

Chronology, Material Culture, and Occupation Cycles

By

John Rutherford and Dennis Knepper

Cultural Resources Department

Parsons

10521 Rosehaven Street

Fairfax, Virginia, 22030

ph: (703) 218-1089

email: john.rutherford@parsons.com

dennis.knepper@parsons.com

web: www.parsons.com

Paper presented at the Society for American Archaeology Meetings, Philadelphia, April, 2000

The Hickory Bluff Site covers an area over 5 acres in extent, on the east bank of the St. Jones River. It sits atop a prominent high spot at a major bend in the river. Over eight hundred 1-meter square units were excavated in various portions of the site. These excavations produced a large and diverse data set, which included over 85,000 artifacts.

Several types of chronological data were collected at the site. Organic material for radiocarbon dating was not abundant, but efforts were made to collect suitable samples from the most likely and secure contexts. At present, 22 radiocarbon samples have been submitted for assay. The dates returned range from 4,500 years BP through the historic period. Diagnostic artifacts included over 6,000 ceramic sherds and 250 projectile points. The points and ceramics indicate major phases of occupation dating to the Late Archaic, Early Woodland, and Middle Woodland, while small assemblages represent other temporal phases.

Radiocarbon Determinations

A series of 22 radiocarbon dates have been obtained from different parts of the site, representing aggregate samples from features and level proveniences, charred nut hull fragments, and residue from ceramic vessels. The dates, reported as 2-sigma calibrated calendar year dates, span most of the interval from the late historic period through the middle portion of the Late Archaic period, around 3000 BC. While sampling of the types of material and proveniences was not systematic, the locations from which the samples were taken were varied enough that we believe the date range to be an accurate representation of the periods of site occupation, if not the consistency or intensity of site use during any given interval. The radiometric data were collected from several sources, and the results of the assays corroborate the chronology of the artifacts collected. The cluster of early dates is notable in that they are essentially identical, statistically, averaging about 2800 BC. Two of the four dates are aggregate samples from a single feature, while the other two were from hickory nutshell fragments recovered from widely separated proveniences.

Feature 1

Ceramics

There were over 6,000 ceramic sherds recovered from the excavations at Hickory Bluff, of which approximately 1,600 were large enough and bore sufficient attributes to be typed. The frequency distribution for the main types identified is shown in the slide.

Almost half of the typed sherds were identified as Middle Woodland clay-tempered wares – mostly Colburn, and a small amount of Nassawango. Another 28 percent consisted of Early Woodland steatite-tempered Marcey Creek. The only other well-represented type was Wolfe Neck, from the late Early Woodland – these accounted for almost 20 percent of the total.

Marcey Creek?

A chart was created showing a form of seriation analysis using the conventionally accepted date ranges of each ceramic type and the aggregated frequencies of the types within 100 year intervals. Note that the frequencies are based on sherd counts, not minimum vessel counts. The earliest wares, Marcey Creek and, to a minor extent Dames Quarter, account for the high frequencies early in the Early Woodland, while the clay-tempered wares combine with Wolfe Neck at the Early-Middle Woodland transition. There were relatively few sherds representing late Middle Woodland or Late Woodland wares, as indicated by the thin line at the top of the chart. The fall-off in the middle part of the Early Woodland is not necessarily an indication of a decrease in site occupation. Rather, it results from the lack of overlap in the accepted date ranges of the ceramic wares, and thus suggests that our understanding of these ranges is incomplete.

Marcey Creek 3

Points

Point types from the Early Archaic through Late Woodland were present at the site. The greatest frequencies were among stemmed points, both large and broad-bladed forms from the end of the Archaic period (Koens-Crispin, Lackawaxen) and smaller stemmed points manufactured from the local gravels. These small stemmed, and occasionally side-notched points do not have good contextual or chronological data associated with them, but they are widely presumed to be Woodland in date. Thus we have applied the broadest acceptable range for their presence: that is, most of the Early and Middle Woodland subperiods.

A seriation graph for points similar to that constructed for ceramic types was constructed using the conventionally accepted date ranges of each point type and the aggregated frequencies of the types within 100 year intervals. Not included on the graph are two early points, Palmer and LeCroy, both of which were single representatives of their types. Inclusion of these points on the chart would have rendered the scale unreadable. Since they were individual finds that could not be confidently shown to indicate early site occupation, their presence is acknowledged, but they have been left off the graphic.

Palmer 2

As the chart indicates, point frequencies increase near the end of the Archaic period, reach a maximum during the Early Woodland and decrease during the Middle Woodland. The dramatic fall-off in the Late Woodland reflects the small number of acknowledged point types from the subperiod (several forms of triangle) and the low frequency of occurrence of those points at the site.

Comparison

In comparing the three datasets, it is apparent that the frequency peaks for points and ceramics tend to correspond in the Early and Middle Woodland subperiods. We fully recognize that the frequency of occurrence of ceramics and projectile points cannot necessarily be translated directly into intensity of occupation. We are, after all, dealing only with the stone and ceramic artifacts, which represent a small portion of the contemporary material culture from the site – estimates of the proportion range as little as

ceramics

5 percent. Nevertheless, these data do give us an indication of the amount of activity that was ongoing during these periods.

There were fewer points from the Late Archaic period, even though there were more types present. In addition, radiometric data were less frequent from early periods. There were none to correspond with the Early and Middle Archaic points, which may be an indication that these artifacts were heirlooms or scavenged pieces, and do not represent occupations. While the lack of radiocarbon data from these periods could alternatively be a matter of sampling bias, it is more likely a question of preservation – that is, organic material, even when carbonized, is more likely to dissipate in a sandy sedimentary environment the longer it lies in the ground, thus resulting in a bias against older dates. Preservation may be better in the case of charred hickory nutshell, since it is a denser material than carbonized wood, and in fact some of the earliest dates from the site were from nutshell fragments.

The reverse of this is also true – organic preservation creates a bias toward younger dates. And thus we see the Late Woodland fairly well-represented by radiometric data, while there were comparatively few contemporary artifacts, such as triangular projectile points or thin-bodied shell or sand-tempered ceramics.

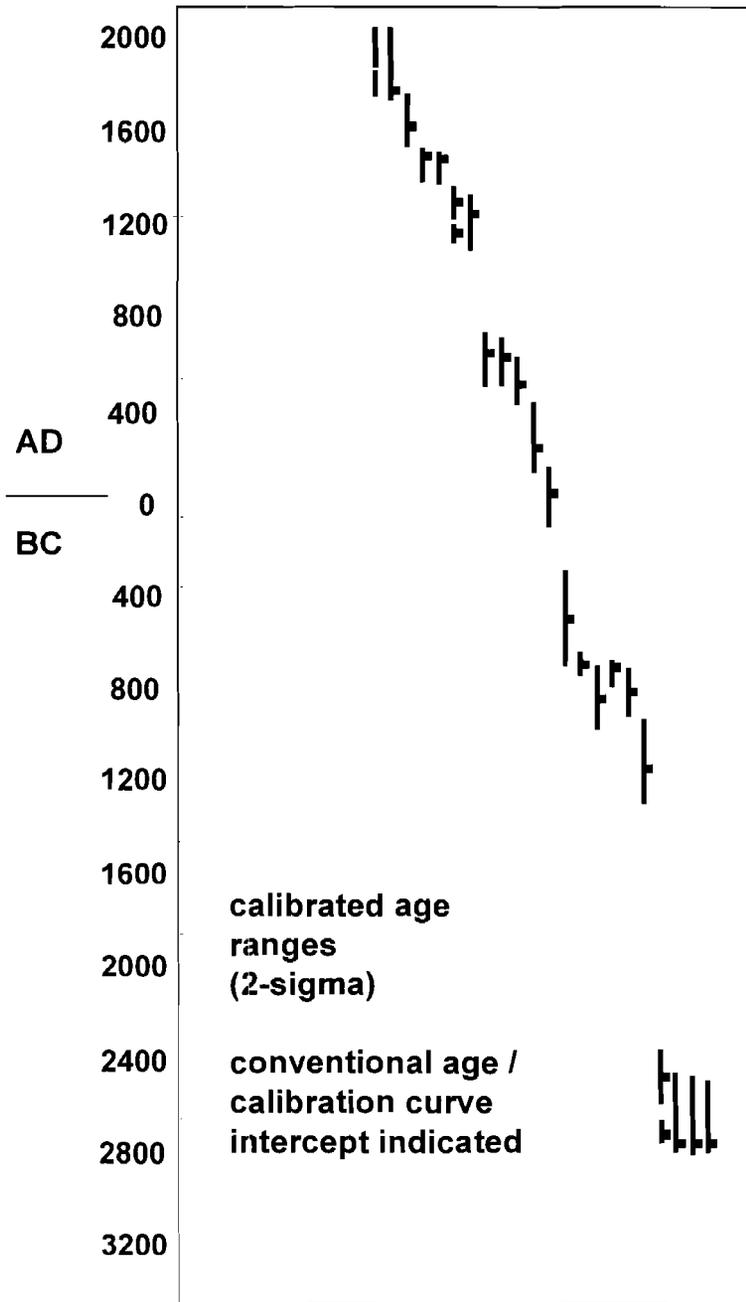
Conclusions

To sum up, a wide range of chronological data was recovered from the Hickory Bluff site, including radiometric determinations and an assortment of temporally diagnostic artifacts. These data varied both in type and quality. The distinction in terms of data quality is important in the analysis and interpretation of site use. That is, the different forms of data are given different weight in the analyses – some used as primary data, some as corroborating data. For example, diagnostic projectile point frequencies suggest that there was increased activity at the site at the beginning of the Early Woodland period. Ceramic frequencies are comparatively high during this period, as well. A series of overlapping radiocarbon dates tends to corroborate this observation. In contrast, there is ambiguous or unclear evidence of occupations early in the Archaic period, with several diagnostic artifacts present and an admittedly biased radiometric database.

In general, the radiometric data from the site, which was collected from several sources, corroborated the chronology of site use implied by the artifact assemblages. Together, the data present a strong case for concluding that the heaviest periods of occupation were from the latter parts of the Late Archaic through the Middle Woodland. At this stage of our analysis, it is difficult to determine whether the large numbers of artifacts and features were derived from single, long-term occupations by large groups, or were the result of multiple re-occupations by small groups following seasonal rounds.

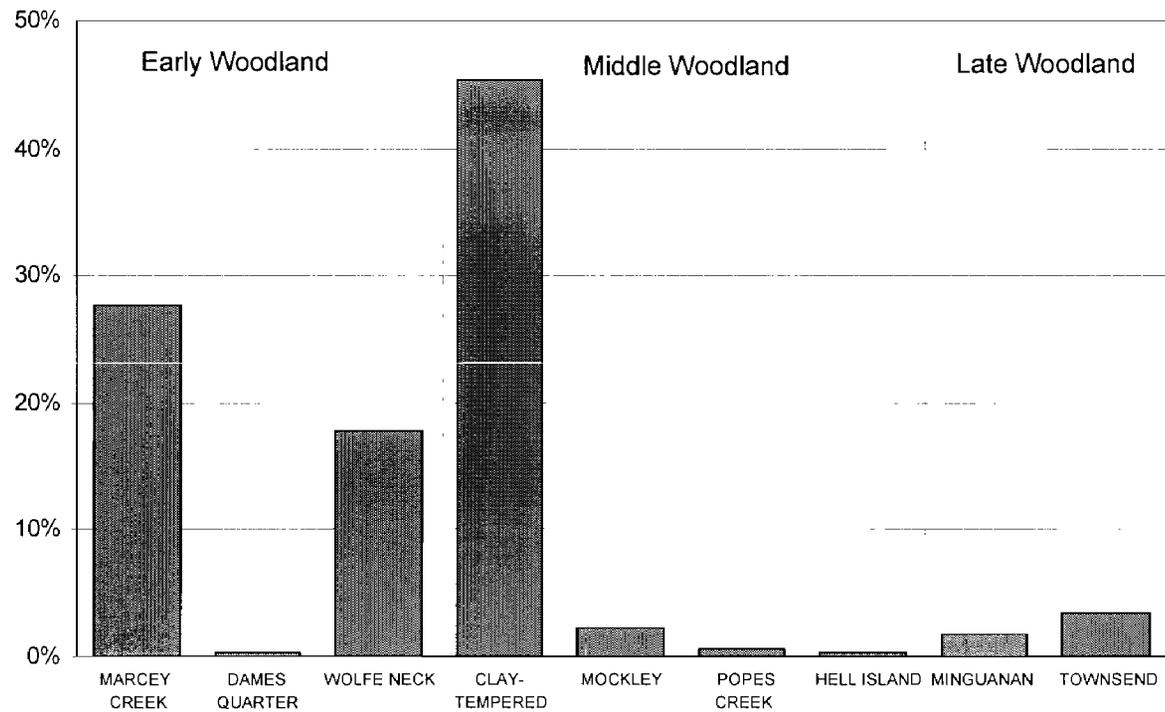
There are several avenues available for investigating the question of the intensity of site use, and all of them are based on assessing the formation processes behind the structure of the site: determining how the site that we encountered archaeologically was formed.

One approach involves ongoing analyses of the spatial distributions of artifacts and features, using the chronological data we have outlined here. These analyses will be discussed in a subsequent paper. But first, we will examine the results of geoarchaeological investigations that focused on the definition of site context, and the examination of feature formation and preservation, and the range of natural and cultural processes that have operated to structure the site.



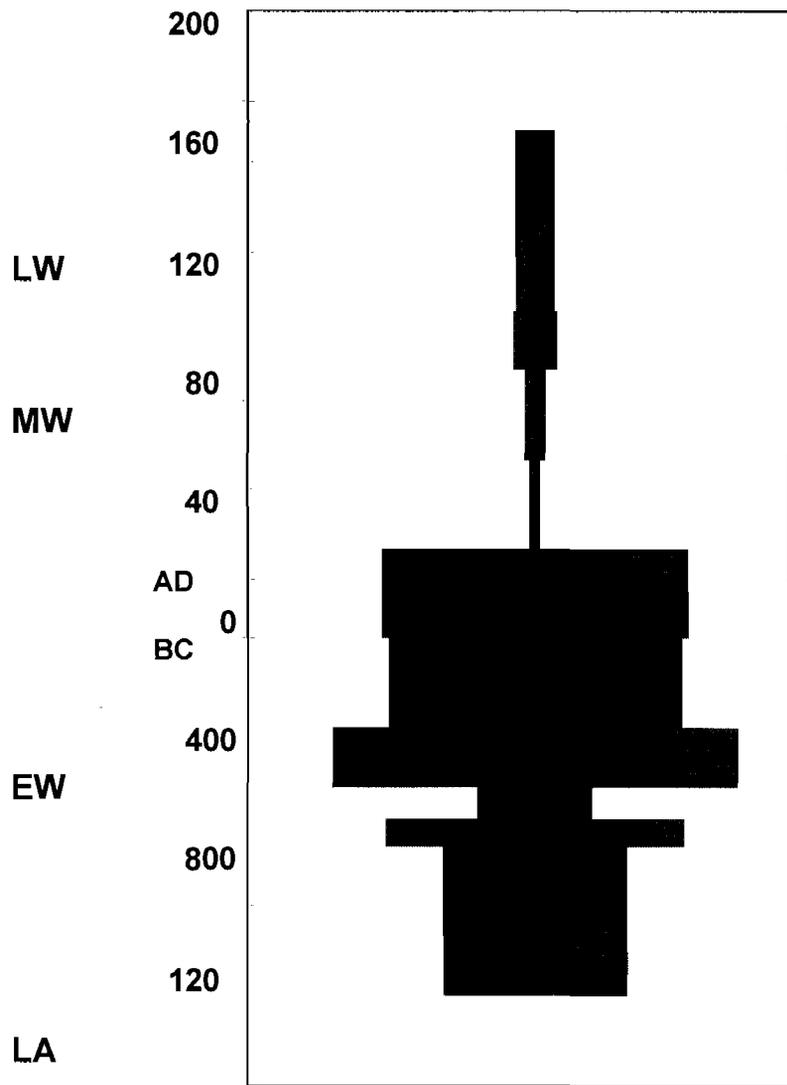
RADIOCARBON DATES

Handwritten signature or mark



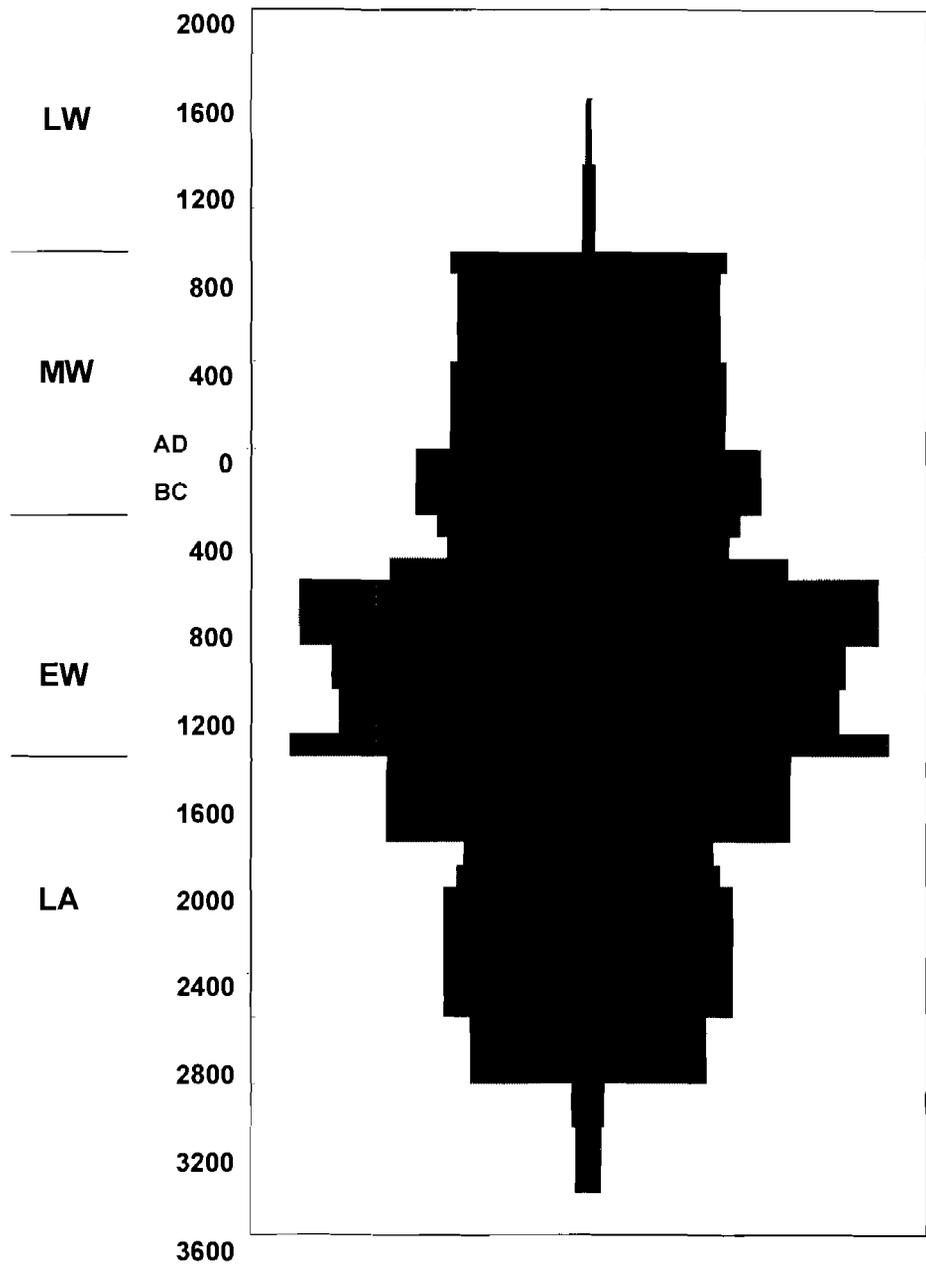
CERAMIC TYPE DISTRIBUTION

Figure 2



CERAMIC TYPE FREQUENCIES

Figure 3



POINT TYPE FREQUENCIES

Figure 2

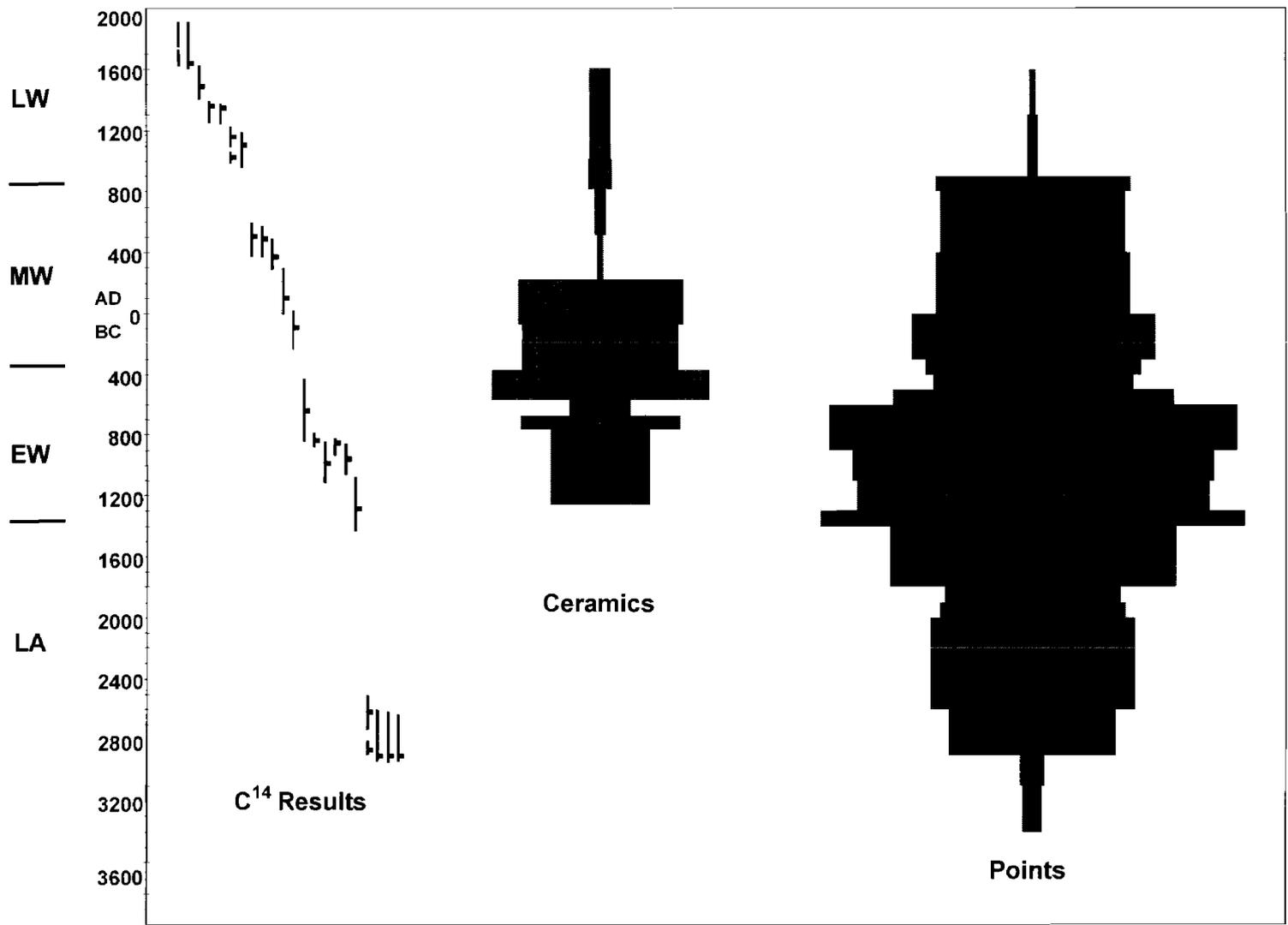


Figure 5

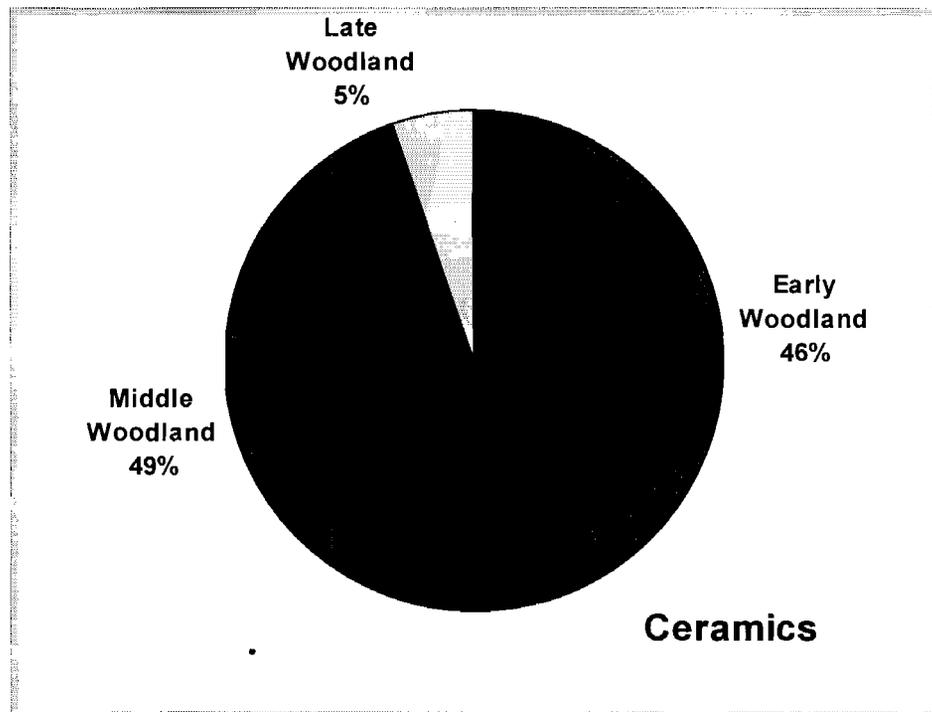
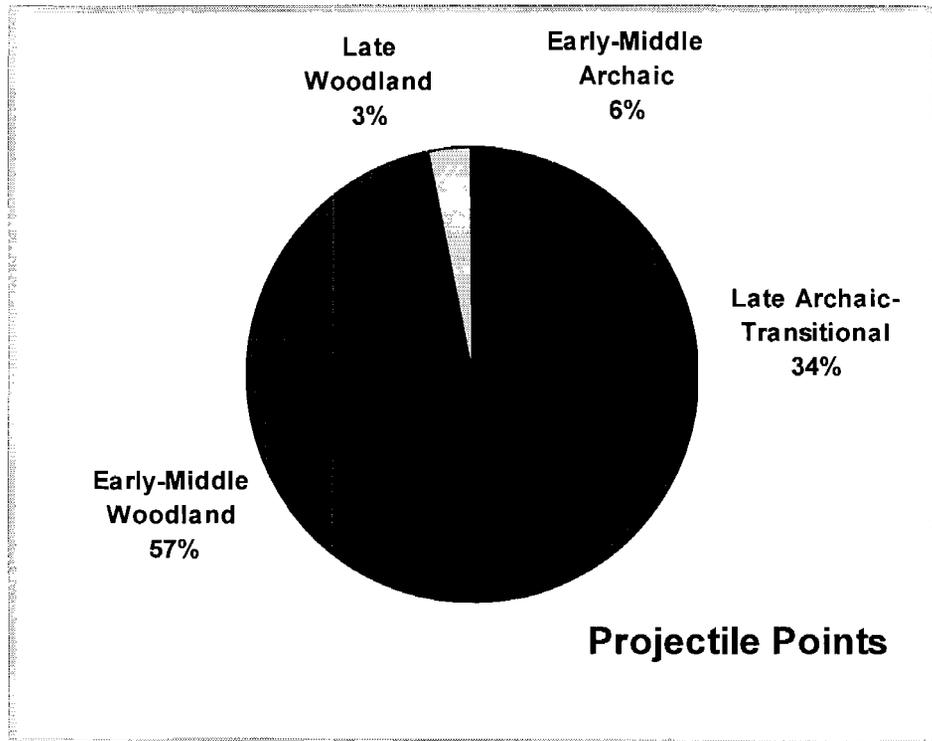


Figure 6