Vanishing River

Landscapes and Lives of the Lower Verde Valley

THE LOWER VERDE ARCHAEOLOGICAL PROJECT

Overview, Synthesis, and Conclusions

edited by Stephanie M. Whittlesey, Richard Ciolek-Torrello, and Jeffrey H. Altschul

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et al. (1994:277–278) write that permitting the Apaches to live in their accustomed manner at the Roosevelt camps was one of the keys to the success of the Native American labor program; it produced effective teams of laborers. By the 1920s, traditional housing and camp structure was abandoned, however, as indicated by the archaeological remains at the Apache camps at Horse Mesa Dam on the Salt River (Rogge et al. 1994:276).

Payson Area

A camp site (04-529) near Payson representing three wickiups and associated features, dating between the 1880s and the 1930s, was excavated by ASU (Hohmann and Bradley 1988). The site was identified as Apache, but the evidence is tenuous, as the authors readily admit. The site represents a seasonally occupied camp with a sweat lodge, a windbreak, and refuse deposits, in addition to the wickiups. One of the wickiups appears to have been occupied earlier than the remaining two, probably dating between 1880 and 1900 (Hohmann and Bradley 1988:247). Traditional Apache lifeways are evident in the picture reconstructed from archaeological data, with little evidence for acculturation other than the borrowing and alteration of Euroamerican material culture.

Two sites with ephemeral evidence for Apache occupation near Payson (Hohmann and Redman 1988) were excavated by ASU. These are the Horton Rock Shelter (04-520) and Scorpion Rock Ruin (04-532). Radiocarbon dates were obtained from thermal features associated with mixed prehistoric and historical-period contexts. The Horton Rock Shelter is a multicomponent site with occupations spanning the aceramic through historical periods. A roasting pit located in the midden deposit outside the rockshelter and thought by ceramic association to date between A.D. 800 and 1000, produced a historical-period radiocarbon date. The upper fill of the roasting pit contained Apache Plain sherds (Rim Rock variety) and flaked stone. Historical-period artifacts recovered from the upper fill levels of rockshelter and midden deposits indicate an occupation from the 1870s to 1915 (Hohmann 1988a:45). Two of 60 Apache Plain sherds (Rim Rock variety) were found in surface contexts. Although the Apache pottery apparently occurred only in the upper fill levels (Hohmann 1988a:39), sherd counts by level are not provided in the report. Given the ambiguity of the recovery context, it is not possible to agree with Hohmann (1988a:22) that this date may indeed represent one of the earliest associated with Apache occupation in the Southwest. Stratigraphic associations and historical-period materials suggest it is far more likely that the Apache occupation dated somewhere in the later 1800s.

Scorpion Rock Ruin (04-532) is a multicomponent site with pit house and pueblo period occupations. Eleven Apache Plain sherds (Rim Rock variety) were recovered, all but one of which was collected from one pueblo room. An undescribed, unillustrated "camp fire" containing Apache pottery in the upper levels of this room returned a historical-period radiocarbon date (Hohmann 1988b:75). Contextual data are even more ambiguous for this site than those from Horton Rock Shelter, making it difficult to interpret the date.

A third site excavated by ASU is 04-470 (Hohmann and Lindauer 1986). This short-term camp site consists of the remains of a ramada, a recycled metate, and an extremely sparse artifact scatter. Two of the ramada posts were supported by stones at the base. It is possible that, like other temporary shelters, living trees were incorporated into the ramada construction. In front of the ramada was a work area containing the metate. Rim Rock–variety sherds were collected from this area. Recovered lithics include a metate fragment fashioned into a probable mescal knife, flakes, cores, and a projectile point. Although prehistoric pottery also was present (two sherds), it is likely, as argued elsewhere in this chapter, that the lithic materials represent Apache use. The only datable artifact was a fragment of a hand-forged horseshoe thought to date to the late 1800s.

Dating the Protohistoric and Early Historical Periods in the Desert Transition Zone: A Critical Review

William L. Deaver

There is scant archaeological information about the approximately 400 years between the end of prehistory in central Arizona and the first, intensive occupation by Euroamericans in the nineteenth century. Although this interval of time includes the post-Classic (A.D. 1450–1540) and protohistoric (1540–1800) periods, it is not yet possible to separate archaeological sites dating to these time intervals based on the material culture assemblages. In the nineteenth century, the influx of Euroamericans brought glass and metal goods in sufficiently large quantities that they were widely incorporated into Native American material culture. Glass and metal goods can be found at most late-nineteenth-century Native American sites, and dates for the occupations at such sites can be deduced through analyses of makers' marks and manufacturing techniques, even where documentary records are absent. Earlier protohistoric and historical-period sites typically lack such goods, however, so archaeologists must rely on other methods to date these occupations. To date, radiocarbon

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dating has been used exclusively. As illustrated below, dating the protohistoric period is fraught with the same difficulties as dating prehistoric sites, a difficulty that is further exacerbated by inherent ambiguities and imprecision of the radiocarbon dating technique for the interval of time in question.

The key chronological research issues concern the temporal juncture between the end of the post-Classic period and the beginning of the protohistoric period, and accurately assessing the age of archaeological sites that were occupied during the protohistoric and early historical periods. This section reviews the dating evidence from sites attributed to this interval. The purpose of this review is not to establish a chronology for this period, but to detail weaknesses in the existing data and to outline a plan for future chronological research.

Protohistoric and Early-Historical-Period Dates in the Desert Transition Zone

Dates for protohistoric and early-historical-period contexts in the study area consist of nine radiocarbon dates from nine discrete archaeological contexts. These nine dates and associated contextual information are listed in Table 6.1 and presented graphically in Figure 6.8. One of the initial observations about these dates is that many of them are from poor contexts; few of them are associated with protohistoric or early-historical-period material culture. Assigning these contexts to a historical time frame is based, in most cases, on the relatively recent value of the radiocarbon date, sometimes in association with other stratigraphic evidence, but rarely on the basis of diagnostic material culture.

At Mazatzal House (Ciolek-Torrello ed. 1987), La Piedra House (Ciolek-Torrello ed. 1987), Scorpion Rock Ruin (Hohmann 1988b), and Fools Hollow Ridge Ruin (Dosh and Stebbins 1988), dated roasting pits were stratigraphically intrusive into prehistoric sites. Only the roasting pit at Mazatzal House had directly associated protohistoric or early-historical-period pottery, and a couple of possible Apachean sherds were found on the surface at La Piedra House. Assigning these contexts to the protohistoric or early historical period is based primarily on the stratigraphic evidence, which only documents that they are later than the prehistoric occupations at these sites, and on the recentness of the radiocarbon dates. The roasting pit at the Black Hole site (Ciolek-Torrello ed. 1987) is attributed to the protohistoric or early historical period based on the similarity in the form of this feature with other Apachean roasting features and based on the recent radiocarbon date. No associated material culture was recovered. One shared characteristic of the dated contexts at Mazatzal House, La Piedra House, Scorpion Rock Ruin, Fools Hollow Ridge Ruin, and Black Hole site is that the young values of the radiocarbon dates were not unexpected.

In the case of the contexts at Horton Rock Shelter (Hohmann 1988a), La Piedra House (Ciolek-Torrello ed. 1987), and Scorpion Ridge Ruin (Windmiller 1974a), the recent radiocarbon date is inconsistent with the initial expectations. In the case of Horton Rock Shelter, researchers reviewed the pottery from the dated feature after receiving the radiocarbon results, and found that there were sherds typologically similar to Apachean types from the upper levels of this pit, but not from the levels from which the date was obtained (Hohmann 1988a). At Scorpion Ridge Ruin, the recentness of the radiocarbon value also was unexpected (Windmiller 1974b). The date was obtained from charcoal associated with a cluster of rocks in a courtyard of a late prehistoric masonry pueblo with no clear evidence that it was not associated with the prehistoric component (Windmiller 1974a).

In the case of the two dated contexts from along the Agua Fria drainage at AZ T:4:38, there is no directly associated material culture or other evidence at this shallow agricultural site that these contexts represent protohistoric or early-historical-period occupations (Hackbarth 1989c). The radiocarbon dates are the sole, uncorroborated evidence for a historical-period age for these features.

Accepting these dates as evidence for historical-period occupations at these sites should be based on several pieces of evidence. We cannot necessarily accept the value of single radiocarbon dates as inherently accurate. All of the dated contexts suffer from the problem that there is only a single date from each, and because we lack evidence from which to formulate an opinion about what the true age of the context should be, there is no way to ascertain if the date obtained is accurate. More often than not, the number of radiocarbon dates obtained from a specific context is constrained by the availability of materials suitable for dating and the need to date a variety of contexts. Nevertheless, many of the contexts cited apparently have additional materials available for dating. At Mazatzal House, La Piedra House, Black Hole site, Fools Hollow Ridge Ruin, and Horton Rock Shelter, there is additional evidence, albeit meager, that these contexts represent early-historical-period Native American occupations. At Scorpion Ridge Ruin and AZ T:4:38, there is no corroborating evidence and we cannot verify the accuracy of the radiocarbon dates.

Evaluation of the Radiocarbon Dates

The inherent temporal value of these dates is evaluated, despite the concerns expressed over the strength of the contextual associations. Unfortunately, radiocarbon dating

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Table 6.1. Radiocarbon Dates from Protohistoric and Early-Historical-Period Contexts from the Desert Transition Zone

Provenience	Sample Number	A_i	E_i	Method A (2 Sigma, Cal. A.D.)	Method B (2 Sigma)	
					Cal. A.D.	*p*
Mazatzal House: roasting pit F 1	UGa-4560	105	70	1658 (1824, 1829, 1886, 1910, 1954) 1955[a]	1672–1782	0.38
					1795–1946	0.61
					1953–1955	0.00
La Piedra House: roasting pit F 4	UGa-4564	330	80	1433 (1525, 1558, 1631) 1954	1433–1681	0.93
					1751–1804	0.05
					1937–1955	0.02
Black Hole site: roasting midden	UGa-4567	165	70	1639 (1682, 1748, 1805, 1935, 1954) 1955[a]	1658–1900	0.82
					1900–1955	0.18
Scorpion Ridge Ruin: rock cluster	A-1343	290	100	1433 (1644) 1955[a]	1439–1707	0.72
					1713–1821	0.18
					1836–1877	0.03
					1914–1955	0.07
Horton Rock Shelter: firepit	WSU-3493	360	120	1327 (1511, 1600, 1616) 1954	1325–1336	0.01
					1394–1706	0.84
					1714–1820	0.10
					1838–1872	0.02
					1915–1955	0.04
Scorpion Rock Ruin: firepit	WSU-3496	220	70	1511 (1666) 1955[a]	1516–1590	0.10
					1622–1896	0.75
					1903–1955	0.15
New Waddell, AZ T:4:38 (ASM): Roasting Area B	WSU-3607	210	180	1403 (1669, 1786, 1793, 1949, 1952) 1955[a]	1452–1955	1.00
New Waddell, AZ T:4:38 (ASM): pit F 2	WSU-3608	130	115	1511 (1695, 1725, 1816, 1922, 1954) 1955[a]	1520–1571	0.04
					1626–1955	0.96
Fools Hollow Ridge Ruin: roasting pit F 7	B-19238	240	60	1511 (1660) 1954	1489–1604	0.19
					1613–1706	0.31
					1714–1820	0.34
					1837–1874	0.03
					1915–1955	0.13

Key: p = probability

[a] The influence of Bomb ^{14}C began in 1955 (Stuiver and Reimer 1993).

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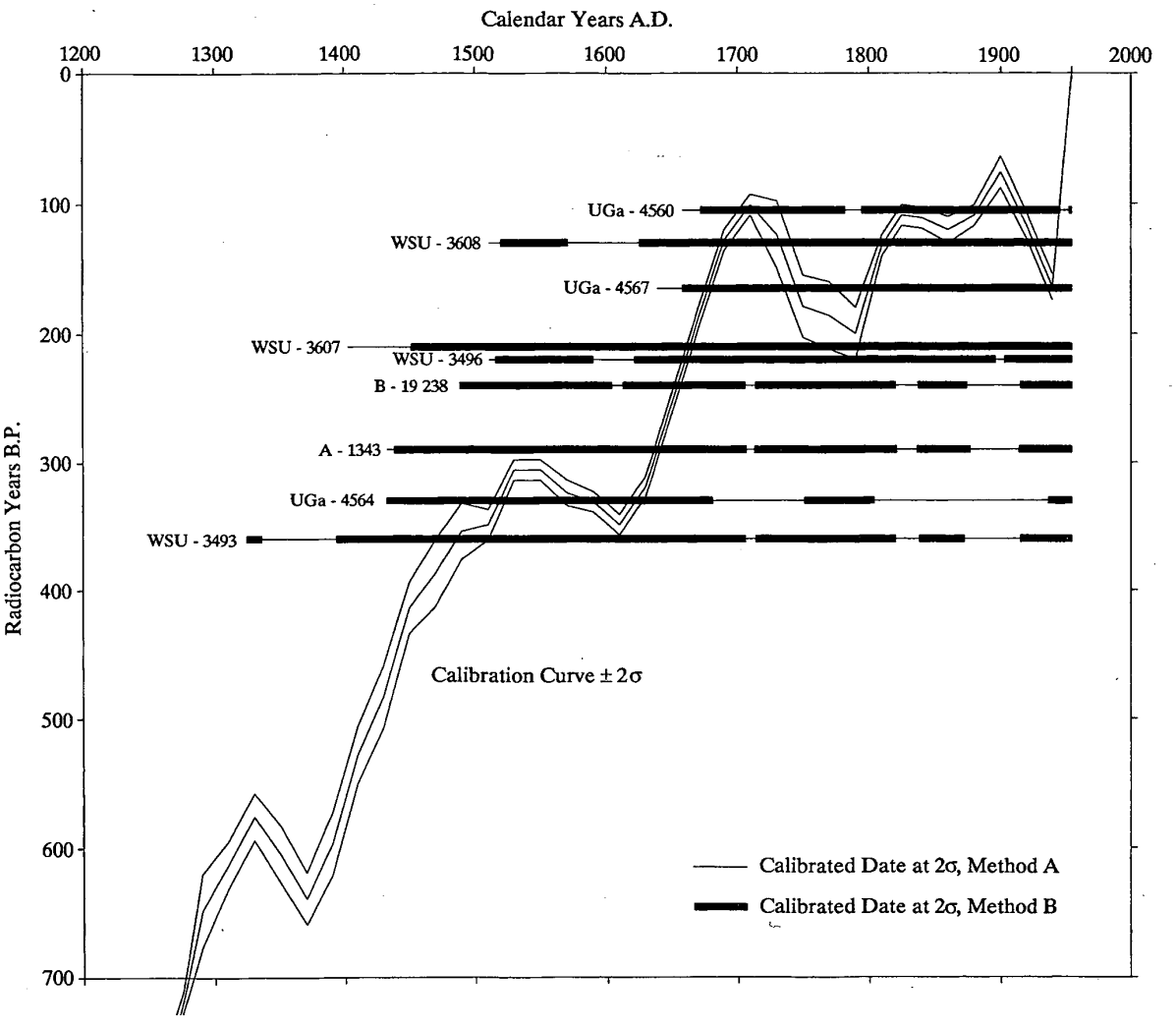

Figure 6.8. Calibrated radiocarbon dates from prehistoric or early-historical contexts from the desert Transition Zone. The appropriate portion of Stuiver and Pearson's (1993) radiocarbon calibration curve also is shown.

cannot provide the precision necessary to further resolve the sequence of events that occurred during the protohistoric period, even if the contextual associations are strong and unambiguous.

Taken at face value, radiocarbon dates in years before present (B.P.) indicate a temporal spread among these dates of approximately 250 years from 105 to 360 B.P. The contemporaneity of these data was evaluated using the comparative procedures of Ward and Wilson (1978) for Case II situations, which is appropriate in this instance. Case II situations are those in which the samples are independent, known to represent different items, and, therefore, unrelated and random. There is no reason to assume that the samples estimate the same date. Ward and Wilson (1978) define a test statistic, T′, for use in evaluating these Case II situations. Taken as a group, these dates have a pooled average of 218 ± 28 B.P. The test statistic, T′, has a value of 7.78 with 8 degrees of freedom, which is less than the value required for significant difference at the 0.05 level. This comparison suggests that the suite of dates could have been derived from populations sharing a common true date or indistinguishably different dates. A series of pairwise comparisons also were made among the dates. Only samples UGa-4560 and UGa-4564 are different at the 0.05 significance level, but they are not different at the 0.025 level. The conclusion is that most of the dates could have been drawn from populations with a common true date. The differences between UGa-4560 and UGa-4564 and the distribution of the mean values, however, indicates that there might be some subtle structure to the distribution of these dates. The dates were analyzed using the clustering procedure of Wilson and Ward (1981). Even though the results of the first comparison indicated that the

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Table 6.2. Results of Cluster Analysis of Radiocarbon Dates from Protohistoric or Early-Historical-Period Contexts in the Desert Transition Zone

Cluster	Sample Number (^{14}C Age)	Pooled ^{14}C Age	T′	Method A (2 Sigma, Cal. A.D.)	Method B (2 Sigma)	
					Cal. A.D.	*p*
Cluster 1	UGa-4560 (105 ± 70)	134 ± 45	0.37	1665 (1692, 1728, 1814, 1923, 1954) 1955 [a]	1673–1779	0.41
	WSU-3608 (130 ± 115)				1797–1945	0.59
	UGa-4567 (165 ± 70)					
Cluster 2	WSU-3607 (210 ± 180)	267 ± 35	2.03	1521 (1652) 1954	1513–1596	0.29
	WSU-3496 (220 ± 70)				1618–1678	0.54
	Beta-19238 (240 ± 60)				1771–1801	0.10
	A-1343 (290 ± 100)				1940–1955 [a]	0.06
	UGa-4564 (330 ± 80)					
	WSU-3493 (360 ± 120)					

[a] The influence of Bomb ^{14}C began in 1955 (Stuiver and Reimer 1993).

suite of dates represented an essentially contemporaneous group, the cluster analysis identified two groups (Table 6.2). The mean dates for these clusters are different at the 0.025 significance level, but not at the 0.001 level.

Calendrical calibrations for the radiocarbon values were obtained using the dendrochronological calibration curves of Stuiver and Pearson (1993) via the calibration program CALIB 3.0 by Stuiver and Reimer (1993) (Table 6.3). The calibrated dates are reported at two standard deviations using two methods. Method A obtains a calibrated age through a simple linear intercept of the mean radiocarbon age and the values of the two standard deviation limits around this mean with the calibration curve and its associated standard errors (Stuiver and Reimer 1993). We have adopted the manner of presenting these dates as ranges with intercepts enclosed in parentheses (Stuiver and Reimer 1993), even though this often subsumes discrete calibrated age ranges. Method B is more complicated and, as explained by Stuiver and Reimer (1993), usually results in multiple calibrated age ranges with varying calculated probabilities. We can assume that there is a greater probability that the true age for the sample in question falls in the age range with the greatest probability.

It is apparent in Table 6.1 and Figure 6.8 that the calibrated ages for the radiocarbon dates obtained using Method A span almost the entire range of the protohistoric and early historical periods, and that there is no readily apparent difference in the calendrical ages. The calibrated dates obtained using Method B are not much more precise. Emphasizing those calibrated date ranges with the largest probability reveals a trend as would be expected, given the raw radiocarbon dates, but the dates still overlap considerably.

The lack of precision in the calibrated dates is a function of the relatively large errors in the radiocarbon dates, as well as the errors inherent in the calibration curve and the nature of variation in the atmospheric ^{14}C reservoir over the period in question (see Figure 6.8). As exemplified in the cluster analysis, errors in the radiocarbon dates can be effectively reduced by increasing the number of samples and averaging the individual results. It seems, however, that this effort will have little net effect on the precision of the calibrated dates. The mean radiocarbon dates for the two groups of dates identified in the cluster analysis were dated using CALIB 3.0. Using Method A and interpreting the dates at two standard deviations, the calibrated date for the youngest group is cal. A.D. 1665 (1692, 1728, 1814, 1923, 1954) 1955 (the influence of Bomb ^{14}C began in 1955 [Stuiver and Reimer 1993]), and the calibrated date for the older groups is 1521 (1652) 1954. The dates obtained using Method B do not improve significantly. The youngest cluster of three dates yielded two date ranges with nearly equal probability when interpreted at two standard deviations: cal. A.D. 1673–1779 (p = 0.41) and 1797–1945 (p = 0.59). The older cluster yielded a series of four date ranges: cal. A.D. 1513–1596 (p = 0.29), 1618–1678 (p = 0.54), 1771–1801 (p = 0.10), and 1940–1955 (see parenthetical note above) (p = 0.06). It is clear in this example that, despite pooling dates and reducing the standard errors of the resultant means, the calibrated dates remain equally imprecise.

Over the period in question, errors in the calibration curve are small, less than 23 radiocarbon years (Stuiver and Pearson 1993). It appears that the main debilitating factor in applying radiocarbon dating is the reconstructed pattern of fluctuations in the ^{14}C reservoir over the protohistoric and early historical time periods (see portion of calibration curve illustrated in Figure 6.8). As a simulation, data points composing the calibration curve from A.D. 1290 to 1954 (see Table 6.2; Stuiver and Pearson 1993) were calendrically calibrated using CALIB 3.0. The intent of this evaluation is simply to observe the nature of the calibrated results, and determine which periods have the potential to provide precise calibrated dates and which will provide imprecise or ambiguous calibrated dates. The radiocarbon age and the

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Table 6.3. Calibrated Dates for Data Points in Stuiver and Pearson's (1993) Radiocarbon Calibration Curve Covering the Late Prehistoric, Protohistoric, and Historical Periods

Raw Data for ^{14}C Curve			Method A (Cal. A.D.)	Method B	
Year	^{14}C Age	Error		Cal. A.D.	*p*
1954	189	23	1661 (1675, 1776, 1798, 1943, 1954) 1954	1663–1687	0.18
				1737–1810	0.61
				1928–1955 [a]	0.20
1953	199	15	1663 (1672, 1781, 1796, 1946, 1953) 1954	1664–1680	0.21
				1756–1804	0.57
				1937–1955 [a]	0.22
1952	219	14	1657 (1666, 1790, 1952) 1954	1660–1674	0.33
				1778–1797	0.45
				1943–1955 [a]	0.22
1951	218	14	1658 (1667, 1790, 1951, 1952) 1954	1660–1674	0.33
				1778–1798	0.45
				1943–1955 [a]	0.22
1940	178	5	1675 (1678, 1771, 1802, 1940, 1954) 1954	1675–1681	0.14
				1748–1777	0.58
				1798–1805	0.13
				1935–1945	0.15
1920	126	4	1690 (1698, 1722, 1817, 1920, 1954) 1955 [a]	1690–1705	0.22
				1714–1731	0.22
				1813–1821	0.09
				1837–1876	0.34
				1914–1924	0.13
1900	85	6	1889 (1900, 1955 [a]) 1955 [a]	1825–1825	0.00
				1888–1908	1.00
1880	113	4	1700 (1708, 1712, 1821, 1836, 1880, 1914, 1954) 1955 [a]	1701–1719	0.23
				1818–1824	0.06
				1827–1887	0.62
				1909–1918	0.09
1860	120	5	1693 (1702, 1718, 1819, 1860, 1917, 1954) 1955 [a]	1695–1710	0.15
				1710–1726	0.15
				1816–1822	0.06
				1832–1883	0.55
				1912–1922	0.09
1840	118	4	1693 (1704, 1716, 1820, 1840, 1866, 1916, 1954) 1955 [a]	1697–1723	0.27
				1817–1823	0.06
				1832–1884	0.60
				1911–1921	0.08
1825	101	5	1708 (1825, 1889, 1908, 1954) 1955 [a]	1820–1838	0.32
				1872–1915	0.68
1810	148	4	1684 (1687, 1737, 1810, 1928, 1954) 1954	1684–1689	0.18
				1731–1744	0.39
				1807–1814	0.19
				1924–1933	0.24
1790	219	5	1662 (1666, 1790, 1952) 1954	1663–1670	0.36
				1784–1794	0.42
				1947–1955 [a]	0.21
1770	176	4	1676 (1679, 1770, 1802, 1939, 1954) 1954	1676–1681	0.12
				1748–1755	0.62
				1799–1805	0.12
				1935–1944	0.14

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Table 6.3 continued.

Raw Data for ^{14}C Curve			Method A (Cal. A.D.)	Method B	
Year	^{14}C Age	Error		Cal. A.D.	*p*
1750	169	4	1678 (1681, 1750, 1804, 1937, 1954) 1954	1678–1683	0.11
				1744–1772	0.62
				1801–1807	0.11
				1933–1942	0.16
1730	136	4	1687 (1690, 1730, 1814, 1924, 1954) 1955 [a]	1687–1699	0.28
				1721–1738	0.36
				1810–1818	0.17
				1918–1929	0.20
1710	110	3	1703 (1710, 1822, 1833, 1882, 1912, 1954) 1955 [a]	1704–1717	0.19
				1819–1856	0.37
				1860–1861	0.00
				1861–1889	0.32
				1907–1917	0.12
1690	136	3	1688 (1690, 1730, 1814, 1924, 1954) 1955 [a]	1687–1697	0.27
				1723–1736	0.36
				1811–1817	0.17
				1920–1928	0.20
1670	207	4	1667 (1670, 1784, 1793, 1948, 1953) 1954	1667–1673	0.22
				1780–1789	0.35
				1790–1796	0.21
				1944–1955 [a]	0.22
1650	272	4	1646 (1650) 1653	1647–1653	1.00
1630	334	4	1517 (1523, 1563, 1630) 1634	1567–1529	0.22
				1546–1587	0.58
				1623–1634	0.20
1610	371	4	1474 (1487, 1610) 1616	1477–1511	0.58
				1599–1616	0.42
1590	349	5	1486 (1516, 1590, 1622) 1629	1488–1522	0.27
				1565–1602	0.54
				1615–1629	0.19
1570	341	5	1490 (1520, 1570, 1626) 1632	1513–1527	0.18
				1554–1596	0.62
				1619–1632	0.20
1550	322	4	1523 (1529, 1550, 1634) 1638	1524–1560	0.88
				1631–1637	0.12
1530	319	4	1525 (1530, 1635) 1638	1526–1557	0.86
				1632–1638	0.14
1510	362	5	1478 (1510, 1602, 1615) 1622	1482–1516	0.49
				1589–1622	0.51
1490	365	11	1473 (1490, 1605, 1613) 1626	1476–1519	0.48
				1574–1625	0.52
1470	405	13	1446 (1470) 1487	1447–1486	1.00
1460	411	12	1445 (1460) 1484	1446–1482	1.00
1450	425	11	1442 (1450) 1477	1445–1473	1.00
1430	502	13	1411 (1430) 1439	1413–1438	1.00
1410	540	12	1402 (1410) 1429	1402–1427	1.00
1390	622	10	1305 (1314, 1348, 1390) 1397	1306–1329	0.31
				1331–1365	0.42
				1375–1396	0.27

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Table 6.3 continued.

Raw Data for ^{14}C Curve			Method A (Cal. A.D.)	Method B	
Year	^{14}C Age	Error		Cal. A.D.	*p*
1370	654	10	1297 (1304, 1370) 1388	1300–1311	0.24
				1350–1387	0.76
1350	625	11	1304 (1312, 1350, 1388) 1397	1305–1327	0.29
				1333–1367	0.42
				1373–1395	0.29
1330	596	10	1314 (1330, 1396) 1404	1313–1350	0.73
				1389–1404	0.27
1310	629	9	1304 (1310, 1353, 1386) 1395	1304–1324	0.26
				1336–1369	0.42
				1371–1394	0.32
1290	711	11	1281 (1290) 1297	1282–1297	1.00

Key: p = probability
[a] The influence of Bomb ^{14}C began in 1955 (Stuiver and Reimer 1993).

standard error as listed in Stuiver and Pearson (1993) and in Table 6.2 were entered into the calibration program. The resulting calibrated dates also are listed in Table 6.2. It is clear that, despite the precise nature of some of these points, the calibrated radiocarbon dates remain imprecise and ambiguous. In short, it appears that radiocarbon dates lack the necessary precision to resolve the chronology for the protohistoric and early historical periods because of fluctuations in the amount of ^{14}C in the atmospheric reservoir.

Summary

There are two primary criticisms of the radiometric dating used to assign archaeological contexts to the protohistoric and early historical periods. First, dates have not resulted from research directed at documenting the chronology of the protohistoric and early historical periods. Rather, all of these dates have been obtained from research that was directed primarily at prehistoric sites, and evidence for later, historical-period occupations was either unexpected or secondary to the prehistoric research. The problem is exacerbated by the nature of protohistoric and early-historical-period sites, which tend to be ephemeral and difficult to identify. All but one of the contexts that have produced historical-period dates are cooking or roasting features, and the remaining context is an extramural pit. No structures or habitation areas are represented. Developing a well-constructed chronology from contexts such as these is difficult. This criticism is simply an observation that all of the dates presented here have been obtained as ad hoc by-products of other research. We can expect little progress in dating the historical period until we focus on these chronometric issues explicitly and direct research using appropriate, strong archaeological contexts.

Second, only radiocarbon dating has been obtained; no additional lines of evidence exist. It is true that there are few other independent dating methods that could be applied. Archaeomagnetic dating is possible, but the calendrical dates obtained from the archaeomagnetic virtual geomagnetic poles are less precise than the calibrated radiocarbon dates. These archaeomagnetic virtual geomagnetic poles provide a resource for relative dating, and it is possible to develop a chronology of events, although at the present time they may not be securely placed in an absolute time frame. When the archaeomagnetic pole positions are analyzed in conjunction with a more sophisticated sampling of radiocarbon dates it may be possible to use the fluctuations in the atmospheric ^{14}C to assist chronological placement.

Identifying the Yavapai and Western Apache Archaeological Record

Stephanie M. Whittlesey

The paucity and poor quality of archaeological data are often blamed for our lack of understanding of protohistoric and early-historical-period lifeways. A telling example of the

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