures, died, and were buried at this site. In short, the many generations that inhabited Hardman were probably not all that different from neighboring populations, excepting that they also engaged in salt production.

This book deals with the story of these people. The bulk of the volume is written by Ann Early and G. Ishmael Williams, but there are also contributions by Bonnie Styles and Karli White on the faunal remains, by Gayle Fritz on the archaeobotanical remains, and by Barbara Burnett on the bioarchaeology. What most impresses me is the integration of the various topics. The volume starts out with establishing the cultural context. In this chapter there is an important section on salt use by Native American populations. The environmental setting for the site is then established by Williams. One intriguing analysis is his use of the maps and records of General Land Office (GLO) surveyors of the early-to-mid nineteenth century. By plotting the taxa and location of witness trees, he was able to reconstruct the vegetation patterns of this portion of Arkansas prior to heavy agricultural activities. One very interesting observation was the enormous patch of pine-dominated woods to the east of the Hardman site. Such a pattern could only have occurred as a result of a natural disturbance (like fire), that cleared the area of mixed hardwood-pine forest, or by human-induced land clearing. As salt production requires a great deal of firewood to boil the brine, the suggestion is that the occupants of Hardman and the nearby Bayou Sel site were responsible for the deforestation.
Williams then discusses the project history and procedures, as well as the various features recovered. Hardman is the first non-mound site in the area to be subjected to large-scale block excavations, but it should be emphasized that only a small portion of the site was actually excavated. In all 968 features were uncovered, consisting of 900 postmolds, 40 pits, 11 hearths, and 17 burials. Particularly intriguing was the postmold analysis. A series of computer graphics were generated by plotting the diameter and depth of the various postmolds. It was interesting to see how the various house structures and related features emerged from this manipulation of the data. Two circular houses, approximately 6 to 8 m in diameter were clearly demarcated, as was a compound wall. This wall was constructed prior to the houses and before there was any significant evidence for salt production. It is believed to have served as a demarcation of space, rather than a form of fortification.

The 17 burial features consisted of single extended inhumations, except for one burial which contained three extended adults crammed into a rather tight space. All of the latter were males, with pottery vessels substituting for their decapitated heads. The other burials were arranged into clusters which could represent either family groups or sequential burials. As the graves did not overlap, it is suspected that they were marked by posts. Most of the interments were adults, the few children recovered having been buried apart from the grave clusters near structures or other features. Analysis of the burials revealed that many of the adults had broken toes as well as high levels of osteoarthritis and osteopetrosis. Burnett believes that these indicators of physically stressful activities relate to salt production. She also thinks the strong evidence of sphenoid disease (which is observed on an anterior cranial bone that makes up part of the eye orbits) among the Hardman population might be indicative of a prehistoric industrial disease relating to salt production.

The people of Hardman were heavy consumers of maize, and from the faunal evidence we know that they occupied the site at least during the spring and summer months. On the basis of the substantial residences, however, Early feels that they lived there for the rest of the year too. Whatever the case, we now know much more about prehistoric salt producers in the eastern United States. Although their activities required certain skills developed over many years and passed on from one generation to the next, there is no reason to believe that these people were specialists. Most of the time they seem to have been performing the same daily activities as contemporary populations at non-saline sites. Although the burials did produce a fine assemblage of pottery vessels, expertly described by Early, the materials are not out of line with those found at other sites in the region. In essence, the inhabitants of Hardman were not rich specialists who made great profits from the manufacture and sale of salt. That which they produced was either used at home or was traded to their neighbors in the region. These were people who had a strong reliance on maize and, consequently, needed to supplement their diet with salt.

Ian Brown is a professor of anthropology and curator of the Gulf Coast Survey at the Alabama Museum of Natural History.


Reviewed by Edwin Jackson

The Calusa, a Native American chiefdom society inhabiting Southwest Florida at the time of Spanish contact in the sixteenth century, have attained ethnographic notoriety for exhibiting considerable political and social complexity without an agricultural subsistence base. Since explanations for the development of chiefdoms most often include surplus agricultural production, the Calusa provide an important counterexample.

Considering the great potential contribution that knowledge of Calusa culture could make, it is a shame that we know little beyond what is provided by scant ethnohistorical accounts. Nor are the prehistoric roots of Calusa society well documented by archaeological research. The present volume describes the initial results of the Southwest Florida Project, a formidable first step in redressing this lack. From 1983 to the present, William Marquardt and his colleagues have conducted archaeological and supportive research in the Charlotte Harbor environment to develop a detailed picture of the interaction between prehistoric environments and the cultures that inhabited the region; this volume reports on the results of fieldwork undertaken from 1983 to 1988.

Beyond the specific culture-historical value of the work of Marquardt’s team of scientists, the Southwest Florida Project provides an important example of what can be achieved by interdisciplinary research. Members of the Southwest Florida Project have tackled a wide range of culture-historical, paleoenvironmental, human ecological, and archaeological questions. The approaches that these authors take in their individual studies and the collective advance made possible by the integration of these studies make this volume valuable to archaeologists working
outside of Florida. For the non-professional the volume provides a splendid example of what archaeology can do.

The volume is made up of 13 chapters. The first two by Marquardt provide an archaeological overview and review of prior investigations. Chapter 2 presents a detailed overview of the excavations undertaken by the Southwest Florida Project. Chapters 3 through 12 report on specific analyses, the diversity of which underscore the multifaceted nature of the research project: stratigraphy and geomorphic reconstruction (chapter three by Upchurch, Jewell, and DeHaven), pottery technology (chapter four by Cordell), shell and bone artifacts (chapter 5 by Marquardt and chapter 6 by Walker), shellfish seasonality (chapter 7 by Quitmyer and Jones), zooarchaeology (chapter 8 by Walker), midden formation experiments (chapter 9 by Wing and Quitmyer), archaeobotany (Chapter 10 by Scarry and Newson), and human skeletal remains (Chapter 11 by Hansinger and Chapter 12 by Hutchinson). Chapter 13 by Marquardt is a synthesis of the project results to date.

Florida archaeologists will of course be interested in the specific results of this research as they may pertain to other aspects of Florida prehistory. From my perspective, the broader appeal of this volume has to do with the fact that it is written in a manner that is accessible to the general reader. The analyses are clear and well supported by data. The book is well illustrated and includes a comprehensive bibliography.

In the following discussion, I concentrate on the substantive analyses reported in chapters 2 through 12. Chapter 2 details the site investigations that form the core of the research. Excavation details, artifact inventories, and interpretations are included here. It is also the results chapter, synthesizing data presented in greater detail in later chapters. While it is possible to read chapters 2 and 13 in a general appreciation of the volume, this chapter’s greater contribution is as a guide through the sometimes denser material of the intervening chapters.

Chapter 3, by Sam B. Upchurch, Pliny Jewell IV, and Eric DeHaven, reports on the results of coring at six of the investigated sites. Goals of this work were: 1) to establish the geomorphic setting at the time of initial site formation, 2) to determine whether burial mounds and linear ridges in the area were of human or natural origin, and 3) to discover how sites articulated with changes in Holocene sea levels. Subsidence and rising sea level have submerged at least the bases of many of the shell mounds in the area, obscuring the original prehistoric geomorphic setting of the sites. Based on core evidence, naturally occurring ridges or mound-like hillocks seem to have been used by Indians for burial, while at least one ridge complex is of human origin. The complexity of the evidence suggests that the genesis of sedimentary burial structures must be evaluated on a site-by-site basis.

Chapter 4, by Ann Cordell, reports on her investigation of ceramic technology. Included in the chapter are the results of a fine-grained analysis of ceramic samples, which further subdivided traditionally employed ware categories. Potential clay sources in the area are characterized with respect to applicability as a raw material for pot building (e.g., plasticity, shrinkage) and also firing characteristics. The aim of this analysis was to differentiate local from non-local sources for the clays represented in the archaeological assemblage. While the evaluation of modern samples fell short of demonstrating local production, the protocol presented by Cordell for addressing the question should be of great interest to ceramicists exploring similar questions. Finally, an in-situ comparative examination of other aspects of ceramic technology, including decorative technique, rim form, and vessel shape, refined the picture of chronological variation.

Shell and bone artifacts, which comprise the primary non-ceramic categories of material culture recovered from the Charlotte Harbor sites, are described in Chapter 5 by Marquardt (shell) and Chapter 6 by Karen Jo Walker (bone). Both chapters explore typological and functional aspects of these artifact classes.

Irvy Quitmyer has worked for many years to develop a reliable methodology for estimating the season(s) that shellfish were collected prehistorically. In Chapter 7, written by Quitmyer and Douglas S. Jones, modern sampling requirements, assessment techniques, and interpretive parameters are demonstrated in the study of both modern and prehistoric samples of the southern quahog from Charlotte Harbor. The authors present growth pattern data from their study of modern samples, which provide the baseline against which the archaeological samples are compared. Unfortunately the archaeological samples analyzed to date are too small to make definitive statements (samples from Josselyn Island suggest late winter-early spring collection, while those from Useppa Island indicate spring collecting), but the necessary groundwork is in place to assess samples from a greater number of contexts and sites.

The most ambitious analysis presented is the zooarchaeology of the Charlotte Harbor sites (Chapter 9) by Karen Jo Walker. This research, for Walker’s dissertation, is exhaustive: more than 100,000 vertebrate and nearly 100,000 invertebrate specimens were analyzed from the excavations at several sites. Her analysis attempts to understand the temporal and geographic variation of exploited species in terms of the effects of sea level fluctuations on the habitats differentiated primarily on the basis of salinity. Walker develops a salinity gradient model against which specific faunal samples can be assessed and evaluated the sensitivity of different
taxa as paleosalinity indicators. Ultimately her goal is to isolate the impacts of environmental changes that occur at different temporal scales, so that purely cultural variation can be monitored more effectively. Assuming that specific economic strategies played a role in the increasing cultural complexity (resulting in the Calusa chiefdom), future zooarchaeological analysis will be aimed at identifying those trends.

A part of zooarchaeological analysis must be a consideration of how closely an archaeological fauna represents the subsistence refuse that originally accumulated at a site. What dietary components are likely to be underrepresented due to scavenging or biological and chemical degradation? What midden constituents may have been introduced by non-human agents? In Chapter 9 Elizabeth Wing and Ivy Quitmyer describe a midden formation experiment directed toward answering these kinds of questions. Using fish carcasses and mollusks of different size classes and prepared in a variety of ways (raw, cooked, filleted whole), they created small middens and then monitored the effects of scavengers, tidal action, and faunal migration.

Scarry and Newsome break new ground in Chapter 10 by presenting the first paleoethnobotanical analysis of controlled samples from the Calusa area. In essence they put to the test the proposition that the Calusa and their predecessors were non-agricultural. At a more basic level their analysis has begun to delineate the temporal and spatial variation in plant use for the region. Their limited samples suggest an opportunistic pattern of species utilization, differing from patterns identified by the authors in other parts of Florida. Cultigens are not present with the exception of two fragmentary Cucurbita (gourd) seeds from one provenience at Buck Key. As the authors note, the growing evidence that indigenous wild gourds were used in eastern North America during the Archaic casts doubt on the certainty that these seeds indicate horticultural production.

The final two substantive chapters by Michael Hansinger and Dale Hutchinson describe analyses of burials from two of the excavated sites. Hansinger reports on three burials salvaged from the Collier Inn site, Useeppa Island, providing stature and dental metric data. Hutchinson provides data on four burials plus additional skeletal elements from Buck Key. Although the samples are small, individuals appear to have been drawn from a healthy population, with little evidence of nutritional or disease related stress, and a relatively low rate of caries.

Since the integrative groundwork was laid in Chapter 2, Marquardt uses the final chapter to set forth a broad interpretation of cultural and environmental interaction in Southwest Florida during the Holocene. Obviously his scheme is stronger where the data are more complete (more recent periods are better represented by excavation and analysis) and there are, at least to this reader, some contradictions in the implications proposed for certain environmental phases. Nonetheless, this overview provides guidance for future research as a source of specific propositions that can be examined by additional excavation. This reviewer looks forward to the second volume of the Southwest Florida Project.

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Reviewed by Randolph J. Widmer

It might seem unusual for an archaeologist to be reviewing a book entitled A Grammar and Dictionary of the Timucuan Language, but this is not the case. This book is concerned with archaeology as much as it is with linguistics. I had heard over the years of the interesting findings that Julian Granberry was making with respect to the relationship between the Timucuan language and the archaeology of southeastern North America, but I never had the opportunity to read about them. Now, however, this work has been revised and updated and made available through a major press. The author provides a preface discussing the historical background to the work, particularly the inclusion of archaeological data in his study. The preface is followed by a section referred to as a user's guide. This section contains an informative discussion of the sources used for the linguistic analysis as well as comments on orthography and phoneme construction to be used later in the work.

In the first chapter Granberry provides a discussion of the various political divisions among the Timucua, their archaeological correlates, and the dialects of these groups. With this background established, he begins to discuss the enigma of the Timucua language: that it is an isolate which fits into a well-known language family, but without a dominant lexical contributor. As such it best fits the model of a creolized system, formed from many sources. He then points out that while lexically confusing with respect to origin, the grammatical structure is most similar to a Warao isolate of the Orinoco delta, a language within macro-Chibchan. He notes that Timucua shares 44% of Warao noun suffixes and 17% of verb suffixes. A detailed linguistic discussion of these similarities is then presented, along with an inventory of structural similarities to other Inte-
mediate Area and South American languages, most notably Cuna, leading
to the conclusion that Timucua has a Macro-Chibchan/Waroid grammar.
Granberry then turns to a discussion of the relationships of Timucuan
vocabulary to other languages. His analysis reveals that 92% of the 1500
surviving roots show no relationship to any other language. The rest are
linked with several diverse language groupings, including Warao, Chib-
chan-Paezan, Tucanoan, Gê, Arawakan, Panoan, and Muskogean.

In the final portion of the first chapter, Granberry offers a primarily
archaeological interpretation of these data. Using standard estimates of
language divergence derived from published works, he postulates that
the Timucuan language split from a proto-Waroid stock circa 3000-2000
B.C. and represents an intrusive movement of a small seed population,
which migrated through the mechanism of interregional trade into the
predominantly Muskogean (proto-Gulf?) area of the Southeast centered
on the St. John’s River, the heartland of the Timucua. Fiber tempered
pottery along with settlement location represent the archaeological
evidence of this intrusion. Surprisingly, he does not mention the shell rings
found in both areas and cited by Ford (1969) as evidence of diffusion.
Granberry takes pains, however, to note that this intrusion is an assimila-
tion of traits into an existing long-standing cultural continuum in the
Southeast, not a replacement of one tradition with a foreign lowland
South American culture.

The remainder of the work is a discussion of the formal grammar and
lexicon, about which I am not qualified to comment. Chapter two presents
a formal grammar of Timucua. The third chapter provides a Timucua-to-
English dictionary, while the fourth chapter provides an English-to-Timu-
cua dictionary, referred to in the work as an “index.” Chapter 5 presents
the glosses for the affixes, while the sixth chapter provides the glosses for
related vocabulary from languages which have similar lexical elements,
including Spanish loan words.

I find no reason to doubt the formal analysis that Granberry has made,
nor am I qualified to critique it. Indeed Greenberg, I assume inde-
pendently, concurs with Granberry’s findings including Timucua in the
Paezan branch of the Chibchan-Paezan subgroup, closely related to the
languages of Venezuela (Greenberg et al. 1986:478). I am somewhat con-
cerned, however, over the historical relationships presented by Granberry.
Clearly, Timucua’s closest linguistic affinities are in Central and/or South
America. Granberry does not refer to Greenberg’s (1987) later synthesis.
More critically, no justification of the time depth for language splits which
are mentioned in Granberry’s discussion are presented in his work. Are
these based on glottochronology? A discussion of the glottochronological
relationships with other languages should have been presented. What
part of the eight percent of vocabulary items shared with other languages

is on the glottochronological list? If this is the same percentage as the 200
or 100 word retention list, then a separation much older than that pro-
posed by Granberry is suggested. While I recognize that glottochronology
has a number of potential problems, it should be part of the discussion.

As presented, only an expert on the historical linguistics of South America
can critique Granberry’s scenario of historic language splits. In spite of
these shortcomings, there is no reason to suggest that Timucua is anything
other than an ancient isolate of a South or Central American language
group. But how ancient and how isolated is Timucua from the earlier
related linguistic stocks?

Granberry follows Ford’s concept of the Early Formative as a time
when cultural traits diffused out of Central and South America into
southeastern North America. The existence of the Timucua language in the
“heartland” of fiber-tempered ceramics is the “smoking gun” for this
theory. This to him suggests diffusion of this trait from northern South
America by traders who actually intermingled with groups in the South-
est. The problem with this linkage of language and culture is twofold.
The fiber tempering of ceramics is found only at Puerto Hormigo in
coastal Colombia and is not broadly distributed throughout Northern
Lowland South America nor are similar decorative motifs found on the
earliest ceramics that region. Secondly, the general statements that Early For-
mative/Late Archaic Period sites in the Southeast are located away from
the coast, while those of the Fiber Tempered period are coastal, are simply
not true. In point of fact Archaic circular shell ring sites are exclusively
found in coastal marsh zones. And in southern Florida both non-ceramic and
ceramic Archaic sites are found in the same area. The shift from interior
to coastal settlement orientation can be explained more easily by environ-
mental responses than by diffusion. The general shift to settlement ori-
entation along the coast is related to sea-level rise resulting in estuary
formation (Widmer 1988). Also the distribution of fiber tempered ceram-
ics is much more extensive than that given by Granberry. These ceramics
are found from the Tara River in North Carolina to Marco Island in south
Florida. While it is tempting to link these linguistic and cultural traits, to
do so is tenuous at best.

This trader migration theory is a classic example of the confusion of
language with culture. They are not necessarily isomorphic or even
correlated, and I believe that this is the case in the St. John’s River Valley.
A familiar example of the differentiation of language and culture comes
from the southwestern United States. Seven of the Pueblo towns speak
Keresan, a language isolate unassociated with any of the other languages
spoken by other Pueblo groups, including Hopi (a Uto-Aztecan language),
Tewa, Towa, and Tiwa (three mutually unintelligible families within the
Tanoan group). All of these later language families would be grouped
within Central Amerind; Zuni, another Pueblo language, is possibly related to Penutian (Hale and Harris 1979); Keresan languages are now grouped within the Keresan branch of Northern Amerind. In spite of the incredible linguistic differences of these Pueblo groups, all indicating distant epicenters, they are culturally similar. No one in the Southwest suggests that the Keresan-speaking groups represent an intrusion of people or migrants from the east, the heartland of Keresan, or the northwest, the epicenter of Penutian responsible for the formation of Pueblo culture. Instead, Pueblo culture is seen as an independent development within the Four Corners region of the Southwest out of a much earlier Archaic Tradition Desert Culture participated in by a number of groups which spoke very different widespread languages (Hale and Harris 1979).

I think a similar process occurred in the case of the Timucua. Evidently the linguistic subgroup from which Timucua was ultimately derived was much more widespread geographically during the Archaic period, perhaps having a history as far back as 10,000 years ago. This language group was associated with generalized foragers throughout the Intermediate Area, perhaps into the Yucatan peninsula and portions of the Caribbean and southeastern North America. This distribution does not preclude an epicenter in Northern Lowland South America as Granberry suggests. As certain climate or sea-level shifts occurred, particularly those associated with the Altithermal of the Middle Holocene, groups became isolated and cut off from each other as they retreated into refuges of more desirable habitats.

This scenario has been proposed by Meggers for the Gê languages of the Amazon Basin. Later, as groups in this area adopted horticulture and settled down into sedentary communities, their social interaction was increasingly limited, and hence they became linguistically isolated: new languages formed through drift. In many areas populations increased, and the displacement and expansion of certain language groups took place at the expense of others. It is not accidental that Gê-speaking groups, Chibchan-speaking groups like the Cuna, and Tucanoan-speaking groups like the Baré are all mobile foragers.

It would seem then that Timucua has more ancient roots in the Southeast than suggested by Greenberg. This is particularly apparent if one considers that Timucua has a number of grammatical and structural similarities with multiple language subgroups as discussed above. Granberry, however, attributes these linguistic similarities to contemporary contacts resulting in mixed languages, a linguistic feature characteristic of the Intermediate Area. To him this creolization is exactly what is expected of traders as they incorporate a number of diverse grammatical, structural, and lexical elements from all of the groups they encounter. Granberry also firmly sticks to the division dates posited by linguists for the splits in the various language stocks, dates that make this creolization contemporary with the appearance of the Early Formative and fiber-tempered ceramics.

It seems to me that Timucua and these other language subgroups could just as easily be derived from some common linguistic stock ancestral to these subgroups. Diffusion, trade, and population movements 4000 to 5000 years ago are not necessary to account for the appearance of the Timucua language in southeastern North America, particularly since the development of ceramics and coastal adaptation are clearly autochthonous developments in the region. The movement of Timucua-speaking people into the Southeast occurred much earlier than the Late Archaic and by very different cultural mechanisms than postulated by Granberry. Language isolates which are geographically far flung are not uncommon among the Amerind languages, and Timucua appears to be one of them.

The difference of interpretation regarding the origins of the Timucua language in no way detracts from the accuracy and thoroughness of the analysis of the Timucua language which Granberry has presented. This is an outstanding, critical, and exhaustive reconstruction of the structure, grammar, and lexicon of a “dead” New World language. I recommend this book to anyone interested in New World languages or the ethnography and ethology of southeastern North America. For me, any work that makes me critically reevaluate my particular perspective on the role of trade, diffusion, and migration in the Late Archaic Southeast is a worthy contribution to the archaeology of the Southeast.

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Reviewed by Michael S. Nassaney

When aficionados of eastern North American archaeology think about late prehistory, the origins, characteristics, and spread of Mississippian culture are dominant concerns. And any serious comparative discussions of the Mississippian world that exclude Cahokia and the American Bottom run a considerable risk. Just the mention of Cahokia conjures up
images of a sprawling, nucleated population ruled by hereditary leaders who occupied the summits of giant, truncated pyramids and who commanded access to much of the finery and might of the pre-Columbian world north of Mesoamerica. One cannot easily forget seeing, or better yet climbing, the multi-tiered Monk's Mound, or imagining the human grief experienced by the Mound 72 retainer sacrifices. Yet the story of Cahokia, with few exceptions, has been as fragmented as the disparate investigations conducted there over the past century by more than a dozen different sponsoring institutions.

Fortunately, federal legislation supporting more systematic work on rural Mississippian sites conducted under the auspices of the FAI-270 Highway Project has led to a more integrated understanding of pre-Columbian settlement, subsistence, and sociopolitics in the American Bottom environs. This work had its limitations, however, as Pauketat notes; investigators soon came to realize that rural sites were not useful guides to what happened in Mississippian centers. But perhaps more importantly, the refined cultural chronology that emerged from investigations of dispersed sites in the 1970s and 1980s provided the temporal framework needed to track the political dynamics of social stratiﬁcation. A ﬁne-scaled sequence coupled with a changing theoretical climate ushered in during the 1980s has challenged the ecological functionalism of the New Archaeology and reinvigorated archaeological approaches to sociopolitical organization. It is this latter trend that is well articulated by Pauketat in *The Ascent of Chiefs* and his treatment will appeal to readers who are interested in the rise of social inequality and the exercise of power both within and beyond eastern North America.

*The Ascent of Chiefs* is a revised version of Pauketat's doctoral dissertation completed at the University of Michigan in 1991. I mention this to forewarn the reader; this is a serious book that will challenge one's theoretical and methodological acuity. The book also draws on a large corpus of Ann Arbor scholarship, from Anderson and Griffin to Welch and Wright, but breaks new ground by melding their work with insights from Giddens, Gramsci, and Marx. In so doing, Pauketat attempts to break down the barriers between what some would consider to be irreconcilable approaches in social theory (e.g., integration vs. conﬂict models; materialist vs. symbolic perspectives). This middle ground, by necessity, requires some eclecticism.

The introductory chapter sets the stage for the exploration of a problem that "lies at the heart of the social sciences" (p. 1); namely, why did people who lived free of ascribed hierarchy submit to positions of authority and power? Pauketat then goes on to detail (here and in the rest of the book) how archaeology is uniquely suited to understand world-historical developments and why Cahokia provides a good case study of political evolu-
political consolidation was to establish “regional control over the means of legitimation” (p. 33), perhaps by increasing sanctity. This may have occurred by raising the output of prestige goods (for redistribution or intensified exchange) or extending paramount claims to include the supernatural. A good example of the latter form of ideological legitimation is seen in the office and privileges of the Natchez’s Great Sun.

Pauketat closes chapter 2 by beginning to ground his theoretical propositions in the material record recoverable from archaeological contexts at Cahokia. We are brought closer to the archaeological record and Cahokia’s goodies when we learn that the archaeological signatures of political hegemony can be teased from the evidence for changes in craft production, labor mobilization, redistribution, tribute, and interregional exchange.

To the uninitiated, chapter 3 provides a good summary of the sociohistorical context of the American Bottom region. Pauketat critically reviews the concept of “Mississippian” discussing why ecology or economy cannot fully account for late prehistoric dynamics. Nevertheless, environment parameters are presented as the stage on which the drama unfolds. Chronological matters are next in order; we are given the revised and calibrated dates for a series of successive pertinent phases. This sequence, with phases and subphases as short as a generation (20-30 years), is unmatched in any other region of the Eastern Woodlands to my knowledge. The subphases are created using Pauketat’s seriation of temporally sensitive ceramic variables such as temper, surface treatment, and jar rim shapes, we are told in a footnote (p. 47). While this technique may have been considered too technical for inclusion in the book (it constitutes chapter 4 of Pauketat’s doctoral dissertation), the reader has no way of evaluating the validity or results of this technique and therefore must accept at face value the designations of the scores of features and house basins used in future analyses. We later learn that the mixing of disparate ceramic technologies and traditions due to population nucleation during the Emergent Mississippian period partly explains why this time span is so amenable to division into relatively short phases.

An overview of Late Woodland and Emergent Mississippian settlement, subsistence, and sociopolitics follows, before Pauketat introduces some material expressions of the development of social ranking and institutionalized political offices in the American Bottom. These include changes in ceramic style zones, the movement of food in pots, and the mobilization of high meat-yielding portions of butchered deer into central places.

A more detailed description of rural Mississippian sites and centers is provided in chapter 4. The long history of sporadic archaeological work points to lots of digging but limited analysis and publication prior to the late 1970s. Pauketat uses previous settlement models (of a three-tiered hierarchy) and a comparative approach to explore the variation in organization, production, and consumption within and between these varying levels. Cahokia and the “central political-administrative complex” (the area immediately adjacent to Cahokia marked by monumental construction and habitation debris) is the focus of attention here, including discussions of mounds and plazas, elite mortuaries, residential subcommunities, architecture, and palisades and compounds.

The later portion of this chapter presents the wide range of artifactual debris associated with craft production and external exchange. The frequency and ubiquity of these materials exhibit important diachronic patterns linked to regional consolidation as shown in later analyses; therefore, their source areas and functions are examined closely. Factual details appear accurate throughout, although Pitkin chert probably derives from the Ozarks and not the Ouachita Mountains in southwestern Arkansas (p. 93). The reader expecting numerous artifact illustrations in this section may be disappointed, but those drawings and photographs that are included are nicely rendered and reproduced. From an examination of the density and distribution of craft and exotic items in the region, Pauketat concludes “that craft-goods production and exotic-goods importation were centralized and thus controlled to an uncertain degree by the Mississippian elite” (p. 106). This stands in contrast to the views of other researchers who fail to see specialized production and elite control in Mississippian societies.

The next two chapters examine diachronically the architectural (chapter 5) and artifactual (chapter 6) evidence excavated from Tract 15A and the Dunham Tract (15A-DT) at Cahokia, two large, contiguous areas of the site excavated sporadically from 1961-1985. Pauketat seems cognizant of the problems and prospects associated with this sample of over 900 features (buildings, pits, hearths, etc.). While the sample may seem sizeable, it constitutes less than 1% of the total site area by my estimate. His argument, with which I generally concur, is that regional growth and political consolidation will be expressed in the changing organization of the built environment and distribution of portable objects at Cahokia. Since the entire site cannot be examined at this level of detail, a segment of the site that allows temporal resolution and reflects broader processes was chosen for analysis. Pauketat is able to show, quite convincingly, that changes in the size and organization of individual households and subcommunities can be correlated with, and are implicated by, the dynamic political economy of the region. For example, the Mississippian Lohmann-phase community pattern is significantly different from the preceding Emergent Mississippian. Instead of a series of small, courtyard feature clusters, the Lohmann-phase organization suggests “one inte-
grated, large-scale, and internally complex community plan” (p. 136). Moreover, the Lohmann phase ushered in the use of wall-trench building foundations which replaced the earlier single-post constructions.

These architectural changes, combined with diachronic shifts in domestic refuse, seem to “reflect an abrupt consolidation of political power, a realignment of social order and identity, and the coalescence of sacral chiefly authority and a nonstate class hegemony” (p. 141) during the roughly two centuries that the 15A-DT was occupied. Some of the portable artifacts that are analyzed to make this case include chipped and ground stone, triangular arrow points, microlith drills and shell beads, and other exotica (e.g., copper, aphanitic igneous rock). Ceramics, too, played a role in social reproduction. Ramey Incised, one of the widely recognized Cahokian ceramic type, is a well-known example. Various attributes of these jars support the contention that they were centrally manufactured and dispersed (by the elite?) over the hinterland. Pauketat interprets the representations depicted on these pots as expressions of cosmological principles which served (in a dual sense) as a medium of elite-commoner communication. This interpretation gains some support from the correlation of their appearance with the initial construction of the Post-Circle Monument (formerly the “woodhenge”)—an elite-controlled device for the ritual interaction with the cosmos.

At the end of chapter 6, Pauketat anticipates one of my major criticisms of this analysis, which revolves around the thorny issue of sample size and representation. Given the complex settlement history of the great Cahokia site, could the analyses of the 15A-DT be replicated using some other Cahokia sample? Pauketat suggests that the strength of his argument lies in the mutual reinforcement of the architectural and artifactual data sets. Of course, these (and other) data sets could contradict each other, making resolution more difficult. Changes in the intensity of settlement in the 15A-DT sample, for example, may be related to changes elsewhere at the site or in the region. Future efforts aimed at evaluating the observed patterns against other areas of the site or elsewhere in the region will be rewarded profitably.

The concluding chapter underscores some of the historical contingencies that conditioned and reproduced regional political consolidation. The chapter also serves to integrate the analytical results and interpretations in narrative form. Broader scale patterns are also used to support the interpretations derived from the 15A-DT. For instance, the decrease in deer remains in refuse at the Range site is discussed to support the idea that increasing amounts of white-tailed deer through the Emergent Mississippi period at Cahokia (in the complete absence of stone projectile points in contemporaneous fill samples) indicates that meat was acquired via tribute to high-ranking subgroups.

The refined chronology for the 15A-DT allows Pauketat to monitor changes in sociopolitical organization that are reflective of the pace of political consolidation. Radical disjunctions in community organization correlated with an increase in almost every type of exotic (and local) artifact from the EM-3 (late Emergent Mississippian) to L-1 (early Mississippian) subphases are interpreted to indicate a rapid shift to regional consolidation of the Cahokian polity. This shift also corresponds with the adoption of wall-trench architecture and the centralization of population at Cahokia from the surrounding floodplain and uplands.

The sudden and nearly complete replacement of single-post buildings by wall-trench constructions has broad implications for the organization of labor and the spread of Mississippian culture from a Cahokia heartland. The relationships are not entirely clear, however, although they beg the question of why wall-trench construction—a virtual hallmark of Mississippian culture—was adopted throughout most of the Mississippian world. This architectural change implies that labor was somehow reorganized; work crews perhaps sanctioned by the Cahokia elite may have replaced labor organized at the family or subgroup scale. Although the reasons for this method of construction diffused beyond Cahokia remain unexplained, it is unlikely that wall trenches were somehow better adaptive than previous forms and therefore spread at their expense. It is more likely that these new forms were tied to the positions of authority that sanctioned them, and were subsequently emulated by aspiring elites elsewhere in the region and eventually beyond.

Another interesting observation that emerges from Pauketat’s synthesis is the lack of temporal congruity among various products and symbols of the new political order that congealed at Cahokia. Various material elements representative of regional consolidation did not occur simultaneously. This implies that varying strategies were being developed by the elite to create, legitimize, and counter resistance to class hegemony at Cahokia. The result is a very dynamic social and political environment that reinforces our notion of the instability of chiefly formations that have, at best, weakly institutionalized forms of control.

Pauketat returns in the final chapter to one of the potentially important mechanisms of control—warfare. Military actions were probably needed to effect the abrupt and large-scale consolidation postulated for the American Bottom, but substantial evidence for warfare is lacking, at least from 15A-DT. The formal similarity of a small sample of arrow points (n=23) from 15A-DT and the cache of over 1,000 points from the famous Lohmann-phase Mound 72 suggest that: (1) weaponry symbolism may have been closely affiliated with the new regional chiefs of the American Bottom, and (2) projectile points were produced by attached specialists...
under the aegis of chiefly elites as an integral component of a prestige-goods economy. Axehead production likely followed a similar pattern.

Specialized production may have rested, in part, on patron-client collaboration which, in turn, would have served to reproduce relations of inequality. This can be inferred by: (1) the dissolution of the Emergent Mississippian courtyard community organization, and (2) variation in craft output at the scale of the household. Thus, the unit of production became transformed and earlier forms of cooperation (between households within the community) were eroded. Households may have served as “the basal units of articulation with the larger Cahokia community” (p. 181) contributing to their alienation.

Given the likely importance of warfare and economic control over the production of precious objects needed for social reproduction, it is difficult to see how Pauketat can conclude that “the spread of Mississippian political culture need not have been coerced” (p. 184). For me, warfare and economic control represent forms of coercion upon which a dominant ideology may be constructed. This view is not an economic determinism, but rather reflects a need to ground relations of inequality in material conditions. The issues surrounding the role of the material vs. the symbolic lead to broader concerns that are only partially addressed in this study, namely how elites effected regional consolidation at Cahokia at A.D. 1050. In other words, what were the specific historical conditions that led to the creation of a class hegemony at this particular time and at this particular place? Why didn’t this development occur 50 or 100 years earlier (or later) and why did this consolidation occur at Cahokia and not one of the other political-administrative centers of the American Bottom (or elsewhere in eastern North America)?

These questions are at the heart of any comprehensive understanding of world-historical development and they can only be explicated in comparative terms by examining broad spatial and temporal arenas in an analysis. By focusing on 15A-DT, or Cahokia, or even the American Bottom, we unnecessarily limit our analytical frame to a portion of larger political and social networks of interaction that were critical elements in the creation, reproduction, and transformation of social formations. Pauketat rightly notes the important contribution of external inputs (e.g., artifacts, esoteric knowledge) to the establishment of regional dominance. But what were the roles of these connections from beyond the American Bottom in local historical development? Interestingly, exotic objects (e.g., various types of chipped stone, aphanitic igneous rock) and ideas (e.g., truncated, pyramidal mounds and plazas) have a southern origin. Moreover, these inputs are associated with the establishment of elite social statuses that pre-date the Mississippi period. This form of argumentation may only seem to shift the burden of the explanation for ranking to earlier developments. That is not its purpose. It should serve to increase our vision of the scale of interaction that was in operation throughout North America beginning with its founding populations. The mechanisms of interaction have not remained constant over 10,000 years of prehistory, and recent empirical studies are beginning to explore the historical conditions that led to the contraction and expansion of these interaction networks.

I also find it peculiar that Pauketat (and many other researchers who work in the American Bottom) are often willing to downplay the effect that Cahokia had on other areas of eastern North America during the half millennia prior to European contact. Even if Cahokia did not lead to Iroquoian tribalization at its periphery or create a continent-wide economic hegemony, it surely had an historical impact beyond the American Bottom. Perhaps Pauketat has understated the importance of the wall-trench buildings, plazas, triangular projectile points, shell temper, and maize in Mississippian expansion, all of which became consolidated at Cahokia first. Following Pauketat’s lead, we must continue to ask ourselves why the common people of the Southeast and the midcontinent followed these aspiring elites. Varying forms of political and economic coercion were surely implicated in the process. Perhaps the range of strategies employed by the elite (e.g., increased sanctity, ritual articulation with the cosmos, reorganization of labor for house construction and craft production) are different attempts to counter non-elite resistance to increased hegemony, of either the rank or class variety. By characterizing diachronic variation in this manner at the local and regional scales, we get a better sense of the dynamic struggle between competing interests in which various groups and subgroups had a stake.

There is much more in this book that I like than I would quarrel with, and so I must conclude that this is a very good study. Pauketat has provided us with a processual explication of the political development of a nonstate, stratified society, examples of which rarely exist archaeologically or ethnohistorically. His approach brings a robust theory to bear on a solid data set using appropriate methods—the formula for a lasting archaeological contribution. The publisher has again done a nice job of producing a useful volume at an affordable cost with a limited number of typographical errors, mostly of a bibliographic nature (e.g., on p. 96, “cover-covered” should probably read “copper-covered,” Godekel [1978] is printed twice in the bibliography on pp. 202 and 204; Muller and Stephens appears as 1991 on p. 42 but 1990 in the bibliography [p. 216]). But these minor errors detract little from the impact that this book will have on our study of Cahokia, the American Bottom, Mississippian culture, and sociopolitical evolution. And any contribution that has the
potential for this level of influence is an example of the very best that North American archaeology has to offer.

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