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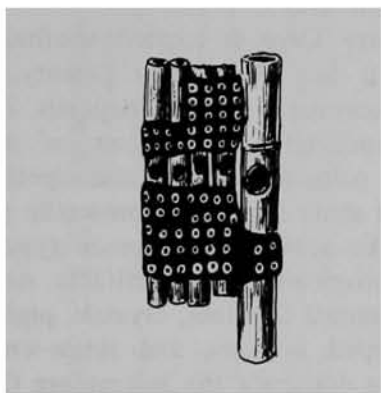
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## Radiocarbon Dates from CA-Mrn-152

C. WILLIAM CLEWLOW, JR.  
HELEN F. WELLS

Bone collagen samples from CA-Mrn-152, the Pacheco site, have yielded two radiocarbon dates that are believed to be the earliest in Marin County, California. Both of these were obtained from burials in the sterile layer below the midden deposit. One of the samples, taken from the left femur of Burial 4 at a depth of 85-90 cm., yielded a date of  $3270 \pm 150$  B.P. (UCLA-1891A), and the second, taken from Burial 5 at a depth of 90 cm., yielded a date of  $3050 \pm 130$  B.P. (UCLA-1891B).

A third bone sample, also from Burial 4, was submitted to the University of California, Scripps Institution of Oceanography, La Jolla,

for amino acid dating. Using a rate constant for aspartic acid racemization of  $1.22 \times 10^{-5} \text{ yr}^{-1}$  based on Stanford Man (UCLA-1891A) as a calibration, the laboratory obtained a D/L aspartic acid ratio of 0.112 which is equivalent to an age of 3500 years B.P. This value agrees well with the radiocarbon determinations. However, the sample is at the lower limits of racemization dating (Pat Masters, personal communication).

These dates place the burials within the latter part of the Early Horizon, which was originally defined for Central California by Lillard, Heizer, and Fenenga (1939) and Beardsley (1948). Although there is some regional variation in its known duration, Elsasser (1978:41) suggests a terminal date of *ca.* 1000 B.C. for the Early Horizon as a whole. The Berkeley facies of the Early Horizon has been identified across San Francisco Bay in Alameda County, but no sites of similar age have been reported for Marin County (Elsasser 1978:43).

Associated with Burial 4 were a steatite tube bead and a nondiagnostic projectile-point fragment. Red ochre and a nondiagnostic projectile-point fragment were recovered with Burial 5. The point fragments, both of obsidian, were submitted to Johathan E. Ericson, then of the Department of Anthropology, University of California, Los Angeles, for obsidian hydration measurements. They yielded measurements ranging from 1.8 to 4.7 microns, averaging 3.2 microns. These data were used for determining source-specific obsidian hydration rates for California.

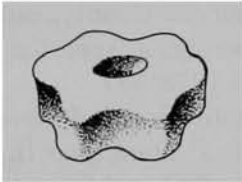
In general, excavations at Mrn-152, which were conducted in 1972 and 1973, produced few time-sensitive artifacts, but those identified range from the Early through the Late Horizon, as defined elsewhere in central California. The close agreement of the three dates reported here indicates that there may have been an early occupation of Marin County,

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yet to be fully discovered and described, that is comparable to that of the Berkeley facies.

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## New Radiocarbon Determinations from Newberry Cave

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Efforts to understand the significance of the cultural assemblage from Newberry Cave (CA-SBr-199) have been hindered by the

absence of reliable chronological data. The purpose of this brief report is to call attention to eight radiocarbon determinations on artifacts from this site that clarify the previously confusing picture.

Newberry Cave is located southeast of Barstow in San Bernardino County, California. Excavation of the deposits in the 1950's produced a collection of several thousand cultural and natural specimens. Atlatl dart shaft fragments, projectile points of the Elko series and Gypsum type, and apparent magico-religious artifacts such as split-twig animal figurines, crystals, pigments, sinew-wrapped feathers, and sinew-wrapped sheep dung dominate the assemblage (Smith *et al.* 1957; Davis and Smith n.d.).

Since no visible stratigraphy was noted during the excavations, there has always been some question as to whether the artifacts noted above were in use simultaneously (representing one cultural component) or were deposited over a period of thousands of years by a variety of groups (representing several cultural components). Schwartz (1958) pointed out the lack of substantiation for the "assumption that all the material found belongs to one culture." It seemed likely that radiocarbon analysis of a series of artifact samples could resolve this problem.

To this end, five atlatl dart shaft fragments and two split-twig figurine fragments were submitted for radiocarbon analysis. The resulting determinations (Taylor n.d.), and one previously published determination on split-twig figurine fragments (Hubbs, Bien, and Suess 1965:11), give a total of eight radiocarbon ages for cultural material from Newberry Cave.<sup>1</sup>

Results of the radiocarbon determinations on the Newberry Cave samples are listed in Fig. 1. Calendar date equivalents are provided for these values in light of the secular variation and De Vries effects as documented by bristlecone pine values (Suess 1970). Slight

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