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Toward a Regional Radiocarbon Model for the East Texas Woodland Period

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ABSTRACT

The 13 °C dates from the Woodland period occupation at the Broadway site were combined into three groups (Figure 12). Group 1 consists of two assays (Beta-157990 and Beta-173089), Group 2 has six assays (Beta-154860, Beta-175989, Beta-173091, Beta-154857, Beta-175982, and Beta-175095), and Group 3 has five assays (Beta-173090, Beta-157991, Beta-162401, Beta-175097, and Beta-182462). Group 3 dates from A.D. 257–344, Group 2 has an age range from A.D. 442–574, and Group 1 dates from A.D. 635–877, indicating a temporal hiatus of 98 cal. 14C years between Group 2 and Group 1. Occupational periods span 87 cal. 14C years, 132 cal. 14C years, and 86 cal. 14C years, respectively.

We are quickly approaching an era where typological assignments can be associated with radiocarbon samples in this same manner, but significant advances in correlating these data with specific aspects of archaeological assemblages still need to be made as we progress in our understandings of the Woodland period. This research has employed the East Texas Radiocarbon Database as representative of this period to speak to the need for further research.

BROADWAY SITE EXAMPLE

The East Texas Radiocarbon Database contributes to an analysis of tempo and place for Woodland-era (ca. 500 B.C. – A.D. 800) archaeological sites within the region. The temporal and spatial distributions of calibrated radiocarbon (14C) ages (n=127) with a standard deviation (3.3) of 61 from archaeological sites with Woodland chronologies (n=55) are useful in exploring the development and geographical contrast of the peoples in East Texas, and lead to a refinement of our current chronological understanding of the period. While the analysis of the dates produces less than significant findings due to sample size, they are used here to illustrate the method of data combination prior to the production of site and period-specific summed probability distributions. Through the incorporation of this method, the number of °C dates is reduced to 98 with a σ of 54. The resultant data set is then subjected to statistical analysis which concludes with the separation of the East Texas Woodland period into the Early Woodland (ca. 500 B.C. – A.D. 0), Middle Woodland (ca. A.D. 0–400), and Late Woodland (ca. A.D. 400–800) periods.

Archaeologists have a lengthy history of tinkering with the manipulation of 14C data, and have made much progress since first advocating for a more flexible method of processing data through the employment of a punch-card data retrieval system (see Taylor et al. 1968). The inductive methodology employed here informs a regional chronology for East Texas Woodland sites. The goals are to explore the process of 14C date combination from sites with four or more samples (n=11) to decrease sampling bias for statistical analysis and determine the most probable periods within a statistical analysis of regional trends.

The temporal character of Woodland occupations at the 11 sites with four or more 14C dates has been dissected, then reassembled to illustrate the temporal range of occupations and hiatuses for each. The diversity of occupational length spans from 0-382 cal. 14C years. Of the 11 sites, one may have been continually if episodically occupied (41DT6), four have two discrete dated occupational events (41HP106, 41IT372, 41KR222, and 41CE191), and six have three discrete dated occupational events (41LR297, 41ID16, 41IN177, 41NA236, 41NA285, and 41SM373).

Although the number of sites is small, they highlight a possible temporal hiatus of nearly 400 years in the Red River basin, and another of nearly 200 years in the Cypress Creek basin, both of which appear here on the basis of data from one site in each river basin. The remaining peaks correlate with populations from the kernel density plot, and they illustrate a small peak in the Red River basin around 400 B.C. followed by slight increases in the dates from the Sulphur, Cypress, and Sabine basins around 200 B.C. This is prior to a 200-year peak in dates from the Sulphur and Sabine River basins for A.D. 50-220, after which a marked increase occurs in the number of dated Woodland sites for the Sulphur, Cypress, Sabine, and Neches River basins from A.D. 600-800.

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