

Dating Caddo Indian Habitation at the Hughes Site (3SA11)

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Abstract

The 2002 Henderson State University Archeological Field School took place at the Hughes site (3SA11), a significant Caddo mound site in Saline County, Arkansas. Students in this course took part in a research project, directed by Dr. Mary Beth Trubitt, designed to document spatial patterns of activity at the site, to investigate residential features, and to obtain samples for dating the site's inhabitation. Trubitt is the Arkansas Archeological Survey's HSU station archeologist and also teaches in HSU's Sociology/Human Services Department. Funding from an HSU Faculty Research Committee grant awarded to Trubitt in January, 2006, has been used for radiocarbon dating of three charcoal samples obtained from the site during the 2002 field season. The resulting dates fix the timing of the use of the Hughes site by ancient Caddo Indians to at least the 14th -15th centuries A.D. and serve to clarify the relationship between portions of burned structures found there.

The Research Project

The Hughes site (designated 3SA11 in the Arkansas site file database maintained by the Arkansas Archeological Survey) is an important ancient mound site located near the Saline River near Benton, Arkansas. Archeologists – and artifact collectors – have known about the site for over a hundred years. It was visited by Edward Palmer in 1883 as part of the Smithsonian Institution's Mound Survey (Jeter 1990; Thomas 1894). Palmer's description of daub and charcoal/ash deposits from his excavations indicate there must have been at least one structure on the main mound that burned. In the Caddo area, special structures were often collapsed and burned after their use and earth mounded over them before a new building was constructed. In 1982, Dr. Ann Early (then the Survey's archeologist at HSU) did some mapping and reconnaissance at Hughes, leading to the site's placement on the National Register of Historic Places. Shell-tempered ceramic sherds and novaculite tools found at the site pointed to a late Caddo period occupation dating between about A.D. 1400-1700 (Jeter and Early 1999; Schambach and Early 1982).

Hughes was a local population center used by late prehistoric/protohistoric Caddo Indians that has the potential to contribute to our understanding of social and ceremonial systems, settlement patterning, and economic organization. Our knowledge of Caddo lifeways in southwest Arkansas is formed mainly from collections and archeological research in the middle Ouachita River drainage (e.g., Early 1993) and the Red River drainage (e.g., Trubowitz 1984). How was the Caddo period occupation in the Saline River drainage similar to or

different from these areas?

Archeological field work at Hughes was undertaken in the summer of 2002 as part of an Archeological Field School course offered through the HSU Sociology and Human Services Department (that year it was also offered as a University of Arkansas course). The archeological research at the Hughes site had several specific objectives: (1) to map the site's topography and surface features to document the main mound and identify remnants of any other mounds; (2) to identify differences in activity patterning at the site, both around and away from the main mound; (3) to investigate residential features such as houses, hearths, and pits that can inform us about the people who lived at the site and their relationships with others beyond the local region; and (4) to obtain samples (artifacts, charred wood) that can be used to date the site occupation(s) and build a Caddo period chronology in this area.

Students worked under the supervision of Mary Beth Trubitt and Kate Wright (then the AASurvey/HSU Station research assistant) to map the site using an electronic total station. The resulting topographic map (Figure 1) shows a two-stage mound rising 5.5 m (about 18') above the surrounding terrace. Anecdotal information indicates two other mounds were leveled in the early 1900s and incorporated into an artificial levee along the intermittent creek that forms the northeast boundary of the site. Students learned the use of systematic shovel testing to investigate the spatial distribution of past activities across the site, excavating small test holes to compare the depth of deposits and the density and kinds of artifacts uncovered. A total of 35 shovel tests were excavated across a 270 x 140 meter site area (about 3.8 hectares or a little over 9 acres). Artifact tabulations show concentrations of artifacts (see, for example, the ceramic sherd distribution in Figure 2). The shovel tests also revealed traces of ancient constructions or "features" in two areas of the site. Larger excavation units were placed here, and the field school students recorded and collected data while learning excavation techniques. The notes and artifacts from these areas are being analyzed to make interpretations about the Hughes residents' activities.

Overview of Results and Interpretations

An exciting find during the 2002 field season at 3SA11 was a series of three burned surfaces – likely portions of three superimposed structures – located in three excavation units placed near the main mound (Figure 3). Associated with and in between each of these surfaces were artifacts, mostly fragments of pottery, novaculite tools, pieces of animal bone, and charred wood and plant remains. The trash in this area includes food preparation debris that may have been generated from feasting activities held in conjunction with rituals on the mound. It is not clear whether these structures were intentionally or accidentally burned. A stratified sequence of burned surfaces (Features 2, 7, and 16) was identified in Unit N199E244 closest to the mound (Figure 4). Feature 16 in Unit N199E244 and Feature 8 in Unit N199E248 were areas of burned clay or "daub" with many charred wood fragments. Portions of several burned timbers were found at about the same depth (50 cm), about 3 meters apart from each other, and are thought to be part of the same burned structure floor. Several large segments of burned logs and other pieces of charred wood were collected from these features, and three samples were

selected for radiocarbon dating using funds from the grant.

Charcoal from archeological features and directly associated with structures or fire hearths is ideal for radiocarbon dating analysis. Radiocarbon (C14) dating is an absolute dating technique that has been in use in archeology for over 50 years. The radioactive carbon isotope is absorbed by plants and animals from the atmosphere during their lifetimes, and after an organism's death, decays over time. Because the decay occurs at a regular rate, it is possible for specialists to calculate the age since death by measuring the amount of radioactive carbon remaining. For archeological dating, the analyst calculates the age of the sample (how long it has been since a tree was cut down for wood, for example) by counting radioactive emissions. Radiocarbon dates are typically reported as a date with an estimated error (a plus/minus factor). Because the amount of radioactive carbon in the atmosphere has not been strictly constant through time, the C14 dates are "calibrated" using comparisons with long dating sequences obtained through dendrochronology (tree-ring dating). Radiocarbon dating is a specialty analysis currently done by several laboratories around the country. The three samples from 3SA11 were sent to Beta Analytic, Inc., in Miami, Florida, for analysis (Table 1, Figure 5).

The research funded by the HSU Faculty Research Grant allows us to refine our chronology of this area. We have effectively doubled the radiocarbon sample from Saline County (four other dates come from a wooden dugout canoe found several years ago in the Saline River, Trubitt 2002). The radiocarbon dates indicate that Hughes Features 8 and 16 are contemporaneous and were probably part of the same structure that burned within several decades of AD 1300. Feature 7, stratigraphically higher in the excavations, is part of a later structure that probably burned within several decades of AD 1470. These dates place the site's occupation in the middle and late Caddo period. The dates are actually earlier than expected because preliminary examination of the artifacts showed a predominance of late Caddo period types.

The analysis of artifacts excavated by students in the 2002 field school is still underway, but preliminary results can be discussed in light of the new radiocarbon dates. Analysis of the fragments of pottery by Matt Reynolds (currently the AASurvey/HSU Station research assistant) shows the following breakdown by temper and surface treatment, both of which changed through time in this region (Figure 6). The majority of analyzed sherds from the three excavation units next to the mound (N199E244, N201E246, N199E248) are tempered with crushed mussel shell. In excavation unit N199E244, shell tempering predominates both in the sherds found at or above Feature 7, now dated to around AD 1470, as well as in sherds found between Feature 7 and Feature 16, now dated to around AD 1300. In the Arkadelphia area, shell tempering appears during the Mid-Ouachita phase (ca. AD 1400-1500) and dominates ceramic assemblages during the Social Hill and Deceiper phases (ca. AD 1500-1700) (Early 1993). The shift from grog (crushed sherds) to mussel shell for tempering pottery clay may be earlier further east in the Saline River drainage. Of those sherds from the three excavation units that are tempered with mussel shell, about half are decorated. The most common decorations are brushing or combing, incised or wider "trailed" lines, and punctations. Some of these sherds are probably pieces of Foster Trailed-Incised cooking jars, a late Caddo

period type in neighboring archeological regions (e.g., Trubowitz 1984), while other pieces resemble Cowhide Stamped, Mound Tract Incised and Brushed, and Bailey Engraved types. Two sites recently excavated in Pulaski and Jefferson counties (3PU111, 3JE285) have ceramic assemblages that include Foster Trailed-Incised and Mound Tract Incised and Brushed types, and radiocarbon dates that cluster with those from Hughes (Figure 5; House 1997; House and Farmer 2001).

Some novaculite chipping debris was found, and over 40 arrowpoints or point fragments have been catalogued. Many of these are variants of Maud or Washita types, small triangular point with concave or u-shaped bases and sometimes side notches that are found on late Caddo period sites in southwest Arkansas and east Texas (Early 1988, 2000; Trubowitz 1984; Perttula 1992). In the Arkadelphia area, Maud arrowpoints as well as Foster Trailed-Incised cooking jars are characteristic of the Social Hill phase, estimated at AD 1500-1650, although there are no radiocarbon dates to corroborate this date (Early 2002). In the Ouachita Mountains, Maud and Washita points were associated with a burned structure from 3MN496 radiocarbon-dated to around 1470-1500 AD, while stemmed Hayes, Alba, Agee, and Scallorn points indicated an earlier occupation (Early 2000). At 3SA11, preliminary results indicate that all the Maud/Washita type points from excavation unit N199E244 were found above Feature 7, now dated to around AD 1470, and only stemmed types were found between Feature 7 and the earlier Feature 16, now dated to around AD 1300.

With the results of the radiocarbon dates, the artifact analyses can now be completed, and interpretations about the Hughes site can be brought together for publication. A paper that included discussion of the 3SA11 excavations was presented at the annual Caddo Conference in March, 2006, to an audience that included archeologists, historians, and Caddo Indians (Reynolds and Trubitt 2006). Final publication of this research is anticipated in the regional *Caddo Archeology Journal* and in a chapter in an upcoming edited book on Caddo archeology.

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Biographies

Dr. Mary Beth Trubitt is the station archeologist at the Arkansas Archeological Survey's research station at Henderson State University in Arkadelphia. She conducts archeological research and fieldwork in west-central Arkansas and teaches anthropology courses in the Department of Sociology and Human Services at Henderson State University. Her research focuses on craft production and trade, household archeology, and the development of Mississippian and Caddoan societies. Current projects include researching the use of novaculite as a raw material for ancient stone tool production in the Ouachita Mountains and understanding ancient Caddo society from archeological sites in the Caddo, Ouachita, and Saline river valleys.

Mr. Matthew Reynolds is the research assistant at the Arkansas Archeological Survey's research station at Henderson State University in Arkadelphia. He received his BA in anthropology from Ripon College in Wisconsin in 1994 and his MA in anthropology from the University of Mississippi in 2002. His archeological field work has taken him to sites across the southeastern United States and to Costa Rica. His research specializations are ceramics analysis and geophysical surveying.

Table 1. Results of Radiocarbon Dating of 3SA11 Samples.			
<i>Sample ID and Provenience</i>	<i>Conventional Radiocarbon Age Before Present</i>	<i>Calibrated Age Intercept</i>	<i>Calibrated Age Range (1 sigma)</i>
Beta-214276 2002-414-191, F-8	710 ± 40 BP	Cal AD 1290	Cal AD 1270-1300
Beta-214277 2002-414-234, F-16	640 ± 40 BP	Cal AD 1300	Cal AD 1290-1320 and Cal AD 1340-1390
Beta-214275 2002-414-188, F-7	390 ± 40 BP	Cal AD 1470	Cal AD 1450-1510 and Cal AD 1600-1620

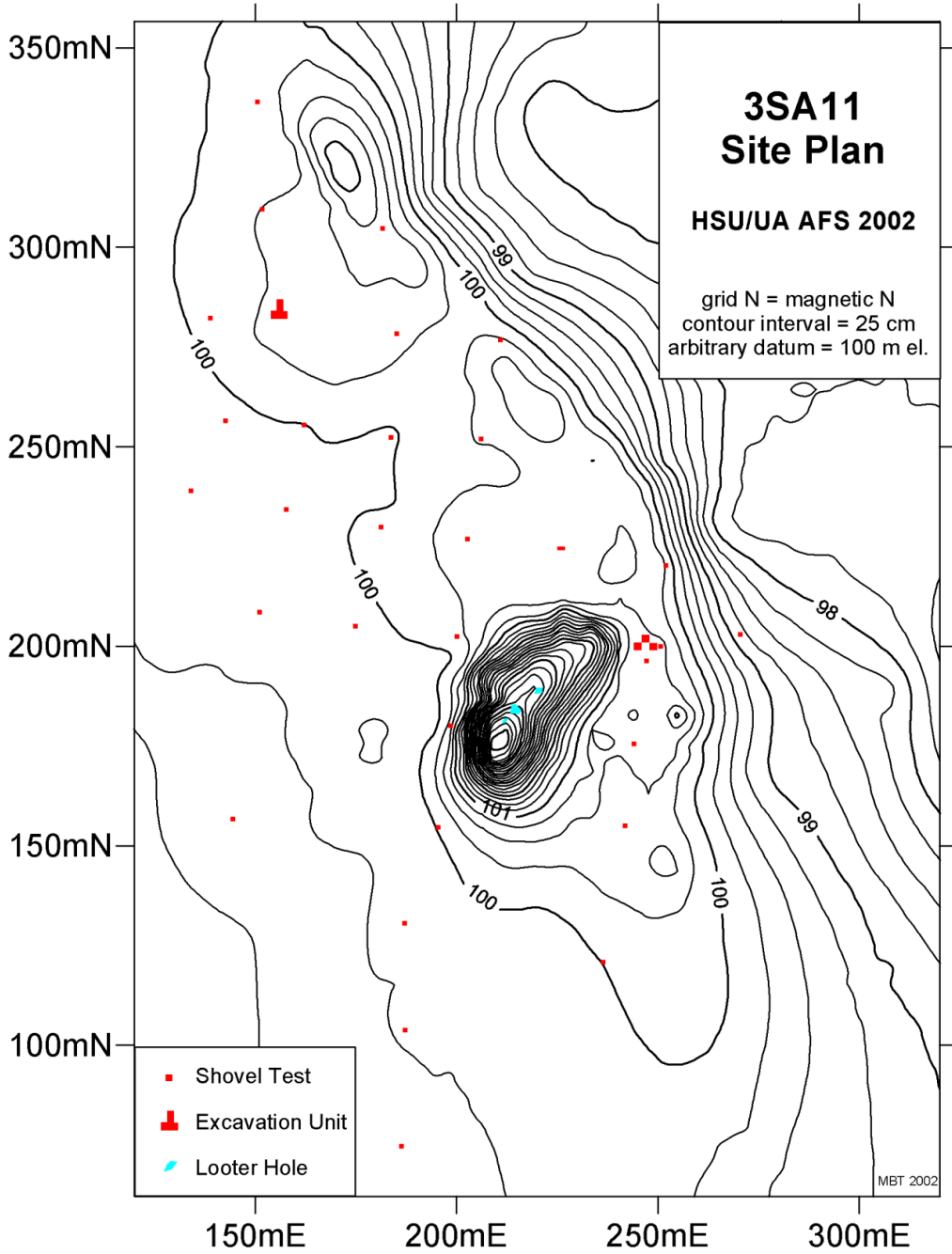


Figure 1. Topographic map of the Hughes site (3SA11) showing excavation locations.

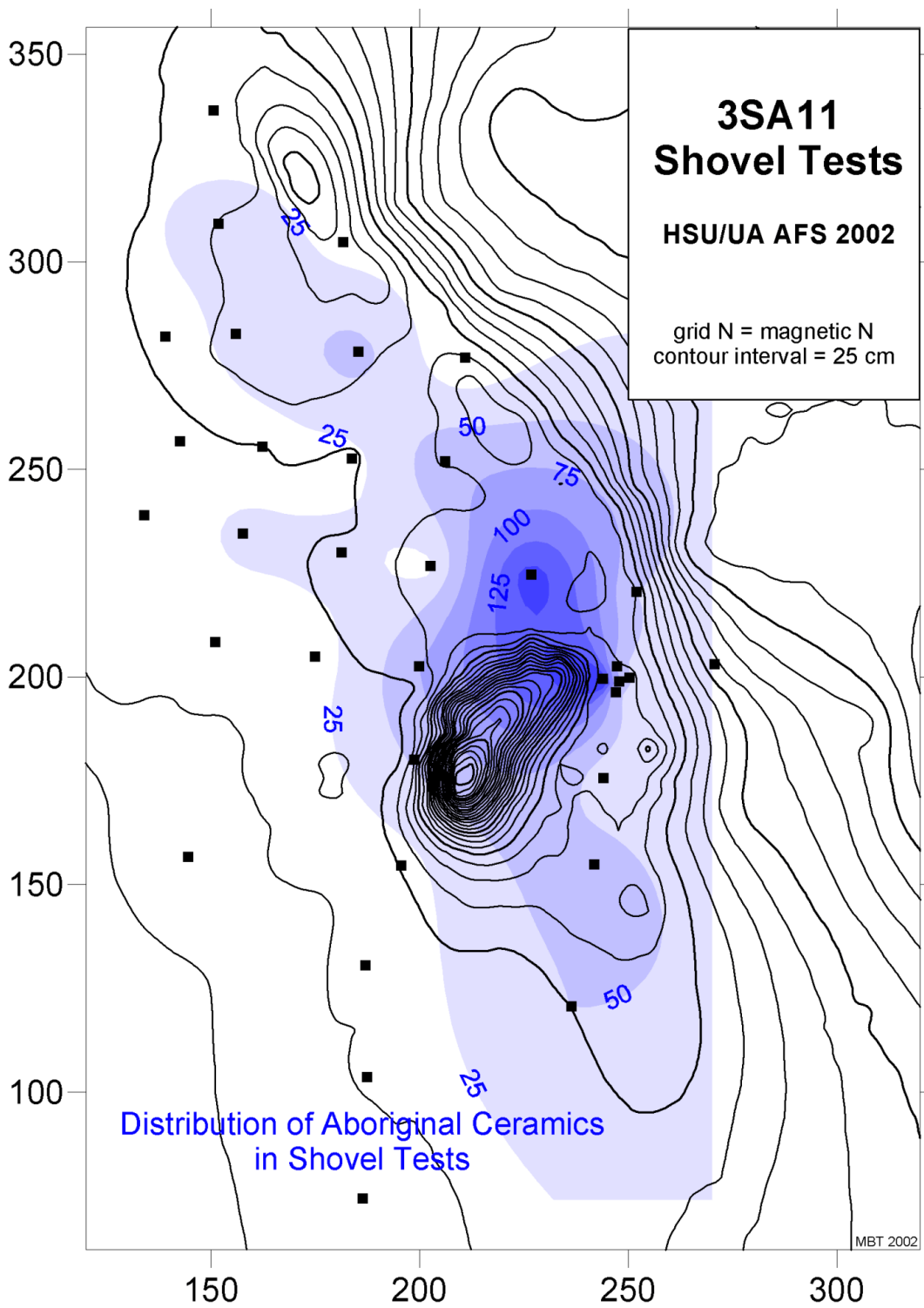


Figure 2. Density distribution map, aboriginal ceramics.

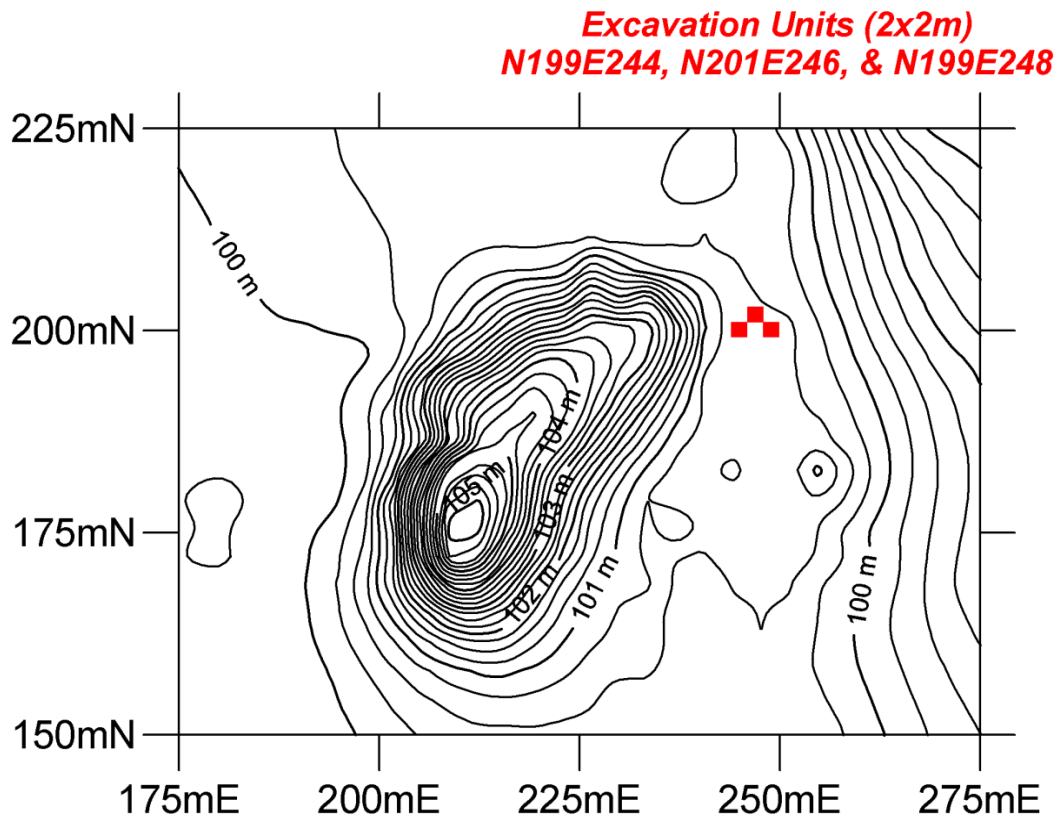
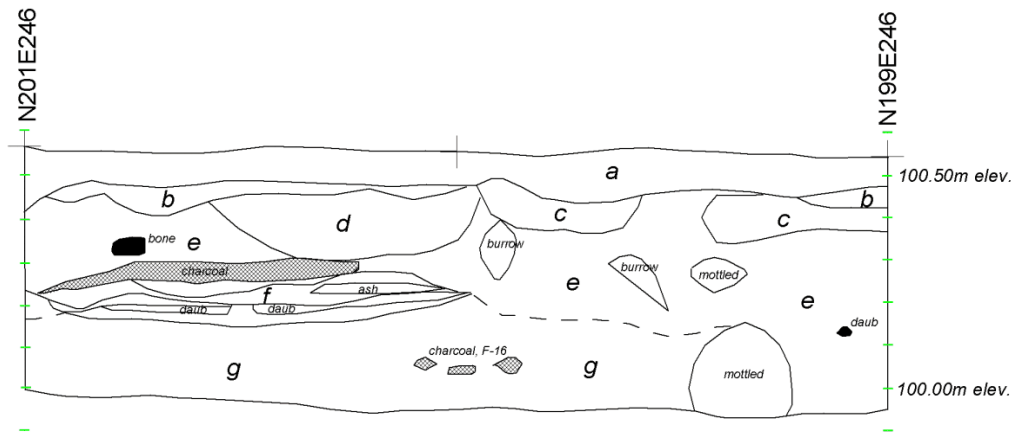


Figure 3. Location of excavation units N199E244, N201E246, and N199E248 at 3SA11.



- 3SA11
EU N199 E244
East Profile**
- a - root zone, 10YR3/2 silt loam
 - b - 10YR2/2 silt loam
 - c - mottled 10YR3/2-4/2 silty clay loam with charcoal
 - d - 7.5YR3/2 silt loam
 - e - 10YR3/2 silt loam with charcoal
 - f - Feature 7 - lenses of 10YR3/4-4/4 silty clay loam w/ daub & charcoal, 5YR4/6 daub, 10YR5/4 ash, and 5YR3/4 silty clay loam
 - g - Feature 16 - 10YR3/4 silty clay loam with charcoal

Figure 4. East profile of EU N199E244 at 3SA11, showing vertical relationship of F-7 and F-16.

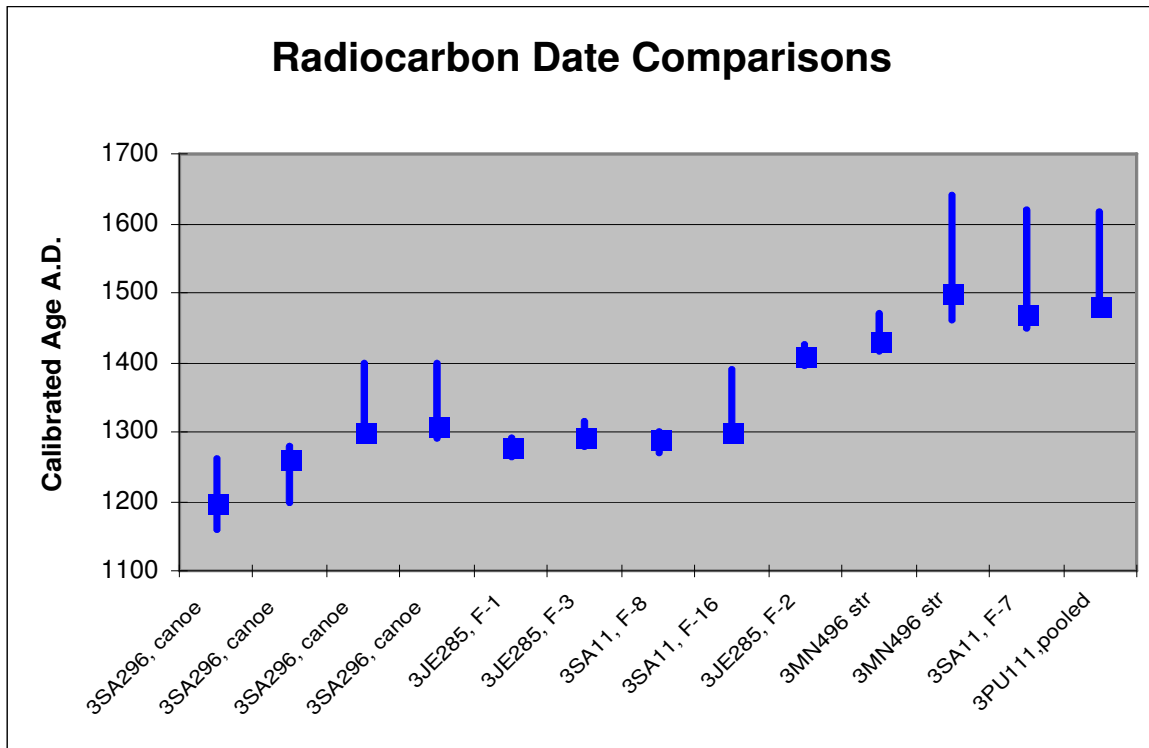


Figure 5. Graph of radiocarbon ages (calibrated intercepts and one-sigma ranges) from selected archeological sites (3SA296=Peeler Bend Canoe, 3SA11=Hughes, 3JE285=PB Arsenal, 3MN496=Winding Stair, 3PU111=Kuykendall Brake).

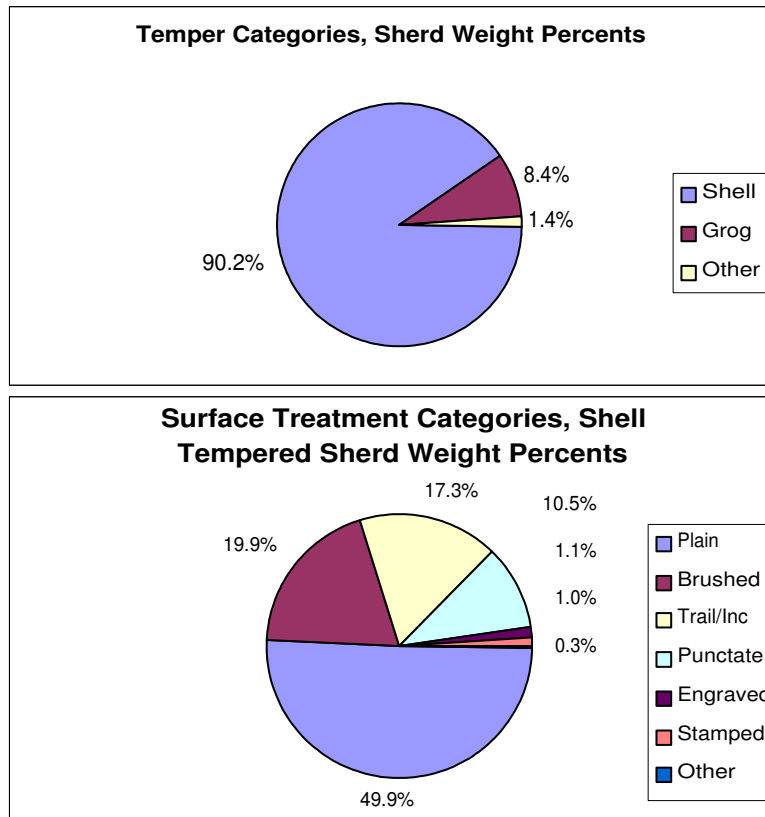


Figure 6. Pie charts showing percentages of sherds (by weight) from excavation units N199E244, N201E246, and N199E248 by temper, and for shell-tempered sherds, by surface treatment.